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This presentation is a project of the SNIA Education Committee.
Abstract

Information Security & IT Compliance

- In times past, the sole yardstick of an Enterprise's IT department was business application availability. Today, however, a multitude of both internal and external requirements are applied to IT, along with a host of metrics. IT Policies are now driven by a need for compliance with national and international legislation on information security (e.g. HIPPA, Sarbanes-Oxley), various standardized and industry-developed regulatory frameworks (e.g. ISO 17799, COBIT), auditing standards, and even risk management requirements derived from insurance coverage. IT metrics include not only demonstrating compliance to the requirements but also such items as e-discovery response times, intrusion detection tests, and data retention periods.

- This session will describe SNIA Best Practices addressing data security compliance, understanding risks, and utilizing event logging. Commonly encountered requirements will be identified, and approaches to creating IT Policies and collecting evidence that enable appropriate metrics to be used to demonstrate compliance will be described.
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The information presented herein represents the authors’ personal opinion and current understanding of the issues involved. The authors, Symantec, and SNIA do NOT assume any responsibility or liability for damages arising out of any reliance on or use of this information.
Agenda

❖ Introduction
  - Why all this attention?
  - It’s simple, right?.....
  - Not that simple!
  - The four dimensions of IT Risk Management
  - Terminology
  - Approach

❖ SNIA-developed Best Current Practices (BCPs)

❖ IT Compliance from the Top Down

❖ Summary
“There are more and more of these breaches, because information is money. The more computerized we are the more true that is. It’s not that hard to turn a piece of information into cash, by opening a fake cell phone account or a fake credit card account.”

Gail Hillebrand
Senior Attorney, Consumers Union
Now not only time is money, apparently

For 100+ years the financial departments of companies have had to:
- Follow defined processes
- Keep “legal quality” logs of those processes
- Have both processes & logs regularly audited by an outside entity

Because information is now money, the same sort of controls are now applied to the processing of information
It’s Simple, Right?

Compliance Ninja 2000

Your one stop shop for Regulatory Compliance.

< Back Next > Cancel
It’s Simple, Right?
It’s Simple, Right?
Too Good to be True

Compliance Ninja 2000

Congratulations! You are 100% compliant!
Not That Simple!

- Cannot be as simple as installing a single piece of software
  - Although automation is a key part of making this problem tractable
- The entire IT infrastructure has to be addressed
- Education & training is a must
- Defined and repeatable processes are the key
- And compliance is only one part....
.... Of The 4 Dimensions of IT Risk

Compliance
Evidence of due care;
Fast retrieval of information when required

IT Policy & External Regulation

Natural Disasters & System Failures

Availability
of storage systems,
Fast recovery of information

Security
“Keep Bad Things Out
Keep Important Things In”

Information Lifecycle Management
Optimizing storage resources;
Information Lifecycle Management

Performance

Application Response Times

Infrastructure

Internal & External Malicious Threats

Optimizing storage resources;
Information Lifecycle Management

Availability
of storage systems,
Fast recovery of information

Information

…. Of The 4 Dimensions of IT Risk

Compliance
Evidence of due care;
Fast retrieval of information when required

IT Policy & External Regulation

Natural Disasters & System Failures

Security
“Keep Bad Things Out
Keep Important Things In”

Information Lifecycle Management
Optimizing storage resources;
Information Lifecycle Management

Performance
Compliance:

The state of being in accordance with the relevant Government authorities and their requirements.

Conformance with a standard, law, or specification that has been clearly defined.

Acting according to company defined policies and procedures.
Approach

✱ IT compliance doesn’t have to be driven by legal & government requirements
   ✷ There’s value in IT being able to demonstrate compliance to existing company procedures
   ✷ IT risk management in general can be as well be driven by internal business requirements as externally

✱ Existing standards & audit guidelines can be used as a basis for IT risk management activities
   ✷ SNIA has developed Best Current Practices (BCPs) on that basis
   ✷ Creating controls & processes NOW based on those definitions will likely save you considerable time & effort in the future
Agenda

Introduction

SNIA-developed Best Current Practices (BCPs)
  - Introduction
  - Storage Security BCP structure
  - Relevant BCPs
    - Address Data Security Compliance
    - Understand the exposures
    - Utilize Event Logging

IT Compliance from the top down

Summary
Storage Security BCPs available from
- http://www.snia.org/forums/ssif/programs/best_practices/

BCPs created from review of existing standards definitions
- ISO/IEC 27001 & 17799 (Now 27002)
- ISACA Audit Guidelines
- PCI Security Standards Council’s Data Security Standard

In many cases there’s existing information on how specific legal & government requirements map to these documents
- Thus they define a set of “common approaches”
- This view “from the top down” will be addressed in last section of the tutorial
Storage Security BCP structure

- **Core (applicable to storage systems)**
  - General Storage Security
  - Storage System Security
  - Storage Management Security

- **Technology-specific**
  - Network Attached Storage
  - Block-based IP Storage
  - Fibre Channel Storage
  - Encryption for Storage
  - Key Management for Storage
  - Archive Security
Relevant BCPs

- BCPs described in more detail in the following slides
  - General Storage Security
    - Address Data Security Compliance
  - Storage System Security
    - Understand the Exposures
    - Utilize Event Logging

- Other BCPs that have some relevance
  - General Storage Security
    - Implement Appropriate Service Continuity
  - Storage Management
    - Tightly Control Access and Privileges
Address Data Security Compliance

❖ Accountability
  ◦ No shared accounts, uses roles when possible
  ◦ Log all attempted (successful and unsuccessful) management events and transactions

❖ Traceability
  ◦ Ensure logged event/transaction data contains sufficient application and/or system detail to clearly identify the source & a user
  ◦ When appropriate, treat log records as evidence (chain of custody, non-repudiation, authenticity, etc.)

❖ Detect, Monitor, and Evaluate
  ◦ Monitor the audit logging events and issue appropriate alerts
Address Data Security Compliance

✱ Information Retention & Sanitization
  ✷ Implement appropriate data retention, integrity & authenticity measures
  ✷ Sanitize data upon deletion, repurposing or decommissioning of hardware

✱ Privacy
  ✷ Consider both data and metadata (e.g., search results)
    ❱ Assume a least privilege posture whenever possible
  ✷ Prevent unauthorized disclosure
Understand the Exposures

❖ Perform Vulnerability Assessments
  ❖ Perform security scans against the elements of the storage ecosystem to understand the security posture of the technology
    ‣ Use known default passwords, test field & service accounts
  ❖ Maintain awareness of advertised vulnerabilities in platforms supporting management applications

❖ Maintain Security of Systems
  ❖ Install security patches and fixes in a timely fashion
  ❖ Consider upgrading applications/software when end-of-life products contain exploitable, but unpatchable vulnerabilities

❖ Monitor for Zero-day Events
  ❖ Integrate intrusion detection/prevention technology
Utilize Event Logging

❖ Include Storage Systems & Devices in Logging Policy
  ✷ Policy should include evidentiary expectations (authenticity, chain of custody) how & when retained etc.

❖ Employ External Event Logging
  ✷ Collect events from all sources in a single repository
  ✷ Use a common, accurate time source
  ✷ Log events to one, and preferably multiple, external servers (preferably syslog).
  ✷ Log events on a transactional basis (no buffering)
Utilize Event Logging

Ensure Complete Event Logging

- Log both in-band and out-of-band activity
- Log many kinds of events
  - Good list of suggestions in the BCPs
- Each entry should include:
  - Timestamp (date and time)
  - Severity level
  - Source of the log entry (distinguishing name, IP address, etc.)
  - Description of the event

Use automation to correlate audit log records to identify significant security events
Why automation??

Firewall Data

Intrusion Detection Data

Vulnerability Assessment Data

Policy Compliance Data

Information Security & IT Compliance
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Agenda

- Introduction
- An Information Security Architecture
- SNIA-developed Best Current Practices
- IT Compliance from the Top Down
  - The Top Challenges
  - From Regulations … to Policies .. to Controls
  - The To-Do list
- Summary
The Top Challenges
The Top Challenges

Take ITpolicycompliance.com Spot Polls

What is the most pressing regulatory mandate facing your organization?

- a. Gramm-Leach-Bliley (GLBA)
- b. Sarbanes Oxley (SOX)
- c. Federal information security management act (FISMA)
- d. Health Insurance Portability and Accountability Act (HIPAA)
- e. Workplace employment practices (WEP)
- f. Data protection and privacy (DPP)
- g. Data retention, destruction and legal discovery (DR/DDL)
- h. Basel II
- i. PCI Data Security Standard (PCI DSS)

Submit Answer

See Results

Almost all (97%) compliance leaders are auditing and monitoring IT compliance at least monthly. By comparison, industry laggards are measuring IT compliance once per year or less frequently. more...

Latest Blog Topics:

Wed, 02 Jan 2008: New research from the IT PCG
Wed, 19 Dec 2007: Want to better manage risk?
Tue, 11 Dec 2007: Are you feeling "over-controlled?"
The Top Challenges
SOX 404(a)(2) [The Commission shall prescribe rules requiring each annual internal control report, which shall]…contain an assessment, as of the end of the most recent fiscal year of the issuer, of the effectiveness of the internal control structure and procedures of the issuer for financial reporting.

COBIT DS5.19 Malicious Software Prevention, Detection and Correction - Regarding malicious software, management should establish a framework of preventative, detective and corrective control measures, and occurrence response and reporting.

Endpoint Protection Malware Policy

- Anti-Virus & Firewall Software Is Installed
- Anti-Virus & Firewall Software Is Running
- Anti-Virus & Firewall Software Is Up To Date

AV Checks
Multiple Policies that …

SOX 404(a)(2)

COBIT

Endpt Policy
DR Policy
Password Policy

AV Checks
Backup Checks
Archive Checks

…
**HIPAA**

164.310(d)(i) Disposal  Implement policies and procedures to address the final disposition of electronic protected health information, and/or the hardware or electronic media on which it is stored.

**ISO 17799**

15.1.3 Protection of Organizational Records  Important records should be protected from loss, destruction, and falsification, in accordance with statutory, regulatory, contractual, and business requirements.

**SOX**

404(a)(2) [The Commission shall prescribe rules requiring each annual report...to contain an internal control report, which shall][...contain an assessment, as of the end of the most recent fiscal year of the issuer, of the effectiveness of the internal control structure and procedures of the issuer for financial reporting.]

**COBIT**

DS 11.20 Retention Periods and Storage Terms  Retention periods and storage terms should be defined for documents, data, programs and reports and messages (incoming and outgoing) ...

**Control Statements**

Business records are archived.

Records have a minimum and maximum retention period.

Records are destroyed in accordance with the retention policy.

**Evidence Feeds**

E-mail vaulting failures

Archives without maximum retention periods.

Vault purge failures.
Management of IT Compliance

Regulation

- SOX View
- HIPAA View
- COBIT View
- ISO 17799 View

Framework

Policy & Evidence Integration Engine

Policy

- NAC
- Archive
- Backup
- Anti-Virus
- Usr Access
- Sys Config

Evidence
### Majority of compliance tasks are not related to IT

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TASKS</th>
<th>FREQUENCY / YEAR</th>
<th>COST (Days)</th>
<th>TOTAL COST / YEAR (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NON IT Related</strong></td>
<td>Create compliance scope of work</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Establish/review policy</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Project Management</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Design/Review sales processes controls</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Design/Review revenue recognition controls</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Design/Review SOD controls</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Design/Review reporting process controls</td>
<td>1</td>
<td>10</td>
<td>10</td>
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<tr>
<td></td>
<td>Design/Review business process controls</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Design/Review purchasing inventory controls</td>
<td>1</td>
<td>5</td>
<td>5</td>
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<td></td>
<td>Design/Review other systems controls</td>
<td>1</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Design/Review HR process controls</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Implement/update controls</td>
<td>4</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Test controls</td>
<td>4</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Evaluate Material Weaknesses</td>
<td>4</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Submit Exemptions</td>
<td>4</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td><strong>IT Related</strong></td>
<td>Design/Review IT controls</td>
<td>4</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Run IT Controls</td>
<td>52</td>
<td>10</td>
<td>520</td>
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<tr>
<td></td>
<td>Disseminate</td>
<td>52</td>
<td>2</td>
<td>104</td>
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<tr>
<td></td>
<td>Remediation</td>
<td>52</td>
<td>5</td>
<td>260</td>
</tr>
</tbody>
</table>

**Tasks are performed once a quarter or year**

**Tasks are performed every week**

**Tasks of compliance cost is IT related due to high frequency of IT tasks**

**Tasks are performed once a quarter or year**

**Tasks are performed every week**

**NON IT Related Total Man Days**: 295

**IT Related Total Man Days**: 924

Focus On IT Controls
### Key to success – Frequent Auditing

**MORE FREQUENT AUDITING TRANSPLATES INTO BETTER SECURITY AND COMPLIANCE RESULTS**

<table>
<thead>
<tr>
<th>Success Factors</th>
<th>Leaders (10%)</th>
<th>The Rest (90%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freq of internal audits</td>
<td>21 days</td>
<td>8 Months</td>
</tr>
<tr>
<td>IT time on compliance</td>
<td>33%</td>
<td>24%</td>
</tr>
<tr>
<td>IT budget on security</td>
<td>10.4%</td>
<td>7.0%</td>
</tr>
<tr>
<td># of overall deficiencies</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td># of significant deficiencies</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

Leaders are ~6x better because they do more audits…

…But they spend ~50% more because of lack of **automation**

Source: ITpolicycompliance.com
The reality – the To Do List

- Assess your industry sector’s regulatory requirements
  - In collaboration with corporate legal & the business units
- Define, document, and disseminate policies
  - Utilize software and/or templates to create policies
  - Maximize commonality across all business units
- Implement and manage controls
  - Map policies to IT Controls
  - Use as much automation as possible today
    - Ad hoc tools & spreadsheets end up costing more money!
- Audit and improve process in a controlled environment
  - Start with self-audits before externals ones
- Report results and demonstrate compliance internally or to external auditors
Summary

● IT Risk Management is a essential component of business effectiveness
  ● More than Information Security
  ● More than Compliance (both internal & external)
  ● A process, not a project
  ● Requires a holistic approach to managing the entire IT infrastructure
  ● Education & training are key aspects
  ● Logging all relevant information is vital

● The process MUST have a significant degree of automation to be tractable
  ● Single approach across an entire enterprise
  ● Start with few most important controls first and build over time
  ● Use common tools rather than ad hoc ones
  ● Exploit efficiencies of scale
Q&A / Feedback

Please send any questions or comments on this presentation to SNIA: tracksecurity@snia.org

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