Treasury Strategies' Quarterly Technology Briefing Cyber Security Risks to Treasury

December 11, 2014

Presented By

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with Special Guests

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Agenda

Recommendations

- General Process Recommendations
- Treasury Procedures and Technology Recommendations
- SaaS/Hosted Treasury Management System Recommendations
- SWIFT Service Bureau and AL2 Recommendations
- Bank Communications Security Recommendations

Summary

Speakers

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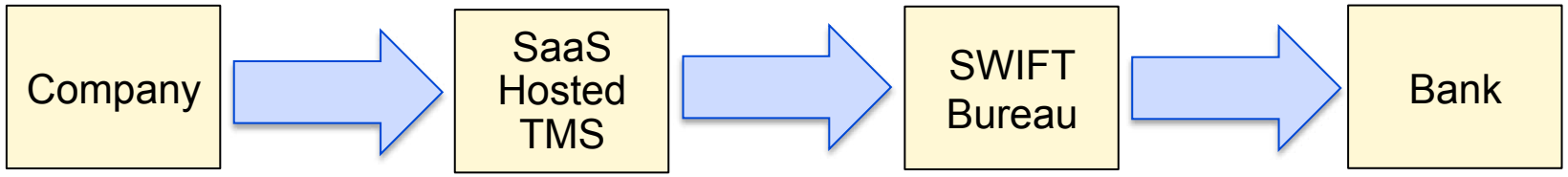
General Recommendations Overview



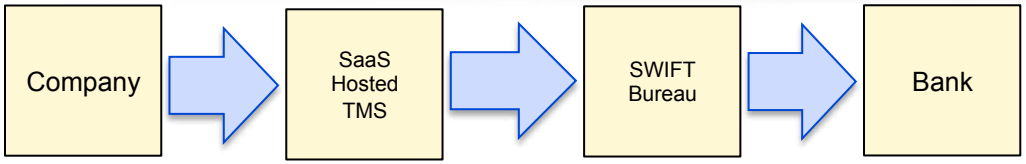
- Who has access to data?
- What users have permission to initiate?
- What are the physical security controls?

- Are transmissions encrypted?
- Are communications unreadable and unalterable?
- Robustness of connectivity

- Authentication of messages and sender
- Alternate initiation plans

Areas of vulnerability:
Boxes are areas you, vendors or banks must be sure are secured.
Arrows are communications channels to be protected.

General Recommendations



Encrypt, encrypt, encrypt

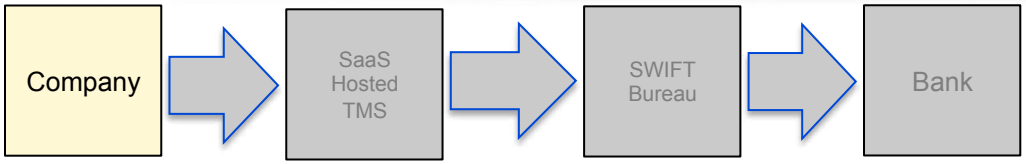
- Data at Rest must be encrypted.
- Data in Flight must be encrypted.

Verification

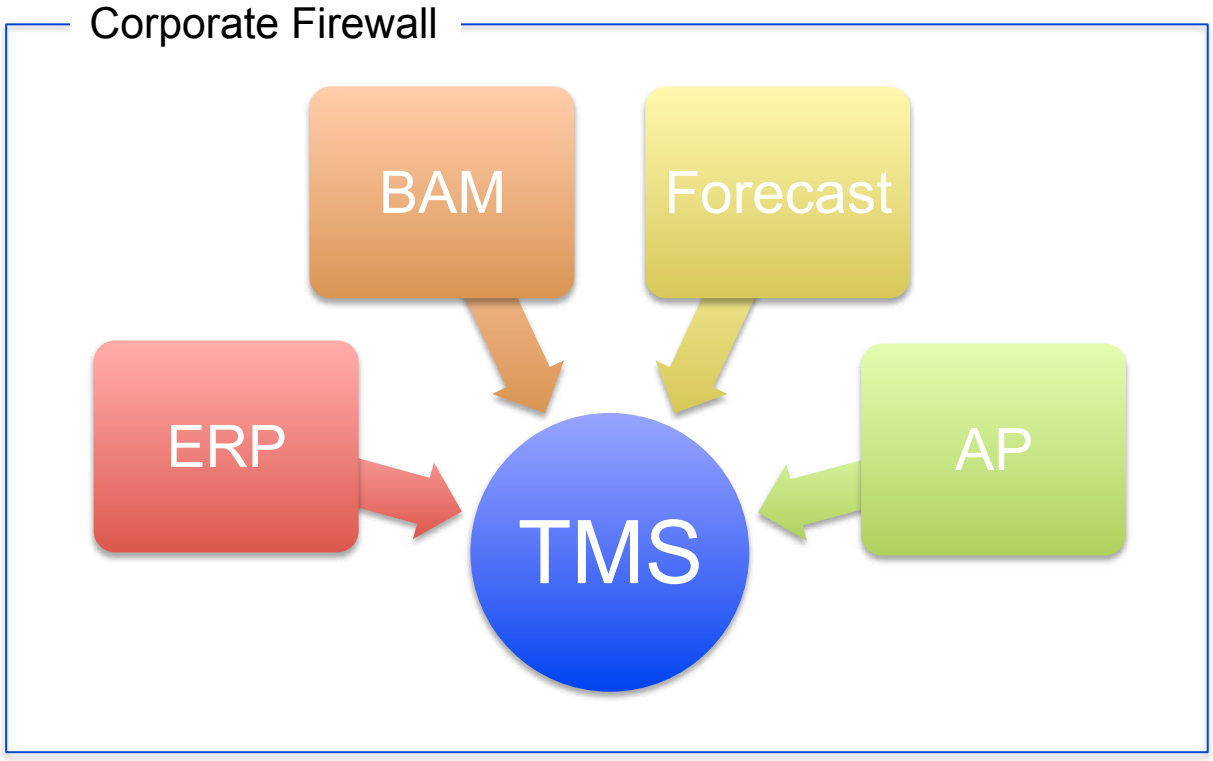
- Acknowledgements/confirmations
- Central frequent monitoring of data and workflows
- Digital signatures (e.g., SWIFT 3SKey), checksum and secondary validation to authenticate payment files

Action plan for breach or incident

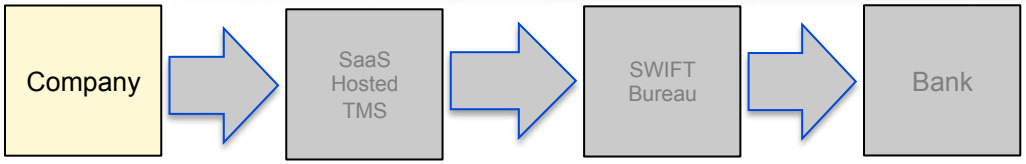
Treasury Recommendations



Analyze security of all systems and locations where you receive or send data.



Treasury Recommendations



Control employee access/visibility in every data location and system.

- Who has rights to change or modify data?

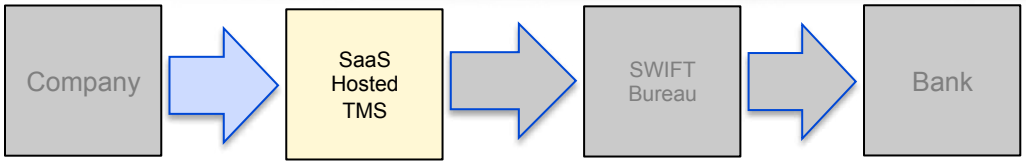
Encrypting inside your firewalls

- Is data encrypted at rest? Databases and files on disk
- Is data encrypted in flight? System backups, email encryption, BAM data

Audit firewalls, data controls, IT Security procedures

- Partner with IT Security and your auditors.
- Consider audits and penetration testing that you will require of a vendor.

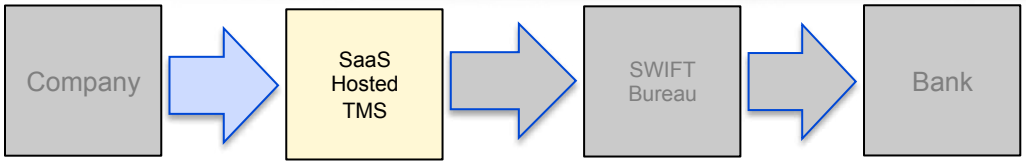
TMS Recommendations
SaaS/Hosted benefits



Benefits of the Cloud

- Physical separation of data from organization's employees
- Encryption of data – in transit and at rest
- Hosting within SOC1-certified data centers (24/7 security, biometric access, etc.)
- Separation of duties and other policy-driven protections to restrict access to hosting infrastructure and client data
- Numerous firewalls to protect externally and between tiers

TMS Recommendations
Hosting security and controls

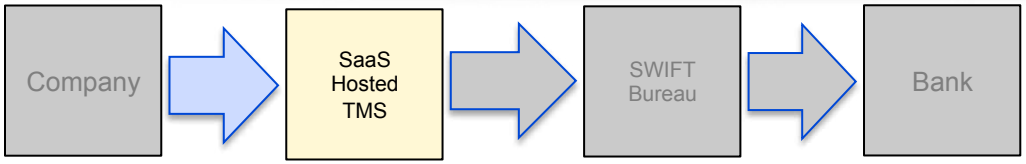


How to evaluate security of your TMS Vendor/Hosting facility

- Involve IT in evaluation because it's difficult for treasury to tell if technology meets standards.
- Understand vendor security process and controls as well as audit results.
- It's not enough to have audit reports since there is no pass/fail.
- There is also a big difference between Type I and Type II reports.

Audit Report/Test	Benefits
SOC1 (SSAE16)	SOC1 is the report; SSAE16 is the standard. SSAE16 is AICPA's "minimum standard."
SOC2	AICPA's recommended report for SaaS and cloud vendors
Penetration Testing	Most vendors outsource to specialists (McAfee, Qualys, etc.).

TMS Recommendations
Connectivity and access



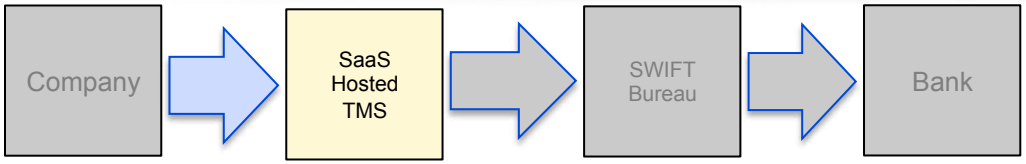
Weak access controls are the easiest entry point to hack a software solution and access data.

Best practice is a multi-layered approach.

- Password timeouts, resets, history, alphanumeric requirements
- Virtual keypads
- Two-factor authentication
- IP filtering
- VPN tunnel

Threats posed by phishing, copying keyboard strokes, and brute-force password attack are reduced.

TMS Recommendations
Application workflow controls



TMS provides for separation of duties and application of limit.

- Dual authorization for payments and flexible limits
- Standardization of approval workflow across all banks and all payment types
- Controls for validation of all system data (transaction and static data)

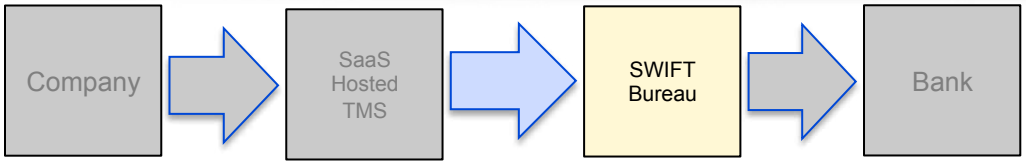
Secondary payment validation like 3SKey

Single sign on or similar user access control

eBAM

- Control point for universe of accounts and signatory control

SWIFT Bureau Recommendations



Communications encrypted

- IPSEC VPN, SSL, 3SKey

Data at Rest encrypted

Audited and SWIFT-certified

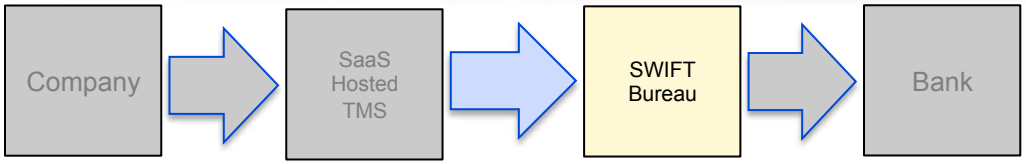
- At least annual audits for SSAE16 and ISO
- Multiple levels SOC1, preferred SOC2
- SWIFT certifications

Dedicated Information Security Team and documented standards

Network Penetration tests (ethical hack)

Critical mass of technical, operational and SWIFT expertise

SWIFT Bureau Recommendations



Other operational/technical best practices

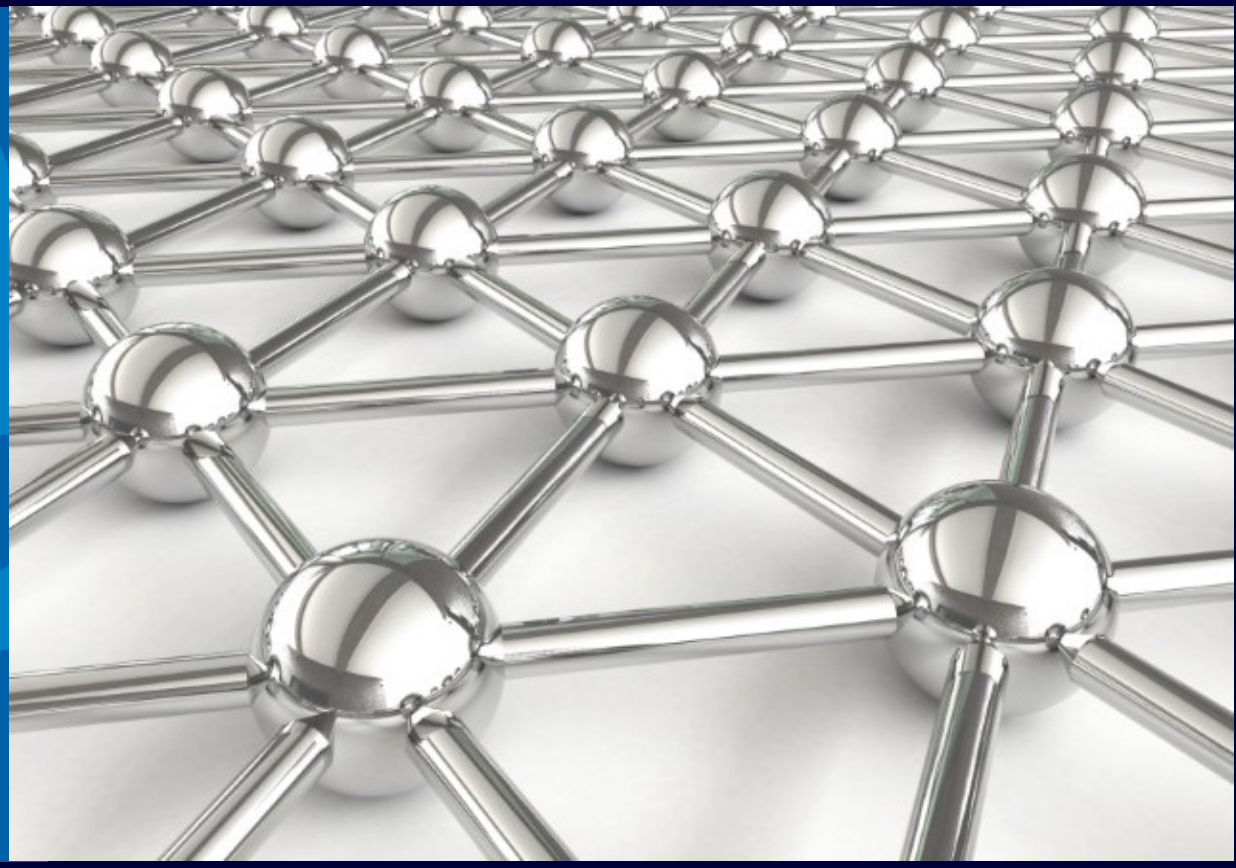
- Intrusion Detection systems
- Data Loss Prevention (DLP) policies and software to protect from data being sent out
- Active monitoring and alerts
- Client visibility to SWIFT traffic and monitoring

Understanding of liability and indemnification coverage

Bank communications security

Linda Haddad
Global Integration Product Manager

December 2014



Bank of America Merrill Lynch

Agenda

- The history of payment fraud
- Trends for bank data security
- 3SKey: Value proposition
- Details on 3SKey

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The history of payment fraud

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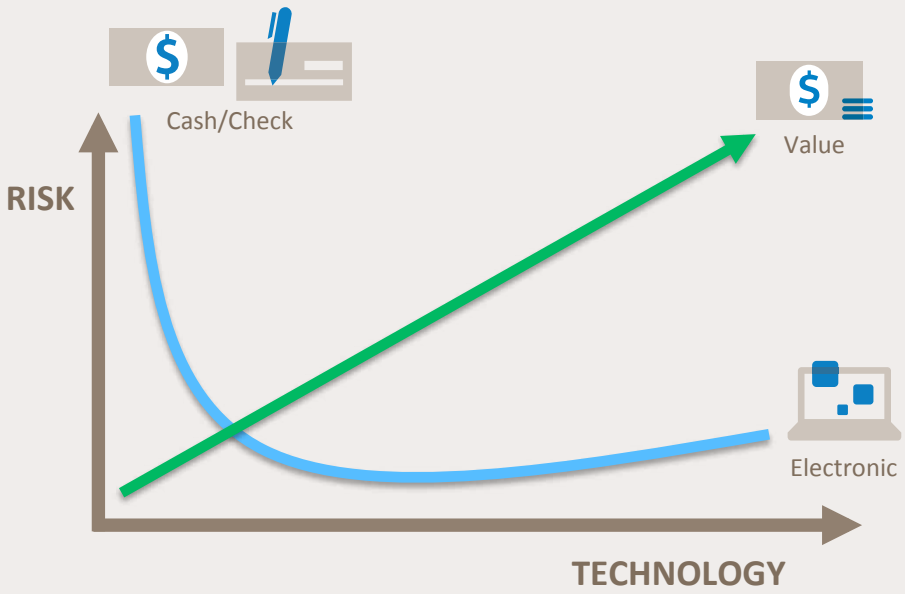
Staying ahead of the criminals.



"As the payments system has changed – from cash to checks to credit cards to digital – security continues to be the industry's first priority. What's encouraging is that the system gets more secure with more innovation and technical advancement."

– Brian Moynihan, CEO Bank of America Merrill Lynch

Trends for bank data security

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- Secure passwords (https/FTP protocols)
- Secured transmission channel such as SWIFT FileAct
- Notifications about file receipt and processing issues
- Test files in test environment with test data only

- Standard PGP encryption
- Double encryption (securing both contents and transmission channel)
- Added control points by digitally signed files with client-private PGP keys or 3SKey tokens
- Restricted access by allowing the bank to push sensitive files directly to the client's server rather than requiring the client to access their mailbox and download files

- Monitored payment file activity transmission status
- Mobile and online payment approvals
- Separation of duties/ entitlements
- Managed 3SKey digital token assignments

SWIFT 3SKey value proposition

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A multi-bank and multi-channel solution for corporates to securely authenticate and approve operations using digital signatures and strong authentication

Current Challenges

- Internal fraud is becoming more prevalent.
- Compliance and risk dictates stronger access and administrative controls.
- Proprietary bank solutions for authentication are difficult to manage.
- The Echange Télématique Entre Banques et Clients (ETEBAC) bank-agnostic key system in France has been retired and replaced with 3SKey.
- Client managed security/ admin controls for data transmission- based transactions

Industry Trend – Bank-Neutral/Industry Standards

- SWIFT SCORE provides standard connectivity solution across banks.
- Corporate membership doubled since 2009 to over 1K registered corporates.
- Single Access channel simplifies multi bank relationships.
- SWIFT acts as intermediary between the corporate client and the bank for all communication. Added cloud-based offering is through Alliance Lite2.
- ISO 20022 provides common harmonized format across banks.
- It is a fast-growing integration format for payments, information reporting and bank administration.
- Financial Institutions are working together to harmonize ISO 20022 standards for financial transactions.

Solution

- Companies want help to fight internal fraud.
- Companies want tools to manage employee access.
- 3SKey provides tools to manage administration of authorizations at the bank.
- 18 of SWIFT's top 25 banks offering corporate access have adopted 3SKey.[1]

[1] SWIFT for Corporates, Market Adoption Report – Q1 2014

Potential for 3SKey

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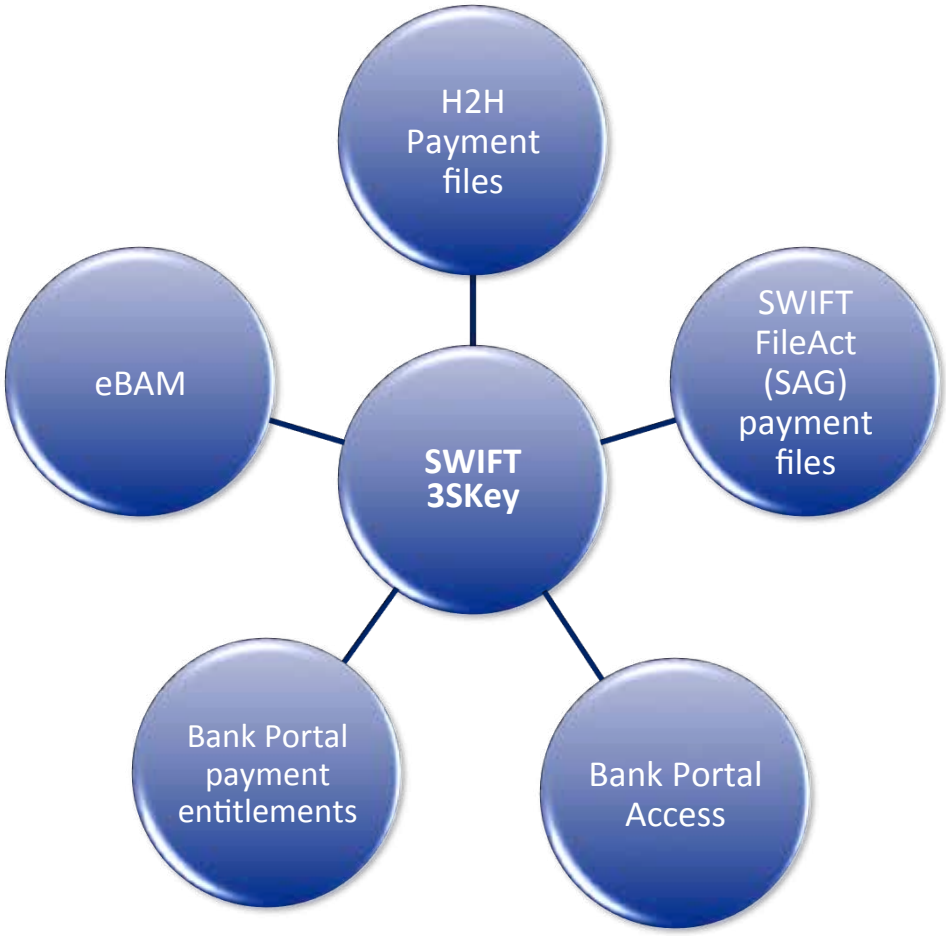
An electronic signature containing unique information specific to an individual that is attached to a message or file to authenticate its source and verify the integrity of its content

Source authentication: Two factors are used to create a digital ID for a user: something they know – **PIN,** and something they hold – **USB Token**. Digital ID authenticates at the individual level, allowing for administrative authorities at the individual user level within a company.

Secure content: The **USB Token** holds a digital certificate identifying the user and an encrypted security key which is used to encrypt the contents of any related message. Any manipulation of the contents of the data or file after signing will invalidate the Digital ID.

Legally-binding technology: 3SKey can support e-signature technology; its ability to authenticate at the individual user level could essentially act as that individual's "legal signature."

Entitlements: 3SKey applies authorities for content and transactions, i.e., limits.



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Summary

Look at all of the components, partners and communication channels.

- Determine all places where your data originates, is transported, and stored.
- Evaluate both current level of security and existing exposures.

Develop an action plan.

- Review each potential type of breakdown.
- Enhance protection where possible.
- Create response plan for inevitable breach.

Understand liability and insurance.

- Understand your vendors' and banks' liability coverage and your comfort.
- Use insurance riders and/or cyber insurance as an umbrella.
- Be sure monetary and securities are covered.

Bring in a specialist.

Thank you

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- Public Sector Organizations
- Technology Vendors

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- Pre-implementation Best Practices Review
- Process Review & Re-engineering
- Gap Analysis with Current Technology
- Corporate SWIFT Connectivity
- Technology Selection
- Technology Implementation & Optimization
- Strategic Roadmap

Solutions for Technology Vendors

- Implementation Resource Partnering
- Functionality Enhancement
- Business Strategy

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