Regulatory Compliance and the Mainframe

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Transforming IT Management

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Agenda

> The Regulatory Compliance Context

> Enabling Compliance:

- Identity and Access Management
- Elimination of “Loose Ends”
- Monitoring, Auditing & Reporting
- Ease of Administration and Provisioning
- Integrity and Privacy of Data

> Example solutions and how they fit

> Conclusion & Discussion

The Complexity of Regulatory Compliance

Continuous Compliance cuts across all areas

Business Issues

Business Continuity
Business Enablement
Risk Management
Operational Efficiency

Industry Regulations

EU Data Protection
Basel II
ISO 27001, 27002
Sarbanes – Oxley
PCI DSS
HIPAA
GLBA

Risks

Credit Risk
Market Volatility
Reputation
Liability
Competition
Operational Risk

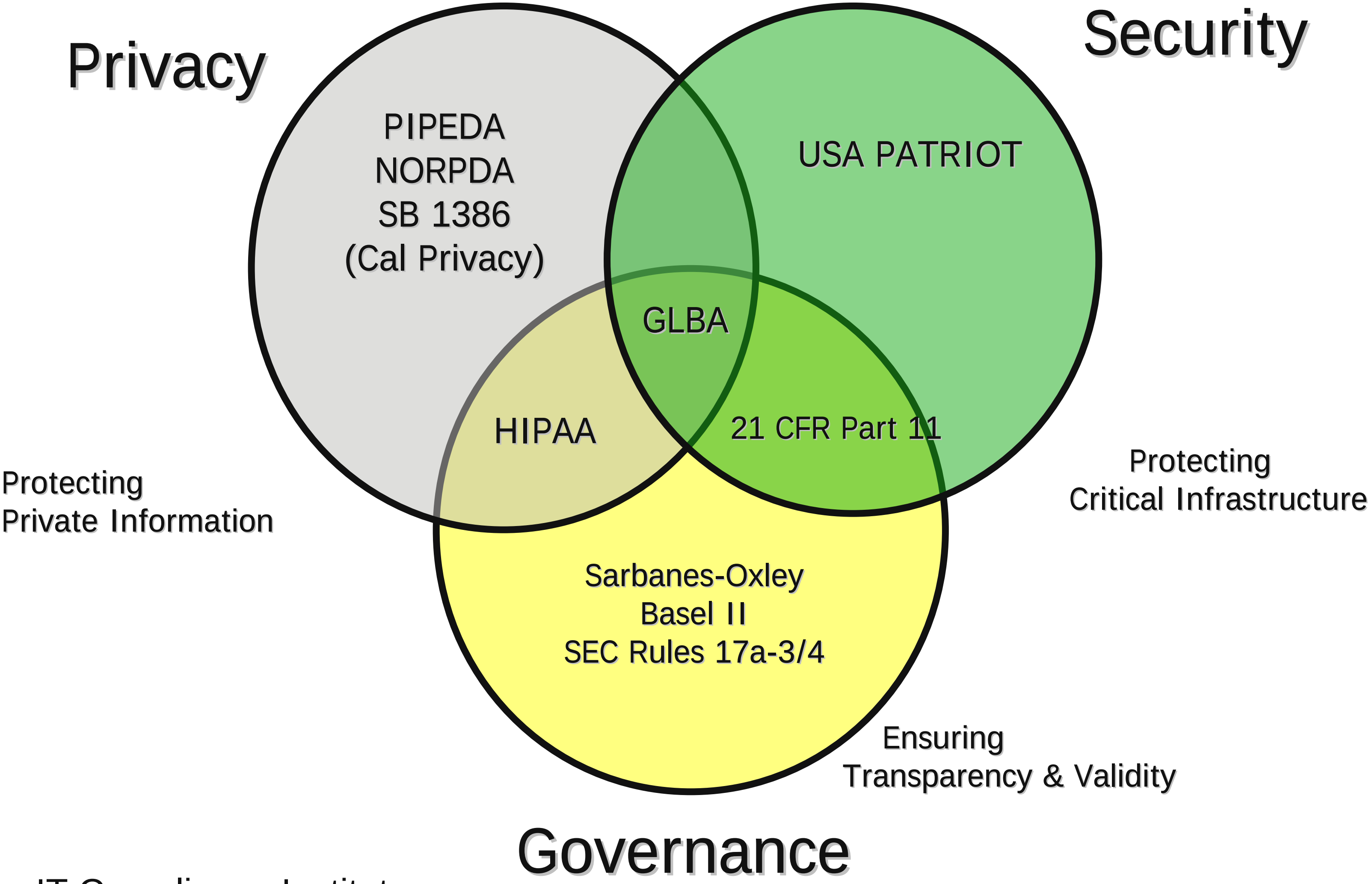
Putting it into Context

The most common element of all regulations is a ***strong set of internal controls***.

> These controls must provide:

- **Accountability** – Who performed an action, who approved it, when was it done, and what was the result?
- **Transparency** – All business processes and controls must be fully understood, and clearly documented.
- **Measurability** – All internal processes must be able to be measured and evaluated as to success or failure. Measurement is done through auditing, logging, correlation and visualization.

Major Types of Regulations and Laws



source: IT Compliance Institute

Internal Control Frameworks

> Regulations don’t prescribe actual technologies to use for compliance. Instead, most companies adopt internal control frameworks as models of “best practice” for compliance.

> Some popular frameworks include:

- **COSO – ** defines requirements for effective corporate governance
- **CobiT – ** defines IT governance and control practices
- **ISO 27001, 27002 – ** define best practices in information security
- **ITIL – ** defines the processes and activities to support IT services

The Importance of Security for Compliance

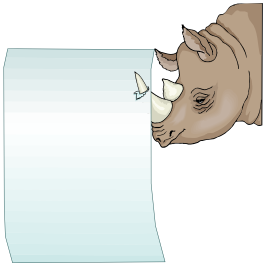
Regulation Technology	SOX	HIPAA	Gramm-Leach Bliley	Sec 17A-4	21 CFR Part 11	Basel II	USA Patriot Act	CA SB 1386	Canada PIPEDA
Financial Compliance	✓								
Business Intelligence & Data Warehousing	✓								
Document / Content Management & Access	✓	✓	✓	✓	✓	✓	✓	✓	
Records Management	✓	✓	✓	✓	✓	✓			
Archiving	✓	✓	✓	✓	✓	✓	✓	✓	
Security	✓	✓	✓	✓	✓	✓	✓	✓	✓
Storage	✓	✓		✓	✓	✓	✓		

Example: SOX Impact on IT

> SOX is not only for the financial accountants and auditors!

- Consider big picture:
  - If financial data resides on IT-maintained systems, those systems then are subject to SOX scrutiny
- Consider data maintained on IT systems, and consider significance of that data
  - Financial data
  - Sales forecasts
  - Confidential/"insider" information (email)
  - … and more
- Concern is not only with raw data itself, but also how it is processed, where it is kept, who can access/manipulate it, and more

Regulatory Compliance Factors
The Three “Horns” of Compliance



1. Efforts in trying to comply with the regulations

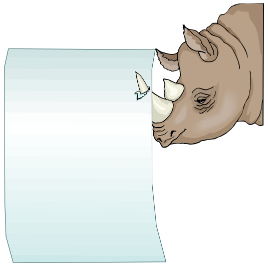
2. Penalties for failing to comply (plus bad publicity)

3. Regulations that require publicizing exposure incidents

Horn 1: Efforts to Comply

> Forces many companies to reflect on their current business practices

- Are current procedures optimal?
  - What are the strengths? Weaknesses? Where do deficiencies exist?
  - Which deficiencies violate rules? What are liabilities, material weaknesses?
- Are process/procedural changes warranted?
  - Can business benefit be had through change?
  - Can procedures be streamlined?
  - Can administrative overhead be simplified?
- Consider cost:
  - Can a cost savings be realized through change?
  - Can compliance costs be minimized and/or more effectively managed?



Horn 2: Penalties

Dear Ms. SarBox:

The SEC estimates that it will cost $91,000 annually in order to be in compliance with just Sec. 404. Is it really worth it?

Cheap in Charleston

Dear Cheap,

Try looking at it from another angle.

Cost of compliance: $91,000.

Not being a convicted felon: Priceless.

Source: http://www.sox-online.com/ms_sarbox.html

Horn 3: Requirements to Publicize

- There are many laws covering data privacy, such as:
  - New Jersey requires businesses destroy un-needed customer data and notified customers if there is unauthorized access
  - Louisiana requires notification of residents, plus the state government, if confidential data compromised
  - Illinois law is similar but does not require notification of state officials

Business Value: a Strategic Approach

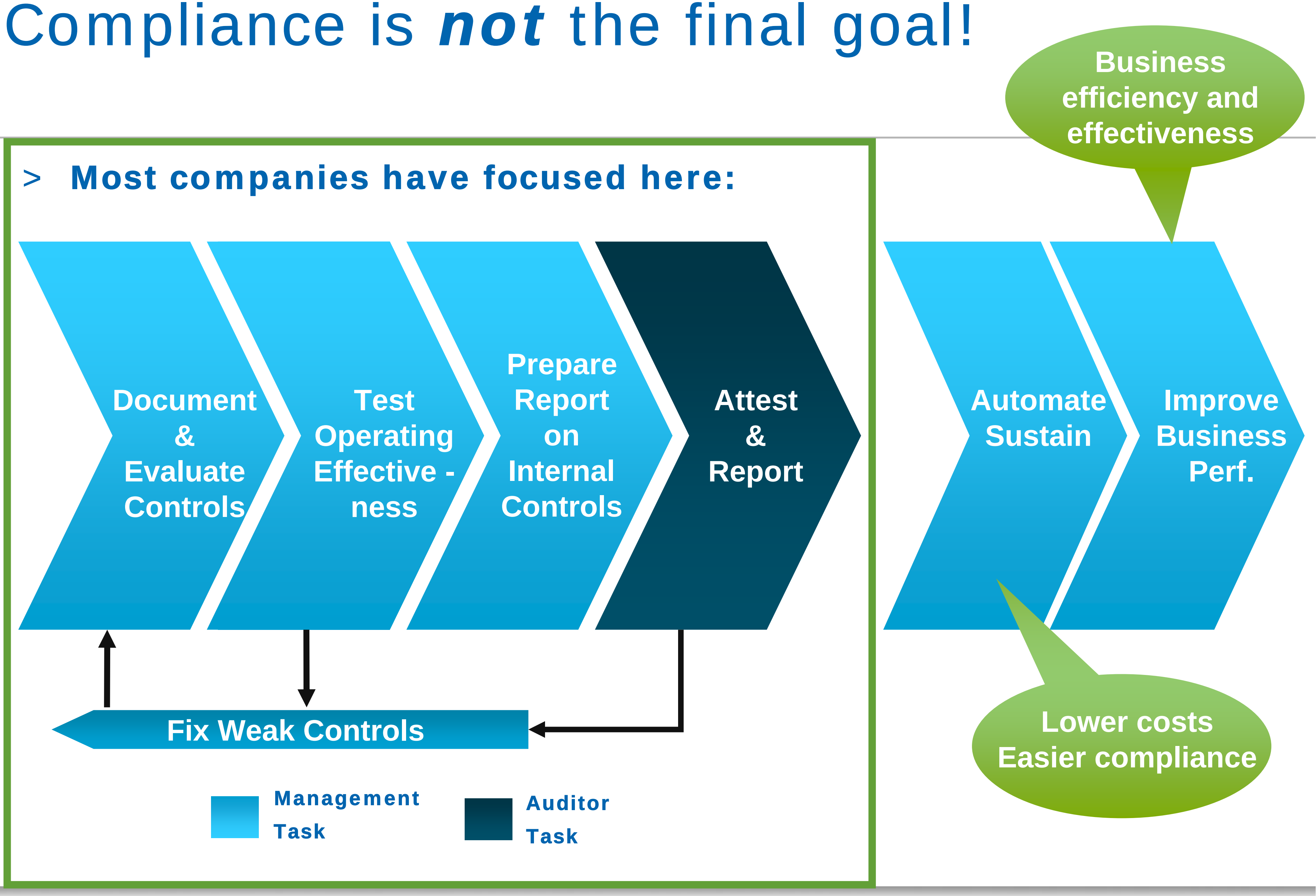
> "Think through the brick"

> Implicit in Regulations is Well-Run Business

> Unified & Simplified Management = Strength

> Anticipate Opportunities & Challenges

Compliance is ***not*** the final goal!



> **Most companies have focused here:**

Document & Evaluate Controls

Test Operating Effective - ness

Prepare Report on Internal Controls

Attest & Report

Fix Weak Controls

🟦 Management Task

⬛ Auditor Task

Automate Sustain

Improve Business Perf.

Business efficiency and effectiveness

Lower costs
Easier compliance

Enabling Compliance

- Identity & Access Management
- Elimination of “Loose Ends”
- Monitoring, Auditing & Reporting
- Ease of Administration
- Integrity and Privacy of Data

Identity & Access Management

> **Focus on business value**

  - Policy-based security, not technical constraints

> **Strategic design**

  - Enterprise-wide, synchronization, integration
  - Comprehensive coverage

> **Preempt your vulnerabilities**

  - Default “Deny”
  - Separation/segregation of duties
  - One user per account
    - Including Super User

Access Management: Key Compliance Capabilities

> All regulations require effective controls on all user access to all sensitive IT resources, including:

- Web-based applications
- Critical system services
- System files, databases, and repositories
- Host-based (non-web) applications and files
- Mainframe applications and data
- Super User privileges
- Separation of duties

Elimination of “Loose Ends”

> People don’t like to “give back” access
  - Creates “back doors”

> It’s common not to know all of a person’s accounts
  - When they leave, they leave a door open

> Tracking down extraneous accesses & IDs is not easy
  - Security product stats insufficient
  - Heavy-handed deletions backfire

> Failing to do so can lead to exposure...
  - Major NA retailer credit card info
  - Major financial institution in France: insider exposures

Cleaning Up Loose Ends: Key Compliance Capabilities

- SOX compliance generally requires proper internal controls to ensure:
  - User definitions/directories are properly maintained
  - Security entitlements are properly maintained
- PCI compliance requires the revocation of users every 90 days
  - Cleaning up covers entitlements as well
- ISO 27001 cites management review of access rights using a formal process

Monitoring, Auditing & Reporting

> Who

- Which IDs are defined and in use

> What

- Resource entitlement reporting
- Administrative capabilities
- OS configuration

> When

- Logging of security and administrative actions
- Visibility of changes to key parameters, datasets

> Why

- Business impact, exposures
- Compliance relevance

Monitoring, Auditing & Reporting: Key Compliance Capabilities

> Ease of querying and reporting on system configuration

- Ensure OS configuration and environment are solid
- Real-time on-line and batch reporting and alerting

> Ability to relate security configuration to regulatory requirements

- Simple preconfigured reports on security files
- Flexible customization for unique environmental factors
- Minimal resource usage or performance impact

> Regular monitoring and tracking of security activities

- Logging of violations and sensitive resource usage
- Tracking of security administration

Ease of Administration

> Enable Security Administrators

- Experienced personnel are buried in demands
- “New Generation” is unused to mainframe interface
- Complicated interfaces lead to mistakes

> Keep It Straightforward, Simple

- Single point of graphical administration
- Ease of querying accesses and configuration
- At-a-glance awareness

Ease of Administration: Key Compliance Capabilities

- Graphical, and auditable, management of all user profiles and access rights
- Enable role-based definition of accounts, accesses
- Common graphical interface for multiple tasks

Integrity and Privacy of Data

> Critical, sensitive production data

- Strategic corporate information
- Customer data
- Employee and partner information

> Danger of loss and exposure

- Offsite tape backups
- Data sent to partners on tape

> Undesirable consequences

- Have to notify public of customer data exposure
- Impact on corporate reputation
- Possible law suits, charges

Integrity and Privacy of Data: Key Compliance Capabilities

> Encryption of all sensitive tape data sent offsite

> Easy, transparent implementation

> Comprehensive, simple key management

> Free, secure decryption for authorized third parties

Example Solutions

Transforming IT Management

Example Solutions

- Identity & Access Management
- Elimination of “Loose Ends”
- Monitoring, Auditing & Reporting
- Ease of Administration
- Integrity and Privacy of Data

Identity & Access Management

CA provides a comprehensive access management suite to protect critical resources, including:

- CA SiteMinder: Web-based applications
- CA TransactionMinder: Web Services
- CA Access Control: Host-based resources
- CA ACF2 and CA Top Secret Security: Mainframe
  - Plus DB2 Options

Elimination of “Loose Ends” – CA Cleanup

- > Identifies unused IDs and accesses
- > Reports on activity at any time
- > Can automatically generate commands for removal
- > Creates recovery file for deleted logon ids and accesses
- > Supports multiple security databases in synchronized environments

Monitoring, Auditing & Reporting

- CA ACF2 and CA Top Secret have long provided for basic needs
  - Flexible/powerful logging capability
  - Powerful out-of-box reports using security logs for:
    - Administrative changes
    - Event reporting
    - Operational reporting
  - Powerful out-of-box capability using actual security data basis for:
    - “Who has...” user entitlement reporting
    - “Who can...” resource control entitlement reporting

CA Responds with CIA

- You told us your needs, we listened
- We've responded with Compliance Information Analysis (CIA) in CA ACF2 and CA Top Secret r12
- CIA Features:
  - Aids assessment of security policy
  - Flexible foundation for compliance reporting
    - Facilitates ad-hoc queries
  - Minimizes performance constraints
  - Integrates multiple security data bases
    - Provides mainframe enterprise-wide capability

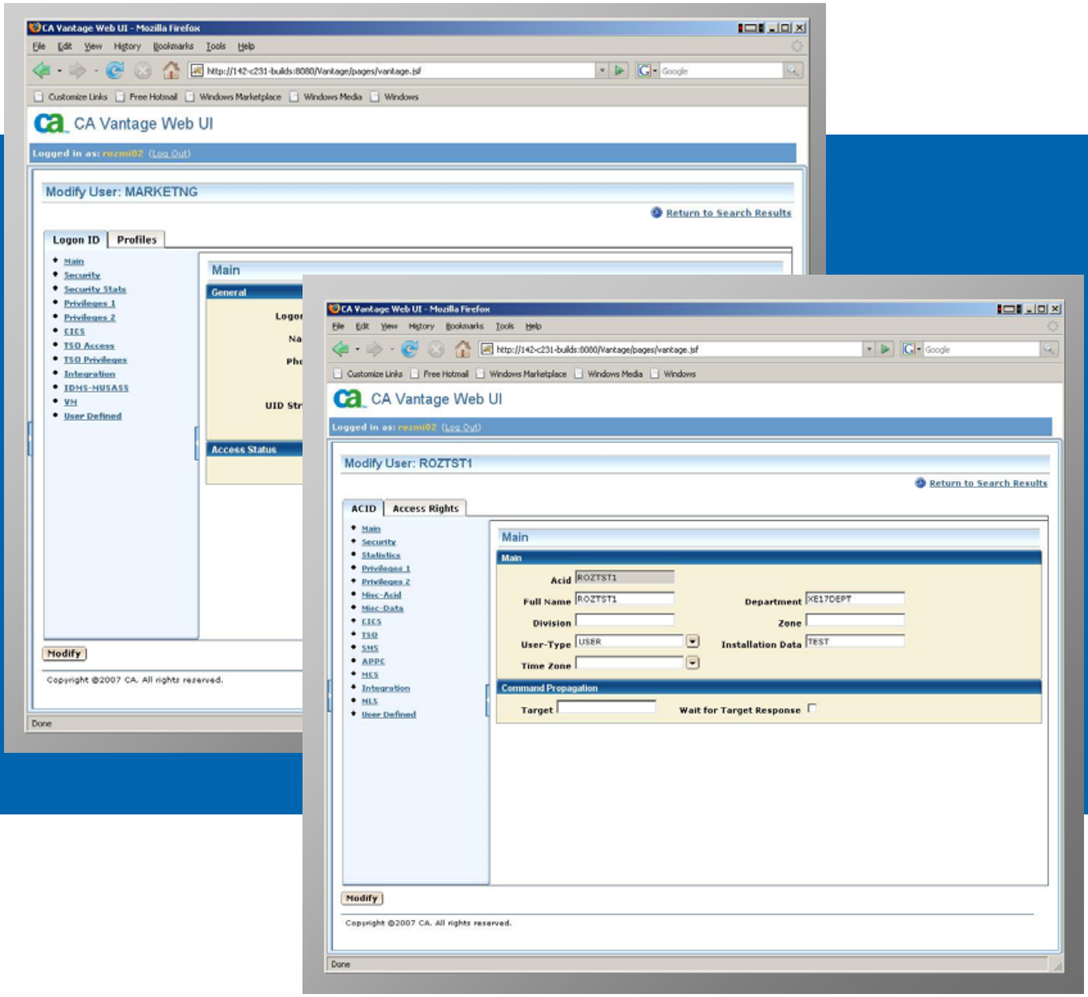
CIA Overview

- > Uses data model optimized for compliancy requirements
- > Data model defined in RDB (DDL’s)
- > Data downloaded from security database(s)
- > Data loaded into DB2
  - Other RDBs to follow
- > CA ACF2 and CA Top Secret distribute ready-to-use compliance reports

CA Auditor for z/OS

- Integrity auditing tool - Helps achieve compliance
  - Non-systems people can see potential exposures
  - Facilitates the review of OS resources
  - Assurance that OS integrity meets corporate standards
  - Establishes baselines for internal and external audits
  - Validates the integrity of systems
  - Quickly identifies changes and potential exposures to OS programs, files and libraries
  - Not dependent on a particular ESP or OS version

Ease of Administration:
CA Web Administrator for ACF2 and Top Secret



Modify User: MARKETNG

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Modify User: ROZTST1

Main

Acid ROZTST1

Full Name ROZTST1

Department XE17DEPT

Division

Zone

User-Type USER

Installation Data TEST

Time Zone

Target

Wait for Target Response □

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- Seamless Administration of CA ACF2 and CA Top Security environments
- Enables Remote administration
- Reduces the learning curve for new generation of users
- Helps towards centralizing Security Management efforts

Integrity and Privacy of Data: A Tape Data Loss Epidemic?

Date	Name	# Records
JAN 07	IRS (26 tapes)	unknown!?
MAY 07	Large Mainframe Manufacturer	unknown!?
JUN 05	A Financial Company in the City	3,900,000
SEP 06	Credit Card Service / Retail	2,600,000
DEC 05	Large Midwestern Bank	2,000,000
FEB 05	A Large American Bank	1,200,000
MAY 05	Media and Entertainment Co.	600,000
JUN 07	Ohio State Workers	500,000
JAN 06	Home Services Co. in RI	365,000
DEC 05	Financial Service Co in Hartford	230,000
DEC 05	Large Hotel Chain	206,000
APR 05	Discount Brokerage Service	200,000
OCT 07	Virginia Public Ins. Agency	200,000
DEC 06	Medical Insurance Company.	200,000
JAN 08	Credit Company / Iron Vault Site	150,000
	Others….	768,368
	Tape Records Compromised	> 13.1M

Tens of Millions Records Exposed and Customers Affected

Source: Privacy Rights Clearinghouse, 2008

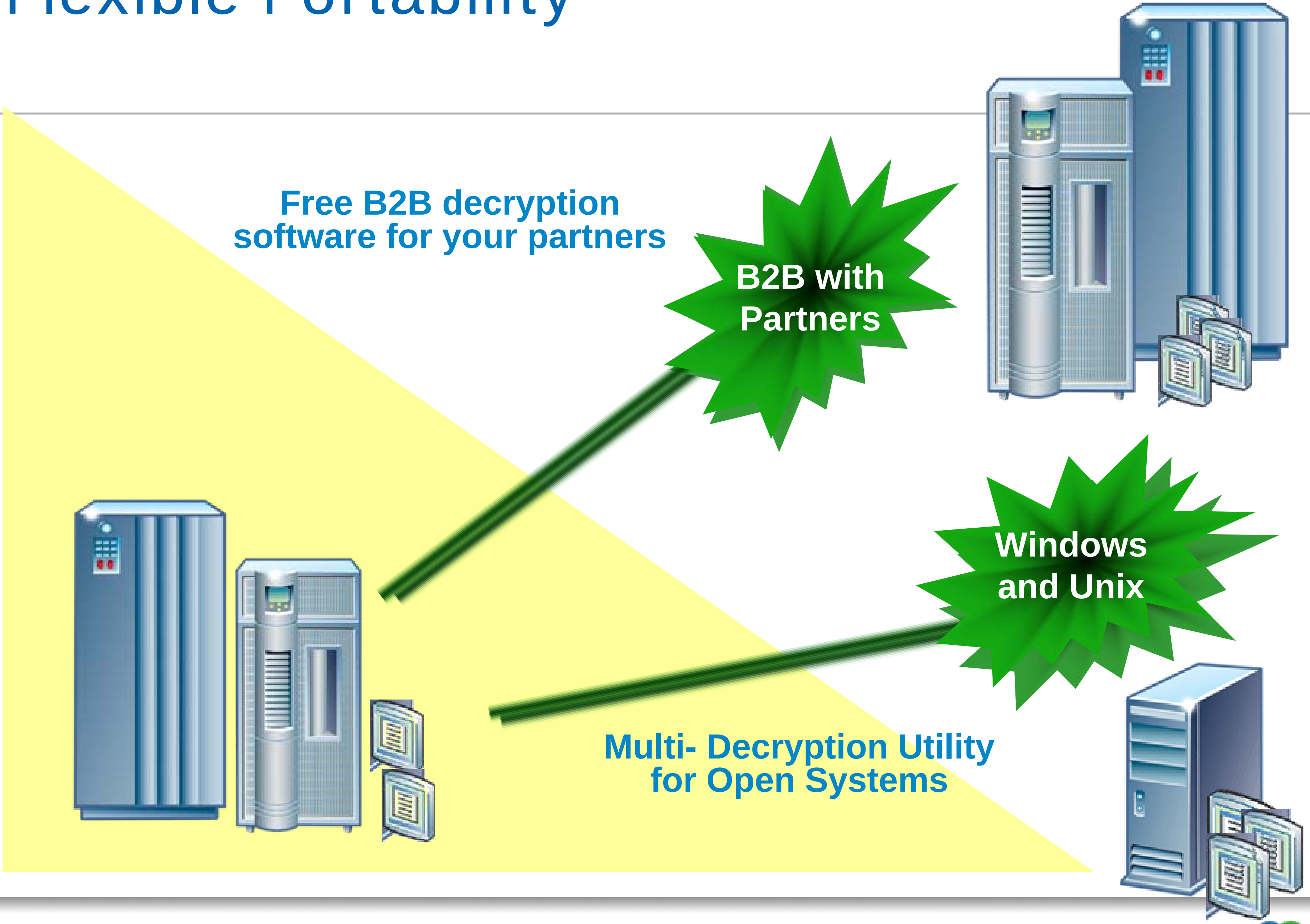
Key Management Best Practice

Enter your instant messaging address and password to log in.
Address:
Example: someone123@example.net
Password:
Remember my password
Log In
Close

Automated Key Management.

- Creation, tracking, auditing, backup, recovery and removal of expired keys integrated into CA 1, CA TLMS
- Keys always protected

Flexible Portability



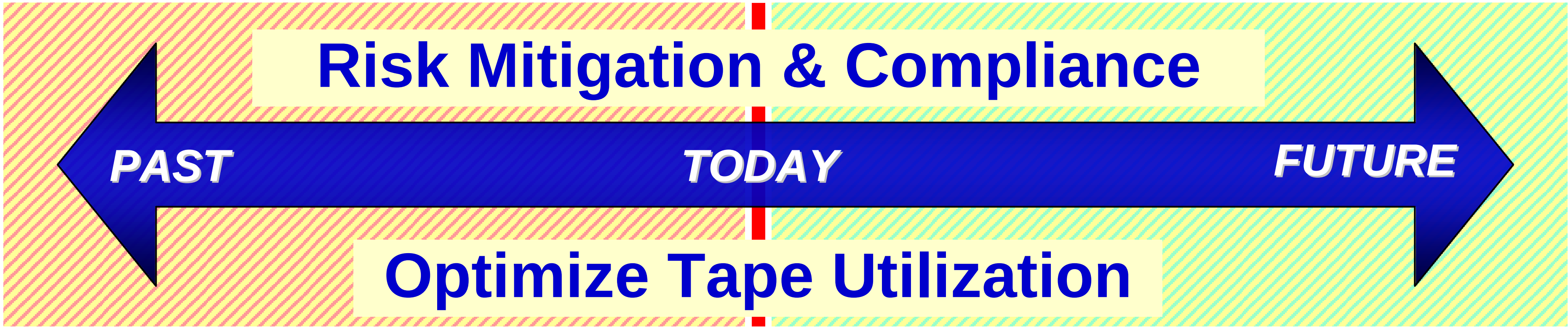
Free B2B decryption software for your partners

B2B with Partners

Windows and Unix

Multi- Decryption Utility for Open Systems

Total Tape Compliance Strategy



Where:

>Tape Libraries, Archives, Vaults, Silos, DR sites, Outdated Media, Migrations, etc.

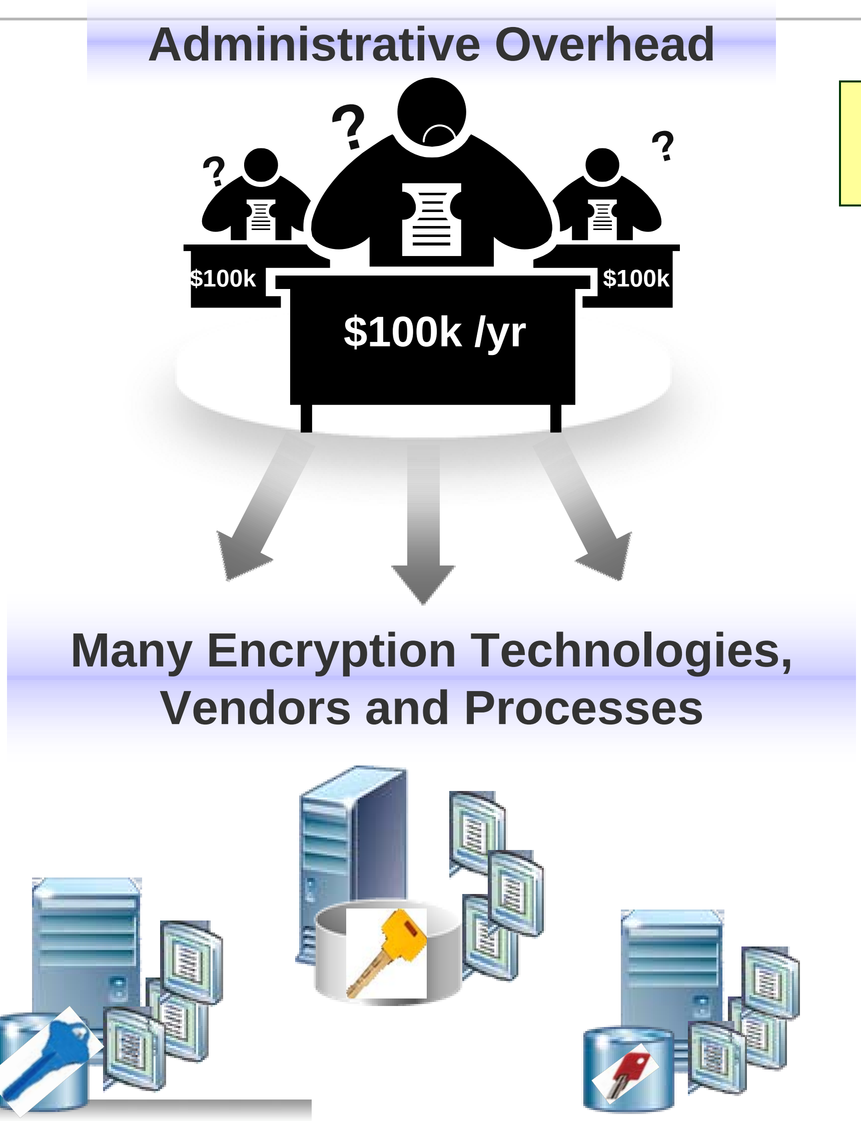
Opportunities:

> Secure Data Transfer, B2B Partner Security, Less Complexity and Costs, etc.

CA Tape Encryption

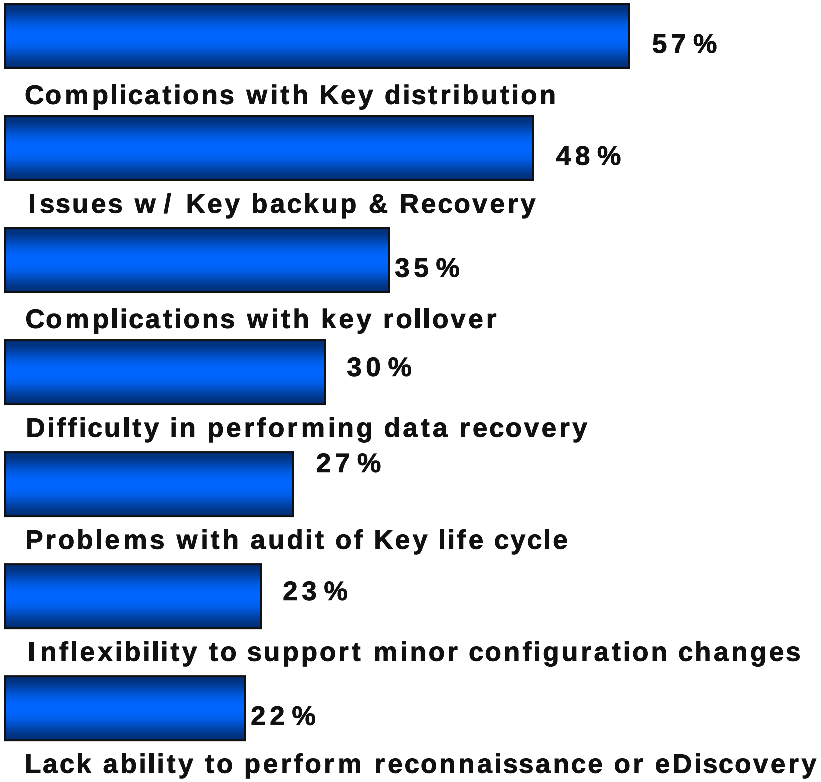
- > Encrypt/decrypt physical tapes for any z/OS application
- > Integrated System z HW compression
- > Easy to use and implement
- > Complete, automated encryption key life cycle management
- > Lowest risk
- > Use hardware and software you have invested in
- > No changes to your infrastructure
- > Greatest value – one integrated, complete solution
  - ▪ zIIP-enabled!

The Problem: Managing Encryption Keys Is Complex, Costly, and Error Prone


Administrative Overhead

Many Encryption Technologies, Vendors and Processes

Key Management Issues Are The Source Of Most Operational Problems, Increasing Costs*

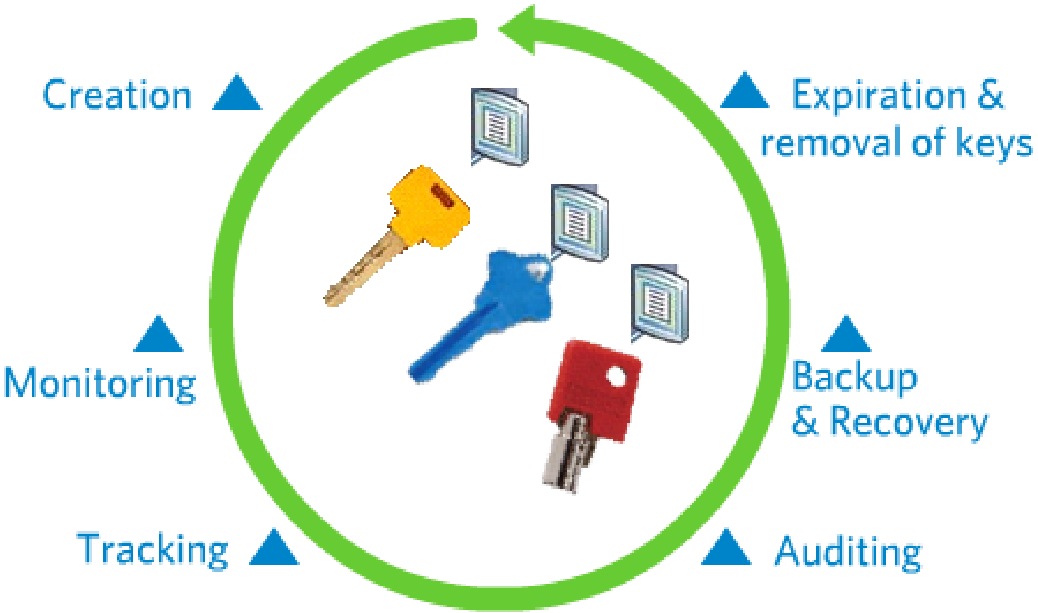


* Source: Forrester Research Survey
"The State of Data Security in North America"
August 2007

Automated, Full Lifecycle Key Management – CA Tape Encryption Key Manager

Automated Administration

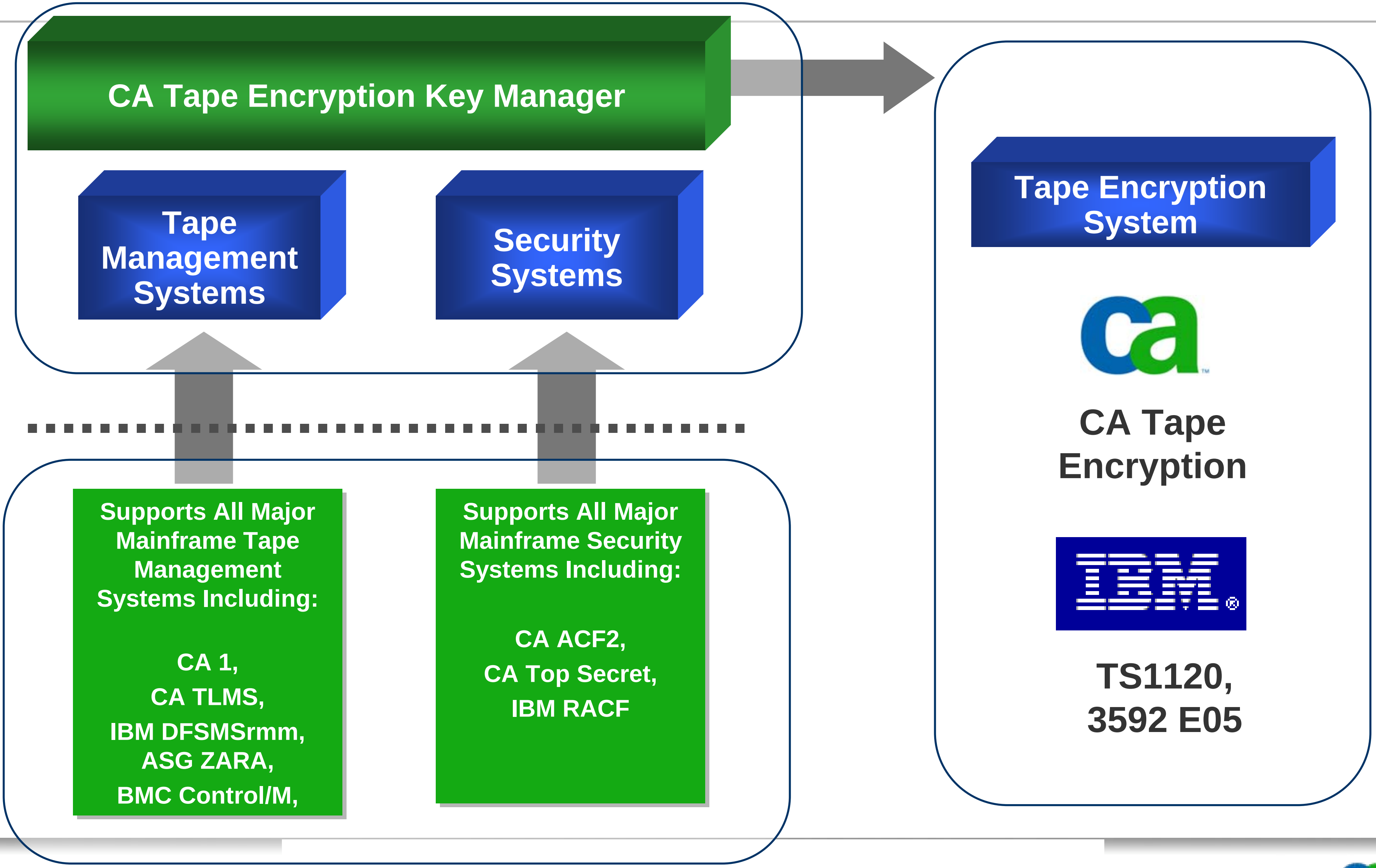
Cross Platform Support, Hardware Vendor Neutral



CA's Efficient Key Management Solution Value To Customer:

Consolidated Mgmt	Automation	Central Repository
Cost Containment	Cross Platform	Security Compliance

CA KM Security and Tape Management



CA Tape Encryption Key Manager

Tape Management Systems

Security Systems

Supports All Major Mainframe Tape Management Systems Including:

CA 1,
CA TLMS,
IBM DFSMSrmm,
ASG ZARA,
BMC Control/M,

Supports All Major Mainframe Security Systems Including:

CA ACF2,
CA Top Secret,
IBM RACF

Tape Encryption System

CA Tape Encryption

TS1120,
3592 E05

CA Tape Encryption Key Manager

- Enhances TS1120/3592E05 control
- Manages mainframe and distributed tape key environments
- Automates generating and maintaining digital certificates for use by the TS1120
- Manages the Full Life Cycle of the digital certificates
- Ensures keys never prematurely expire
- Automates manual processes Storage Administrator and Security Administrator
- Complies with NIST 800-57 standards

Summary

> Focus on business value

- Look beyond compliance requirements
- Embrace compliance....use it to grow your business!
- "Virtuous cycle"

> Strategic design

- Unify and Simplify with the right tools
- Have a clear plan and approach
- Key to compliance automation is a comprehensive, integrated identity and access management platform

> Preempt your vulnerabilities

- To regulations, disasters and capricious malice
- "Know thyself" – identify and preclude potential exposures