Employing Encryption to Combat Data Theft

INGRIAN NETWORKS

Relax. Your Data is Compliant.

Derek Tumulak
Director of Product Management

Agenda

- Motivation and Risks
- Legislation and Compliance
- Defining Your Encryption Strategy
- Challenges in Using Encryption
- Critical Components of Data Encryption
- Ingrian Data Encryption Solutions
- RSA Conference – Real World Case Studies
- Questions?

Motivation and Risks
Why a comprehensive data privacy solution?

- Even with a fortified network perimeter, data storage systems can be breached via insecure storage management interfaces
- 75% of external-based attacks are tunneling through applications and go undetected by a range of traditional security mechanisms
- Most estimates cite that now over 50% of security breaches are perpetrated by internal staff

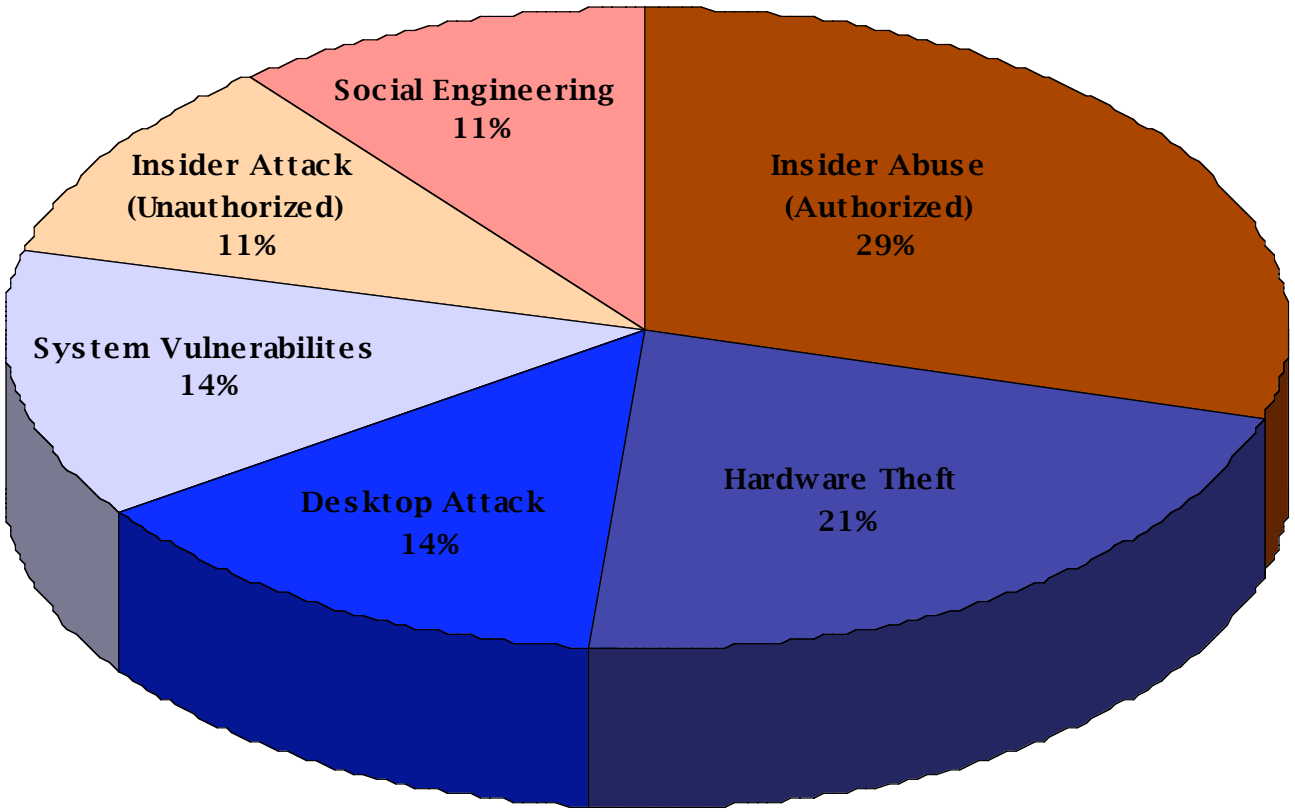
Data Provided by Gartner

Motivation and Risks
Average Cost of a Data Breach

- Average of **$14 Million** per incident, ranging as high as **$50 Million**
- Costs comprise of:
  - costs of internal investigations
  - outside legal defense fees
  - notification and call center costs
  - investor relations efforts
  - discounted services offered
  - lost employee productivity
  - financial hit from lost customers.
- Each lost record cost companies an average of $140
- Average loss of 2.5% of all customers, ranging to as high as 11 percent

Data Provided by Ponemon Institute

Motivation and Risks
2005 Survey of Data Breaches



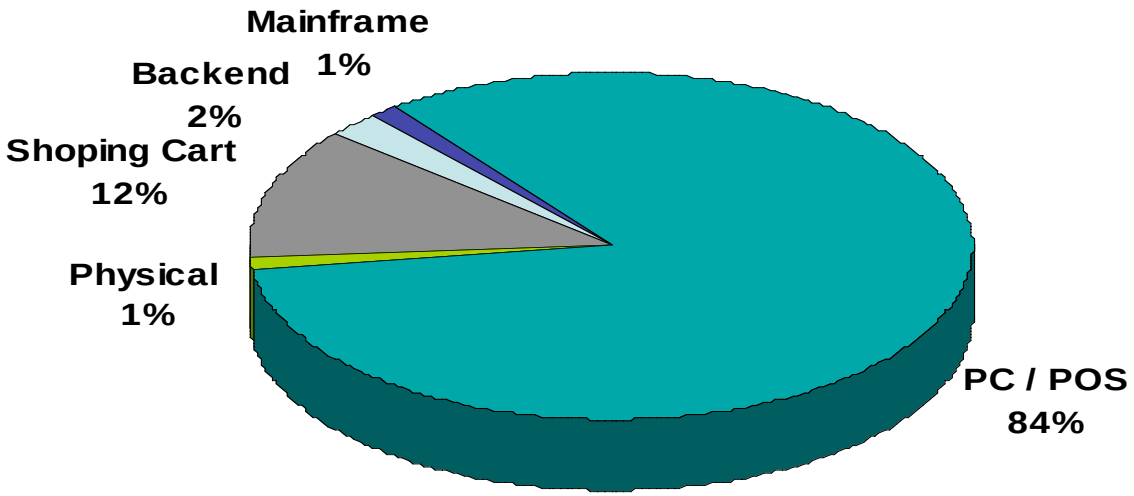
Data Provided by Forrester Research

Motivation and Risks
Top 5 PCI Vulnerabilities

Cases by System Type

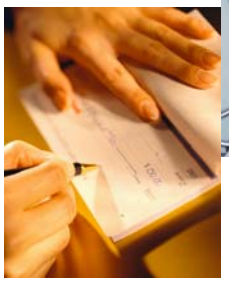
Majority of the cases involved a compromise of a PC based POS system

None of these systems were PCI DSS compliant



Source: Nick Percoco, Vice President, Spider Labs, AmbironTrustWave, speaking at the VeriFone Security & Emerging Technologies Conference, June 1, 2006.

Motivation and Risks
Data Environments

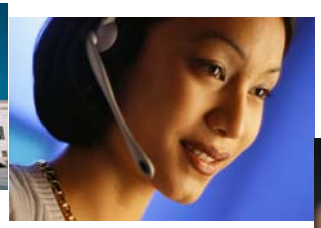


Financial Services

Retail

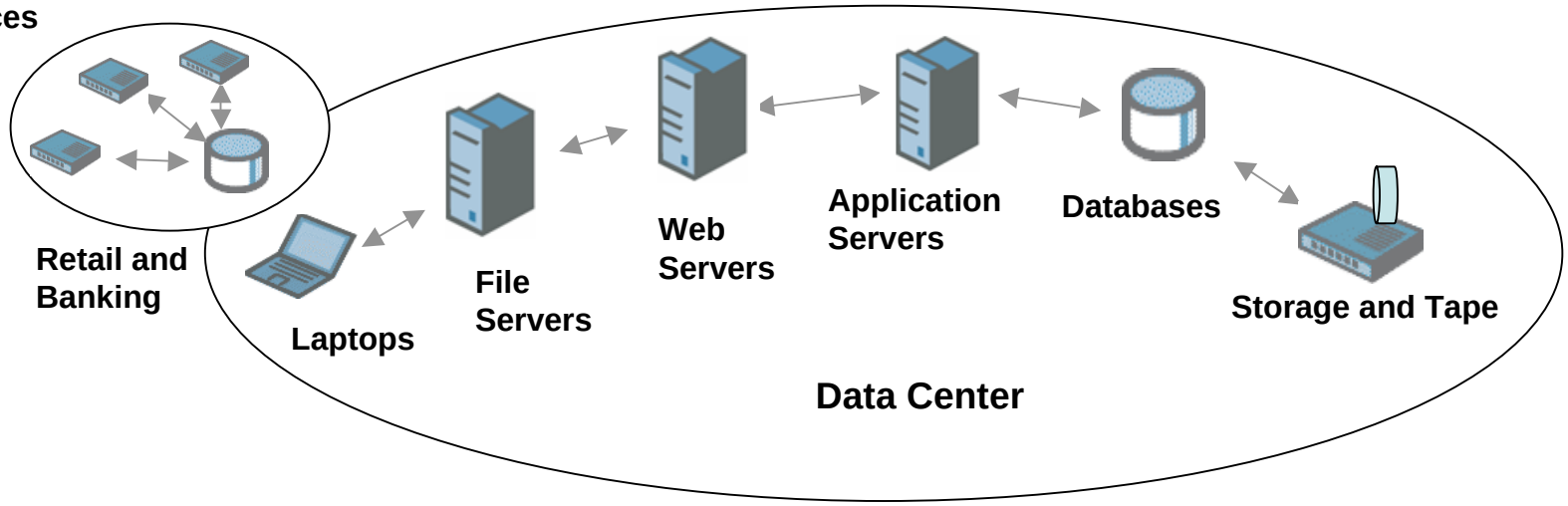
Travel Services

Government Agencies



Communication Services

Insurance



Motivation and Risks
Application Threats

- Misconfigured servers can be compromised and can be used to extract sensitive information data from databases and other devices on the network
- Servers compromised by malicious administrators
- Authentication credentials can be stolen and used to extract information
- Malicious software can be installed onto web, application, and database servers

Motivation and Risks
Database Threats

- Authentication credentials are not properly managed (*i.e., all applications user the same database username and password*)
- Authorization policies within a database are not properly defined (*i.e., database users often have access to sensitive information they do not require*)
- Servers compromised by malicious DBAs

Motivation and Risks
Physical Threats

- Physical theft of:
  - *Tapes*
  - *Laptops*
  - *Servers*
  - *Desktops*
  - *Hard Drives*
- Storage management interfaces can be compromised

Legislation and Compliance

- Legislation
  - *SB 1386*
  - *AB 1950*
  - *Sarbanes-Oxley*
  - *Europe's Data Privacy Act*
  - *Canada's Personal Information Protection and Electronic Document Act (PIPEDA)*
  - *HIPAA*
  - *GLBA*
  - *Etc.*
- Compliance Requirements
  - *PCI Data Security Standard (CISP, SDP)*

Requirement 3: *Protect Stored Data.*

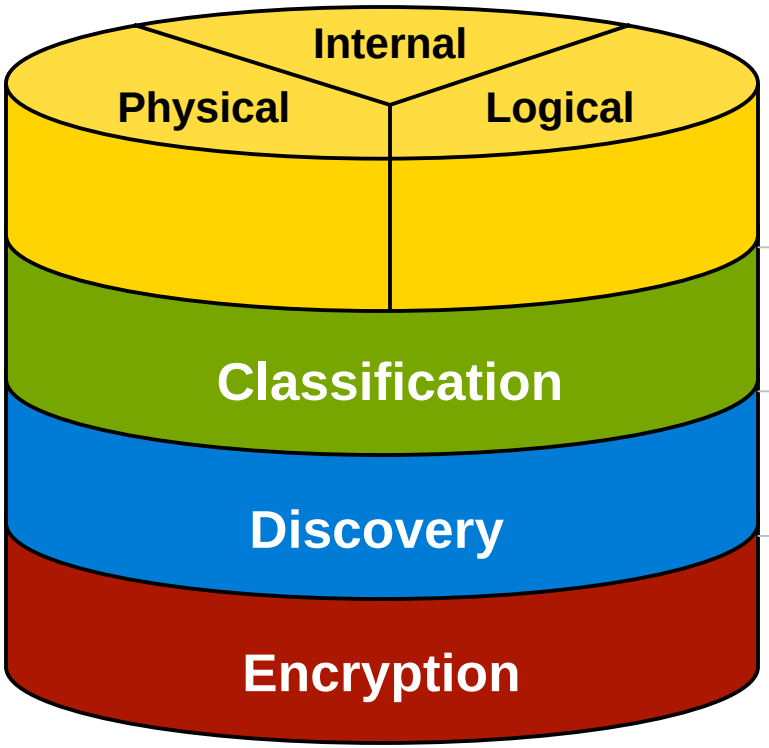
- Keep cardholder information storage to a minimum
- Do not store sensitive authentication data subsequent to authorization.
- Mask account numbers when displayed.
- **Render sensitive cardholder data unreadable anywhere it is stored.**
- **Protect encryption keys against both disclosure and misuse.**
- Fully document and implement all key management processes and procedures.

Legislation and Compliance
California Senate Bill 1386

- Introduces stiff disclosure requirements for businesses and government agencies that experience security breaches that might contain the personal information of California residents.
- According to California, personal information includes "an individual's **first name** or **first initial** and **last name** in combination with one or more of the following:

    - ***social security number***
    - ***drivers license number***
    - ***account number***
    - ***bank card information***
    - ***passwords***
    - ***PINs***
    - ***access codes.***

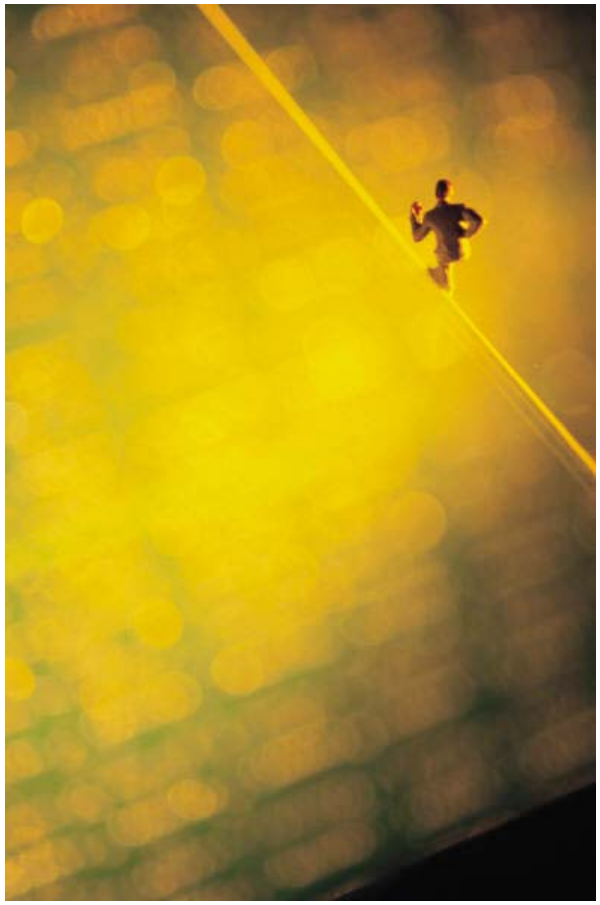
Defining Your Encryption Strategy



First steps…

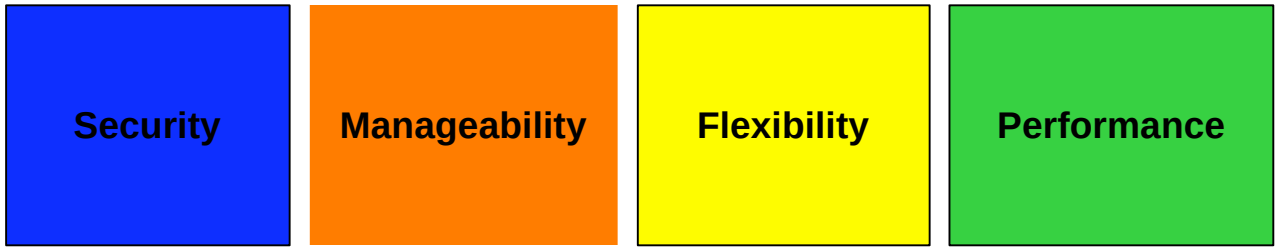
- Know your threat model
- *WHAT*—Identify what data you want to protect—this will dictate where and how you deploy encryption
- *WHERE*—Identify data locations
- *HOW*—Once you identify data type and data locations, you can evaluate encryption options to accommodate various platforms

Challenges in Using Encryption

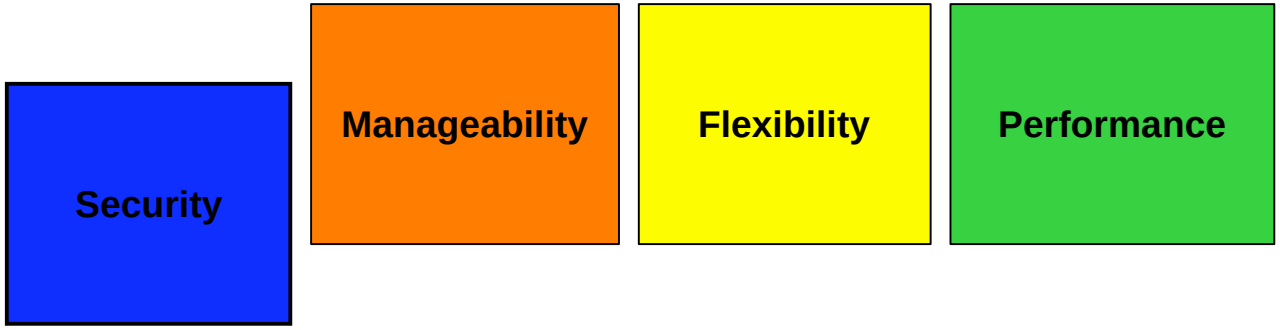


- **Finding all of the sensitive data**
  - databases, files, intermediate servers, local storage on PCs and laptops, logs, backup tapes, portable media, etc.
- **Key management complexity**
  - Generation, distribution, storage, rollover, etc.
  - Dual-control and split knowledge
- **Geographically distributed environment**
  - Branch locations, retail stores, restaurant chains
  - Hub-and-spoke, peer-to-peer
- **Determining at what level to encrypt**
  - disk, file, database, application
- **Build v. Buy**
  - Commercial solution, native support, open source
- **Integration work**
  - deployment, custom coding
- **Impact on production systems**
  - Initial conversion and yearly key rollover
  - Performance considerations
- **Heterogeneous environments**
  - What about the mainframe?

Critical Components of Data Encryption

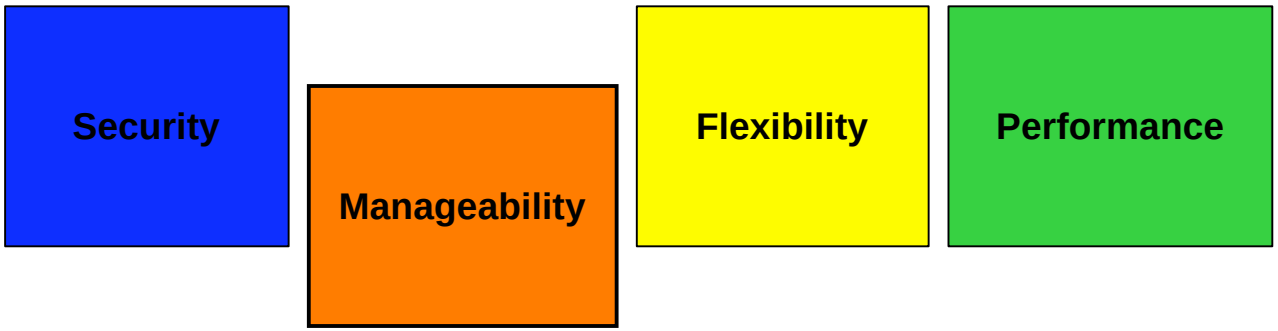


Critical Components of Data Encryption
Security



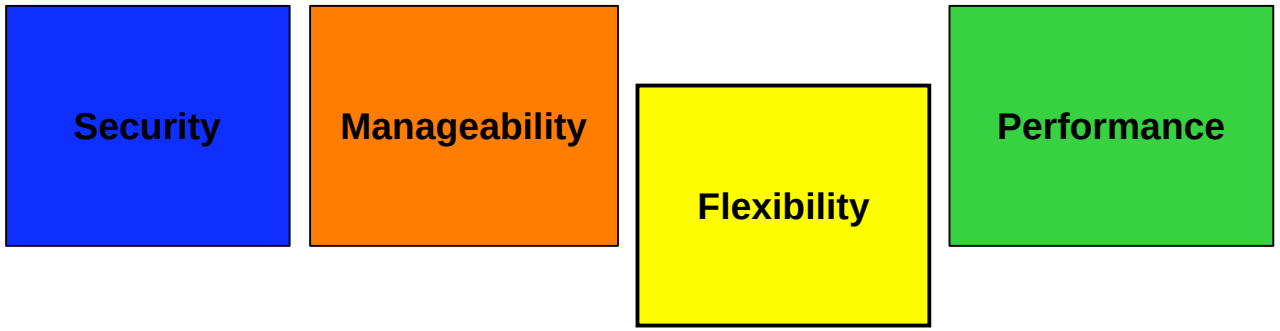
- Enterprise key and policy management
- Advanced authentication and authorization
- Active alerting capabilities (SNMP traps, threshold monitoring)
- Standards-based approach to security and key management

Critical Components of Data Encryption
Manageability



- Centralized auditing and reporting
- Automated backup and recovery
- Highly intuitive management interface

Critical Components of Data Encryption
Flexibility

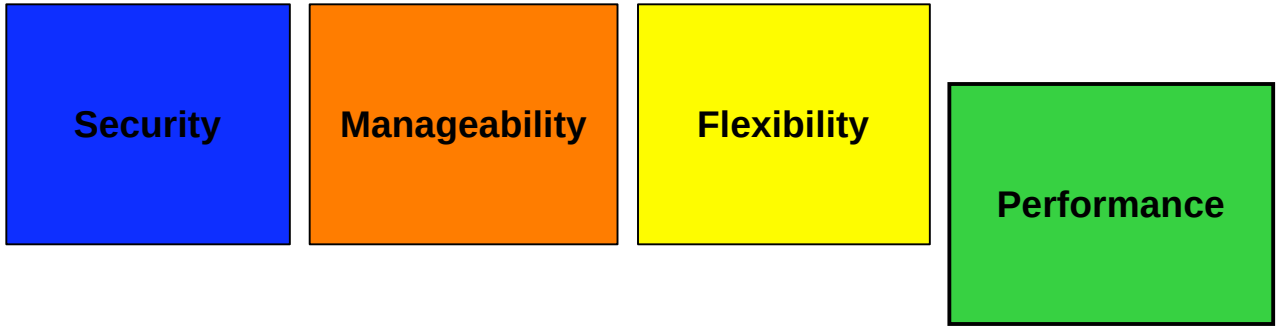


- Multi-environment implementation with a wide range of support for different application environments

- Protection of information at POS locations in addition to data centers

- Integration with 3rd party application and security vendors

Critical Components of Data Encryption
Performance



- High performance encryption offload
- Scalable and reliable
- Solutions for transactional and batch environments

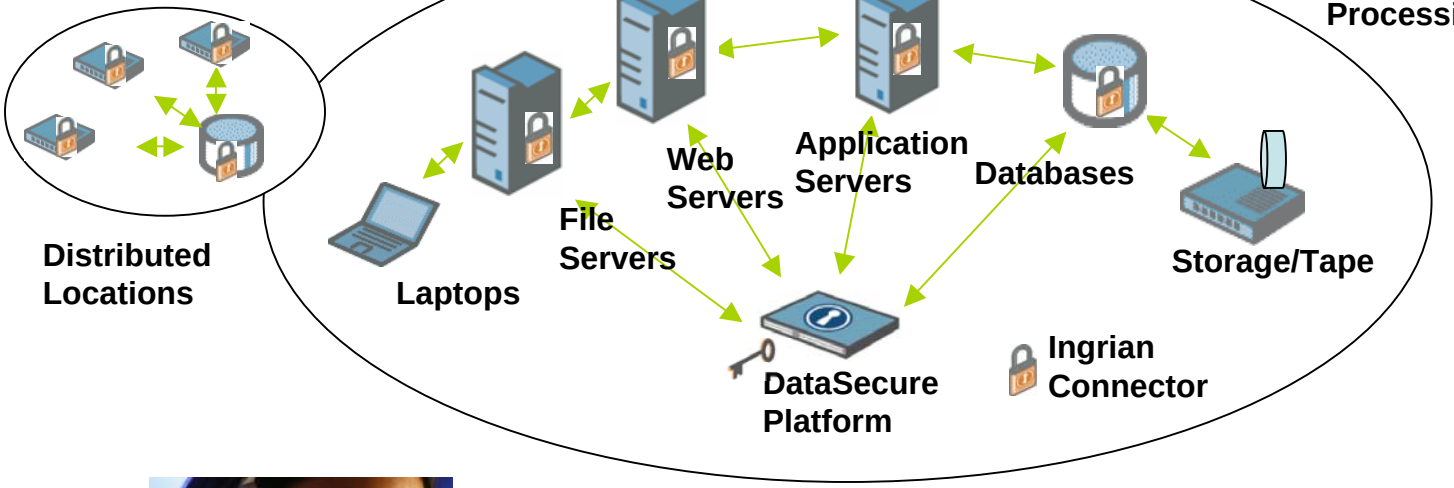
Ingrian Data Encryption Solutions

Ingrian CHOICE™ Architecture

Travel Services

Retail

Payment Processing



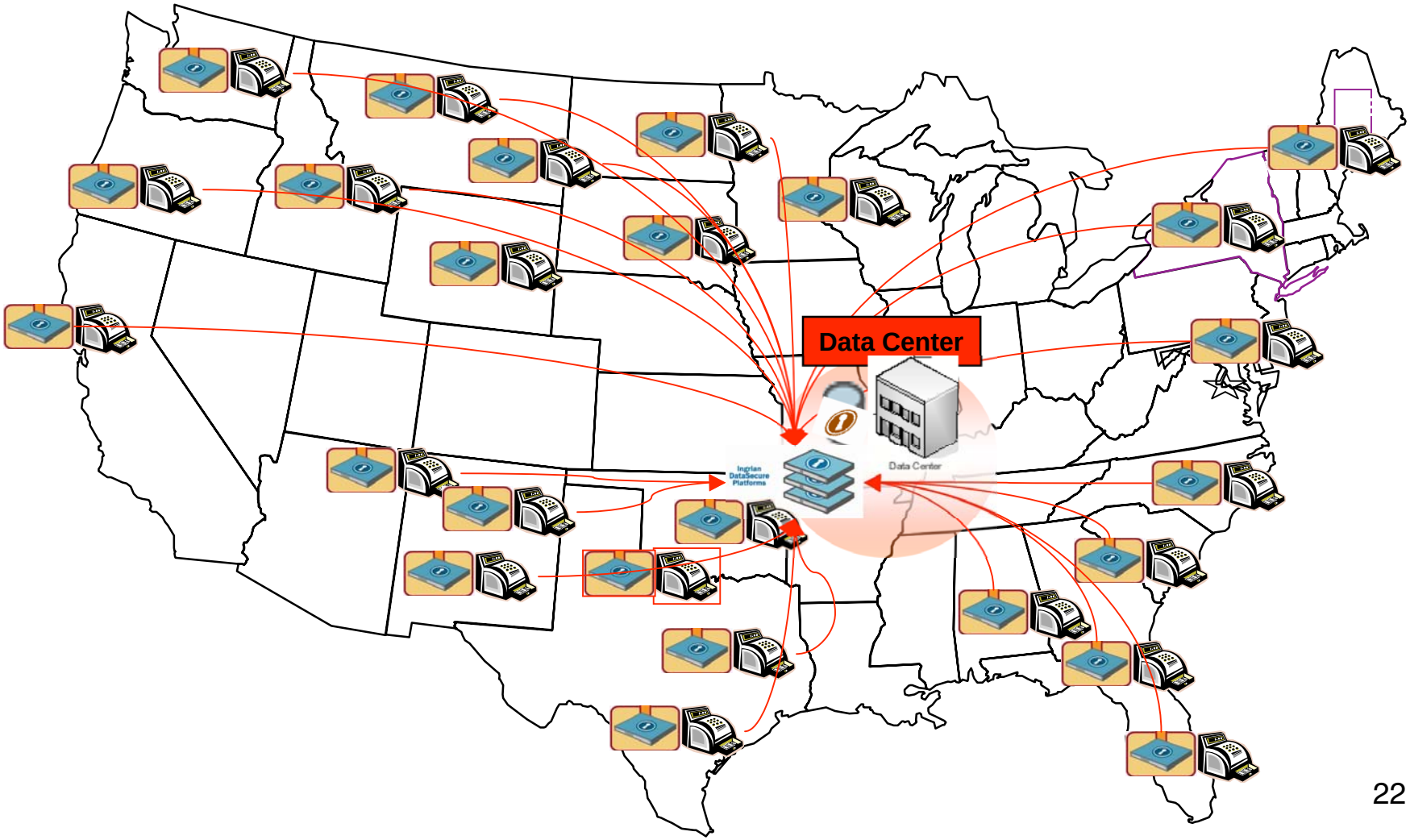
Insurance

Banking

Government Services

Ingrian Data Encryption Solutions

Ingrian i10 EdgeSecure



RSA Conference – Real World Case Studies

Ingrian Presents…

- **What:** Encryption Panel at RSA, “Encryption Demystified”
- **Who:** Panelists are industry experts who have successfully rolled out encryption at Revlon, Dell and Intuit

  Plus, ATW to share perspective on the evolving compliance landscape and the PCI 1.1 update
- **When:** Wed, Feb 7th at RSA Conference, San Francisco
- **Where:** The W Hotel (walking distance from the Moscone)
- **Why:** Educate organizations on how to select, deploy and operationalize encryption solutions to drive true business value for the enterprise

Pre-Announcement Registration, email your contact info to:
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(650) 261-2488 Direct
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Questions?