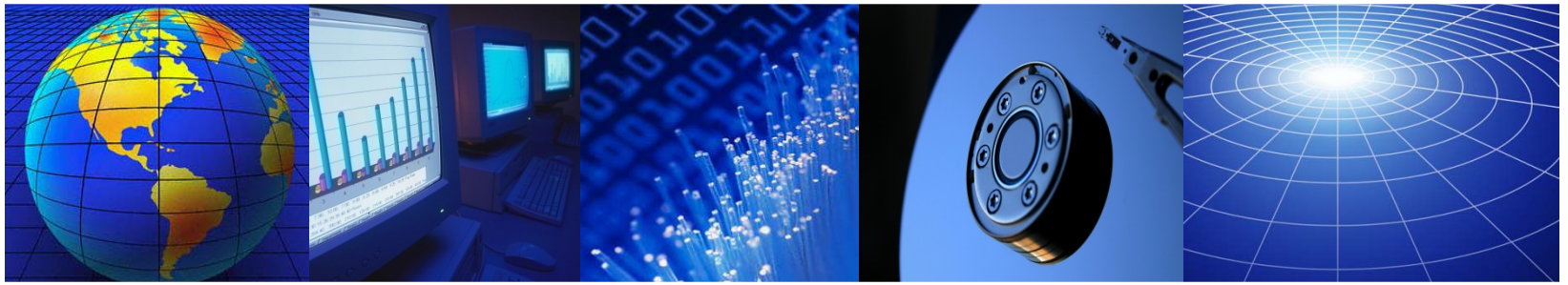
Protecting Confidential Data: The Role of Tape Encryption



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Agenda

- Tape encryption circa pre-/post-Breach era
- Change agents
  - Statistics
- Confidential data
- Technology evolution
  - Today's encryption market
  - Options
  - Impediments
  - Key management
- LTO-4 encryption
  - Key management
  - Recap
- Summary

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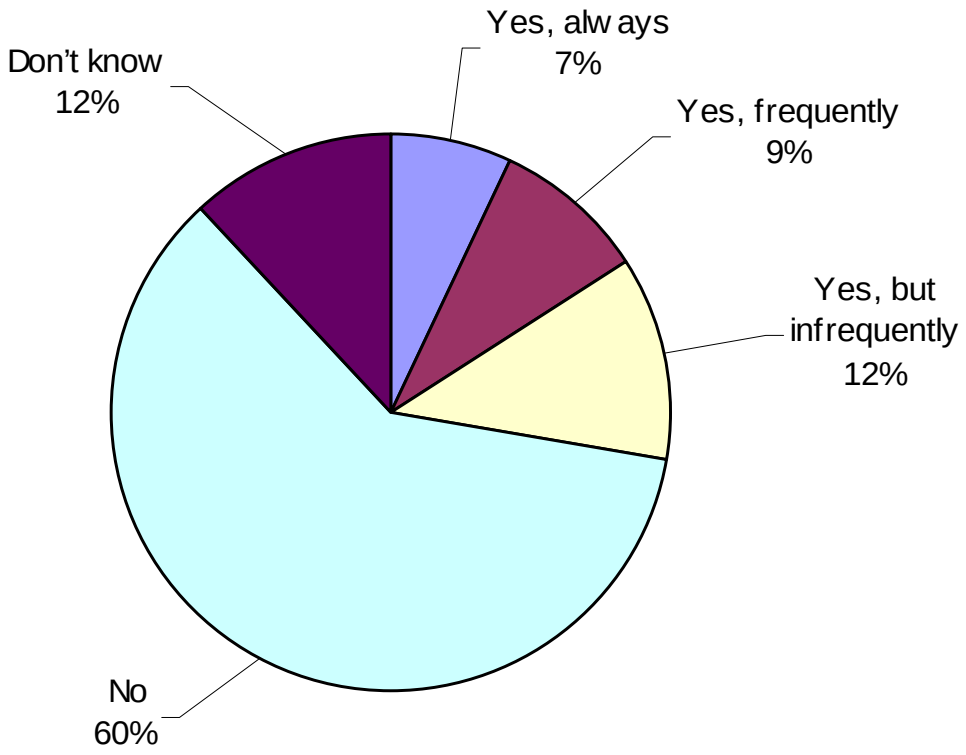
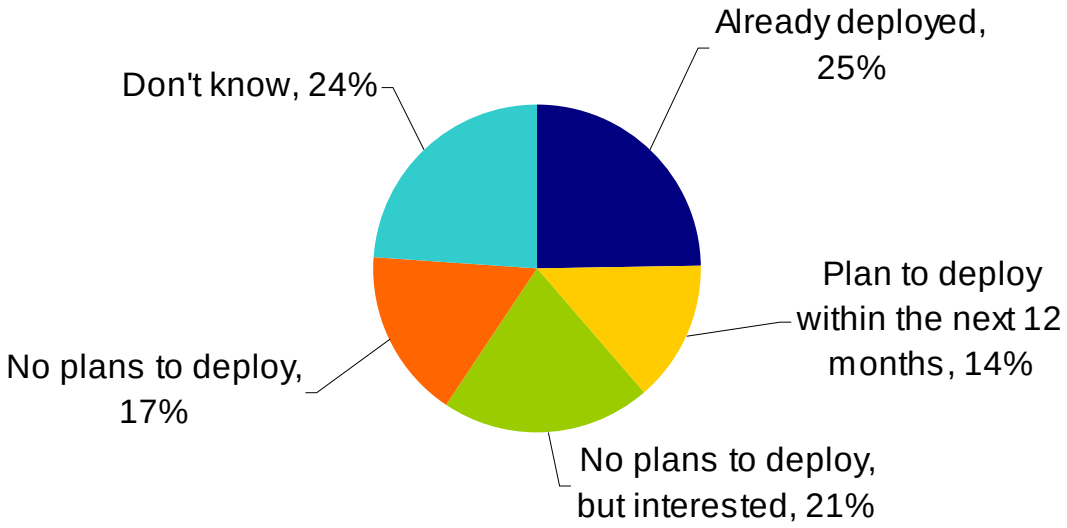
Tape Encryption Circa 2004

Does your company encrypt data as it is backed up to tape?
(percent of storage professionals, N = 388)



Tape Encryption Circa 2006

Does your organization encrypt or plan to encrypt data using tape backup encryption? (Percent of respondents, N = 227)



Note: Figure reflects respondent interest in encryption approximately one year before tape drive encryption became available in the market.

Change Agents

- Regulatory compliance
  - Example: California Database Breach Act (CA SB1386)
  - Many, many more
- Publicly-disclosed breaches
  - Financial, banking, healthcare, other verticals
- Corporate governance

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Scary Statistics

- Since 2000*
  - 70 data breach incidents involving lost/stolen tapes exposing at least 18 million records
  - 34% related to theft
  - 66% related to lost tapes
  - Largest breach
    - 3.9 million records exposed

*Source: Privacy Rights Clearinghouse (www.privacyrights.org)

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Confidential Data

- ESG defines confidential data as information that can be categorized as follows:
  - Intellectual property
  - Information that is protected by government regulations
  - Non-public private information (NPPI)
  - Information that is protected by industry regulations
  - Information that is classified as company confidential or private

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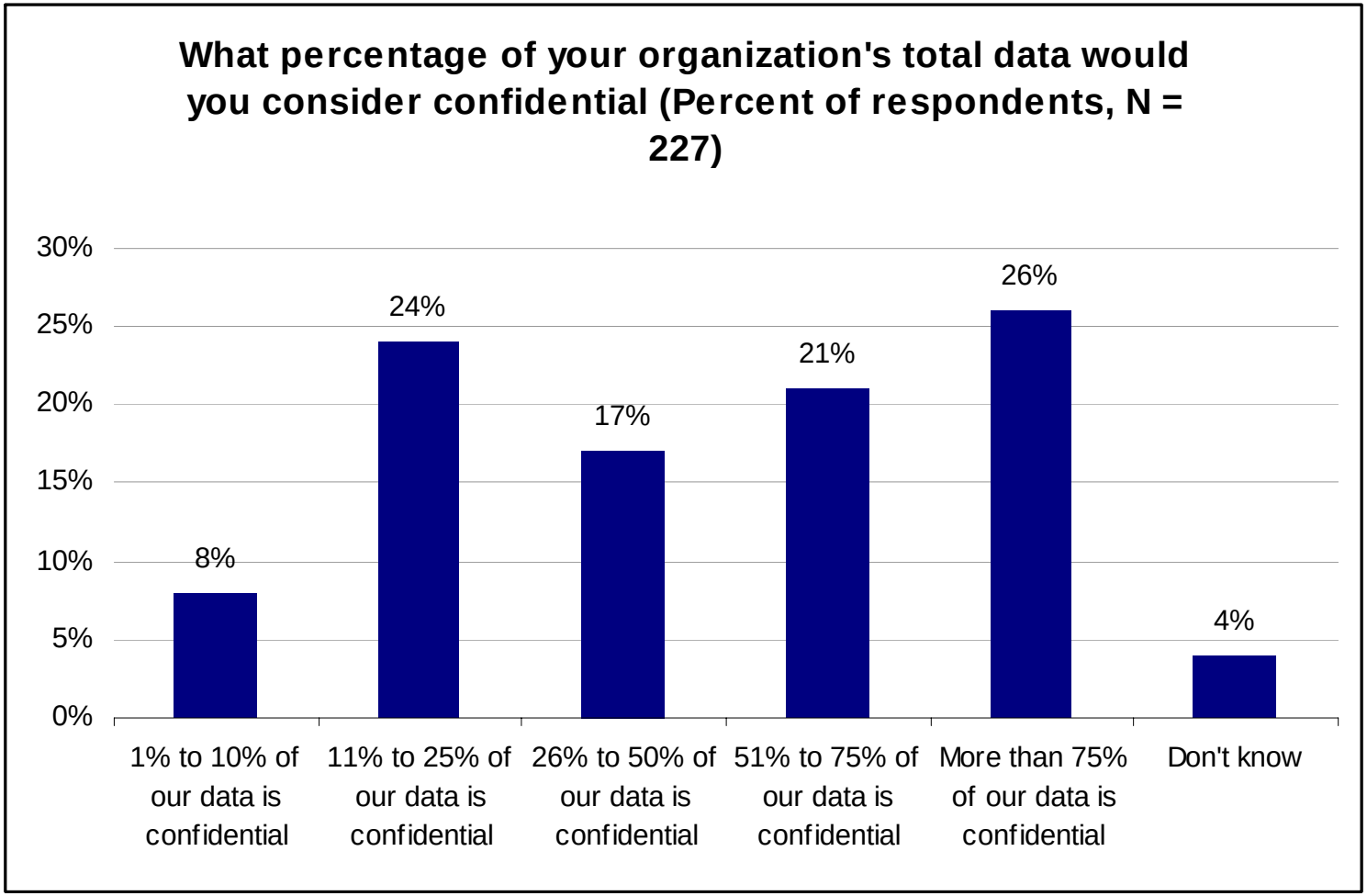
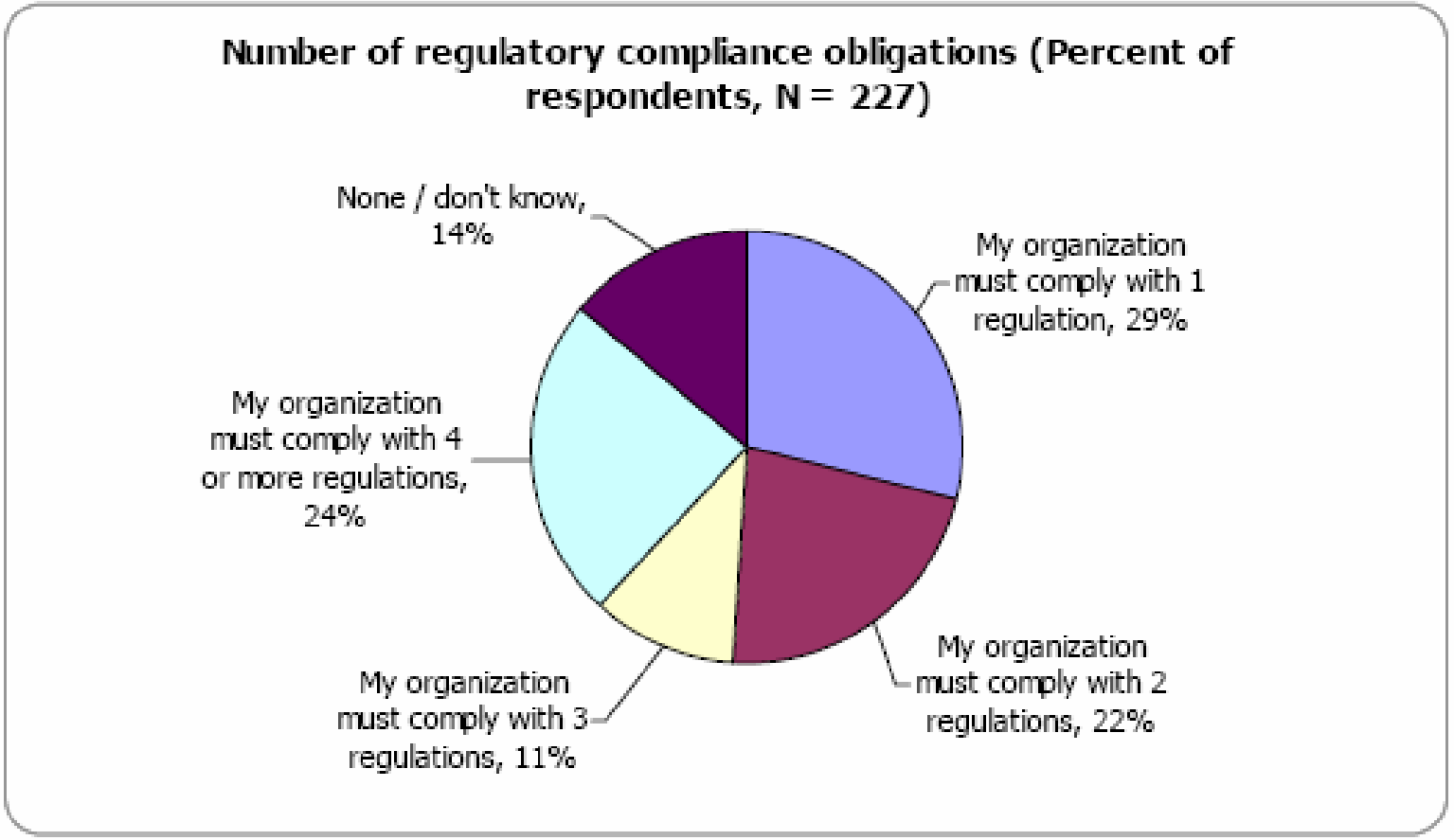
User Confidential Data Volumes



Confidential Data Drivers

- Regulatory compliance-driven
  - 81% of users say that government regulations were the biggest motivator for protecting confidential information.
  - Motivator = disclosure laws
- Financial impact

Compliance Obligations



Financial Impact

- Difficult to calculate – but can run companies in the millions of dollars
- Breakdown:
  - "Hard" costs
    - Correspondence-related cost, PR costs, fines, reparations
    - Data breach cost estimate
    - $25 to $150 per record
  - "Soft" costs
    - Damage to reputation
    - Loss of business/drop in stock price
  - Domino effect
    - Economic implications
    - Consumer Reports survey

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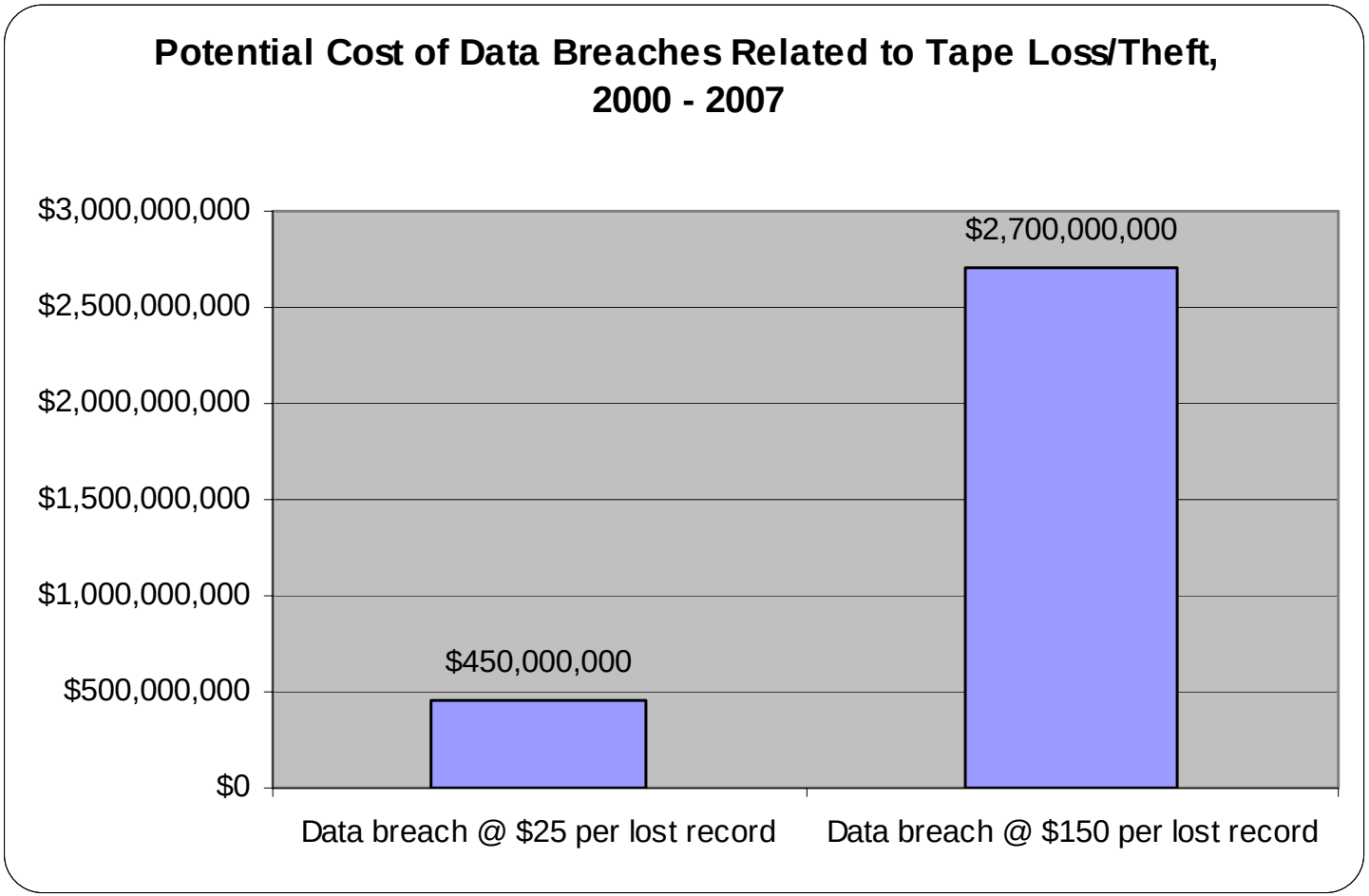
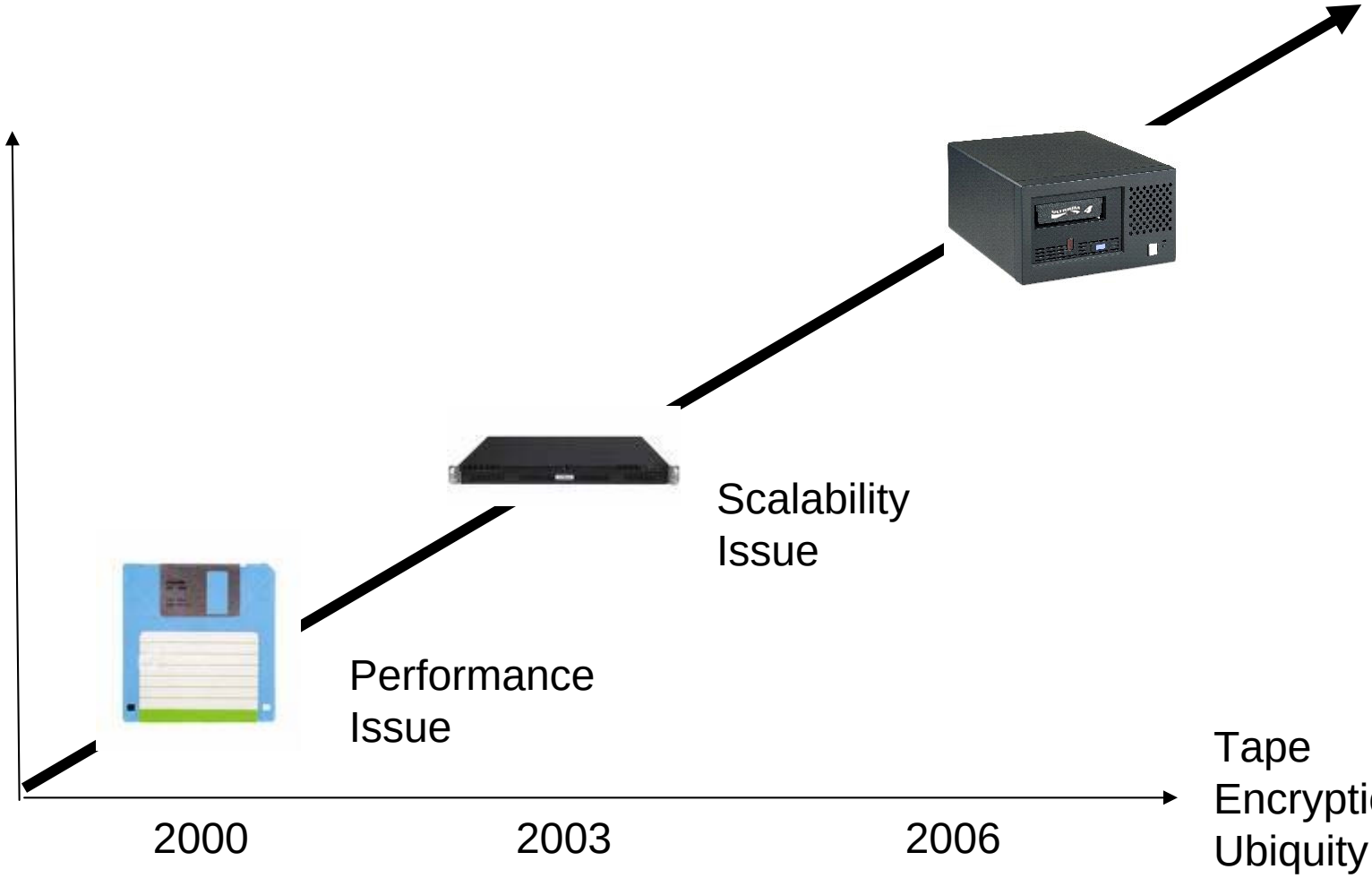
Tape Loss/Theft Cost



Technology Evolution



Market Realities

- Tape encryption penetration will grow over time
- Multiple solutions and technologies
- CIOs should prepare accordingly
  - Architectural approach
  - Key management

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Implementing Encryption

- Where should encryption be done?
  - Application layer, database layer, system layer, or storage layer?
  - Tape encryption options (at the storage level):
    - With software
    - In the network on an appliance
    - In the library
    - In the tape drive
  - Users need to weigh options

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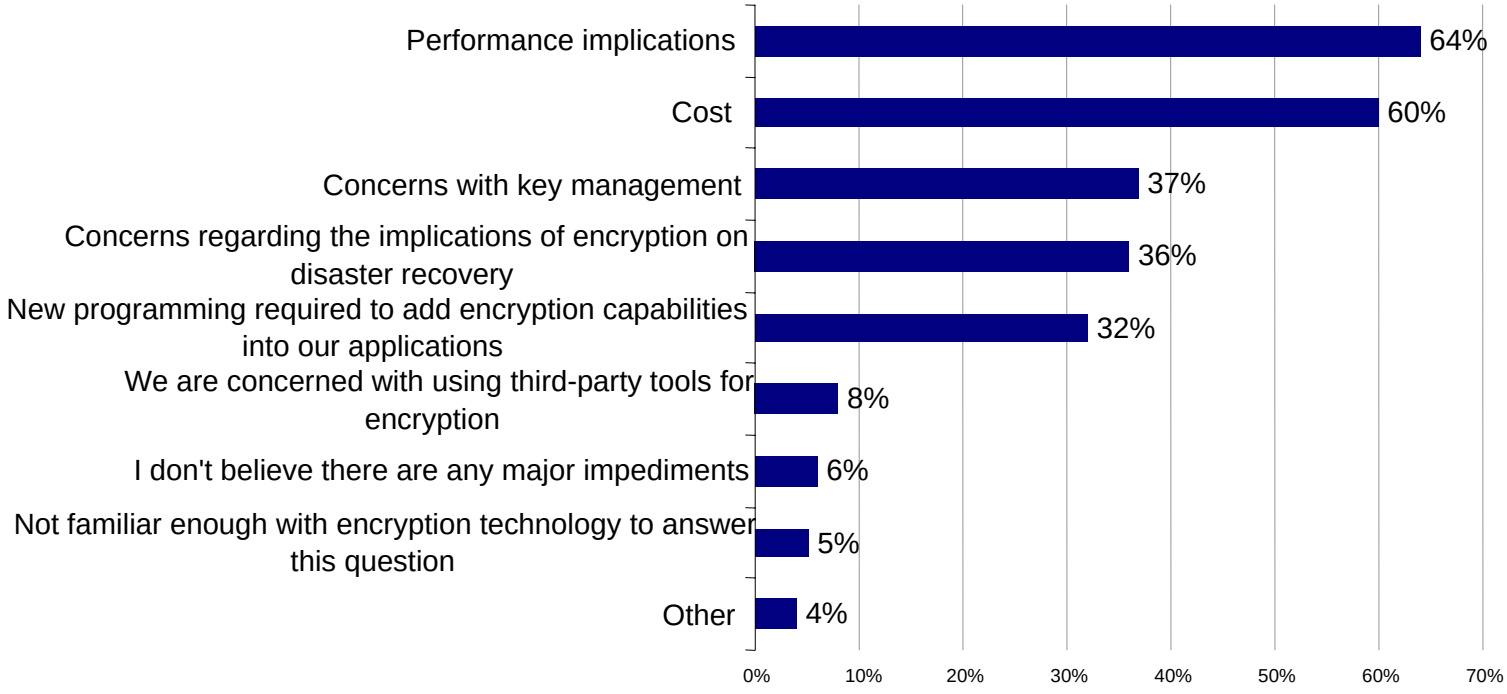
Adoption Impediments

What do you believe are the impediments-if any- to encrypting confidential data? (Percent of respondents, N = 227, multiple responses accepted)



Source: ESG Research, 2006

Key Management

- "Fear factor" – the fear of the unknown
- What is key management?
  - The generation, exchange, storage, safeguarding, and use of encryption keys
  - Encryption key = long string of characters used to encrypt plain text into ciphertext and to decrypt
- Necessary evil
  - As data volumes grow, key management will become increasingly challenging
    - Applies to tape encryption as well as data encryption on laptops or desktop PCs
    - Need to back up
- Long-term answer
  - Centralized key management

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Centralized Key Management

- Definition: Central control of key management for user-wide systems
- Idea is for on-board encryption products, such as LTO-4, to “hook” into this layer
- ESG Research:
  - 54% of users polled were either ‘extremely interested’ or ‘somewhat interested’ in centralized key management. Nearly one-fifth had already deployed one.
- Key management systems provided by a number of suppliers

LTO-4 Encryption

- Uses AES 256-bit industry standard encryption
- Done at the drive level
- Benefits:
  - Minimizes performance overhead
    - Virtually no impact to drive performance
  - Improves efficiency from a processing standpoint
    - Impact on “Time to DR”
  - TCO, maintenance, and training
    - Less “stuff” to buy, manage, and train IT staff on
  - Can compress then encrypt
    - Maximizes cartridge storage capacity
- Option with LTO-4 drives
  - Same drive can encrypt or write standard data

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LTO-4 Recap

Feature	Benefit
Encryption done in hardware	Minimizes performance overhead. Virtually no degradation to tape drive performance. Helps avoid burden on servers. Less compute-intensive than software-based encryption alternatives
Encryption done at the tape drive level	Allows for more efficient processing since processing is done offline. Can reduce "Time to DR" (versus in-line approaches). Reduces the amount of hardware that needs to be purchased, managed and maintained. No need for separate encryption appliance. Allows data to be compressed first and then encrypted, which helps maximize cartridge capacity.
Uses LTO-4 standard or WORM cartridges	Flexible support, depending on user environment (e.g., regulatory/corporate governance requirements).

Summary

- Confidential data is growing by leaps and bounds
- A breach of confidential data could be costly
- Customers need to secure data
- LTO-4 tape drive encryption
  - AES industry standard
  - Fast, transparent
  - Flexible
  - Variety of providers
  - Cost-effective

ESG believes tape encryption with LTO-4 products has the potential to become ubiquitous.

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Q & A

Visit www.ultrium.com/whitepaper
for a copy of ESG's paper on this topic.

Slides from this presentation will be available on
www.ultrium.com

Replays of the webinar will be available at:
http://go.techtarget.com/r/2515860/5392818

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