



IBM Systems and Technology Group

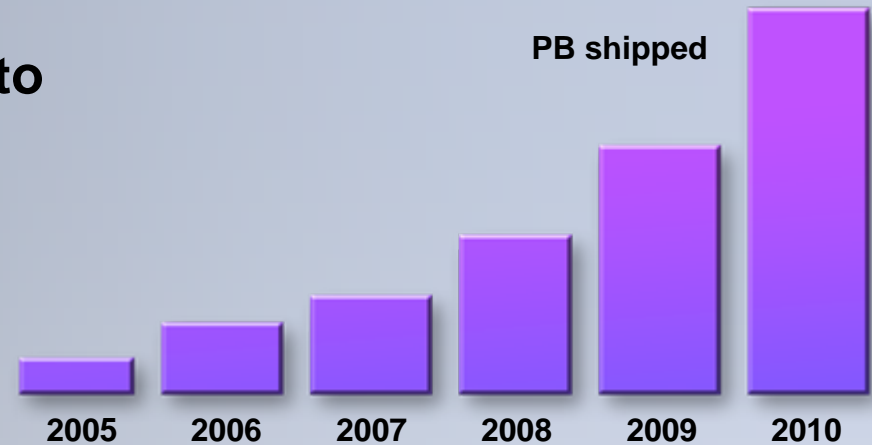
# **IBM Information Infrastructure Strategy**

*Thinking Beyond Today*

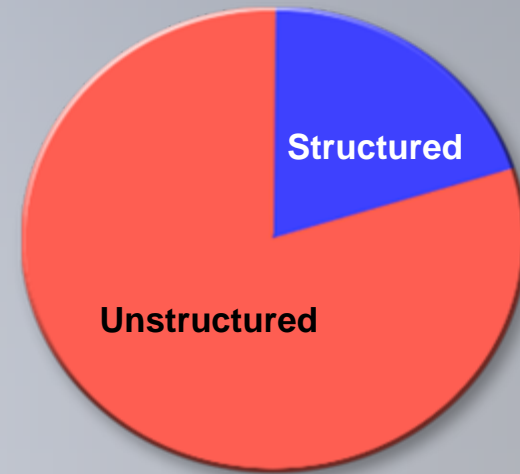
MoonSeoung Hong  
STG Platform

# The Information Explosion

**Data created and copied expected to grow at 57% CAGR through 2010**



**80% is unstructured content, generated largely by email, with increasing contribution by documents, images, and video**



Source: Various external consultant reports

# The Information Era

## *Business Challenges*

- Globalization
- Mergers
- Risk & Compliance
- Customer Loyalty
- Operational Costs
- Business Velocity

...

**INFORMATION  
IS A  
STRATEGIC  
ASSET**

## *Information Challenges*

- Retention
- Security
- Accessibility
- Version control
- Volume and Variety
- Infrastructure Silos

...

***5x more value creation by organizations using  
information effectively\****

\* Based on IBM internal studies and estimates.

Sources: IBM® Attributes & Capabilities Study, 2005; Client Interviews 2004; IBM CFO Study, 2006

# Key Capabilities for Successfully Managing Information

*An Information Infrastructure Must Address...*



## Information Availability

*Deliver continuous and reliable access to information*

**Downtime costs can amount up to 16% of revenue in some industries.**



## Information Security

*Protect and enable secure sharing of information*

**84% of security breaches come from internal sources.**



## Information Retention

*Support your information retention policies*

**Average legal discovery request can cost organizations from \$150k to \$250k.**



## Information Compliance

*Reduce reputation risks and audit deficiencies*

**63% IT executives rate compliance with regulations a top challenge.**

# Common Client Requirements

## *For Managing Information Risks*



### **Information Availability**

*Deliver continuous and reliable access to information*

- **Heterogeneous storage virtualization**
- **Unified management console**
- **Future-proof data migration services**



### **Information Security**

*Protect and enable secure sharing of information*

- **Data and media encryption**
- **Secure Access control**
- **Continuous data protection**



### **Information Retention**

*Support your information retention policies*

- **Optimized, efficient tiered storage**
- **Data deduplication, compression**
- **Integrated archiving solutions**



### **Information Compliance**

*Reduce reputation risks and audit deficiencies*

- **Data discovery, classification**
- **Tunable service levels**
- **Information lifecycle management**

# Zappos.com, Inc.

## IBM Information Infrastructure Improves Information Availability



- ▶ *IT infrastructure was not keeping pace with the company's 100%+ annual growth rate*
- ▶ *Manual installation and testing for every server*
- ▶ *Manual configuration changes took several hours*



### **Solution**

- Move to a new Enterprise Data Center
- Technology refresh
- Total Solution components:
  - Storage: N series Gateway with Snapshot, DS8300 disk
  - Servers: BladeCenter
  - Services: Sycomp, an IBM Premier Business Partner

### **Result**

- Able to process approximately **20,000 web orders per day**
- Able to **deploy new Web servers in 5 minutes**, using Snapshot over iSCSI
- Improved systems performance
- Simpler maintenance
- Positioned the company to **accommodate exponential growth**

# Large US Healthcare Benefits Management Company

## *IBM Information Infrastructure Improves Information Retention*



- ▶ *Medical records require retention for patient's life + 2 years*
- ▶ *Mainframe and distributed support required*
- ▶ *Security must be easy to use*
- ▶ *Unable to secure information leaving the data center*

### **Solution**

- New Medical Records Archive system
- Total Solution components:
  - Application Software: IBM Encryption Key Manager (EKM), Java RJE/SDK 1.4.2 SR6, Tivoli Storage Manager
  - Hardware: TS1120 Model E05 Tape Drives w/ encryption, TS3500 (3584) Tape Library
  - Services: IBM Global Services

### **Result**

- Improved client privacy.
  - Implemented secure key management and media encryption for long term archives.
  - Migrated 200,000 tape volumes to encrypted media.
- Improved efficiency.
  - Retired 120 low capacity tape drives
  - Retired 7 older Sun tape libraries.

# Multinational Financial Services Provider

## IBM Information Infrastructure Improves Information Security



- ▶ *Security breached when Delivery service misplaced a box of tapes*
- ▶ *High cost to recover lost data*
- ▶ *Encryption overhead must not impact application performance*
- ▶ *High media costs*

### **Solution**

- New Media Encryption Solution
- Total Solution components:
  - System z comprehensive key, policy and security management system
  - Hardware: 371 IBM TotalStorage 3592 Enterprise Tape Drives and 41 controllers, 10 IBM TotalStorage 3584 Ultrium UltraScalable Tape Libraries and 60 library expansion frames, IBM directors and new FICON channels

### **Result**

- Reduced business risk; less security breach exposure
- Fast, reliable, 256 bit encryption
- Able to encrypt many tapes in parallel
- Able to compress before encryption, reducing media expenses

# The Information Infrastructure Vendor – IBM

*IBM Addresses Our Client's Information Needs*

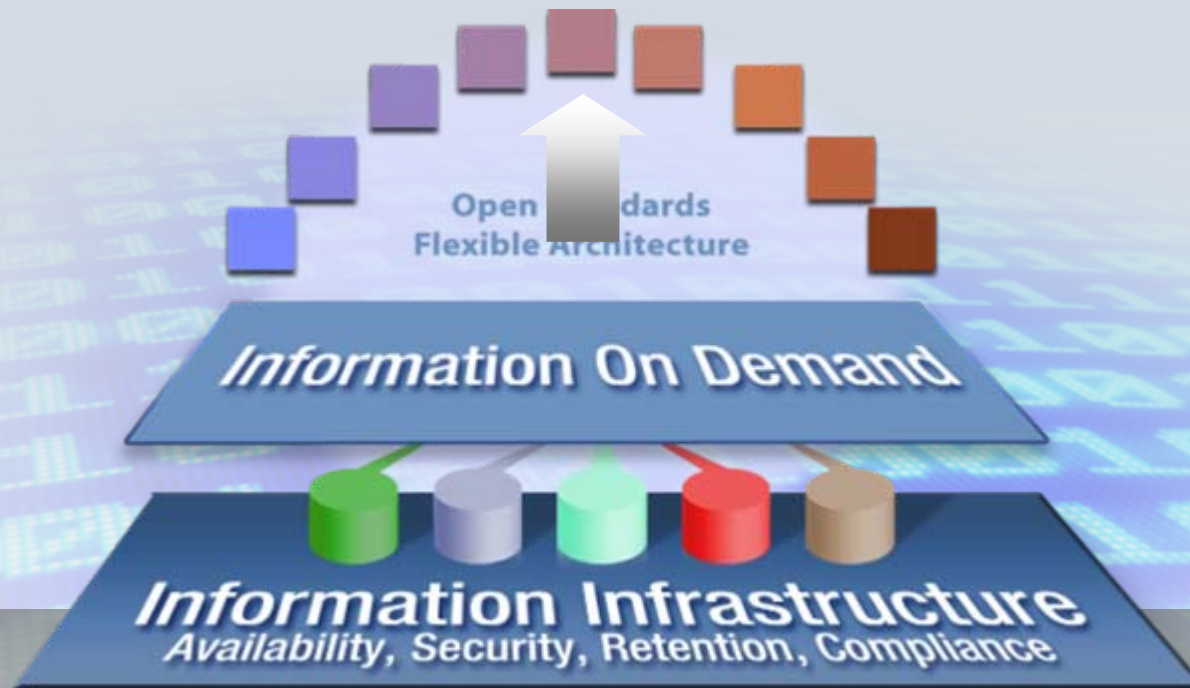


**New Enterprise  
Data Center**

**IBM enables an evolutionary new model for efficient IT delivery  
with a *resilient infrastructure for securely storing information*  
and mitigating business risks.**

# IBM Information Infrastructure

*Essential Client Value Supporting Information On Demand*



IBM enables clients to *unlock the Business Value of information*, supported by a resilient, optimized infrastructure for *securely managing information* and *mitigating business risks*.

# Multiple Forces Driving Information Solutions Needs



## Information Explosion

- 57% CAGR thru 2010\*
  - 80% unstructured\*
- Unpredictable workloads

## Business Optimization Opportunities

- Customer profitability
  - Information quality
- Content-based processes and products

## Risk and Cost Management

- Compliance / legal
  - Security / privacy
- Capital Expense and Operation Expense Control

\* Sources: Various external consultant reports

# IBM Information Infrastructure Delivers

*Technology, Solutions, and Expertise to Accelerate Information On Demand*



## Technology Leadership

- Best of Breed Products
  - R&D Innovation
  - Acquisitions

## Client Focused Solutions

- Purpose Designed
  - Industry Aligned
- Cross IBM Integrated

## Expertise & Experience

- Industry Expertise
- Consulting Services
- Experience Based Tools and Methods

# IBM is Responding

*Technology Leadership to Drive Information Infrastructure Initiatives*



## New Enterprise Data Center

### Technology Leadership

- Best of Breed Products
  - R&D Innovation
  - Acquisitions

### Client Focused Solutions

- Purpose Designed
  - Industry Aligned
- Cross IBM Integrated

### Expertise & Experience

- Industry Expertise
- Consulting Services
- Experience Based Tools and Methods

# Technology Leadership Strategy

*Integrated Solutions; Product Leadership; Research and Development Labs*

## Solution Leadership

- Archiving and Retention
- Compliance
- Tiered Storage
- Data Privacy
- Business Continuity
- Data Migration

2007

## Product Leadership

- Virtualization
- Management software
- Security
- Service products
- Enterprise disk systems
- Scale Out NAS
- Tape systems

## New Capacities

- **1 TB disk**
- **8 Gbps SAN**
- **768 port SAN Director**
- **Extended Address Volumes for z/OS**

2008

## More Efficiency

- **Thin Provisioning**
- **Integrated Console**
- **Self healing storage**
- **De-duplication**
- **Solid State storage**

## New Technologies

- Storage Power Modeling
- Caching and Encryption
- High Performance File Systems

2009

## New Integrated Solutions

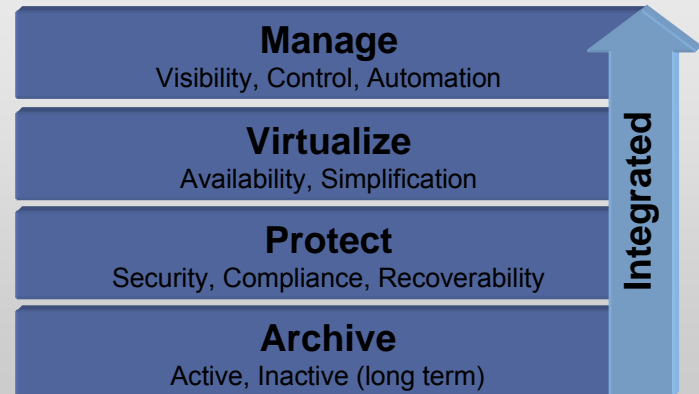
- Virtual Data Center
- End-to-end Security
- Compliance Warehouse

# Optimized for IBM Server Environments

## *Built Together to Work Together*

- Server/storage integration
  - **Design**
  - **Development**
  - **Testing**
  - **Customer Support**
  
- Simpler cross-platform portability
  
- Better scalability and performance

### IBM Information Infrastructure



### Best Practices and Services

### IBM Server Platforms



Mainframe

Modular

Power

# Acquisition Leadership Strategy

*Bringing Great People and Technologies into the IBM Family;  
Helping Clients Enhance Core Capabilities*



## Information Availability

*Deliver continuous and reliable access to information*

- **XIV** – High performance, scalable grid-based storage systems, 1/08
- **Novus** - storage analysis and reporting software and services, 10/07
- **Softek** - Data mobility technology and best practices consulting, 3/07



## Information Security

*Protect and enable secure sharing of information*

- **Encentuate** - Enterprise single sign-on and authentication, 3/08
- **Watchfire** - Web application vulnerability assessment and compliance solutions, 7/07
- **Internet Security Systems** - Preemptive enterprise security, 10/06



## Information Retention

*Support your information retention policies*

- **Diligent** – In-line data de-duplication, 4/08
- **FilesX** - Continuous data protection and rapid recovery, 4/08
- **Princeton Softech** – Database Archiving (Optim), 9/07



## Information Compliance

*Reduce reputation risks and audit deficiencies*

- **Consul** - Data governance and compliance monitoring, auditing and reporting, 1/07
- **FileNet** - Business process and content management solutions, 10/06

# IBM is Responding

*Client Centric Solutions with a Faster Time to Value*



## Technology Leadership

- Best of Breed Products
  - R&D Innovation
  - Acquisitions

## Client Focused Solutions

- Purpose Designed
  - Industry Aligned
- Cross IBM Integrated

## Expertise & Experience

- Industry Expertise
- Consulting Services
- Experience Based Tools and Methods

# Client Centric Solutions for Today's Projects

*Supported By Technical Integration and Services*



## Information Availability

*Deliver continuous and reliable access to information*

- *Geographically Dispersed Parallel Sysplex (GDPS)*
- *Scale Out File Services (SOFS)*



## Information Security

*Protect and enable secure sharing of information*

- *Encrypted Media, Key Management*
- *zSecure Suite*
- *Tivoli Compliance Insight Manager*



## Information Retention

*Support your information retention policies*

- *Balanced Warehouse*
- *Grid Medical Archiving (GMAS)*
- *Virtual Tape System (VTS)*



## Information Compliance

*Reduce reputation risks and audit deficiencies*

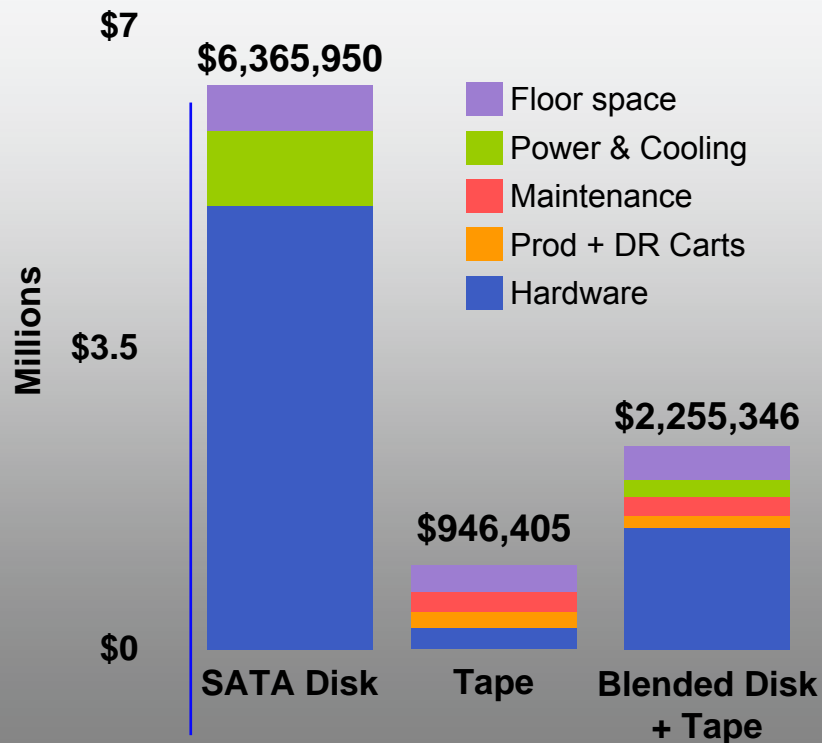
- *Compliance Warehouse*
- *Data Retention System (DR550)*

# Reducing Total Costs through Energy Efficiency

*IBM is the Leader in Green Data Center Initiatives*

## Help cut TCO up to 50% or more\*

10 year TCO example. Assumes 250TB of storage, 25% growth per year.



"... tape is still less expensive to acquire and maintain than disk over the long term and it can offer power and cooling efficiencies over disk."

Source: Addressing Archiving and Retention Challenges In the Government Sector, Heidi Biggar and Brian Babineau, Enterprise Strategy Group, March, 2008

## Green Projects for Information Infrastructure Reduce TCO

- Virtualization
- Best Practices
- Technology Refresh
- Tiered Storage
- Storage Consolidation



# IBM is Responding

*Expertise and Experience Needed for Information Infrastructure Projects*



## **Technology Leadership**

- Best of Breed Products
  - R&D Innovation
  - Acquisitions

## **Client Focused Solutions**

- Purpose Designed
  - Industry Aligned
- Cross IBM Integrated

## **Expertise & Experience**

- Industry Expertise
- Consulting Services
- Experience Based Tools and Methods

# Information Infrastructure Services

*Implementation Services; Expert Consulting; Services Products*



## Information Availability

*Deliver continuous and reliable access to information*

- *High Availability Services*
- *Storage Virtualization Services*
- *Data Mobility Services*



## Information Security

*Protect and enable secure sharing of information*

- *Internet Security Systems (ISS) Services*
- *Tape Encryption and Key Mgt Services*
- *Network Mail Security*



## Information Retention

*Support your information retention policies*

- *Information Lifecycle Mgt. Services*
- *Data Continuity Services*
- *Enterprise Archiving Services*



## Information Compliance

*Reduce reputation risks and audit deficiencies*

- *Regulatory Compliance Services*
- *Implementation Services for DR550*
- *Enterprise Content Protection Services*

Assess \* Design \* Deploy \* Manage

# Start a Business Conversation about Information Infrastructure

- **Availability**

- Do you have communities of users that need to share files?
- Can your employees and customers access data quickly enough to keep them productive and happy?
- How do you ensure that your data is protected from loss?

- **Retention**

- Do you have needs to keep data for long periods of time?
- Have you implemented tiered storage techniques to manage the cost of maintaining data over time?

- **Compliance**

- Are there government regulations with which you need to comply for your storage of information?
- Do you have a well defined data governance model that is consistently applied?

- **Security**

- How do you protect sensitive information today?
- Have you implemented data encryption for your information?

# Information Infrastructure Solution Play

IBM delivers Solutions with Proven Capabilities for Managing Information Risks

Solution Selling = Selling Solutions



## Information Availability

*Deliver continuous and reliable access to information*

- **Storage Optimization & Virtualization**
- **GPFS & SOFS (File sharing)**
- **Data Mobility & Migration**
- **Storage HA Solution (GDPS, HyperSwap)**



## Information Security

*Protect and enable secure sharing of information*

- **Data Security Service**
- **IBM WORM Solution (DR550)**
- **IBM Data Encryption Solution (LTO)**



## Information Retention

*Support your information retention policies*

- **Data De-Duplication & VTL**
- **DB Archiving (Optim)**
- **Enterprise Contents Archiving (Filenet)**
- **Archiving storage & LTO tape solution**



## Information Compliance

*Reduce reputation risks and audit deficiencies*

- **Compliance monitoring & Reporting (Tivoli Compliance Insight Manager/zSecure Suite)**
- **IBM DR550 & nSeries**

# Information Infrastructure Solution Play

## *Information Infrastructure Solution 별 담당자*



### Information Availability

*Deliver continuous and reliable access to information*

- **GTS focal** : 윤석로 차장
- **STG focal**
  - **Storage Virtualization** : 박아름 과장
  - **GPFS & SOFS** : 박대성 차장
  - **Storage HA Solution** : 박지환 부장
  - **Data Mobility & Migration** : 박지환 부장



### Information Security

*Protect and enable secure sharing of information*

- **GTS focal** : 서성원 실장
- **STG focal** : 김연 대표



### Information Retention

*Support your information retention policies*

- **SWG focal**
  - **Optim** : 이지은 실장
  - **Filenet** : 신대준 실장
- **GTS focal** : 윤석로 차장
- **STG focal** : 박아름 과장



### Information Compliance

*Reduce reputation risks and audit deficiencies*

- **SWG focal** : 박형근 과장
- **STG focal** : 김연 대표

# 2008 Information Infrastructure Launch Plan

**1Q08**

## NEW ENTERPRISE DATA CENTER

System z10

*IBM Information Infrastructure for System z  
Availability and Retention*

DS8000,  
TS7700

**2Q08**

## BIG GREEN

Unified Power Systems – April

Power Systems – Big Green

*IBM Information Infrastructure  
Information Availability & Virtualization*

SVC - thin provisioning  
TS7520 Virtual Tape Library – data deduplication

**3Q08**

## INFORMATION INFRASTRUCTURE

System Storage, Tivoli, IM, GTS, GBS

*IBM Information Infrastructure  
Availability, Security, Retention, Compliance*

XIV Product Introduction  
DS5000 Introduction  
TotalStorage Productivity Center

**4Q08**

## (Power, z MR)

System zMR

Power Enterprise MR

*IBM Information Infrastructure  
Information Security & Availability (data protection)*

DS8000 – 1<sup>ST</sup> native enterprise disk encryption and high performance FICON for System z  
TS7700 virtual tape – availability enhan's for System z

# Appendix

# Information Availability

*Visibility; Automation; Control*

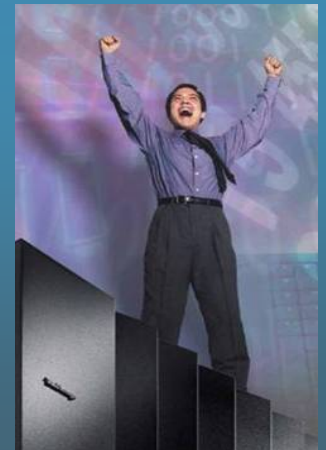
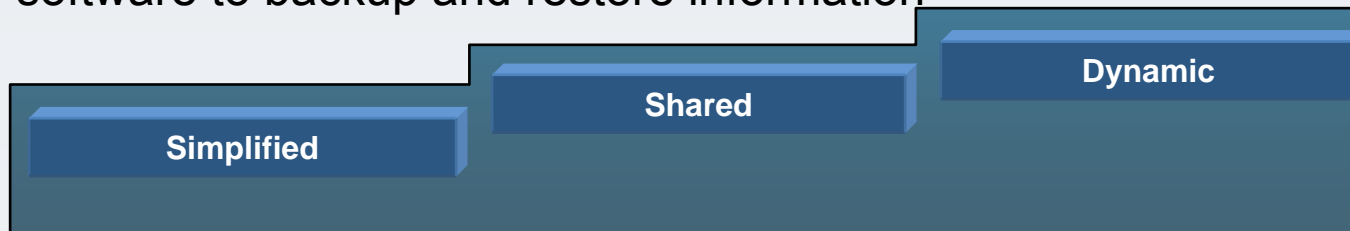


## Recommended approach:

- Step 1: Architect for resiliency: Leverage best practices in high availability design
- Step 2: Virtualize heterogeneous storage systems: Eliminate information silos
- Step 3: Consolidate disparate management tools: Improve productivity
- Step 4: Automate operational tasks: Minimize human error, improve performance

## IBM Information Infrastructure field-proven capabilities:

- Virtualization for heterogeneous storage systems: IBM, EMC, HP and more
- Integrated high availability disk and tape solutions
- Unified storage management console
- Disaster recovery with 2-site and 3-site replication
- Storage software to backup and restore information



# Information Retention

IBM Information Infrastructure Solutions help Lower TCO up to 50%\*

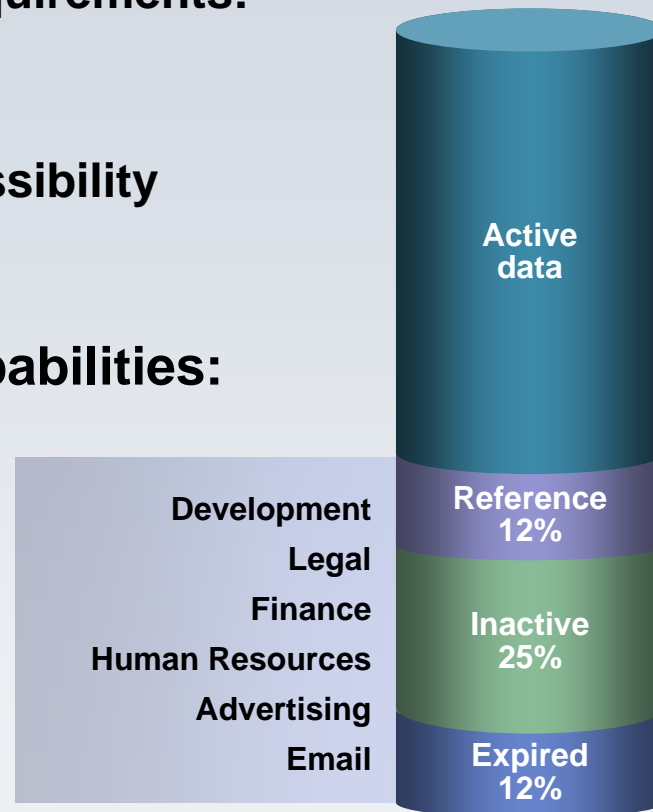


## Recommended approach:

- **Step 1: Map archive infrastructure to retention requirements: Reduce cost and energy consumption**
  - 37% of data is expired or inactive
- **Step 2: Future-proof: Ensure long term data accessibility**
  - 83% surveyed keep some data 50 years or more

## IBM Information Infrastructure field-proven capabilities:

- **Energy efficient blend of disk and tape storage**
- **Data de-duplication software**
- **Integrated archiving solutions**
  - Email archiving, database archiving
- **Cross-platform online data migration services**



"... tape is still less expensive to acquire and maintain than disk over the long term and it can offer power and cooling efficiencies over disk."

Source: Addressing Archiving and Retention Challenges In the Government Sector, Heidi Biggar and Brian Babineau, Enterprise Strategy Group, March, 2008

Source: [SNIA Data Management Forum, 100 Year Archive Requirements Survey](#), Storage Networking Industry Association (SNIA), 2007

# Information Compliance

*Flexible; Automated; Easy to Audit*

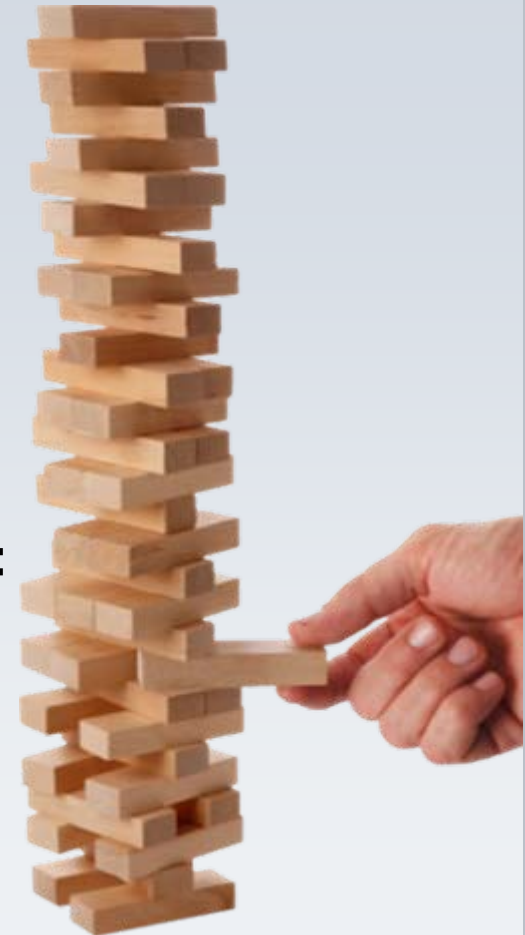


## Recommended approach:

- **Step 1: Maintain adequate systems and procedures for records preservation and email**
  - Effectively communicate Hold Orders to employees
- **Step 2: Define process for destroying expired data**
  - Eliminate risk and cost of maintaining documents beyond required retention periods
- **Step 3: Automate processes: eliminate human error**

## IBM Information Infrastructure field-proven capabilities:

- **Compliance Warehouse**
- **Policy based data governance**
  - Policy based overwrite protection
  - Regulatory Compliance services
- **Protected storage, high speed storage, offline storage**



# Information Security

*Encryption; Data Protection; Access Control*



## ■ Pioneering data protection since 1960

- IBM Privacy Research Institute
- Most trusted technology company for privacy
- First to market with tape encryption

## ■ Integrated solutions

## ■ IBM Information Infrastructure field-proven capabilities:

- Non-erasable, non-rewritable storage
- Encrypted disk and tape systems
- Continuous data protection
- Access and identity management
- Data Security Services

“ What separates IBM from the pack is its ability to provide a complete and extensible Enterprise Tape Encryption architecture, including an *enterprise key management capability*. ”

**Jon Oltsik**

Enterprise Tape Encryption  
Requirements for the Banking Industry,  
Enterprise Strategy Group  
August 2006