Just how fast is the data growing?

The World’s total data per person

- 0.8 GB/person (2003)
- 24 GB/person (2006)
- 128 GB/person (2010)

- “No Problem”
- “I think I can do this”
- “We have a problem”
Macro Market Dynamics

- Storage Software is a $10+B market today
- Industry will collectively spend $3B more in 2011 than it did in 2007 on Storage Software
IBM Storage Management Portfolio Overview

- **Tivoli Storage Manager (TSM) family**
- **TSM FastBack**
- **Continuous Data Protection (CDP) for Files**

- **SAN Volume Controller (SVC)**
- **TotalStorage Productivity Center (TPC) and SSPC**
- **TPC for Replication**
- **Omegamon XE for Storage (z/OS)**

- **TSM HSM**
- **DR550**
- **IBM Information Archive (2009)**

*Visibility, Control, and Automation of the Information Infrastructure*
Total Cost of Ownership: How IBM Storage Software Helps

**Average Storage TCO for Storage Systems**

*Source: Gartner Group*

- Better manage explosive data growth
- Simplify storage management across tiers of heterogeneous storage
- Reduce time to provision storage
- Monitor and automate backup and archive of corporate files
- Predict out of space conditions
- Detect availability issues in SAN
- Monitor SAN and Disk perf hot spots

**Lower hardware costs**
- 20%

**Storage resource optimization**
- 20%

**Make more efficient storage purchases based on capacity demands**
- 20%

**Administration**
- 13%

**Environmentals**
- 14%

**Backup / Restore**
- 30%

**Downtime**
- 20%

**Purchase**
- 20%

**Hardware Management**
- 3%
IBM Strategy for

1. Evolve from data protection to *Unified Recovery Management*

2. **Proactively manage data growth** with next generation
   - Scalability
   - Availability
   - Performance
   - Data reduction
   - Ease of use

3. **Expand business continuity** with advanced replication solutions for Disaster Recovery

4. **Securely protect data** and simplify security operations
Proven Technology
- More than 20,000 customers
- 60% of Fortune 500 companies
- Tivoli’s #1 revenue product

Complete Storage Management
- Backup / Restore
- Archive / Retrieve
- Disaster Recovery
- Space Management
- Application and database protection
- Bare Machine Recovery
- Data Reduction
- Robust Remote Office Recovery
- Continuous Data Protection

Firsts
- To provide support for both tape and disk
- To use a progressive incremental approach
- To use hierarchical management for offline storage
- IBM product to offer support to Linux
- To offer Disk to Disk backup

Market Leader
14 consecutive quarters of growth faster than the market
-- IDC Worldwide Quarterly Storage Software Tracker

Coincidence?
In 1993, TSM and the WW web made were both available to the public
Vision: Unified Management with Tiered Recovery
Recovery technologies aligned with business priorities

Mobile Office Laptops
CDP for Files

Remote Office Branch Office
TSM FastBack

Enterprise Data Center
TSM

Data Protection Service Levels
(RTO, RPO, Application Synchronization, etc)

WAN LAN SAN

Tier 1
Mirroring, Replication

Tier 2
Snapshots, CDP

Tier 3
Traditional Backup, DR

Recovery Management

TSM

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The Road Ahead for IBM Recovery Management

Future

2009-2010

- Enhancement and proliferation of data reduction technologies
- Tiered recovery management from simplified and consolidated UI
- Advanced replication with deeper Diligent integration
- Continued Backup Services enablement
- Deeper analytics, trending and correlation of reporting data
- Centralized encryption key management

- Tremendous scalability and availability
- Additional data deduplication capability within TSM and FastBack
- Continued time to value improvements
- Tiered recovery and other integration between TSM and FastBack
- Enhanced recovery for virtualized environments
- Deeper integration with NetApp
- Delivery and enhancement of common reporting and monitoring
IBM Strategy for

1. Maximize storage investments by optimizing the heterogeneous information infrastructure

2. Enable business flexibility and non-disruptive growth with tiered storage and virtualization solutions

3. Simplify storage operations with proactive management

4. Manage emerging storage environments
Storage Virtualization with SVC

- Reduce cost of storage and storage administration
- Single point-of-control and device driver (free) for heterogeneous disk storage arrays
- Optimize storage utilization
- Improve application availability (changes to the physical storage environment are transparent to host environments)
- Improve flexibility and reduce cost of replication services
- Increase storage performance
- Provision storage dynamically
IBM TotalStorage Productivity Center

- Centralized point of management and control of entire storage infrastructure providing asset, capacity, performance and availability management
- Reduce complexity of multi-vendor heterogeneous environments
- Improve administrator efficiency & storage utilization
- Provide analytic reporting on performance impacts and configuration changes

New in TPC
- Scalability, security, usability
- Storage infrastructure impact analytics
- Change and configuration management based on best practices
- Enhanced reporting
- Storage Resource Groups
- Intelligent performance optimization
TPC Components

- **Tivoli Storage Productivity Center for Data**
  - Data collection and analysis, file systems and databases
  - Reporting, chargeback, and quotas
  - Automated actions
  - Support for heterogeneous disk (IBM, EMC, HDS, HP, Engenio)
  - IBM Tape Asset Reporting

- **Tivoli Storage Productivity Center for Disk**
  - Disk subsystem management
  - Performance management—IBM and heterogeneous storage
  - Volume performance advisor (ESS, DS6000 & DS8000 only)
  - Storage provisioning—IBM and heterogeneous storage
  - Advanced performance management—IBM DS4000/6000/8000/SVC

- **Tivoli Storage Productivity Center for Fabric**
  - SAN topology display and management
  - Event reporting, performance reporting
  - Zone management
  - Heterogeneous fabric support (Brocade, Cisco, McData)

- **Tivoli Storage Productivity Center for Replication**
  - Point-in-time and remote volume replication services
  - Automated source-target matching
  - Cross-device consistency groups, DS8000/ESS and SVC FlashCopy, Metro Mirror, and Global Mirror
The Road Ahead for Infrastructure Management

2009 - 2010

- Consistent and centralized visibility of storage assets
- Focused improvements in SRM deployment and maintenance
- Replication integration into SRM with enhanced DR planning
- Mass Market consumability and affordability
- Continued attachment with hardware

Future

- Automatic detection of problems and performance hot spots
- Advanced server virtualization management
- Autonomic data management actions based on storage management policies
- Management of storage based on power consumption and performance goals
IBM Strategy for

1. Deliver secure, easy to use, long term information retention solutions

2. Reduce costs with policy based, information management exploiting highly scalable, high performance data stores

3. Manage business risks by providing a certified, compliant retention environment that supports IBM's powerful eDiscovery tools
Match the value of the information with the storage technology and management processes

Help ensure that data is retained and accessible when needed or is otherwise removed and destroyed

Balance efficiencies of tiering with cost of managing data across tiers

10 year TCO
Blended Tape and Disk Best Practices

Data Access Needs Throughout Lifecycle

Need for Access
Fast/High
Slow/Low

Fully Managed Tiering

Relative Cost / GB / Year

High Perf Disk
Commodity Disk
Archive Disk
Online Tape
Offline Tape

250TB of storage, 25% growth over 10 years

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Scale Out File Services

- Scale out, clustered, parallel file system (NAS) supporting **extreme performance, scalability, and availability**

- **Global Namespace** – all applications and users see exactly the same file system

- Commodity hardware based design

- Clustered CIFS and clustered NFS

- **Policy based tiered storage (ILM) inc tape** and integrated with archival solutions

- **Integrated and efficient Backup, Restore, and DR** even for multi-PB systems

- Full management

- Distributed datacenter design

File Services via NFS/CIFS/FTP/HTTP(S)

LAN

SAN

SAN

SSD, SAS, FC, SATA, iSCSI, Tape

Bronze

Silver

Gold

HA Application Cluster

VMware
The Road Ahead for Archiving and Information LifeCycle Management

2009 - 2010

- General purpose appliance-based archive solution for mission-critical applications
- Fully integrated solution for better end-user experience
- Focused improvements in usability and scalability
- Policy-based storage hierarchies
- “Plug and Go” consumability

Future

- Expand application support
- Tighter linkage with backup processes and policies
- Enablement of eDiscovery and fast recovery across data types
- Introduce lower cost storage technologies
How to Get Started?

7 Best Practices*

- Protect your data and business applications with TSM and FastBack
- Leverage Productivity Center to Monitor and Analyze your storage infrastructure and data
- Virtualize and Tier your storage infrastructure using SVC and Virtual Tape (Diligent)
- Establish a Long Term Data Retention strategy based on an efficient tiered data store and policy based Information Management using IBM’s Information Archive
- Employ business process controls using IBM Service Management

* Based on IBM Services experiences helping hundreds of customers through this process