IBM SmartCloud™ Storage:
IBM SmartCloud Storage Access
Agenda

- Why cloud storage. Why now.

- IBM SmartCloud & SmartCloud Storage

- Announcing IBM SmartCloud Storage Access
On today’s Smarter Planet, businesses globally are challenged to innovate while managing an unprecedented rate of growth.

2.7 zettabytes of digital data in 2012, up 48% from 2011.

90% of organizations expect to adopt or deploy a cloud model in the next 3 years.

Big Data can increase data volumes by 2x to 3x.

Analytically savvy companies are 2x more likely to outperform their industry peers.

Labor costs will be 70% of IT spend by 2013.

Leading organizations achieve 25% higher disk utilization than average.

Source: Industry Analysts and IBM Market Intelligence
Pressures like workforce mobility and increasing productivity are placing greater demands on storage systems and IT.

Factors impacting organizations:

1. **Technology factors**
2. People skills
3. Market factors
4. Macro-economic factors
5. Regulatory concerns
6. Globalization
7. Socio-economic factors
8. Environmental issues
9. Geopolitical factors

56% of customers demand increased self-service capabilities.  

90% of organizations expect to adopt or substantially deploy a cloud model in the next three years.

Cloud computing could save U.S. businesses as much as US$625 billion over five years.

Sources:
1. IBM Global CEO Study
To meet rapidly changing customer requirements, enterprises may use a combination of cloud storage consumption models based on their needs.

- **Storage Cloud**
  - Storage as a Service

- **Compute Cloud**
  - IT as a Service

**Cloud Models**:
- Private Clouds
- Hybrid
- Public Clouds

**Benefits**:
- Improve speed and dexterity
- Deliver secure IT without boundaries
- Speed delivery of product and service innovation
- Create new business value
Cloud capabilities built upon a common platform, with a commitment to open standards
IBM SmartCloud Storage is delivered through the IBM SmartCloud architecture

IBM SmartCloud Storage is a family of comprehensive storage offerings designed to address cloud storage needs for compute, storage, backup and archive clouds – in three deployment choices: private, public, managed.
IBM SmartCloud Storage portfolio is vast

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<th>Compute Cloud</th>
<th>Storage Cloud</th>
<th>Backup Cloud</th>
<th>Archive Cloud</th>
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<tr>
<td>Flex System™ V7000 Storage Node</td>
<td>SmartCloud Storage Access</td>
<td>Tivoli Storage Manager Suite for Unified Recovery Archive with Front-safe portal</td>
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<td>SmartCloud Virtual Storage Center</td>
<td>IBM Active Cloud Engine™</td>
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<td>Tivoli Storage Manager for Virtual Environments</td>
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**Build it with IBM** (Private)

**Run it for me** (Managed)

**Consume it now** (Public)

SmartCloud Managed / Hosted

SmartCloud Managed / Hosted

SmartCloud Managed Backup

SmartCloud Content Management

SmartCloud Enterprise - persistent storage

SmartCloud Enterprise - object storage

SmartCloud Enterprise - object storage

SmartCloud Enterprise - object storage

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### Typical cloud storage requirements

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<th>Block</th>
<th>Transactional Storage</th>
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<td>Block access, high performance, random &amp; sequential access</td>
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<th>Block</th>
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<td>Block access, med performance, random &amp; sequential access, low cost</td>
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<th>File</th>
<th>Network Attached Storage</th>
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<td>File access, med performance, shared data access, med cost</td>
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<th>Object</th>
<th>Object Storage</th>
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<td>Rest API access, low performance, fixed content sequential access, very low cost</td>
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### IBM Storage Systems addresses the requirements

**SVC**  
**XIV**  
**DS8000**

**Storwize V7000**  
**Flex System V7000 Storage Node**

**Storwize V7000 Unified SONAS**

**Storwize V7000 Unified * SONAS * **

* SoD
IBM Smarter Storage

**Efficient by design:** Managing cost and capacity growth
- IBM Real-time Compression
- Intuitive, easy to use user interface

**Self-optimizing:** Improving performance and productivity
- Internal and external virtualized storage
- IBM Easy Tier flash optimization

**Cloud Agile:** Increasing information access and improve ROI
- SmartCloud Storage Access
- IBM Active Cloud Engine
- OpenStack support

*Up to 30%* increase in storage utilization
*Up to 50%* reduction in storage unit cost
*Up to 47%* reduced admin time
Provisioning time reduced to minutes
Why IBM SmartCloud Storage

- **Built on best of breed components**
  - Efficient, self-optimizing, cloud-agile storage systems
  - Industry leading management

- **Unparalleled services team**
  - Extensive global reach, outstanding support
  - Customizable service options

- **Enterprise-Class Choice & Control**
  - Self service or fully managed
  - Onsite or offsite
  - Private or public

- **250+ petabytes** of storage worldwide

- **Around 4.5 million transactions** are processed daily through the IBM cloud

- **More than 1.3 million business users** of enterprise applications on the cloud under IBM management

- **200+ managed services clients** ranging from 1 to 300 terabytes in size
Introducing IBM SmartCloud Storage Access
IBM SmartCloud Storage Access

- **Self-service**
  - Capacity provisioning, monitoring, reporting

- **Web-based access**
  - Simple GUI via Internet

- **Capacity elasticity**
  - Automated or policy-driven

- **Monitoring and reporting capability**
  - End-user and administrator

- **Service Class**
  - Gold, Silver, Bronze

- **Approval**
  - Complete approval control process

Enables private cloud storage service
Provides an attractive means of delivering storage

- Hides underlying infrastructure from user and shifts focus to services delivered
- Enables access from any location at any time
- Provisions capacity on demand or administrator-approved (cloud admin or department admin)
- Provides simple reporting per resource pool or department
- Allows administrators to define storage classes with different “service profiles”
Offers improved overall IT efficiency and greater business agility

- **Increased productivity (employees, clients, partners, IT personnel)**
  - Fast, consistent & high-quality service
  - Shifts focus to services delivered
  - Higher end user satisfaction

- **Operational efficiency**
  - Provisioning capacity on demand or administrator-approved
  - Catalog of services based on actual needs

- **Improved TCO**
  - Reduced administration time
  - Quick deployment

Provision storage on demand in seconds
Enables private storage cloud in three simple steps

**Step 1: Set up appliance**
- Customize settings, configure security
- Create user accounts, user groups

**Step 2: Plan the cloud service**
- Register backend storage
- Define cloud service levels

**Step 3: Set up the cloud**
- Create storage resource pools

Enable cloud storage in a matter of minutes
End users provision storage quickly

**Step 1: Provision storage containers**
Create and manage storage container in the cloud

**Step 2: Fill in the required fields**
- Name of container
- Type, Environment
- Capacity
- Service profile

**Step 3: Mount the container**
As an “x” drive on your desktop

Provision storage in a few clicks
Benefits variety of industries

- **Academic institutions**
  - Research projects, classes, departmental bulletin boards and wikis

- **Life Sciences**
  - Health-related scientific discovery, research

- **Healthcare**
  - Patient data, MRIs, x-rays, diagnosis data

- **Manufacturing & Design**
  - Engineering designs, CAD/CAM

- **Governments**
  - Permits, contracts, blueprints, planning documents, maps, diagrams, manuals, office files.

- **Financial Services**
  - Market-performance forecasting and business intelligence data (non transactional data).

- **Insurance**
  - Client files, national insurance rates, DMV records, etc.
Designed to offer a simple cloud storage architecture

- IBM SmartCloud Storage Access
- Authentication Server
- Tivoli Storage Productivity Center or Virtual Storage Center
- Storwize V7000 Unified or SONAS

- End to end private cloud storage solution
- Self service portal
- Required elements that may already exist at customer
ETH Zurich improved efficiency and service quality with IBM SmartCloud Storage Access

ETH Zurich University
~20,000 students and faculty members
16 departments

- More effective and efficient storage service
- Provided users and administrators with an easy way to provision file storage on demand
- Storage personnel can manage departmental requests much better
- Relieved Storage Administrators from creating and managing storage requests - now they focus on other value added tasks
- Higher satisfaction across IT teams
- Improved quality of storage service to its departments and students

Founded in 1855, ETH Zurich is one of the leading international universities for technology and the natural sciences
Why IBM SmartCloud Storage Access

- First of a kind private “self-service” storage cloud software

- Powerful
  - Centralized control with delegation
  - Ability to assign, customize multiple storage classes to balance performance and cost

- Enables high QoS (Quality of Service)
  - Quick response via automation
  - Service classes

- Architected to expand
  - NFS/CIFS today
  - Object storage near future*
  - Integration with Tivoli Usage and Accounting Manager (TUAM)

- Robust, Advanced Technology

* Statement of Direction
Thank You

Questions and Answers
BACKUP

- Review of key functions
Self service portal for admin and end users

- End users can log into the IBM SmartCloud Storage Access portal to request storage, view usage reports, etc.
- Cloud and department/customer admins use the portal to manage the entire storage cloud, or a region of the storage cloud.
- Strict role based access control is provided for security.
Multiple and flexible service profile support

- Storage classes can be defined with different ‘service profiles’ which are made available by IBM SmartCloud Storage Access to admins and users
  - Predefined profiles
  - Custom profiles

- Client value:
  - Start easily by using predefined profiles in IBM SmartCloud Storage Access
  - Flexibility to customize and define custom service levels
    - Performance, isolation, DR policy, etc.
3rd party authentication integration

- Both portal authentication and data access authentication can work with existing AD/LDAP.

- Client value:
  - Seamless user management integration
Monitor capacity usage automatically

- Cloud admin can set capacity warning threshold, and notification will be sent by system automatically when the threshold is reached

- Client value:
  – Cloud admin can easily monitor the storage resource pool through automatic notification

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**Resource Pool Details**

- **Name**: ResourcePool_1
- **Description**: this is the storage pool for cloud service
- **Created on**: May 21, 2012 2:21:49 PM
- **Current status**: Warning
- **Updated on**: May 21, 2012 2:49:21 PM
- **Usage status**: 0.02% used/ 7.17 GB used/ 43732.00 GB

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**Email Notification**

From: Jun Wei Zhang

To: Jun Wei Zhang/China/IBM

Subject: [SCES]Resource pool ResourcePool_1 has passed the warning threshold!

Content:

Default custom expiration date of ResourcePool_1 has passed the warning threshold

Resource pool: ResourcePool_1

Total capacity on service level NormalIsolation: 29168.06 GB

Requested capacity on service level NormalIsolation: 5120.06 GB

NOTE: This is a machine generated memo. Please do not respond to this note.
Dashboard report for history usage query

- Reporting charts provide history usage information
  - Available to the admins and end user

- Client value:
  - Cloud and department admins can clearly see the usage data in history for users, which makes it easy to plan and rebalance the storage cloud as needed
  - End user can clearly see his own usage data in history, which can help end user to plan his/her business better.
Automatic approval process

- A complete approval control process is provided
  - Admin can define what actions need approval

- Client value:
  - Cloud/Department Admin and department/customer administrator can easily and better manage the capacity requests
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