IBM Smarter Storage: le soluzioni per il cloud

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Agenda

- Introduction
- Cloud taxonomy
- IBM SmartCloud solutions portfolio
- Storage solutions for compute clouds
- Storage solutions for storage clouds
- Wrap-up & follow-on activities
- Q&A
Data is the New Currency of Business

Data is growing at an astounding pace…

96% of IT managers expect their data to grow 64% over the next 2 years

According to Gartner, streaming data will grow at a rate of 3000% in the next 5 years.

9000

Volume in Exabytes

6000

2010

3000

2015

VoIP

Enterprise Data

Sensors & Devices

Social Media

Streaming data, milliseconds to respond

Volume

Velocity

Variety

Veracity

Uncertain, inconsistent, ambiguous

Structured, unstructured, text, multimedia

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Management and administration expenses expected to dominate future IT spend

69% of IT operating costs in 2013 will be for management and administration

Only 1 in 5 organizations allocate more than 50% of IT budget to new projects

Market trend: move to a cloud infrastructure...

* 2012 IDC
* 2012 IBM Global Data Center Study
Cloud storage consumption models

- Storage Cloud
  - Storage as a Service
- Compute Cloud
  - IT as a Service

Improve **speed** and **dexterity**
Deliver **secure** IT without boundaries
Speed delivery of product and service **innovation**
Create new business **value**

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Cloud Storage Classes (workload matters...)

“Cloud storage is a model of networked online storage where data is stored in virtualized pools of storage which are generally hosted by third parties” (Wikipedia).

Cloud Storage Classes

- **Transaction**
  - Block access, high performance, random & sequential access

- **General Purpose**
- **Ephemeral**
- **Network Attached Storage**
- **Object**
  - Rest API access, low performance, fixed content sequential access, very low cost

Customer Workloads

- OLTP & Database
- Business Apps
- HPC / Analytics
- Backup, Archive
- Web, Collaboration, Mobile apps

Cloud Storage Platform Services

- Storage for hosted VMs
- Cloud backup
- Cloud Archive
- Storage Container Service

Cloud Storage Management & Security
(provisioning, monitoring, encryption, retention, deletion, etc.)

Block access, med performance, random & sequential access

Boot volumes, page files and temporary data. Goes away when VM is shutdown

File access, med performance, shared data access, med cost

Block access, med performance, random & sequential access, low cost

Goes away when VM is shutdown
Cloud Storage – Types and IBM offering mapping

Customer Workload

Compute Cloud
- Public or private

Application Compute Cloud Server virtualization

Embedded Storage

External Storage Products

Block Storage
File Storage
Tape Storage
Cloud Storage – Types and IBM offering mapping

**Storage Cloud**
- Public or private

- Storage w/o Application
  - “Storage Cloud” with Gateway/VPN/Web API
  - Backup Archive Service
  - Storage Container Service
  - Storage Container Products
  - File Storage
  - Object Storage

**Compute Cloud**
- Public or private

- Application Compute Cloud Server virtualization
  - Remote Storage Service (Hybrid)
  - External Storage Products
    - Block Storage
    - File Storage
    - Tape Storage

**Customer Workload**

Source: Storage for Clouds session @ EDGE 2012: [https://www.youtube.com/watch?v=a7oIptZG01YY](https://www.youtube.com/watch?v=a7oIptZG01YY)
IBM Cloud Capabilities

Cloud Enablement Technologies
Enables private/hybrid cloud service delivery and management

Managed Cloud Services
Secure and scalable cloud managed services platform

Cloud Business Solutions
Pre-built Cloud SaaS business applications and solutions

Common Open Standards Technology and Industry Ecosystem

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
IBM SmarterCloud Storage

**Compute Cloud**
- Storwize V7000, XIV, SVC, ... Storage Nodes
- SmartCloud Virtual Storage Center
- Tivoli Storage Manager for Virtual Environments
- Storage and Data Services for Cloud

**Storage Cloud**
- SmartCloud Storage Access
- IBM Active Cloud Engine™
- Storage and Data Services for Cloud

**Backup Cloud**
- Tivoli Storage Manager Suite for Unified Recovery
  with Front-safe portal
- Storage and Data Services for Cloud

**Archive Cloud**
- Tivoli Storage Manager Suite for Unified Recovery
  Archive with Front-safe portal
- Storage and Data Services for Cloud

**Build it with IBM (private)**
- MSP

**Run it for me (managed)**
- SmartCloud Managed / Hosted
- SmartCloud Managed / Hosted
- SmartCloud Managed Backup
- SmartCloud Content Management

**Consume it now (public)**
- SmartCloud Enterprise - persistent storage
- SmartCloud Enterprise - object storage
- SmartCloud Enterprise - object storage
- SmartCloud Enterprise - object storage
Storage solutions for Compute Cloud

**Storage Cloud**
- Public or private

**Customer Workload**

**Compute Cloud**
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- Storage w/o Application “Storage Cloud” with Gateway/VPN/Web API
- Remote Storage Service (Hybrid)
- Application Compute Cloud Server virtualization
- Embedded Storage

- Backup Archive Service
- Storage Container Service
- Storage Container Products
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- External Storage Products
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- Tape Storage

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Virtualize the Complete Infrastructure

Infrastructure value: improve efficiency, VM mobility, resources pooling, unified management, standard procedures, re-use/re-purpose existing assets, …
IBM SmartCloud Virtual Storage Center

- **Virtualized storage resources**  
  from multiple arrays, vendors, and datacenters – pooled together and accessed anywhere.

- **Standardized storage services**  
  selected from a service catalog

- **Mobility of storage volumes**  
  move on the fly based on workload balancing policies

- **Self service provisioning**  
  using automation to allocate capacity

- **Integrates with PowerVM, VMControl & VMware**  
  for end-to-end optimization and quick virtual machine and storage provisioning and aids in problem isolation

Storage virtualization is the base for an efficient cloud infrastructure
Unified Recovery with IBM Tivoli Storage Manager Suite

TSM Clients

- Applications: 2.092
  - Unprotected: 14
  - Protected: 2,078

- Virtual Machines: 3
  - Unprotected: 3
  - Protected: 614

- Workstations: 1
  - Unprotected: 0
  - Protected: 1,028

TSM Servers

- Catalogs: Available 8
- Activity: Processes 35
- Sessions 25

Services

- Backup & Restore
- Archive & Retrieve
- Migrate & Recall
- Policies

Network Traffic

- Previous: 17.6 TB
- Current: 17.6 TB
- Change: 1%

- 186 GB
- 200 GB
- Change: 8%

- 4.3 TB
- 5.8 TB
- Change: 33%

Total: 22.0 TB

Storage Devices

- Primary Storage
  - On Disk
  - Tape
    - 24 TB free out of 28.2 TB
    - 1,243 TB free out of 13.08 TB

Copy Storage

- Capacity
  - 676 TB free out of 952 TB

Presented at IBM Pulse 2013 Conference: http://www.youtube.com/watch?v=YkaJqwTPgLgM

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IBM Storwize Family

Field proven, highly efficient and super reliable

- Over 28,000 storage systems purchased
- Over 46,000 total enclosures deployed
- Over 625 PB of capacity
- Award winning reliability delivering 99.999% availability

Enabling Companies to do more with less

- 5x more data in the same space
- 3x performance with only 5% SSD
- 47% less management effort
- 30% lower storage growth

IBM Storwize V7000 Unified delivers: unified storage solution with real time compression, aggressive entry point, external storage virtualization, …
XIV is perfect storage for compute clouds

- Excellent performance for heterogeneous workloads
  - No hotspots, No tuning required
  - Adjusts itself for changing workloads

- Industry leading ease-of-use and ease-of-automation
  - Simple, straightforward commands for provisioning/decommission
  - Multiple XIV systems managed as a pool

- Quality of Service classes
  - Immediate shifting between QoS classes – No data movement
  - Most flexible, as all classes are provided on the same drives

- Elastic infrastructure that can rapidly response to dynamic demand
  - XIV grows by adding modules and systems
  - Linear scalability in capacity and performance
  - Automatic redistribution to immediate use the added capacity

- Self-healing and high availability features ensure continuous service without performance degradation, even in case of hardware failure
Storage solutions for the Storage Cloud

Storage Cloud
- Public or private

Storage w/o Application “Storage Cloud” with Gateway/VPN/Web API
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Introducing 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

- **Secure**
  - Physical isolation of storage capacity

Private cloud storage service made easy…
Enables private cloud storage service

- Storage resources available (CIFS, NFS access)
- Self service portal
- Authentication server
- Storage service catalogue (QoS, storage tiers, back-up, DR, retention, security, ...)
- Automated provisioning
- Storage Interface

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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 in future(*)
  - Integration with Tivoli Usage and Accounting Manager (TUAM)
- Robust, advanced technology

(*) Statement of Direction: IBM intends to deliver Cloud features to SONAS and Storwize V7000 Unified to support Web Storage Services, a standards-based object store and API that implements the Cloud Data Management Interface (CDMI) standard from SNIA to support the implementation of storage cloud services.
Example: Public/Hybrid Storage Cloud for Service Provider

- Managed file/disk-level backup for servers and laptops
- Cloud gateway providing NAS (CIFS/NFS/WebDAV), snapshots, and dedup'ed cloud replication
- Easy file access for web and handhelds, email file invitations, cloud drive mapping
- Multi-tenant management interface for defining service plans and managing 10’s of thousands of users and gateways
- Active/Active high-availability, n-way load balancing, supporting deduplication and encryption, scalable to Petabytes of storage
- IBM Servers or VM running CTERA Portal with GPFS
- Object API for 3rd Party Apps
- AD/LDAP Authentication
- Roaming Users, File sharing and Backup

Public cloud storage service solution designed by IBM GTS...
Evolving from a traditional IT Infrastructure

- **CONSOLIDATE**
  - Physical Infrastructure

- **VIRTUALIZE**
  - Increase Utilization

- **STANDARDIZE**
  - Operational Efficiency

- **AUTOMATE**
  - Flexible delivery & Self Service

- **SHARED RESOURCES**
  - Common workload profiles

- **CLOUD**
  - Dynamic provisioning for workloads

Traditional IT
Promozioni e iniziative
Con l'acquisto della soluzione IBM Real Time Compression su Storwize V7000, IBM garantisce al cliente un tasso di compressione dei suoi dati attivi di almeno il 50%.

Se il cliente non raggiunge tale obiettivo, IBM fornirà gratuitamente l'hardware e le licenze software necessarie ad ottenere il tasso di compressione garantito.

Per i nostri clienti, i vantaggi sono molteplici: maggiore spazio disco, migliore efficienza dell'infrastruttura, ottimizzazione dei costi.

IBM System Storage  *BootCamp* per Clienti e BP

Sessioni tecniche rivolte a Clienti e Business Partner che desiderano approfondire le caratteristiche delle soluzioni Storage:

Segrate IBM Forum

• 15 Aprile  – 10.00 – 17.00  
• 14 Maggio  – 10.00 – 17.00  
• 11 Giugno  – 10.00 – 17.00

IBM eGovernament Center, Via Sciangai 53, Roma

• 12 Aprile  – 10.00 – 17.00  
• 10 Maggio  – 10.00 – 17.00  
• 13 Giugno  – 10.00 – 17.00

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www.ibm.com/midmarket/it/it/eventi_systems.html
IBM System Storage  *Technical DeepDive*

Sessione tecnica si approfondimento ai soli Business Partner che desiderano approfondire le funzionalità avanzate dei sistemi IBM Storwize V7000 e V7000 Unified

- Advanced feature (Easy Tier – Thin Provisioning)
- Flash Copy Manager
- Real Time compression
- Disk Magic
- Comprestimator
- Disaster Recovery
- Cluster Mode

Segrate IBM Forum  -  23/24 Maggio 2013

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