Define
Your Cloud Strategy

NetApp Cloud Strategy

冯诚昌
NetApp 大中华区技术总监
Agenda

- Cloud Computing Terminology and Requirements
- Storage Technology Partner of Choice
  1. Why NetApp
  2. How we deliver the value
  3. Eco-system partnerships
- What’s new
- Next Steps
<table>
<thead>
<tr>
<th>Definitions: What Is Cloud Computing?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cloud</strong></td>
</tr>
<tr>
<td><strong>Cloud computing</strong></td>
</tr>
<tr>
<td><strong>Types of cloud</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Variations of cloud services</strong></td>
</tr>
</tbody>
</table>
## Broad Range of Cloud Services

### IT as a Service (ITaaS)

<table>
<thead>
<tr>
<th>IaaS</th>
<th>“PaaS”</th>
<th>“SaaS”</th>
<th>“StaaS”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infrastructure as a service</strong></td>
<td><strong>Platform as a service</strong></td>
<td><strong>Software as a service</strong></td>
<td><strong>Storage as a service</strong></td>
</tr>
</tbody>
</table>
| IT Services:  
  - Servers  
  - Network  
  - Storage  
  - Management  
  - Reporting | Application building blocks and standards | Applications | Storage Services:  
  - Primary  
  - Backup  
  - Archive  
  - DR |

**Examples:**
- BT  
- Telstra  
- T-Systems (ITaaS)  
- Amazon EC2  
- Force.com  
- Navitaire  
- Yahoo! E-mail  
- SalesForce.com  
- Google apps  
- Amazon S3  
- Nirvanix
What Drives Cloud Adoption

Business Benefits
- Turn capex into opex
- Faster business innovation
- Risk sharing with vendors
- Increased productivity

Enterprise IT Benefits
- Elastic scalability
- Pay-as-you-go efficiency
- Data access any time, any where
- Predictable cost structure
- Operational efficiency

Scalable  Cost efficient  Flexible
Is Cloud Just Hype?

Is this another “utility computing” or “grid”?

- There’s a lot of hype, but also real benefits.
- What’s different:
  - Technology maturity (virtualization and networking) is making workable solutions both possible and affordable
  - Unprecedented economic pressure for new models of working
Historically, IT infrastructure is an application-centric silo

Virtualization technology enables a shared and service-oriented infrastructure

Service providers can now offer a lower-cost business model

All three models are likely to coexist at the enterprise data center
Cloud Infrastructure Requirements

Customers

Business Needs
- Pay as you go
- Self-service
- Always on
- Instant delivery and capacity elasticity
- Data security and privacy

Infrastructure Needs
- Secure multi-tenancy
- Service automation and management
- Data mobility
- Storage efficiency
- Integrated data protection
Agenda

- Cloud Computing Terminology and Requirements
- Cloud Technology partner of choice
  1. Why NetApp
  2. How we deliver the value
  3. Eco-system partnerships
- What’s New
- Next Steps
Why NetApp?

Extreme Flexibility
Always-on data mobility, multi-tenancy, and ease of management

Outstanding Efficiency
NetApp® Unified Storage Architecture delivers efficiency across your virtualized data center

Proven Expertise
Track record in serving enterprises and expertise in deployments
Enable IT as a Service with NetApp’s Cloud Storage Portfolio

Extreme Flexibility
- Secure multi-tenancy
- Service automation and management
- Data mobility

Outstanding Efficiency
- Storage efficiency
- Integrated data protection
Proven Leadership in the Cloud

IT as a Service (ITaaS)

<table>
<thead>
<tr>
<th>IaaS</th>
<th>PaaS</th>
<th>SaaS</th>
<th>StaaS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Systems</td>
<td>Navitaire</td>
<td>Yahoo! E-Mail</td>
<td>Photobucket</td>
</tr>
<tr>
<td>BT</td>
<td>SAP® ByDesign</td>
<td>“Music service”</td>
<td>“Music” backup</td>
</tr>
<tr>
<td>France Telecom</td>
<td>Oracle® on Demand</td>
<td>Oracle apps</td>
<td>Iron Mountain Digital</td>
</tr>
<tr>
<td>Joyent</td>
<td>Intuit Quickbase</td>
<td>SAP apps</td>
<td>CSC</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>Rackspace</td>
<td>Intuit apps</td>
<td>Perot Systems Backup</td>
</tr>
<tr>
<td>CSC</td>
<td></td>
<td>Azaleos</td>
<td>EDS Connected</td>
</tr>
<tr>
<td>IBM Hosting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unisys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telstra*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprint*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siemens*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Private internal clouds

NetApp is the technology partner of choice for cloud deployments.
T-Systems Dynamic Services
Powered by NetApp

What Dynamic Services from T-Systems offers:

- Since 2004: flexible IT over the cloud
- SAP and other applications “as a service” to multinational enterprise customers
- More than 300 large customers now using “Dynamic Services”

Why NetApp

- Outstanding technology allows T-Systems to offer superior SLAs
  - Increase data backup accuracy up to 100%
  - 24/7 always-on DR with instantaneous failover and simplified architect design
  - Competitive SLAs due to data mobility

“Standardizing on NetApp brings a range of advantages to T-Systems. We experience not only maximum efficiency, but also outstanding functionality and reliability – key factors to drive our customers’ success.”

- Dr. Stefan Bucher, T-Systems
We Can Help You Get There

Building a service-oriented dynamic data center is a journey

NetApp has the expertise
- Proven practices generated by serving customers
- Summarized in NetApp Dynamic Data Center Solution (NDDC)

We can help you get there sooner at less cost
Partner with Cloud Customers and Key Players

Technology and VAR Partners:
- Microsoft
- Cisco
- Brocade
- VMware
- BMC Software
- SAP
- CA
- Citrix

Customers:
- T-Systems
- Telstra
- BT
- Joyent
- Tier3
- Tata Consultancy Services
- Fujitsu
- Avnet
- Siemens
- Sprint

NetApp
Agenda

- Cloud Computing Terminology and Requirements
- Cloud Technology partner of choice
  1. Why NetApp
  2. How we deliver the value
  3. Eco-system partnerships
- What’s New
- Next Steps
What’s New

- **Solutions**
  - NetApp® dynamic data center
  - Secure cloud architecture

- **Cloud Storage Portfolio**
  - NetApp Data Motion™
  - Performance Acceleration Module II
  - Data ONTAP® 8
  - DS4243 disk shelf

- **Service**
  - Fast-Start Workshop
The Only Integration In the Industry
3 Companies, 1 Secure Multi-tenancy Solution

Project Overview:
- NetApp, Cisco, VMware jointly testing an end-to-end secure multi-tenancy solution
- Data is securely partitioned from vFiler, UCS, to vShield Zones

Customer Benefits
- The only solution in the industry supporting end to end multi-tenancy across application and data
- Resulting in significant economies of scale, higher utilization, better SLAs
Introducing NetApp Data Motion*
Always-On Data Mobility

A new technology allowing seamless data migration across storage systems

- No planned downtime for
  - Storage capacity expansion
  - Scheduled maintenance outages
  - Technology refresh
  - Software Upgrades

- Improved SLA flexibility
  - Dynamic load balancing
  - Adjustable storage tiers

- Application transparency
  - Performance
  - Transaction integrity

* Orderable with 7.3.3 release by early CY10
Data ONTAP: Today and Tomorrow

Data ONTAP 7G
- Efficiency
- Virtualization
- Multi tenancy
- Integrated data protection

Data ONTAP 8
- Data Motion
- End-to-End Multi-Tenancy
- 64 bit aggregates
- Scale out architecture
- Global name space
- Always-on infrastructure
- Efficiency
- Virtualization integration
- Scalable and integrated management tools
- Increased automation and charge back capabilities
- Web services-based orchestration layer and APIs

Platform For The Cloud

Data ONTAP GX
- Single system management
- Global namespace
- Clustered file system
- Linear scaling
Performance Acceleration Module II

*Puts Performance Where You Need It*

NetApp Solid State Strategy
- Continue the two-pronged strategy to offer both SSD and Flash technologies

PAM Family – First shipped in June 08
- New way to optimize performance
- Grow cost-effectively and without straining your infrastructure

PAM II – flash memory instead of DRAM
- Optimize performance across a broader set of workloads
- Available in 256GB and 512GB sizes
- Modular configuration - up to 4TB in one system
NetApp DS4243 Disk Shelf

Versatile Disk Subsystem for NetApp FAS/V Systems

- New SAS based Disk Shelf from NetApp
  - Available with SAS or SATA drives
- Improved Storage Density – 30% denser storage capacity
  - 24 drives in 4U (vs. 14 in 3U with other modular storage products)
  - Supports up to 48TB of storage
- New Features to Enhance Resiliency
  - ACP (Alternate Control Path) for out-of-band management separate from data path
  - Point to point SAS technology removes potential of small faults causing frozen communications to disk storage
  - SBB (Storage Bridge Bay) compliant I/O modules – mature, stable industry standard modules for storage controller connectivity
NetApp Fast-Start Workshop

Our workshop is designed to evaluate your current business needs and identify your desired path to achieve maximum agility and data center cost savings.

<table>
<thead>
<tr>
<th>Provide Business Justification</th>
<th>Prioritize Projects</th>
<th>Deliver Business Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify objectives, strategies, and goals</td>
<td>Rank opportunities based on business impact</td>
<td>Provide preliminary business case including functional and financial benefits</td>
</tr>
<tr>
<td>Discuss IT funding, stakeholders, and governance</td>
<td>Match business requirements and benefits</td>
<td>Deliver a project roadmap</td>
</tr>
<tr>
<td>Identify business/application selection for review</td>
<td>Align current architecture with desired improvements</td>
<td>Identify actionable next steps</td>
</tr>
</tbody>
</table>

Two- to Four-Day Timeframe
Agenda

- Cloud Computing Terminology and Requirements
- Cloud Technology partner of choice
  1. Why NetApp
  2. How we deliver the value
  3. Eco-system partnerships
- What’s New
- Next Steps
### Next Steps…

<table>
<thead>
<tr>
<th>Define</th>
<th>Your Cloud Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify</td>
<td>Your Tactical Projects</td>
</tr>
<tr>
<td>Execute</td>
<td>The evolution and results you can measure</td>
</tr>
<tr>
<td>Prove</td>
<td>Customer wins and innovations</td>
</tr>
</tbody>
</table>

- Review current architecture
- Review business objectives
- Define end-state architecture
- Strategy to Tactic: VDDC
- Consolidation, Virtualization, and Automation
- Incremental evolution
- IT as a service center
- Measurable results
- Peer pressure
- Successful references
- Innovation achieved!
Summary

- NetApp has proven experience and expertise to help customers build “IT-as-a-Service” infrastructure, for enterprises and service providers.

- NetApp’s unique cloud technology portfolio enables building a shared and virtualized infrastructure today, and will add more capabilities tomorrow.

- NetApp collaborates with a diverse set of partners to deliver broad cloud solutions to customers.

- Coming speech: NetApp Virtualized Dynamic Data Center Solution (VDDC) help customers effectively deploy our technology and solutions.
THANK YOU!