

Hybrid IT and the Hybrid Cloud Empowering the Enterprise

Eric Krock
Director of
Product Marketing,
Vistara





- Public cloud
- Hybrid cloud
- Hybrid IT
- How Vistara can help
- Demo
- Q&A

Potential Benefits of Public Cloud Services



- CapEx transformed to OpEx
- Effectively infinite scalability
- Greater enterprise agility
- Potentially higher uptime
 - Greater distribution
 - Faster disaster recovery

What Slows Down Public Cloud Adoption?



- Does it meet my requirements for:
 - security?
 - compliance?
 - availability?
- Can it integrate with my management solutions?

Chris Howard et al, Gartner Inc., "Hybrid IT: How Internal and External Cloud Services Are Transforming IT," 8 Feb 2012

Some Things Cloud Services Don't Do



- Patch and configuration management¹
 - OS
 - Application
- Application management
- Software licensing¹
- Inventory & lifecycle management
- License compliance¹
- Monitoring solution

Most personnel cost is related to the OS layer and above!1

1. Lydia Leong, Gartner Inc., "What Managers Need to Know About Amazon Web Services," 26 Mar 2013.



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What is the Hybrid Cloud?



"Hybrid cloud computing is the coordinated use of cloud services across isolation and provider boundaries between internal and external cloud services."



Thomas Bittman and David Cearley, Gartner Inc., "Get Past the Confusion Surrounding Hybrid Cloud Computing," 22 Oct 2012.

What Slows Down Hybrid Cloud Adoption?



- Lack of clarity about security
- Lack of clarity about compliance
- Multicloud integration
- Hybrid cloud monitoring and management

Typical Path to the Cloud



| Sooner | Later |
|-----------------------------|----------------------------|
| Non-core support activities | Core business activities |
| Less confidential data | More confidential data |
| Services with spiky loads | Services with smooth loads |
| Static allocation policy | Dynamic allocation policy |

Virtualization Road Map



Stage 1:

Server Virtualization



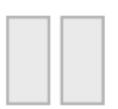


- Consolidation
- Capital expense

Stage 2:

Distributed Virtualization





- Flexibility and speed
- Operational expense, automation
- · Less downtime

Stage 3:

Private Cloud



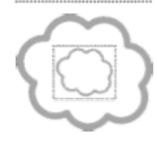


- Self-serve agility
- Standardization
- IT as a business
- Usage metering

Stage 4:

Hybrid Cloud





- Cost for peak loads
- Flexibility for peak
 loads

Stage 5:

Public Cloud





- Capital expense elimination
- Increased flexibility (up and down)

Thomas Bittman, Gartner Inc., "Design Your Private Cloud With Hybrid in Mind," 24 Feb 2012

The Role of OpenStack



- Enable ready migration of applications between OpenStackcompliant cloud providers
- Prevent cloud service lock-in



- Manage public and private cloudhosted elements
- Map virtual to physical infrastructure
- Map services to supporting elements
- Unified monitoring and management interface
- Unified alert management across
 Public and Private Cloud



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What is Hybrid IT?



"Hybrid IT is the result of combining internal and external services, usually from a combination of internal and public clouds, in support of various business outcomes."

- Chris Howard et al, Gartner Inc., "Hybrid IT: How Internal and External Cloud Services Are Transforming IT," 8 Feb 2012

IT's Role in the Hybrid IT Model



"IT organizations are becoming the broker for a set of IT services that is hosted partially internally and partially externally – a hybrid IT architecture. By being the intermediary for IT services, IT organizations can offer internal customers the price, capacity, and speed of provisioning of the external cloud, while maintaining the security and governance the company requires and reducing IT service costs."

- Chris Howard et al, Gartner Inc., "Hybrid IT: How Internal and External Cloud Services Are Transforming IT," 8 Feb 2012

IT Responsibilities in Hybrid IT



- Trusted evaluator and approver of services
- Managing internal services
- Governing all services
 - SLA definition
 - SLA monitoring and management
- Identity management
- Data management policy

Hybrid IT Management Solution Requirements



- Hybrid cloud management solution requirements, plus ...
- Service monitoring
- Self-service service catalog
- Self-service provisioning
- Transparency about costs

Pressures on IT Organizations



- Cost comparisons with public cloud services: apples to apples?
 - Security
 - Availability
 - Compliance
- Service quality comparisons with best-of-breed consumer IT services



- Cloud gives organizations a choice between internal and cloud-based services
- Self-service IT empowers line of business to make the choice
- Therefore embedding clear, understandable cost and QoS information in IT service catalog is critical to enable rational, optimal choices

Additional metrics to consider for cloud services wistara



- Agility: Can IT service respond in real-time to changes in demand & business needs?
- Elasticity: How much can service's capacity scale upward and downward to match demand?
- Continuity: Maximum time between interruptions
- Consistency: Can variations in service levels be reduced?

Source: Tapati Bandopadhyay, Gartner Inc., "Business-Aligned Metrics for IT Services in Cloud: Returns on Agility, Elasticity, Continuity and Consistency," 10 January 2012



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Unified IT Operations Management



Unify the entire enterprise: physical, virtual, and public and private cloud

Physical Devices

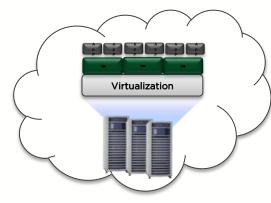


Bring Your Own Device

Virtualized Servers



Private Cloud



Public Cloud



Unify IT Operations Management

- Monitor and manage
- Bottom to top of the stack
- On-premise and cloud
- Physical and virtual
- Many platforms, vendors, clouds
- Service delivery

Modern IT Operations Platform









CUSTOMER INFRASTRUCTURE

Unified Management

SaaS

Secure

Intuitive

Limitless scale

Self-Service

Customer portal

Analytics/ Services Reporting

Customer/end user communication

SLAs/Metrics/Compliance

RBA; SOP; Self Healing; Ticketing

Alert processing across public and private cloud Patch, Configuration, and Application Management

Secure Role Based & Auditable Remote Access

Monitoring - Private & Public Cloud, Mobile & Client

On-Premise Service Delivery **In Data Center** Inventory and Governance FlexPod *** **On Public Clouds** Monitor, Manage, Operate rackspace

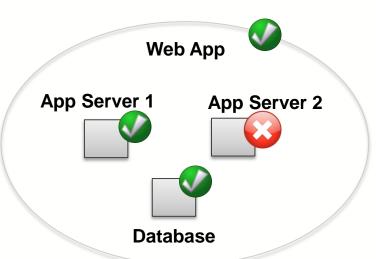
Needs

Hybrid Service Availability Monitoring



Considerations

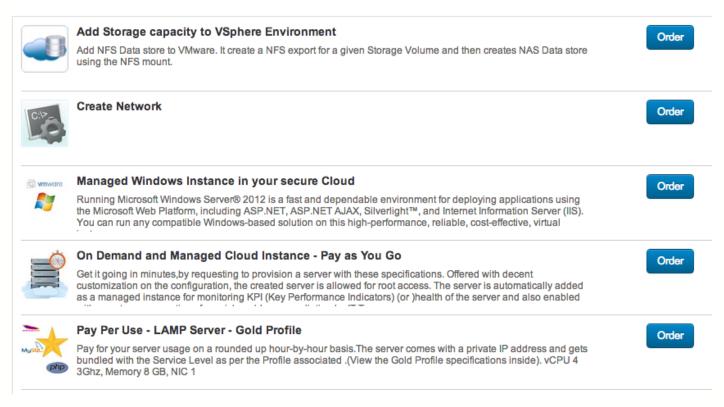
- Element level availability vs. availability of an entire service
 - Do you track availability of individual elements or an entire service compose of multiple elements?
- Is availability a binary quantity (up / down) or more fine-grained?
 - How do you account services that are available, but running with degraded redundancy/performance?
- Planned downtime vs. unplanned downtime
 - Do you count downtime due to planned activities (e.g. patching)?
- Service to element mapping



Self-Service IT



- Service catalog
 - Internal and external services
 - Embedded cost guidance to drive rational choices by IT and





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