

Managed Service for Cloud

INTRODUCTION

As businesses begin to understand and adopt cloud computing, the initial focus is on zero capex based effective on-demand server capacity provisioning. The elasticity has been addressed by many specialist utility-based hosting service providers by utilizing large amount of compute and storage infrastructure investment and provisioning virtual machines with middleware application server platforms. The compute capacity enhancement, virtually on demand that operate in complete isolation from one another is difficult to manage. Cloud computing enables the business or service consumer the ability to build and provision operating and application environment with great agility. As the service providers aggressively build the cloud ecosystem over time, the potential benefits to the business also grows.

While Cloud Computing holds tremendous promise to the business, the management needs are not necessarily getting any simpler. Cloud computing infrastructure built on distributed systems is inherently complex and holds new sets of management challenges and issues. The real challenge post-establishing cloud-based ecosystem is maintaining the service that considers the inherent complexities, thereby maximizing benefits with minimal downtimes and issues.

Are you challenged with some of these questions?

- Can cloud-based systems support mission-critical business applications?
- How do I manage change to my cloud ecosystem without breaking it?
- Do I have visibility into cloud computing environment components, system and services availability during runtime and can I plan capacity needs?
- How much of my business or operational change will be managed by cloud provider?

Today, most cloud initiatives do not provide affirmative answers because there are not many credible implementations which have invested a sound service strategy. It is during economic downtrends that organizations look at maximizing performance with optimal capacity. When technology begins to drive business model as is what appears to gain some ground with the advent of cloud, a clear focus on service governance begins to blur. Without a credible operational and governance solution, most organizational initiatives on Cloud computing, private or public, could spiral into an unmanageable complex set of services due to lack of visibility on performance, influence on optimization, configuration changes and therefore agility to respond to business needs.

EVOLUTION OF THE MODELS

Simplistically stated, cloud computing models are an abstraction of virtualization providing improved agility to provision compute platform resources on demand reducing costs of provisioning and meet changing business needs with agility. Using cloud for proof-of-concept, development, performance testing, to enable disaster recovery (DR) and business continuity have become few of the quick adoption entry points while security concerns get credibly answered prior to businesses are enabled to move their business critical applications to the cloud.

With the success of SaaS (software as a service) emerged the first model in cloud computing. This triggered some innovation in services delivery.

Enterprise class server and storage systems have long had capabilities to provide hard partitions to build independent server environment. Mainframes have had the ability to grow the logical partitions (LPAR) to manage peak loads, albeit semi-automated.

Setting up individual instances of SaaS solution on independent server systems at the provider end will

not deliver any cost benefits to the service consumer. Meanwhile, server and storage virtualization industry matured and truly became the backbone of “cloud computing”.

Server virtualization enabled different operating systems to share the same hardware without requiring hard partitions, made it easy to move the operating systems between different hardware without application downtime, and dynamically reallocate and balance compute resources based on resource pool utilization needs driven by the dynamic nature of business operations.

Storage virtualization predated SAN when a single large enterprise class server was provisioned with direct attached storage sub systems and virtual disks partitions were created spanning multiple physical disks. SAN devices took advantage of the network switching and routing on very high speed gigabit LAN to virtually hide the entire storage subsystem from multiple enterprise class servers thus enabling storage abstraction. NAS virtualization technology enables virtual file systems. Server and storage (including tape libraries) virtualization has firmly set IaaS (Infrastructure as a service) as a definitive “cloud computing” model. Now the SaaS solution providers have the opportunity to host their software on IaaS with ability to lower costs and improving availability.

While very high availability of virtual machines is assured within a data center, the challenges associated with migration of application services across data centers for disaster recovery need to be addressed. With most of the traditional server, storage and network device manufacturers realizing decreasing demand for “physical units” and increasing demand-for-capacity-on-the-fly with zero-failure points have firmly entered infrastructure services business. The leading players are investing in reels of optical fiber across data centers to usher in sub-millisecond latency and demonstrate virtual machines mobility across data centers without dropping sessions thus moving towards disaster avoidance. Imagine reacting to a hurricane warning and proactive switch over to alternate data center with no impact to business, even if the hurricane changes directions last minute your business continues to run.

Availability of IaaS automatically triggered PaaS (Platform as a service) an ability to host application platforms as a service. Provisioning middleware capacity needs on a near real-time created opportunity to small and medium business to do away with capital costs and secure development and test environment on the “public cloud.” It also made possible for the large enterprises who own their compute infrastructure to build private cloud and optimize the application to server ratios and ability to provision or decommission spare capacity on-demand. PaaS is a great environment for development where platform availability on-demand is more or less assured quickly enabling development teams.

A number of variants of the cloud are emerging with ever so many organizations wanting to be trend setters providing OPaaS (Open source platform as a service), SPaaS (SAP platform as a service), WebLogic services as PaaS and so on and so forth. The cloud computing arena is getting more clouded. The abstraction level is changing.

Imagine as your enterprise grows leaps and bounds looking up the sky and visualize multiple clouds each hosting one or more platform of your business and having to connect with another cloud hosting more platform of your own business or your customer's or vendor's or partner's platform. Managing your services provisioned in the cloud will need attention

MANAGING SERVICES FOR CLOUD

Depending on the level of abstraction of services and applications you build and therefore the extent to which you move away from the physical IT infrastructure determines the level of independence you retain on your IT technology direction for future. The cloud obscures your view on where the services are hosted and how service levels are affected due to the interdependencies between the application software, server hardware, storage configuration and network resources. Based on the cloud model you also have multiple choices to enable effective monitoring and management of your cloud resources.

Managed Services for Enterprise on IaaS

Where SMB or Enterprise businesses have leveraged the IaaS, the Managed Service Partner will take complete ownership of managing the cloud service provider and end-to-end IT operations.

IaaS - Responsibility distribution			
Infrastructure Service	Cloud Service Provider	Managed Service Partner for Customer	End Customer
Network	IM	DE	R
Server	IM	DE	
Storage	IM	DE	
OS	IM	DE	
Database		IMDE	
Application		IMDE	R
Services		IMDE	
Asset		IMDE	
Capacity	IM	DE	
Change	I	DME	
Compliance	I	DME	R
Configuration	I	DME	
Data Protection	IME	D	
Event Management	IM	DE	
Problem Management	IM	DE	
Security Management	IM	DE	

R=Requirements, D=Design, I=Implement, M=Maintain,E=Enhancement

The MSP will ensure to maximize the benefits from the cloud infrastructure for the business. The table above describes the responsibility of your managed services partner across various service components.

Managed Services for Enterprise on PaaS

The small and medium ISVs and enterprises have leveraged the PaaS for their Infrastructure platform needs; the Managed Service Partner will provide Single of point of Interface for customers. Managed Service will take the responsibility managing the cloud service provider and Application related services. The MSP will also provide consulting expertise to maximize benefits from the cloud infrastructure for the business. The table below describes the responsibility of your managed services partner across various service components.

PaaS - Responsibility distribution

Infrastructure Service	PaaS Provider	Managed Service Partner for Customer	End Customer
Network	IMDE		R
Server	IMDE	R	
Storage	IMDE	R	
OS	IMDE	R	
Database	IM	DE	
Application		IMDE	R
Services		IMDE	
Asset		IMDE	
Capacity	IM	DE	
Change	I	DME	
Compliance	I	DME	R
Configuration	I	DME	
Data Protection	IME	D	
Event Management	IMDE		
Problem Management	IMDE		
Security Management	IMDE		

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Managed Services for SaaS providers

As the Enterprises want to concentrate on their core businesses and does not want to get into the IT infrastructure and operations, SaaS providers embarking on scalable virtual infrastructure for hosting of their applications. The Managed Service Provider partner with the SaaS provider to Design, Implement and Manage the Enterprise Private Cloud Infrastructure and take care of complete IT Operations Management.

SaaS - Responsibility distribution

Infrastructure constituent	SaaS Provider	Managed Service Partner for SaaS Provider	End Customer
Network	R	IMDE	
Server		IMDE	
Storage	R	IMDE	
OS		IMDE	
Database		IMDE	
Application	RD	IME	D
Services		IMDE	
Asset		IMDE	
Capacity		IMDE	
Change	R	IMDE	
Compliance	R	IMDE	
Configuration		IMDE	
Data Protection	R	IMDE	
Event Management		IMDE	
Problem Management		IMDE	
Security Management	R	IMDE	

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BRIEF CASE STUDY

MindTree as a Managed Service Partner consulted, designed, configured and tested the application platform solution in a full high-availability configuration. We assisted our customer cloud service requirement definition to sourcing the right cloud service provider. As part of final deliverable our team delivered the Production solution on the cloud, took up complete ongoing service management responsibility by adapting our ITIL best practices. Our services complement services from the Cloud Services Provider and as primary we own the complete end-to-end service level management.

The customer is a leader in its domain and offers a marketplace where consumers can buy, sell, and exchange gift cards online. MindTree provided the following services as a partner for this customer.

- Infrastructure design and hardware sizing
- Managed RFP process for infrastructure hosting on Cloud
- Testing high-available infrastructure for best practices and security
- Migration to the Private cloud
- Switchover of Production environment
- Continuous management and service improvement on the cloud

HOW MINDTREE CAN HELP?

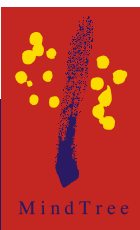
With MindTree's structured approach for services for the cloud that includes complete operations support for Provisioning, Configuring, Deploying Infrastructure and/or Applications on a private cloud or a public cloud; manage elastic capacity that scales with business and managed operations for Performance, Availability, Capacity and Efficiency.

Our Solution Architects, your trusted advisors would guide you on Assessing where to begin IT Services offerings from the cloud for your end-customers, how you could retain control, compliance and compete. We ensure that the cloud meets your needs.



About MindTree

MindTree Ltd. is a global Product Engineering Services and IT solutions company specializing in IT Services, Independent Testing, Infrastructure Management and Technical Support (IMTS), Knowledge Services and Product Engineering, which comprises of R&D Services, Software Product Engineering and Wireless Products. MindTree partners with its clients to create a transparent, value-based relationship. Our people build innovative solutions in a wide range of technology domains that enable our customers to succeed in their business goals.



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