An Overview on Hybrid Cloud as an It Service Broker

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Abstract:

Today the growth of cloud computing is riding a new role in corporate IT as a service broker. A hybrid cloud gives a choice to its customers in deploying the workload in a location with performance, security and utility is provided which remains a major concern for many IT organizations. When you decided to move to the cloud, one of your main ideas is probably to shift work from your hands or systems to someone else's and to save money. In this scenario as work increases the cost of getting work done also increases. A hybrid cloud delivery model will operate as a broker of IT services, giving you more flexibility to best match your business's needs and also provides you service on demand. The advantage of such a hybrid cloud deployment is that an organization only pays for extra compute resources when they are needed. We look into the architecture and reasons how Hybrid cloud are emerging as a better service brokers for business and customers.

Keywords: Hybrid Cloud, Cloud Service Brokers, Security.

Introduction:

In its simplistic definition, a hybrid cloud is a combination of both public and private clouds. However, the critical activities are performed using private cloud while the non-critical activities are performed using public cloud. "Hybrid cloud is defined as a cloud infrastructure composed of two or more cloud infrastructures (private, public, and community clouds) that remain unique entities, but are bound together via technologies and approaches for the purposes of application and data portability".[1] If we apply the definition from the National Institute of Standards and Technology (NIST), "a hybrid cloud is a combination of public and private clouds bound together by either standardized or proprietary technology that enables data and application portability". It could be a combination of a private cloud inside an organization with one or more public cloud providers or a private cloud hosted on third-party premises with one or more public cloud providers.

Adopting a hybrid cloud strategy means ensuring rapidly migrate and move workloads across public and private clouds. A Cloud Services Brokerage (CSB) can make it easier to consume and maintain cloud services, while reducing the cost and risk. Instead of spending time and money to address these problems internally, consumers are looking at technology solutions offered by CSBs that allow organizations to focus on business needs. A viable CSB provider can make it less expensive, easier, safer and more productive for companies to

navigate, integrate, consume and extend cloud services, particularly when they span multiple, diverse cloud services providers. Brokers are known as go-betweens. They work between parties to facilitate and execute a transaction. Vendors such as Red Hat, Amazon Web Services and VMware have introduced their own hybrid cloud services, and third-party organizations are creating tools to manage and deploy hybrid clouds.

Deployment Model

A Public cloud (off-site and remote) describes cloud computing where resources are dynamically provisioned on an on-demand, self-service basis over the Internet, via web applications/web services, open API, from a third-party provider who bills on a utility computing basis.

A private cloud environment is often the first step for a corporation prior to adopting a public cloud initiative. Corporations have discovered the benefits of consolidating shared services on virtualized hardware deployed from a primary datacenter to serve local and remote users.

A hybrid cloud environment consists of some portion of computing resources on-site (on premise) and off-site (public cloud). By integrating public cloud services, users can leverage cloud solutions for specific functions that are too costly to maintain on-premise such as virtual server disaster recovery, backups and test/development environments.

A community cloud is formed when several organizations with similar requirements share common infrastructure. Costs are spread over fewer users than a public cloud but more than a single tenant.

Service Models in Cloud:

Three service types have been universally accepted:

• **Infrastructure as a Service (IaaS):** IaaS provides virtual machines, virtual storage, virtual infrastructure, and other hardware assets as resources that clients can provision. The IaaS service provider manages the entire infrastructure, while the client is responsible for all other aspects of the deployment. This can include the operating system, applications, and user interactions with the system.

• **Platform as a Service (PaaS):** PaaS provides virtual machines, operating systems, applications, services, development frameworks, transactions, and control structures. The client can deploy its applications on the cloud infrastructure or use applications that were programmed using languages and tools that are supported by the PaaS service provider. The service provider manages the cloud infrastructure, the operating systems, and the enabling software. The client is responsible for installing and managing the application that it is deploying.

• **Software as a Service (SaaS):** SaaS is a complete operating environment with applications, management, and the user interface. A SaaS provider typically hosts and manages a given application in their own data center and makes it available to multiple tenants and users over the Web. Oracle CRM On Demand, Salesforce.com, and Netsuite are some of the well known SaaS examples. [3]

Securing Hybrid Cloud:

Security remains a major concern in hybrid clouds as migrating once own data to a cloud as a service. Organizations using hybrid clouds for their business needs, must understand the three security pillars to build a hybrid cloud environment.

Pillar 1: Risk Assessment and Management

Organizations often feel treat in moving the data or service- to a cloud as they believe there is a lot of risk in such migration. A better risk assessment may be required that includes:

• A definition of the risks that apply to various asset(s), based on their business criticality.

- An assessment of the current status of each risk before it's moved to the cloud. Using this information, each risk can be accepted, mitigated, transferred or avoided.

This will allow the business to compare the different level of risk associated with its current state and the 'desired' cloud solution where success lies in gathering sound data and then managing your risks proactively.

Pillar 2: Provider Transparency

Clear and transparent communication should be provides by cloud providers regarding the security embedded in their offerings. Cloud involves relinquishing a degree of control to share as much information as possible with prospects about their environment, offerings, controls and configurations in order to build a foundation of trust. Service Providers need to demonstrate that they're aware of the various risks associated with implementing a cloud strategy and put forward suggestions on how to mitigate them, based on their experiences with other clients. Once policies and procedures are set up, schedule weekly, monthly or quarterly meetings, reviews and audits, and thoroughly assess any areas of poor performance or concerned.

'Dimension Data' often assists clients by providing them with a list of questions that we believe they should be posing to cloud providers as part of the evaluation process.

Pillar 3: Policy and Compliance

IT organizations frequently find themselves between a rock and a hard place when it comes to compliance issues in the age of cloud computing. There are numerous regulations that, in many instances, make putting data in the cloud problematic. While not every regulation is specific, the company should be accountable for maintaining control over customer data. Organizations should look for providers that don't only provide proof of their certification, but can also explain how they achieve and maintain their compliance levels, what problems they've encountered in this area and how these have been overcome.

Hybrid Cloud Capabilities:

Creating a hybrid cloud is complex work, as companies face problems with integration, migration and networking. A hybrid cloud needs to address these issues.

- **Integration of the Infrastructure and the application Environment** – the ability to spin up Virtual Machines (VMs) for Iaas or combination of Iaas and Paas must be similar.
- **Portability of applications** – building all capabilities into applications in a cloud makes them work.
- **Monitoring and management across cloud computing** – though monitoring is important, a level of transparency is maintained.
- **Aggregation** – A cloud broker can bundle many individual services together and present them as a unified service. For instance, by partnering with a cloud broker, a provider can offer a unified billing service or unified cloud provisioning.
- **Integration** – An enterprise will often rely on a cloud broker to bring integrate multiple services, collectively providing new functionality. The cloud broker can help move data into the cloud and integrate the customer's network with the provider's network.
- **Customization** – A cloud broker often customizes cloud services for individual customers, usually around the network edge because cloud services can only be changed by the cloud provider.

IT Considerations for a hybrid cloud:

Moving away from an in-house facility to a cloud service model transforms IT delivery, not all workloads should move to a cloud

infrastructure. There are some key requirements that IT must deliver while considering cloud.

- To move to a hybrid cloud infrastructure, IT must have complete clarity on the economic equation of the reduced cost.

- IT must achieve trust of operations and high service levels while taking measures to avoid data loss and security risks. It has to ensure that workloads can be moved to a cloud environment without loss of functionality.

- The service-led cloud computing strategy helps IT be more flexible and reduce expenditure. This can be delivered if the platforms offer workload mobility, a key feature of virtualization.

Conclusion:

In my view this paper presents an overview on the present IT services using hybrid cloud computing. Companies are looking to reallocate IT budgets for business innovation, and assured that their applications and data will be available 24/7 with much reduced cost. IT departments are delivering software as a service through virtual desktop initiatives. In the world of the cloud, the service broker's job is to understand their company's business requirements and identify external vendors who can meet them.

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