A Survey on Hybrid Cloud Management Platform and its Contemporary Enterprise Applications

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ABSTRACT: Hybrid cloud computing is one of the most important topic now-a-days IT industry. Large IT operations are figuring out with a hybrid structure. As more comparable new IT approach, the hybrid cloud still presents deployment and management risks that slow ratification and make smooth, ongoing affairs harder to achieve.
A hybrid cloud management platform consists of two or more things. First is a private cluster that holds mission-critical and core enterprise workloads, and the other is a segment or multiple segments of public cloud infrastructure that holds tasks demand andother such as backup and archiving, web-serving and media delivery.

KEYWORDS: Hybrid Cloud, Public cloud infrastructures, Virtualization, containers

I.INTRODUCTION

A hybrid cloud management platform consists of two divisions. One is a private computer cluster that commonly handles operation-demanding and core enterprise tasks, and the other is a   public cloud framework that handles tasks demand spikes and other tasks, such as backup and archiving, web-serving and media delivery. In an ideal composition, tasks can migrate back and forth across hybrid cloud boundaries dynamically. This allows a modern data center members to plan and build out for average tasks, rather than high loads, and to configure for nonstop operation in the event of a failure.

II. RELATED WORK

CLOUD SERVICE DEPLOYMENT MODELS

Public Cloud: It makes use of basic standard cloud computing model and makes resources available to all users over Internet. Public cloud services may be offered on pay-per usage basis or may be free.

Private Cloud: It is a cloud computing model operated only for one organization. It will be managed internally or a third party and hosted internally or externally. Using this kind of model can grow the business if security hazards are handled carefully. It costs additional capital expenditure as assets have to be refreshed periodically. Private cloud is also referred as internal cloud or corporate cloud.

Community Cloud: It is multi-tenant infrastructure shared amongst one or more organizations from specific group with common interest. Interests might be related to regulatory compliance, performance requirements, etc. The goal of community cloud is to have participating organizations realize the benefits of public cloud with the added level of privacy which is usually associated with private cloud. It can be on-premises or off-premises and can be governed by participating organizations or by third party managed service provider (MSP).

III.HYBRID CLOUD

Hybrid cloud computing is a classification model which has the combining of multiple cloud services across different classification – in particular, combining the use of public cloud services with private cloud services.The ISO 17788 Cloud Computing Overview and Vocabulary standard [2] defines hybrid cloud as "a cloud deployment model using at least two different cloud deployment models" – where the likely deployment models are public cloud, private cloud and community cloud.

Based on this definition, there are many combos of cloud resources that can be an advantage in a hybrid cloud model. These combos can also involve a join of different cloud service models, Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). For example, a hybrid cloud deployment could mingle with an on-premises private IaaS cloud service with a publicly hosted SaaS application. It is also mandatory to identify that private cloud services could be introduced in on-premises or alternatively introduced in off-premises in a dedicated part of a cloud service provider's data center.
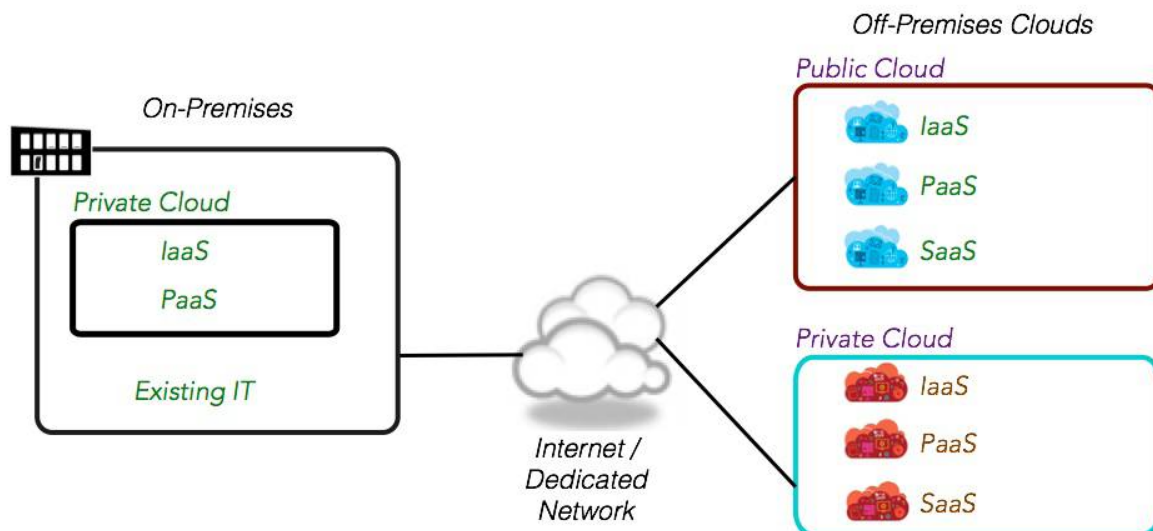

Figure 1: Hybrid Cloud provides the enabling capabilities to bridge environments, layers, and resources such that it is seamlessly automated

IV. WHY HYBRID CLOUD IS IMPORTANT FOR BUSINESS

In terms of IT, businesses today operate at variable speeds. To meet the challenges of competition and the rapidly evolving marketplace, businesses need to be lively and innovative, particularly for mobile and web applications used by customers. At the same time, the stable processes and systems that keep the business running cannot be modified easily and instead evolve at a slower pace. This is two speed IT. One part, the steady speed, delivers enterprise-strength IT services, and the other part, fast speed, which enables exploitation of new digital business opportunities. However, success comes through optimizing support for both types of IT. Hybrid cloud can help provide a solution to this need.

V. THE CASE OF AN AUTOMATED HYBRID CLOUD MANAGEMENT

Ultimately, hybrid cloud requires management tasks well beyond the traditional knife-and-fork administration approach with command-line interfaces. At one level, it's just too complicated. A server farm with about 100 servers could today host 300,000 containers (Putting your applications into containers allows them to look similar as they cross

between non-production and production environments, and between on premise and cloud), for example, while all instances have VLAN's and virtual drives to control. Moreover, the concept of public cloud has brought tenant control to clouds, where the instance renters do much of their own configuration within their cluster of instances.The migration towards containers increases the stress on management approach. Containers raise the instance count dramatically, and the ease and speed with which you can create and delete containers points to a much more dynamic environment than traditional hypervisor instances.

The hybrid cloud approach accelerates the move toward reusable code segments, often from online public libraries. While this is the good time and way to improve the market, and reduce development cost. There are inherent risks in third-party code. Taking this step further, the cloud is making software as a service (SaaS), and others as a service offering, attractive; most future IT operational flows will likely be mash-up of in-house code, third-party modules and SaaS packages. With cloud tenants, having a good deal of freedom to code, maintaining high standards for code quality is a continuous challenge to manage.

Let's look at the automated hybrid cloud management which should cover the following areas:

➢ **Hybrid cloud deployment:**
An automated hybrid cloud management platform starts with deployment. It should be possible to merge new equipment into the resource pool automatically and seamlessly, irrespective of its feature set. This allows the admin to expand the hybrid cloud in stages, with the latest gear, at any time.
Automated deployment eliminates much of the need to add a hardware expertise into a data center team, and existing hardware experts can focus instead on performance tuning and bottleneck mitigation.

➢ **Hybrid cloud monitoring:**
To make a knowledgeable decision about hybrid cloud performance or failures, admin must know what has happened and how it happened. A monitoring system is essential within any large-scale management suite, and should monitor Fault status, Bottlenecks in operations, networking, and stored data delivery, App failures, Events, performance and system response time.

➢ **Policy-based control:**
A good hybrid cloud management platform controls and publishes policy templates like resource request, virtual network configuration, storage pool sizing, segregation and access.

➢ **Security:**
Despite early concerns about public cloud security, evidence shows that mega-clouds are actually more secure than typical data centers. The challenge in hybrid cloud is to apply those public cloud security practices to cover all of a hybrid environment seamlessly like Access control, encryption and key management, image validation and management, Firewalls, Intrusion detection.

➢ **Billing system:**
Admin want to run their cloud just like a pay-per use basis, so they will need a billing tool. Billing tools may offer the ability to control spending policies and limits tenant operations, but tally up all the charges at the end of every month. A good model for billing is provided by any mega-cloud provider.
The importance of good billing is apparent in the scientific community, where fine-grained, pay-as-you-go access to supercomputing clouds has led to more projects running with simulations and powerful data analysis.

VII. CONCLUSION

Hybrid cloud deployment model is a combination of private and public clouds. Fastest, challenging and changing business environment requires a cloud models which supports all types of businesses running at variable speeds. An automated Hybrid cloud management provides deployment, cloud monitoring, policy control, security and pay-per use billing services for businesses.

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