

Cloud with Telecommunication

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ABSTRACT

Cloud computing is reshaping the service-delivery, one of the key business and technology trends impacting every aspect of the Information and Communications Technology (ICT). Combining cloud computing technology and networks, telecom service providers can become a significant force in the cloud provider's domain and more importantly to return to growth path. This work evaluates the new challenges and opportunities that are offered by the adoption of cloud and virtualization technologies in telecom sector. This survey introduces the trends and issues and benefits associated with the cloud, with telecommunications perspective, while leveraging the cloud to come to a result on a suitable cloud environment for telecom grade applications [4].

Keywords: Cloud Computing Technology, Telecommunication Network.

I. INTRODUCTION

Cloud computing has become one of the highly used term in industry by company, developers, and end users. Telecom companies are searching for way to decrease cost, improve efficiencies. The use of cloud computing can help. Cloud principles, names and architectures are completely new and quite different from current telecom deployments. Even so, most of the key principles of redundancy, resilience, isolation and management are kept, but no make use of the new cloud environment capabilities.

Cloud computing technology represents the underlying technology, new business opportunities and operational efficiency to service providers and equipment provider in telecommunication industry [3]. Cloud computing, along with mobility and ubiquitous broadband, is underpinning the creation of the Networked Society. As we move towards a connected world, telecom operators have a unique opportunity to position themselves to capitalize on the growth of cloud services – both as providers and adopters of the technology.

Telecom cloud is a cloud platform facing telecommunication applications. It uses the distribution and virtualization technologies of the cloud computing. It optimizes the carrier-grade applications such as

signaling, control, Media resources capability and improving system resource, utilization, efficiency and guaranteeing service quality for users.

II. METHODS AND MATERIAL

A. Cloud Opportunities in Telecom

The virtualization and distribution technologies of cloud platform make it easy for APP to migrate, copy and regenerate, further improving the reliability of telecommunication applications on the telecom cloud.

Cloud computing refers to the delivery of on-demand computational resources such as software applications platform and IT infrastructure services through a shared network. It enables remote access of resource such as hosted software. Cloud services are typically divided in following three categories:

Software as a service (SaaS) - It is mostly implemented in business application or in enterprises at a very low cost. There are many benefits of SaaS like management, support etc. It is a software distribution model, in which applications are hosted by a service provider and available to customer over a network, typically the internet [1].

Platform as a service (PaaS) - PaaS model makes all of the facilities required to support the complete life cycle of building and delivering web applications and services entirely available from the internet, all with no software downloads or installation for developers, IT managers and end users. With PaaS, consumers can create and deploy applications onto the cloud infrastructure [1].

Infrastructure as a service (IaaS) - Rather than purchasing a data center space, software, network equipment, servers etc. IaaS customers essentially rent those resources as outsourced service. The customer does not control the underlying traditional infrastructure but has control over storage [1].

Example of telecom cloud process is as shown in fig:

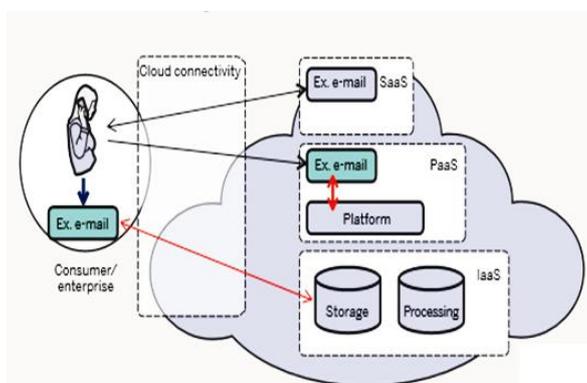


Figure 1: Telecom cloud process

B. Telecom Cloud Competitive Advantages

Capitalize on Telecom backbones, channels and market presence to deliver new value-added services and ensure a key position in the value chain Key assets to leverage: Network Connectivity, Leverage the Cloud model to monetize the network, Customer Relationship, Identity Management (e.g. SIM card), End to end service levels monitored and guaranteed, QoS, Security, Unique access point amongst the various service categories: IT, Network and Security, Enterprise Cloud Computing fits with Telecommunication business as it leverages on their core competencies.

C. Telecom And Cloud Applications Security

There are security requirements beyond the baseline requirements, which are application specific and need individual investigation. Amongst others, the secure

authentication of SaaS customers is often one of the most important issues.

From the customer point of view, with the adoption of SaaS offerings, the trust boundary will become dynamic and move beyond the control of IT. Therefore, Identity and Access Management solutions are key to improve operational efficiency with a Single Sign-On (SSO) solution e.g. by means of the SAML protocol. However, this option requires some integration effort with the customer's enterprise directory.

The security groups can be configured as per service. Similar to legacy server architectures, the VMs shall be separated into different security groups with the traffic among security groups being filtered accordingly.

D. Cloud Service Provider And Cloud Platform

- Microsoft Azure

The environment provided by Azure is best for .NET application, and is a good option too if someone wants to deploy applications with mixed environments [2].

Market segments: PaaS, ITaaS, IaaS.

Cloud type: Public, Private, Virtual Private, Hybrid.

- Google App Engine

It is a Platform-as-a-Service provisioning, and you only have to worry about your own application and you are not concerned about the underlying infrastructure, load balancing, and scalability [2].

Market segments: PaaS, SaaS.

Cloud type: Public.

- IBM Smart Cloud Enterprise

Market Segments: IaaS.

Cloud Type: Public, Private.

- Verizon Terremark vCloud Express & Enterprise Cloud

Market Segments: IaaS

Cloud type: Public, Private, Hybrid.

- Joyent Cloud

Market cloud: IaaS, PaaS.

Cloud type: Public, Private.

E. Telecom Expanding Cloud Services

- Bell Canada

Bell Canada Enterprises introduced its plans to implement a new tier 3 certified data center in the National Capital Region. The telecom stated that three customers had already signed long-term co-location contracts worth about C\$100 million.

- Verizon

Verizon and SAP America announced the plans to jointly deliver the SAP Customer Relationship, Management solution to enterprise workers through Verizon's cloud offering, computing as a Service.

- BT

BT expanded its virtual data center package with an option to manage and control private cloud environments. Virtual Data Centre Private is expected to enable businesses to manage applications and data on a virtualized infrastructure, mounted on their own or BT's hardware.

- Portugal Telecom

Portugal Telecom announced the plans to build one of Europe's largest data centers, with more than 45,000 square meters of operational space. The new data center is expected to come into operation in the second half of 2012.

- AT&T

AT&T announced enhancements to its Synaptic Compute as a Service Solution. The enhancements include integration with AT&T's VPN service to enable virtual private clouds, an expanded number of operating system templates, improvements to firewall policies to meet special security requirements, and new self-service and self-provisioning capabilities.

F. Telecom Cloud Connectivity

Connectivity is the performance bottleneck and the differentiator in the cloud computing on the mobile devices.

Key messages in the telecom cloud computing

- Cloud computing without connectivity is nothing or useless [4].
- Cloud computing connectivity can be done in all the types: Public, Private and Hybrid [4].
- Cloud computing connectivity is all about data centers or enterprises.
- It also includes customers, providers and mobility [4].

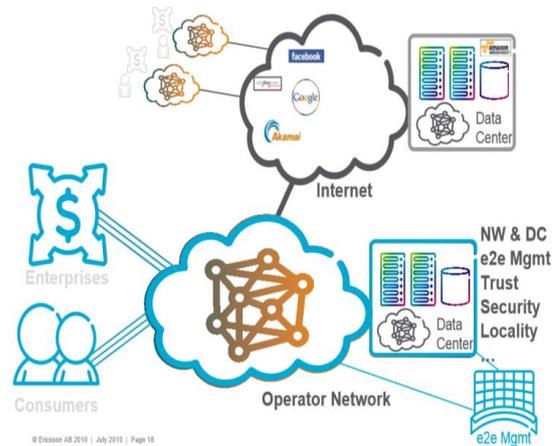


Figure 2: Telecom Cloud Connectivity

III. CONCLUSION

Now days as per cloud computing gains more and more data, security, efficiency and other applications are moved users from traditional services to cloud computing services. Without cloud connectivity, network accessibility data will not be available for the users as well as providers. After connecting the networks data access is become more efficient, reliable and it will be secured also. The connectivity is increases the data accessing speed and it will provide the new business opportunities to end users. Cloud computing services, platforms and infrastructure can benefit telecom service providers and web based applications. Telecommunication can be secured by enabling telecom cloud elements with cloud capabilities so that telecom operator can sell paaS/IaaS with a true commitment to enterprise.

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