

## Cloud Computing For Business

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### ABSTRACT

Cloud computing is a general term for anything that involves delivering hosted services over the Internet. These services are broadly divided into three categories: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). The name cloud computing was inspired by the cloud symbol that's often used to represent the Internet in flowcharts and diagrams. In this paper, we are focusing on the impressive usage of this computing which is get benefited by its cloud like service. For a large organization where no of departments are integrated, we can reduce the overall cost of computing by the usage of private cloud of the organization. But the same cloud will be served as public within the organization as per the role of the user.

**Keywords:** Data Center, Private Cloud, Organizational Cloud Computing.

### 1. Introduction

In a dynamic economic environment, your company's survival may depend on your ability to focus on core business and adapt quickly. Yesterday's profitable business model can't be counted on to translate into future growth and profits. As your business adapts to changing government and industry regulations, evaluates new business partnerships, and anticipates competitive threats, IT needs to help the business find new ways to respond.

Now days, almost all organizations are dealing with numerous computation in order to run their activities within the organization. To cope up with the high degree of computation, it uses tremendous computation power for variety of users & clients. The versatility of demand is the actual cause of high degree of computation requirement. We will take a brief look at the versatile nature of the demand.

At Top Level the demand will be like:

- Attendance of employees through biometric scanner system.
- Stakeholders' details.
- Use Cases.
- Status of a particular order.
- Log of visitors and other parties.
- Logistics development of the organization.
- Recruitment details.
- Auditing details.
- Graph of sales against the years.
- Graph of annual budget against the past budget reports.
- R & D activities and its proceedings.
- And many more.

By taking a galley look of the demands from the top management, we are supposed to use high degree of computation as each demand may use different application from different departments regardless to the viability of computation power and data to particular department.

In such circumstances, the easiest way to address this problem is to provide moderate level of computation ability to each and every department so that they can full fill all the demand of the top management.

At the same time, plans for change must often be made in the context of limited resources for finances, people, technology, and power. In this scenario, we have tried to introduce the cloud computing - what it is and how it helps companies to rethink how to deploy technology.

Cloud computing comes into focus only when you think about what IT always needs: a way to increase capacity or add capabilities on the fly without investing in new infrastructure, training new personnel, or licensing new software. Cloud computing encompasses any subscription-based or pay-per-use service that, in real time over the Internet, extends IT's existing capabilities.

So, we are initiating a computation on a cloud to facilitate all the departments and people within the area to get acquainted with the facility available through a cloud.

### 2. Solution through Cloud Computing

A cloud can be private or public. A public cloud sells services to anyone on the Internet. A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of people. Private or public, the goal of cloud computing is to provide easy, scalable access to computing resources and IT services.

As we are implementing cloud computing for the private use within the organization only, private cloud would be more suitable for such computation requirement.

Private cloud can be implemented by three varieties:

Infrastructure-as-a-Service- In the enterprise, cloud computing allows a company to pay for only as much capacity as is needed, and bring more online as soon as required. Because this pay-for-what-you-use model resembles the way electricity, fuel and water are consumed; it's sometimes referred to as utility computing.

Platform-as-a-service in the cloud is defined as a set of software and product development tools hosted on the provider's infrastructure. Developers create applications on the provider's platform over the Internet. Developers need to

know that currently, there are not standards for interoperability or data portability in the cloud.

In the software-as-a-service cloud model, the vendor supplies the hardware infrastructure, the software product and interacts with the user through a front-end portal. SaaS is a very broad market. Services can be anything from Web-based email to inventory control and database processing. Because the service provider hosts both the application and the data, the end user is free to use the service from anywhere.

By taking a brief look over the implementation strategies, the SaaS model will be best suitable for our application.

Devices, applications and human users are able to interact with the virtual resource as if it were a real single logical resource.

Here is the figure which gives brief idea for SaaS model.

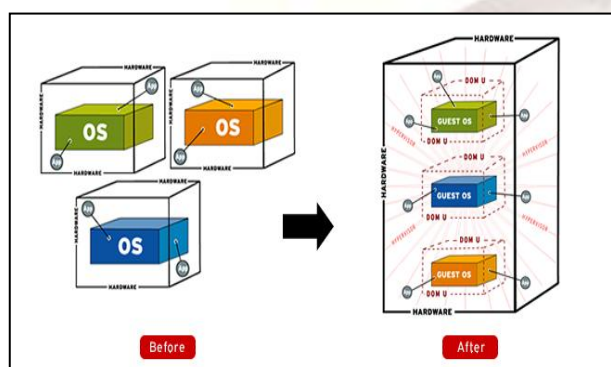


Figure 1. Before Cloud & After Cloud

By integrating activities of all the department of the organization we are generating the list of required software & hardware. As the creation of private cloud would result in a interactive front end for the end user. This doesn't mean that all applications, services, and processes will necessarily be moved to the cloud. Many businesses are much more cautious and are taking a hard look at their most strategic business processes and intellectual property to determine which computing assets need to remain under internal company control and which computing assets could be moved to the cloud. Apart from the actual use of the SaaS model, additional use of the model is to provide web based services like email, chatting, video conference etc. within the organization which are very frequent in the organization.

### 3. Designing Of Private Cloud Within Organization

The cloud itself is a set of hardware, networks, storage, services, and interfaces that enable the delivery of computing as a service. Cloud services include the delivery of software, infrastructure, and storage over the Internet based on user demand.

The world of the cloud has lots of participants like end user, business management, the cloud service provider etc.

We need to design our cloud which is equally important for each layered employee. As stated earlier, a cloud is a combination of services through hardware and software, we need to club up all the necessary services at the cloud level

so that we can distribute the computation power among variety of users.

### 3.1 Designing of Cloud

OpenNebula is the key technology to design application specific cloud. OpenNebula is an open source cloud service framework. It allows user to deploy and manage virtual machines on physical resources and it can set user's data centers or clusters to flexible virtual infrastructure that can automatically adapt to the change of the service load. Following figure shows the structure of OpenNebula cloud platform. OpenNebula is also an open and flexible virtual infrastructure management tool, which can use to synchronize the storage, network and virtual techniques, and let users dynamically deploy services on the distributed infrastructure according to the allocation strategies at data center and remote cloud resources.

Through the interior interfaces and OpenNebula data center environment, users can easily deploy any types of clouds. The same logic will be used to deploy cloud for the proposed system. Cloud can be configured/reconfigured according to the demand of the top management. As the cloud is accessible by entire organization only, each updation in cloud will be noticed by entire user group of the same cloud. This is very useful to build high scalable cloud computing environment. OpenNebula is very dynamic as far as its functionality is concern. Because through the control interfaces, users can access services provided by OpenNebula cloud computing platform. The structure of OpenNebula is illustrated in figure.

### 3.2 Benefits of Cloud

- ➔ Size of cloud can be dynamically adjusted.
- ➔ Changes in infrastructure can be easily accommodated.
- ➔ Infrastructures can be managed centrally.
- ➔ Heterogeneous resources can be managed at local data center.
- ➔ Resources can be utilized more efficiently.
- ➔ Most importantly reduces the total no of resources required and so that it reduces overall cost.
- ➔ Integration of the local resources and remote resources as well.
- ➔ Entire system became scalable and use will get rapid response.

### 4. Conclusion

Cost effectiveness is a key issue for almost all the organization as it impacts over all budget of the organization. Effective usage of resources may cut the cost and we have tried to achieve the same through the cloud computing. Viable options with cloud computing which can provide expected benefits. Each cloud customers feel the ownership of the resources and they would like to continue to keep business ownership with them and workout better trade-off with cloud vendors for service ownership. The dynamic nature of the business will be handled through the effective usage of the computing over network i.e. cloud computing.

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