



Cloud Computing – Rent Infrastructure – Boon for SMB

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Abstract:

This paper to present the new trend which opens the doors for the medium sized business organization for their survival and to compete with large organization with their Skills.

Keywords: *Cloud computing, SMB,Saas,Iaas*

1. Introduction

Cloud Computing is a latest trend in IT use of Hardware and Software resources over the internet as a service over a network. The new concept cloud computing caught attention by many business organizations. Cloud computing makes 21ST Century users to access the internet services by cloud clients like desktop, laptops, tablets and smart phones. End users access cloud-based entities through a web browsers like Internet explorer, Google chrome, Mozilla firefox..etc. Most of the major IT giants such as IBM [1], Sun Microsystems [2], Gartner [3] and Forrester Research [10] have produced whitepapers that attempt to define the meaning of this term Cloud computing paves many benefits and makes business organization free from worries about keeping and updating infrastructure and software updates. Cloud computing is undoubtedly beneficial for mid-size to large companies.

Cloud computing services include virtualization, software oriented services , grid technologies, management of large facilities, and power efficiency. Customers may use services like infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), or software-as-a-service (SaaS) and sell value-added services (such as utility services) as pay-and-use methods.

The US National Institute of Standards and Technology (NIST) has developed a working definition cloud computing. The NIST working definition of cloud computing as:

Cloud computing a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction [5]

2. Why Cloud Computing Benefit to SMB

Low entry cost allowing startup companies to deploy new technology products quickly.

Cloud computing allows the user to access servers, data center space, software, and any of the network equipment. Business entities can benefit from cloud as follows.

2.1. Flexibility of access from anywhere :

As Cloud maintained at remote location any authorized user can access from any where ie from office or outside of office

2.2. Cost Effective:

Larger companies can invest heavily for business but smaller companies have limited resources and limited budgets. Cloud computing gives best facility to compete with larger organizations. one can easily save the overhead charges such as cost of data storage, software updates, management, and most importantly cost of quality control. Because we are taking infrastructure on rent, not purchased the cost is controlled.

2.3. Chance of increasing storage capacity:

Cloud computing provides the facility to increase the storage capacity with less effort and with minimum budget

2.4. Flexibility of storing files in secure way :

As Cloud computing stores the data at one point it is easy to maintain the data secure way (based on capability of cloud provider)

2.5. Up gradation can be done easily:

Small Business organization can upgrade themselves to latest technologies easily. Up gradation of cloud with latest technology can do this.

2.6. Chance to reduce Infrastructure investment:

Breathing point for small business organizations is the Investment on infrastructure can be minimized. Small business organization can rent infrastructure as per their requirements on the basis of pay-and-use.

2.7. Selection of Location :

Cloud Service providers can select the location for infrastructure, according to their requirements to minimizing their overhead expenses

2.8. Use of device:

Cloud computing services can be used and accessed from any cloud agent device like as computer, mobile phone, laptop, tablet or iPhone ..etc.

3.Types of Clouds

Clouds can be classified in two ways ie based on cloud storage location and type of services they are offered

3.1.Classification of clouds based on Location

3.1.1.Public cloud:

In Public cloud the sharable infrastructure is hosted by the cloud service provider and maintained at their location. Customer has no awareness and control over the cloud as it was managed by Cloud service provider. These clouds can be shared between any organizations.

3.1.2.Private clouds

Private Clouds are expensive than public cloud and infrastructure will be dedicated to particular organization but not shared by all as in public type.

Private clouds can be on-premise and off-premise (external to premises).On-premise clouds will be hosted by organization and shared by organization members but off-premise clouds will be maintained by third party cloud provider but will be shared by organization members only.

3.1.3. Hybrid clouds

Hybrid nothing but the combination of public and private clouds. As many organizations hose their important and critical applications at private clouds and general applications at public cloud.

3.1.4.Community cloud

It involves sharing of computing infrastructure in between organizations of the same community. For example all Government organizations may share infrastructure on the cloud to manage data.

3.2.Classification of Clouds based upon services

Based upon the services offered, clouds are classified in the following ways:

- Infrastructure as a service (IaaS) offers hardware related services. These clouds contain storage devices database or virtual servers. Leading vendors that provide

Infrastructure as a service are Amazon EC2[7] , Amazon S3 [8] , Rackspace cloud servers [9] and flexiscale [10]

- Platform as a Service (PaaS) offers platform to develop on the cloud.. Typical players in PaaS are Google App Engine [11] , Microsoft's windows AZURE [12], Salesforce.com[13].
- Software as a service (SaaS) offers different software on the cloud. Clients can access a software application hosted by the cloud service provider on pay-per-use basis. Giant players in Saas are email providers like Google's Gmail, Google docs and Microsoft's hotmail..etc

4. How Cloud Works:

Diagrammatic representation of Working of cloud as shown in fig. Users can access the cloud by making use of cloud agents

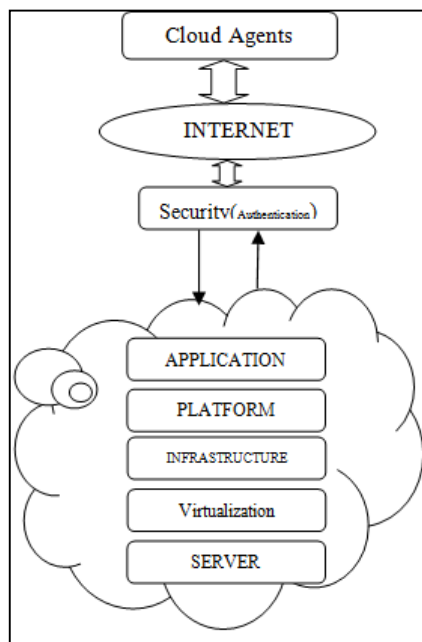


Figure 1

- Clients can access the cloud by cloud agents like desktop, smart phone, laptop, tablet etc.
- After the authentication user can access applications available over the cloud.

- Cloud Service providers take care of things like Security, Application management, Infrastructure management, virtualization and storage management operations backup and recovery.

5. Differences between traditional and Cloud technology

Traditional	Cloud Technology
Remote accessing not possible for Employees	Remote Accessing can be possible
We can not access to mobile devices	We can access to mobile devices
Internet connection may or may not be required	Internet connection required
Organisation has to maintain infrastructure	Service provider will maintain infrastructure
Software will be maintained and upgraded by organization	Software will be maintained and upgraded by Cloud service provider
Organization has to take care of Backup and recovery regularly	Cloud service provider will take care of Data backup and recovery
Organization may not monitor infrastructure 24x7x365	Cloud service provider monitors infrastructure 24x7x365
Data is stored at on-site	Data is stored at off-site
Data can be stolen by employee	Data cannot be stolen by employee
Organisation has to take steps to protect from viruses, hackers ..etc	Cloud service provider will take steps to protect from viruses, hackers ..etc
More Staff required	Minimum staff is sufficient as we are paying for usage
Cost of Infrastructure can not be shared by any others	Cost of Infrastructure can be shared by other organizations
Organizations have to bear capital expenditures on servers, networking technology, etc	capital expenditures on servers, networking technology, etc will be minimized or null
Additional office space needed for hardware	No additional office space needed for the hardware
It is not mandatory to maintain standards	Cloud service providers normally maintain industry standards like AS 70 Type II certification

Table 1

6. Future out look

As per IDC cloud research [6]

- Revenue from public IT cloud services crossed \$21.5 billion in 2010
- revenue from public IT cloud services expected to reach \$55.5B by 2014
- Revenue from public IT cloud services expected to reach \$72.9 billion in 2015,
- Forecasting annual growth rate (CAGR) at 27.6%.
- By 2015, 1/7 of Amount spent on packaged software, server, and storage will be through the public cloud model.

7. CSPs for Small Business

- netsuite.com commerce as a service ,Cloud ERP/Financial software suite [14]. It deals Web-based accounting, web-based inventory and e-commerce software
- Box.net (box.com): It is an online storage service to Share, manage and access files. It offers free online storage 5 GB[15]
- QuickBooks Online [16]: It provides secure online accounting software for small businesses. It tracks all your income and expenses. It offers services at Free to \$39.95 per month
- Google App Engine, Google Compute Engine, Google Cloud Storage, Google BigQuery[17] are services provided by Google. Over 1M applications run on Google Cloud Platform
- Mail services like Gmail and Hotmail -computing service: Clients can access their email from any computer with a browser and Internet connection, regardless of kind of hardware they are using.
- skype is popular for its low-cost calls to landline and cell phones that it makes possible.

8. Evaluation of Cloud Service

Traditional applications are very complicated and expensive. As they require variety of hardware and software required to run. We need experts of team to install, run, secure, and update them. As Applications on cloud can be installed, configured, tested and

maintained by cloud service providers. Before moving your data onto cloud we have to evaluate cloud.

- What is level of experience of Cloud service provider?
- Do cloud service providers meet with industry standards industry and governmental regulations?
- How often do they are backup the data systems ?
- Whether Recovery methods are reliable or meaningful.

- Whether Cloud Service provide any legal agreement.
- Whether we receive all technical support from CSP
- Whether CSP provides any legalized contract of ownership of data.
- Whether CSP capable of moving old data onto cloud
- Whether off-site data protection included in the agreement.

9. Conclusion

Cloud Computing new trend which opens the doors for the medium sized business organization for their survival and to compete with large organization with their Skills. Low entry cost allowing startup companies to deploy new technology products quickly. Cloud computing allows the user to access servers, data center space, software, and any of the network equipment Cloud Computing offers a little startup cost to start a business with high technology to compete the large organizations. SMB can utilize the Cloud Computing services to make them selves updatable to latest trends with an affordable budget.

Low startupcost,flexible accessing from anywhere ,secured data storage, minimal staff requirement, 24x7x365 days support from cloud service providers, easy up gradation of hardware and software opens a doors for Small ,medium business organizations make themselves strong in industry.

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