

Adoption and Use of Cloud by Small and Medium Businesses (SMBS)

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Abstract

Small and medium-sized businesses (SMBs) are impersonate a growing role in the rise of the market for cloud services. Building an information technology (IT) infrastructure can be incredibly complex and expensive for new and growing businesses. Limited resources, expertise, and time often constrains how much small and midsize businesses (SMBs) are able to accomplish. Software companies have taken into account this demographic by building out tools that are either specifically designed for SMBs or can be configured to support more modest needs. Whether we're discussing email marketing or accounting tools, there's a service that can meet your needs regardless of your company's economic and technological thresholds.

This study, includes the description about the types of services offered by cloud, how cloud can be useful in SMBs. Moreover, this study also includes the study of the different phases that can be passes for selection of particular SMBs before purchasing of services.

Keywords: Cloud Computing in SMBs, types of clouds, cloud benefits for SMBs, adoption phases of cloud

I. INTRODUCTION

Cloud Computing is a technological framework which offers a convenient, on-demand access to a shared pool of resources such as servers, storage, and applications, over the internet. Users don't require their own controlled hardware or software[1,2]. Instead, these resources are maintained and provided by cloud service providers; user can get access to these resources over the internet by paying nominal charges to the cloud service providers. Cloud computing had been proved very useful in different sectors [7]. In business organizations cloud computing offers numerous benefits. From small scale organizations to large scale organizations, everyone is continuously using services offered by cloud service providers. Every organization uses the services of cloud according to their scale. This study focuses on cloud services used by small and medium scale business.

II. TYPES OF CLOUDS

There are three different types of cloud provided by the cloud service providers [4]. Different organizations can use these clouds according to their requirement and cost afford by them. This section describes the different types of cloud that can be used by different scale organizations.

1. *Private Clouds*

A private cloud is usually located on-premises, is dedicated to and used solely for a single organization. It may be managed by the organization itself or a third party. It could be physically located within the corporate premises or off- premises. The users of a private cloud are the internal business units or divisions. A private cloud appeals to organizations that are looking for dynamic, elastic computing resources but are forced to keep the data within their captive, internal datacenters due to concerns over security, privacy, and corporate governance or compliance reasons.

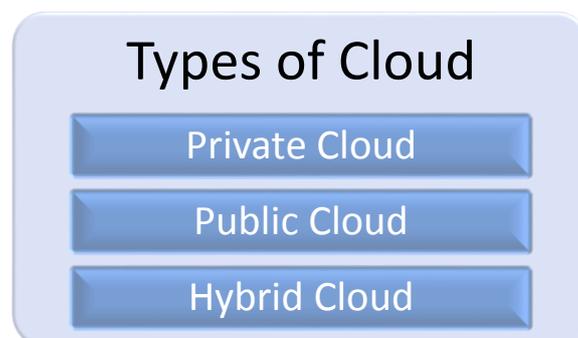


Figure 1: Types of Cloud

2. Public Clouds

A public cloud is an infrastructure that is owned and managed by an organization selling cloud services and is made available to the general public. The physical and IT infrastructure and applications exist at the provider's location. Public clouds are attractive to organizations that do not want to spend capital on recurring operating expenses. A public cloud infrastructure is provisioned for open use by the general public, which may be owned, managed and operated by a commercial business, academic or government organization or some combination of them and exists on the premises of the cloud provider.

3. Hybrid Clouds

A hybrid cloud comprises of two or more clouds, private, community or public. Each cloud retains its features but can share data if required. Several organizations choose to use a hybrid cloud, consisting of a set of private and public clouds. The private cloud is used for applications and data that require a high degree of compliance and security such as enterprise HR, CRM, financial and payroll-related applications. The public cloud is used for less-sensitive data and provides benefits such as scalability, pay-per-use billing and lower expenses. Ideal use of the public cloud is for backups, e-mails, disaster recovery and storage of data that need not be shared with remote employees or partners [10,11].

III. CLOUD IN SMBS

A Small and Medium Business (SMB) is an organization that would typically have many employees. These business owners are well aware of cloud computing. They have adopted cloud computing for its economies of scale, ease of use and low cost. SMBs benefit from cloud computing as compared to large enterprises. Many SMBs have been on the leading edge of public cloud advocacy and adoption. A survey was conducted by Dell of more than 400 small and mid-sized businesses with less than 999 employees and it showed that 69% of the business owners and leaders wanted to purchase and adopt cloud applications [5,6]. The survey also showed that SMBs using the cloud planned to add an average of three more cloud services in the near future.

IV. PUBLIC CLOUD BENEFITS FOR SMBS

SMBs see a clear benefit from improved operational efficiency and the pay-per-use commercial model. These benefits include automation of tasks and processes, easy availability of information and reduced manual processes. Besides the ease of anytime anywhere access, ability to collaborate and view updated data in real-time provides SMBs a level playing field with enterprises [3,8].

For SMBs, the public cloud provides the following benefits:-

1. **Better Resource Utilization-** With in- house IT infrastructure, the mean utilization of resources is only 20-30%, because capacity planning must be provided enough to meet peak loads. But with real-time scalability of public clouds, you get to use and pay for what you need at any time.
2. **Converting CapEx to OpEx(Capital Expense to Operating Expense)-** SMBs do not need to buy or manage hardware and software. Instead they pay a predictable monthly fee to the cloud provider.
3. **Scalability-** SMBs are not sure of how their customer requirements will move up or down. With limited financial outlay they need to make sure that the available capacity can be scaled down or up without having to spend on IT hardware, software or administrative expenses. In a public cloud the customers can remove or add servers, store data and compute power to optimally meet their needs.
4. **Backups-** Cloud storage provides an ideal way to backup data on servers and user end-devices. Cloud based backup is one of the most-deployed use cases for public clouds. This helps SMBs that do not have CapEx for best backup hardware and software.
5. **Business Continuity for SMBs-** Unexpected downtime or lost customer data can shutdown emerging businesses or start-ups. However cloud data is replicated to datacenters in different parts of the country and world thus providing easy access to online data from multiple sources even if a certain site or datacenter is inaccessible.
6. **Level Playing Field with the Enterprises-** With cloud, smaller organizations can take on global enterprises. The cloud provides SMBs with the ability to deliver services to customers anywhere in the world and the ability to compete with global establishments. It saves SMBs from large up-front procurement costs and from managing hardware, databases and applications.
7. **Use of Mobile Computing-** With the steadily increasing use of mobile devices(smart phones, ipads, tablets etc) by employees and customers to access data on-premise data and applications; large organizations have a sharply shrinking audience. On the other hand SMBs can get all time access to their cloud-based applications from any device or location. This allows them to easily increase their customer reach and revenues.

V. PUBLIC CLOUD ADOPTION PHASES FOR SMBS

There is a strong demand for cloud adoption by SMB for cloud-based server capacity, information and database management, security, system and user access management, ERP, CRM and collaboration tools. Figure 2 shows the phases that one has to go through while selecting and transitioning the services to cloud. Throughout the

adoption process, you need to focus on the areas of trust, security, legal, compliance and organizational issues.

1. **Analysis Phase:** Analysis phase is the first phase. While adopting cloud in organization, the organization must first analyze the need to use the cloud and at what extent the company is able to shift to cloud and able to bear the cost of cloud services. Organization must also identify possible cloud application candidates such as, the impact of migrating to the cloud and do an analysis of the existing systems, applications and business processes.
2. **Planning:** Planning is the most crucial phase in adoption before purchasing of any cloud services. Planning phase helps to set the direction and objectives for adopting cloud computing. The management team chooses the platforms for deployment and the infrastructure finance, plans, security and legal issues. Improper planning may leads to increase in cost or unsuitable establishment of required services.

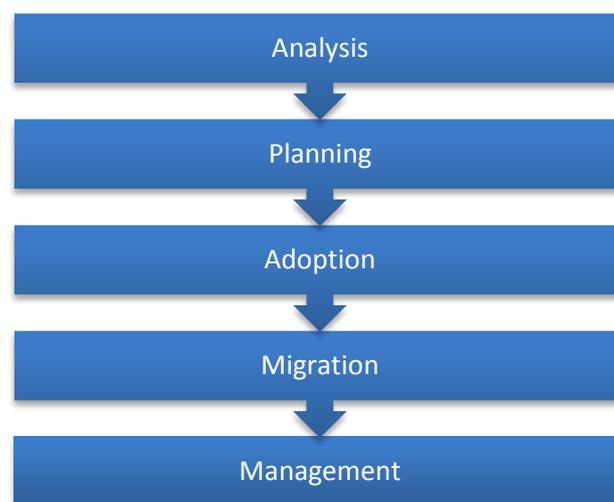


Figure 2: Cloud Adoption Phases by SMBs

3. **Adoption:** Adoption phase is concerned with purchasing of the services planned during planning phase. In this phase, firstly the vendor for the particular service is selected and these services are taken from selected cloud vendor. In this phase, work on application integration with cloud platforms and infrastructure, outsourcing strategies, SLAs, security policies and legal compliance management is done. This phase sets the stage for migration of the selected applications and systems to the cloud.
4. **Migration:** After adopting the cloud services from vendors, the organization requires to shift their working over cloud services. Migration phase helps with migration of user data and application to the cloud. The users start using the

cloud services. The management must ensure adequate technical and user support during the migration process.

5. **Management:** Management is the last phase and is ongoing processes that never end. This phase involved to identify document and evangelize best practices. The cloud platform and services must be adequately maintained. Local and remote support and monitoring teams must be put in place.

VI. GUIDELINES FOR SMBS ENSURE THE NEEDS FOR CLOUD

While performing the planning in adoption of cloud in business, every individual in business have their different opinions. Overall, respondents willing to consider purchasing of cloud solutions and needs are recorded and taken into account to identify the actual requirement of cloud adoption in business. The organization must have to understand how to gain access to the services and get huge benefit by using these services of cloud. Figure 3 shows the different guidelines for SMBs to ensure that they get the most out of their cloud.

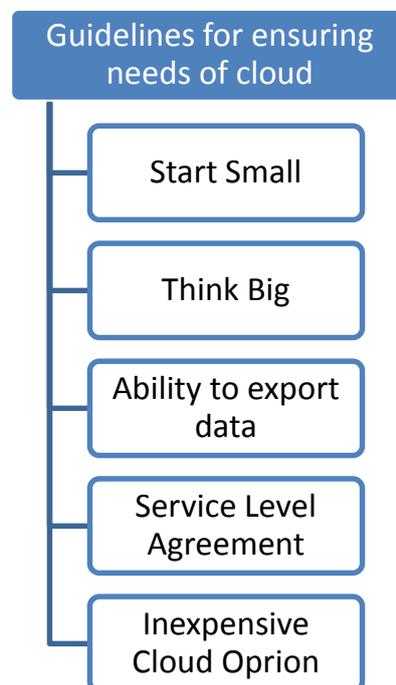


Figure 3: Guidelines for SMBs to ensure needs for cloud

1. **Start small-** Firstly, the organization must provide time employees to get familiar with the services provided by cloud. This can be possible by using single application at a time and by giving some weeks for employees to get accustomed to the environment. Once they are at ease, organization can add

more cloud services to train employees completely by the services offered by cloud.

2. **Think Big**- While purchasing the services of cloud, organization has to ensure that the cloud services adopted by it can be scaled up to a desired level across time zones, types of services and can serve employees and customers alike. If they cannot, then organization required to keep looking for required services.
3. **Ability to Export data** – The organization must purchase such type of cloud services which is able to export in different standard formats mostly used by the organization so that organization can be able to shift different clouds according to the requirement or can be able to backup the data at different cloud servers. For this, the organization required to export their data to common applications such as Microsoft Word/Excel or database files for Oracle, MySQL etc.
4. **Service Level Agreement (SLA)**- The Service Level Agreement(SLA) describes the refund for service outage, termination procedures, fees, backup and Business Continuity Planning(BCP) that will be provided by the vendor. Organization must read and understand the terms to know the impact of the usage of cloud services in business of the organization.
5. **Inexpensive Cloud Options**- Several free cloud computing options exist for emails, document management and even CRM and ERP. Organization just need to pay only its usage exceeds in number of user count or storage space. Some cloud services providers also offers the free trial periods to the users. The organization must review services before deciding to buy these services [9].

VII. CONCLUSION

This paper discussed the importance of cloud in small scale and medium scale organizations and different types of cloud services can be provided to the organizations. It also addressed phases of cloud adoption in SMBs. Despite of this, the study also entitles some benefits offered to SMBs for adoption of cloud in organization. Study also includes the guidelines for the organization that are to be followed by the organization while shifting to cloud.

The future perspective of this study is to compare the cloud benefits for the organization with those does not adopted services of cloud.

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