"CLOUD COMPUTING IN BUSINESS"

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Abstract—There are many reasons why an enterprise might want to adopt cloud computing. Often, there is no single reason why an organization decides to use cloud computing. The decision depends on a complex combination of reasons, rather than being based on a single factor. In this paper we analyze business use-cases. The reasons do not apply globally. Cloud computing normally does provide greater agility, for example, but it does not always reduce costs or mean a better Quality of Service (QoS). There are a number of concerns that must be addressed when architecting a cloud computing environment. These concerns can often be solved, but in some cases they may mean that cloud is not appropriate. In this paper we discuss various frequently expressed concerns regarding cloud computing in business. This paper describes the main motive for using cloud computing, and discusses the basic situations in which they may or may not apply. The reasons can be categorized under five topics: agility, productivity, QoS, cost, and the ability to take advantage of new business opportunities. It is based on the use-cases and includes some considerations identified in project report on the Computing Business Scenario Workshop. These results will help businesses to gain the understanding that they need to obtain the benefits that cloud computing can bring.

Keywords— cloud computing, Quality of Service, business, organization, technology, productivity, infrastructure.

I. INTRODUCTION

Use of cloud services can change a company's risk profile. Use of public cloud, for example, can avoid the risk that a big investment in IT resources will not pay off but, on the other hand, it can bring security risks because of sharing of resources with unknown parties and risk of non-compliance with regulation due to minimal control on how and where data is stored on physical medium. The change can be positive or negative, depending on circumstances. There are many models available that can help companies to assess whether cloud is appropriate in their situation and, if so, what kind of cloud service to choose.

Frequently expressed concerns include:
• Security, privacy, and compliance, including data availability in shared environments, regulation and legal issues, corporate policies, and management of identity for access control
• Lack of flexibility of SaaS applications
• Dependency on an Internet connection
• Portability issues due to immaturity of cloud products and Vendor lock-in as a result of lack of standards.
• A different approach which is required by vendor management, in which SLAs are critical
• Change management and testing, which can be a challenge in shared environments
• Integration with on-premise systems, which may be even impossible
• Lack of transparency of interfaces between SaaS vendors, particularly with regard to managing the interfaces
• Low experience with cloud financial models and licensing.The reasons can be classified under five categories: productivity, agility, cost, QoS and the ability to take advantage of new business opportunities.

II. PRODUCTIVITY

Growth in productivity is the second main cause for the use of cloud computing. It provides a more productive situation for collaborative working, and increase productivity by enabling participants in a business ecosystem to share logic.

A. Collaborative Working

Usage of cloud computing tools for email, instant messaging, voice communication, information distribution and development, conferencing and event scheduling is becoming an increasingly common feature of industrial life. This is the case that people generally do not think about it as being cloud computing. Nevertheless, these cloud services normally exhibit the five important cloud computing characteristics, and are part of the growing trend of business in the cloud.

An important characteristic for these services is Broad Network Access (BNA). They are widely used on mobile devices as well as on PCs with web browsers. People of new generation are starting in business life today. They are accustomed to using cloud services for social interaction and sharing their personal information. They are expected to have business collaboration tools that are equally effective and easy to use.

III. AGILITY

The main reason for using cloud based computing is agility. Cloud computing can deliver agility because it has on-demand service and elasticity. IT resources can

be acquired and deployed more quickly and they can be increased or decreased according to demand. This means that enterprises can innovate, enter new markets, introduce new products and services and adapt to changing circumstances.

This applies to all cloud deployment models. There is an additional consideration for public cloud. Because the cloud resources are operated by an external company, there is no need to train people within the enterprise. The reduced training needs for public cloud are a major contributor to cloud-based agility.

A. Development and Testing

IT resources are required to support development and testing of software, as well as resources to support the new business processes themselves. Procurement of these resources can introduce significant delay. The need to pay for resources for development of a new product or service can add significantly to business risk. Public and private cloud can remove the delay by enabling development resources to be available on-demand. Public cloud can minimize the cost of development and eliminate the additional business risk because it replaces an initial investment in development by usage-based payment.

B. Resource Scaling

Deployed services may experience up and down in usage that require corresponding increases and decreases in supporting IT resources to meet demands in an effective way. These ups and downs can be handled easily by using cloud-based resources. In many cases, resource provisioning is possible using programmatic interfaces, so that resources can be scaled automatically under full program control without any human intervention. This can cut the time to react to change from hours or days to minutes. Manual or automatic Resource scaling enables service levels to reduce cost. Automatic resource scaling matches resources to demand most efficiently, enabling the lowest cost of operation consistent with adequate service.

IV. COST

Taking account of the advantages of productivity, agility and quality that cloud computing can have, one might expect it to be normally more expensive. This is not always the case, and reduced cost is one of the main reasons why companies are starting to use the cloud. Cloud computing achieve cost reduction through server consolidation, thin clients and community cost sharing. Another important reason related to cost is the ability with public cloud to replace capital expenditure by operational expenditure in some cases.

A. Server Consolidation

The traditional IT model leads to the provisioning of servers to match high demand. There are servers to be dedicated to particular departments or projects with no attempt to balance surplus in one server against shortage in another server. The result is often a massive overcapacity, with very poor utilization of resources.

Reduced cost through resource pooling has long been one of the arguments for outsourcing services. But the responsibility to an external supplier is not the fundamental point. A large enterprise might be able to achieve cost savings by optimizing server utilization across departments.

Until recently this type of optimization would have been done manually. This is difficult and time-consuming, and the delay between the resource use and the re-allocation of resources makes this optimization far from perfect. Virtualization technology equipped with software-driven resource allocation makes the process automatic. This technology is normally used by cloud providers. It means that cloud computing delivers fast and effective resource optimization, memory, moving processor, network capacity and storage between users almost instantaneously.

B. Thin Clients

Another choice for cost decrease is to move processing from clients to cloud-based servers. The thin client is not a newer idea, and can be used with existing solutions. It is, however, often classed as a form of cloud computing since the processing is transferred from the client to the cloud. Significant cost reductions can be obtained by reducing expensive devices – such as high-end PCs with high processing power and high amounts of memory – by cheaper, low power client devices that only provide a user interface to server applications that do most of the processing work. This is, however, very likely to mean a significant increase in traffic between client and server across the network, and it will not be useful unless the network is reliable and fast.

V. QUALITY

The next main reason for cloud computing is that it can mean better quality IT. There are several reasons for this better quality. How far they apply differs from one enterprise to another: an enterprise with inefficient IT department is very likely to find cloud more attractive option than one whose IT department has a superb service.

These reasons include better manageability, better usage information and better quality of IT provision, better carbon footprint and better business continuity. Some of them apply to public cloud rather than privately based cloud, and may equally apply to different forms of outsourcing.

A. Better Usage Informationt

One of the essential characteristics of cloud computing is Measured Service. In any public cloud, it is a base for charging. In any private cloud, it is used for internal charging, and it should be used for resource planning. There is no reason why service use cannot be measured without cloud computing, but generally it is not measured efficiently. The virtualization technology that underpins many cloud solutions provides convenient measurement facilities that other technologies may be lacking. Good useful information may be given for cloud, but not for the other kinds of solutions.

Good usage information provides enterprise stakeholders with an understanding of how the enterprise IT is operating at the moment, and enables equitable sharing of resources and effective forward planning, and more efficient resource use.

B. Better Manageability

The ability to provision and configure resources through a web portal automatically means that customers of cloud computing have better manageability than they would expect to have with a non-cloud system. For cloud providers, the resource configuring and provisioning is done automatically in response to user requests means that a heavy management burden is removed.

C. Better Business Continuity

Businesses want to continue their operations as normally as possible in the event of disaster, such as a fire or flood destroying a data center, but the cost can be very high for providing duplicate systems and recovery mechanisms in-house. This is a significant pain-point, especially for small businesses, where the cost is proportionately very high than it is for large businesses. This clearly means that one must either bear significant costs that decrease his competitiveness, or risk failing when disaster strikes.

Cloud can solve this problem. For large cloud providers, economies of scale make the effort and cost of providing duplicate systems and recovery mechanisms a relatively small overhead, so that they can deliver these disaster recovery mechanisms to businesses of all sizes at very low cost. Alternatively, industries can implement disaster-recovery capabilities themselves by using cloud services whose underlying resources are geographically separated.

D. Better Carbon Footprint

In the current social and political climate, many companies want to do all that they can to increase their environmentally-friendly credentials and remove the carbon emissions of their business operations. But they are expecting to see rapid growth in their use of IT, and corresponding growth in emissions from increased power consumption. This means a corresponding reduction in carbon footprint. With public cloud, there is the added advantage that the resource used is off-premise.

VI. NEW BUSINESS OPPORTUNITIES

Cloud computing can provide businesses new business opportunities as a provider of cloud services or added services.

A. Cloud Service Provision

A business that excels in the quality of its IT services can become a IaaS or PaaS provider. A unique case of this might be where an industry implements a private cloud, has extra capacity, and sells that extra capacity as public cloud.

Processing power, computer operating system capabilities and data storage form the basis of most IaaS and PaaS services today. There may be opportunities to sell infrastructure or platform services based on other kinds of resource. Software applications providers may well find that they can increase the markets for their products by providing them in the form of SaaS.

B. Added Service Provision

By implementing your services on the cloud, and making them accessible via the Internet, you can reach a vast, global market.As cloud computing is growing in scope and popularity, it will ultimately become the favored way for businesses to deliver their services. Competition will be fierce, and only the best will succeed. For those that do succeed rewards will be high.

VII. CONCLUSION

There are many reasons why an enterprise might want to adopt cloud computing. Often, there is no single reason why an organization decides to use cloud computing. The decision depends on a complex combination of reasons, rather than being based on a single factor. The reasons do not apply globally. Cloud computing normally does provide greater agility. There are a number of concerns that must be addressed when architecting a cloud computing environment. These concerns can often be solved, but in some cases they may mean that cloud is not appropriate. There are various frequently expressed concerns regarding cloud computing in business. These results will help businesses to gain the understanding that they need to obtain the benefits that cloud computing can bring.

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