Impact of Cloud computing on the business worldwide, the level of use in Macedonian companies

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INTRODUCTION

The world has already been moved from the industrial economy to the networked, digital economy. In this new informational era, characterised by the fast growth and development of Information and Communication Technologies (ICT) and the Internet, a further and faster expansion and necessity of new management alternatives can be witnessed. The economic world has moved from being a cluster of national economies to a global, wide, international marketplace. Though, the emergence of new, e-business models based on digital technologies and the Internet has become an imperative for the management of companies of all size.

Having in mind the enormous influence of ICT and the Internet on the overall organizational transformation (organizational structures, strategies, business models, business processes etc), managers are obliged to adjust the way they are managing their business initiatives and apply e-business technologies in their business. In the contemporary society and turbulent and global environment, managers are trying to leverage the potential of e-business, aware of the necessity of implementing ICT, the Internet and accompanying e-business models and technologies in order to increase their competitiveness.

The transformative impact of Software as a Services (Saas) and a new generation of social computing technologies are incredible and ongoing. These innovations enable people and organizations to share information, collaborate on projects, and build virtual communities, irrespective of time and geography. In the process, they have made command-and-control hierarchies unnecessary as mediating mechanisms for the flow of information.

In this sense cloud computing is a new approach of working globally. They called the third generation of out sourcing for the companies. First Generation was "your mess for less"; Second Generation is strategic or selective sourcing, including hosting. Third Generation Outsourcing, as a result of the emergence of Cloud Computing, stands to materially revolutionize and challenge traditional outsourcing models like no previous models have (Marty Gauvin is the Founder, President & CEO of Virtual Ark, CloudExpo 2010). The Cloud also delivers an opportunity for the wider adoption of existing enterprise applications in a SaaS model

LITERATURE REVIEW

- What is Cloud Computing?

There is a big Cloud computing confusion among IT professionals and different explanation and definition for it. In June 2009, a study conducted by VersionOne found that 41% of senior IT professionals actually don't know what cloud computing is and two-thirds of senior finance professionals are confused by the concept,[1] highlighting the young nature of the technology.

According to some authors cloud computing is a technology that uses the internet and central remote servers to maintain data and applications[2]. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with Internet access. Another definition is that Cloud Computing is Internet-based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, like the electricity. This technology allows for much more efficient computing by centralizing storage, memory, processing and bandwidth.

An example of cloud computing is GoogleDoc or Gmail, Yahoo etc. For the use there is no need for software or a server. All a consumer would need is just an Internet connection. The server and email management software is all on the cloud (internet) and is totally managed by the cloud service provider Yahoo, Google etc. The consumer gets to use the software alone and enjoy the benefits.

The cloud is closely related to the SaaS, but it's defer. SaaS still typically involves complete applications, the cloud seems to be more flexible: offering partial solutions, components, and individual services that can be used to create own solution. There are many examples where cloud can offer almost anything as a service (Zoho.com, Jobscience.com). Cloud computing cover three segments: "applications," "platforms," and "infrastructure." Each segment serves a different purpose and offers different products for businesses and individuals around the world.

- Benefits for the companies world wide?

The main question that pops up is how the cloud is transforming the business world wide and has impact of the performance of the companies. In order to answer that question we must go thru several issues.
The first is related to the characteristic of the cloud according to the NIST (National Institute of Standards and Technology) simplified version of Cloud Computing:
• **On-demand self-service**: individuals can set themselves up without needing anyone's help;
• **Ubiquitous network access**: available through standard Internet-enabled devices;
• **Location independent resource pooling**: processing and storage demands are balanced across a common infrastructure with no particular resource assigned to any individual user;
• **Rapid elasticity**: consumers can increase or decrease capacity at will;
• **Pay per use**: consumers are charged fees based on their usage of a combination of computing power, bandwidth use and/or storage.

Software provided from the cloud is generally quicker, which comes in very useful in for example a merger scenario. Overall we could say that on-demand means that the CIO has

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[1] Cloud Confusion Amongst IT Professionals. VersionOne (June 6, 2009).
[2] http://www.wikinvest.com/concept/Cloud_Computing

fewer worries. The CIO has to worry a lot less about[3]:
- Upgrading the software and technology stack: with
- SaaS the provider takes care of most of this (sometimes client software still needs to be updated to be able to consume a service).
- Getting stuck using an old version of software for which support has expired: using SaaS you always get the latest services.
- Making sure the software needs and infrastructure match: again, something the provider will take care of.
- Maintaining multiple staging environments (testing, pre-release, development): switching extra "environments" on or off is easy with SaaS.
- Building technical expertise for the software: all you need to know is how to use the service, its contract and interfaces, not its inner workings.
- Shelfware running up a bill for unused licenses: unused services may be free of charge or capable of being turned off.
- Major impact of software upgrades: a service change • will generally not affect databases, platforms, *etc*.
- Performance tuning: in case of SaaS, call the provider if the SLA isn't met.
- Vendor attitudes, bad support, and bad quality: a service contract depends upon a happy client as opposed to a one-time license sale that is final and finite.
- User acceptance / adapting to new software versions: fewer big releases and more small steps lead to a kind of continual software/service improvement that users can follow more easily. People act as part of the *viral* deployment of new features/capabilities.

Cloud computing users can avoid capital investment on hardware, software, and services when they pay a provider only for what they use. Other benefits are shared infrastructure and costs, low management overhead, and immediate access to a broad range of applications. In general, users can terminate the contract at any time and the services are often covered by service level agreement (SLA) with financial penalties[4].

According to Nicholas Carr (The Big Switch to Cloud Computing, 2009) the strategic importance of information technology is diminishing as it becomes standardized and less expensive. He argues that the cloud computing paradigm shift is similar to the displacement of electricity generators by electricity grids early in the 20th century.

Although companies might be able to save on upfront capital expenditures, they might not save much and might actually pay more for operating expenses. In situations where the capital expense would be relatively small, or where the organization has more flexibility in their capital budget than their operating budget, the cloud model might not make great fiscal sense. Other factors impacting the scale of any potential cost savings include the efficiency of a company's data center as compared to the cloud vendor's, the company's existing operating costs, the level of adoption of cloud computing, and the type of functionality being hosted in the cloud.

On Demand software services come in a few different varieties which vary in their pricing scheme and how the software is delivered to the end users. In the past, the end-user would generally purchase a servers and is accessed by the end user over the internet. While this is the most common platform for On Demand software services, there are also some slightly different offerings, which can be described as a hybrid of these two platforms. For instance, a program through which the end user pays a license fee, but then accesses the software over

[3] http://buildingsaas.typepad.com/blog/2008/06/more-saas-simplicity-additional-things-that-saas-customers-dont-have-to-worry-about.html.
[4] Forrester's Advice to CFOs: Embrace Cloud Computing to Cut Costs

the Internet from centralized servers is considered a hybrid service. Companies that sell this kind of platform charge their customers a subscription fee and in return host software on central servers that are accessed by the end user via the Internet (Saleforce.com-CRM; Google-GOOG)

Cloud platform services or "Platform as a Service (PaaS)" deliver a computing platform as a service, often consuming cloud infrastructure and sustaining cloud applications[5]. It facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software layers. Companies that have developed platforms that allow end users to access applications from centralized servers using the internet are: Google - Apps Engine , Amazon.com - EC2, Microsoft - Windows Live.

The final segment in cloud computing, known as the infrastructure, is very much the backbone of the entire concept. Infrastructure vendors environments (such as Google gears) that allow users to build applications. Cloud storage, such as Amazon S3, is also considered to be part of the infrastructure segment.

FURRED STEPS

Based on the theory it will be develop research framework for the constraints and impact of the cloud computing on the business and later in accordance with the research hypotheses and questionnaire will be develop. The questionnaire will be sent to companies and end users in Macedonia for one month. The results form the survey will be compared with the hypothesis previous conducted. The data for the survey will be web based.

This research will be focus on Macedonia and there are some possibilities to the spread in the region. The findings will be useful for the public and privet sector, cloud providers.

During the whole research quantitative and qualitative research techniques will be used, inductive-deductive method, systematic approach and some basic statistic technique.

There are some risk and limitation that should be concern: one is low rate of response from the end users, Internet access and restriction for the end users.

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