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LEGACY APPLICATIONS MIGRATION PROCESS OVER CLOUD- A REVIEW

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ABSTRACT

Cloud is the buzzword of the moment. Without a process in place, there's a chance you will get into problems such as a successful migration requires well-defined process support, and the same is true for migrating legacy applications to the cloud. This paper attempts to analyze existing process models in order to identify gaps, and then propose a process framework that will aid in the migration of legacy applications to cloud platforms effectively. Computing resources are provided as services in the cloud computing model. The underlying unit of deliverable functionality resources is the service.

Key words: Cloud technology, Cloud model, Migration process

INTRODUCTION

Customer satisfaction and return on investment are two important factors that have a direct positive impact on today's business climate (ROI). In their current state, legacy applications are not suitable for embracing technological innovation, i.e. technological advancement comes with its own set of challenges. To remain ahead of the competition, it is necessary for businesses to replace, re-develop, or relocate their legacy applications or portfolios. However, if a business refuses to adopt the new prevalent technology for any reason or set of reasons, the business will face its own set of challenges; challenges, in any case, are not appealing to any business, even in the short term.

Enterprises can face a variety of challenges, including a scarcity of skilled manpower, high software and hardware maintenance costs (complex patching and modifications), software scalability, business continuity, customer experience, reduced efficiencies and effectiveness of

operators and their agility to serve customers, knowledge retention, and enterprise imagine ability to meet customer expectations. (Ali Khajeh-Hosseini *et. al.*, 2010), inability to meet current business needs, etc.

Option replace or choice re-develop may not be a viable option because the organization may not be interested or willing to invest all of the effort, time, and money to create an application that has become the heart of the organization, i.e. enterprise operations are heavily reliant on these applications, so the only option available is to move the existing application to new technology or platform to save all the effort which has gone into to build the application up till now.

If an organization decides to migrate legacy applications to new technology and platforms as a first step toward adopting new technology such as cloud computing, which provides hardware and software resources as a virtualized service (Doaa M. Shawky, 2013).

CLOUD MODEL

“Cloud computing is 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,” according to the National Institute of Standards and Technology. (Peter Mell and Timothy Grance, 2011).

Gartner defines cloud computing as a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service using Internet technologies.

Types of cloud models

Public cloud: This type of cloud deployment model, as the name implies, supports all users who choose to use a computing resource for a fee or for free.

Private cloud: A private cloud, as the name implies, is infrastructure built and used by a single organization or business; it is also known as an internal cloud.

Hybrid cloud: By having part of the application on premise and part on cloud, an enterprise gets the best of both worlds: public cloud and private cloud.

Community Cloud: The term "community" refers to a group of individuals or an organization that shares a common interest or a common goal. The term "community cloud" refers to a cloud system designed for all members of a community to use.

REVIEW OF LITERATURE

Pooyan Jamshidi *et. al.* (2013), conducted a systematic literature review of 23 studies published between 2010 and 2013, which were published between 2010 and 2013. Based on a characterization framework presented in the paper, the author categorized and compared the

selected studies. A systematic review of the literature has aided in the creation of a knowledge base about the existing solutions for legacy to cloud migration.

Jun-Feng Zhao, Jian-Tao Zhou *et al.* (2014), According to the author, legacy application migration to the cloud has been the subject of numerous studies and industrial applications. Based on an analysis of research accomplishments and application status, the author has categorized migration approaches into three strategies based on cloud service models.

K C Gouda *et. al.* (2014), The author acknowledges that cloud computing can greatly reduce the cost of ownership and operation. Cloud migration is defined as the transfer of data, applications, or services from on-premises to the cloud, or the transfer of data, applications, or services from one cloud environment to another in whole or in part, where the information can be accessed over the Internet.

Muhammad Shoaib *et. al.* (2017), The current migration framework was examined and reviewed by the author, who took into account the process, activities, challenges, and solutions to provide guidelines for improving the migration process. Because of rapid technological advancements, the author believes that companies must migrate from one platform to another, such as cloud-based migration.

METHODOLOGY

Legacy application migration is a major step toward migrating legacy applications to the cloud, and it necessitates considerable upfront thinking and in-depth planning to ensure efficient resource use and risk management, on-time and within budget implementation, and overall operational success. (Barn McDavitt *et. al.*, 2013).

Migration across three cloud layers:

Pre-migration Area - All activities that must be completed prior to the start of the actual migration are grouped together in this section of the framework. In the pre-migration phase, businesses must consider the application migration as a whole, taking into account all of the variables. It will assist businesses in viewing and analyzing their current IT landscape or portfolio, which has been created.

Migration Area -. The framework's migration region is the second and most active. It is referred to as the "heart" of the framework because the real migration will take place in this region from beginning to end, from the Discovery and Planning phase to the Go-Live phase.

Post Migration Area – This section of the framework contains activities that must be completed after the actual migration. The activities in the Post-Migration area are based on the decisions and actions made in the framework's first two areas, namely Pre-migration and Migration.

A feasibility study has several components, such as market feasibility, technical feasibility, financial feasibility, and so on. For the purposes of this research, we have divided feasibility into

two categories: technical assessment and business assessment. The primary goal of the pre-migration region is to identify or pre-evaluate the technological and business advantages. (Leire Orue-Echevarria *et. al.*, 2012).

At this point, I'd like to introduce the word "cloud economics." "Cloud computing is frequently referred to as a technological advancement. A major shift in the business and economic models for provisioning and consuming information technology (IT) would, however, result in substantial cost savings." (Jackson, 2011). In the simplest term, the cost and benefits of embracing cloud computing and migrating legacy applications to the cloud are the focus of cloud economics. The following section gives an overview of methods and metrics for evaluating cloud adoption, as well as the need for specific metrics to understand the value that can be created from application migration, which an enterprise would like to see if the investment in cloud migration justifies the costs and is profitable or produces a measurable benefit to their business.

It's crucial to comprehend how moving legacy applications to the cloud can benefit an organization in terms of increased productivity and cost savings. To comprehend this, it is necessary to comprehend the current state of on-premises infrastructure utilization, why the enterprise has excess capacity, and whether this capacity is being utilized optimally. At high level, Generally, businesses keep extra capacity on hand to handle any spike in infrastructure demand at month's end, year's end, or during peak seasons. Another reason is that businesses have excess capacity as a result of rapid growth in terms of consumers, transactions, or both. This indicates that a company has made a financial investment.

By now, it should be clear that cloud computing economics differs significantly from on-premises economics. As a result, an organization must be aware that adopting cloud necessitates a thorough understanding of the risk and degree of change required to accept cloud economics, which is more than a matter of CapEx vs. OpEx, and thus many other factors must be taken into account when migrating legacy applications to cloud.

CONCLUSION

Enterprises are ready to go cloud in order to take advantage of cloud's potential, but the biggest stumbling block is the lack of a comprehensive migration process, which this paper attempts to address. When transitioning to the cloud, it is preferable for an organization to take a phased approach rather than a big bang approach. If an enterprise is going down the cloud computing path for the first time or not, it would be a mammoth task to migrate to all three layers of cloud computing. Stakeholders can gain confidence in their investment by using a phased manager approach. The proposed framework would assist in achieving the goal by providing a consistent and systematic migration road map based on technology or business needs.

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