Advantages and Disadvantages of Telcos Migrating to Public Cloud

Introduction

We are witnessing an unprecedented global shift towards modern digitization where all technological innovations are being built using digital concepts and functions. To maintain competitive advantage and offer new services this transformation to digitization is forcing the telecommunication service providers (Telcos) to quickly adopt the newer technologies. With the emergence of 5G, modern advancements in technology are disrupting the telecom industry and have also dramatically raised consumer expectations, which demand updated systems based on new digital functionality to move apace with the world. Hence in order to meet such customer demands head on, Telcos need to quickly adopt these technologies.

Telecommunication companies have grown as one of the most critical industries during a period of massive physical restriction resulting from the pandemic. Corporations & office workers have had to find innovative virtual meeting places, enabling professional and social communication, facilitating businesses to keep on delivering products, by shifting to cloud-based technologies, and showing admirable adaptability and tolerance during challenging times. The technology shift towards more efficient cloud-based architecture is taking hold of and re-shaping the current communication infrastructure. The Telcos are faced with numerous considerations whether to develop and manage infrastructures providing new services, as private clouds or to partner with other services providers, to avail of public cloud resources which can be readily sourced from them. However, such decisions are premised on multiple factors such as partnership strategy, working schedules, functional capability, operation capacity, architectural requirements, and many more such related factors, which need to be evaluated thoroughly.

Current Telecom Industry

The telecommunication sector is one of the most critically vital industries of the world on which all businesses without exception are heavily reliant. This sector consists of service providers and operators that are enablers making seamless communication a reality on a global scale via a wireless mobile device, internet, or a wired telephone set. The operators have developed such effective communication infrastructures, that allows data transmissions anywhere in the world in the form of text, voice, audio, or video.

In the beginning, the telecommunication sector consisted of a club of big national and regional operators, possessing huge wired systems that were used to transmit voice signals from one place to another with high latency and poor performance. These systems devoured a lot of the available energy and occupied a large space with numerous maintenance requirements, which demanded continuous monitoring and was laborious. Since the early 2000s, the telecom industry began to make paradigm shifts, with its innovative advancements and state-of-the-art techniques due to the increase in the number of customers and their demands. The conventional markets

were turned upside down, mobile services outpaced fixed-lines and the internet has dominated the market as well as creating new business opportunities. Now, with the advent of 5G and extremely high data transfer rates, wireless digital technology is becoming the most significant and viable form of communication.

Currently, communication is in the form of video, text, and data as compared to voice in previous technologies. The high-speed internet connectivity, offering broadband information services and updated entertainment is quickly making its mark in homes and businesses all across the world. One of these internet services includes cloud computing that primarily served as a catalyst for technological change. However now, it has evolved as a fundamental process that provides innovative ways and methods for creating and delivering business value.

What is cloud?

In the past few years, cloud computing has evolved dramatically, bringing online, enhanced features and on-demand services. It has facilitated the delivery of computing resources to businesses across the globe, and at a reduced cost. The migration of businesses to the cloud is already helping the transition process and enabling the cloud to do the heavy lifting with respect to data management. But, what exactly do we mean by a cloud?

In a nutshell, everything that a user is accessing remotely over the internet is referred to as cloud technology. The existence of data in the cloud, means that it is stored on the internet's servers instead of the hard drive of a computer. Clouds are used due to their efficiency, convenience, and reliability. Yahoo and Gmail, which are the web-based email services, are examples of cloud technology. These services store all the emails on servers instead of on computer's hard drive which can be accessed by the users via an internet connection. Moreover, if PC Systems are compromised for any reason, the emails can still be recovered easily, since they are always stored on servers and can be accessed anytime.

How can cloud help Telcos?

Cloud technology helps Telcos improve their services and obtain a competitive edge due to its ability to enhance agility and efficiency as compared to existing communication infrastructures. Following are some of the benefits of cloud computing for the telecom industry:

- Enhances the quality of service and performance.
- Provides an independent access to communication in terms of device and network.
- Reduces costs of infrastructures that consist of hardware and software.
- Allows the service providers to reposition themselves in the value chain, enabling capabilities in respect of offering web-based application delivery services.

The goal of the 'cloud' is to provide a wide spectrum of services to customers regardless of the type of devices and locations being utilized. It permits the telecom providers to optimize the

network and enables it to generate higher revenue from the delivered telecom services. Hence, it is an ideal technology that extracts optimum value from existing communication networks.

The communication service provider (CSP) determines the best way to employ cloud-based business models so that they can create a sustainable competitive advantage. CSP has moved beyond voice and data services to run new innovative revenue streams by introducing different cloud scenarios such as public, private, and hybrid cloud, offering enhanced applications to business markets and homes. Telcos are considering the opportunity of shifting to public clouds to compete efficiently in the dynamic and challenging market environment. According to an IBM paper, the worldwide public cloud services market hit US$45.7 billion in 2013 and has continued to massively rise since then. Though, cloud services provide the advantage of easy scalability and cost-effectiveness, there are however some challenges and risks present. In the next sections, we discuss the advantages and disadvantages of migration to public clouds. But before that, we need to understand what a public cloud is.

Public Cloud

'Public cloud' is the most used type of cloud deployment where the cloud resources including servers and storage, are controlled, and run by a cloud service provider who delivers these resources via the internet. Within the cloud, the service provider supports and manages all hardware, software, and other supporting elements. Examples of public cloud includes Microsoft Azure and Amazon Web Services.

In a 'public cloud', an organization or a company share the same hardware, network devices and storage space with other organizations and each one accesses the services and manages its account using a web browser. The applications of the 'public cloud' include web-based email, online office application, storage, and developing environments.

Advantages of Moving to Public Clouds

- **Savings on Capital Investment**: It requires virtually no capital investment as compared to private clouds, in terms of sourcing a suitable physical location and environment.
- **Saving of Labor Costs:** The operating expenses related to labor, for running and maintaining of the infrastructure are simply cut out.
- **Non-real Time Services**: Most suitable for applications that do not require low latency or real-time transmissions.
- **High Reliability**: It includes a large number of servers that ensure system reliability against unknown or sudden failures, hence removing the need for disaster or contingency planning.
- **Guaranteed Performance:** If a Telco wants to fulfill a specific application need such as high storage performance or quick computational capability then public clouds serve perfectly for that purpose as each one is unique and has a distinct functionality and capacity for different workloads.

Disadvantages of Moving to Public Clouds

- **Cloud resource limitations**: The service providers are unable to define the hardware and software platforms of the cloud infrastructure. Moreover, they are restricted as to its' optimization or the control of its lifecycle.
- **Lack of options**: Telcos face some challenges supporting applications with specific requirements such as large storage, low latency, high computation capability, and network protocols, or their combination in case of public clouds as they cannot fulfill unique needs for differing types of workloads. In other words, a specific set of unique requirements, cannot be satisfactorily met by these service providers, within a 'public cloud environment.
- **(GPU):** Public clouds require a public cloud graphics unit (GPU) which often has limited availability, and access during peak demand is also limited due to customer priority.
- **Extra costs:** It will require additional costs for high bandwidth transport and GPU usage.
- **Lack of security and privacy:** The security of data in 'public clouds' is not guaranteed as it a user is unaware of the location of its information and who has access to it.
- **Limited functionality:** The 'Public Cloud' environment does not offer Telcos, the benefit of controlling and addressing the sensitive issues of data privacy and protection needs, like data sovereignty, along with regulatory requirements.

To choose a specific cloud deployment scenario, Telcos must search for the model that best suits their requirements and goals. It must ensure the network performance and storage requirements, available resources, functioning capability, and the pros and cons of each cloud deployment model, because arriving at the final decision without giving due consideration to these factors, may result in a wrong deployment choice, performance degradation, and loss of resources.

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References

IBM Cloud, "Cloud computing: A tool for telecommunications growth"