

A STUDY ON ENTERPRISE ARCHITECTURE IN CLOUD COMPUTING

*Ankit Deswal

**Dr Sanjay Kumar

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Corresponding Author: Ankit Deswal; doi:10.46360/cosmos.mgt.420222002

Abstract

We modernise the current governmental structure, which is depicted in as our suggested architecture in. Here, we employ cloud computing technology. We make use of cloud computing's benefits. There are numerous ministries that help a country's government run smoothly. Each ministry is charged with a certain set of duties. The primary job of a ministry is to provide the citizen with adequate services, as we stated in the previous section. Information and communication technology is a method for achieving each ministry's goals. ICT serves as an example of the necessary resources because it may be used for networking, computing, storing, and other functions. The pool of IT resources under the current system must be managed by each ministry. Purchasing thousands of PCs, servers, networking devices, software, licence fees, safeguarding the system from unwanted access, maintaining the system, and many other tasks are required while managing the resources.

Keywords: Architecture, Cloud Computing, IT, Services.

Introduction

The comparison between cloud computing and public utilities like electricity, gas, & water is the most prevalent one. Cloud computing frees users from having to handle the actual hardware factors related to computer or the more tedious software maintenance tasks associated with owning a physical computer throughout their home or office, just as centralised and standardised utilities free people from the whims of producing their own electricity as well as pumping their own water. Instead, they utilise a portion of a big computer network to benefit from economies of scale. The idea behind of cloud is that every computer with an internet connection has access to the same collection of software, information, and computational resources. Instead of physically carrying about storage medium like a DVD or USB drive, users can store as well as access its own personal files including music, images, movies, and bookmarks as well as play games and use productivity apps on a distant server.

Though few are aware of it, almost all internet users may be using a type of cloud computing. The most typical instances of such users are those who utilise web-based email services like Gmail or Hotmail rather than getting mail on the computer with Outlook or Entourage [11-12].

One must make comparisons to other utilities in order to comprehend the idea of cloud computing, or computing as a service rather than a product. A homeowner would be in charge of every facet of these issues in the absence of public utilities like electricity, water, and sewerage. A generator would

be necessary for the homeowner to own and maintain; failure to do so would result in a power outage. They would need to filter the water, pump it from a well, & store that on their land. And they'd be forced to either run their own private sewage treatment facility or collect collected sewage in a tank and manually transfer it to a location where it might be disposed of.

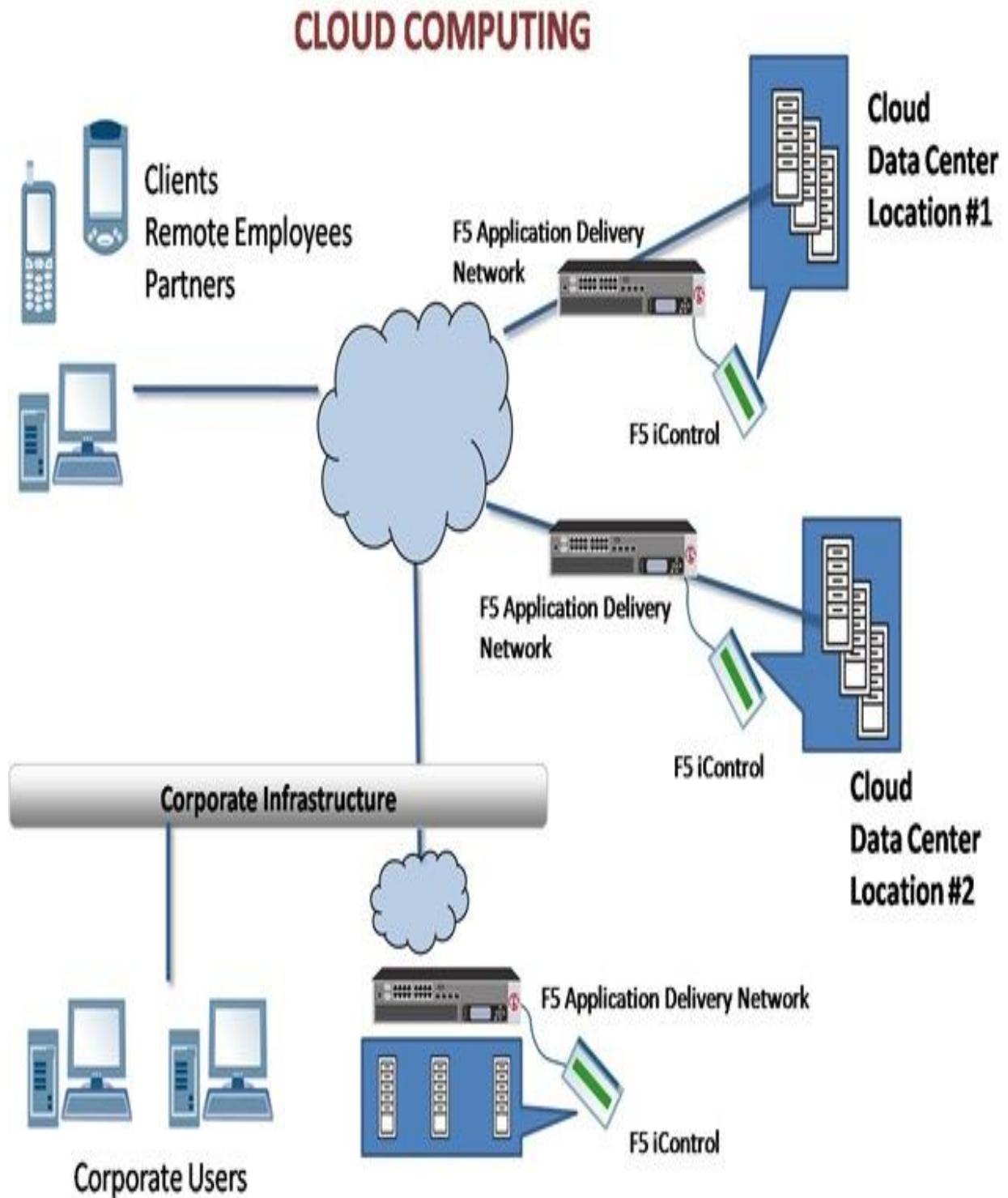
Public utilities are by far the more popular option because they allow the homeowner to easily connect one's fuse box to a power grid and their home's plumbing to both a water main as well as a sewage line. The above scenario would involve a lot of work for the homeowner and completely lack economies of scale. The complexity of the production and distribution of electricity is handled by the power plant, and the homeowner only uses the portion of the huge resources he requires and is charged for the entire amount.

Comparatively speaking, a normal home or office computer is a very complicated machine, and most users are unable to understand how it operates. A computer owner is in charge of maintaining the functionality of their device, managing their data, & keeping hackers and viruses out. The burden of carrying out these difficult maintenance activities is removed from the user when computer power is housed at a specialised data centre, or "in the cloud." The user simply needs to maintain a very basic computer that is only used to access the internet, and then they may leave the rest to these cloud services.

* Research Scholar, Kalinga University, Naya Raipur, Chhattisgarh, India.

** Supervisor, Kalinga University, Naya Raipur, Chhattisgarh, India.

Figure 1: Architecture Related to Cloud Computing System



Literature Review

Yang (2018) [1] Using more than one cloud provider not only frees you from seller lock-in but also increases the potential challenges for your company. With a few public cloud options at your disposal, you can advance without being

constrained by the contributions of a specific source. Individual business units can then make use of the tools that will assist them achieve their goals in a larger project. With a multi-cloud approach, you can take advantage of features like Google's open-source capability or Microsoft's underlying

connections to on-introduce frameworks to customise your current situation to your jobs. Also, this methodology offers security advantages, particularly for organisations subject to strict data protection regulations as the General Data Protection Regulation of the European Union, which Stefano created. Organizations can more easily isolate information and reduce the risks of unintentional openness with the help of various cloud frameworks. Exploring many cloud environments is actually more confusing than doing it under various settings.

Finding which programmes are operating and where information is stored becomes more difficult when information is dispersed across a few veils of mist. Since public mists aren't typically designed to integrate with the contributions of their competitors, outsider devices become crucial to quickly and effectively handle all mists. Moving information among mists is expensive and difficult, even with current tools. Security is a problem as well because you have to learn how to use a variety of security tools and combine verification using a Security Information Event Management (SIEM) tool. Organizations may adopt a multi-cloud environment to take use of each supplier's unique capabilities, although this may not be realistic. In some circumstances, achieving normalisation and successfully transitioning between phases necessitates reverting to "most reduced common variable" features and forgoing each cloud's local administrations in favour of interoperability.

These trade-offs could also result in higher costs, as split situations would force your organisation to forgo supplier volume caps. IT staffing and resources are yet another crucial consideration that comes with multi-cloud adoption. Whereas a typical public cloud biological system only needs the ability from one supplier, a multi-cloud setup calls for a much wider range of skills. Long-term cloud success depends on finding a solution to this problem, whether you invest resources in training your present workforce or create distinct teams for each cloud. Consider adopting this strategy or seeking the assistance of a provider of managed services if your organisation lacks the resources necessary to manage apps and information across locations. (Peng, 2018 [2])

System Architecture

The collection of separate parts which connect or interact via clearly defined connectors is known as the system architecture. The set of established agreements allows for the interaction of one component with another. There are numerous diverse system architectures, including layer, pipe filter, broker, blackboard, and enterprise

architectures, among many more. In this thesis, our case study is Enterprise Architecture [EA] [5-8].

A type of architecture known as enterprise architecture uses groups of businesses as components as well as the connections between them as connectors. We think of enterprises as a grouping of organisations working towards a same objective. It can also be viewed as a business group with a set of interconnected functions that can work both independently and in concert with one another as required by businesses. The enterprise architecture approach (EA) is a way of comprehending various enterprise components. Processes, data, services, businesses, and technologies are examples of elements. It is standard practise to use enterprise architecture. EA usage is developing quickly. EA has had a lot of success in Russia, China, and Japan.

Conclusion

When we consider the issues mentioned in the previous part, we find issues with interoperability, resource sharing, resource management, budget management, and ultimately, citizen satisfaction. We suggest the following design as a solution to address the aforementioned concerns, particularly those related to data transfer and resource sharing. We make an effort to fix the issues with enterprise architecture (EA). Middleware is the essential component of EA, thus we begin by defining the architecture in terms of this fundamental component. The basic core architecture is designed to address the aforementioned issues. In order to achieve this, we employ the idea of service-oriented architecture (SOA), one of the software architectures. The service supplier and service receiver [users], two different actors, are also the foundation of this design. The best services are offered to the authorised users by this architecture, which is well-liked and sophisticated. We might even consider using a cloud computing system with a service provider who handles sending user requests to the cloud service provider.

The challenge of data exchange and interoperability across the many ministries is resolved by the aforementioned design. Yet, these qualities fall short of meeting the needs of the state, particularly when it comes to e-governance. While interoperability and data exchange are essential, we also require a dependable, cost-efficient system that can be used to address the problems that have been found. We suggest the aforementioned Enterprise Architecture in a cloud context to address these difficulties. This indicates that we utilise an existing government system for which we may also gain Enterprise Architecture characteristics. The provides a picture of the political system that incorporates enterprise architectures.

Conflict of Interest

There is no conflict of interest between the authors in this manuscript.

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