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Impact of Cloud Computing

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ABSTRACT

We are in the world of internet where various activities are performed only there web. In the case of companies and large networks we are in need of more systems which need more capital amount and space. Such condition can be eradicated completely by cloud computing. It is nothing but the availability o computer infrastructure, platform and software as a service. In this paper we will discuss about impact of cloud computing in detail.

1. INTRODUCTION

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. Large clouds often have functions which are distributed over multiple locations, each of which is called a data center.

Cloud computing is on-demand access, via the internet, to compute resources such as applications, servers (physical servers and virtual servers), data storage, development tools, networking capabilities, and more. It is hosted at a remote data center managed by a cloud services provider (or CSP). The CSP make these resources available for a monthly subscription fee or it bills them according to usage.

Compared to traditional on-premises IT, and depending on the cloud services you select, cloud computing helps do the following:

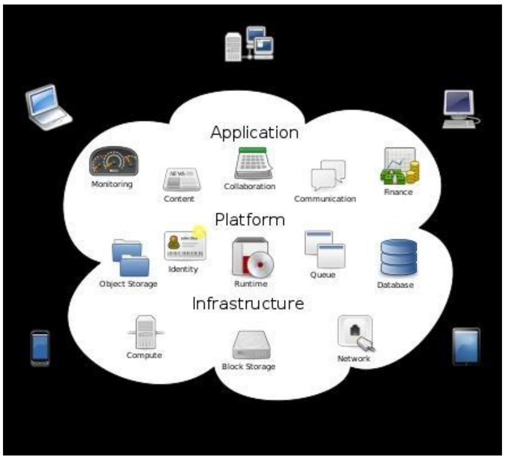
Lower IT costs: Cloud lets you reduce some or most of the costs and effort of purchasing, installing, configuring, and managing your own on-premises infrastructure.

Improve agility and time-to-value: With cloud, your organization can start using enterprise applications in minutes, instead of waiting weeks or months for IT to respond to a request, purchase and configure supporting hardware, and install software. Cloud also lets you empower certain users such as specifically developers and data scientists to help themselves to software and support infrastructure.

Scale more easily and cost-effectively: Cloud provides elasticity instead of purchasing excess capacity that sits unused during slow periods, you can scale capacity up and down in response to spikes and dips in traffic. You can also take advantage of your cloud provider's global network to spread your applications closer to users around the world.

The term 'cloud computing' also refers to the technology that makes cloud work. This includes some form of virtualized IT infrastructure—servers, operating system software, networking, and other infrastructure that's abstracted, using special software, so that it can be pooled and divided irrespective of physical hardware boundaries. For example, a single hardware server can be divided into multiple virtual servers.

Virtualization enables cloud providers to make maximum use of their data center resources. Not surprisingly, many corporations have adopted the cloud delivery model for their on-premises infrastructure so they can realize maximum utilization and cost savings vs. traditional IT infrastructure and offer the same self-service and agility to their end-users.



1.2 Scope of the Paper:

This paper is mainly used for dealing with the uses of cloud computing nowadays. This paper gives detailed description about the impact of cloud computing in various areas.

2. LIFE BEFORE CLOUD COMPUTING

2.1.The Traditional Server Concept:

System Administrators often used to talk about servers as a whole unit that includes the hardware, the OS, the storage, and the applications. Servers are often referred to by their function i.e. the Exchange server, the SQL server, the File server, etc.

If something goes wrong

If the File server fills up, or the Exchange server becomes overtaxed, then the System Administrator must add in a new server. Unless there are multiple servers, if a service experiences a hardware failure, then the service is down. System Administrators can implement clusters of servers to make them more faults tolerant. However, even clusters have limits on their scalability, and not all applications work in a clustered environment. This raised issues on server maintenance and thus originating the concept of Virtual server.

2.2. The Virtual Server Concept:

Virtual Server – Close up

Virtual server concept separates the server software away from the hardware. This includes the OS, the applications, and the storage for that server. Servers end up as mere files stored on a physical box, or in enterprise storage. A virtual server can be serviced by one or more hosts, and one host may house more than one virtual server. Virtual servers can still be referred to by their function i.e. email server, database server, etc. If the environment is built correctly, virtual servers will not be affected by the loss of a host. Hosts may be removed and introduced almost at will to accommodate maintenance. Virtual servers can be scaled out easily. If the administrators find that the resources supporting a virtual server are being taxed too much, they can adjust the amount of resources allocated to that virtual server. Server templates can be created in a virtual environment to be used to create multiple, identical virtual servers. Virtual servers themselves can be migrated from host to host almost at will.

3. ADVANTAGES AND DISADVANTAGES OF EXISTING SYSTEM

3.1 Advantages of Existing System:

Traditional computing gives you more control and ownership over your resources, but it also requires more investment and management. You need to estimate your current and future needs, and compare the total cost of ownership of both options. Traditional computing can offer more stable and predictable performance, as you can customize your hardware and software to your project's specifications. However, traditional computing also exposes you to the risk of hardware breakdowns, power outages, and software bugs.Traditional computing can offer more security and compliance, as you have more control and visibility over your data and access, and you can follow your own standards and rules. However, traditional computing also requires more effort and resources, as you have to implement and maintain your own security and compliance measures. Traditional computing can foster a more centralized and structured culture, as you can work in a fixed location, schedule, and team. You can also have more control and ownership over your project, and ensure its quality and consistency. However, traditional computing also poses some challenges, such as silos, bureaucracy, and resistance to change, and the need for innovation, adaptation, and collaboration.

3.2Disadvantages of Existing System*:*

Before cloud computing, companies had to store all their data and software on their own hard drives and servers. The bigger the company, the more storage they needed. This way of treating data is not scalable at speed.

Cost: Traditional computing can be more expensive than cloud computing, as it requires significant capital expenditures for hardware and software, as well as ongoing maintenance and support expenses.

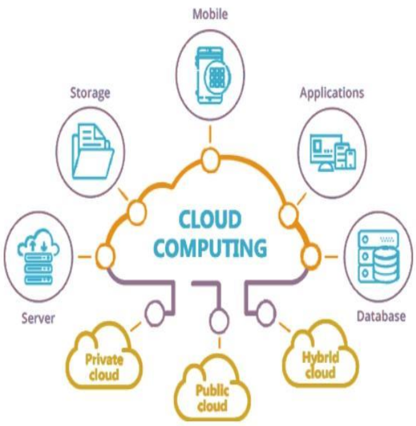
Scalability: Traditional computing can be difficult to scale up or down to meet changing needs, as it requires additional hardware or software to be added to the environment.

Accessibility: Traditional computing may not allow for remote access to applications and data, limiting the ability of users to work from anywhere.

Maintenance: Traditional computing environments require ongoing maintenance and upgrades to ensure security and performance, which can be time-consuming and expensive.

Limited Storage Capacity: Traditional computing environments may have limited storage capacity, requiring organizations to periodically purchase additional hardware to accommodate growing data volumes.

4. FLOWCHART DIAGRAM



5. CLOUD COMPUTING ARCHITECTURE

Cloud computing architecture refers to the components and sub-components required for cloud computing. These components typically refer to:

- Front end(fat client, thin client)
- Back-end platforms(servers, storage)
- Cloud-based delivery and a network(Internet, Intranet, Intercloud)

1. Frontend:

Frontend of the cloud architecture refers to the client side of cloud computing system. Means it contains all the user interfaces and applications which are used by the client to access the cloud computing services/resources. For example, use of a web browser to access the cloud platform.

- **Client Infrastructure** – Client Infrastructure is a part of the frontend component. It contains the applications and user interfaces which are required to access the cloud platform.
- In other words, it provides a GUI(Graphical User Interface) to interact with the cloud.

2. Backend:

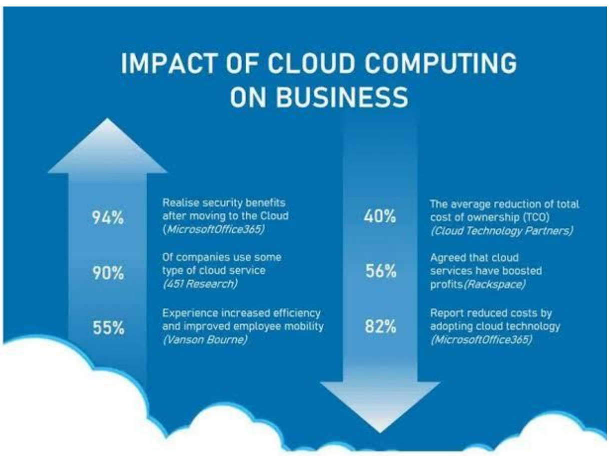
Backend refers to the cloud itself which is used by the service provider. It contains the resources as well as manages the resources and provides security mechanisms. Along with this, it includes huge storage, virtual applications, virtual machines, traffic control mechanisms, deployment models, etc.

1. **Application** –
   Application in backend refers to a software or platform to which client accesses. Means it provides the service in backend as per the client requirement.
2. **Service** –
   Service in backend refers to the major three types of cloud based services like SaaS, PaaS and IaaS. Also manages which type of service the user accesses.
3. **Runtime Cloud-**
   Runtime cloud in backend provides the execution and Runtime platform/environment to the Virtual machine.
4. **Storage** –
   Storage in backend provides flexible and scalable storage service and management of stored data.
5. **Infrastructure** –
   Cloud Infrastructure in backend refers to the hardware and software components of cloud like it includes servers, storage, network devices, virtualization software etc.
6. **Management** –
   Management in backend refers to management of backend components like application, service, runtime cloud, storage, infrastructure, and other security mechanisms etc.
7. **Security** –
   Security in backend refers to implementation of different security mechanisms in the backend for secure cloud resources, systems, files, and infrastructure to end-users.
8. **Internet** –
   Internet connection acts as the medium or a bridge between frontend and backend and establishes the interaction and communication between frontend and backend.

9. **Database**– Database in backend refers to provide database for storing structured data, such as SQL and NOSQL databases. Example of Databases services include Amazon RDS, Microsoft Azure SQL database and Google CLoud SQL.
10. **Networking**– Networking in backend services that provide networking infrastructure for application in the cloud, such as load balancing, DNS and virtual private networks.
11. **Analytics**– Analytics in backend service that provides analytics capabillities for data in the cloud, such as warehousing, bussnessintellegence and machine learning.

6. IMPACT OF CLOUD COMPUTING

ITS IMPACT ON MARKETING STRATEGY



7. CONCLUSION

This project is used to implement microservices using cloud computing for easy accessible and reliable transaction of messages. The cost of this project is less. The security on transaction is also high when compared to the existing system.

8. REFERENCES

1. SuyelNamasudra, Pinki Roy, Balamurugan Balusamy, Pandi Vijayakumar, "Data accessing based on the popularity value for cloud computing", *2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)*, pp.1-6, 2017.
2. https://www.ukessays.com/essays/information-technology/life-before-cloud-computing-information-technology-essay.php
3. C. Wang, Q. Wang, K. Ren, W. Lou, "Privacy-preserving public auditing for data storage security in cloud computing",INFOCOM 2010, pp. 1-9, 2010.
4. AlwiMaulana, Pradana Ananda Raharja, "Design and Testing on Migration of Remiss-Supply in Banking System to Microservice Architecture", *2022 IEEE International Conference on Communication, Networks and Satellite (COMNETSAT)*, pp.168-173, 2022.
5. V. S. Devi Priya, S. SibiChakkaravarthy, "Containerized cloud-based honeypot deception for tracking attackers", *Scientific Reports*, vol.13, no.1, 2023.
6. Xiaoming Yu, Wenjun Wu, Yangzhou Wang, "Dependable Workflow Scheduling for Microservice QoS Based on Deep Q-Network", *2022 IEEE International Conference on Web Services (ICWS)*, pp.240-245, 2022.
7. https://www.google.com/amp/s/www.geeksforgeeks.org/difference-between-cloud-computing-and-traditional-computing/amp/
8. Towards Secure and Dependable Storage Services in Cloud Computing Cong Wang, Student Member, IEEE, Qian Wang, Student Member, IEEE, Kui Ren, Member, IEEE, Ning Cao, Student Member, IEEE, and Wenjing Lou, Senior Member, IEEE- 2011.
9. Addressing cloud computing security issues, Future generationcomputersystems (2011).
10. P. Xu, H. Chen, D. Zou, and H. Jin, "Fine-grained and heterogeneous proxy re-encryption for secure cloud storage," Chin. Sci. Bull.,vol. 59, no. 32, pp. 4201–4209, 2014.
11. E.-J. Yoon, Y. Choi, and C. Kim, "New ID-based proxy signature scheme with message recovery," in Grid and Pervasive Computing(Lecture Notes in Computer Science), vol. 7861. Berlin, Germany: Springer-Verlag, 2013, pp. 945– 951.