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Background Study on Cloud Computing: A Literature Review

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ABSTRACT: In today's world cloud computing is a new technology to change the entire computing environment. Cloud Computing affects people in their day to day life, process, and technology of the enterprise. Cloud services are delivered from the data centers which are located throughout the world. In this paper, we presented a literature review and background study on different approaches of cloud computing. We also discussed the various challenges that are present in cloud computing architecture.
KEYWORDS: Challenges, Types, Service Model

I. INTRODUCTION

Cloud computing is a new technology and it is a collection of networks. It comprises cloud service providers and cloud end-users. As the cost of storage, the power consumed by computers, and hardware is increasing as well as the storage space in data centers can't meet our need therefore cloud computing was introduced. Rather than fitting their own physical infrastructure the users normally like an intermediator supplier for the service of the net within the cloud computing. As it provides Pay-Per-Use-On-Demand mode by saving the cost to buy physical resources, the IT resources like network server storage applications and services are deployed with a lot of fast and easier manner and with least management. By offering scalability, flexibility, agility and simplicity some basic examples of cloud computing which are used in daily use are Facebook, youtube, Gmail and Dropbox etc.

II. SOME CHARACTERISTICS OF CLOUD COMPUTING

2.1 Cost effective

One among the foremost important features of cloud computing is that the pay-as-you-go model. Users pay according to their usage. Users can easily grow their business by renting infrastructure from cloud providers without worrying about maintenance costs and still enjoy advanced technology and not worry about the updating software and hardware resources.

2.2 Boundless storage

Atthe time a huge volume of data is generated and increasing exponentially, which has become a huge challenge to affect Holding such a vast amount of data has many constraints like safety, storing, maintenance of data. Cloud Computing easily provides unlimited storage resources on demand.

2.3 Flexibility

An elastic solution is provided by cloud for data storage and accessing resources and repair anytime and anywhere over the web using pc, laptops, and even smart phones nowadays etc. The client's data is stored during a data center that permits them to share their data with other authorized clients.

2.4 Measured Service

Cloud services generally charge users per hour of resource usage, or support the quantity of certain kinds of transactions that have occurred, amount of storage in use, and thus the quantity of data transferred over a network. The measurements are also employed by the cloud service provider to figure out the thanks to best allocate its physical computing resources to all or any or any of its customers to best meet its SLA (Service Level Agreement) commitments and minimize the worth of providing the service.

1.5 Multitenancy

Multitenancy is the key characteristic of public cloud services. The infrastructure serves multiple customers and Sometimes compliance requirements mandate that a service must run on a fanatical infrastructure that's not shared. Such an

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appointment eliminates certain security risks, like escaping virtual machines and spreading an attack to other customers running on the same infrastructure. Some service providers will even create a fanatical cloud infrastructure, complete with dedicated and isolated provisioning tools, for larger customers on demand.

III. SERVICE MODEL OF CLOUD COMPUTING

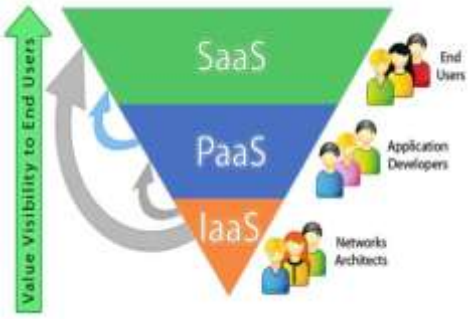

Fig.1 Service model of Cloud Computing [11]

3.1 Software as a service (SAAS)

Software as a service is a one type of way of delivering the multiple types of application using the internet. Instead of maintaining or installing the software, anyone can easily access over the internet. SaaS customer, no need to buy software or hardware or no need to install and maintain. It is very easy to access the application using the internet.

3.2 Platform as a service (PAAS)

PaaS solutions constitute the middleware on top of which applications are built and supply a development and deployment platform for running applications on the cloud. A development environment is given to the consumers as a service in PaaS, upon which a user can deploy their own software and coding. The customer has the ability to build his own apps which will run on the provider's infrastructure.

3.3 Infrastructure as a service (IAAS)

Infrastructure as a service IaaS several computing resources are provided by the IaaS among the type of storage network os hardware and storage devices on demand. IaaS solutions are the hottest and developed market segments of cloud computing. IaaS users can access the services employing a wide area network, like the web.

IV. TYPES OF CLOUD COMPUTING

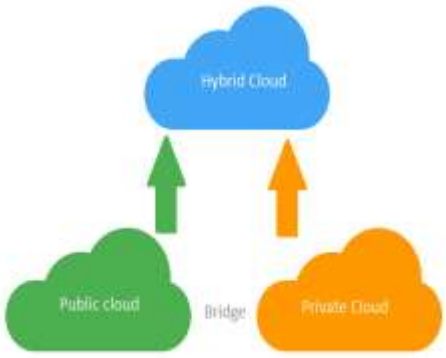

Fig.2 Types of Cloud Computing [12]

4.1 Public cloud

Public cloud is also a computing service provided by the thirdparty suppliers atop the overall public internet. The general public or an outsized industry group can access the cloud services for usage, on a pay consistent with usage method. The users are assigned to use the resources within the cloud on-demand. The resources are provided on a dynamic basis over the web.

4.2 Private cloud

The cloud infrastructure during a private cloud is operated solely for a corporation. The computing services provided over the web or private network come under the private cloud and these services are offered only to the chosen users in a place of people. It is often managed by the organization itself or a 3rd party. The advantages of private clouds are higher security and more privacy, more control, cost, and energy efficiency. Disadvantages are limited scalability thanks to limited resources, inflexible pricing, and the personal cloud is restricted to a specific area.

4.3 Hybrid cloud

A hybrid cloud is a mixture of a private cloud and a public cloud. Each of them remains as unique entities but are worked together by standardized or proprietary technology. The advantages of Hybrid clouds are scalability, flexibility, cost-efficiency, and security. Disadvantages are networking issues and security compliances.

V. LITERATURE REVIEW OF CLOUD COMPUTING

In the research paper of Khan, R et al.[1] discussed brief evaluation of cloud computing in IT industries. The application area of cloud computing will be increasing day by day. To manage storage, traffic, hardware as well as software requirements

approximately all small and big companies are using cloud computing.

In the research paper of Rani B et al.[2] discussed the key concepts of cloud computing like the architecture of Cloud Computing, service models, types of clouds and need of cloud. Cloud computing has become the buzzword within the computing world. From the time that the Internet took over, computing technologies have developed tremendously.

In the research paper of Wang X et al.[3] discussed the architecture and popular platforms of cloud computing and also took the example of Google's cloud computing techniques. It also addressed challenges and problems with cloud computing intimately. In spite of the several limitations and therefore the need for better methodologies processes, cloud computing is becoming a hugely attractive paradigm, especially for giant enterprises. Cloud Computing initiatives could affect the enterprises within two to 3 years because it has the potential to significantly change IT.

In the research paper of Alshwaier A et al.[4] discussed that cloud computing and education sounds ambiguous on the face of it. Naturally, it's because, only a few individuals, publishers, and users alike come from the education sector. Just to introduce how the cloud deserves a place in our current education institution, it's important to repeat the education philosophy. Its knowledge brings advancement, achievement, and success. One way or the opposite, cloud computing is often utilized to enhance education standards and activities.

In the research paper of Nazir M.[5] discussed cloud computing, its model as well as its architecture. This paper also analyses the key challenges present in cloud computing and offers best practices to improve the service provider's and enterprise's bottom line in server economic climate.

In the research paper of Goudar R et al.[6] discussed briefly about the challenges and issues of cloud computing. They identified several challenges and also highlighted the cloud interoperability issue that needs further research and development. They also discussed the architecture and popular platform of cloud computing.

In the research paper of Salunkhe U et al.[7] discussed the role of cloud computing in education with respect to management institutions. The Internet based computing model is rapidly developing. They also discussed cloud base e-learning as well as their benefits and issues.

In the research paper of Habib S et al.[8] discussed the obstacles to the adoption of cloud computing from a cloud consumer's perspective. They also discussed whether the consumers can trust the cloud provider's services despite all the barriers. They also surveyed and analysed the existing trust and reputation issues in cloud environments.

In the research paper of Kavitha G et al[9] discussed the load balancing techniques along with factors that can create this problem. They also highlighted the advantages and limitations of existing load balancing techniques.

In the research paper Guiliani G et al.[10] discussed private cloud computing in the view of energy and saving incentives. They also discussed ICT resources of the data center and identified their energy related attributes. In this paper they also said that it is possible to save energy through studying the single-site private cloud data centers.

VI. CHALLENGES OF CLOUD COMPUTING

The research on cloud computing is still in an early stage. We identified several challenges that are identified in cloud computing adoption. Some of the challenges are as follows:

6.1 Service level agreement

It is essential for customers to obtain guarantees from providers on service delivery. A big challenge for cloud customers is to evaluate the SLAs of the cloud vendors.

6.2 Cloud data management

An important research topic in cloud computing is Cloud data management. As long as security may be a concern with cloud technologies, it'll be considered a barrier to cloud data management adoption.

6.3 Security

Security is yet another important topic. As a service provider does not have permission for access to the physical security system for the data center in order that they are absolutely determined on the infrastructure supplier to induce full knowledge security. Security issues such as data loss, phishing, botnet are serious threats to an organization and software.

6.4 Server consolidation

In cloud resource utilization reduction of power and cooling requirements are now being expanded to a great extent. Server consolidation is the way to maximize resource utilization and

minimize energy consumption in a cloud environment.

VII. CONCLUSION AND FUTURE WORK

There are various ways to deal with oversee Cloud computing which has been examined in this paper. We have likewise talked about various difficulties that are available in cloud computing like service level agreement, cloud data management, security and server consolidation. The literature review brings up that cloud information and security actually have a great deal of disadvantages which may give an awful impression to the field of cloud computing. In future we might want to broaden our work and investigate the different answer for the current difficulties of cloud computing.

REFERENCES

[1]. Srivastava, P., and Khan, R. (2018). A Review Paper on Cloud Computing. International Journalsof.Advanced Research in Computer Science and Software Engineering ISSN: 2277-128X (Volume-8,Issue-6).

[2]. Rani, B., Rani, B. P., and Babu, A. V. (2015). Cloud Computing and Inter-Clouds – Types, Topologies and Research Issues. 2nd International Symposium on Big Data and Cloud Computing (ISBCC'15).

[3]. Wang, X., Wang, B., and Huang, J. (2011). Cloud computing and its key techniques.Advanced Research in Computer Science and Software Engineering

[4]. Alshwaier, A., Youssef, A., and Emam, A. (2012). A New Trend For E-Learning in KSA using Educational Clouds. Advanced Computing: An International Journal(ACIJ), Vol.3, No.1, January 2012.

[5]. Nazir, M.(2012). Cloud Computing: Overview & Current Research Challenges. IOSR Journal of Computer Engineering (IOSR-JCE) ISSN: 2278-0661, ISBN: 2278-8727Volume 8, Issue 1 (Nov. – Dec.2012). PP 14-22 www.iosrjournals.org.

[6]. Goudar, R. H., and Kumar, S. (2012). Cloud Computing – Research Issues, Challenges, Architecture, Platform and Applications: A Survey. International Journal of Future Computer and Communication , Vol.1 , Nov.4 , December2012.

[7]. Salunkhe, U., and Kelkar, S. (2016). A Research Paper on "A Study on The Scope of Cloud Computing in Management Education". AIMA Journal of Management & Research, May 2016, Volume 10 Issue 2/4, ISSN 0974-497.

[8]. Habib, M. S., Hauke, S., Ries, S., and Muhlhauser, M. (2012). Trust as a Facilitator in Cloud Computing: A Survey. Habib et al. Journal of Cloud Computing: Advances, Systems and Applications 2012 http://www.journalofcloudcomputing.com/content/1/1/19.

[9]. Afzal, S., and Kavitha, G. (2019). Load Balancing in Cloud Computing – A Hierarchical Taxonomical Classification. Afzal and Kavitha Journal of Cloud Computing: Advances, System and Applications (2018). https://doi.org/10.1186/s13677-019-0146-7.

[10]. Basmadjian, R., Meer, H. D., Lent, R., and Giuliani, G. (2012). Cloud Computing and Its Interest in Saving Energy: The Use Case of a Private Cloud. Basmadjian et al. Journal of Cloud Computing: Advances, System and Applications 2012.

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