International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 04 | April - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

A RESEARCH ON CLOUD COMPUTING

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ABSTRACT

Cloud computing is an important technology for the development of information technology business. It is one of the best technologies for managing and distributing large amounts of information and resources over the Internet. In general terms, cloud computing refers to accessing IT infrastructure over a computer network without installing anything on a personal computer.
Businesses can use cloud computing to tailor their resources to meet their operational needs. Organizations and businesses can reduce real estate costs by using the cloud. Organizations can test their applications faster with better control and less maintenance. Thanks to cloud computing, IT teams can adapt to changing resources and changing needs. There is evidence that cloud computing plays an important role in daily life due to its many applications in different environments. This article will cover all aspects of cloud computing including its architecture, features, types, service models, advantages and challenges.

INTRODUCTION :

The growth of cloud computing has changed the way IT departments work today. Cloud computing makes it possible to improve IT services at lower costs and with less investment. Software as a service is growing in popularity due to the impact of cloud computing on the way IT hardware is designed and purchased. It is an Internet based technology that allows users to access data stored on a server at any time as a service. Since it is a pay-as-you-go service, customers pay only for the services they use. Cloud computing is an example of enabling major IT support services to be delivered as a service to many customers. It uses Internet-based computer technology to provide a variety of services (such as storage capacity, processing power, business use or equipment).A set of network services that provide scalable, guaranteed, often customized, relatively inexpensive services in an easy-to-use manner. Cloud computing is defined as the provision of large capacity IT computing as a service to many customers outside the Internet.
It is an example of a technology service that provides hardware and software to customers and is offered on-demand over the internet without the need for any device or location.

The National Institute of Standards and Technology defines cloud computing as a model that enables ubiquitous, simple, and shared customized computing services and programs with minimal management or rapid communication service and delivery service.
There are four types of cloud computing: private cloud, public cloud, community cloud and hybrid cloud. There are three types of popular cloud computing services. These are: Platform as a Service, Infrastructure as a Service, and Software as a Service. These are all examples of cloud computing. There are challenges to consider when choosing a solution, but they also present great opportunities and great rewards. This study will provide an overview of cloud computing architecture, capabilities, and service models and discuss their benefits and challenges.

LITRATURE REVIEW :

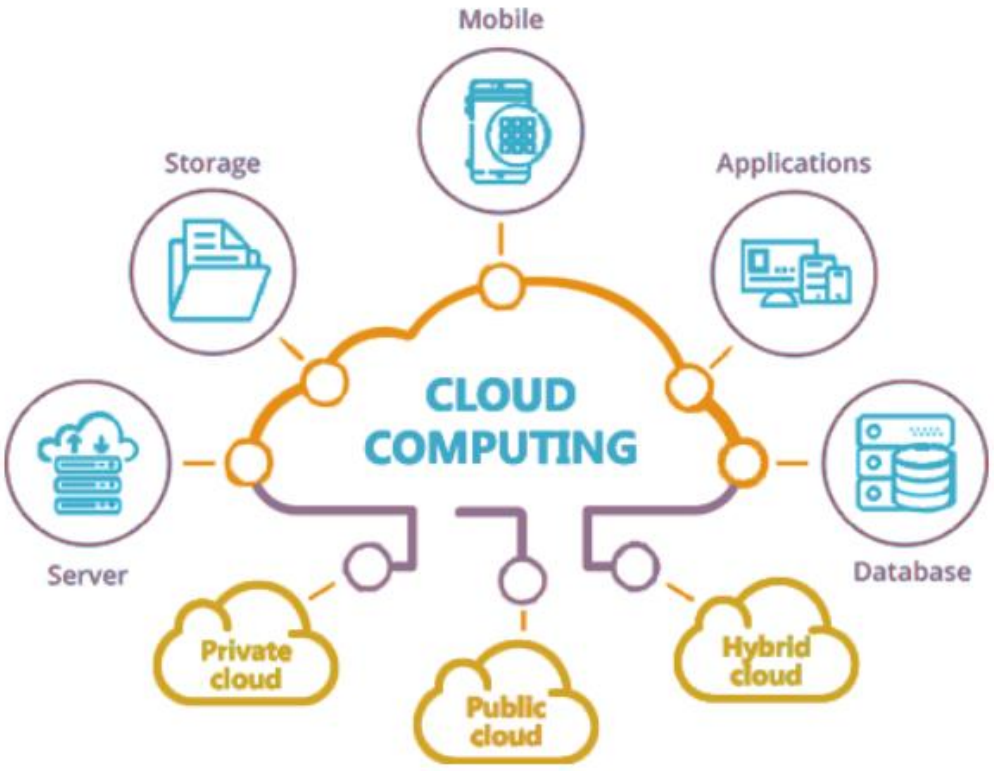
Literature Review on Cloud computing, also known as the Internet, was first introduced in 1960 by American psychologist and computer scientist Lickliter J.C and aimed to connect data, information, and people worldwide. At that time, the development of cloud computing started when Amazon launched "Amazon Web Services (AWS)" as elastic cloud computing in 2006. In 2008, Google released the "Beta" version of its search engine. In 2012, Oracle launched Oracle Cloud Computing. Since it has been taught in many institutions, texts have been published over the years regarding its application, importance and climate control.

The study foresees the use of 5G networks made available by network service providers to improve network service quality. 5G networks, launched in 2019, will allow people and organizations to instantly send and receive information, allowing customers to access and move customer data faster than previous networks. In addition, due to the popularity and development of smartphones, mobile cloud computing needs to be managed with supporting applications and functions. According to, mobile cloud computing is a combination of mobile and cloud computing that provides processing power, memory and storage for mobile devices (2013). On the other hand, referred to mobile cloud computing as mobile cloud computing in another study. The focus is on application, security, and integration standards that can improve the hardware and battery life of mobile devices. highlighted the importance of using cloud computing for social services such as video production, gaming, and image management. This study highlights two mobile cloud computing models Bolaseth (2009) and in cloud computing journals in the banking industry have highlighted the importance of smart access strategy and seen financial institutions adopting new technologies to leverage the cloud. computing. About 41% of the sample's 391 commercial banks and other financial institutions have adopted cloud computing, and other organizations have also clarified their plans. This study highlights how cloud computing interacts with new technologies to ensure the quality of both parties, improve spending efficiency, manage operational risks associated with the combination of cloud computing and banking services participation, and make the most of cloud computing advertising. In November 2012, the Chinese government announced "Internet +", launching a survey of the Chinese banking sector, China's largest economy, where cloud computing has become an important role in the national strategy.

Another study on dynamic scheduling algorithms in cloud computing was done by, which focused on using cloud computing resources to perform tasks, the basis of importance is both its non-operational nature and the ability of the target value to be adjusted over time. By combining Effort with DNSGA-ii, this work presents a predictive multi-objective evolutionary algorithm called NN-DNSGA-ii algorithm, which outperforms other selection methods. In machine learning cloud computing, the development of machine learning is often used. Computer vision, pattern recognition and bioinformatics are used in many industries . Describes Google's efforts to improve energy efficiency, maximize productivity, and increase operational efficiency. Although machine learning algorithms in cloud computing have been studied in the past, there are still uncertainties about integrating machine learning into cloud management. It was initiated to collect previous studies as a target model to improve the use of information. Using cloud computing to improve knowledge ambidexterity, this study examines the central connection of cloud computing and knowledge ambidexterity and knowledge management from a real-world perspective, explores how small and medium-sized companies can improve knowledge ambidexterity innovation ability, and explains the key points.

METHODOLOGY:

Therefore, in many cases, research and survey methods are used to gather information. The method adopted will be an explanatory one. Data collection was done via Google Scholar Scopus. We encounter different views of different authors on cloud computing. Different authors have their own definitions of cloud computing. We have found that the key to cloud computing is to pay for what you use the service.



ARCHITECTURE :

Services obtained from cloud computing are divided into three types. Frontend and backend. The front end and back end are connected to the network, usually the Internet. The front end of the system is what the customer (user) sees, while the back end is the cloud system. The backend is the user's computer, server, and data store. Central servers handle system administration, traffic monitoring, and client requests. It uses special software called a protocol and follows a set pattern. Below are the layers and services of cloud computing architecture.
Clients, applications, platforms, infrastructure, and servers. Cloud clients are computer hardware and software that use cloud computing to deliver specific applications designed to deliver cloud services .Cloud architecture is used by a variety of applications, including web-based back-end batch processing systems.

- Pipeline to OCR files: Convert millions of pages and images into searchable raw text and convert thousands of documents from Microsoft Word to PDF.
- Video files that can be converted to MPEG or AVI video. Create indexes for web crawlers to search millions of records through data mining.
- Batch processing systems: These systems are back-end applications commonly found in the banking, insurance and retail industries. Log analysis is used to create daily and weekly reports.
- Nightly Build performs an automatic build of the repository every night. Testing and evaluation of machine operation, performance and inspection of various installations.
- Fields which includes areas that are expanded during the day but repopulated at night. Instant websites are websites created specifically for meetings or events. Seasonal websites operate seasonally, such as holidays or tax seasons. Cloud computing service model.

In addition to its five benefits, cloud services are divided into the following three services:

A. Infrastructure as a service (IaaS):

Cloud users use cloud-provided processing, storage, networks, etc. It directly uses the necessary computing resources and information technology, such as in the (IaaS) cloud, virtualization is often used to combine and separate physical resources as needed to meet the needs of cloud users. The main virtualization strategy involves setting up separate virtual machines (VMs) that are isolated from the underlying hardware and other VMs.

B. Platform as a service (PaaS):

Platform development, called "Platform as a Service," supports the entire "software lifecycle," allowing cloud users to build cloud services and applications. It provides a development platform that can handle both full and regular cloud requests, unlike SaaS that only hosts full cloud applications.

C. Software as a service (SaaS):

Programs published by cloud clients in a hosting environment (such as a web browser) can be accessed by multiple Internet users. To achieve economies of scale and optimization of speed, availability, disaster recovery, maintenance, and security, multitenant cloud computing users are placed in a demanding SaaS cloud environment.

BENEFITS:

Cloud computing provides many benefits to users, encouraging them to adopt it. Reduced costs, increased productivity and easy scalability are the main benefits of cloud computing.

A. Cost reduction:

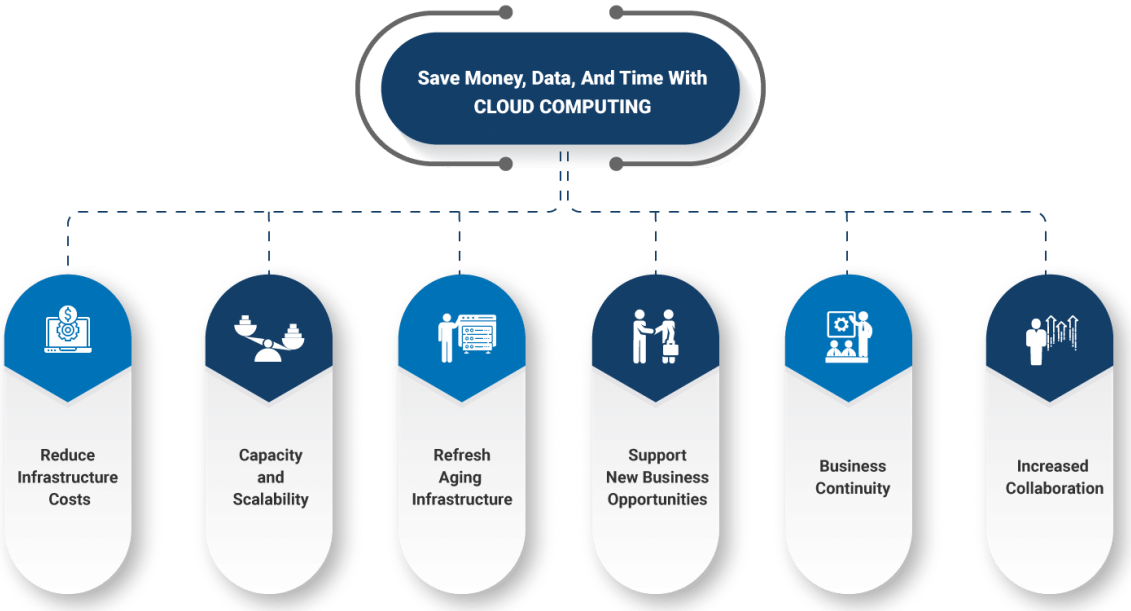
Using software as a service allows business organizations to reduce the cost of information technology and thereby increase the efficiency and effectiveness of their operations. Customers pay based on usage. Customers who need a short-term application must pay a license fee for the application. Cloud-based solutions reduce purchasing costs and unnecessary usage costs.

B. Increased productivity:

Consumer demand is increasing due to the rapid development of technology. They want things fast and in less time. To use information technology solutions such as online collaboration services and remote access applications, companies must comply with these standards. Cloud computing applications must be accessible online or from cloud computing systems. Access to a program that can be made available to users anytime and anywhere.

C. Scalability:

Cloud computing is a scalable model that enables companies to do business. Including SaaS, PaaS, IaaS. Scalability is another advantage of cloud computing. Companies can reduce the number of virtual servers used at any time based on their current service needs. They adjust the room they need according to their growth.



FUTURE DIRECTIONS :

- One of the biggest benefits is accessibility to resources. Users can access information from any device, whenever and wherever they want, as long as they are connected to the internet.
- The service is completely flexible (pay-as-you-go model) and available at any time; this is called scalability in cloud computing.
- Air Service Provider (CSP) takes care of all maintenance work, which allows us to better focus on our activities, which enables us to be at our best.
- Cloud computing is more secure than the company's traditional and on-premises operations. It ensures security by providing the best security and services with accurate analysis, password and encryption.

CONCLUSION :

In this study, we will discuss the architecture, types and features of cloud computing, which is important for information technologies because it reduces costs for institutions and facilitates access to information. It also helps reduce data latency and redundancy. Any organization looking to use the cloud must consider important issues such as security and privacy.

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