A Study on the Need of Cloud Computing in Current Era

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ABSTRACT: In the modern day, cloud computing has become a revolutionary force that is changing how individuals, companies, and organizations access and use computer resources. Cloud computing is a major leap in the healthcare industry, providing unmatched prospects for innovation and business change. It turns into a means of resolving the present problems, which improves the features and functionality of healthcare information systems. Thus, the purpose of this research is to investigate cloud computing technology as a potential remedy for problems with healthcare information systems. Problems with data transfer, storage, cost, and upkeep, among others. This study also investigates the advantages and disadvantages of cloud computing in the business context by examining the various cloud computing services that are accessible.

Keywords: Cloud computing, Need, Health care, Business, Drawbacks, future trend.

INTRODUCTION

Through the use of the internet, a shared pool of computer resources, such as servers, storage, networks, apps, and services, may be accessed thanks to cloud computing technology. Through cloud service providers, consumers can access and use computer resources on-demand instead of owning and maintaining actual gear and infrastructure

With advantages including increased patient care, cost effectiveness, scalability, and accessibility, cloud-based healthcare solutions are a major development in the healthcare sector.

Cloud computing has become integral to businesses across various industries, offering a wide range of benefits and enabling them to achieve their strategic goals more effectively. Cloud computing offers a comprehensive solution to the challenges of data management in businesses**.** All things considered, cloud computing has changed how companies run, making them more competitive, efficient, and adaptable in the current digital economy (Comer, 2021).

NEED AND SIGNIFICANCE OF STUDY

This study of cloud computing is essential in current era due to career opportunities, business transformation, worldwide cooperation. As cloud computing continues to grow, there is a great need for qualified individuals with knowledge of cloud computing. Cloud computing is radically altering how companies run and provide services. Experts in cloud computing can drive business transformation and support businesses in maintaining their competitiveness in rapidly evolving environment. Moreover, cloud computing represents significant advancement in healthcare industries.

Objectives of Study

The objectives of study are as following:
— To optimize costs, harness the power of the cloud.

— To establish a competitive advantage in today's dynamic business world.
— To Examine cloud-based HIE (Health Information exchange) technologies that enable the secure transmission of patient data between healthcare providers, hospitals, and other stakeholders.

CLOUD COMPUTING EXPLANATION

Cloud computing is delivery of varied services over the internet. The term "cloud computing" describes the provision of computer services—such as networking, processing power, storage, and more—through the internet, sometimes known as "the cloud." Instead of administering software on individual PCs or owning physical gear, users can access these resources remotely via an infrastructure provided by a provider (Namasudra, 2018).

Organizations, both large and small, are shifting computing and data storage to the cloud, which has grown an entirely new ecosystem.

Cloud computing has quickly grown in importance. There are many situations that involves cloud computing in present period of time, such as -:
— A patient wears a medical device that sends measurements for analysis and alerts their doctor if a problem is found.
— A tracking number provides the recipient with the package's current position and estimated delivery time.
— Students collaborate on a team assignment using a browser to modify a shared document.
— A teenager uploads images on social media.
— An enterprise corporation leases facilities and software for commercial operations, such as payroll, accounting, and billing.
— Backing up your favourite photos to Google Photos.
Two interconnected elements contributed to the beginning of the cloud paradigm.

Technological: limits on a speed forced a move to parallelism.

Economic: technological changes impacted IT cost Cloud computing has seen a variety of advances. Three major development models will be described in order to gain a better understanding of cloud computing.
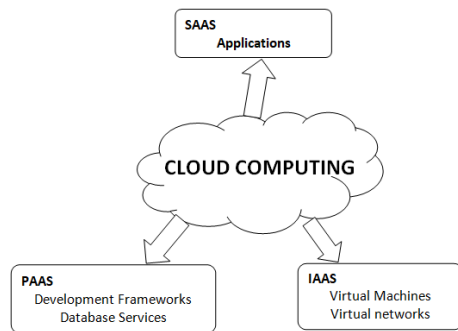

Software-as-a-service (SaaS): SaaS allows consumers to access software applications hosted by a third-party supplier over the internet. Salesforce, a cloud-based CRM platform, is a popular example of Software as a Service (SaaS). It provides a diverse set of features and modules aimed at streamlining many areas of the client lifecycle.

Infrastructure-as-a-service (IaaS): In this model, the cloud provider provides virtualized computing resources over the internet. Amazon Web Services is one example of Infrastructure as a Service (IaaS). It offers a wide range of cloud-based services, enabling enterprises to access and manage IT infrastructure resources via the internet.

Platform-as-a-service (PaaS): PaaS provides a platform that enables customers to create, run, and manage applications without having to deal with the supporting infrastructure. Google App Engine is a prime example of Platform as a Service (PaaS). Google App Engine is a completely managed platform supplied by Google Cloud Platform (GCP). It allows developers to build, launch, and grow apps without managing the underlying infrastructure

NEED OF CLOUD COMPUTING

The cloud computing platform Today, they have installed the most powerful processors and the fastest retrieval rates on their storage facility. Health care and information technology are slightly falling apart, but in today's environment, cloud computing literally sits in the heart of both technologies (Manoj *et al.*, 2016).
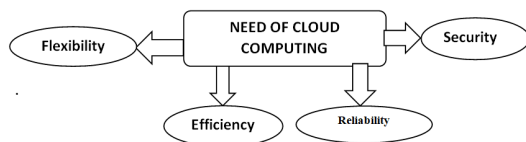
Pay-As -You-Go Policies: The "pay-as-you-go" model in cloud computing is a pricing structure where users are charged depending on their actual utilization of computer resources, rather than paying a fixed rate regardless of usage.

Latest and Greatest Security: Cloud service providers make significant investments in security measures such as encryption, access controls, and threat detection to protect the data housed on their systems.

Fast and Reliable Data Restoration: Cloud computing provides robust disaster recovery solutions, such as data replication and automated backups.

CLOUD-BASED HEALTHCARE SOLUTIONS

Medical Records Management: With cloud-based EHR (Electronic Health Record) systems, healthcare providers may securely store, maintain, and retrieve patient health records from anywhere with an internet connection. This allows for the seamless sharing of patient information among healthcare personnel, which improves care coordination and patient safety and results (Masrom *et al.,* 2014).

Health Information Exchange (HIE): Cloud-based HIE solutions enable the secure exchange of patient health information across healthcare practitioners, hospitals, clinics, and other stakeholders.

Drugs Discovery: Cloud computing speeds up drug research and development by providing scalable compute resources for simulating drug interactions, evaluating genomic data, and conducting virtual clinical trials.

Genomics and Personalized Medicine: Cloud computing allows for the storage, processing, and sharing of genomic data for study, diagnosis, and therapy. Cloud-based genomics solutions offer scalable infrastructure for processing massive amounts of genomic data, discovering genetic variations, and offering individualized treatment recommendations based on each patient's genetics.

Picture Archiving and Communication Systems (PACS): Cloud-based PACS solutions store and manage medical imaging data such as X-rays, MRIs, and CT scans in the cloud, allowing healthcare providers to access it at any time and from any location.

Remote Patient Monitoring (RPM): Remote Patient Monitoring (RPM) with cloud computing is a rapidly evolving discipline in healthcare that uses cloud-based technology to collect, store, and analyse patient data remotely. This method enables healthcare personnel to monitor patients' health states, manage chronic illnesses, and respond quickly when necessary, eliminating the need for frequent in-person visits.

CLOUD COMPUTING FOR INCREASED BUSINESS VALUE

Cloud computing provides multiple chances for businesses to add value across all elements of their operations. There are companies that rely entirely on cloud computing, in the sense that they do not have any servers in their office; instead, anytime someone wants to work, they log in to their platform and connect to virtual computers on the cloud computing platform.

Today, you have a company of ten individuals; tomorrow, it may be a thousand. Regardless of your company's workload, with a cloud computing platform, you can have access to thousand machines with just a few mouse clicks (Wollersheim, 2012).

International Impact and Transparency: With cloud computing, organizations may expand their reach and enter new markets without making major upfront infrastructure costs. Cloud providers, with servers

located all over the world, enable global scalability and accessibility.

Improved Communication and Efficiency: Cloud-based communication platforms and applications facilitate seamless communication and cooperation amongst distant teams. Employees can team up on documents in real time, share files, and work on projects from anywhere with an internet connection. This increases efficiency, teamwork, and innovation, resulting in better business outcomes (Devasena, 2014).

Cost Reductions: Cloud Computing enables organisations to cut capital expenditures by eliminating the need for in-house hardware, software, and infrastructure. Instead, they can use pay-as-you-go pricing structures, paying only for the computer resources they use. This moves from fixed to variable expenses allows companies to maximize expenditure, grow resources effectively.

Continuous Operations and Crisis Healing: Cloud computing provides powerful disaster recovery options, such as copying data, automatic backups, and redundancy capabilities. In situations of a hardware failure, natural disaster, or cybercrime, companies may quickly resume operations and reduce interruptions assuring business continuity and data integrity.

Increased Flexibility and Creativity: Cloud computing encourages creativity by offering access to a wide collection of innovative tools and services, including artificial intelligence, machine learning, and IoT. Businesses can rapidly experiment, create, and launch new applications and services, creating a creative environment and keeping up with competition in the rapid technological environment.

CONCLUSION

To summarize, cloud computing has altered both healthcare organizations and businesses across other industries, bringing a number of advantages and prospects for innovation, efficiency, and growth.

Cloud computing has changed patient care through the use of monitoring patients from afar, telemedicine, electronic health records (EHR) management, and studies in medicine. Healthcare providers can enhance the health of patients, lower costs, increase cooperation among teams, and accelerate advances in medicine by adopting cloud-based technologies.

Furthermore, cloud computing has helped businesses simplify operations, improve flexibility, and provide benefit throughout their businesses. Organizations with flexible servers, pay-as-you-go pricing mechanisms, and access to modern technology can maximize IT expenses, develop quickly, and respond fast to changing market conditions.

In addition, cloud computing improves security, compliance, and data protection capabilities, helping companies and large businesses in minimizing risks related to data breaches, security risks, and laws and regulations.

In summary, cloud computing has become an essential instrument for enhancing healthcare delivery, improving business development, and creating novel possibilities in the digital world of today. Healthcare providers and organizations can increase effectiveness, creativity, and achievement in their respective industries by adopting completely utilising cloud technologies.

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