Cloud Computing: Literature Review

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Abstract – Cloud computing is a paradigm that revolutionizes the way computing resources are provisioned, accessed, and utilized. It involves the delivery of on-demand computing services, including storage, processing power, and applications, over the internet. The abstract concept of cloud computing is centered around the idea of virtualization and resource pooling, where a vast network of interconnected servers and data centers collectively form a "Cloud" infrastructure.

Index Terms – Cloud Computing, Cloud Service, Virtualization, Scalability, Security, Performance.

I. Introduction:

The architectural options offered by cloud computing are very diverse, including the number of cores, the quantity of memory, and the number of nodes. An application's workload performance and its input can take up to 20 times longer to complete or cost 10 times more than ideal. There has been a paradigm change brought on by the easy flexibility of cloud providers. In the cloud, the architectural configuration is tailored for the workload, as opposed to the past when an application was tuned for a specific cluster. Furthermore, each configuration has a running cost and an execution time because the cloud uses a pay-as-you-go paradigm. As a result, a workload can be optimized for either the least expensive or the fastest configuration. For an application to provide high-quality services and remain competitive in the marketplace, the appropriate cloud configuration must be chosen. For instance, for the same performance target, a poor cloud design can cost up to 12 times as much. For the same performance goal, the cost savings from a suitable cloud architecture can be up to 12 times higher. When similar workloads are conducted frequently as part of recurring jobs, the savings from a suitable cloud design are even more significant. The complexity of obtaining high accuracy, minimal overhead, and adaptivity for various applications and workloads makes it

challenging to choose the optimum cloud configuration, such as the cheapest or fastest.

II. Literature Survey:

Article-1: Survey by P. Nagendra Babu

In this paper he bandied the basics of Cloud Computing, History of Computing, Characteristics, Advantages and Disadvantages of Computing. These are veritably useful to understand the pall computing. Besides of above motifs we bandied some further motifs Cloud Architecture, Deployment models of Cloud, Cloud Scheduling. Cloud Architecture, Deployment models of Cloud is used to understand the working procedure of pall, how it's used for associations and how the pall is used to store, recoup and modify the data without physical outfit. In Cloud Scheduling we bandied maximum number of scheduling algorithms. We hope this paper will give effective information what the compendiums want about Cloud Computing and veritably useful to experimenters.

Article-2: Survey by Rakibul Hassan

Several papers studied the performance of big data operations on scale-out platform and shadows. All of these workshops use performance counters to cover the performance and geste of operations. In authors perform a set of comprehensive trials to analysis the impact of memory subsystem on the performance of data ferocious operations running on pall terrain. In author uses compress seeing to ameliorate data movement after chancing the performance tailback using performance counters. Performance counters also can be used to trace the operations geste in order to find the vicious geste. Also, there are new approaches to ameliorate the performance of ultramodern computing systems similar as tackle acceleration and pall computing.

In this paper, he'd surveyed the state- of- the- art of pall computing, covering its essential generalities, architectural designs, prominent characteristics, crucial technologies as well as exploration directions. As the development of pall computing technology is still at an early stage, he hoped this work will give a better understanding of the design challenges of pall computing, and pave the way for farther exploration in this area.

Article-3: Survey by International Journal of Research Publications

The Cloud Computing view has truly changed over the last ten times, not only the fact that further suppliers and service offer clogged the space, yet also pall structure which traditionally was restrained to one provider's data centers is now changing. This study discloses the evolving pall structure and considers the structure operation from several providers and the decentralization of calculating further from data centers advantages. Those tendencies redounded in the demand for different ultramodern computing design which will be proposed by new pall frame; These are anticipated to affect fields like connecting druggies and bias, Data-Intensive Computing, service terrain, and tone- Learning systems. Incipiently, it lays out a guideline of obstacles which will bear to be given attention for let go of the new Cloud Systems generation's implicit.

Article-4: Survey by Research India Publications

The present work has done a regular literature analysis in order to identify and classify the different pitfalls of pall computing security. The review covers the essential challenges through the main results to pall computing cyber-security pitfalls, the main different approaches, algorithms and ways developed to address them, as well as the open problems which define the exploration directions in this area. We decided to classify them according to three main groups Data Security, Cloud Network structure Security, and Cloud Applications Security. likewise, it was observed that, to answer the question raised in this SLR, 87 papers were anatomized. The main concern is that the state of maturity of pall computing security is veritably encouraging and there are numerous exploration directions still open and which promise uninterrupted advancements of pall security and sequestration.

Article-5: Survey by Archana Srivastava

In this paper She have bandied colorful opinions of different pens about Cloud and Cloud Computing. She had done a literature review on pall computing, Cloud database, how pall can be applied. She had set up that although the pall computing is a veritably arising fashion and it has colorful benefits also it we're using pall but still it has some disadvantages also which we need to ameliorate in future because if we will be suitable

to minimize the disadvantages it'll be the stylish fashion for all of us in the future.

Article-6: Survey by Basab Nath

There are colorful ways to deal with oversee pall computing which has been examined in this paper. We've likewise talked about colorful difficulties that are available in pall computing like service position agreement, pall data operation, security and garçon connection. The literature review brings up that pall information and security actually have a great deal of disadvantages which may give an awful print to the field of pall computing. In future we might want to broaden our work and probe the different answer for the current difficulties of pall computing.

Article-7: Survey by Yan Hu and Guohua Bai

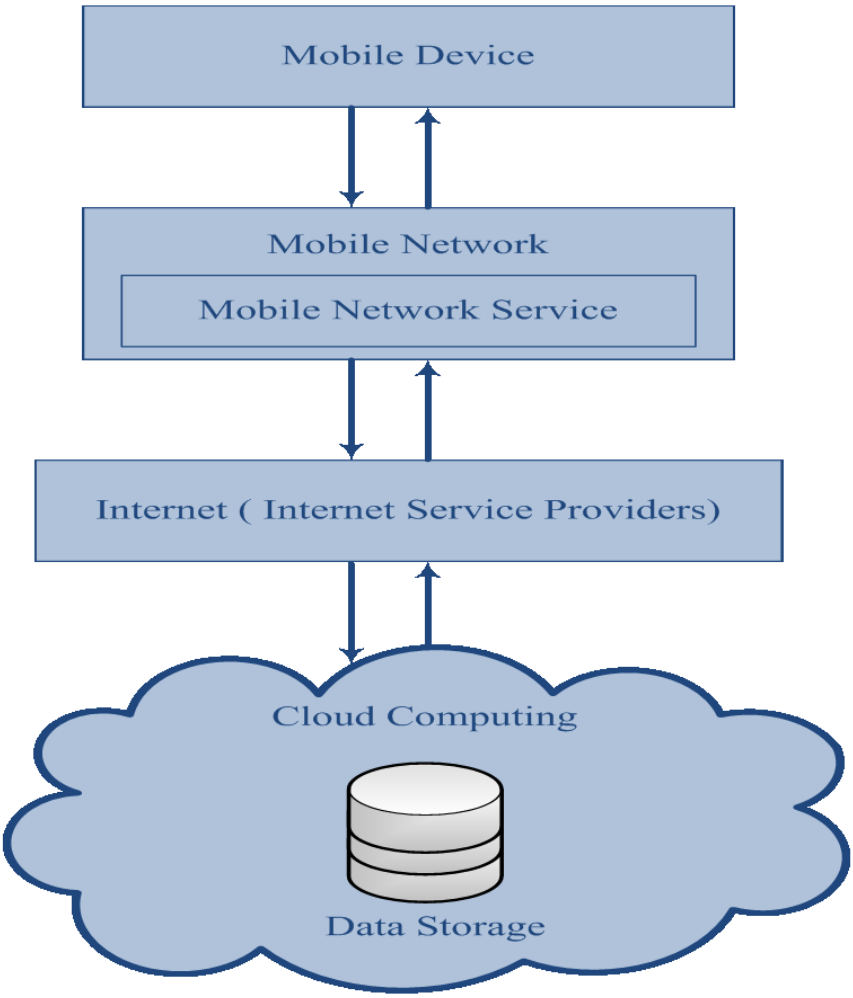
Exploration on applying pall calculating technology to eHealth is in its early stages; most experimenters have presented ideas without real-world cases confirmation. The egregious features of pall computing technology give further reasons to borrow pall computing in sharing and managing health information. The main purpose of our review is to identify some challenges and doable pall- grounded results which can be applied in eHealth. The current review suggests that with the unique superiority of the pall in big data storehouse and processing capability, a cold-blooded pall platform with mixed access control and security protection mechanisms will be a main exploration area for developing citizen centered home- grounded healthcare system.

Article-8: Survey by Prof. B. M. Kore

In this check we studied different cryptographic ways for data participating security. One trivial result to achieving secure data participating in the pall is for the data proprietor to cipher his data before storing into the Cloud, and hence the data remain information- theoretically secure against the Cloud provider and other vicious druggies. With further fine tools, cryptographic schemes are getting further protean and frequently involve multiple keys for a single operation. Therefore, it considers how to compress secret keys in public- crucial cryptosystems which support delegation of secret keys for different cipher textbook classes in pall storehouse. Our approach is more flexible than hierarchical crucial assignment.

Cloud Computing for Enhanced Mobile Health Applications

Block Diagram:



The block diagram for cloud computing in enhanced Mobile Health (mHealth) applications:

1. **Mobile Devices:** These portable devices, such as smartphones, tablets, and wearables, are used by patients, healthcare professionals, or caregivers to capture health-related data including vital signs, activity levels, and patient-reported information.
2. **Mobile Applications:** Custom mobile apps running on these devices enable data collection, patient monitoring, and communication with the cloud infrastructure. These apps may include features like data entry forms, reminders, secure messaging, and real-time monitoring capabilities.
3. **Internet Connectivity:** Mobile devices utilize internet connectivity (e.g., Wi-Fi, cellular data) to securely transmit data to the cloud infrastructure, facilitating seamless communication between mobile devices and cloud servers.

4. **Cloud Infrastructure:** The cloud infrastructure serves as the foundation of the system, providing storage, processing power, and scalable resources. It encompasses several components:
   a. Cloud Storage: Secure and scalable storage services store patient health data, such as electronic health records (EHRs), diagnostic images, lab reports, and other relevant information.
   b. Cloud Computing: Virtualized computing resources handle data processing, analytics, and complex algorithms. These resources can be scaled up or down based on demand to accommodate varying workloads.
   c. Application Servers: Cloud-based servers host the backend services required for mHealth applications, including data processing, analysis, and communication interfaces.
   d. **Security Services:** These services provide authentication, encryption, access control, and compliance measures to ensure the privacy and security of patient data.

5. **Data Analytics and Machine Learning:** Advanced analytics and machine learning algorithms are applied to the collected data in the cloud. These techniques help identify patterns, predict health risks, provide personalized recommendations, and support clinical decision-making.
6. **Health Information Exchange (HIE):** Interoperability standards and protocols enable secure exchange of health information between different healthcare systems, providers, and mHealth applications. This allows seamless integration and sharing of patient data among authorized stakeholders.
7. **Healthcare Providers and Stakeholders:** Doctors, nurses, caregivers, and other healthcare professionals access the mHealth applications, review patient data, provide remote care, and make informed decisions based on the available information

Mobile Cloud Computing:

Mobile Pall calculating technology consists of pall computing and mobile computing combined on a wireless network. This innovative technology makes it possible to deliver and execute high- quality operations on mobile bias, anyhow of the ultimate's operating system, storehouse capability, and calculating tasks.

Mobile pall computing offers a lesser degree of speed and inflexibility for end- druggies and operations inventors. The mobile pall encompasses pall-grounded data and the operations and services created for mobile bias. It brings

together mobile operation development and pall- grounded services, easing the delivery of pall services and apps to mobile druggies. Remote data centers store the applicable data and run the apps.

Mobile pall computing is a natural progression of mobile and pall computing technology and has proven to be a game- changer in using our mobile bias, whether for work or rest. Just stop and consider how numerous people use their mobile bias on any given day. That heavy operation gives you some idea of how popular mobile pall computing is and why it'll only come wider in the future. In fact, according to Mordor Intelligence, the mobile pall request will reach the$118.70 billion mark by the end of 2026.