Network research papers examples

Technology, Internet

Cloud Computing

Cloud computing is a recent concept and a new development that enables on-demand and convenient network access to several configurable computing resources such as; servers, applications, networks, services, applications and storage. It provides data access, computation, software, and storage services that do not necessitate knowledge of the configuration and physical system of the system by the user. Cloud computing can also be defined as the set of networks, hardware, services, interfaces, and storage that are combined to convey services that involve computing. Notably, there are four fundamental characteristics in cloud computing; automatic deprovisioning and self-service provisioning, elasticity and the ability to balance up and down, metering and billing of service usage in various programs such as, pay-as-you-go model, and application programming interfaces (APIs).

Basically, cloud computing relies on allotment of resources to achieve economies of scale and coherence. It focuses mainly on capitalizing on the efficacy of the shared resources. Apparently, a cloud can either be public or private. A private cloud is a data center or proprietary network that supplies services that are hosted to a given number of people. A public cloud on the other hand sells services on the internet to anyone. Seemingly, there is a significant workload shift in a cloud computing system. This means that local computers do not have to undergo some unnecessary processes such as heavy lifting when running applications, since they are handled by the cloud that is made up of computer networks.

Markedly, cloud computing has off late been extensively been used by many

organizations and companies in various sectors, since it has experienced exponential growth in the recent past. For instance, Hybrid clouds have benefited IT executives in getting more choices for tailored solutions. Today, they are widely used and companies are now adopting them and dropping the old system.

The Current Market for Cloud Computing

Markedly, the cloud computing industry has off late hit a huge milestone, which is expected to send shock waves throughout the entire technology and software industries. Presumably, the major public cloud computing organizations are a making a fortune from the technology by making a combined market total of close to $100 billion in the United States. The cloud computing industry is officially taking shape as big public companies increase their revenues by more than $12. 3 billion annually.

There are five major current trends in cloud computing which include;

- Hybrid cloud

This is a model that features an infrastructure which combines scalable public cloud and powerful attributes, and private cloud security with lucrative attributes. This model aims at modifying and customizing systems which IT specialists are benefiting from.

- BYOD

This is a service that enables end users to put more and more data for streaming using cloud services in their mobile phones for, storage, streaming, and syncing.

Platform-as-a-Service (PaaS)

PaaS is a service that enables a business to increase application development while reducing their IT costs through more efficient development and testing methods. Studies show that PaaS market is expected to grow from $3. 5 billion to $13. 9 billion worldwide.

Big data analytics

Similar to the private and public cloud model, Big data analytic is used by organizations because it is more beneficial to combine using cloud computing, and it is simpler. This service is presumed to offer businesses of all sizes a scalable easily attainable tool for competing in the global marketplace.

- Graphics as a service

A substantial hardware infrastructure is needed to run high-end graphics applications. However, this method is fading as cloud computing has changed this reality. For instance, prominent graphics companies such as; AMD and NVIDIA are using graphics as a service in order to allow their users to enjoy good services such as the HTML5 web browser using high-end graphic design applications.

- Identity management and protection

Identity management and protection is a service in cloud computing that guarantees security of information. Companies lack good back of data and security, but with the identity management and protection program, collateral is ensured. However, there is a high possibility that this system will frequently be used.

- Web-powered apps

Primary benefits of cloud computing are efficacy and scalability. However, internet will become the main platform for applications such as JavaScript and HTML.

Challenges of Cloud Computing

Organizations are pretty much aware of confidentiality and insecurity issues, subsequently, they are also aware of the value that comes along with cloud computing. These companies are taking steps towards transition to the cloud. However, there are numerous challenges with using cloud computing.

- Security and Privacy

One of the biggest challenges of cloud computing is the way to address the privacy and security concerns of businesses. Firewalls raise serious concerns because they are associated with hacking and other attacks. These insecurities are a major threat because they could affect many clients. However all these risks could be alleviate using encrypted file systems, security applications, buying security hardware to track bizarre behavior, and data loss software.

Service Delivery and Billing

It is an uphill task to evaluate costs involved due to the on-demand nature of services. Assessing costs and budgeting is very difficult unless providers have comparable and good benchmarks to offer.

Reliability and Availability

Frequent outages occur due to lack of Round-the-clock service. This is a major drawback because services that are provided using third-party or internal tools need to be monitored closely.

The future direction of Cloud computing

Seemingly, cloud-based data will include context for understanding data better. This will probably happen in 10 years if companies will understand ways to leverage information holistically. Additionally, there is a goal of achieving exascale computers that a lot of tasks in a short time. Therefore, network performance will be improved significantly resulting to improvement in network connections.

As the standard for assembling business solutions and including context, cloud computing will be more embedded in people's lives. Additionally, other derived concepts associated with cloud computing will follow suit. Subsequently, there is a visible path to better computing and technology practices in the future. It is projected that there will be more advancement in networking in future and organizations will easily monitor their operations.

Network at Utah State University

The cloud computing network at Utah State University is well structured. It has two sections; front end and back end. These ends connect each other through the internet. The back end of the system is the cloud, while the front end is the computer user side. Notably, the front end contains the application required to access the system, basically, it includes the computer network. On the other hand, various devices are contained on the back end including servers, various computers, and data storage systems that develop computing services contained in the cloud. Practically, the network system at Utah University includes all computer programs needed by the students and the administration. These applications range from data processing to system applications. Markedly, all applications have their own server. The main

server is the central server which monitors demands of clients and traffic to ensure smooth operation of the system. In this system, protocols are used using middleware software. The middleware software is responsible for network communication. This network uses the server virtualization technique which reduces the need for many physical machines. The cloud computing network at Utah University has numerous clients.

Notably, there is need for cloud computing at Utah University because the university has many students who rely on computer systems to run programs. With clod computing, clients will be in a position to access the school's system using any computer that is linked to the internet. Secondly, cloud computing gives the University the option of storing a lot of data on other hardware, thereby removing the need for physical space especially on the front end. Basically, there is need for cloud computing for supporting programs such as; automatic deprovisioning and self-service provisioning, elasticity and the ability to balance up and down, metering and billing of service usage in various programs such as, pay-as-you-go model, and application programming interfaces (APIs).

Cloud computing is of paramount importance in Utah University for efficiency. Since different skills are required in managing the network system of the university, Cloud computing is needed to eliminate many frequent software maintenance and patching. Lastly cloud computing provides data access, computation, software, and storage services that do not necessitate knowledge of the configuration and physical system of the system by the user.