

Cloud Computing in Everyday's Life

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Abstract- In the age of rapid evolving technologies and continually growing IT needs, the need of cost effective and efficient technology is a major concern. Cloud computing is such a technology which plays an important role in everyday's life. It is not only used for business purposes but also for personal use. Cloud computing has become a great solution for providing a flexible, on-demand and dynamically scalable computing infrastructure, services for many applications. The main idea behind the cloud is that the information and services can be accessed over the internet anywhere, anytime and anyplace. The hardware and software services are available to general public, business markets, enterprises and corporations. Cloud computing provides storing of data and applications on remote servers and accessing them via the internet rather than saving or installing them on your personal or office computer. This paper discuss about what is cloud computing, how cloud computing works and what are the different areas where cloud computing used in everyday's life.

Index Terms: cloud computing , iaas, saas,paas

INTRODUCTION

Now a days, with the explosive growth of electronic data volume, the need of analysis, processing , storage of huge amount of data and meet the customers evolving needs in the digital age has been increased. It has now mandatory to use such a technology which can handle all this in a very efficient way. Cloud computing provides a powerful and cheap source of such computing framework for large volume of data for real time applications. The public may not be familiar with the term but many of us are already doing cloud computing everyday. We already use some kind of cloud services such as web email like Gmail, Yahoo! Mail or hotmail etc or online data storage like Google Drive, Mozy, Box.net etc or online software. For example, Google Docs offered web based office tools such as word processing and spreadsheets. Millions of us have uploaded videos to YouTube and sent photos to

SmugMug, Photobucket, Flickr and other hosting sites. The cloud has become our entertainment network, our social network, our development network, our virtual library and our workbench etc. People are spending millions of hours on sites like YouTube, Hulu and Flickr for entertainment and Facebook, MySpace, Bebo, hi5 and similar sites for social networking. Google search provides us a virtual library where we can search about any topic that we want. WE can use cloud as our work bench as we can share large files with Pando, modifying photos in online photo editors like Adobe Photoshop Express and Picnik, edit videos online with JumpCut and JayCut, manage our projects in Base camp etc

CLOUD COMPUTING

Cloud computing is a way of storing of data and applications on remote servers and accessing them via the internet rather than saving or installing them on your personal or office computer.[1] The term cloud is used because data and applications are stored on a collection of web servers and computers owned by a third party somewhere else. These web servers or computers can be accessed via the cloud computing systems interface software that can be like using a web based service which hosts all the applications and files that you need. The cloud is being used not only to store data but also as an inexpensive, efficient and flexible alternative to purchasing, running and maintaining in house computing equipments and software.[2] The cloud gives you ability to work anywhere at anytime because your information is always at your fingertips. An example of online email account shows that you can log into a web email account remotely through a browser or an application but the storage for your account does not exist on your computer or laptop or any device from where you access your account rather it belongs in the email providers cloud. Netflix, Google Drive, Amazon Prime Video, Airbnb are the products which are hosted on the cloud and we use them in each and every day. These products provides

services on different prices. Pricing for cloud platform and services is based on three key dimensions:[3]

- A. *Storage*: Storage is typically measured as average daily amount of data stored in GB over a monthly period.
- B. *Bandwidth*: It is measured by calculating the total amount of data transferred in and out of platform services through transaction and batch processing.
- C. *Compute*: Compute is measured as the time units needed to run an application or machine servicing request
- D. *Cloud Computing Architecture*

Cloud computing architecture is composed of two parts: The Front end and the Back end which are connected by the internet. The front end is the computer that you as a client sees. This side allows you to access the cloud computing system. Gaining access can be simple as using an internet browser or more complex by using unique interface software which allows you to access the cloud. The back end of a cloud computing system is comprised of the computer servers and data storage systems which store all your files and information. There is a central server that manages the traffic on the system monitoring and client demands to ensure everything runs smoothly. This central server follows a set of rules called protocols. The central server also makes use of a software named middleware. This middleware software allows the network computers to communicate with each other naturally.[4] Cloud computing companies require at least twice the number of storage devices to store all their client's information so that they save multiple backup copies of the work of their clients.

Types of Models used in Cloud Computing

There are two types of models that making cloud computing feasible and accessible to end users.

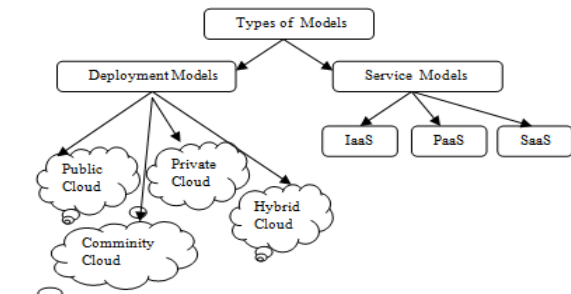


Fig 1: Types of models used in Cloud computing

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- A. *Deployment Models*: Deployment models defines the type of access to the cloud i.e. how the cloud is located?[5] How you want to publish your application. You can either publish it on the public cloud, you can publish it on the private cloud, on community cloud or in a hybrid cloud.
 - 1 *Public Cloud*: The public cloud allows information, services, storage and computing power to be easily accessible to the general public. Public cloud may be less secure because they can be accessed by every one. The services that are provided by the public cloud depends upon the payment made for them. Example of public cloud is e-mail.
 - 2 *Private Cloud*: The private cloud allows information, services, storage and computing power to be accessible within an organization. It provides more security than public cloud. It also improves reliability.
 - 3 *Hybrid Cloud*: The hybrid cloud is a mixture of public and private cloud. It uses one or additional public cloud and personal cloud network environments through association that permits for sharing of information and applications between the various cloud environments. The benefits that hybrid cloud provides include flexibility, Scalability, cost effectiveness, security, backup and recovery, risk management etc.
 - 4 *Community Cloud*: The community cloud allows information, services, storage and computing power to be accessible by group of organizations.
- B. *Service Models*: Service models define the services that are offered by the cloud.[6] There are various types of services that are provided by the cloud on rent. You can take database server on rent, an application server on rent and also take software on rents which are hosted on cloud. Services provided by cloud computing are:
 - 1 *Infrastructure-as-a-service(IaaS)*: It is also known as Hardware-as-a-service(HaaS). It refers to the computing resources includes server, storage and networks that can scale as per user

demand. It offers saving of both time and money as the hardware setup and support is provided by the service provider. Examples of IaaS cloud computing services are Windows Azure, Google Compute Engine, Amazon EC2, Rackspace.

- 2 *Platform-as-a-service (PaaS)*: It is similar to IaaS but it also includes operating system and required services for a particular application. It also provides Integrated Development Environment(IDE) including data security, backup and recovery, application hosting and scalable architecture. Some of the cloud computing platforms are AWS(Amazon Web Services), Microsoft Azure, Google App. Engine, Alibaba Cloud etc.
- 3 *Software-as-a-service (SaaS)*: It is a technique of software package delivery that enables information to be accessed from any device with an online association and an internet browser. During this web based model, software package sellers host and maintain the servers, databases and also the code that creates up an application.[7] This model has lowest initial cost and also provides simple updates i.e. any updates related to the software are automatic and free of charge, accessibility and scalability. The SaaS applications are also called on-demand software, hosted software or web based software. Examples of SaaS cloud computing services are Microsoft Office 365, Zoho CRM, SAP Business ByDesign, AppDynamics etc.

AREAS WHERE CLOUD COMPUTING IS USED IN EVERYDAY'S LIFE

- A. *Cloud Computing in Education*: Cloud computing plays an important role in education sector. It provides various online distance learning platforms and student information portals to keep record of students like student's qualification, address, school/college details, records of tests, attendance records, appraisal performance etc[8]. Cloud computing in education offers modernizing learning environment. Cloud computing bring teachers and learners together on a single platform by providing strong virtual classroom environment. The benefits that are provided by cloud computing in education sector includes secure

data storage, scalability, reaching out to a diverse range of students, ease of accessibility and no need for expensive hardware & software.[9] The application that are used for education in cloud are:

- 1 *Google Apps for education*: Google is the most widely used platform by educational institutions to control classes online. It saves time and paper work and makes it easy to create classes, communicate with students and distribute assignments. Applications that are used for education by Google are Google Classroom, Google Workspace, BYJU's, Unacademy, DIKSHA, Khan Academy, Punjab Education, Vedantu and many more. All these apps can be downloaded from Googlen PlayStore.
- 2 *AWS Apps for education*: AWS provides applications to promote higher education,digitally supports primary and secondary schools education (K12) with reliable, scalable and secure data storage and database migration support and supports EdTech companies to start, expand and optimize their business as they deliver on their mission for education. Applications that are provided by AWS cloud are Blackboard, Coursera etc.
- 3 *Microsoft Edu-Cloud*: Using this, students, teachers and school administrators can communicate better, create, access and consume content. Students can freely access Office 365 from Microsoft from any device anywhere anytime and making learning easy and interesting.
- 4 *Knowledge Matters*: It uses business simulations to teach college and high school students about business lessons.
- 5 *Online Education Courses*: There are several online platforms available that offers online courses not only for students but also for teachers to enhance their skills. Many organizations offers free online courses in various subjects and at various level. You can choose from basic level to advance level to advance level according to your knowledge. Some courses are approved by the government and certificates are provided after completion of them, Private

organizations also provided certified courses. For example, The British Council provides English courses to improve your written and spoken English skills, Coursera provides IT courses, Business & Financial courses etc.

B. *Cloud Computing in Media & Entertainment (M&E) sector*: M&E industry offers online and printing of newspapers and magazines, TV, games, movies, music and books.[10] Applications used in M&E industry are:

- 1 *Online Gaming*: Online gaming uses cloud computing where remote resources are used to play games on local system. All the requirements for playing the games are fulfilled by the server residing on the cloud. Various companies that provides cloud gaming service are PlayStation Now, Google Stadia, Nvidia, Microsoft Corporation, Xbox Cloud Gaming etc.
- 2 *Cloud TV*: Cloud TV offers the facility called TV everywhere over the internet. It enables broadcasters to deliver their services on cloud. Viewers can enjoy their favourite serials anywhere anytime and from any device. The content is stored on the cloud so it reduces investment cost in hardware. It also offers minimal manpower, data protection, provides content in-demand, hassle-free operations, scalability and flexibility. For example, NetFlix which is a subscription based streaming service offers their members to watch TV shows and movies. You can also download them and watch later without internet connection. Other Tv streaming services includes Amazon Prime Video, Disney Plus, YouTube TV etc.
- 3 *Cloud in Media*: Media companies uses cloud computing for content publishing, circulation and advertising on the web. For example, the provider for online newspaper publishing is DTI (Digital Technology International).

C. *Cloud Computing in Art* : Cloud computing provides various applications in the field of art to design attractive cards, images, booklets etc.

- 1 *Moo*: It is one of the best cloud art applications that is used for designing and printing business cards, postcards and mini cards.
- 2 *Vistaprint*: It is used to design and print various products like business cards, post cards, wedding invitation cards, mugs, posters, table cloths and t- shirts.
- 3 *Adobe Creative Cloud*: This application is made for artists, designers, filmmakers and other creative professionals. It is the suite of apps which include Dreamweaver, photoshop image editing, illustrator in Design.

D. *Cloud Computing in Social Media*: Social media is a platform which provides creation and sharing of ideas, information, interests, expressions through internet.[11] Users are connected with each other using social media applications like facebook, instagram, twitter, linkedIn etc.

- 1 *Facebook*: Facebook is a social networking website which allows people to connect with each other by sharing files, photos, videos, status. Facebook can be accessed from any device like personal computer, tablets, smart phones which supports internet. Facebook uses its own cloud storage infrastructure to store enormous amount of data.
- 2 *Twitter*: Twitter is a micro blogging social networking service where people interact with each other by posting messages known as "Tweets". People can also follow high profile celebrities, friends, relatives on twitter. Twitter uses AWS infrastructure and services to improve its performance.
- 3 *LinkedIn*: LinkedIn is a business and employment oriented online service used by students, freshers and professionals, It allows job seekers to search for jobs and post CVs and employers to post jobs. LinkedIn uses Microsoft's Azure cloud to maintain their data.
- 4 *YouTube*: YouTube is an online video sharing and social media platform which provides the facility to watch, upload and download video clips, news, short films, movie trailers, vlogs, live streams, music videos and more.

- 5 *Whatsapp*: Whatsapp is an instant messaging and voice over IP service which offers secure, fast messaging and calling for free all over the world. It uses cloud storage to backup chats, media files in iCloud or Google Drive.
- E. *Cloud computing in Business*: Today's every organization used cloud computing to run their business smoothly. Business needs applications that are available 24*7 to the customers.[12] Some of the applications are:
- 1 *Mail Chimp*: It is an email publishing platform which provides various options to design, send and save templates for emails.
 - 2 *Salesforce*: This platform provides tools for sales, marketing, e-commerce nad more.
 - 3 *Chatter*: It helps users to share important information about the organization in real time.
 - 4 *Bitrix 24*: It is a collaboration platform which provides communication, management and social collaboration tools.
 - 5 *PayPal*: It is an online payment system that is used to send and receive money, online money transfers securely. It is only used for businesses that are going global.
 - 6 *Paytm*: It is "pay through mobile". Paytm is India's largest digital payment and financial service platform that offers send and receive payments, recharge mobile, bill payments, money transfer, ticket bookings and more. Is provides 100% secure service.
 - 7 *QuickBooks*: It is a cloud based accounting software which is used to manage business in a better way by managing accounts on cloud and you can access them anywhere, anytime and from any device.
 - 8 *Video Conferencing applications*: Video conferencing is a technology that allows users to hold face-to-face meetings without changing their physical locations through desktop computers, laptops, tablets or smart phones. It saves time and money associated with moving from one location to another. Zoom, GoToMeeting, Google Hangouts, Skype, Webex are some cloud based video conferencing applications. With these apps, online meetings, webinars can be conducted.
- F. *Cloud computing in Data Storage and Backup*: Cloud storage offers storing of data through cloud computing providers. It provides security for your data. Cloud backup providers automatically save all the files that are stored on your device.[13] The applications that are used by cloud computing for data storage and backup are:
- 1 *Google Drive*: It provides storage, backup, accessing and sharing of files, photos ,videos and more anywhere in the cloud. It is free service by Google.
 - 2 *DropBox*: It allows secure storage, sharing and accessing of all the data in one place from any device. It provides secure access to all the files.
 - 3 *iDrive*: It is a data backup application which provides online backup of data to cloud for all devices such as PCs, android, iPhones and mobile devices.
 - 4 *Microsoft OneDrive*: It provides cloud storage to share and storage of files, photos, audios, videos and more from anywhere and from any device

CONCLUSION

Cloud computing can be defined as a new style of computing in which dynamically scalable and often virtualized resources are provided as a service over the internet. With the cloud computing technology users use a variety of devices included PCs, laptops, smartphones and PDAs to access programs, storage and application development platforms over the internet via services offered by cloud computing providers. Cloud computing is used in almost every area of our modern life whether it is personal or business related. The areas where cloud computing is used are art, business, storage and backup, education, entertainment and social media. Using of cloud computing in these different sectors provides various advantages like excellent accessibility, security, unlimited storage capacity, low maintenance cost, services as pay-per-use and improved collaboration etc. The biggest concerns that are related with cloud computing are security and privacy of information. It's possible your privacy could be compromised. Although cloud security strategies reduce the risk of

cyber attacks but it is always not possible to prevent every kind of attack. It is essential to conduct further research to improve security and privacy of information.

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