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Applications of Cloud Computing in Library Services

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ABSTRACT

Cloud computing is the distribution of computer services via the Internet ('the hardware' and the network of cables) which helps us to innovate things faster, use the resources that we flexibly and save money. We are only required to pay for the services that we use in the cloud, thereby enabling us to save money, manage our infrastructure efficiently, and scale as the company grows. Cloud computing is a term used to describe a collection of services offered via the internet. One accesses and stores the data on remote servers rather than on local hard disks and SSD drives. Companies are increasingly utilizing cloud services to reduce the dependency on maintaining a large IT staff, exorbitantly expensive in house servers and the various costs associated with them. Cloud services are not just economical but hassle-free too.

Keywords: Servers, Databases, Datacenters, Networking, Cost savings

INTRODUCTION

Cloud computing is essentially just a delivery service in which we only need to pay for what we are using and we can pay more to use more. The services that we can purchase on-demand include software, compute power, storage etc.

What is cloud computing and how it actually works?

Cloud services have many similarities in their business model as to a local garment rental shop. They allow businesses to rent hardware resources instead of setting up their own data centres and computing equipment. One can rent anything from applets to storage and ram to graphical compute.

Cloud computing gives businesses the leverage of not needing to pay for huge servers and be free from the hassle of it's maintenance and other IT related costs.

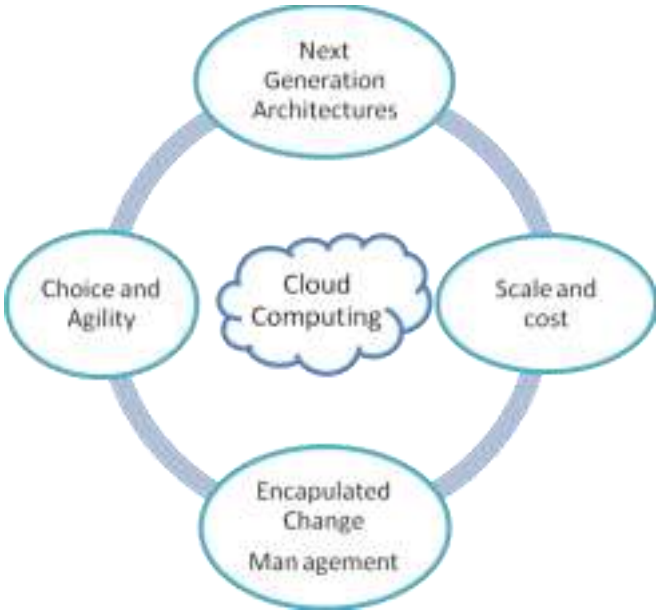
If say for example a startup needs to make an app public and is expecting only meagre amount of audience in the beginning. It would be unfeasible and a hassle to purchase racks and racks of servers costing hundreds of thousands of dollars and also having a full time IT staff to take care of it. A much more viable solution is just paying for what you need at the moment in cloud. Not only it saves IT labour costs but one is not wasting any resources as most of the time the servers lie idle. Also all server related issues are now for the cloud company to handle. As an added benefit, cloud service providers can now provide huge economies of scale by giving similar services to various groups of clients.

What kinds of cloud computation services are available?

Cloud computation can literally include everything but the kitchen sink. Be it just storage services, networking, computational power, graphical computing, niche programs containers,

dockers, VM's etc. Almost anything which doesn't necessitate your physical presence near your computer equipment may now be delivered over the cloud.

CSPs provide a wide range of cloud services, and cloud computing has now influenced every industry by providing a variety of cloud applications. Cloud computing is one of the most popular computer areas since it enables sharing and maintaining resources easier. It has become a prominent player in a variety of sectors as a result of these traits.



➔Benefits of Cloud Computing

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What is the significance of the term "cloud computing"?

In cloud computing, the user is mainly unconcerned about the service's location, as well as many other characteristics such as what all different operating systems the service is running on or the type of hardware. To emphasise that the network (and the internet) was nothing more than a collection of objects, the word cloud was taken from some network diagrams used in telecommunications in the 90s, where the internet(and earlier the PTN{public telephone network}) was depicted as a cloud.

Of course, this is an oversimplification; many customers continue to be concerned about the location of their services and data.

There are three basic types of services models available in cloud computing

CLOUD COMPUTING'S USEFULNESS

Cloud computing applications are now being used by a wide range of sectors to improve and streamline their operations as a result of technical advancements. These apps aren't like the rest of the digital media apps. These are accessible at any time and from any location on the planet. Data storage, education, entertainment, social networking, and administration are just a few of the fields where cloud computing is frequently used. Many cloud computing applications for mobile devices can be used without a laptop or computer. Also, now that we understand how cloud computing is divided and categorised, we should be aware that there are more cloud computing software options available, all of which are still very cost-effective.

Libraries and Cloud Computing

Cloud computing platforms are used by some organisations to deliver library services. Libraries employ third-party services to build a digital library and automate housekeeping tasks using cloud computing technology. Librarians can use cloud computing to exchange resources and services from several organisations or locations.

Let's take a look at the most important new applications that have emerged as a result of cloud computing's widespread adoption, as well as the services that libraries can use. **OCLC's Webscale:**

The Online Computer Library Center (OCLCWebscale)'s is an excellent example of how libraries may leverage cloud computing technology to provide cataloguing tools online and readily share their resources, data, and innovation. The Online Computer Library Center has announced a Library Management System plan to provide better library services to its users, offering privacy, security, scalability, and technical support, as well as cloud-based library collection management.

Ex-Libris Cloud:

Ex-Libris is a well-known library software company based in the United States that provides a private cloud for Ex Libris customers' exclusive use. Ex-Libris Cloud helps libraries manage their resources, provide mobile campus services, boost research outputs, and engage students through cloud-based solutions.

Duraspace'sDuraCloud:

Duraspace'sDuraCloud is used by many libraries, the most well-known of which are: - Biodiversity Heritage Library: The Biodiversity Heritage Library is a digital library that collaborates to digitise and make historical biodiversity publications and journals available.

The New York Public Library (NYPL) is the country's second-largest public library and the world's third-largest, providing free admission to all. Technical assistance, digital preservation, storage warehouse availability, and the conversion of a large number of digital pictures for this collection are among Dura's offerings.

University of Colorado Digital Library (CU-DL)

The Digital Library at the University of Colorado is a collaborative initiative that delivers digital materials to professors, staff, and students, allowing them to create their own digitalcollections for teaching, learning, and research. The CU-DL has replaced its own databases produced with Microsoft's accessory software with the Google App Engine service to save money on database maintenance. The library has switched to Google's hosting service, saving money on expensive servers that it would otherwise have to buy or rent. Using Google for library services, according to the library's website, provides for better management of periodical collections, improved library collections, and opportunities for staff and students in colleges to publish on the library's website. ARTstor subscription services and the Luna Insight software system.

Storage Service Comparison on an Annual Basis

CLOUD STORAGE PROVIDERS	STORAGE SPACE PLANS	FILE UPLOAD LIMIT
pCloud	10 GB to 2TB	2TB
Sync.com	1 TB to 10 TB per user	Any Size
Polarbackup	1TB, 2TB , 5TB	4GB for basic plan & unlimited with the advanced plan.
IBackup	10 GB to 10000 GB	2 GB
IDrive	5 GB, 2TB, 5TB,250GB, 500 GB,& 1.25 TB	2 GB
ZoolzBigMIND	100 GB to 10 TB	No limits
Livedrive	Unlimited Cloud storage	-
Dropbox	2GB,1TB,2TB,3TB	Unlimited
OneDrive	5GB, 50 GB, 1TB, 6TB,& unlimited.	15GB
Google drive	15GB, 100 GB, 200GB Till Unlimited.	5TB
Amazon Cloud Drive	100 GB, IBT, etc.	--
Box	10GB	5GB

Google Cloud Platform

Google cloud platform otherwise commonly knows as GCP came late to the party of cloud service providers but it did came with a bang. Now it's one of the most popular cloud service providers in the world. Even developers that have no prior knowledge of cloud services can utilise it without much technical know-hows. Google indeed rose to the occassion and filled a gap that the industry needed- providing cloud services to the uninitiated and with ease. It's now regarded as one of the most dependable platform for deploying apps in the shortest of periods. 'Gartner' ran a campaign to determine who are the best cloud service providers in the world. GCP came out in the top three list. Majority of other cloud service providers gives us the hardwarecertainity, value forecasting and some neat management. But what they were not able to provide was simple choices to run and maintain all the resources within the knowledge centre. GCP nails the problem perfectly and provides a nearly flawless fully functional cloud platform which includes but not limited to:

Capacity: Adequate resources for simple scalability as required. Additionally, efficient management of these resources is necessary for optimal performance. **Security:** Multi-level security options to protect assets, networks, and operating system components.

Wiring, routers, switches, firewalls, load balancers, and other physical, logistical, and human resource-related components make up **network infrastructure.** Installation, maintenance, and support are all handled by qualified personnel. **Bandwidth** is a measure of the optimal amount of information for peak demand. Different infrastructural components, as well as physical instruments and power resources, are

included in the **facilities.** As a result, Google Cloud Platform might be a realistic option for enterprises, especially if they want a large catalogue of services with worldwide recognition.

CONCLUSION

Overall, cloud computing has been recognised for its value across all industries, and it will continue to play an important role in app development in the future. Cloud computing apps are already a huge part of our daily lives, and they'll continue to grow. As a result of the pandemic's breakout, demand for real-time cloud computing services has increased, as organisations must now maintain business continuity and prevent going offline.

There aren't many libraries that make use of cloud computing. This is because transforming the library to deliver services using these technologies will involve a considerable shift in library policy. Many libraries, on the other hand, are likely to provide cloud computing technology as a service in the near future.The government makes use of subscription services.

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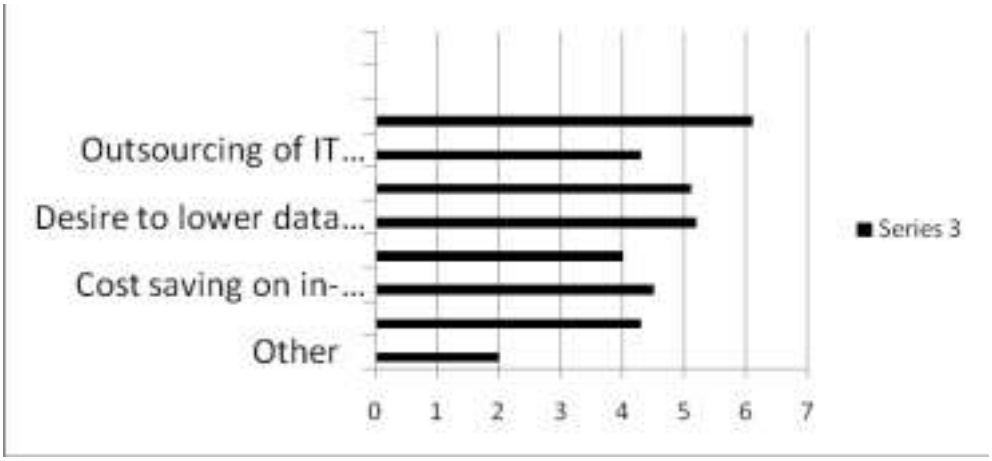
STATE OF THE CLOUD



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