

# Rosary College of Commerce & Arts

Navelim, Salcete-Goa.

*Department of Computer Applications*

## **BITS N BYTES**

Vol: XIX      February 2022      Issue: 1

---

### **Principal's Message**

Cloud computing is the delivery of computing services over the internet. It offers faster innovation, flexible resources and economies of scale. In cloud computing the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via the Internet for a monthly subscription fee, based on the usage. In cloud computing, the users are not required to be in a specific place to gain access to it. In fact, they can work remotely from anywhere. This technology helps companies to provide better service to the customers, operate business more efficiently

and increase profit margins. However, the major problem with cloud computing is security risks, especially regarding storage of sensitive information.

I congratulate all the members of the editorial board and the contributors from the Department of Computer Applications for their tireless efforts in bringing out this issue, on the theme 'Cloud Computing'; I wish the BCA Department great success in all its future endeavours.

**Dr. Helic Barretto**  
Acting Principal

---

### ***What is Cloud Computing?***

- Asst. Prof. Leona Dias

Traditionally, hardware and software were fully embedded on a user's computer. So, you would access your data and programs directly within your own computer.

Whereas Cloud computing lets you to access your data and programs outside of your own computing environment. i.e., instead of storing your data and software on your personal computer or server, it is stored in 'the cloud'.

Basically, Cloud computing is a series of services delivered over the internet. Here the data is placed on remote servers and it is accessed remotely instead of storing it on local hard drives and private data centers. Previously, before the cloud computing existed, companies would be purchasing and maintaining their own servers in order to satisfy their business needs. So, this would require buying sufficient server space to reduce the danger of downtime and disruption and to hold

peak traffic volume. So, huge amount of server space would go unused for lot of time.

Now the cloud service providers lets the companies to cut the requirement for onsite servers, maintenance personnel and other expensive IT resources.

A simple description of cloud computing is renting versus buying. Basically, you rent capacity (server space or access to software) from a cloud service provider, and connect over the internet. Rather than buying your own IT requirements, you are renting from a service provider and paying for only the resources you use.

### **Cloud computing is normally sold using three service models:**

- Infrastructure as a service (IaaS): a model for renting out IT hardware, such as servers, data centre space or networking components, to IT systems administrators or network architects, saving them the cost of purchasing and making their own in-house data centre.
- Platform as a service (PaaS): a model offering IT platforms to permit app developers to create, run and manage applications without the complexity of building and maintaining the infrastructure normally linked with developing and launching an app.
- Software as a service (SaaS): a model for licensing and delivering centrally hosted software via the Internet on a subscription basis to corporations and consumers.

### **How does Cloud computing matter to business?**

Recently, the internet era is changing the way business are conducted. Cloud computing makes it simpler, cheaper and faster to run state-of-the-art IT architectures in any type of company, large or small.

The key benefits are:

**Cost:** Major cost savings are likely, among a company's IT budget.

**Cash movement:** The billing is usually metered on usage, so IT expenditure changes from one-off, upfront capital expenditure to monthly operating expenses, providing a cash flow advantage.

**Flexibility:** Businesses can rent IT equipment and applications as needed, rather than purchasing hardware and software assets outright.

**Scalability:** Computing capabilities like storage, processing power or network bandwidth can be scaled-up almost directly and scaled-down again depending on requirement and users are not likely to ever be short of capacity.

**Universal access:** IT resources can be accessed by any authorised users using an authorised device from any authorised location using Internet connection.

Businesses get profited from cheaper, faster, more scalable IT resources in the Cloud and the users experience gets enhanced. A circle exists between software users and software developers in SaaS Clouds: developers can improve the software quicker because they can view usage and performance data in real time. The users get the latest software upgrades quickly as they are released, without having to pay extra or having to tamper with awkward downloads.

This link between user and SaaS provider makes for a considerably superior business model than the traditional on-premise software license and support model. It is this link that positively transformed the enterprise application software industry. The Cloud lets the best type of SaaS providers to link not only users with

the development team but also employees, partners, devices, customers and suppliers in a shared real-time SaaS network.

### **How do cloud services store their data, and their security options?**

The security of your business files is very important. There are three common ways that cloud services store their data and host services: public, private and hybrid cloud.

Cloud services possibly pose a security risk if the storage model of the service chosen doesn't align with the size of your business and its requirements.

**Public cloud:** A public cloud service is built on an external platform run by the provider. With this off-site facility, users get their own cloud inside a shared infrastructure. The cloud provider offers everything from system resources to the security and maintenance of your cloud system. While, it is managed by an outside company specializing in cloud services for a group of customers, a public cloud system is good for organizations that desire more flexibility, cost-effectiveness and the newest technology.

**Private cloud:** A private cloud service is a cloud platform made within your own walls using your hardware and software. Since a private cloud is managed by your own internal IT team, it is good for businesses that require exclusive access, extra flexibility and bigger control over their cloud. But, this is a more expensive choice.

**Hybrid cloud:** A hybrid cloud hires both private and public clouds. In a hybrid system, an organization's own IT team manages portion of the cloud in house and the rest off-site. For example, a hybrid cloud system is good for an organization

that wants to do business-related data (such as customer files) in house but needs to store less-sensitive information with a third party.

### **Risks associated with cloud computing**

Before considering cloud computing technology, it is significant to recognize the risks involved when relocating your business into the cloud. You must conduct a risk assessment process before any control is given over to a service provider.

You should consider the following issues:

- Privacy and service level agreement: You will need to have proper agreements in place with your service providers before services begin. This will protect you against certain risks and also sketch the responsibilities of each party in the form of a service level agreement (SLA). You must read the SLA and understand what you are agreeing to before you sign. Be sure to understand the responsibilities of the service provider, as well as your own duties.
- Security and data protection: You must study, how your data will be stored and protected when outsourcing to a third party. This should be sketched in the agreement with your service provider, and must speak about the mitigations to governance and security risks. It must cover who has access to the data and the security measures in place to protect your data.
- Location of data: Before committing, you should explore where your data is being stored and which privacy and security laws will apply to the data.

### **Difference between cloud hosting and traditional web hosting**

Instead of relying on services that use physical server space to meet a client's web hosting requirement, cloud hosting companies use virtual space that can be scaled up or down at a instant notice.

How dedicated or shared traditional hosting works: Inside the traditional hosting space, services are either dedicated or shared. Each selection has its merits.

Dedicated hosting needs that a client pays for a whole server, which has its own amount of processing power, bandwidth, memory and hard drive space. This type of hosting can be costly.

Through shared hosting, companies share a single server. Each user pays for a precise amount of storage space on that server and shares in the bandwidth. Shared hosting charges are less than traditional hosting, but the deal is that the website may be slow to load, because the web traffic for several companies is being supported by the same server. Also, if your website surpasses the shared service's limitations, you might be charged extra.

---

## **- The Evolving Role of a DBA in the Cloud**

- Asst. Prof. Tracy Almeida

Traditionally, companies would hire Database Administrator (DBA) who works as front-line support to manage database activities. The core services would include run, operate, and maintain database workloads, monitoring the health of the database, capacity planning, performance monitoring, configuration, installation as

well as implementing security and data recovery of a Database Management System (DBMS).

Cloud computing is dramatically changing the roles and aspirations of DBAs. No longer do DBAs need to be chained to their databases, wrestling with managing updates, applying security patches, and dealing with capacity issues. Moving to a cloud data environment is steadily shifting DBAs' roles from hands-on database overseers to value-drivers for their businesses—and enabling a range of career advancement opportunities not seen since the dawn of relational databases. Overall, DBAs and their enterprises are embracing cloud computing in a big way.



Here are some of the DBA's responsibilities and how they are evolving in the cloud.

1. **Capacity Planning:** Traditionally, database capacity preparation entailed allocating server resources to handle peak loads; this is not only more expensive but also less versatile. Cloud-hosted databases, on the other hand, are scalable, meaning that their storage and computing power can be dynamically and automatically scaled to meet changing demands.
2. **Database Backup and Recovery:** Traditional database backup methods include storing and preserving physical backup devices like disks and tapes. The cloud provides simpler and more long-lasting storage solutions that keep multiple copies of backup data in multiple physical locations automatically. Backups and recovery can be scripted and automated since there are no physical storage devices for the DBA to handle.
3. **Choosing the Optimal Database Solution:** Cloud platforms provide new database options for teams of designers, including self-managed and



completely managed relational, NoSQL, key-value pair, document, in-memory, columnar, graph, time-series, and other databases.

4. Designing for the Workload: With the move to managed cloud services, DBAs don't have to spend as much time on repetitive maintenance activities like patching, updating, and installing database engines. They will now provide advice to application developers on which database service to use for a given workload, as well as perform a smaller number of administrative tasks.
5. Continued Training and Education: To keep current with business developments and technologies, database professionals can take advantage of continuing education and accreditation opportunities.

The cloud platform has changed the DBA's role from merely the database support source to a strategic partner of a business that not only streamlines their database management tasks but also optimizes their computing resources to cut costs making their role more significant for a business than ever. DBAs will need to continually improve their skills in order to focus on new solutions and innovations to increase the productivity of their users, as they consume more and more business data.

The new role of DBAs includes that of a "Data Professional" or "Data scientist" or even "Data Engineer" at times, depending on the company requirements and its plan to make use of the advanced technology in its work and improve the way it analyses data and knowledge. Global competitions in the digital age require companies to use technology in managing their work to the maximum extent. Now, DBAs with their new role in the cloud can aim to provide unexpected opportunities for the organization to enable them to compete and rise higher.

---