Cloud Computing

* cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.
* Understanding the types of cloud computing resources can be time-consuming and costly. Enterprises need to buy physical servers and other infrastructure through procurement processes that can take months and support the architecture of cloud computing. The acquired systems require a physical space, typically a specialized room with sufficient power and cooling. After configuring and deploying the systems, enterprises need expert personnel to manage them.
* Cloud computing is the on-demand availability of computing resources (such as storage and infrastructure), as services over the internet. It eliminates the need for individuals and businesses to self-manage physical resources themselves, and only pay for what they use.
* Types of Cloud computing

Infrastructure as a service(IaaS)

Platform as a service(PaaS)

Software as a service(SaaS)

* Types of cloud deployment models

Public cloud

Private cloud

Hybrid cloud

* Benefits of cloud computing

### Its Flexible:

Due to the architecture of cloud computing, enterprises and their users can access cloud services from anywhere with an internet connection, scaling services up or down as needed.

Its cost effective:

Whatever cloud computing service model is used, enterprises only pay for the computing resources they use. They don’t need to overbuild data center capacity to handle unexpected spikes in demand or business growth, and they can deploy IT staff to work on more strategic initiatives.

AWS

Amazon Web Services (AWS) is the world’s most comprehensive and broadly adopted cloud, offering over 200 fully featured services from data centers globally. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies are using AWS to lower costs, become more agile, and innovate faster

* Most functionality

AWS has significantly more services, and more features within those services, than any other cloud provider–from infrastructure technologies like compute, storage, and databases–to emerging technologies, such as machine learning and artificial intelligence, data lakes and analytics, and Internet of Things. This makes it faster, easier, and more cost effective to move your existing applications to the cloud and build nearly anything you can imagine.

AWS also has the deepest functionality within those services. For example, AWS offers the widest variety of databases that are purpose-built for different types of applications so you can choose the right tool for the job to get the best cost and performance.

* Most secure

AWS is architected to be the most flexible and secure cloud computing environment available today. Our core infrastructure is built to satisfy the security requirements for the military, global banks, and other high-sensitivity organizations. This is backed by a deep set of cloud security tools, with over 300 security, compliance, and governance services and features, as well as support for 143 security standards and compliance certifications.

AWS Components:

##### [**Amazon EC2**](https://docs.aws.amazon.com/ec2/?icmpid=docs_homepage_featuredsvcs)

Create and run virtual servers in the cloud

* [**Amazon S3**](https://docs.aws.amazon.com/s3/?icmpid=docs_homepage_featuredsvcs)

Object storage built to retrieve any amount of data from anywhere

##### [**AWS Lambda**](https://docs.aws.amazon.com/lambda/?icmpid=docs_homepage_featuredsvcs)

Run code without thinking about servers

##### [**Amazon DynamoDB**](https://docs.aws.amazon.com/dynamodb/?icmpid=docs_homepage_featuredsvcs)

Managed NoSQL database service

##### [**Amazon RDS**](https://docs.aws.amazon.com/rds/?icmpid=docs_homepage_featuredsvcs)

Set up, operate, and scale a relational database in the cloud

* **Amazon cloud watch**

Monitor resources and applications

Amazon EC2

Secure and resizable compute capacity for virtually any workload

Amazon Elastic Compute Cloud (Amazon EC2) provides on-demand, scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 reduces hardware costs so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. You can add capacity (scale up) to handle compute - heavy tasks, such as monthly or yearly processes, or spikes in website traffic. When usage decreases, you can reduce capacity (scale down) again.

Features of Amazon EC2

* **Instances**

Virtual servers.

* **Amazon Machine Images (AMIs)**

Preconfigured templates for your instances that package the components you need for your server (including the operating system and additional software).

* **Instance types**

Various configurations of CPU, memory, storage, networking capacity, and graphics hardware for your instances.

* **Key pairs**

Secure login information for your instances. AWS stores the public key and you store the private key in a secure place.

* **Instance store volumes**

Storage volumes for temporary data that is deleted when you stop, hibernate, or terminate your instance.

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