Journey to Cloud Computing

What is Cloud Computing?

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Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS), Google Cloud, And Microsoft Azure.

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History of cloud computing

In the term 'cloud computing,' the word 'cloud' refers to the provider or the service provider that offers services over the Internet, while 'computing' refers to the processing, calculations, or various resources provided by the computer.

History of cloud computing

In 1961, John McCarthy at MIT proposed that computing could be organized as a public utility, just like the telephone system is a public utility.

History of cloud computing

One of the first companies to work with the concept of cloud computing was **Salesforce** in the late 1990s. The company began providing their software as a service (SaaS), offering customer relationship management for their users.

History of cloud computing

In 2006, Amazon launched Amazon Elastic Compute Cloud (EC2), introducing the Infrastructure as a Service (IaaS) model that revolutionized how businesses could access computing resources.

Type of Cloud Computing

Infrastructure as a Service (IaaS)

IaaS contains the basic building blocks for cloud IT. It typically provides access to networking features, computers (virtual or on dedicated hardware), and data storage space. IaaS gives you the highest level of flexibility and management control over your IT resources. It is most similar to the existing IT resources with which many IT departments and developers are familiar.

Platform as a Service (PaaS)

PaaS removes the need for you to manage underlying infrastructure (usually hardware and operating systems), and allows you to focus on the deployment and management of your applications. This helps you be more efficient as you don't need to worry about resource procurement, capacity planning, software maintenance, patching, or any of the other undifferentiated heavy lifting involved in running your application.

Software as a Service (SaaS)

SaaS provides you with a complete product that is run and managed by the service provider. In most cases, people referring to SaaS are referring to end-user applications (such as web-based email). With a SaaS offering, you don't have to think about how the service is maintained or how the underlying infrastructure is managed. You only need to think about how you will use that particular software.

Type of Cloud Computing

Infrastructure as a Service (IaaS): Examples (e.g., AWS EC2, Google Compute Engine), use cases, and benefits.

Platform as a Service (PaaS): Examples (e.g., Google App Engine, AWS Elastic Beanstalk), development focus.

Software as a Service (SaaS): Examples (e.g., Google Workspace, Microsoft 365), user perspective.

Function as a Service (FaaS)*: Serverless computing, examples, and benefits.
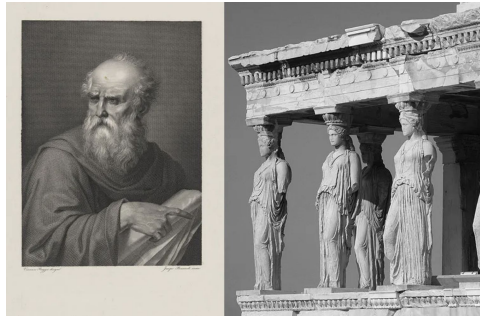
"Scientists study the world as it is; engineers create the world that has never been." - Theodore von Kármán

Engineer's are builder by heart

Story of Marcus

Firmitas Utilatas et Venustus

Benefits of cloud computing

Scalability

Cost Efficiency

Accessibility

Disaster Recovery

Examples of scalability

1. Netflix encodes all its video in AWS on as many as 300,000 CPUs at one time. That's larger than most super computers!

2. *Stranger Things* season 2 has even more files. It was shot in 8K and has nine episodes. The source video files were many, many terabytes of data. It took 190,000 CPU hours to encode just one season.

Security

Data Security: Encryption, data integrity, and privacy concerns.

Compliance: Regulatory requirements (e.g., GDPR, HIPAA).

Identity and Access Management (IAM): Managing user access and roles.

Cloud Native Technologies

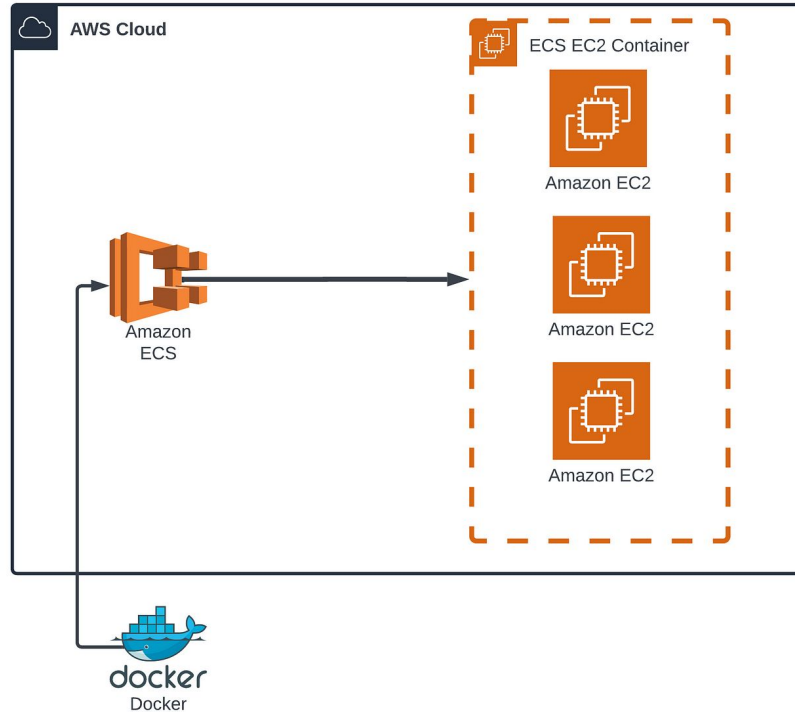**Containerization**: Docker, Kubernetes, and container orchestration.

Microservices Architecture: Designing applications for the cloud.

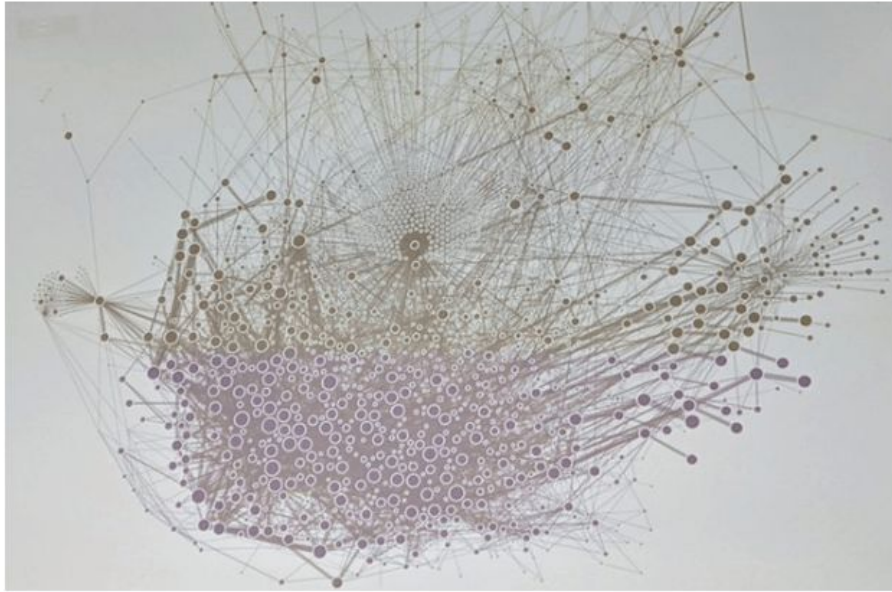**DevOps and CI/CD**: Continuous integration and delivery pipelines.

Serverless Computing: Benefits and use cases of serverless architectures.
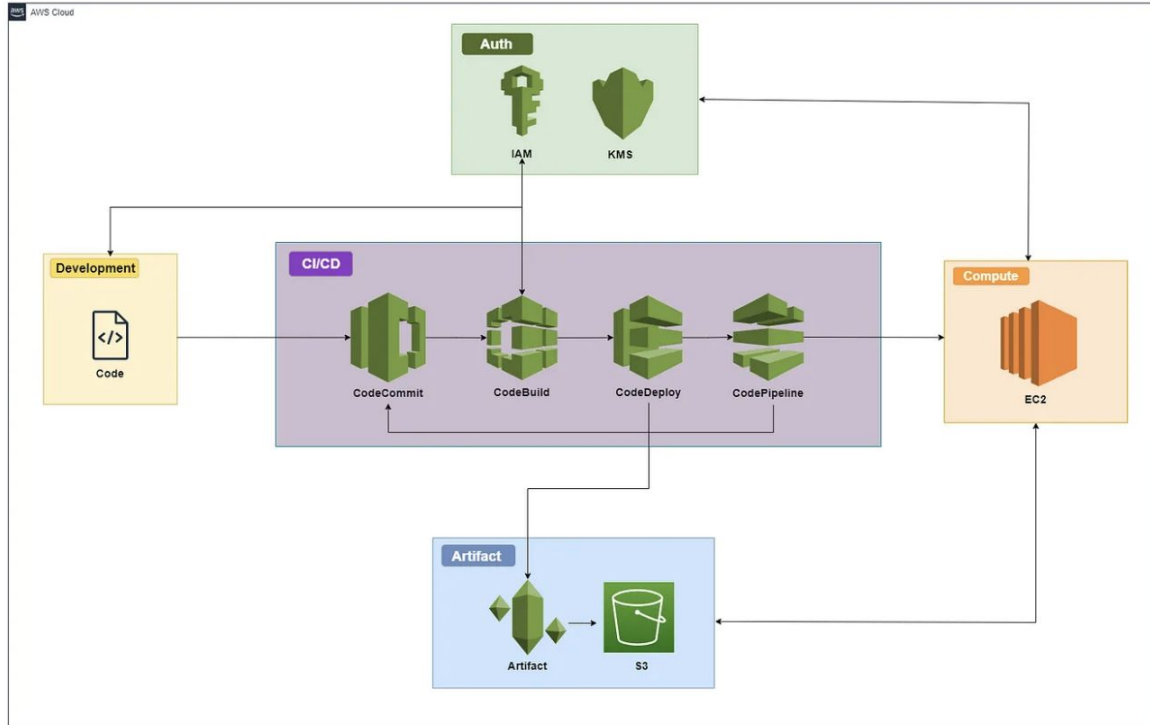
Cloud Native Technologies(container)

Cloud Native Technologies(micro services)

Cloud Native Technologies(CI/CD)

Cloud Native Technologies(Serverless computing)

Demo

1. EC2
2. DDB
3. S3
4. Lambda

Questions?

References

1. https://www.readerscave.com/articles/cloud-computing-jokes/6590/2
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3. https://www.elemento.cloud/post/the-evolution-of-cloud-computing-from-the-early-ideas-of-john-mccarthy-to-modern-platforms
4.