DEVOPS IN CLOUD NATIVE ENVIRONMENT

What is Cloud Native Environment?

- Cloud Computing is an approach in software development that utilizes cloud computing to build and run scalable applications in modern, dynamic environments such as public, private and hybrid clouds.

What is DevOps?

- DevOps is a methodology or an operating model that establishes an Agile relationship between growth and IT operations. The primary goal of DevOps is to automate the processes between software development and IT teams, DevOps builds, tests and releases software faster.

Setting up Cloud Native DevOps

- Cloud Native DevOps is a set of principles that describe how people work to build, deploy and manage apps in a cloud native environment.
- Nowadays adopting cloud native DevOps is necessity for enterprise looking to build apps faster and deploy them in a robust IT environment in order to be innovative, responsive and competitive.
- Cloud native DevOps bring several benefits to an organization like

1. Continuous software development
2. Faster issue resolution
3. Productive teams
4. Faster innovation.

Technologies Of Cloud-Native DevOps

CI/CD - Continuous Integration and continuous Deployment are the backbone of the modern DevOps environment.

Infrastructure as Code – It is the process of managing and provisioning computer data centers through machine-readable definition files. YAML

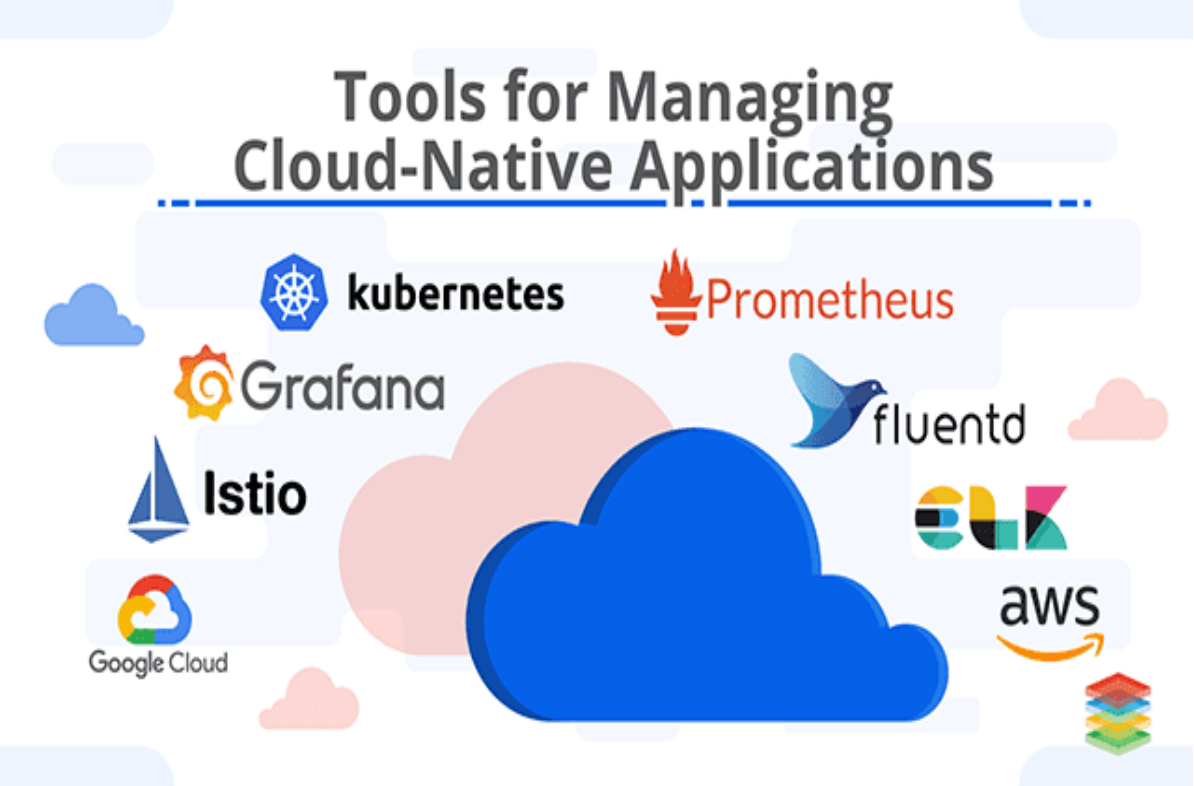
Microservices – In a micro services architecture, services are fine-grained and the protocols are lightweight.

Monitoring and Logging – Cloud Native applications require a different monitoring approach. One that can include: external polling, centralized logging, metrics and request tracking.

How do cloud native services work?

- Building and managing Cloud-Native applications automate and uses the concepts of DevOps, continuous Deployment, Microservices and deploying Microservices in containers.
- Each microservice is usually deployed, scaled and managed independently of other Microservices.
- Containers usually manage all Microservices as distinct independent services, Docker and Kubernetes come into the picture.
- Containerization is the best way to deploy and manage them. Containers are lightweight and provide the own isolation for packaging Microservices into single units.

Tools For Managing Cloud-Native Applications



Fluentd – Used for logging. It collects and shares log data and sends to log aggregations tools such as AWS CloudWatch.

Prometheus – Monitoring tool which records Time-Series data for distributed Microservices.

Kubernetes – Container orchestration system to deploy and manage containers.

ELK Stack – Provides complete monitoring solution.

Grafana – A visualization tool.

AWS, Google Cloud – Provides Cloud computing services.

Istio – Enables Service Mesh.

How Do DevOps Work On GCP?

- GCP supports DevOps efforts by providing services to build, store and deploy apps. DevOps features are accessible in Google Cloud Platform.
- GCP used to build apps with better and long lead times and development cycles. Continuous Delivery/Continuous Deployment (CI/CD) world, new versions launching which require a Continuous Integration/ Continuous Deployment (CI/CD) framework.
- DevOps Build is the company's fully-managed Continuous Integration/Continuous Delivery (CI/CD) platform comprising DevOps build, test, and deploy the software at a faster scale.

Why DevOps in GCP?

- Get Started Fast
- Automation
- Fully Managed Services
- Built for Scale
- Programmable
- Secure.

DevOps in AWS

- AWS provides a set of flexible services designed to enable companies to more rapidly and reliably build and deliver products using AWS and DevOps practices.
- These services simplify provisioning and managing infrastructure, deploying application code, automating software release processes, and monitoring your application and infrastructure performance.

Why DevOps in AWS?

- Get Started Fast
- Fully Managed Services
- Built for Scale
- Programmable
- Secure
- Large Partner Ecosystem.

Comparison of Pros and Cons

Pros Of Cloud-Native Environment	Cons Of Cloud-Native Environment
Cloud-native solutions are easier for the design and construction of a resilient cloud architecture.	Cloud-native solutions are not easily relocatable from one cloud provider to the next.
Cloud-native solutions offer easy relocation of apps from one infrastructure to another.	Cloud-native solutions involve a dependence on native APIs, which may require a significant level of code rewriting when moving from one cloud provider to another.