DevOps Demystified

ESSENTIAL CONCEPTS AT A GLANCE

What is Serverless Computing?

A cloud-computing model where developers focus on writing code while the cloud provider manages the underlying infrastructure.

What is Cloud Computing?

pay-as-you-go basis.

n simple terms, cloud computing allows you to
access and use technology resources remotely
without needing to own or manage them locally

What is Infrastructure as

Code (IaC)? Infrastructure as Code (IaC) is a practice that uses code to define, provision, and manage computing infrastructure. It ensures consistency, scalability, and deployment and maintenance using figuration files stored in version coi

What is CI/CD?

CI/CD stands for Continuous

Integration and Continuous Delivery/Deployment. It is a methodology that automates the

processes of building, testing, and eploying applications to streamling

ware development and delivery

Git is a distributed version control system, VCS) used to track changes in source cod during software development. It enables multiple developers to work on the same ject simultaneously without interfering wi each other's work. Git allows for efficient anching, merging, and collaboration, mal it one of the most widely used tools in software development today.

What is Git?

What is Software Development Git pull vs Git fetch git fetch: Downloads changes from the note repository without affecting your

Life Cycle (SDLC)? local branch. It lets you review updates before deciding to merge them manually git pull: Downloads changes from the to deployment and ongoing maintenance. It ensures a systematic and efficient approach to building software, meeting user needs, and maintaining high quality throughout the project remote repository and automatically rges them into your current branch. It's e-step command to update your brancl

What is Agile?

collaboration, frequent feedback, and adaptability, making it highly effective in dynamic environments. By using frameworks like Scrum and Kanban, Agile enables teams to

work efficiently, improve continuously, and respond quickly to changes.

Agile is a flexible and iterative appr software development that focus elivering value to the customer through

What is DevOps?

(Ops) teams. Its primary goal is to improve silaboration, automate workflows, and enhan the efficiency of delivering software and IT services.

What is version control system?

A Version Control System (VCS) is a tool that helps you manage changes to files, code, or projects over time. It keeps track of every change, who made it, and when, allowing you to collaborate with others, revert to previous versions, and avoid losing work.

What is Release Management?

The process of planning, scheduling and controlling software releases to ensure smooth delivery.

It's used to selectively bring in anges you need without affectin

Git cherry-pick

git cherry-pick: Applies a specific

without merging the entire branch.

system? helps you manage changes to files, code, or projects over time. It keeps track of every change, who made it, and when, allowing you to collaborate with others, revert to previous versions, and avoid losing work.

What is Trunk Based development?

A development strategy where all levelopers commit code to a single branch, minimizing merge conflict and enabling frequent releases.

What are Feature Toggles?

A technique to enable or disable features in applications without deploying new code.

What is version control

What is Continuous testing:

Continuous testing is a software testi actice that involves executing automates. ntinuously throughout the softwa oment lifecycle (SDLC) to provid mmediate feedback on the quality of the code. The goal is to detect defects early, mprove code quality, and ensure that the ware meets the desired requirement at every stage of development.

What is CI/CD

pipeline?

build, test, and deploy applications more

the seamless and automated release of

iently. It integrates CI and CD to ensu

eline is a set of automate

What is Code Quality Analysis?

The process of assessing code to maintainability, security, and efficiency using automated tools

What is A/B testing?

Testing two versions of a feature t compare their performance and determine the better option.

What is GitOps?

A methodology that uses Git as the single source of truth for managing infrastructure and applications using tools such as ArgoCD.

What is Microservice?

single application is divided into a set of smaller, loosely coupled services, each running in its own process and communicating with each other through stweight mechanisms (eg: http apis). Each vice is responsible for a specific business are believed and the part of specific business. apability and can be developed, deploye

What is a Container?

What is Containerization?

more efficient, and scalable dep across different environments.

What is Orchestration?

ing, ensuring that applications run smoc efficiently in a cluster environment with anual intervention. Kubernetes provides ust orchestration framework to manage

What is Immutable Infrastructure?

yment. If changes are required, new inces are created and old ones are

What is Automated Rollback?

automatically when failures are detected, ensuring stability.

What is Blue-Green

Deployment?

What is Canary Release?

What is Configuration Drift?

inconsistent with its intended cobriguration, of due to manual changes, lack of automation, inadequate monitoring. To mitigate drift, Devf practices like laC, version control, configurati management tools, and automated monitori are essential to maintain consistency and en at that systems remain in desired, stable state

nent is a depl

ue-Green deployment is a deployment tegy that reduces downtime and risk by running two identical environments-ue(current production) and Green(new What is Docker? ion). The idea is to switch traffic to the r version(Green) only after it has passed tests and to quickly roll back if any issues arise.

What is Kubernetes? Kubernetes is an open-source orchestration platform that omates deployment, scaling, ar managmenet of containerized applications.

What is Horizontal Scaling?

Adding more instances or nodes a system to handle increased demand.

What is Vertical Scaling?

ncreasing the capacity of existin resources (e.g., CPU, RAM) to handle higher workloads.

What is **Observability?**

The ability to understand sys performance and behavior by analyzing its outputs (logs, metrics and traces) to quickly identify and

What is Monitoring?

The process of collecting and analyzing data from systems to sure they are functioning prope and detecting anomalies.

What is SRE?

Site Reliability Engineering is a disciple that applies software engineering practices to infrastructure and operations to create scalable and reliable

What is

DevSecOps? grating security practices in evOps processes to ensure that applications are secure by desian.

What is Shift-left testing?

Moving testing earlier in the velopment process to identify ar resolve issues sooner

SLA, SLO, SLI

SLA (Service Level Agreeme

What is Incident Response?

The structured approach to detect investigate, and resolve issues that disrupt services.

What API Gateway?

A tool that acts as a single entry point for managing and routing API requests to various backend services.

What Load **Balancing?**

ting incoming traffic across tiple servers to ensure reliabilit and prevent overload.

What Artifact Management?

storing and managing build artifacts (eg: binaries, dependencies) in a repository for each retrieval.

What Cloud-Native **Architecture?**

technologies like microservices, contain chestration (e.g., Kubernetes) to enable f. opment and seamless scaling. This appro es applications adapt dynamically to char demands while remaining highly reliable.

DevOps Dojo

TRAINING GROUND FOR TECH