Lab Assignment 2 CMT

Max Shahrokni

TASK 1

- Continuous Integration vs Continuous Delivery

Practicing "Continuous Integration", developers want to merge their code to the main branch. The build and testing process is automated, the application then gets deployed manually if the testing process has been successful.
"Continuous Delivery" takes it one step further and automates the deployment of successful builds aswell.

- Jenkins vs Gitlab

Open-source build automation tools for CI/CD. Both good tools, however Gitlab being the platform offering most features.

- Software Defined Networks (SDN)

An approach to networking which allows for centralized network management through software applications.

- Openflow

This is an open communications protocol that acts on the data link layer (L2) of the OSI model and provides access to the data plane/forwarding plane of a router or switch.

- Control Plane vs Data Plane

The control plane is anything that's needed in order to get routing working on a router or switch. The data plane(forwarding plane) is traffic that goes "through" the device, as opposed to originating from the device or having it as final destination.

- Microservices

✗ API Gateway

The API Gateway takes API requests from a client and determines which services are needed, and combines them into a unified, seamless experience for the user.

✗ What is a service?

Services are defined components of a bigger service oriented architecture(SOA).

✗ Benefits of microservices

This modular approach facilitates development, testing, troubleshooting etc.
Services are implemented and deployed independently, this allows easier scaling.

- ✗ Concerns regarding microservices

Designing the architecture, delimiting the services may prove difficult.
Network latency increases in contrast to a monolithic architecture.
Inter-service communication and storage is more difficult.
Compatibility issues may arise.

- ✗ Service discovery

There are different implementations for service discovery, however the core idea is finding the network location of a service provider.

- Inter-Service Communication

- ✗ REST

Is an acronym which stands for REpresentational State Transfer and is an architectural style for providing standards between computer systems on the web.

- ✗ RPI /RPC

RPI is an acronym which stands for Remote Procedure Invocation and is a protocol that anyone can use to access services from any other providers located remotely in the network, without the need of understanding the network details.

RPC is an acronym which stands for Remote Procedure Call and is an interprocess communication technique, when a computer program causes a procedure to execute in a different address space, without the technician needing to address the details for the remote interaction.

- ✗ gRPC

This is a modern open-source RPC framework developed by google, that runs in any environment. Most common usage is connecting services in microservices style architecture and connect mobile devices, browser clients to backend services.

- ✗ Message Queues

Message queue is a form of service-to-service communication used in serverless and microservices architectures.

- ✗ AMQP

This acronym stands for "Advanced Message Queing Protocol". It is a standard for asynchronous messaging by wire.

- ✗ RabbitMQ and Kafka

In short; these are message brokers.

- Storage

✗ Openstack Cinder vs GlusterFS

GlusterFS is an open source, distributed file system, while Cinder is the OpenStack Block Storage.

✗ Openstack Swift vs S3 Storage

Object Storage from Openstack and Amazon, similar in features.

✗ Block storage vs. File Storage vs. Object Storage

Block Storage divides data into blocks and stores them as separate pieces. It is usually deployed in storage-area network (SAN).

File Storage is precisely what it sounds like, data is stored as a single file inside a folder.

Object Storage, data is broken into discrete units called objects and is kept in a single repository, instead of being kept as files in folders or as blocks on servers.

- Kubernetes

✗ RBAC

Another acronym standing for "Role Based Access Control", this is a method of regulating access to computer or network resources based on the roles of individual users within an enterprise.

✗ Persistent Volumes vs Persistent Volume Claims

A persistent volume(PV), is the "physical" volume on the host machine that stores your persistent data. A persistent volume claim(PVC), is a request for the platform to create a PV.

✗ Storage Classes

This provides a way for administrators to describe the classes/types of storage they offer.

✗ Ingress Controllers

An Ingress Controller must be present to expose routes from outside the cluster to services within the cluster.