Microservices.

Why Microservices?.

=> • The Most Popular Architecture Paradigm.

- Not Tied to specific Technology.
- solves Real Problems.
- In High Demand in the Job-Market.
- Generates a Lot of Buzz.

Companies using Microservices.

=> NETFLIX, facebook, amazon, Uber, ebay.

SOA

service Oriented Architecture

SOA projects used two complicated mechanisms:

- ESB
- WS-* protocol

Mapping the components.

Three approaches:

Data Duplication, service Query, Aggregation service.

Relational Database.

Microsoft SQL server, MySQL. Postgre SQL

NOSQL Database.

mongo DB, amazon DynamoDB, couchbase,

Azure CosmosDB.

cache

redis.

Why use CI/CD?

- faster release cycle.
- Reliability
- Reporting.

Why containers?.

Predictability
Performance
Density.

Why not containers?

Isolation.

Support for Docker

- Supported by all major operation systems (windows, Linux, OSX)
- Supported by major cloud providers

amazon ECR , Azure ACR

Containers Management

- Deployment
- Scalability
- Monitoring
- Routing
- High-Availability.

Microservices.

kubernetes provides all aspects of management.

- Routing
- scaling
- High-Availability
- Automated Deployment
- configuration Management
- And more...

Test Types.

- Unit Tests
- Integration Tests.
- End-to-End Tests.

Service Mesh services.

- Protocol conversion
- Communication security.
- Authentication
- Reliability. (timeouts, retries, health checks, circuit breaking)
- Monitoring.
- service Discovery.

Types of Service Mesh.

Two main types:

- In-Process
- side car.

In-Process vs side car.

In-Process	sidecar
Performance	Platform agnostic Code agnostic

Logging vs Monitoring.

Logging

- Recording the system's activity
- Audit
- Documenting errors.

Monitoring.

- Based on system's metrics
- Alerting when needed.

Types of Monitoring.

Infraustructure, Application.

Conway's Law

Describes the relationship between the organization and the software structure/architecture.