Spring Boot Microservices

Beginner to Guru

What Are Microservices?

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- Microservices small targeted services

- Each service has its own repository

- Microservices are isolated from other services

  - Should not be bundled with other services when deployed

- Microservices are loosely coupled

  - When interacting with other services, should be done in a technology agnostic manner

  - ie - Restful web services - HTTP / JSON

Microservice Architecture

- With a Microservice Architecture:

  - Applications are composed using individual microservices

  - Each service will typically have its own database

  - Each microservice is independently deployable

  - Scaling of individual services is now possible

  - CI/CD becomes easier since services are smaller and less complex to deploy

Benefits of Microservices

• Easy to understand & develop - Services are smaller and more targeted

• Software Quality - Since services are more targeted and have a limited scope

• Scalability - Independent services can be scaled up and down to the application's demands.

• Reliability - Software bugs are isolated

• Technology flexibility - Services can be developed using any language or technology stack.

Cons of Microservices

- Integration testing can be difficult

- Deployments are more complex. Rather than one application to deploy, you now have many.

- Operational cost with each service - Each service is a small application

  - Needs own repo, own deployment process, own database, etc

- Additional hardware resources - Additional services need additional hardware to run on

How 'Big' Should a Microservice Be?

- A microservice can be as small as a single API endpoint

  - ie - 'Get Orders'

- A microservice can be several or even dozens of API endpoints

- Answer is a topic of much debate

- Guideline - Amazon's Two Pizza Team - A microservice should be able to be supported be a team you can fed with two pizzas. (~12 people)

- Scalability - This can also be a consideration in the size of a microservice

  - The higher the scalability, the more specialized the service should be

SPRING FRAMEWORK

GURU