Microservices Architecture

Microservices architecture is a method of developing software systems that structures an application as a collection of loosely coupled services. Each service is independently deployable and organized around business capabilities.

Architecture Principles:
- Single Responsibility: Each service does one thing well
- Decentralized Governance: Teams choose appropriate technologies
- Fault Isolation: Failure in one service doesn't bring down others
- Independent Deployment: Services can be updated independently
- Technology Diversity: Different services can use different stacks

Benefits:
- Scalability: Scale individual services as needed
- Flexibility: Different teams can work independently
- Resilience: System continues working if one service fails
- Faster Development: Smaller codebases are easier to maintain

Challenges:
- Distributed System Complexity
- Network Latency
- Data Consistency
- Service Discovery
- Testing Complexity