Java most popular system architectures Essentials: a Quick Guide

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Supported by Java frameworks like Spring and Jakarta EE

Commonly used to design and build robust, scalable, and maintainable apps

Microservices Architecture

Breaking down applications into small, independently deployable services, facilitating scalability and agility.

Java frameworks like Spring Boot and Micronaut are commonly used for building microservices.

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Monolithic Architecture

Traditional approach where all components are tightly coupled and deployed as a single unit.

While simple to develop and deploy, it may suffer from scalability and maintainability issues as the application grows.

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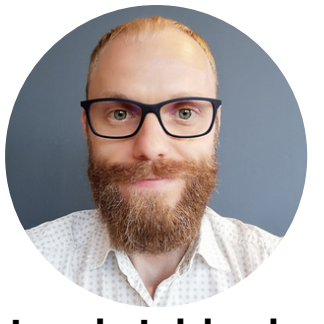
Service-Oriented Architecture (SOA)

An architectural style where application components are designed to be loosely coupled and interact through services.

These services are typically self-contained, reusable, and can be accessed remotely over a network.



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Event-Driven Architecture (EDA)

Based on events triggering actions, allowing for asynchronous communication and scalability.

Java frameworks like Spring Cloud Stream and Apache Kafka are often used to implement EDA.

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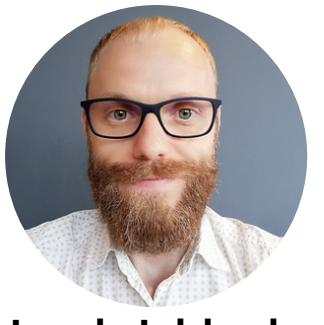
Domain-Driven Design (DDD)

Modeling systems based on domain logic, enhancing collaboration between domain experts and developers.

Java frameworks like Axon Framework and Hibernate can be used to implement DDD principles.



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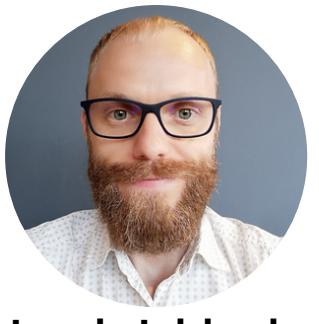
Hexagonal (Ports and Adapters) Architecture

Separating core logic from external concerns via adapters, promoting flexibility and maintainability.

It consists of an inner core representing the domain logic, surrounded by adapters that handle communication with external systems.



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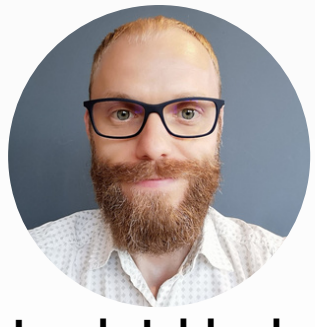
These architectures are not mutually exclusive, and often elements from multiple architectures are combined to suit the specific requirements of an application. Choosing the right architecture depends on factors such as scalability needs, development team expertise, and project requirements.



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