Modern Application Development: Microservices Architectures

Modern architecture for business agility

The proliferation of fast, affordable computing has allowed companies of all sizes to create internal efficiencies and reach more customers through digital products. However, the ubiquity of tools, multiple paths to market, and changing consumer preferences means that businesses must innovate faster than ever to remain competitive. The way that digital products have been traditionally built just isn't fast enough to enable the innovation that's needed to win in the market.

New architectural patterns

New architectural patterns like microservices allow organizations to accelerate the pace of innovation. Modern applications built with microservices architectures enable innovation by distributing the effort and investment needed to test and deliver changes to the market. They allow fine-grained resource optimization and enable teams to rapidly scale both in how they build products and how they run them.

What defines a microservices architecture?

Specialized

Each service is designed for a set of capabilities and focuses on solving a specific problem. If developers contribute more code to a service over time and the service becomes complex, it can be broken into smaller services.

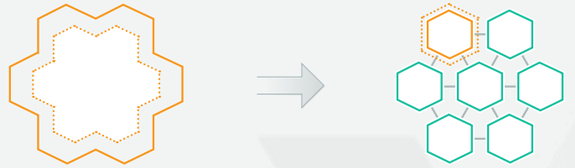
Distributed

A microservices architecture breaks your application from a single process into multiple components that work together to deliver value. Any communication between individual components happens via well-defined APIs.

Autonomous

Each component service in a microservices architecture can be developed, deployed, operated, and scaled without affecting the functioning of other services. Services do not need to share any of their code or implementation with other services.

A monolithic architecture may work today, but challenges often arise as your business grows. Microservices help you address common challenges like scaling up and deploying new features quickly.



Breaking a monolith

Breaking a monolith can be intimidating. Give your team some practice by inviting them to complete an AWS project that will walk them through the process of breaking a monolith into microservices. Try the tutorial

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Moving to microservices

Adopting a microservices architecture doesn't necessarily mean refactoring your code base all at once. See how Yelp refactored their monolithic application one step at a time using AWS Step Functions. **Read the case study**

The microservices advantage

Microservices architectures are built with discrete, modular elements that work together. While this modularity does come with the challenge of increased code "surface area," it also offers key advantages for innovating faster; scaling independently; reducing the impact of failures; and allowing for distributed code development.

The benefits of microservices

1. Agility: Working on individual components allows a small team to be more nimble, and to respond to issues or opportunities faster.

2. Easy Deployment: Microservices reduce the size of changes, making it easy to try out new ideas and to roll back if something doesn't work.

3. Technological Freedom: Microservices architectures give teams the freedom to choose the best tools to create each part of an application.

4. Scalability: Microservices allow each service to be independently scaled to meet demand for the application feature it supports.

5. Resilience: Microservices reduce the impact of failure to a single part of the application. This means any individual component failure only degrades functionality instead of crashing the entire application.

6. Reusable Code: Dividing software into small, well-defined modules enables teams to use functions for multiple purposes within an application. This allows an application to build off itself, as developers can create new capabilities without writing code from scratch.

Microservices for modern applications

Microservices help your organization improve application resiliency and optimize team productivity. As a result, development teams are able to experiment and innovate faster, to release the products and features that deliver a competitive advantage.

AWS offers building blocks that make it easy to create, deploy, and run production microservices in the cloud.

Visit us to learn more about the potential of microservices in your business.