

MICROSERVICES AND ENTERPRISE APP DEVELOPMENT

A Guide to
Scalable Solutions



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Understanding Microservices and Enterprise App Development

A Gartner survey says that by the end of 2023, over 80% of all enterprise software will be built using a microservices architecture. The State of Microservices Maturity Report found that 61% of respondents experienced improved application resilience after transitioning to microservices.

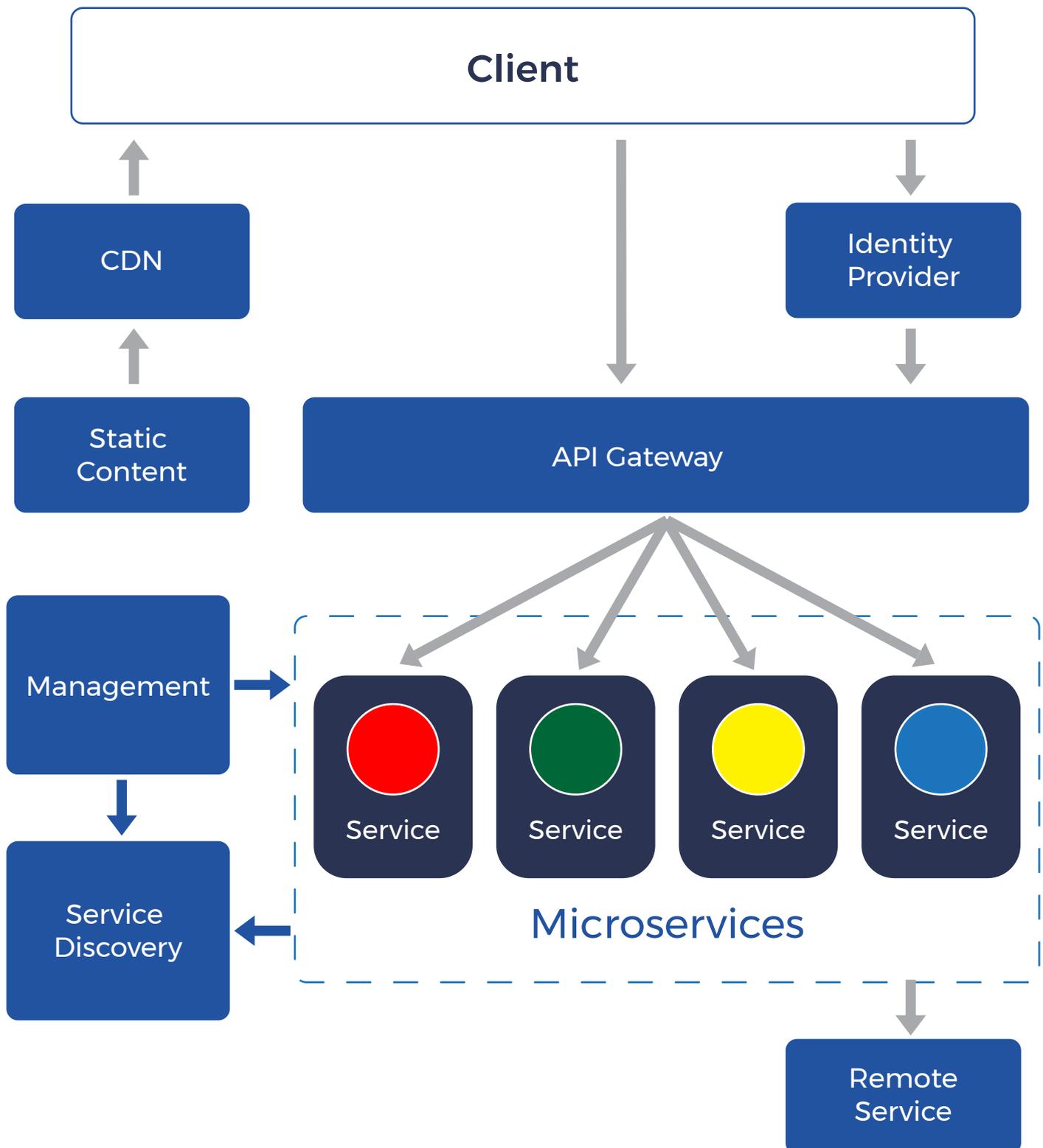


In the fast-paced digital landscape of today's business world, enterprises are constantly seeking ways to develop and deploy applications that are not only innovative but also scalable and efficient.

Microservices architecture has emerged as a powerful solution to address these needs. This ebook will explore the impact of microservices on enterprise app development.

Microservices architecture is a software development approach where applications are built as a collection of small, independent services that communicate with each other through APIs. Each microservice is focused on a specific business capability and can be developed, deployed, and scaled independently. This stands in contrast to monolithic architecture, where applications are built as a single, tightly integrated unit.

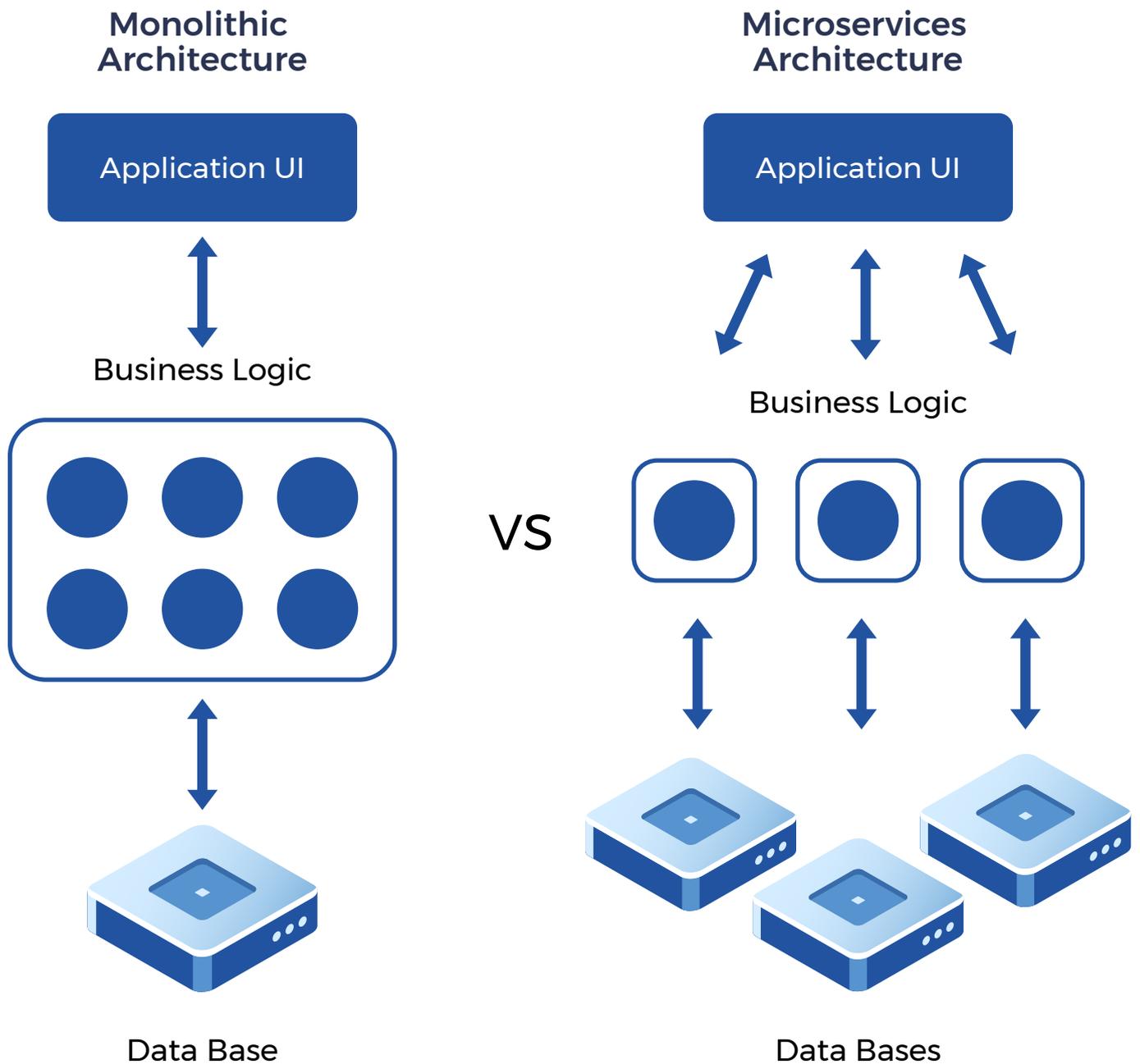
Microservices Architecture



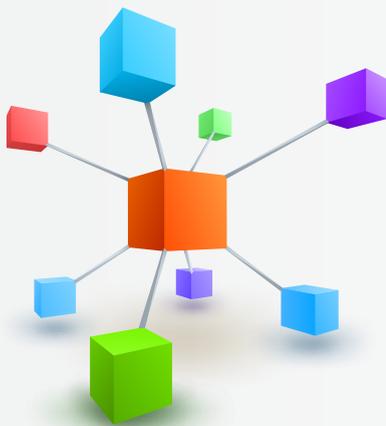
Monolithic Vs Microservices Architecture: A Comparison

Aspect	Monolithic architecture	Microservices architecture
Structure	Single, tightly integrated application	Distributed, loosely coupled services.
Scalability	Vertical scaling (scaling entire app).	Horizontal scaling (scaling individual services).
Development	Single codebase, centralized development	Decentralized development for each service.
Deployment	All-in-one deployment.	Independent service deployment.
Technology stack	Shared technology stack.	Diverse technology stacks for services
Flexibility	Limited technology choices.	Flexibility in choosing tech for each service.
Maintenance	Can be complex due to tightly coupled code.	Easier maintenance of isolated services.
Fault isolation	One component failure can affect the whole app.	Faults contained within individual services.

The difference between the monolithic and microservices architecture



There are three fundamental principles that guide the architecture of microservices:



Gradual Development is Key:

It's essential to refrain from attempting to create microservices from the outset. Instead, take the time to thoroughly comprehend the application's maturity, intricacies, data structures, and communication protocols.

Avoid Premature Fragmentation:

Rushing into segmenting an application prematurely can lead to significant issues. It's important not to divide an application without a clear understanding of how it interacts with the core application.



Behavior-Oriented Over CRUD Services:

The focus of microservices should not be on building simple CRUD (Create, Read, Update, Delete) operations. Instead, microservices should provide HTTP APIs that encapsulate behaviors and actions, such as sending a particular report to a specific user. These APIs should reflect actions and not be tied to the structure of the underlying database



Microservices and Enterprise App Development:

A Guide to Scalable Solutions

Impact of Microservices on Enterprise App Development



01 Enhances Scalability and Agility

Microservices architecture is centered around the idea of breaking down complex applications into smaller, manageable components known as microservices. This approach allows organizations to scale each microservice independently based on demand, resulting in enhanced resource utilization and improved application performance. A recent survey has found that 72% of organizations reported improved scalability with microservices architecture.

02 Accelerates Time-to-Market

A DZone report highlighted that 61% of organizations using microservices experienced faster time-to-market for new features. Besides, companies implementing microservices deployment changes up to 200 times more frequently than those using monolithic architectures, as per the State of DevOps Report.

Microservices enable development teams to work concurrently on individual microservices, reducing development cycles and accelerating time-to-market for new features and updates. This agility is invaluable in industries where staying ahead of competitors is crucial.



03 Better Fault Isolation and Resilience

Microservices offer better fault isolation, where failures in one microservice do not necessarily impact the entire application. This resilience minimizes downtime and provides a robust user experience. Netflix, a pioneer in microservices, maintains high availability with a fault-tolerant design, even in the face of component failures.



04 Offers Flexibility in Technology Stack

Enterprises can select the most suitable technology stack for each microservice, optimizing performance for specific tasks. This flexibility enhances overall application efficiency. Companies like Uber and Amazon utilize microservices to optimize their technology stacks for different functionalities within their platforms

05 Enhances Collaboration and Maintainability

Microservices foster smaller, specialized development teams, promoting accountability and ownership. This structure enhances team collaboration, decision-making speed, and overall productivity. The modular nature of microservices simplifies maintenance and updates, allowing for incremental improvements without overhauling the entire application.

While microservices offer numerous advantages, they also introduce complexities in terms of inter-service communication, data consistency, and managing a distributed architecture. Organizations must carefully navigate these challenges to maximize the benefits.



Streamline your Enterprise App Development with Skillmine.



Skillmine is a frontrunner in the IT and Tech industry, with a proven track record of delivering high-quality, effective, efficient, and user-friendly tech solutions. Our professionals provide tailor-made enterprise app solutions, leading enterprises from the initial strategy and preparation stages to flawless deployment, guaranteeing effective execution, and seamless incorporation.

We construct applications that are not only scalable and adaptable but also in tune with

contemporary standards. These applications align perfectly with your business goals, empowering you to present a transparent business model to your clientele. Our suite of enterprise application development services encompasses a comprehensive range of activities, including organizational evaluation, meticulous design and development, informed tech stack consultation, rigorous testing, and unwavering support and maintenance.

CASE STUDY

A leading financial services company wanted to overhaul their existing monolithic enterprise application to develop a cutting-edge software that scales seamlessly. The existing monolithic application had become unwieldy, leading to challenges in maintenance, scalability, and the ability to adapt quickly to changing market demands. The development team struggled with long release cycles, limited scalability options, and difficulties in introducing new features without disrupting the entire application. The company approached Skillmine with their requirements.

The development team at Skillmine conducted a comprehensive analysis of the existing application, identifying the different functionalities and their dependencies. We identified key business functionalities that could be broken down into

independent microservices. For each microservice, clear and concise APIs were designed that would facilitate communication between services. A diverse technology stack that suited the specific requirements of each microservice was adopted

The transition to microservices architecture brought about remarkable transformations for the company. The company could scale individual components based on demand, resulting in optimized resource utilization and improved application

performance. The development cycles were shortened significantly due to parallel development on independent microservices and the modular architecture simplified maintenance and updates.



In short, transitioning from a monolithic architecture to microservices, helped the company accelerate change by enabling modular development, rapid deployment, and targeted scalability. This shift empowered the team to respond effectively to evolving demands, ultimately driving transformative growth and adaptability.

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- STRATEGY
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- STRUCTURE
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