MONOLITHIC ARCHITECTURE

MICROSERVICES ARCHITECTURE

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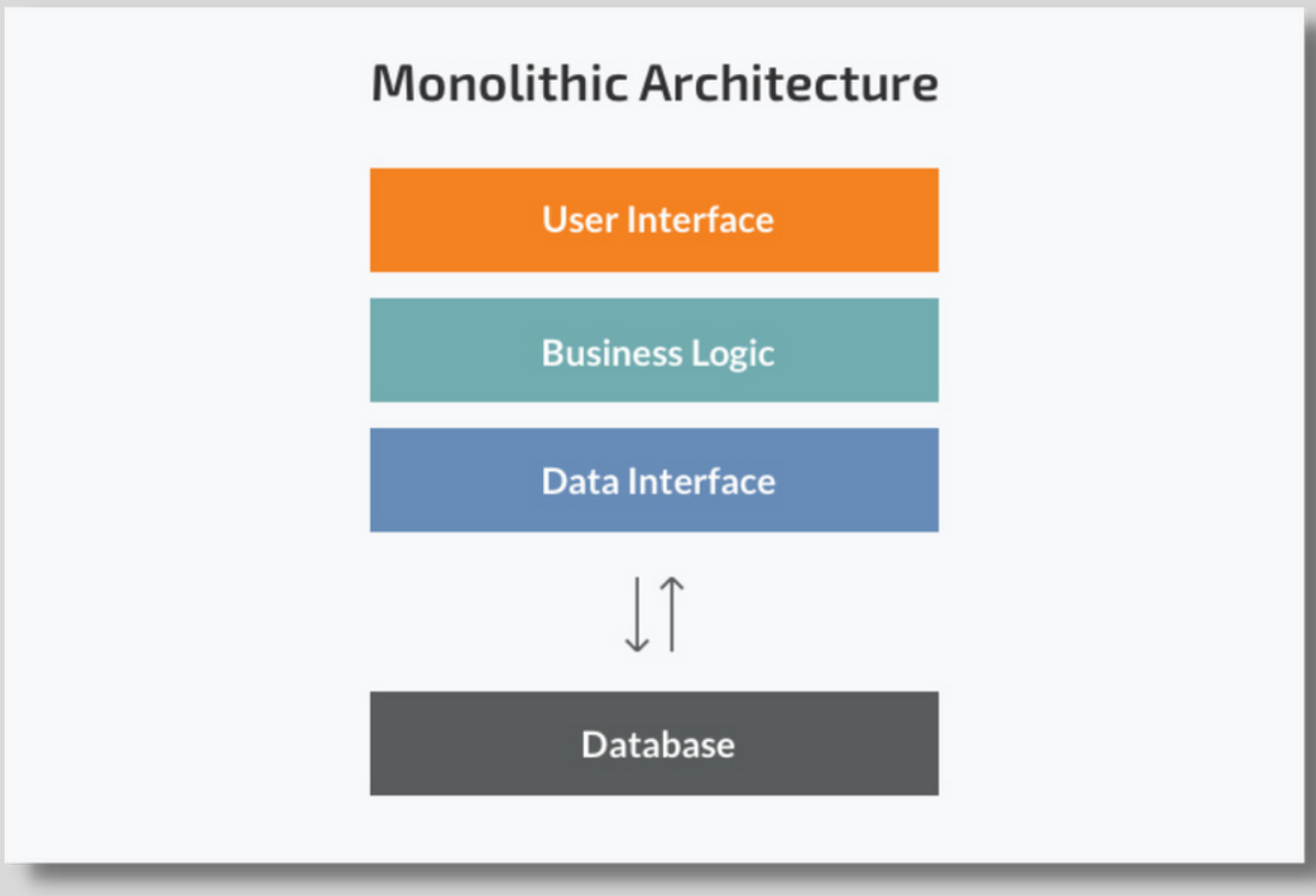
MONOLITHIC ARCHITECTURE

The monolithic architecture is considered to be a traditional way of building applications. A monolithic application is built as a single and indivisible unit. Usually, such a solution comprises a client-side user interface, a server side-application, and a database. It is unified and all the functions are managed and served in one place.

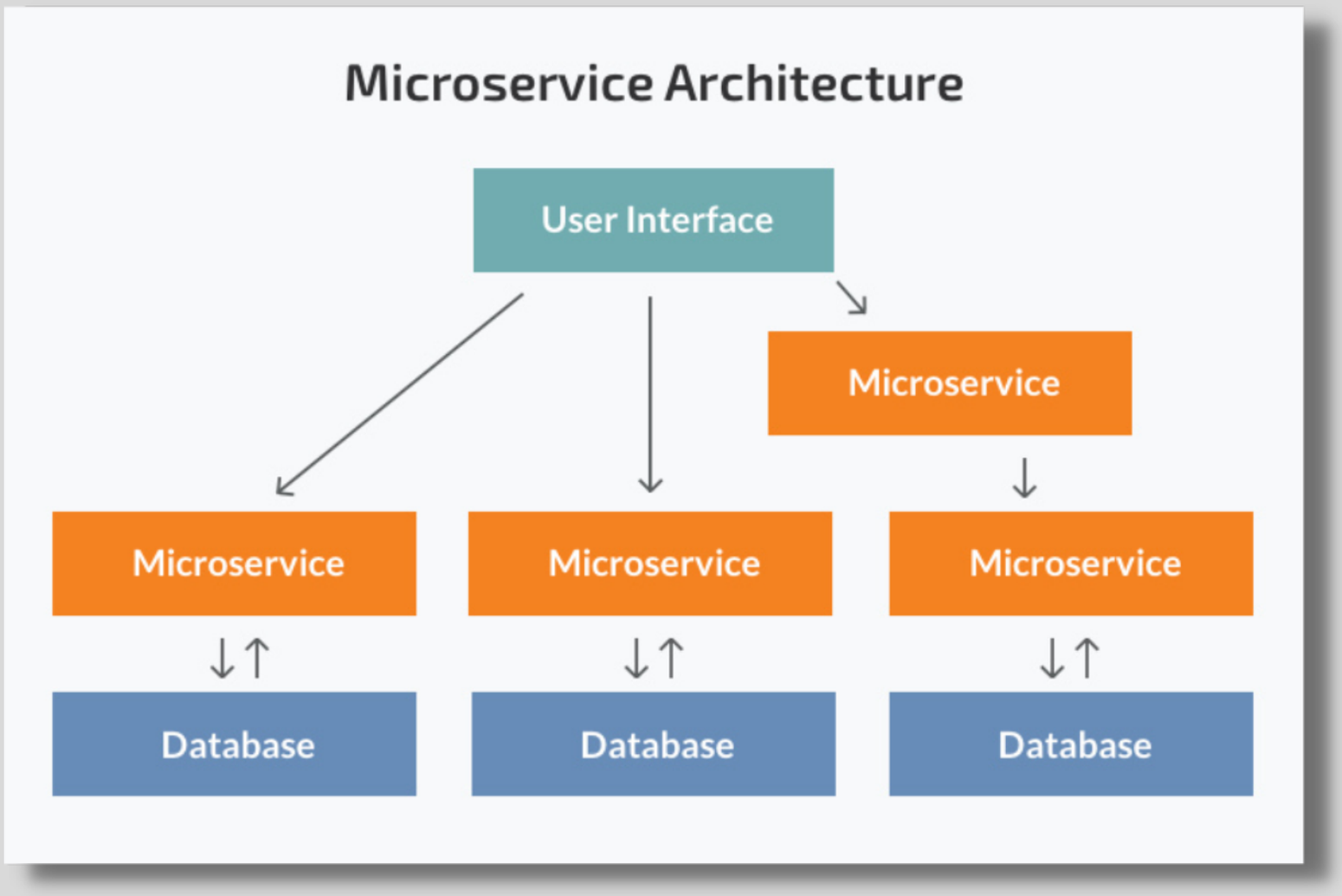
MICROSERVICES ARCHITECTURE

While a monolithic application is a single unified unit, a microservices architecture breaks it down into a collection of smaller independent units. These units carry out every application process as a separate service. So all the services have their own logic and the database as well as perform the specific functions.

MONOLITHIC ARCHITECTURE



MICROSERVICES ARCHITECTURE



Strengths of the Monolithic Architecture

Less cross-cutting concerns-

Cross-cutting concerns are the concerns that affect the whole application such as logging, handling, caching, and performance monitoring. In a monolithic application, this area of functionality concerns only one application so it is easier to handle it.

Strengths of the Microservice Architecture

Independent components-

Firstly, all the services can be deployed and updated independently, which gives more flexibility. Secondly, a bug in one microservice has an impact only on a particular service and does not influence the entire application. Also, it is much easier to add new features to a microservice application than a monolithic one.

Strengths of the Monolithic Architecture

Easier debugging and testing

In contrast to the microservices architecture, monolithic applications are much easier to debug and test. Since a monolithic app is a single indivisible unit, you can run end-to-end testing much faster.

Strengths of the Microservice Architecture

Easier understanding

Split up into smaller and simpler components, a microservice application is easier to understand and manage. You just concentrate on a specific service that is related to a business goal you have.

Strengths of the Monolithic Architecture

Simple to deploy. Another advantage associated with the simplicity of monolithic apps is easier deployment. When it comes to monolithic applications, you do not have to handle many deployments – just one file or directory.

Strengths of the Microservice Architecture

Better scalability

Another advantage of the microservices approach is that each element can be scaled independently. So the entire process is more cost- and time-effective than with monoliths when the whole application has to be scaled even if there is no need in it. In addition, every monolith has limits in terms of scalability, so the more users you acquire, the more problems you have with your monolith. Therefore, many companies, end up rebuilding their monolithic architectures.

Weaknesses of the Monolithic Architecture

Understanding-

When a monolithic application scales up, it becomes too complicated to understand. Also, a complex system of code within one application is hard to manage.

Weaknesses of the Microservice Architecture

Extra complexity.-

Since a microservices architecture is a distributed system, you have to choose and set up the connections between all the modules and databases. Also, as long as such an application includes independent services, all of them have to be deployed independently.

Weaknesses of the Monolithic Architecture

Making changes-

It is harder to implement changes in such a large and complex application with highly tight coupling. Any code change affects the whole system so it has to be thoroughly coordinated. This makes the overall development process much longer.

Weaknesses of the Microservice Architecture

System distribution-

A microservices architecture is a complex system of multiple modules and databases so all the connections have to be handled carefully.

Microservices vs Monoliths: Which should you choose?

Making the right decision of which architecture to choose depends on several factors. There are specific considerations you should look into before making the final decision.

- Small team. If you are a startup and your team is small, you may not need to deal with the complexity of the microservices architecture. A monolith can meet all your business needs so there is no emergency to follow the hype and start with microservices.

- Microservices expertise. Without proper skills and knowledge, building a microservice application is extremely risky. Still, just having the architecture knowledge is not enough. You need to have DevOps and Containers experts since the concepts are tightly coupled with microservices. Also, domain modelling expertise is a must

Microservices vs Monoliths: Which should you choose?

- A simple application. Small applications which do not demand much business logic, superior scalability, and flexibility work better with monolithic architectures.

- A complex and scalable application. The microservices architecture will make scaling and adding new capabilities to your application much easier. So if you plan to develop a large application with multiple modules and user journeys, a microservice pattern would be the best way to handle it.

- Quick launch. If you want to develop your application and launch it as soon as possible, a monolithic model is the best choice. It works well when you aim to spend less initially and validate your business idea.

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References:

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Microservices vs Monolith: The Ultimate Comparison 2022 (clickittech.com)