COMP 531

# Microservices Architecture

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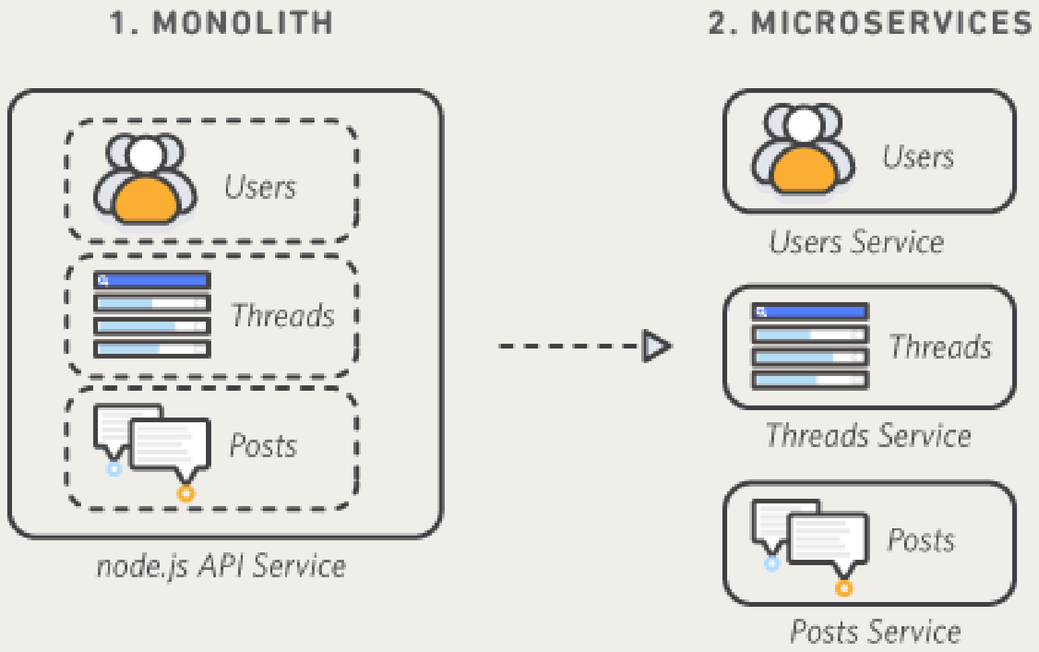
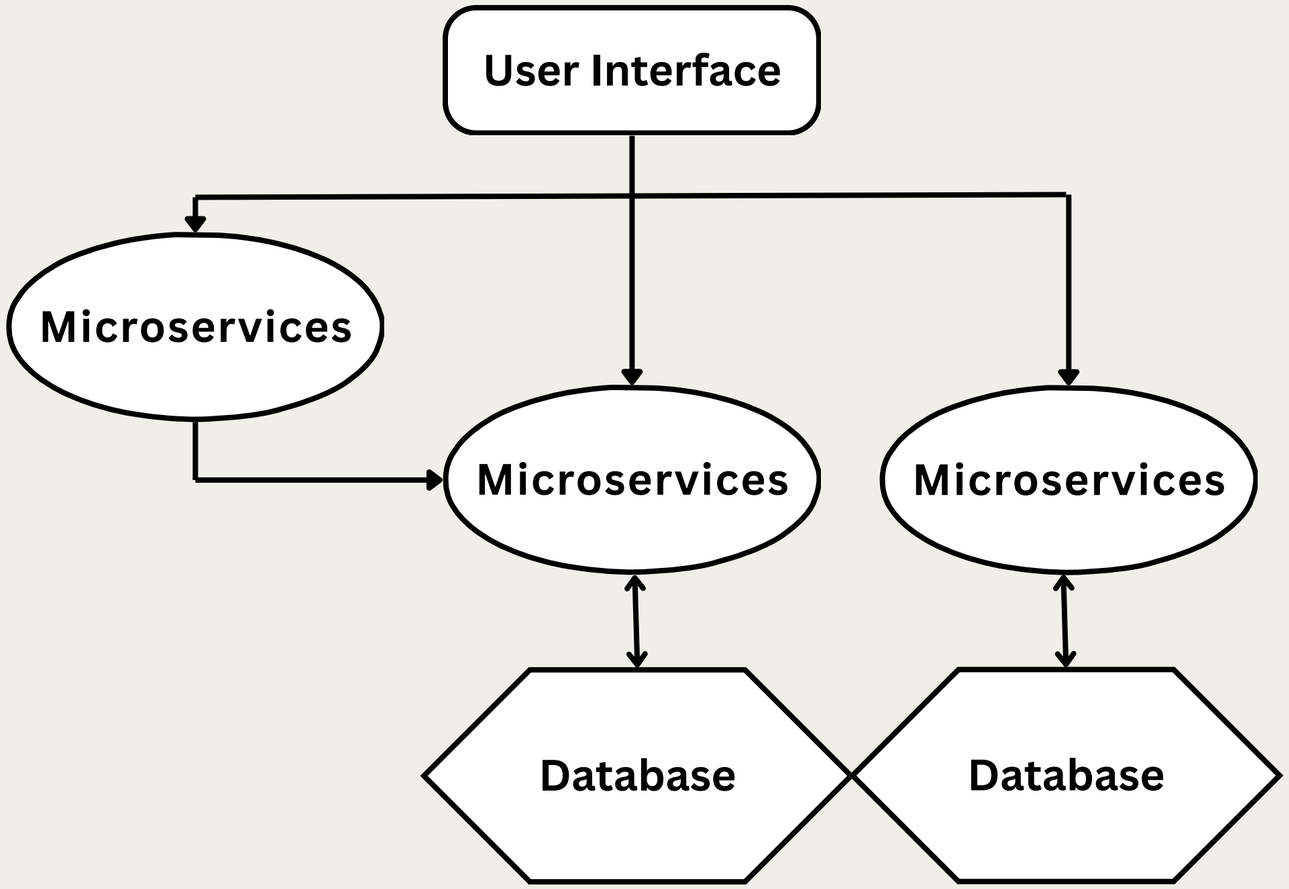
# What is Microservice architecture ?

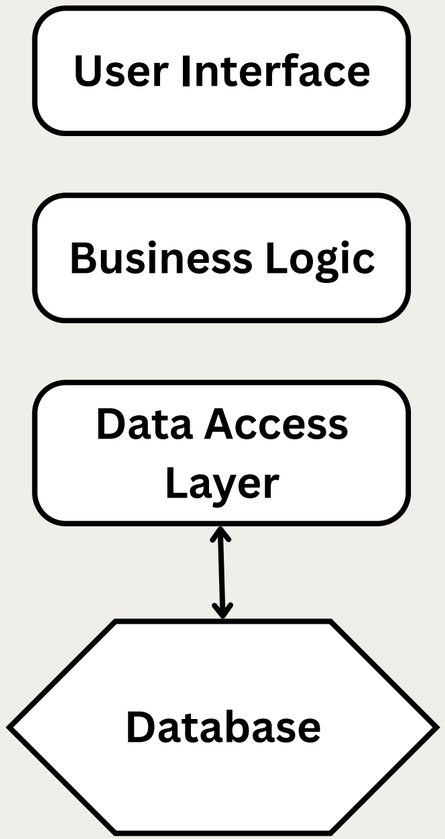
Splitting one backend server into multiple smaller servers.




ref: AWS-Microservices

# Microservices vs Monolithic



# Pros

**Deployment Independence**

Each services can be develope independently

**Technology Diversity**

Allowing different programming languages and technologies

**Effective Team Separation**

Each team can focus on developing their own services.

**Fault Tolerance**

Prevents failures from spreading across the entire system

**Reusability**

Each microservice focuses on a specific function, so it can be easily reused

# Cons

**Integration Challenges**

Integrating services requiew well-designed APIs to ensure seamless cooperation.

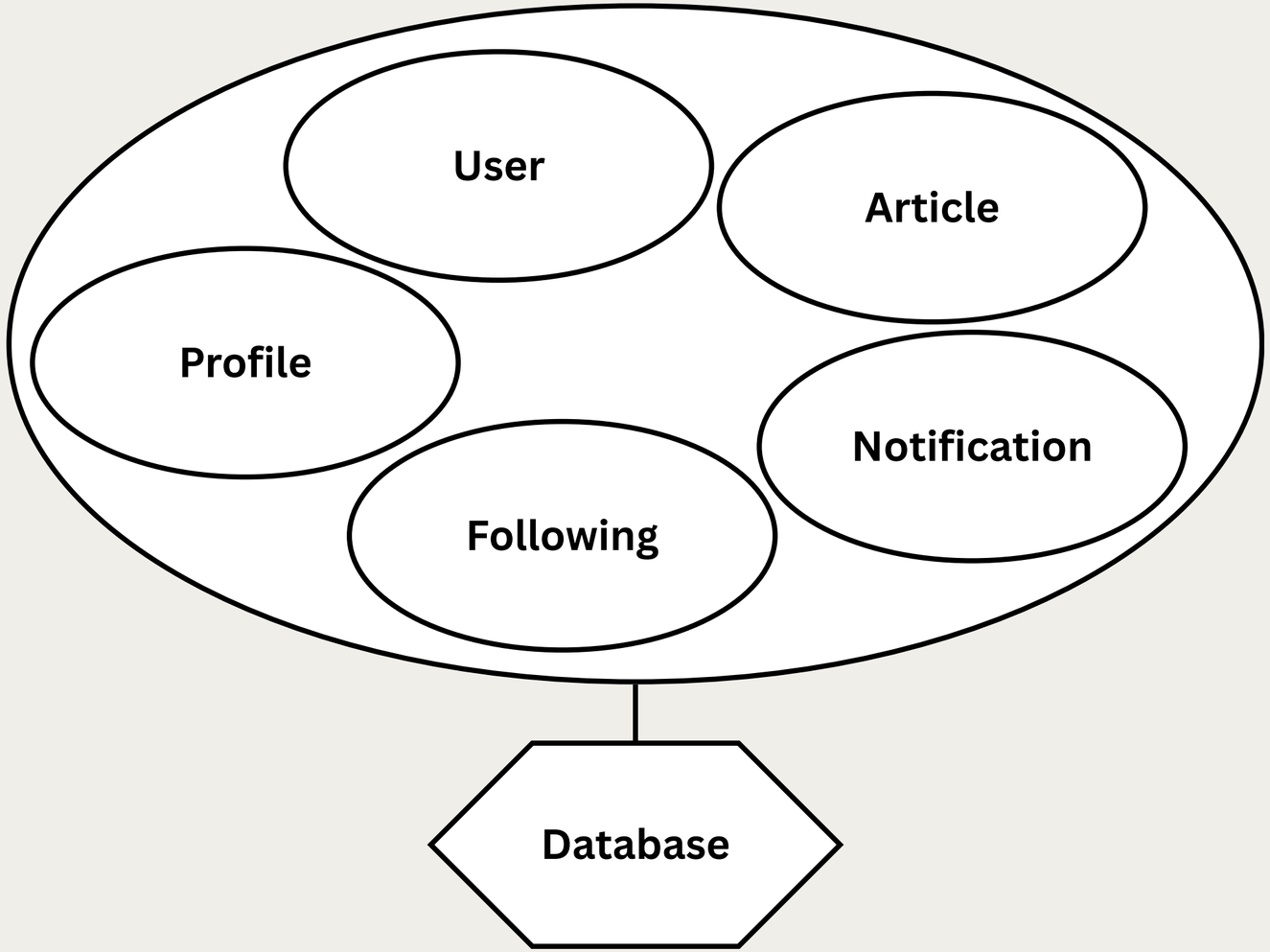
**Increased Costs**

New service requires additional effort for development, testing, deployment, and maintenance toto ensure smooth updates.

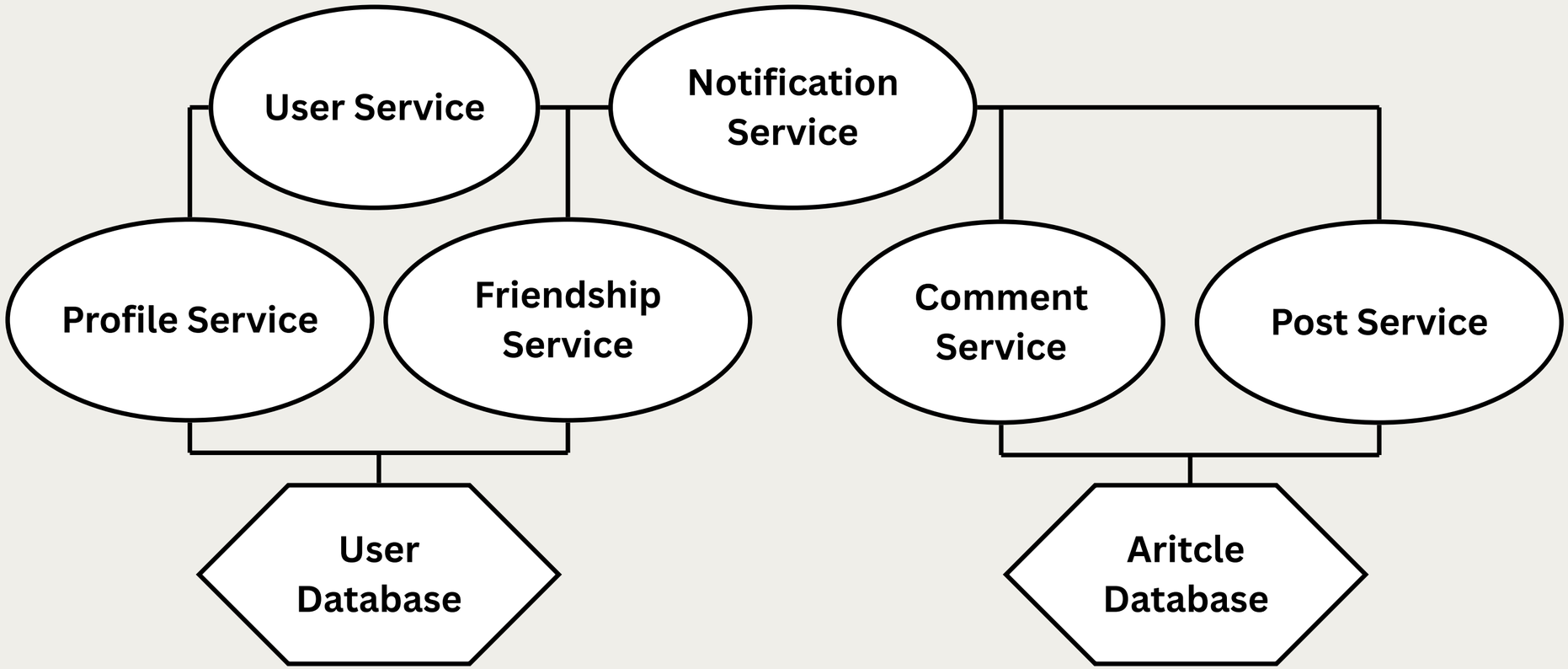
**Performance Issues**

High-frequency service calls and network latency can impact overall system performance.

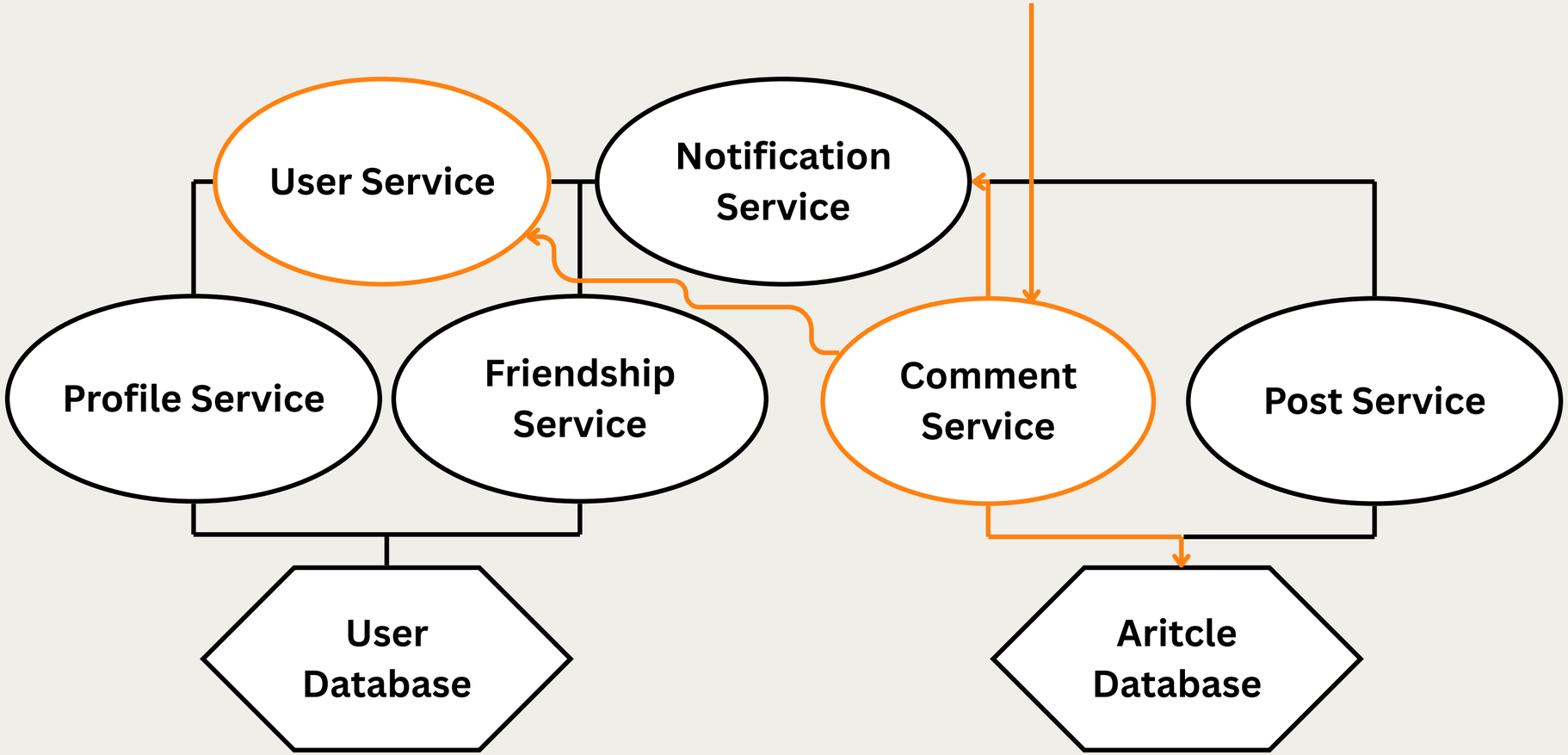
# Example: Ricebook Monolithic



# Example: Ricebook Microservices Architecture



# Example: POST /api/comments




1. Call User Service
    a. check whether the user exists.
2. Call Post Service
    a. check whether the post exists.
3. Add a new comment to database.
4. Call Notification Service
    a. notify the poster that there is a new comment.

# When to use Microservices

- **The system is large, complex, or has many domains**
- **Different services need different technologies**
- **Components require independent scaling**
- **The product is expected to grow or change rapidly**

# Reference


1. https://ithelp.ithome.com.tw/articles/10317957

2. https://aws.amazon.com/tw/microservices/?trk=20c5d315-b937-478b-9687-e599ecd20f2d&sc_channel=ps&ef_id=CjwKCAiA_orJBhBNEiwABkdmjLYD6Uodc-AAog1VABcQZUDpOAWKsqnWrP0Cioukda_P5OUwnwyFnhoCWNQQAvD_BwE:G:s&s_kwcid=AL!4422!3!778398901888!e!!g!!microservices%20architecture!19852662617!189802225147&gad_campaignid=19852662617&gbraid=0AAAADjHtp_5uMN5nUmCXG3ch4zhFe5h5&gclid=CjwKCAiA_orJBhBNEiwABkdmjLYD6Uodc-AAog1VABcQZUDpOAWKsqnWrP0Cioukda_P5OUwnwyFnhoCWNQQAvD_BwE

The end

# Thanks you for listening