ARCHITECTURE

Петър Дочев

Non-functional requirements

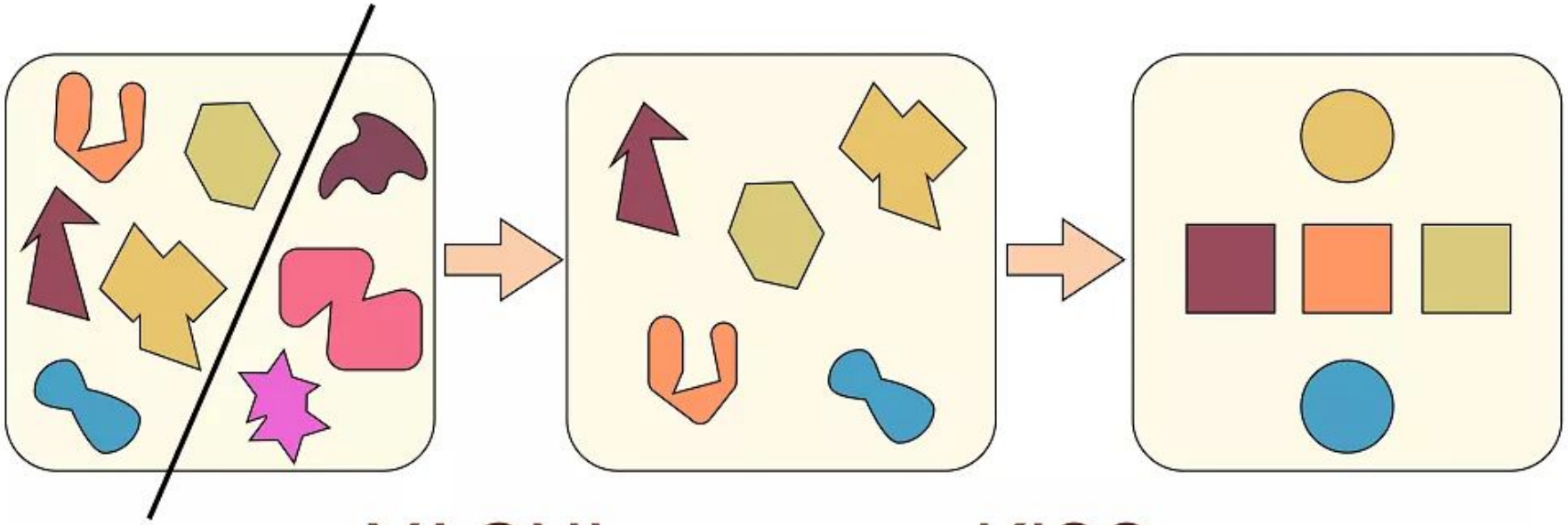
- Security
- Performance
- Scalability
- Availability
- Supportability
- Accessibility
- …

General Principles

DON'T
REPEAT
YOURSELF

You
Ain't
Gonna
Need
It

Keep It Simple Stupid


YAGNI
KISS

> We should forget about small efficiencies, say about 97% of the time: **premature optimization is the root of all evil**

— Donald Knuth

+premature generalization

Latency Numbers Every Programmer Should Know

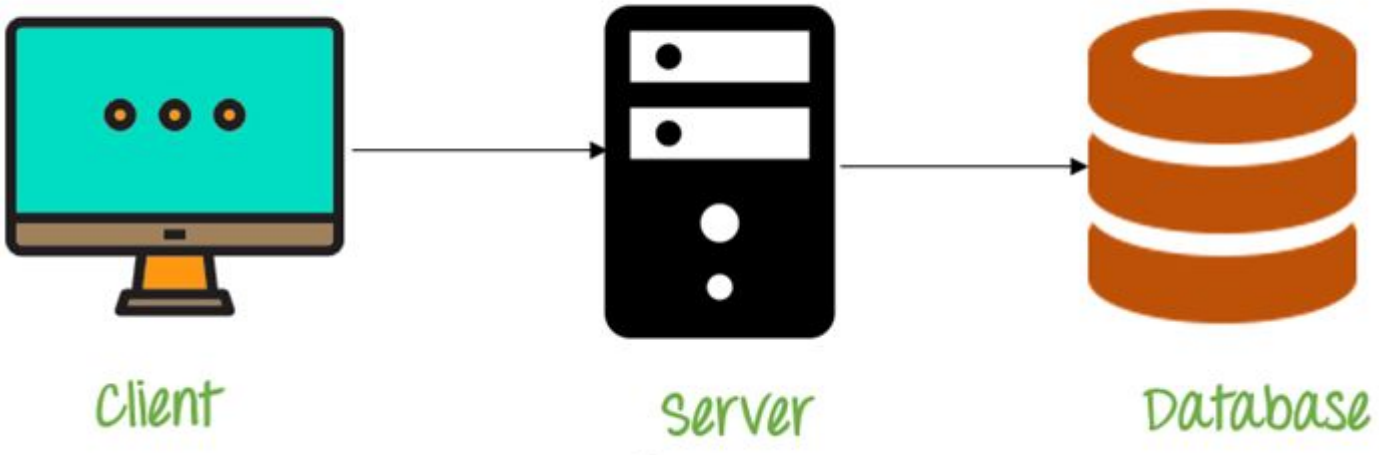
Operation	Time
CPU cycle	0.3ns
RAM access	100ns
SSD access	100,000ns
Network access - same datacenter	500,000ns
HDD access	10,000,000ns
Network access - cross continent	150,000,000ns

Single Responsibility

Loose Coupling

Architecture Styles

3-tier Architecture

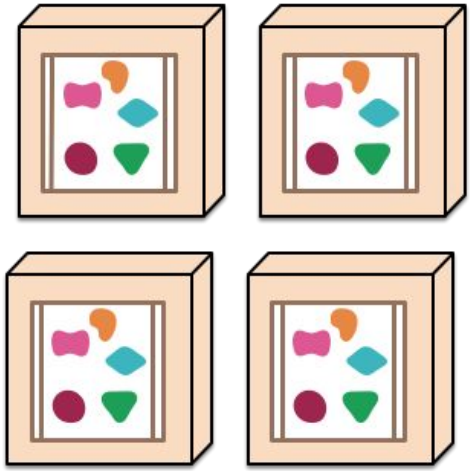


Monolith

A monolithic application puts all its functionality into a single process...

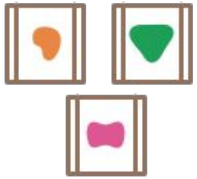
... and scales by replicating the monolith on multiple servers

Servers/VMs

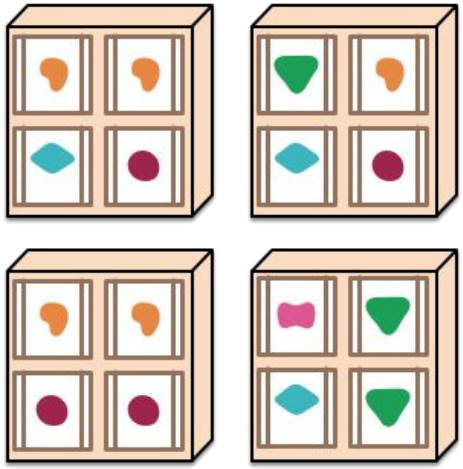


Microservices

A microservices architecture puts each element of functionality into a separate service...



... and scales by distributing these services across servers, replicating as needed.

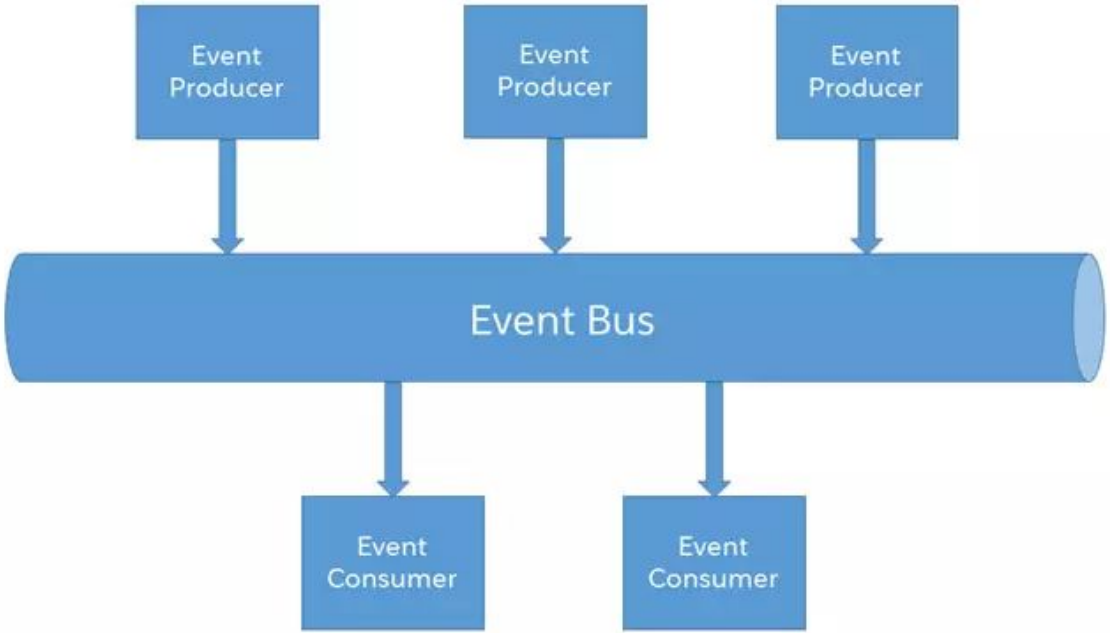


Serverless Architecture

Backend as a Service (BaaS)

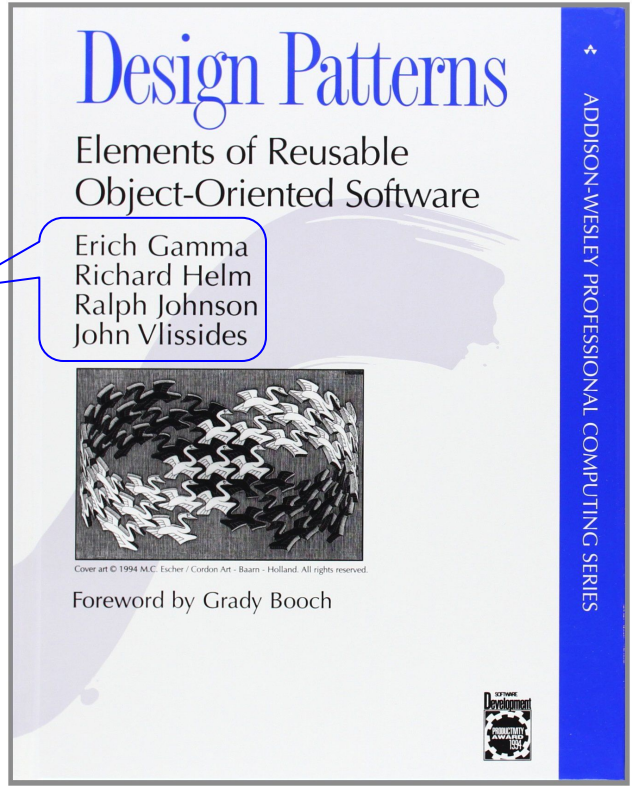
Function as a Service (FaaS)

Event-driven Architecture



Additional Resources

Gang of four (GoF)



martinfowler.com

Q & A