

# SYSTEM DESIGN

Over the last two decades, there have been a lot of advancements in large scale web applications. And it has redefined the way we think about the software development.

All the services and apps that we use on a daily basis are scalable system like Facebook, Instagram etc. Billion of people across the globe access them concurrently, so they need to be designed such that they handle large amount of traffic and data. This is where system design comes into the picture.

## What is System Design?

System design is the process of defining the architecture, interfaces and data for a system that satisfies specific requirements.

Once the organization determines its requirements, it can be build into a physical system design that addresses the needs of the customers.

A good system design requires you to think about everything in an infrastructure from the hardware and software, all the way down to the data and how it's stored.



## → Horizontal vs Vertical Scaling

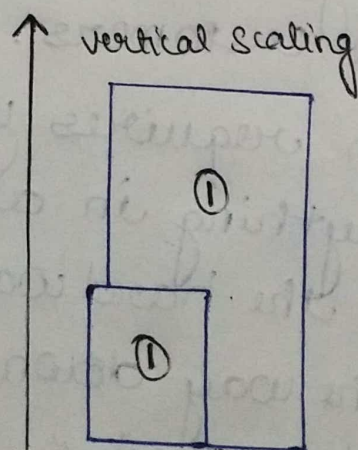
Scalability refers to an application's ability to handle and withstand an increased workload without sacrificing latency. The servers should be powerful enough to handle increased traffic loads. There are mainly two ways to scale an application.

### Horizontal Scaling

In this type of scaling more hardware is added to the existing hardware. It increases computational power of the system as a whole.

### Vertical Scaling

In this type of scaling more power is added to the existing hardware. It increases the power of the resources of the hardware running the application.



### Horizontal scaling.

