#ASLI ENGINEERING

How to approach System Design

SWIPE

BY

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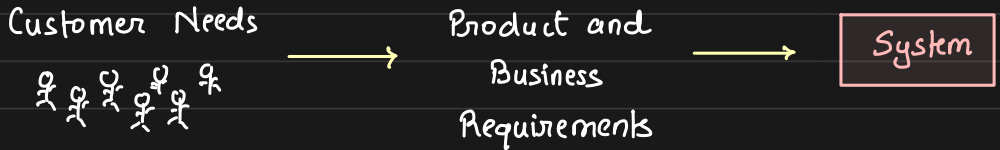
How to approach System Design

Approaching System Design is simple!!
but before that...

What is System Design?



The system could be

- an application - End-to-end feature
- a microservice - pure engineering solution
- a library - common library support
- a hardware - embedded

When someone says design a system, it could be one or all of

a high level architecture design - Macro, Bird's eye view

a logical design - Business logic, Algorithm, Data Structures, etc

a physical design - Storage, I/O, Hardware, Capacity Estimation, Data Pipeline Backup & Restore,

How to approach System Design?

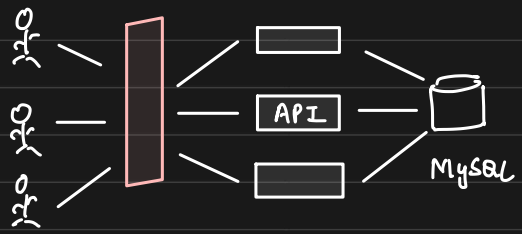
The are two approaches that I have used in last 10 years of my career

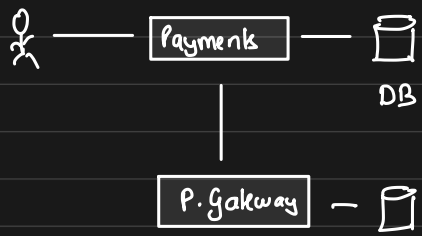
1. Spiral

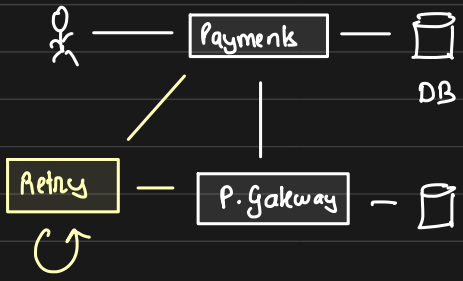
You decide the core and start building around it.

eg: start with storage, then API, then Queues,

Use this when you are pretty confident on the decisions you are making





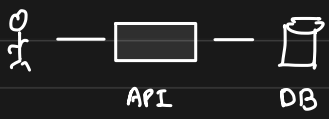


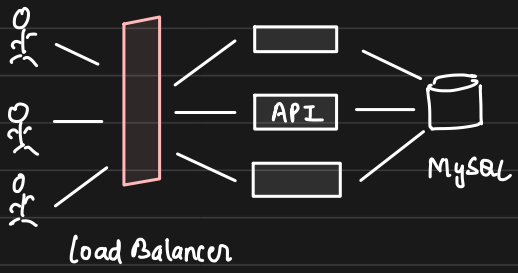
2. Incremental MVP

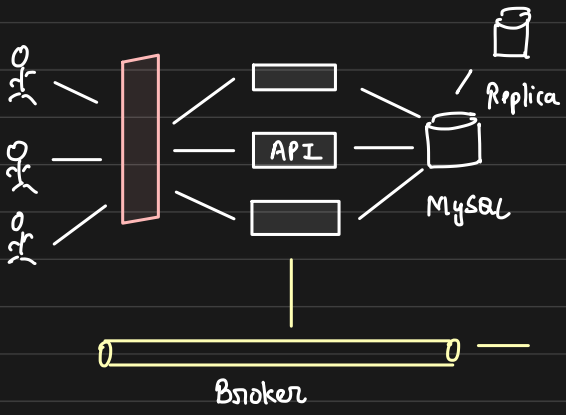
You start with a simple and basic Day 0 architecture, and then evolve it

eg: SQL DB, one API server & a user

Over time scale each component to handle the scale at the next level







Key pointers:

1. Every system is infinitely buildable
   .... Fence it
   Restrict the scope

2. Seek clarifications from Senior or interviewer

3. Ask critical question that challenges the design decisions

One thing that always works

> Divide and Conquer
>
> Start small, build on top