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# System Design – Gaurav Sen

## Introduction

Some key points to remember while designing systems–

* Request on server should never fails
  + Even for hardware failure one should have multiple copies of same system
* Adding and removing server should be easy
  + Changing copies should be easy
* Information on each server should be same
  + Same cache
* Load should be distributed fairly
* Request should be responded in timely fashion

Exposing code on internets through – API – Application program interface  
**API** - A programmer writing an application program can make a request to the Operating System using API (using graphical user interface or command interface). It is a set of routines, protocols and tools for building software and applications

## Horizontal vs Vertical Scaling

|  |  |
| --- | --- |
| **Horizontal** | **Vertical** |
| Load Balancing required | N/A |
| Resilient | Single Point Failure |
| Network Calls (Remote Procedure Call) | Inter process communication |
| Data Inconsistency | Consistent |
| Scale well as user increase | Hardware Limits |