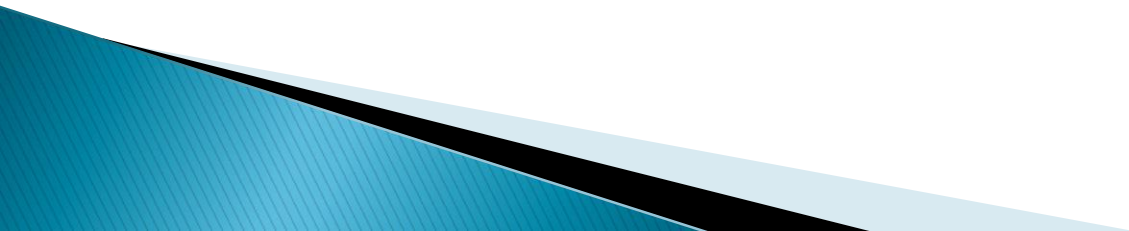


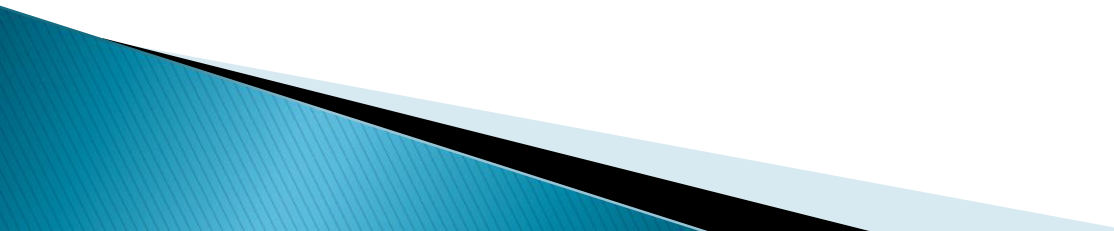
مهندس گلزار

Challenge in IT World

Solving Complex and Timeconsuming Problems



Solutions:

1. Super Computer/Main frame
 2. Cloud Computing
 3. Cluster Computing
 4. Grid Computing
- 

Super Computer/Main frame

Issues:

1. Computational Power Limitation
2. Cost Limitation
3. Resource Wasting

Cloud Computing

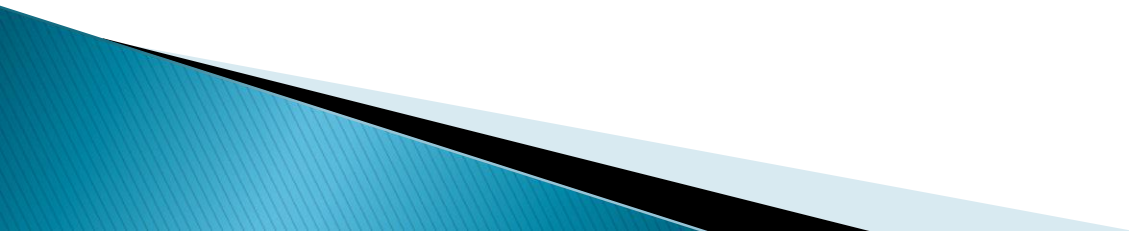
Solving before issues

Remaining one of them:

Computational Power Limitation

=

UnScalability



Cluster Computing

- ▶ Solving unscalability
- ▶ High cost for setup

Difference between Cloud and Grid

- ▶ Resource Distribution
 - cloud: centralized
 - grid: decentralized
- ▶ Ownership
 - cloud is owned by single party
 - cloud is owned by multiple party

Difference between Cluster and Grid

Grid Computing	Cluster Computing
Loosely coupled	Tightly coupled
Dynamics and diversity	Static
Heterogenous	Homogenous
Dynamic job management and scheduling	Static job management and scheduling

Cloud definition(NIST):

1. Cloud is a model for enabling **ubiquitous** and **on demand** network access
2. Shared pool of configurable resources of
3. That can be provisioned and released with minimum interaction with service provider

Cloud Protocol

- ▶ SOAP
- ▶ RSS REST, AJAX, ...

Cloud services:

- ▶ IaaS(Infrastructure as a Service)
- ▶ PaaS(Platform as a Service)
- ▶ SaaS(Software as a Service)

IaaS Providers:

- ▶ Amazon
- ▶ Go Grid

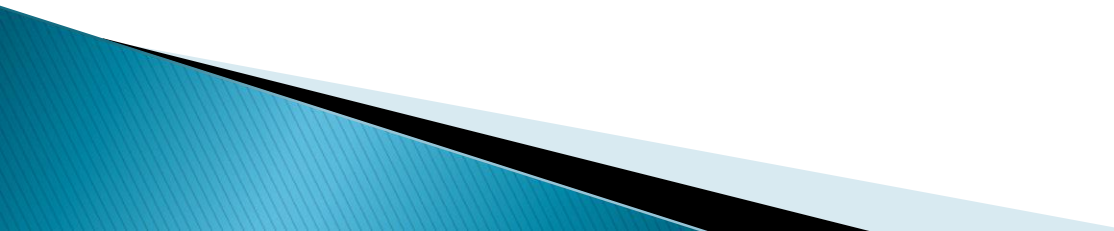
Paas Providers:

- ▶ Google
- ▶ Microsoft
- ▶ Amazon

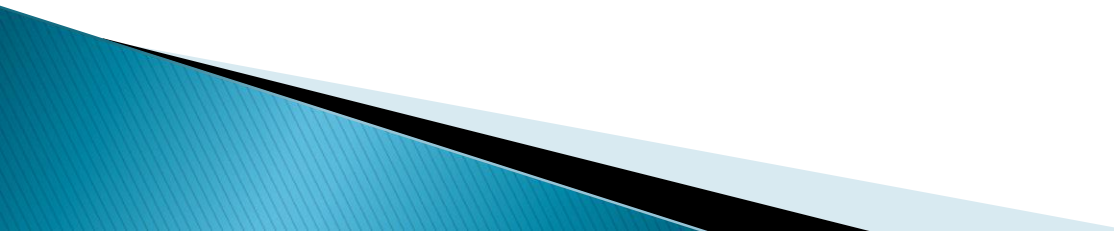
SaaS Providers:

- ▶ Google
- ▶ Facebook

Category of Cloud based on deployment

- ▶ Private cloud
 - ▶ Community cloud
 - ▶ Public cloud
 - ▶ Hybrid cloud
- 

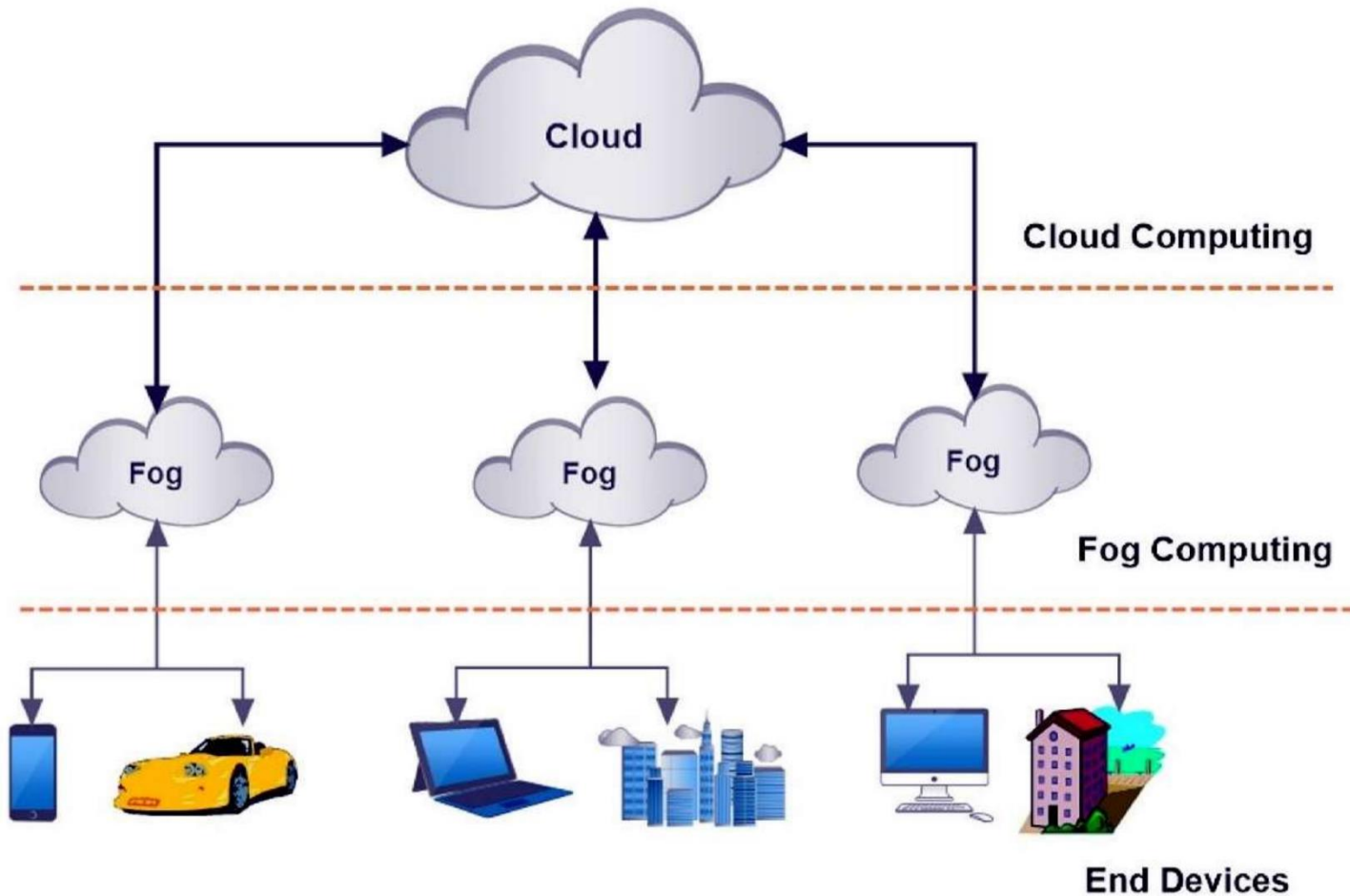
Amazon Services

- ▶ S3(Simple Storage System)
 - ▶ EC2(Elastic Cloud Computing)
 - ▶ Amazon Simple DB
 - ▶ Amazon Cloud Front
 - ▶ Amazon Simple Queue
- 

Challenges in Cloud

- ▶ Internet Interface Requirement
- ▶ Delay

Fog Computing/Edge Computing



Fog Computing/Edge Computing

Fog computing, or in short Fog, refers to a platform for integrated compute, storage and network services that are highly distributed and virtualized. This platform can extend in **locality** from IoT end devices and gateways all the way to Cloud data centers but is typically located at **the network edge**. Fog augments Cloud computing and brings its functions **closer** to where data is produced (e.g., sensors) or needs to be consumed (e.g., actuators).

