

BASICS OF CLOUD COMPUTING



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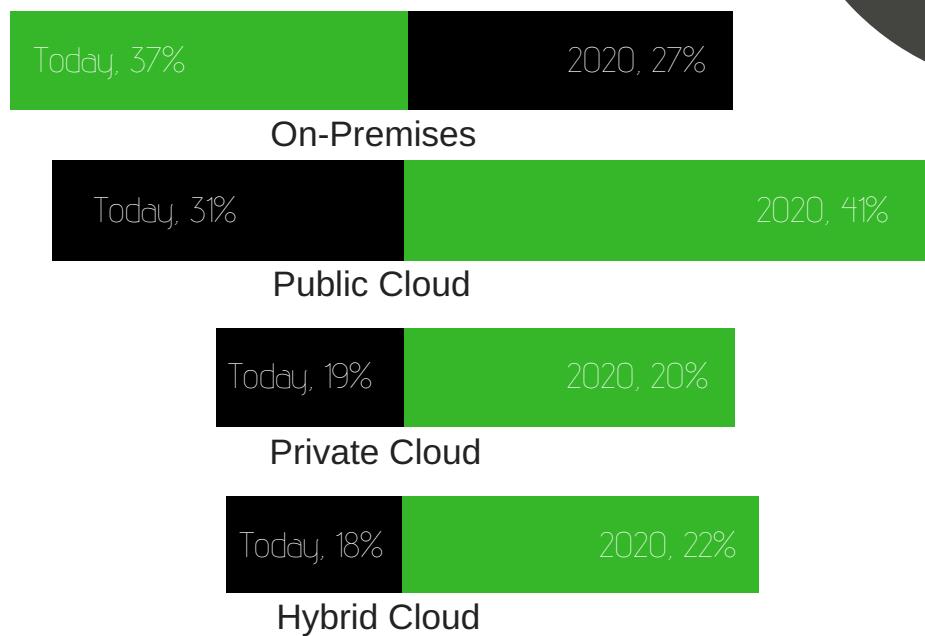
ENTERPRISE WORKLOADS

**83% of Enterprise Workloads
will be in the cloud by 2020**



83%

Where Will Workload Run(2020)

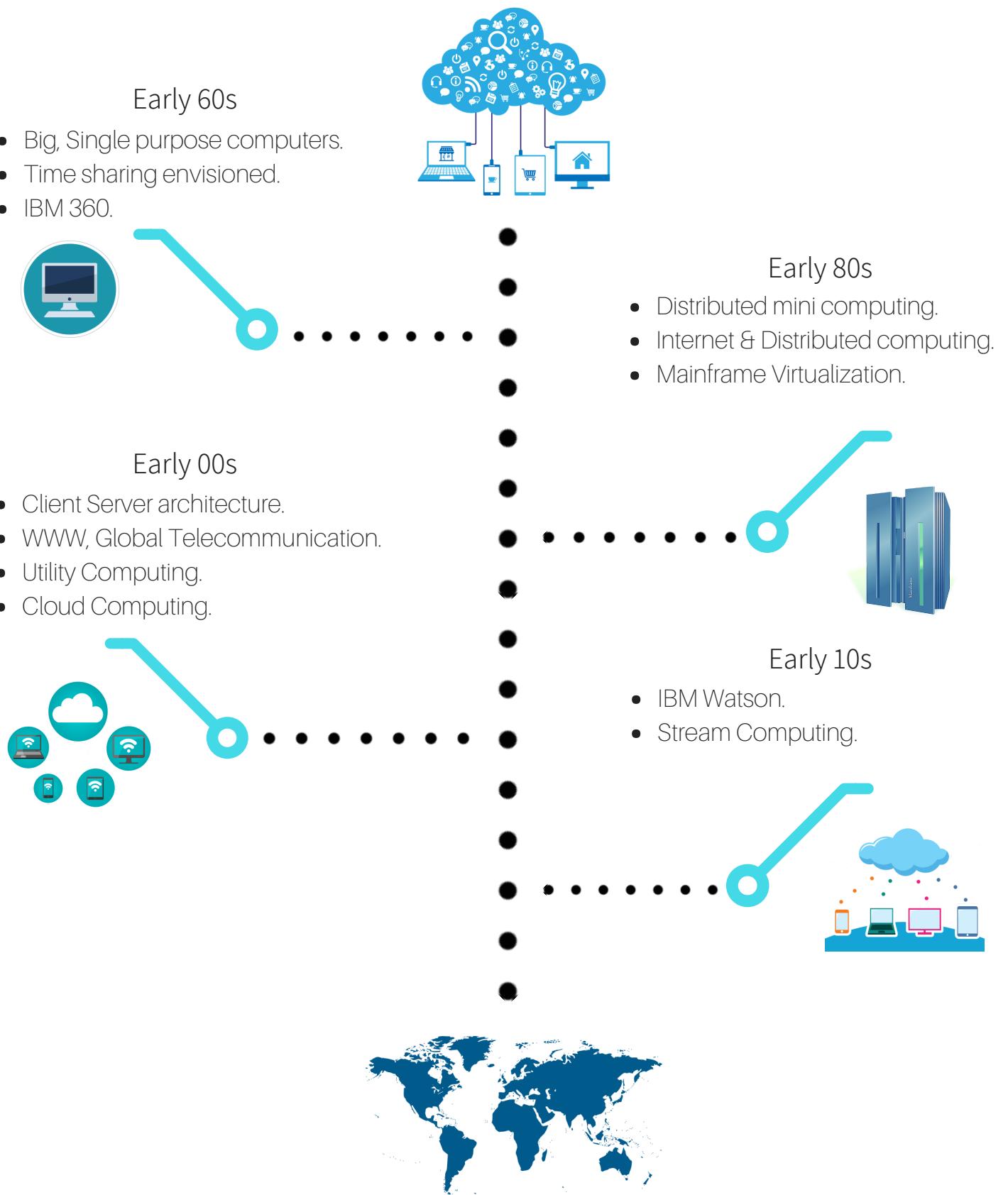


INTRODUCTION

History of Cloud Computing

Earlier the term "cloud" is used as a representation of the Internet and other communications systems. But nowadays we commonly refer to as cloud computing which is the result of an evolution of the widespread adoption of virtualization, service-oriented architecture, autonomic, and utility computing

Following is a brief history of this evolution:



What is Cloud Computing

Cloud computing is the delivery of computing services on-demand that include servers, storage, databases, networking, software, analytics and more—over the Internet via a cloud services platform with pay-as-you-go pricing.

Basics of Cloud Computing

You are probably using cloud computing right now, even if you don't realize it. If you use an online service to send email, edit documents, watch movies or TV, listen to music, play games or store media files. It is likely that cloud computing is making it all possible behind the scenes. The first cloud computing services are barely a decade old, but already a variety of businesses—from small startups to global leaders, government agencies to non-profits—are embracing the technology for all sorts of reasons. Whether you are running applications that share media files to millions of users across various platforms or you're supporting the critical operations of your business, a cloud services platform provides rapid access to flexible and low cost IT resources. You can access as many resources as you need, almost instantly, and only pay for what you use.



Possibilities with Cloud

- Development
- Hosting
- Storage, Recovery & Back-up
- On-Demand delivery
- Data Analysis
- Streaming

Benefits of Cloud Computing

Common benefits of cloud computing are as follows:

- Flexibility
- Security
- Cost Savings
- Mobility
- Insight
- Quality Control
- Disaster Recovery
- Increased collaboration
- Sustainability

Challenges in Cloud Computing

The adoption of cloud computing is not free from issues. Some of the most important challenges are as follows.

- Reliability and Availability
- Security and Privacy
- Interoperability & Portability
- Performance
- Bandwidth Cost



SERVICE MODELS

Service Models are the reference models on which the Cloud Computing is based. It is commonly referred as SPI model (SaaS, PaaS, IaaS) SPI is an acronym for the most common cloud computing service models, Software as a Service, Platform as a Service and Infrastructure as a Service.



SaaS

USE IT

SOFTWARE AS A SERVICE

- Software delivery method.
- It provides access to software and its functions remotely as a Web-based service.
- The software is used to perform common tasks related to storage, such as data backups and data transfers.
- Users don't need to invest in additional hardware.
- Applications are accessible from almost any internet-connected device.
- EXAMPLES:
Salesforce
NetSuite.



PaaS

BUILD WITH IT

PLATFORM AS A SERVICE

- It provides a cloud environment to develop, manage and deliver applications.
- It provides tools to test and customize the applications.
- Facilitates collaborative work even if teams work remotely.
- Security, Operating Systems, Server software , backups are managed by providers.
- No overhead of infrastructure.
- EXAMPLES:
AWS Elastic Beanstalk
Google App Engine
Heroku.



IaaS

MOVE TO IT

INFRASTRUCTURE AS A SERVICE

- It provides access to computing resources such as servers, storage and networking.
- Organizations use their own platforms and applications within a service provider's infrastructure.
- It comes with Hypervisor (the virtualization layer).
- Infrastructure is scalable depending on processing and storage needs.
- EXAMPLE:
AWS
Microsoft Azure
Google Compute Engine.

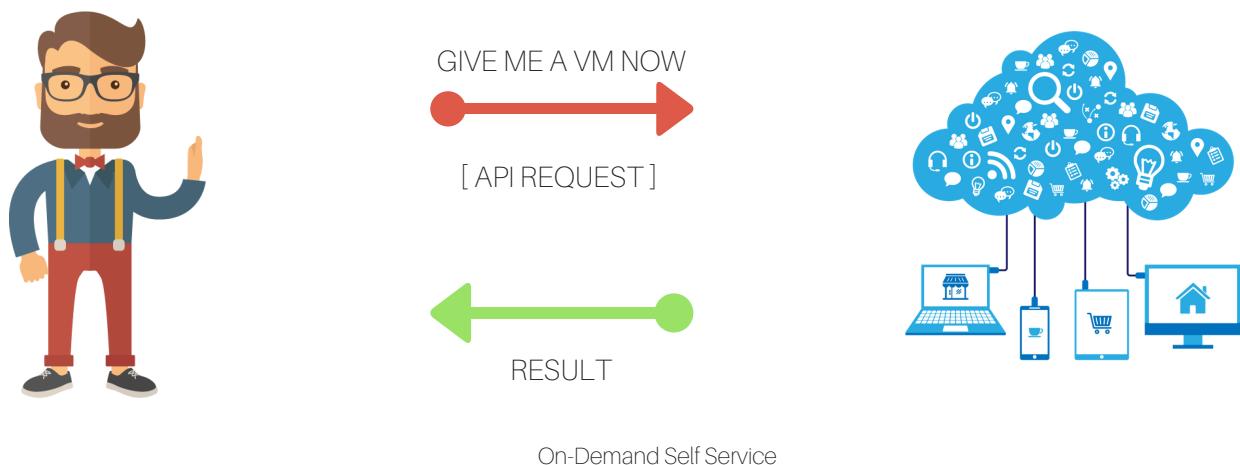
CHARACTERISTICS

In this chapter, we will look at each of the 5 characteristics of Cloud Computing:

- On-Demand Self Service.
- Broad Network Access
- Resource Pooling
- Rapid Elasticity
- Measured service

ON-DEMAND SELF SERVICE

One of the essential cloud computing's characteristics is On-Demand Self Service. i.e. Cloud computing provides resources on demand. Self-service means that the consumer performs all the actions needed to acquire the service. On-demand self-service computing implies a high level of planning.



BROAD NETWORK ACCESS

The second most essential characteristics of the cloud is Broad network access. It means that the service can be accessed from multiple locations (such as from a corporate office or from home) using different types of client (such as a Windows PC or an Android mobile).

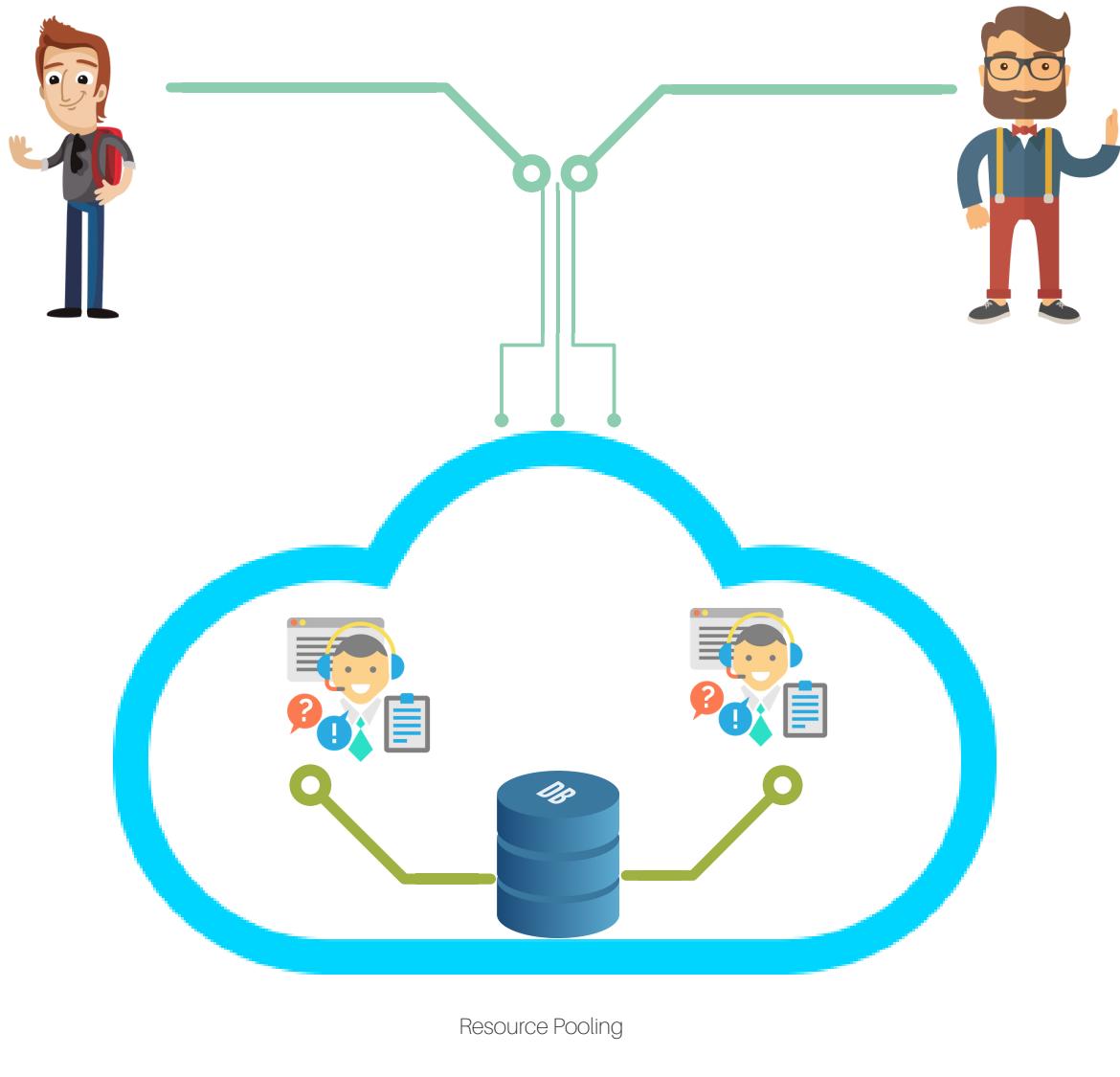


Broad Network Access

RESOURCE POOLING

Resource pooling is commonly achieved through multi-tenancy technology which means a software program that enables an instance of the program to serve different consumers (tenants) whereby each is isolated from the other.

Resource pooling allows cloud providers to pool large-scale IT resources to serve multiple cloud consumers.



RAPID ELASTICITY

Rapid Elasticity is commonly referred to as scalability in cloud computing. Capabilities can be elastically provisioned and released.



Rapid Elasticity

MEASURED SERVICE

The idea of measured service is one of five characteristics of a cloud computing. It simple means a cloud systems may control a user or tenant's use of resources by leveraging a metering capability somewhere in the system.

To know when to scale up or down, one needs information about the current demand on the cloud. In other words, one needs to measure things like CPU, memory, and network bandwidth usage to make sure cloud consumers never run out of those resources.



Measured Services



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