Cloud Architecture

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AGENDA

Introduction to Cloud

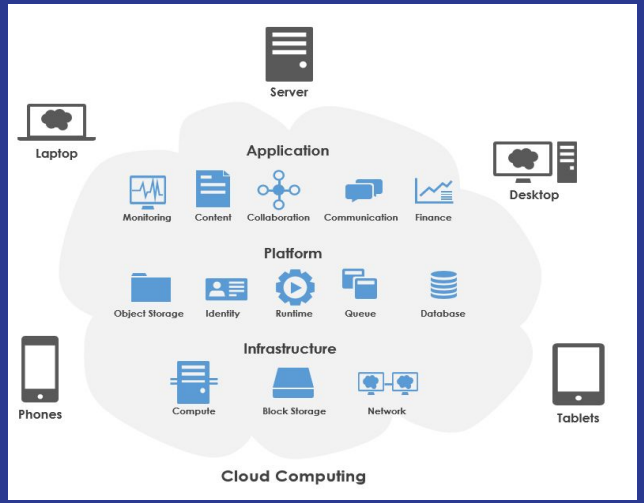
What is Cloud Architecture

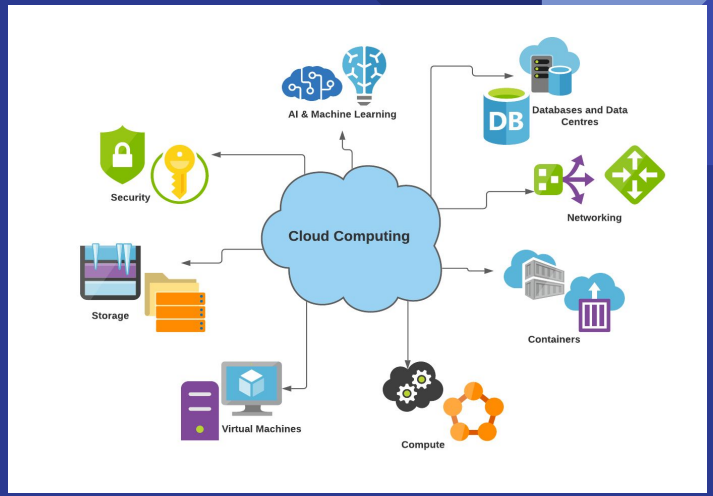
Cloud Architecture **components** -> Front End & Backend

what allows information to be **delivered** between the front end and the backend
5 Types of Services

Examples on Service Providers

Advantages and disadvantages of Cloud


Server
Laptop
Application
Monitoring
Content
Collaboration
Communication
Finance
Desktop
Platform
Object Storage
Identity
Runtime
Queue
Database
Infrastructure
Compute
Block Storage
Network
Phones
Tablets
Cloud Computing


AI & Machine Learning
DB
Databases and Data Centres
Security
Networking
Cloud Computing
Storage
Containers
Virtual Machines
Compute

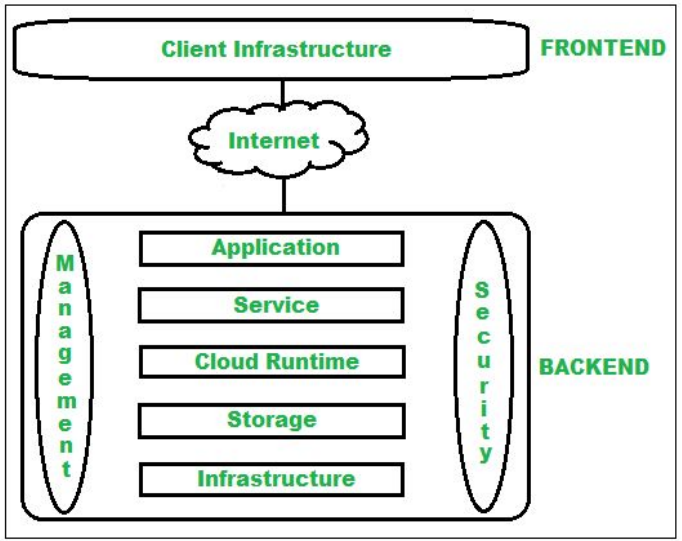

amazon web services
salesforce
Azure
ORACLE

Introduction

- **One of the most demanding technologies**
- **Provides on-demand virtualized services/resources by:**
    - Storing and accessing data and programs on remote servers instead of local servers or a computer's hard drive
    - The remote servers are hosted on the internet so users can access the information there
- **Why we call it cloud?**

  The access is virtual/ via internet

The components and sub-components required for cloud computing present the Cloud Architecture



Components

- **Frontend:**

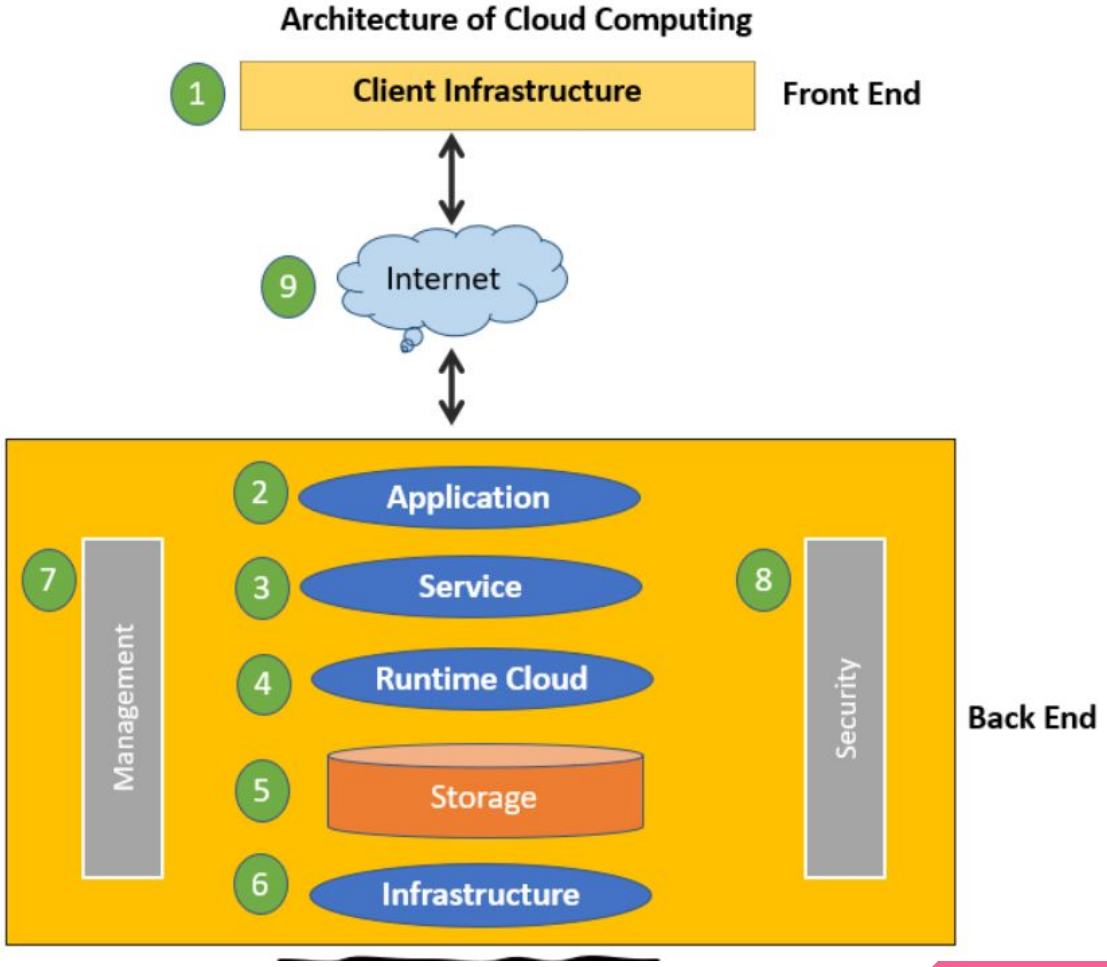
  Contains all the user interfaces and applications that are used by the client, in order to access the cloud services/ resources

  Gmail, Google Docs..

- **Backend:**

  - The part that powers the front end.
  - Is taken care of by the cloud service provider
  - It includes storage and virtual applications, hardware servers, management and security

- **Cloud based Delivery**

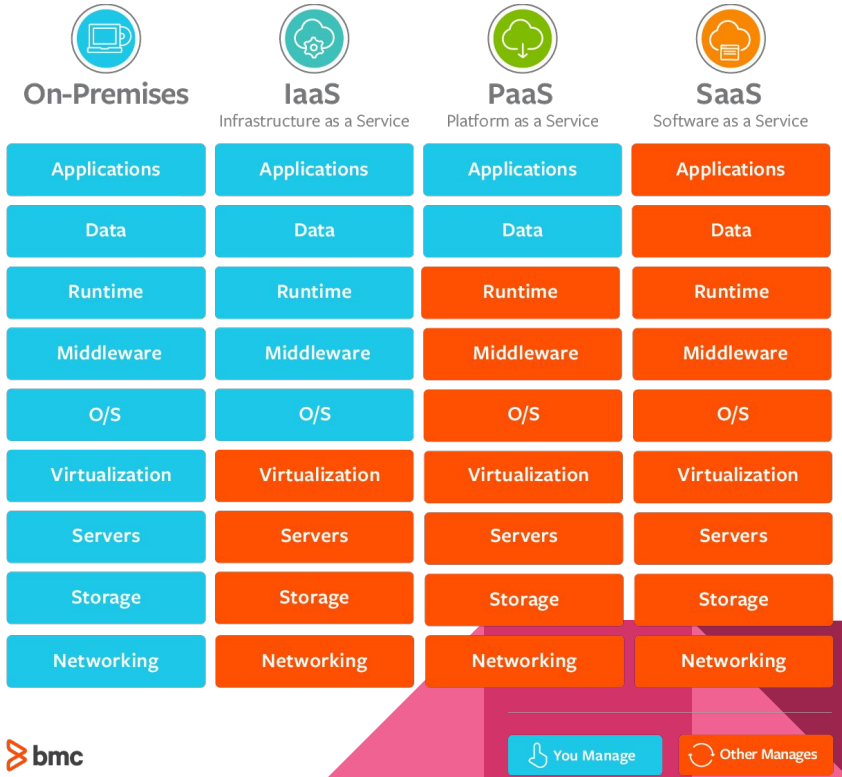

Architecture of Cloud Computing
1
Client Infrastructure
Front End
9
Internet
2
Application
7
Management
3
Service
8
Security
4
Runtime Cloud
5
Storage
6
Infrastructure
Back End

TOOLBOX

CLOUD COMPUTING ARCHITECTURE EXPLAINED

Cloud Architecture Services

1. Software as a service (SaaS)
2. Platform as a service (PaaS)
3. Infrastructure as a service (IaaS)
4. Anything/Everything as a service (XaaS)
5. Function as a Service (FaaS)



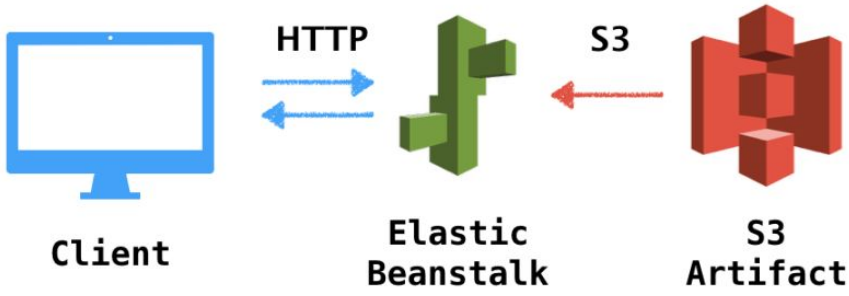
IaaS: Infrastructure as a service

- A cloud service provider delivers networking, data storage, servers, and virtualization capabilities.
- The customer gains access to as much data storage and computing power as they need
- Customers are required to provide their own software platform to run on it. This includes operating systems, runtime, middleware, data, and applications.

Paas: Platform as a service

- A cloud service provider delivers the full cloud infrastructure (networks, servers, data, virtualization) along with a software platform that includes operating systems, middleware and runtime.
- The PaaS model is meant to provide custome with the capability to develop, test, deploy an operate their own applications in the cloud, without the typical expense and complexity o building on-site IT infrastructure.

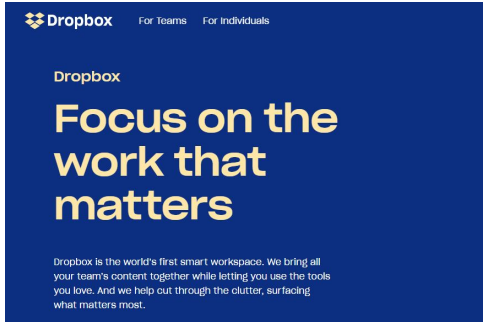
Google App Engine

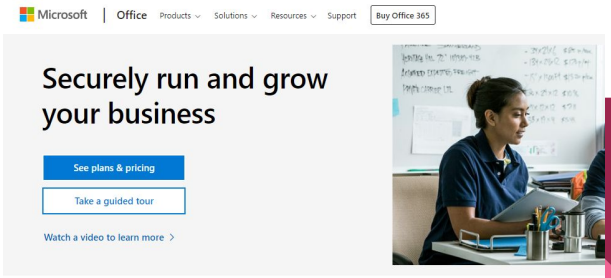


Deploying an HTTP API on AWS using Elastic Beanstalk

SaaS: Software as a service

- A service provider delivers an application through a web-based portal.
- This removes the need for the customer to store any information about the application on their local hard disk.
- All of the data storage is located on the servers of the service provider.
- SaaS companies are responsible for every aspect of the technology stack, from maintaining the cloud infrastructure that supports the application to the application itself.



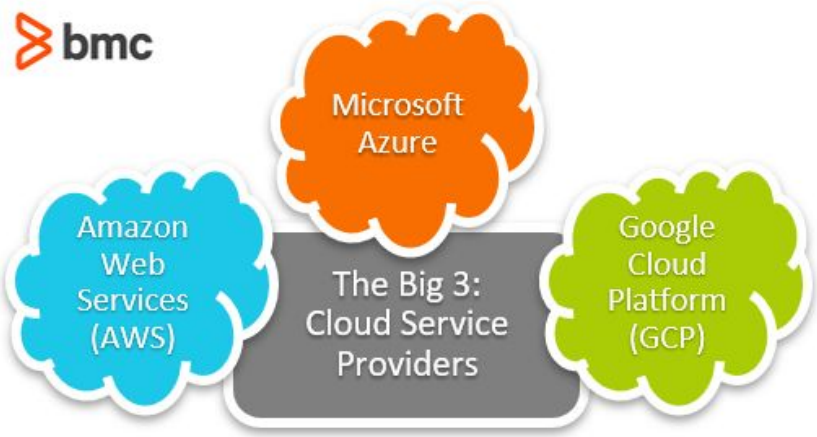


Service Providers

- **AWS** is the most mature cloud platform offering a wide range of services to practically everyone: individual developers, large enterprises, and even governments.

Customers:

- Expedia
- Netflix
- Airbnb
- Coursera



Service Providers - cont

Microsoft Azure is the second-largest cloud platform,

Azure is not limited to Windows-based services. It also supports open-source languages, technologies, and platforms, giving anyone the freedom to build and support any application.

Customers:

National Health Service (NHS) – UK
Starbucks
HP

Google Cloud Platform, available to the general public beginning in 2010, tit offers over 100 services spanning computing, networking

Customers:

Twitter
Spotify
Paypal
Toyota

Which one to choose?

What is your need?

Resource:
https://www.bmc.com/blogs/saas-vs-paas-vs-iaas-whats-the-difference-and-how-to-choose/

- Technical Issues
- Security in the Cloud
- Prone to Attack

- Scalability
- Instant
- Save Money
- Reliability
- Physical Security
- Outsource Management
- Almost Unlimited Storage
- Quick Deployment

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https://azure.microsoft.com/en-us/pricing/calculator/

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Resources

Let's learn more about the cloud.

Preparing for Google Cloud Certification:

Fundamentals of Cloud Architecture

Microsoft Azure Learn : Learning paths

AWS Cloud Skills


Q
A