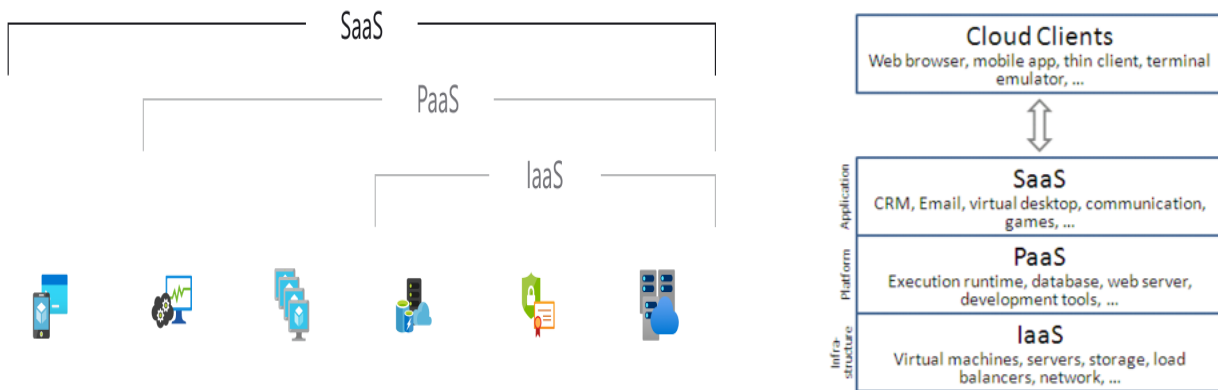# Introduction to Cloud Computing

SaaS

Software as a service, is software that is owned, delivered and managed remotely by one or more providers. The provider delivers software based on one set of common code and data definitions that is consumed in a one-to-many model by all contracted customers at anytime via internet on a pay-for-use basis or as a subscription based on use metrics.

PaaS

Platform-as-a-Service, is a cloud computing model that provides customers a complete cloud platform—hardware, software, and infrastructure—for developing, running, and managing applications without the cost, complexity, and inflexibility that often comes with building and maintaining that platform on-premises.

IaaS

Infrastructure-as-a-Service, is a form of cloud computing that delivers fundamental compute, network, and storage resources to consumers on-demand, over the internet, and on a pay-as-you-go basis. IaaS enables end users to scale and shrink resources on an as-needed basis, reducing the need for high, up-front capital expenditures or unnecessary "owned" infrastructure, especially in the case of "spiky" workloads.
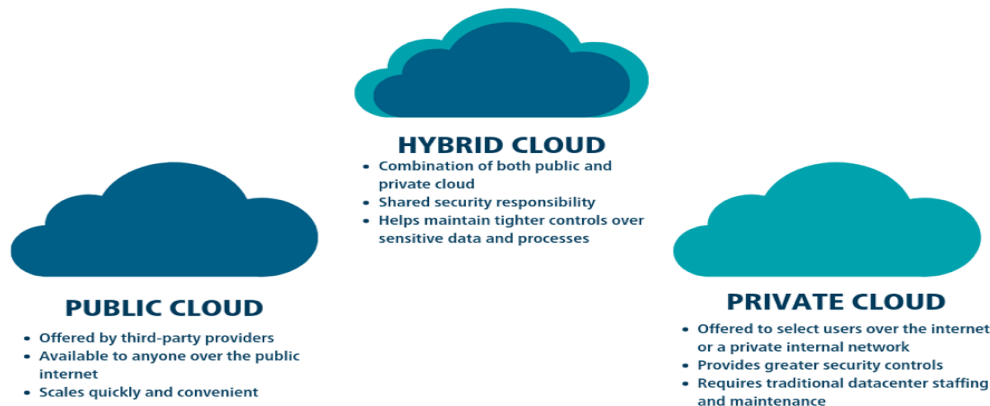
Platform Type	Common Examples
SaaS	Google Workspace, Dropbox, Salesforce, Cisco WebEx, Concur, GoToMeeting
PaaS	AWS Elastic Beanstalk, Windows Azure, Heroku, Force.com, Google App Engine, Apache Stratos, OpenShift, Cloud Foundry
IaaS	DigitalOcean, Linode, Rackspace, Amazon Web Services (AWS), Cisco Metapod, Microsoft Azure, Google Compute Engine (GCE)

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

- Pay only for cloud services you use, pay-as-you-go
- Efficient use of infrastructure and Scale on-demand
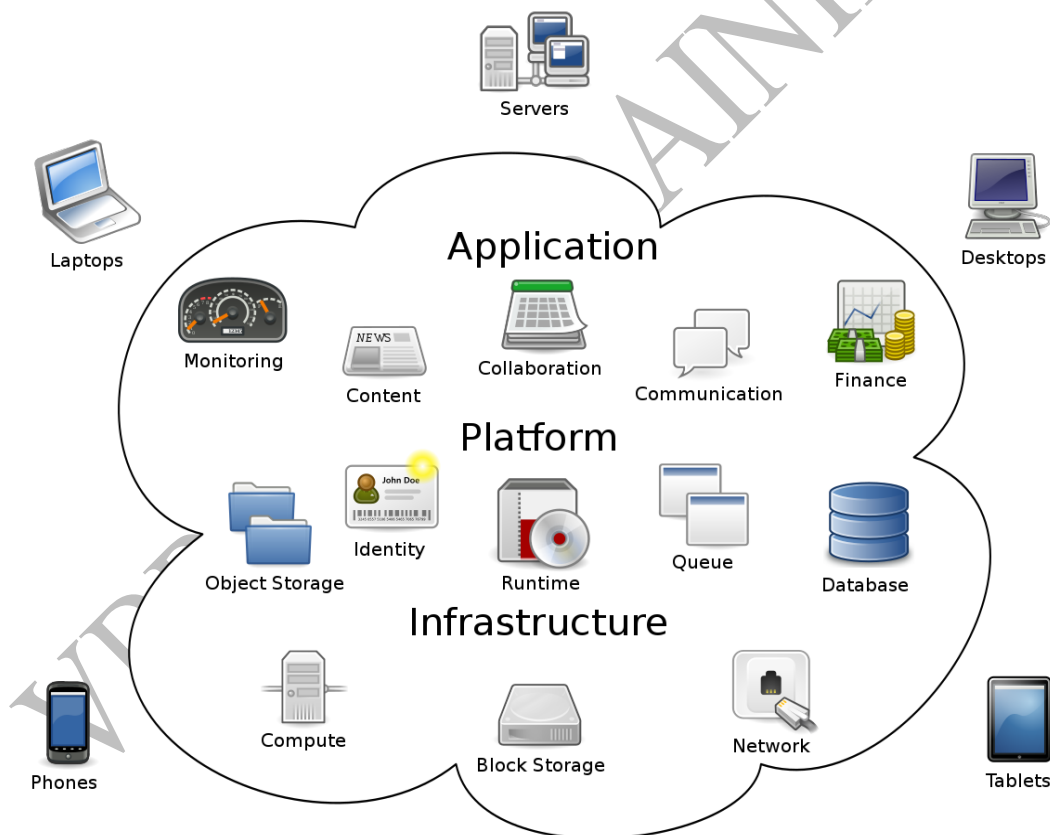
Types of cloud computing – Public cloud (AWS, Azure, GCE), Private cloud (Openstack, VMWare), Hybrid cloud

HYBRID CLOUD
- Combination of both public and private cloud
- Shared security responsibility
- Helps maintain tighter controls over sensitive data and processes

PUBLIC CLOUD
- Offered by third-party providers
- Available to anyone over the public internet
- Scales quickly and convenient

PRIVATE CLOUD
- Offered to select users over the internet or a private internal network
- Provides greater security controls
- Requires traditional datacenter staffing and maintenance

Uses of cloud computing

- Create cloud-native applications

  Quickly build, deploy and scale applications—web, mobile and API. Take advantage of cloud-native technologies and approaches, such as containers, Kubernetes, microservices architecture, API-driven communication and DevOps.

- Store, back up and recover data

  Protect your data more cost-efficiently—and at massive scale—by transferring your data over the Internet to an offsite cloud storage system that is accessible from any location and any device.

- Stream audio and video

  Connect with your audience anywhere, anytime, on any device with high-definition video and audio with global distribution.

- Deliver software on demand

  Also known as software as a service (SaaS), on-demand software lets you offer the latest software versions and updates around to customers—anytime they need, anywhere they are.

- Test and build applications

  Reduce application development cost and time by using cloud infrastructures that can easily be scaled up or down.

- Analyse data

  Unify your data across teams, divisions and locations in the cloud. Then use cloud services, such as machine learning and artificial intelligence, to uncover insights for more informed decisions.

- Embed intelligence

  Use intelligent models to help engage customers and provide valuable insights from the data captured.