



AWS · Azure · GCP · OCI

University Students & IT Professionals

2-Hour Instructor-Led Training

CLOUD COMPUTING

101

Core Concepts & Cloud Service Models

Workshop Goals & Learning Objectives



Duration

2 Hours · Instructor-Led



Prerequisites

Basic computer literacy - no prior cloud experience needed

WORKSHOP GOALS - WHAT YOU WILL BE ABLE TO DO BY THE END OF THIS SESSION

G1

Cloud Fluency

Explain what the cloud is, how it works, and how it differs from traditional on-premises IT

G2

Service Model Clarity

Distinguish IaaS, PaaS, and SaaS by responsibility boundaries and match each to real provider examples

G3

Core Services Awareness

Identify IAM, Compute, VPC, Storage, and CDN and their equivalents across AWS, Azure, GCP, and OCI

G4

Deployment Strategy

Compare Public, Private, Hybrid, and Multi-Cloud models and select the right one for a given scenario

G5

Certification Direction

Leave with a clear, personalised first certification step on your chosen cloud platform

What is Cloud Computing?

Cloud computing is the on-demand delivery of computing resources - servers, storage, databases, networking, software, analytics, and AI - over the internet with **pay-as-you-go pricing**.

NIST DEFINITION - 5 ESSENTIAL CHARACTERISTICS



On-Demand Self-Service

Provision resources instantly without human interaction



Broad Network Access

Access from any device or location via internet



Resource Pooling

Shared infrastructure with logical isolation



Rapid Elasticity



Scale up or down automatically on demand



Measured Service

Monitor, control & bill only what you consume

Cloud vs. Traditional IT

 Traditional IT	Dimension	 Cloud Computing
High upfront CAPEX	Cost Model	Low OPEX - pay-as-you-go
Weeks or months	Provisioning	Minutes via console or API
Manual, hardware-limited	Scalability	Near-infinite, automated
Your team manages all	Maintenance	Provider manages infrastructure
Single-site, costly HA	Reliability	Multi-region, built-in HA
Slow - long procurement	Innovation Speed	Fast - instant access to new services

94% of enterprises use cloud · Global cloud spend projected to exceed \$1 trillion annually

Cloud Service Models - IaaS, PaaS, SaaS



SaaS

Software as a Service

YOU MANAGE

Just use the application

PROVIDER MANAGES

Everything - app, runtime, OS, hardware

EXAMPLES

Gmail, Salesforce, Slack, Zoom, Microsoft 365



PaaS

Platform as a Service

YOU MANAGE

Application code & data only

PROVIDER MANAGES

Runtime, OS, middleware, hardware

EXAMPLES

Heroku, AWS Elastic Beanstalk, Azure App Service, App Engine



IaaS

Infrastructure as a Service

YOU MANAGE

OS, middleware, runtime, applications



PROVIDER MANAGES

Physical hardware & networking only

EXAMPLES

AWS EC2, Azure VMs, GCP Compute Engine, OCI Compute

Cloud Deployment Models

 Public Cloud	 Private Cloud	 Hybrid Cloud	 Multi-Cloud
Owned by Cloud Provider	Owned by Your Organisation	Owned by Both	Owned by Multiple providers
Access Anyone (with auth)	Access Internal only	Access Mixed	Access Mixed
Cost Low OPEX	Cost High CAPEX	Cost Mixed	Cost Variable OPEX
Best For Startups, web apps, SaaS products	Best For Finance, healthcare, government	Best For Enterprises with existing infra	Best For Avoid vendor lock-in, best-of-breed

Most enterprises today adopt a Hybrid or Multi-Cloud strategy for optimal flexibility, compliance, and cost control.



CORE CLOUD SERVICES

IAM

Compute

VPC / Networking

Storage

Shared Responsibility

IAM - Identity & Access Management

KEY CONCEPTS

Users

Individual identities with credentials

Groups

Collections of users sharing policies

Roles

Temporary permissions assumed by services

Policies

Rules defining what actions are allowed

MFA

Multi-factor authentication - critical for security

AWS

Roles: IAM Roles

AWS IAM

Policy: JSON IAM Policies

Azure

Roles: RBAC Roles

Microsoft Entra ID (AAD)

Policy: Azure Policy

GCP

Roles: IAM Roles (predefined)

Google Cloud IAM

Policy: IAM Policy bindings

OCI

Roles: Dynamic Groups

OCI IAM & Identity Domains

Policy: OCI Policy statements

Computing Services



Virtual Machines

Full OS control - choose CPU, RAM & disk; most flexible

AWS EC2

Azure Azure VMs

GCP Compute Engine

OCI OCI Compute



Containers (Managed)

Run containers without managing underlying nodes

AWS EKS / ECS

Azure AKS

GCP GKE

OCI OKE



Serverless Functions

Event-driven execution - pay per invocation only

AWS Lambda

Azure Functions

GCP Cloud Functions

OCI OCI Functions



App Hosting (PaaS)

Deploy code without managing any infrastructure

AWS Beanstalk

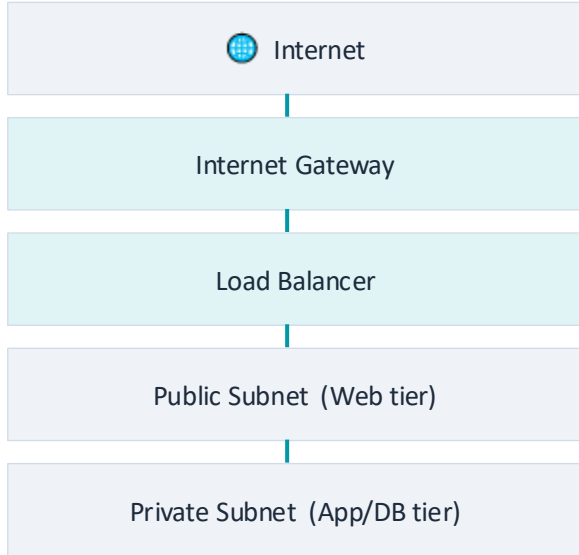
Azure App Service

GCP App Engine

OCI Container Inst.

VPC - Virtual Private Cloud / Networking






TYPICAL VPC ARCHITECTURE



Security Groups / NSGs / NACLs / Firewall Rules govern traffic flow at each layer


Component	AWS	Azure	GCP	OCI
Virtual Network	VPC	VNet	VPC Network	VCN
Subnets	Public + Private	Per region	Global subnets	Public + Private
Firewall	Security Groups + NACLs	NSG	VPC Firewall	Security Lists + NSGs
Load Balancer	ALB / NLB	Azure LB / App GW	Cloud LB	OCI LB / NLB
Peering	VPC Peering / TGW	VNet Peering	Cloud Interconnect	FastConnect / VCN Peering




Storage Services

				
Object Storage	Block Storage	File Storage	Archive Storage	Database
Files, backups, media, static web assets	VM disks, high-IOPS databases	Shared NFS/SMB network drives	Long-term cold storage, compliance & audit	Managed relational & NoSQL databases
AWS S3	AWS EBS	AWS EFS / FSx	AWS S3 Glacier	AWS RDS / DynamoDB
Azure Blob Storage	Azure Managed Disks	Azure Azure Files	Azure Archive Storage	Azure SQL DB / Cosmos DB
GCP Cloud Storage	GCP Persistent Disk	GCP Filestore	GCP Cloud Storage Archive	GCP Cloud SQL / Firestore
OCI Object Storage	OCI Block Volumes	OCI File Storage (NFS)	OCI Archive Storage	OCI Autonomous DB

 *S3 / Blob / Cloud Storage are the most-used services - virtually every cloud architecture touches object storage.*

Shared Responsibility Model - Who Owns What?

 **Think of it like renting an apartment:** The landlord (cloud provider) maintains the building, plumbing, and electricity. You (the customer) are responsible for locking your door, securing your belongings, and what you put inside.

 Cloud Provider Always Responsible	 Shared / Depends on Model	 Customer Always Responsible
Physical hardware & data centres	Encryption (in transit & at rest)	Your application code
Power, cooling & physical security	Identity & Access Management (IAM)	User access & passwords
Network infrastructure & cabling	OS patching (IaaS: you; SaaS: them)	Data you store in the cloud
Hypervisor & virtualisation layer	Firewall & network config rules	What data you collect & share

IaaS → You manage most · PaaS → Split evenly · SaaS → Provider manages almost everything

Real-World Use Cases - How Leading Companies Use Cloud

Netflix

AWS

Media & Streaming

Streams 247M+ subscribers globally. Uses AWS EC2, S3, and CloudFront to auto-scale during peak demand - eliminating the need for physical data centres entirely.

Airbnb

AWS

Travel & Marketplace

Hosts 150M+ users on AWS. Uses RDS, S3, and Spark on EMR for real-time pricing models, fraud detection, and personalised search at global scale.

Spotify

GCP

Music & AI

Migrated 200M+ users to Google Cloud. Uses BigQuery and Dataflow to power personalised playlists and Discover Weekly - processing petabytes of listening data daily.

NHS (UK)

Azure

Healthcare

Uses Microsoft Azure to connect 1.2M staff across 1,200 NHS organisations - enabling secure patient record sharing, telemedicine, and AI-assisted diagnostics.

Coursera

AWS

Education

Serves 100M+ learners in 190 countries on AWS. Scales instantly for course launches and exams - handling traffic spikes without any infrastructure provisioning.

BMW Group

AWS

Automotive

Runs 30+ cloud platforms on AWS for connected vehicles, OTA software updates, and manufacturing analytics - processing data from 3M+ connected cars worldwide.

Certification Roadmap - Start Here

AWS

STEP 1 - FOUNDATIONAL

Cloud Practitioner

CLF-C02

Cloud concepts, billing, core services, security basics

STEP 2 - ASSOCIATE

Solutions Architect Assoc (SAA-C03)

Developer Assoc (DVA-C02)

SysOps Assoc (SOA-C02)

Azure

STEP 1 - FOUNDATIONAL

AZ-900 Fundamentals

AZ-900

Cloud concepts, Azure services, pricing, compliance

STEP 2 - ASSOCIATE

Administrator (AZ-104)

Developer (AZ-204)

AI Fundamentals (AI-900)

GCP

STEP 1 - FOUNDATIONAL

Cloud Digital Leader

CDL

Business value of GCP, product overview
- no tech background needed

STEP 2 - ASSOCIATE

Assoc. Cloud Engineer (ACE)

(Single associate track)

OCI

STEP 1 - FOUNDATIONAL

OCI Foundations

1Z0-1085

Core OCI concepts, IAM, Compute, Networking, Storage

STEP 2 - ASSOCIATE

Architect Associate (1Z0-1072)

Developer Associate (1Z0-1084)

AI Foundations (1Z0-1122)



Start with any Foundational cert - zero prior cloud experience required · AWS Skill Builder · Microsoft Learn · Google Cloud Skills Boost · Oracle MyLearn

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Deployment Strategy

Compare Public, Private, Hybrid, and Multi-Cloud and identify the right model for a given scenario

G5

Certification Direction

Leave the workshop with a clear, personalised next step toward a Foundational cloud certification

Key Takeaways

01

Cloud computing delivers computing resources on-demand over the internet with pay-as-you-go pricing - no hardware required.

02

The three service models (IaaS / PaaS / SaaS) differ by how much you manage versus how much the provider manages.

03

Mastering IAM, Compute, VPC, Storage, and CDN gives you a solid foundation across all cloud platforms.

04

Every major provider - AWS, Azure, GCP, OCI - offers equivalent core services; skills transfer across platforms.

05

Start with a Foundational certification (Cloud Practitioner / AZ-900 / CDL / OCI Foundations) - no experience needed.



Questions?

Thank you for attending Cloud Computing 101

Next Step: Cloud Computing 201

AWS Skill Builder · Microsoft Learn · Google Cloud Skills Boost · Oracle MyLearn

AWS · Azure · GCP · OCI