

GCP Project

CLOSO

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Contents

General information	1
PART 1 — Service Mapping Table (GCP vs Azure vs AWS)	1
PART 2 — Comparative Analysis (3 Categories)	3
Identity & Access (IAM)	3
Software-Defined Network.....	4
Compute: VMs.....	5
PART 3 — Practical (Pluralsight Sandbox) Migration to GCP + Implementation	6
Creating an VM instance.....	6
THE Famous Hello World	6

General information

A multi-cloud services comparison report is being developed for the Technical Leadership team. They are experienced users of AWS and Azure but are just becoming acquainted with Google Cloud Platform (GCP).

Your task will be to:

- Identify services that are corresponding
- Describe the differences between the services conceptually
- Review the advantages and disadvantages of all three platforms
- Make a recommendation based on this information.

PART 1 — Service Mapping Table (GCP vs Azure vs AWS)

Category	Google Cloud	Microsoft Azure	Amazon Web Services
Global structure	Org → Folder → Project	Tenant → Sub → RG	Org → Account
Identity & Access	IAM	Entra ID + RBAC	IAM
Compute (VMs)	Compute Engine	Virtual Machines	EC2
Object Storage	Cloud Storage	Blob Storage	S3
Virtual Network	VPC	VNet	VPC
Firewall / Security	Firewall Rules	NSG	Security Groups
Monitoring	Cloud Monitoring	Azure Monitor	CloudWatch

CLI Tool	gcloud	AZ	AWS
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PART 2 — Comparative Analysis (3 Categories)

Identity & Access (IAM)

Conceptual Model

AWS: identity + policy-focused. Permission management is carried out mostly through policies associated with accounts/roles.

Azure: Focuses on “Microsoft Entra ID and RBAC.” The permissions are assigned at the subscription/resource group/resource level.

GCP

Centered on resource hierarchy (Organization → Folder → Project).

IAM roles are inherited at each level.

Ease of Use

Azure is most comfortable to work with when you're already familiar with the Microsoft environment.

AWS is very powerful, but the policies can get complicated.

“GCP is clean and simple once you understand projects and role bindings.”

Differences in Key Terminology

GCP “Service Account” is similar to AWS IAM Role or Azure Managed Identity. It is also somewhat similar to AWS IAM User. However, GCP “Service Account” is more similar to AWS.

GCP Projects are like a large boundary (AWS accounts or Azure Subscriptions).

Advantages of GCP

- Highly consistent hierarchy model of governance.
- Predefined roles meet most of our needs.
- Well-defined role-based permissions with inheritance.

Vulnerabilities over AWS/Azure

AWS has the most mature policy ecosystem and tooling.

Azure integrates best with corporate identity or Active Directory.

GCP has a learning curve, as projects are unfamiliar to most users.

Software-Defined Network

Conceptual Model

Amazon Web Services: VPC is regional, so subnets are related to areas.

Azure: The VNET is geographical like AWS.

GCP: VPC is a global entity (crosses regions) while subnets are regional.

Ease of Use

Actually, it is very effective for multi-region networking because one VPC can span across multiple regions. It's very flexible. For

- AWS: predictable, but inter-region configurations require additional architecture components (peering, TGNW).
- Azure is easy for enterprise and hybrid environments.

Terminology Differences

GCP firewall rules are network level rules (not directly like AWS security group rules).

AWS security groups are applied to instances/interfaces, whereas GCP firewall rules are more centrally managed.

NSGs of Microsoft Azure are bound to subnets or NICs.

Strengths of GCP

- Global VPC design assists in planning on a multi-region basis.
- Simple routing and subnetting.
- Compatible with GCP global load balancing.

Strengths vs AWS/Azure

- Large-scale hub-and-spoke network capabilities: AWS has extremely mature hub-and-spoke network capabilities.
- Azure provides robust hybrid networking patterns for corporations.
- GCP forces a re-learning of firewall rules and configuration.

Compute: VMs

Conceptual Model

AWS EC2: select AMI, instance type, storage, networking. Scaling via auto scaling.

Azure VM: similar process but may have a number of highly interrelated resources (NICs, NSGs, storage volumes, and).

GCP Compute Engine: Management of virtual machine instances via templates and managed instance groups.

Ease of Use

GCP VM setup is very easy to do either from the console or command-line mode.

Azure is a very friendly cloud. However, at the same time, Azure is considered “heavy” because of its components.

AWS is very flexible but entails many options.

Terminology Differences

AWS instance type = Azure VM size = GCP machine type.

"GCP managed instance groups are equivalent to AWS Auto Scaling Groups and Azure VM Scale Sets."

Strengths of GCP

- Easy provisioning and scaling patterns.
- Connectivity with worldwide infrastructure and load balancing.
- High-quality VM template with autoscaling.

Weaknesses vs AWS/Azure

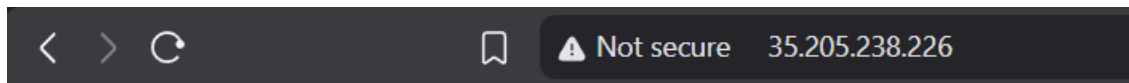
- AWS possesses the largest service ecosystem and marketplace.
- Azure is highly integrated with Microsoft licensing and enterprise management.
- GCP could require training for teams who are accustomed to AWS/Azure terminology.

PART 3 — Practical (Pluralsight Sandbox) Migration to GCP + Implementation

Creating an VM instance

Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
example-vm	eu-west-1-b			10.132.0.2 (nic0)	35.205.238.226 (nic0)	SSH

THE Famous Hello World



Hello World!

