SEP 713 : Cloud Computing

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AWS History

- In 2000, very much out of necessity, Amazon made their strategic technology decision to start **building reusable module**s for its **internal development groups**. This allowed these groups to create new features faster because they weren't always reinventing the same thing over and over again.

- As time went on, the collection of internal services grew and people inside the company started to realize that maybe there's a business opportunity there.

- **First launched in 2004** and then **relaunched in 2006** with **three public pay-as-you-go services**, Amazon Web Services (AWS) set sail into the uncharted waters of what we now call cloud computing.

Microsoft Azure History:

- Microsoft officially announced that it had something cooking for the cloud in **2008**, which they called **Project Red Dog** because, well, "Pink Poodle" just didn't have a really nice ring to it.
- Officially released **as Windows Azure** in **2010**, Microsoft's first iteration of cloud service . . . wasn't really that good. It **couldn't even run a standard version of Windows server**. A bit of dog-fooding and an offsite retreat in 2011 was enough to convince the players in Azure's leadership that they needed to do better if they hoped to be competitive with the likes of AWS and Google.
- **Microsoft Azure relaunched in 2013** much better positioned and a much more compelling option for organizations, especially those who were longtime Microsoft shops and were looking for a smooth path to leverage the growing cloud wave that was coming. In 2014, Windows Azure was renamed Microsoft Azure, which symbolically and literally marked a shift in strategy for Microsoft making the cloud a priority.

Microsoft Azure

The original project for what ultimately became **Microsoft Azure** was a project code-named **"Project Red Dog"**.

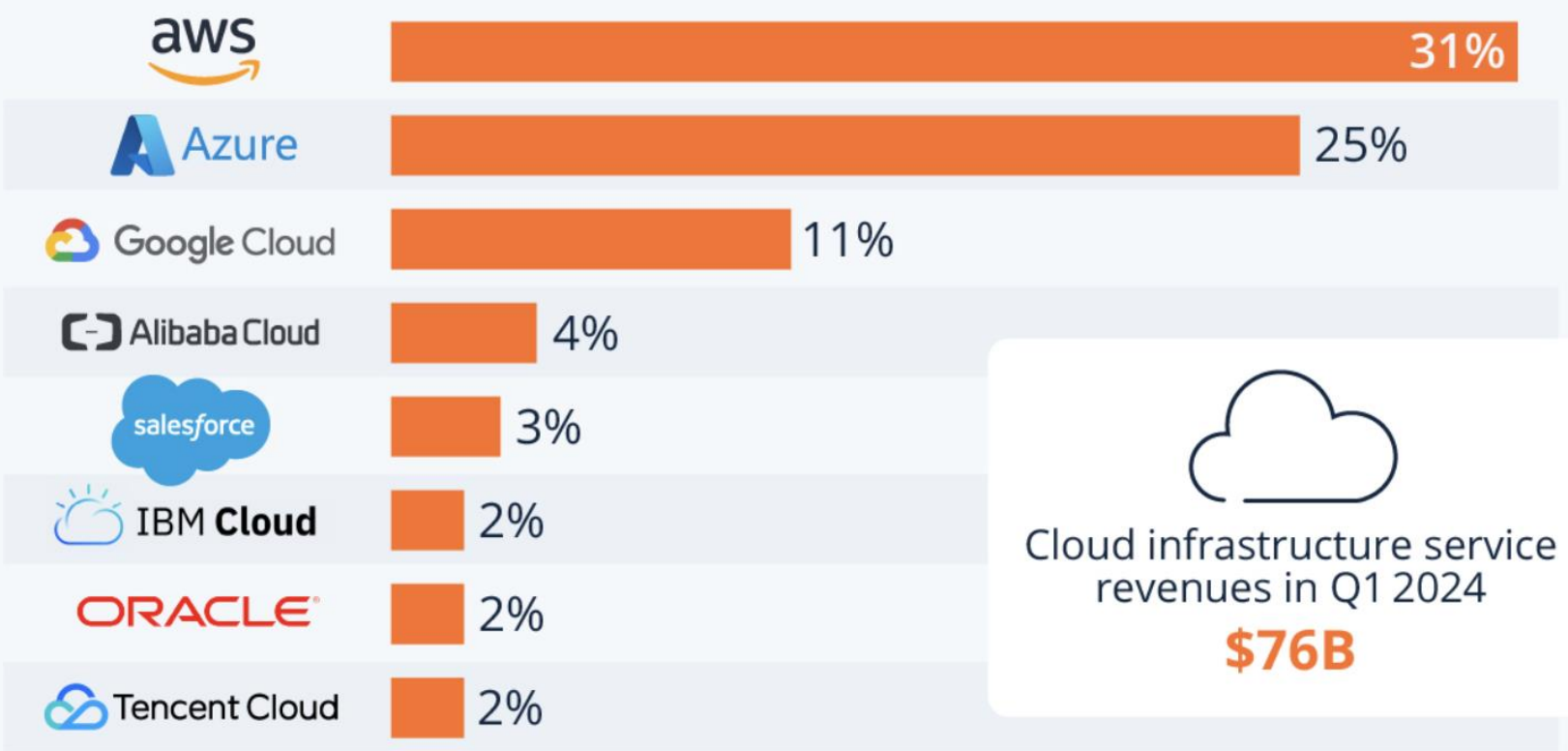
Google Cloud (GCP) History:

- Google's cloud origins have been baked in from the very start, but officially entered the public cloud in **April 2008**, through the preview release of **Google App Engine**, aimed at letting developers quickly deploy and scale web applications.

- Now, in contrast to **AWS and Microsoft, who emphasized heavily the infrastructure as a service** path in their early days, **Google chose a platform as a service, PaaS**. And over the next several years, Google used its world-class development organization, acquisitions and deep pockets to grow Google Cloud Platform into something that can compete with its fellow public cloud providers.

Amazon Maintains Cloud Lead as Microsoft Edges Closer

Worldwide market share of leading cloud infrastructure service providers in Q1 2024*



* Includes platform as a service (PaaS) and infrastructure as a service (IaaS) as well as hosted private cloud services

Source: Synergy Research Group

Comparing Cloud Services (AWS, Azure & GCP)

Category	Service	aws	Azure	Google Cloud
Compute	Virtual Server	Amazon EC2	Azure Virtual Machine	Compute Engine
Storage	Object Storage	Amazon Simple Storage Service (S3)	Azure Blob Storage	Cloud Storage

Comparing Cloud Services (AWS, Azure & GCP)

Category	Service	aws	Azure	Google Cloud
Compute	Container Registration Service	Amazon Elastic Container Registry (ECR)	Azure Container Registry	Artifact Registry
Compute	Container Management Service	Amazon Elastic Container Service (ECS) Amazon Elastic Kubernetes Service (EKS) Red Hat Openshift on AWS Bottlerocket	Azure Kubernetes Service (AKS) Azure Container Instances Azure Red Hat OpenShift	Kubernetes Engine
Compute	Serverless compute for containers	AWS Fargate AWS Proton	Azure Container Instances Azure Container Apps	Google Cloud Run

Comparing Cloud Services (AWS, Azure & GCP)

Category	Service	aws	Azure	Google Cloud
Compute	Auto Scaling	Auto Scaling	Azure Autoscale Virtual Machine Scale Sets	Auto Scaler
Compute	Batch Jobs	AWS Batch	Azure Batch	Preemptible VMs
Compute	App Development/ Deployment (Java /.Net /PHP /Python)	AWS Elastic Beanstalk	Azure Web Apps Azure Cloud Services	Google App engine
Compute	Event Driven Computing	AWS Lambda	Azure Functions Event Grid	Cloud Functions EventArc

Comparing Cloud Services (AWS, Azure & GCP)

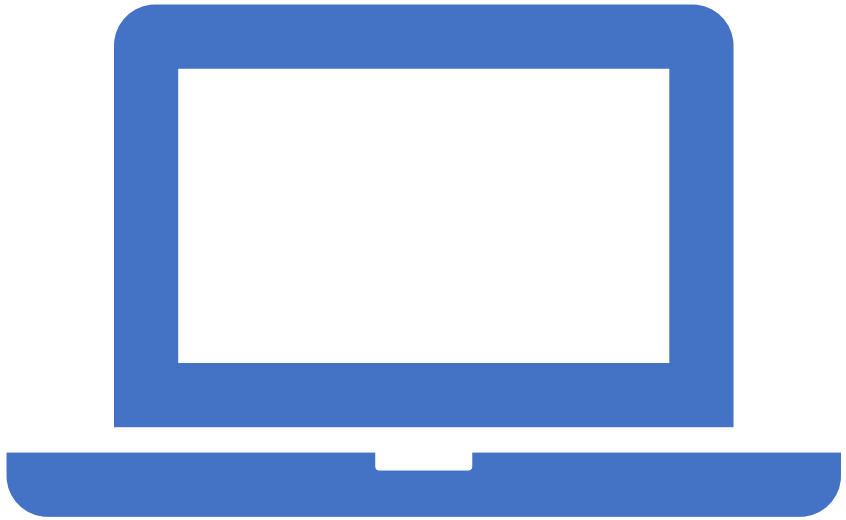
Category	Service	aws	Azure	Google Cloud
Storage	Virtual Machine Disk Storage	Amazon Elastic Block Storage (EBS)	Azure Page Blobs / Premium Storage Managed Disks	Persistent Disk
Storage	File Storage (SMB Compatible)	Amazon Elastic File System (EFS) Amazon FSx for Windows File Server Amazon FSx for Lustre Amazon FSx for NetApp ONTAP Amazon FSx for OpenZFS	Azure Files Azure NetApp Files	File Store
Storage	Long Term Cold Storage	Amazon S3 Glacier	Azure Archive Storage Azure Cool Storage	Cloud Storage

Comparing Cloud Services (AWS, Azure & GCP)

Category	Service	aws	Azure	Google Cloud
Security & Identity, Compliance	Identity & Access Management	AWS Identity and Access Management (IAM)	Azure Active Directory	Cloud IAM Cloud Identity-Aware Proxy
Networking & Content Delivery	Load Balancers	Elastic Load Balancing	Azure Load Balancer	Cloud Load Balancing

More such comparison can be found here:
https://comparecloud.in/

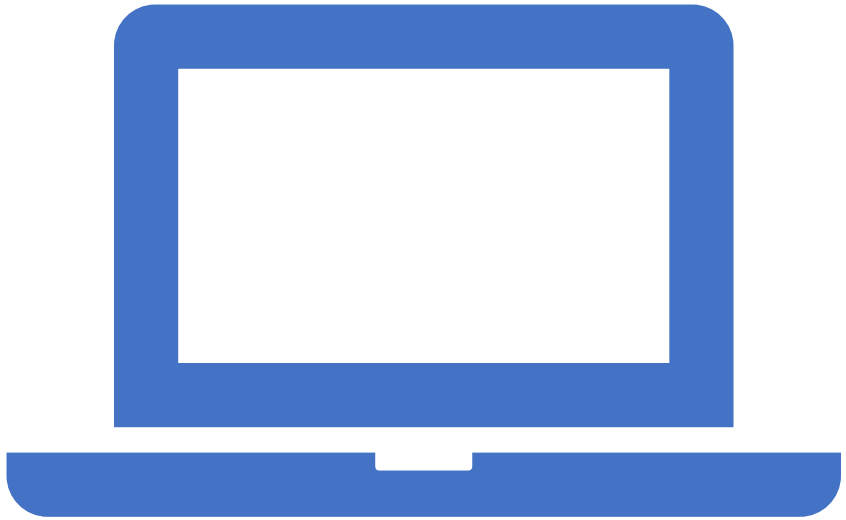
Azure Hands-On



Topics:

- Tenant, Subscription & Resource Group
- Azure Entra (ID), PIM
- Azure Virtual Machines
- Storage Accounts
- Azure SQL
- Azure load balancer

Google Cloud Hands-On



Topics:

- Google Cloud IAM
- Cloud Storage
- Cloud Functions
- Virtual Machines (Compute Engine)
- Big Query