CSYE 6225 – Network Structures and Cloud Computing

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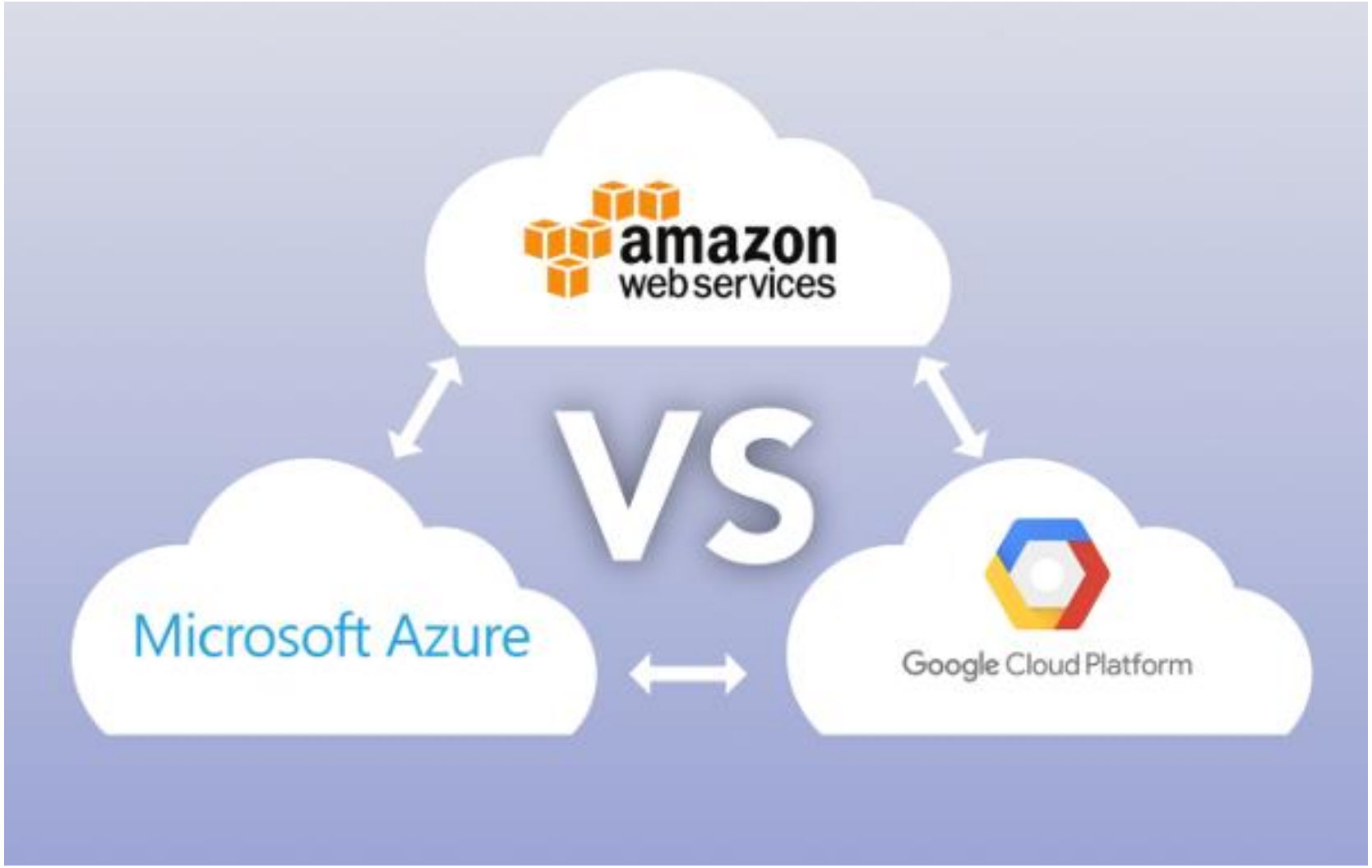
Comparison of AWS vs GCP vs Azure



Strengths & Weaknesses:

Vendor	Strengths	Weaknesses
AWS	• Dominant market position • Extensive, mature offerings • Support for large organizations • Extensive training • Global reach	• Difficult to use • Cost management • Overwhelming options
Microsoft Azure	• Second largest provider • Integration with Microsoft tools and software • Broad feature set • Hybrid cloud • Support for open source	• Less "enterprise-ready" • Incomplete management tooling
Google	• Designed for cloud-native businesses • Commitment to open source and portability • Deep discounts and flexible contracts • DevOps expertise	• Late entrant to IaaS market • Fewer features and services • Fewer worldwide data centers

Instances Comparison

	Amazon EC2	Google CE	Microsoft Azure VM
Number of instance templates available	39	18	40
CPU Limits	1 – 40	1 Shared – 32 dedicated CPU	1 – 32 CPU
Memory Limits	0,5 – 244 GB	0,6 — 208 GB	0,75 — 448 GB
Temporary Storage Limits	Up to 48 TB (Multiple Disks)	3 TB	4 TB

Backup Capability

AWS	GCP	Azure
Provide 2 types of backup : 1. EBS Snapshot 2. Amazon Machine Image Both variants make a copy of whole root volume, but in the snapshot you can check the consistency of saved data.	It has its own backup service which allows to store up to 7 snapshots for free, schedule and plan backups. Google also has binary logging feature which allows to perform point-in-time recovery	It provides all features listed for AWS & GCP, which can be additionally performed by its Azure Backup tool and Recovery Services.

Storage

HOT — durable, available and performance object storage for frequently accessed data

- Amazon S3 Standard
- Microsoft Azure Hot Blob Storage
- Google Cloud Storage standard

COOL — storage class for data that is accessed less frequently, but requires rapid access when needed:

- Amazon S3 Standard I/A
- Microsoft Azure Cool Blob Storage
- Google Cloud Storage Nearline

COLD — secure, durable, and low-cost storage service for data archiving:

- Amazon Glacier
- Microsoft Azure Blob Archive Storage
- Google Cloud Storage Coldline

Availability

AWS

Azure

GCP

Networking Support

	AWS	Google	Azure
Networking in Cloud by DNS	Route 53	Google DNS	Azure DNS
Load Balancing	Elastic Load Balancing	Google Cloud Load Balancing	Azure’s Load Balancer
Virtual Private Network	Virtual Private Cloud (VPC)	Cloud Virtual Network	VPN Gateway

Database Support

	AWS	GCP	Azure
SQL Solutions	Amazon's Relational Database Systems (RDS)	Google's Cloud SQL	Azure's SQL Database
NoSQL support	Amazon's Dynamo DB	Google's Bigtable & Cloud Store	Azure's Document DB and table storage

Serverless Computing Comparison

AWS Offering

AWS Lambda is a serverless compute service that runs your code in response to events and automatically manages the underlying compute resources for you

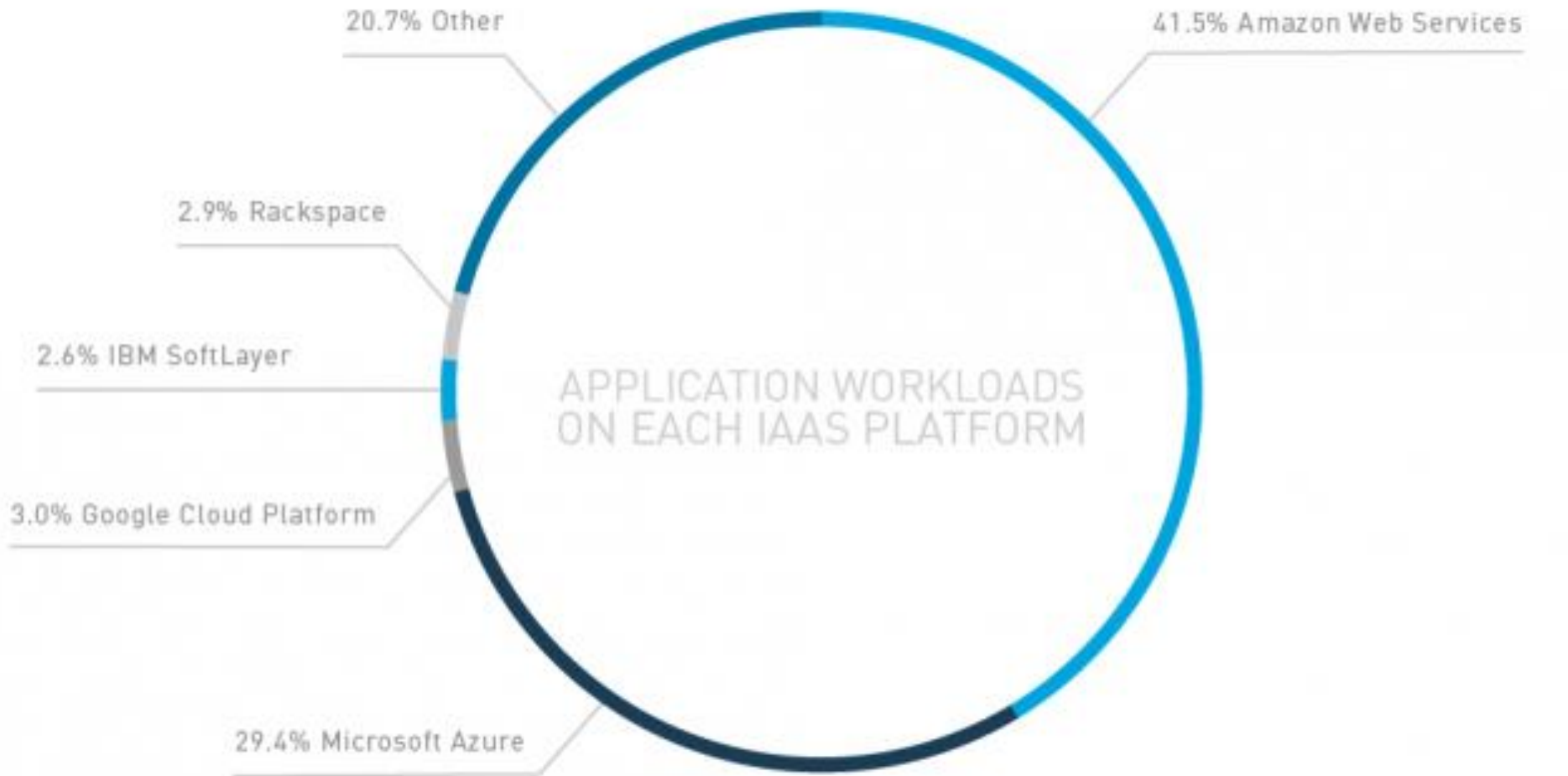
Microsoft Azure

Azure Functions is a serverless compute service that enables you to run code on-demand without having to explicitly provision or manage infrastructure

Google cloud platform

Google Cloud Functions is a lightweight compute solution for developers to create single-purpose, stand-alone functions that respond to Cloud events without the need to manage a server or runtime environment.

Popularity


20.7% Other
41.5% Amazon Web Services
2.9% Rackspace
2.6% IBM SoftLayer
APPLICATION WORKLOADS
ON EACH IAAS PLATFORM
3.0% Google Cloud Platform
29.4% Microsoft Azure

Thank you