



AWS VS GCP – AN OVERVIEW

INFO 6225 – NETWORK STRUCTURES AND CLOUD COMPUTING

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PROBLEM STATEMENT

- To evaluate and compare the service offerings of Amazon Web Services (AWS) and Google Cloud Platform (GCP)
- To suggest a robust and cost-effective cloud solution for ACME Inc., a TODO application giant

GARTNER MAGIC QUADRANT



BRIEF HISTORY

AWS

- Initially launched in 2002 as a set of disparate tools and services
- Officially relaunched in 2006 based on Chris Pinkham and Benjamin Black's paper
- Currently offers more than 90 services

• GCP

- App Engine opened to developers for preview in 2008
- Cloud Storage launched in 2010
- GCP Partner program launched in 2012

SERVICE OFFERINGS

COMPUTE

- AWS: EC2, Elastic Beanstalk, Lambda
- GCP: Compute Engine, App Engine, Cloud Functions

- NETWORK

- AWS: Elastic Load Balancer, Route 53
- GCP: Google Cloud Load Balancing, Google Cloud DNS

- STORAGE

- AWS: S3, EBS, Glacier
- GCP: Google Cloud Storage, Google Compute Engine Persistent Disks

SERVICE OFFERINGS – CONTD..

- DATABASE

- AWS: RDS, DynamoDB
- GCP: Google Cloud SQL, Google Cloud Datastore, Google Cloud BigTable

- BIG DATA & ANALYTICS

- AWS: EMR, Kinesis
- GCP: Google Cloud Dataproc, Google Cloud Dataflow

- APPLICATION SERVICES

- AWS: SNS
- GCP: Google Cloud Pub/Sub

- MANAGEMENT SERVICES

- AWS: CloudWatch, CloudFormation
- GCP: Stackdriver Monitoring, Cloud Deployment Manager

MAJOR DIFFERENTIATORS

• INSTANCE CONFIGURATION

- AWS: Up to 128 vCPUs and 3,904 GB of RAM
- GCP: Up to 96 vCPUs and 624 GB of RAM, also allows customized instance configurations known as “Custom Machines”

• SERVERLESS COMPUTING

- AWS: Lambda allows code written in multiple languages; available in multiple regions
- GCP: Support provided using Cloud functions, but only Node.js is supported for now; available in only US-Central region

MAJOR DIFFERENTIATORS-CONTD..

TECHNICAL SUPPORT

- AWS: Well established support for services
- GCP: Some services such as Cloud Functions are still in beta phase

- SUPPORTED DATABASES

- AWS: RDS supports 6 database engines including MySQL, MS-SQL, Oracle, Amazon Aurora, Maria DB and PostGRE SQL
- GCP: Cloud SQL supports only MySQL and PostGRE SQL as of now

MAJOR DIFFERENTIATORS-CONTD..

• EMAIL SERVICES

- AWS: Simple Email Service
- GCP: No dedicated service, possible either through Compute engine partners or using G Suite

• AVAILABILITY

- AWS: 46 availability zones within 17 regions, 107 Points of Presence
- GCP: 39 availability zones within 13 regions, over 100 Points of Presence

AVAILABILITY



Region & Number of Availability Zones

US East

N. Virginia (6), Ohio (3)

US West

N. California (3), Oregon (3)

Asia Pacific

Mumbai (2), Seoul (2), Singapore (2), Sydney (3), Tokyo (3)

Canada

Central (2)

China

Beijing (2), Ningxia (2)

Europe

Frankfurt (3), Ireland (3), London (2)

South America

São Paulo (3)

AWS GovCloud (US-West) (2)



New Region (coming soon)

Bahrain

France

Hong Kong SAR, China

Sweden

AWS GovCloud (US-East)



PRICING

FREE TRIALS

- GCP : \$300 in credits for 12 months, no time limit attached to it
- AWS: 12 month free trial, but cannot exceed 750 hrs/month

- PER SECOND BILLING

- GCP : Per second billing, but minimum time billed for an instance from 10 minutes down to 1 minute
- AWS: AWS moved from per hour to per second billing for EC2 and several other services

MIGRATION PROCESS - AWS

5 PHASES

- Migration Preparation and Business Planning
- Portfolio Discovery and Planning
- Designing, Migrating, and Validating Application
- Operate

6 MIGRATION STRATEGIES

- Rehost
- Replatform
- Repurchase
- Refactor / Re-architect
- Retire
- Retain



AWS MIGRATION SERVICES

DISCOVERY AND MIGRATION TRACKING

- Migration Hub
- Application Discovery Service

- SERVER AND DATABASE MIGRATION

- Server Migration Service
- Database Migration Service

- DATA MIGRATION

- Snowball
- Direct Connect

MIGRATION PROCESS – GCP

- 5 PHASES

- Plan
- Assess
- Move Data
- Move Applications
- Optimize

- SERVICES

- Self Service: Powered by CloudEndure
- Partner Assisted



HYBRID CLOUD - AWS

- STRATEGIC PARTNERSHIPS – VMWARE, INTEL, SAP
- DATA INTEGRATION – AWS STORAGE GATEWAY, AWS SNOWBALL
- INTEGRATED NETWORKING – AMAZON VPC
- INTEGRITY IDENTITY AND ACCESS – AWS DIRECTORY SERVICE, IAM
- INTEGRATED RESOURCE AND DEPLOYMENT MANAGEMENT – CODEDEPLOY

HYBRID CLOUD - GCP

PARTNERSHIP WITH NUTANIX

- Easing hybrid operations
- Nutanix Xi Cloud Services to GCP

- PARTNERSHIP WITH CISCO

- Kubernetes based container strategy
- Write once, deploy anywhere
- Cloud service broker to connect to GCP

CONCLUSION

- RIGHT CLOUD SOLUTION DEPENDS ON FEATURES AND SERVICES NEEDED
- GCP – GOOD CHOICE IF PRICE AND SPEED IS A CONSIDERATION
- AWS – WIDE ARRAY OF SERVICES, EXCELLENT SUPPORT, AVAILABILITY AND REDUNDANCY PER REGION

REFERENCES

- https://aws.amazon.com/documentation/?nc2=h_ql_d
- <https://www.infoworld.com/article/3237566/cloud-computing/cloud-pricing-comparison-aws-vs-azure-vs-google-vs-ibm.html>
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THANK YOU!