CSYE6225

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Amazon Web Services

- Elastic Cloud Compute (EC2)
- Simple Storage Service (S3) bucket
- Cloud Formation
- Code Deploy
- Auto-scaling
- Relational Database Service (RDS)
- Simple Notification Service (SNS)

- Lambda function
- DynamoDB
- Cloud Watch
- Certificate Manager
- Virtual Private Cloud (VPC)
- Route 53

Google Cloud Platform

- Google Compute Engine
- Google Cloud Load Balancing
- Google Cloud DNS
- Google Cloud Storage
- Google Cloud SQL
- Google Cloud Deployment Manager

Service Differentiation

EC2 Instance

- Splits instances into 6 families and offers 29 instance-types

- Instance cost $69/month

- The number of AMI options are much more compared to GCE

Google Compute Engine

- Splits instances into 4 families and offers 15 instance-types

- Instance cost $52/month

- It starts faster than EC2 by a factor of 60-80%

- GCE's default I/O operation is very fast compared to EC2

Service Differentiation

AWS Load Balancer

- Needs to be associated with auto-scaling.

- Requires a pre-warming for handling additional traffic.

- Pricing varies from region-to-region and can be charged per hour or the number of LCU used per hour.

Google Cloud Loading Balancer

- Scales instantly on a traffic spike and can handle request automatically.

- Requires no pre-warming for handling additional traffic.

- All cloud load balancing services are charged by the same hourly rates and data processing volume rates

Service Differentiation

Simple Storage Service

- Offers single region cloud storage option

- Uses REST, SOAP and Bit Torrent web service interfaces

- Storage cost 2.3cents/GB/month

Google Cloud Storage

- Offers multiregional cloud storage option

- Uses only RESTful web service interfaces

- Storage cost 2cents/GB/month

Service Differentiation

Relational Database Service

- Supports many DBMS engines for implementing SQL solutions.
- Uses Amazon VPC to isolate DB instances and encrypts using IPsec VPN.
- Charged per hour and depends upon the type of instance used and generally varies from $0.17-$7.68/hour

Google Cloud SQL

- Supports MySQL and PostgreSQL which is still in beta for implementing SQL solutions.
- Uses SSL for encrypting the communication between client and server.
- Charged per hour and varies from $0.36-$35/hour.

Service Differentiation

AWS Cloud Formation

- Collection of resources is termed as stack

- Template files can be written in JSON or YAML formats

- Individual resources are identified by Logical IDs

- Maximum number of stacks is 200

GCP Deployment Manager

- Collection of resources is termed as deployment

- Configuration, templates and schema files can be written in YAML, Jinja and Python

- Individual resources are identified by names

- Maximum number of deployments is 1000

Global Infrastructure

AWS

- AWS operates 46 Availability Zones within 17 geographic regions around the world

- Another center is coming in China exclusively for that market which will be completely isolated due to Chinese concerns about US govt snooping

GCloud

- GCE servers are distributed in 3 zones around the world namely Central USA, Western Europe & East Asia

Machine Learning and Analytics

Amazon Sagemaker

- Gluon

- AWS EMR

- QuickSight

Cloud ML Engine

- TensorFlow

- Cloud DataProc

- Visualizations absent

Conclusion

- Variety
- Gov Cloud
- Compute
- Billing
- Databases
- Documentation

Thank You