

# *NETWORK STRUCTURE & CLOUD COMPUTING*

## *FINAL PRESENTATION*



Google Cloud Platform

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# Survey Analysis

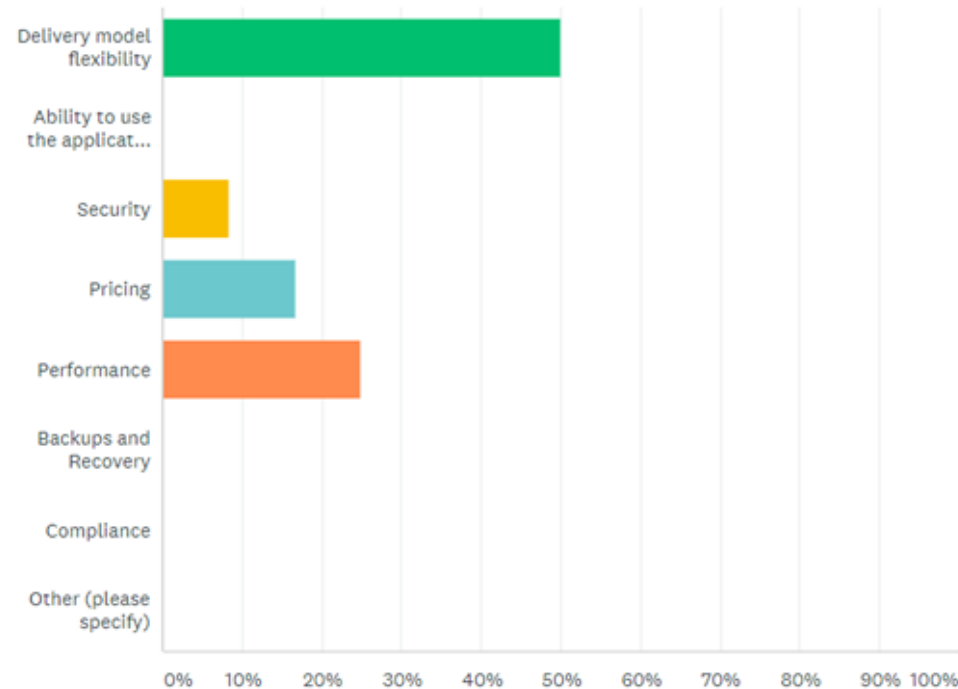
Q1

Customize

Export ▼

What are the main factors you would consider to pick a cloud platform technology?

Answered: 12 Skipped: 0



# *The Cloud Wars*



- ☐ *Compute & Network*
- ☐ *Cloud Security*
- ☐ *Storage & Database*
- ☐ *Developer & Management Tools*
- ☐ *Billing & Pricing*
- ☐ *The Verdict*

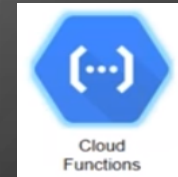
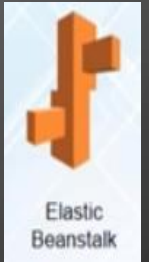
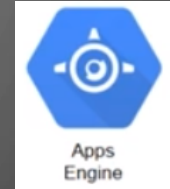
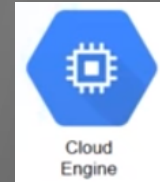
# Services Mapping

Service Category	Service	AWS	Google Cloud Platform
Compute	IaaS	Amazon Elastic Compute Cloud	<a href="#">Google Compute Engine</a>
	PaaS	AWS Elastic Beanstalk	<a href="#">Google App Engine</a>
	Containers	Amazon Elastic Compute Cloud Container Service	<a href="#">Google Kubernetes Engine</a>
	Serverless functions	AWS Lambda	<a href="#">Google Cloud Functions</a>
Network	Load Balancer	Elastic Load Balancer	<a href="#">Google Cloud Load Balancing</a>
	Peering	Direct Connect	<a href="#">Google Cloud Interconnect</a>
	DNS	Amazon Route 53	<a href="#">Google Cloud DNS</a>
Storage	Object Storage	Amazon Simple Storage Service	<a href="#">Google Cloud Storage</a>
	Block Storage	Amazon Elastic Block Store	<a href="#">Google Compute Engine Persistent Disks</a>
	Cold Storage	Amazon Glacier	<a href="#">Google Cloud Storage Nearline</a>
	File Storage	Amazon Elastic File System	<a href="#">ZFS / Avere</a>
Database	RDBMS	Amazon Relational Database Service	<a href="#">Google Cloud SQL</a>
	NoSQL: Key-value	Amazon DynamoDB	<a href="#">Google Cloud Datastore, Google Cloud Bigtable</a>
	NoSQL: Indexed	Amazon SimpleDB	<a href="#">Google Cloud Datastore</a>
Big Data & Analytics	Batch Data Processing	Amazon Elastic MapReduce	<a href="#">Google Cloud Dataproc, Google Cloud Dataflow</a>
	Stream Data Processing	Amazon Kinesis	<a href="#">Google Cloud Dataflow</a>
	Stream Data Ingest	Amazon Kinesis	<a href="#">Google Cloud Pub/Sub</a>
	Analytics	Amazon Redshift	<a href="#">Google BigQuery</a>
Application Services	Messaging	Amazon Simple Notification Service	<a href="#">Google Cloud Pub/Sub</a>
Management Services	Monitoring	Amazon CloudWatch	<a href="#">Stackdriver Monitoring</a>
	Deployment	AWS CloudFormation	<a href="#">Google Cloud Deployment Manager</a>



# Computing & Network

- ❑ Option to define your own customized machine on Google Cloud
- ❑ Google supports live migration of virtual machines
- ❑ Google supports serial console login
- ❑ No IP on Load balancer in Amazon, while Google has static IP
- ❑ No outgoing firewall rules in google firewall
- ❑ Google subnets can span multiple regions



# *Cloud Security*

All data is encrypted in transit between customers, and data centers **by default**

The data stored on persistent disks is encrypted under 256-bit AES

Because Google has relationships with some of the biggest ISPs in the world, it helps improve the security of your data in transit as it means less hops across the public internet





# Global Infrastructure

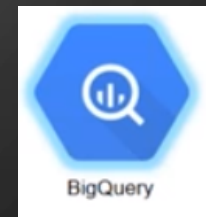
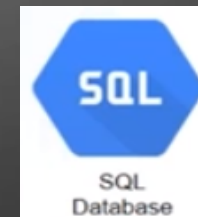
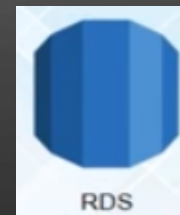
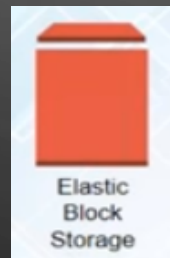
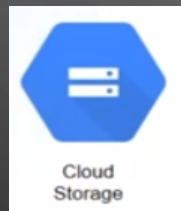


Google Cloud Platform



# *Storage and Database*

- ❑ Google is focused more on NoSQL, while AWS is focused on RDBMS segment
- ❑ AWS glacier has few hours of latency while Google nearline has few seconds latency
- ❑ Google Big Query, TPU, Cloud speech are important offerings from Google.
- ❑ Analytics – Dataproc (lead time 90sec) is better than EMR





# *Development and Management Tools*

☐ AWS CodeCommit

☐ AWS CodeDeploy

☐ AWS CodeBuild

☐ AWS Cloud Watch

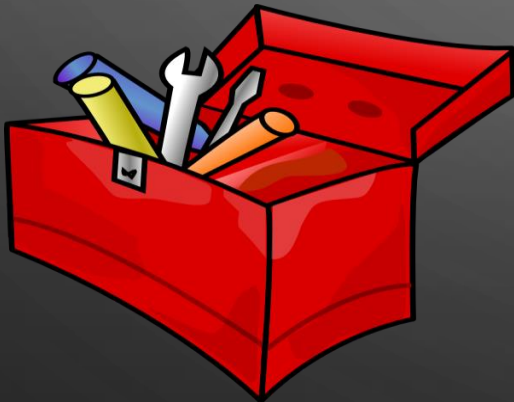
☐ Stackdriver

☐ Cloud Deployment Manager

☐ Cloud SDK

☐ Cloud shell



☐ Cloud Deployment Manager



Jyoti Sharma,

## Your Estimated Bill \*

**Estimated Monthly Cost: \$30.01**

 Cloud Storage	Multi-Regional storage	4 GB	\$0.10
Datastore Storage	Datastore Storage	5 GB	0
Forwarding rules	Forwarding rules	1	\$18.25
Load Balancer ingress	Ingress	1 GB	\$0.01
 3 x	f1-micro Sustained Usage Discount Monthly Breakdown:	2190 total hours per month	\$11.65
<ul style="list-style-type: none"> <li>1st ¼ - 547.5 hrs @ 0.0% off: \$4.16</li> <li>2nd ¼ - 547.5 hrs @ 20.0% off: \$3.33 (\$0.83 saved)</li> <li>3rd ¼ - 547.5 hrs @ 40.0% off: \$2.50 (\$1.66 saved)</li> <li>4th ¼ - 547.5 hrs @ 60.0% off: \$1.66 (\$2.50 saved)</li> </ul>			

**Total Estimated Monthly Cost**

**\$30.01**

# Billing and Pricing

- ☐ Per second Billing
- ☐ Committed use discounts vs Reserved Instances
- ☐ Sustained use discounts
- ☐ Free trials



**FREE USAGE TIER:** New Customers get free usage tier for first 12 months

Services

**Estimate of your Monthly Bill (\$ 0.90)**

### Estimate of Your Monthly Bill

☒ Show First Month's Bill (include all one-time fees, if any)



Below you will see an estimate of your monthly bill. Expand each line item to see cost breakout of each service. To save this bill and input values, click on 'Save and Share' button. To remove the service from the estimate, jump back to the service and clear the specific service's form.

Export to CSV

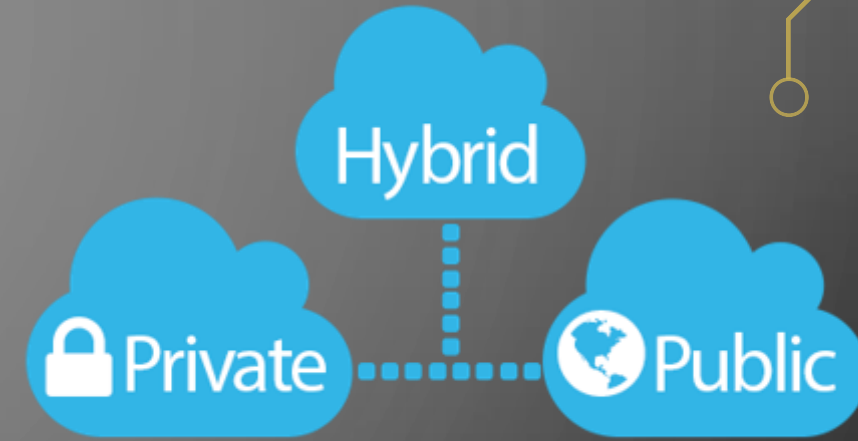
Save and Share

<a href="#">Amazon EC2 Service (US-East)</a>	\$	27.60
<a href="#">Amazon S3 Service (US-East)</a>	\$	0.10
<a href="#">Amazon Route 53 Service</a>	\$	0.90
<a href="#">Amazon RDS Service (US-East)</a>	\$	13.03
<a href="#">AWS Support (Basic)</a>	\$	0.00
<b>Free Tier Discount:</b>	\$	-40.73
<b>Total Monthly Payment:</b>	\$	0.90

*And...*

## Hybrid Cloud Solutions:

- ❑ **Increase the speed** at which they're releasing products and features
- ❑ **Scale** applications to meet customer demand
- ❑ **Move applications** to the public cloud at their own pace
- ❑ **Reduce time spent on infrastructure** and increase time spent on writing code
- ❑ **Reduce cost** by improving resource utilization and compute efficiency



# *Verdict*

- ❑ Google Cloud wins on pricing
- ❑ AWS wins on market share and offerings
- ❑ Google Cloud wins on instance configuration
- ❑ Google Cloud wins on the Big Data and Analytics front.



- ❑ Better Pricing Than Competitors
- ❑ Private Global Fiber Network
- ❑ Live Migration of Virtual Machines
- ❑ State of the Art Security
- ❑ Redundant Backups





Thank  
You!