



## **ECEN 5783 Embedded Interface Design (Fall-2019)**

Topic: **AWS vs Google cost estimation**  
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### **Abstract:**

The AWS vs Google cost estimation done in this document are based on the idea of a cloud data storage and file management server system. The proposed system would address user requests for data storage / acquisition in million(s) every month as the number of users / customers using the services increase. The cost estimate done in this report has been built around the assumption that both the comparison systems requires approximately 500-600 GB of cloud storage per month in addition to other utility / application overheads associated with the data movements (inbound, intra and outbound).

The below information focusses on the cost estimation on a similar premises for both AWS and Google.

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### **AWS Cloud Storage Gateway – monthly cost estimation:**

For the AWS Cloud storage gateway system, AWS cost estimation includes the following three sub-categories under which a user is charged individually based on the specific requirements of the user. The sub-categories associated with the use of an AWS cloud storage gateway system are as below:

1. File Gateway
2. Volume Gateway
3. Tape Gateway

#### ***File Gateway:***

The file gateway system stands for the underlying AWS S3 cloud storage services. The file gateway offers the user a seamless way to connect to the AWS cloud for storing application data and backup image files. Based on this information, it is assumed that the file gateway will account for about 100/600 GB of the mainline storage requirement which will account for a monthly charge of about **1.30 USD**.

#### ***Volume Gateway:***

The volume gateway systems supports the AWS cloud storage for iSCSI block protocol and for large data volumes that can asynchronously retrieved and backed up as Amazon EBS snapshots. Considering the usage requirements for this section, on an average, it would turn out to be about 200/600 GB of the mainline storage requirement which will account for a monthly charge of about **4.55 USD**.

#### ***Tape Gateway:***

The tape gateway systems support data archiving and backup in addition to other major AWS utilities like Amazon S3, S3 Glacier, and S3 Glacier Deep Archive. The storage in this section should account for a major part of the total mainline storage requirement which should account for about 300/600 GB and a monthly cost of about **3.42 USD**.

#### ***Other non-mainline requirements:***

In addition to the above mentioned requirements (and costs that already include the ones mentioned in this section), the system usage is measured on other aspects like data transfer requirements which can be inbound, outbound or intra related to the service. These service requirements have been assumed based on the principles of data transfers that may occur on a normal basis pertaining to million(s) of requests every day to the system by user for data storage and file management.

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#### **Google Cloud Platform – monthly cost estimation:**

For the Google Cloud Platform, a similar cost estimation is carried out using different parameters which mainly involve the following elements:

1. Cloud Storage (Mainline)
2. Cloud Storage Nearline
3. Cloud Storage Coldline

#### ***Cloud Storage (Mainline):***

The cloud storage associated with the mainline Google cloud platform usage revolves around the premises that about 4 VMs have been provisioned for the data processing & file handling applications. In addition to that, the total amount of storage assumed here in this case is about 350/600 GB of the total storage requirement consideration. The operation requests here are assumed to be in about millions per month. The total monthly charge here is about **22.48 USD**.

#### ***Cloud Storage Nearline:***

This is the cloud storage associated with the frequency of data request of once per month or less. The data storage requirement here is assumed to be around 130/600 GB. The data stored here is mainly associated with storage for regular backups, data recovery or storage of monthly analysed statistical data. The operation requests here are assumed to be in about one tenth(s) of millions per month. The total monthly charge here is about **2.38 USD**.

#### ***Cloud Storage Coldline:***

This is the cloud storage associated with the frequency of data request of once per year or less. Although, the data is accessed at a much lower rate here, it is assumed that data will be stored at much faster rate than for other storage mechanisms. Given that, it is assumed that the storage requirement here would be around 120/600 GB. The data stored here is mainly associate with data archive, disaster recovery and outdated data storage. The operation requests here are assumed to be in about one hundredth(s) of millions per month. The total monthly charge here is about **0.73 USD**.

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#### **AWS / Google Cloud Storage Monthly Cost Estimation – Parallel Comparison**

Sr. No.	AWS Cloud Storage Gateway	Google Cloud Platform
1.	File gateway storage: <b>1.30 USD</b> (1/6 <sup>th</sup> )	Mainline cloud storage: <b>22.48 USD</b> (3.5/6 <sup>th</sup> )
2.	Volume gateway storage: <b>4.55 USD</b> (2/6 <sup>th</sup> )	Nearline cloud storage: <b>2.38 USD</b> (1.3/6 <sup>th</sup> )
3.	Tape gateway storage: <b>3.42 USD</b> (3/6 <sup>th</sup> )	Coldline cloud storage: <b>0.73 USD</b> (1.2/6 <sup>th</sup> )
4.	Limited non-mainline requirements that are inbound, outbound and intra.	Information considered in terms of millions of storage requests from user per month
5.	Total estimated cost: <b>9.27 USD / month</b>	Total estimated cost: <b>25.51 USD / month</b>
6.	Lack of information inclusion about monthly data requests and VMs / OS systems used for a data storage system.	Lack of information inclusion about data inbound, outbound and intra for cost estimation.

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**Please Note:** Several cost estimation screenshots and/or PDF file has been attached for further references and evidences for the claims made in this report. Thanks.