

Cost Estimation Justification

Reduced_Cost_Estimate

The following are the cost adjustments made for the

Reduced_Cost_Estimate:

- Reduced the data processed per NAT Gateway by half. Since web servers provide traffic mostly to the internet, reducing the data processed will not have much impact as there is an internet gateway available to route internet bound traffic.
- Reduced the capacity of the S3 bucket from 100TB and introduced S3 One Zone IA for storing backup duplicates and S3 Glacier for data archiving.
- Reduced the storage capacity and instance types since autoscaling is enabled which will be able to handle any increase in the load for accessing the web application.
- Create new RDS instances with lower storage, dump the existing database files and restored to the new reduced RDS instance which can also handle the data.

Increased_Cost_Estimate

I implemented a multi-region architecture with an aim to achieve the following:

- Improve latency for end users: Though a content delivery network is used i.e. Amazon CloudFront, which helps speed the delivery of content especially static contents like images, video, audio etc to global end users, I however needed to take into consideration some dynamic calls to some backend services which are far away from key users which will add some unwanted milliseconds to requests.
- As a Disaster recovery mechanism: Having in mind that there are always possibilities of man-made and natural disasters to occur, I thought it wise to replicate my infrastructure in another region so that in case there is a disaster the severity will not be felt much and the entire infrastructure will have a replica in another region and thus there will be minimal or no downtime at all.

- As a business requirement: I needed to have some particular data in a distinct region.

I also implemented a Multi-AZ database deployment, where Amazon RDS automatically provisions and maintains a synchronous standby replica in a different Availability Zone. The primary DB instance is synchronously replicated across Availability Zones to a standby replica to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.