Róisín Ní Bhriain - 18326577

Deployment of an Internet Application in a Cloud Context

Link to Storage Badge:
https://www.credly.com/badges/463babd7-62af-4cae-a38d-bb0a5be2be23/public_url
Link to Compute Badge:
https://www.credly.com/badges/81cf576c-db32-46e2-aa92-4287ebb1db0b/public_url

Lab 9

The types of storage are Object, File, and Block.

The lab that amazon provided uses Amazon Simple Storage System (S3). It uses object storage which is very useful for media storage such as the static website for the lab. It is very useful as it uses a web-based file explorer to upload files etc. It is almost 100% durable.

Elastic block storage is very similar to a hard drive for persistent storage. It can be attached to an EC2 instance and is in availability zones for easy replications - very good for preventing loss of data due to component failures. Very easy to scale up and down when required, as well as low latency. Its high availability and high performance.

The Elastic file system automatically grows and shrinks as you need. I.e. scaling your system automatically. You can set multiple EC2 instances to access the same file system. EFS has a much faster throughput than EBS but it is much more expensive. It can be used on very large analytics. It is in multiple availability zones.

Amazon S3 Glacier is most useful for long term storage that doesn't need to be accessed frequently. It is offered at an extremely cheap rate and the user will only be charged for the time that is used reading the data. It has very high durability and is a cost effective solution for archival storage.

Lab 10

Amazon Elastic Compute Cloud (EC2) is the service used in the Amazon lab. It has many processor choices and instances as well as storage. Amazon EC2 can only scale horizontally rather than vertically. Very competitive pricing for machine learning training. It has very flexible options such as spot instances and savings plans.

Discounts are significant with spot instances up to 90%. They are billed on a time basis, the only problem is that Amazon can reclaim the capacity with a two-minute warning. Savings plans require a 1 or 3-year commitment with savings on average from 20% to 50%. If your application can’t deal with unexpected downtime then Savings plans is the way to go, otherwise, spot instances give excellent discounts. A reserved instance is an instance that you rent for a fixed period of time at the base prices of an on-demand instance. This comes with a fair discount. You pay the most for on-demand instances but at any time that suits you.

Amazon Lambda is a serverless compute service that can work with S3 buckets. It automatically manages resources for you. It runs in response to events such as HTTP requests or modifications to objects in S3 buckets. Performs all the administration on resources. Good for mobile backends and ML insights.

Elastic Container Service (ECS) gives a service that makes it easy to manage containerized applications. This is fully managed compared to just Kubernetes service. ECS is free, you just need to pay for the EC2 services used. EKS is the same as ECS with a far higher price per month per cluster.

Elastic Load Balancing uses automatic distribution of incoming application traffic across multiple Amazon EC2 instances. It is good for containers and serverless instances. It scales modern applications to meet demand. Very flexible. Enables a user to find bottlenecks.