Module 3:

[Global Infrastructure & Reliability]

Selecting a Region:

(1) Compliance with data governance and legal requirements.

Depending on your company and location, you might need to run data out of specific areas.

Example:

If your company requires all of its data to reside within the boundaries of UK, then choose London region.

(2) Proximity to your customer:

→ Selecting a region close to your customer will help you to get content to them faster.

Eg: Your company is in washington DC and many of your customer live in singapore. Instead of running your infrastructure close to company headquarters, run the application from singapore region.

③ Available services within a region:

Sometimes the closest region might not have all the features that you want to offer to customers.

Example:

Suppose that your developer want to build an application that uses Amazon Braket. Amazon Braket is not available in every region around the world.

So, the developer need to run it in one of the region that already offers it.

④ Pricing:

Suppose that you are considering running application in both the United states and Brazil.

The Brazil ~~that~~ structure is 50% more to run same workload in the US region.

The cost of services can vary from region to region.

Availability Zones:

⇒ Availability zones is a single data center or a group of data center within a region.

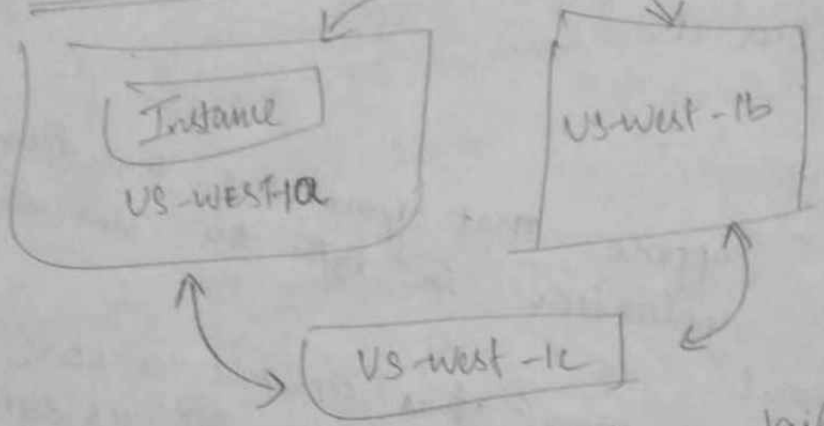
⇒ Availability zones are located tens of miles apart from each other.

⇒ If have low latency [the time b/w when content requested & received] between availability zones

⇒ If a disaster occurs in one part of the region, they are distant enough to reduce the chance that multiple AZ's are affected.

STEP-1

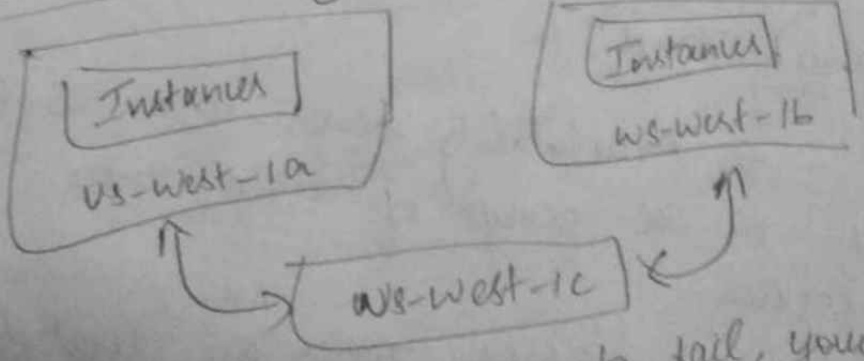
Amazon EC2 instances in a single availability zone :



Here, if the us-west-1a fails, you will lose your instance.

STEP-2

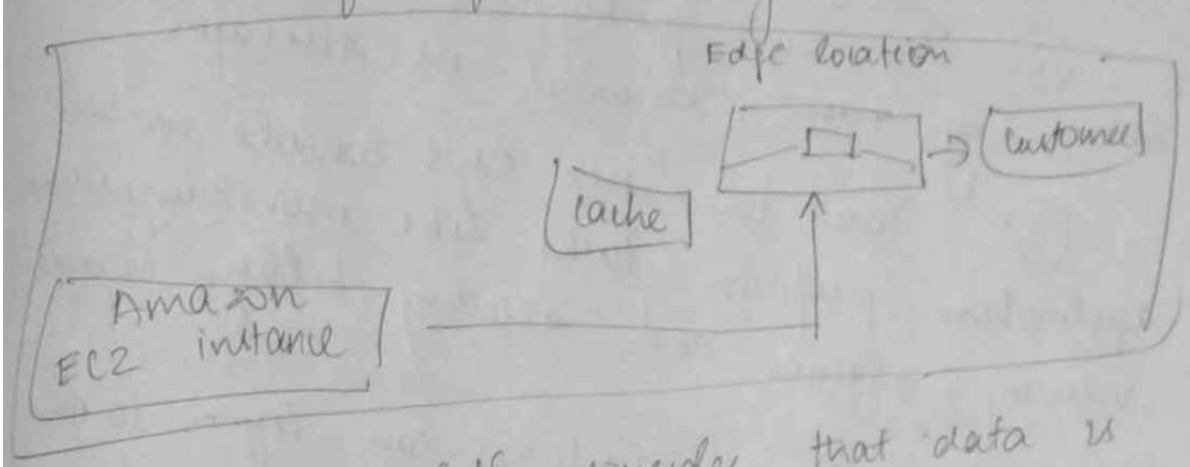
Amazon EC2 instances in a multiple availability zone



If us-west-1a were to fail, your application would still be running in us-west-1b.

Edge location

Edge location is a site that amazon cloud front uses to store cached copies of your content closer to your customers for faster delivery.



Here let's consider that data is in Brazil and the customer lives in China. To provide the content to the customer, instead of getting data from brazil, you can get a copy locally at edge location that is close to your edge location that is close to your customer in China.

↕ By doing the above process

when customer requests one of your files → the Amazon cloud front retrieves the file from the cache copy in edge location and delivers to customer. The file is delivered faster.

Ways to interact with AWS service

AWS MANAGEMENT CONSOLE:

① It is a web based interface for accessing and managing AWS services

② You can quickly access recently used services by name, keyword or acronym

③ You can use AWS console mobile application perform tasks like monitoring resource, viewing alarms and accessing billing informatio

④ multiple identities can login to AWS console mobile at same time

AWS COMMAND LINE INTERFACE

→ AWS CLI is available for users on Windows, mac OS & Linux.

→ AWS CLI controls multiple AWS service directly from the command line within one tool.

→ By using AWS CLI you can use commands to launch Amazon EC2 instance

SOFTWARE DEVELOPMENT KITS

→ It is also used to access and manage AWS servie.

→ SDK enables use to AWS servies with your existing application or create entirely new applications that will run on AWS.

→ SDK supports programming language like C++, java, .NET.

AWS Elastic Beanstalk

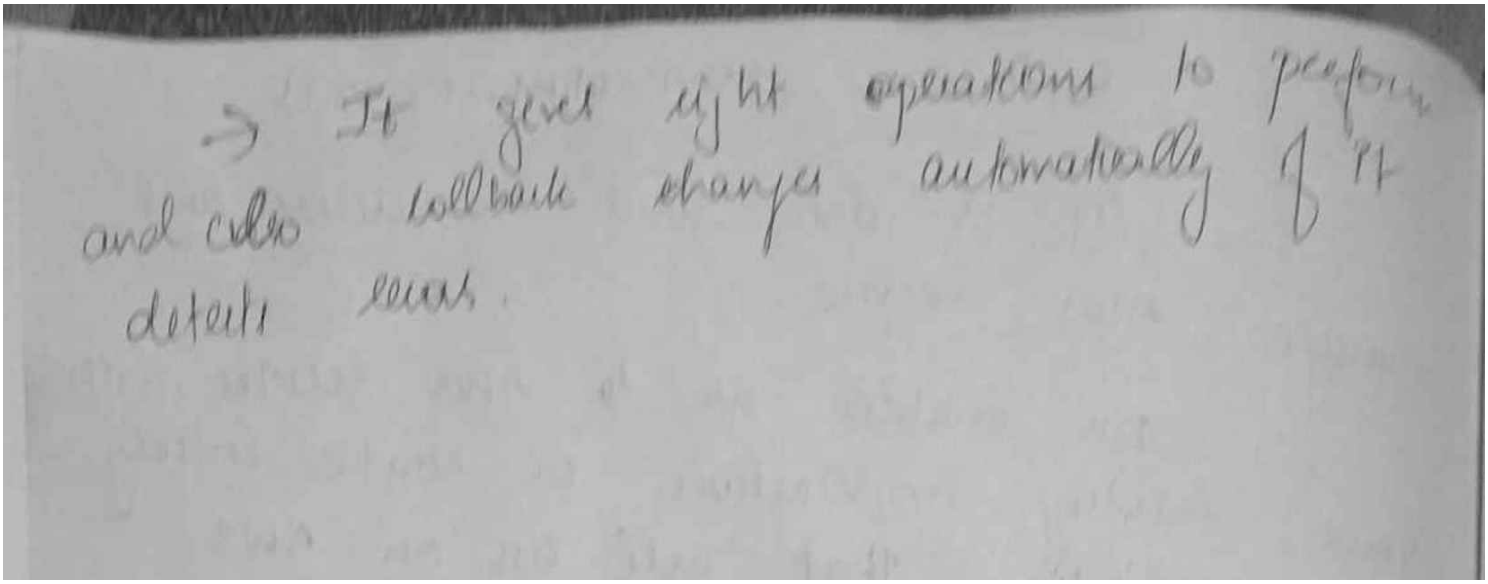
Using EBS you can provide
1. code.
2. configure settings.

It deploys resources to perform
1. Adjust capacity.
2. Load balancing.
3. Automatic scaling.
4. Application health monitoring.

AWS cloud formation

→ Using AWS cloud formation, you can treat your infrastructure as code.

You can build an environment by writing lines of code instead of using AWS management console to individually provide resources


→ It gives eight operations to perform
and also rollback changes automatically if it
detects error.