EC2

when u restart ec2 instance and it immediately changed from a pending state to a terminated state.

- The following are a few reasons why an instance might immediately terminate:
  – You've reached your EBS volume limit.
  – An EBS snapshot is corrupt.
  – The root EBS volume is encrypted and you do not have permissions to access the KMS key for decryption.
  – The instance store-backed AMI that you used to launch the instance is missing a required part (an image.part.xx file).

EBS volumes

- An Amazon EBS volume is a durable, block-level storage device that you can attach to your instances.
- After you attach a volume to an instance, you can use it as you would use a physical hard drive.
- EBS volumes are flexible.
- When you create an EBS volume, it is automatically replicated within its Availability Zone to prevent data loss due to the failure of any single hardware component.
- You can attach an EBS volume to an EC2 instance in the same Availability Zone.
- non-root EBS volumes remain available even after you terminate an instance to which the volumes were attached
- When you launch an instance, the root device volume contains the image used to boot the instance. You can choose between AMIs backed by Amazon EC2 instance store and AMIs backed by Amazon EBS.
- By default, the root volume for an AMI backed by Amazon EBS is deleted when the instance terminates. You can change the default behavior to ensure that the volume persists after the instance terminates.

EBS resiliency (across Multiple AZ)

- You can back up the data on your Amazon EBS volumes to Amazon S3 by taking point-in-time snapshots.
- Snapshots are incremental backups, which means that only the blocks on the device that have changed after your most recent snapshot are saved.

- This minimizes the time required to create the snapshot and saves on storage costs by not duplicating data.
- When you delete a snapshot, only the data unique to that snapshot is removed.
- Each snapshot contains all of the information that is needed to restore your data (from the moment when the snapshot was taken) to a new EBS volume.

EFS (Elastic file System)

- With EFS you can transition files to EFS IA after a file has not been accessed for a specified period of time with options up to 90 days.