Launching Instances in AWS:
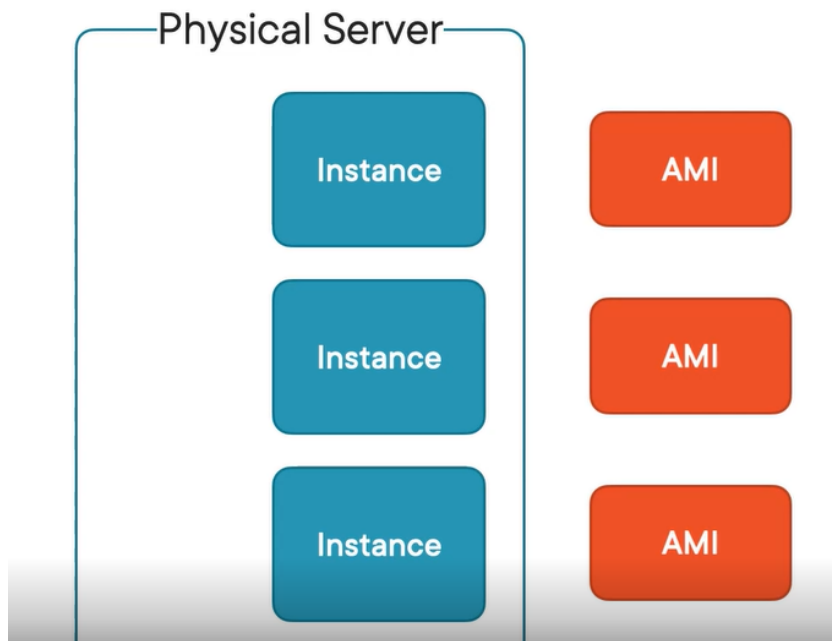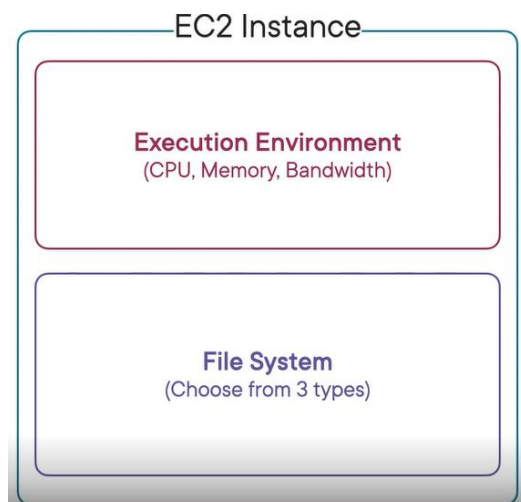
EC2, AMI and AWS Marketplace:

EC2:

Amazon Machine Images:

- Operating systems
- OS and software (vendor, OSS, etc)
- Create your own
- Launch directly from AWS Marketplace
- Create AMI from any EC2 instance

EC2 instance anatomy:

EC2 instance types:

1. Instance store – physically connected, basic hard drives
2. Elastic Block Store EBS – independent, networked volume
3. Elastic File System EFS - scalable, independent networked volume

Launching AMI instances:

Instance Volume Backed AMI	EBS Backed AMI
Cannot be stopped	Can be stopped
Can only be terminated or restarted	Instance data persisted on EBS
Slower to boot	Faster to boot
Data transferred from S3 on boot	Data stored in EBS

AMI visibility:

1. Public – visible to everyone
2. Explicit – visible to who you allow
3. Implicit – private

EC2 instance classes:

- The instance class defines the conditions in which the instance lives and how you pay for it.
1. On-demand instances:
    - Pay for what you use
    - No commitment
    - Easy to create and delete
    - Good for applications needing scaling
    - Good for learning and testing EC2

2. Reserved instances:
    - Commitment for a period of time
    - Commitments range from 1 to 3 years
    - Discounts up to 75% off
    - Good for stable companies

3. Spot instances:
    - Bid for computing resources
    - Uses spare, unused EC2 capacity
    - Discounts up to 90% off
    - No guarantee
    - Good for flexible computing jobs

AWS REST API:

- Each AWS REST API request must be signed.
- The AWS SDK is a code interface to the REST API.
- Using SDK means never having to manually sign a request
- AWS SDK uses local credentials to sign requests

AWS REST API authentication process:
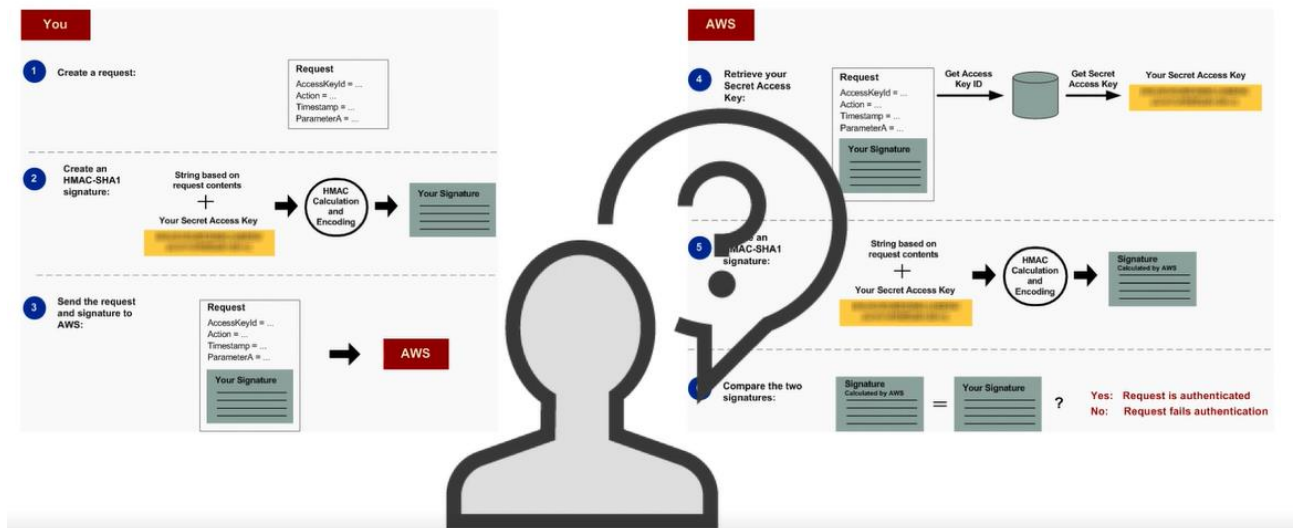
AWS REST API signature versions:

Version 2	Version 4
Older version	Newer version
Supported by all older services	Only version supported in newer regions (Ohio, Canada, etc)
In the process of being deprecated	More secure, more complicated

Version 4 signature process:
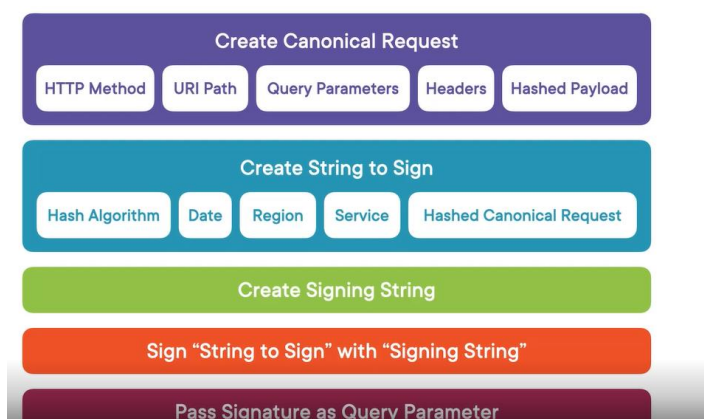
Limits with EC2 and AMI:

EC2 limit:

- Maximum number of running instances per region

AMI limit:

- All AMIs are region specific
- 10000 maximum AMIs due to EBS snapshot restriction.