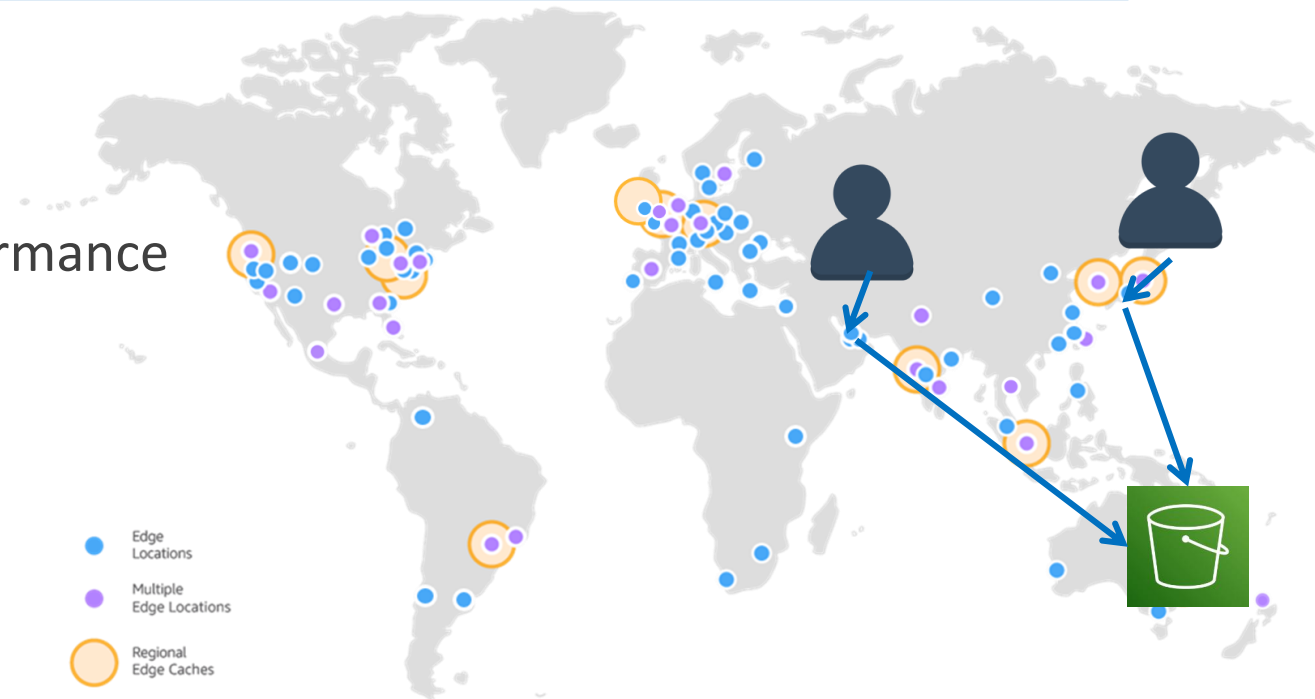# CloudFront

CloudFront
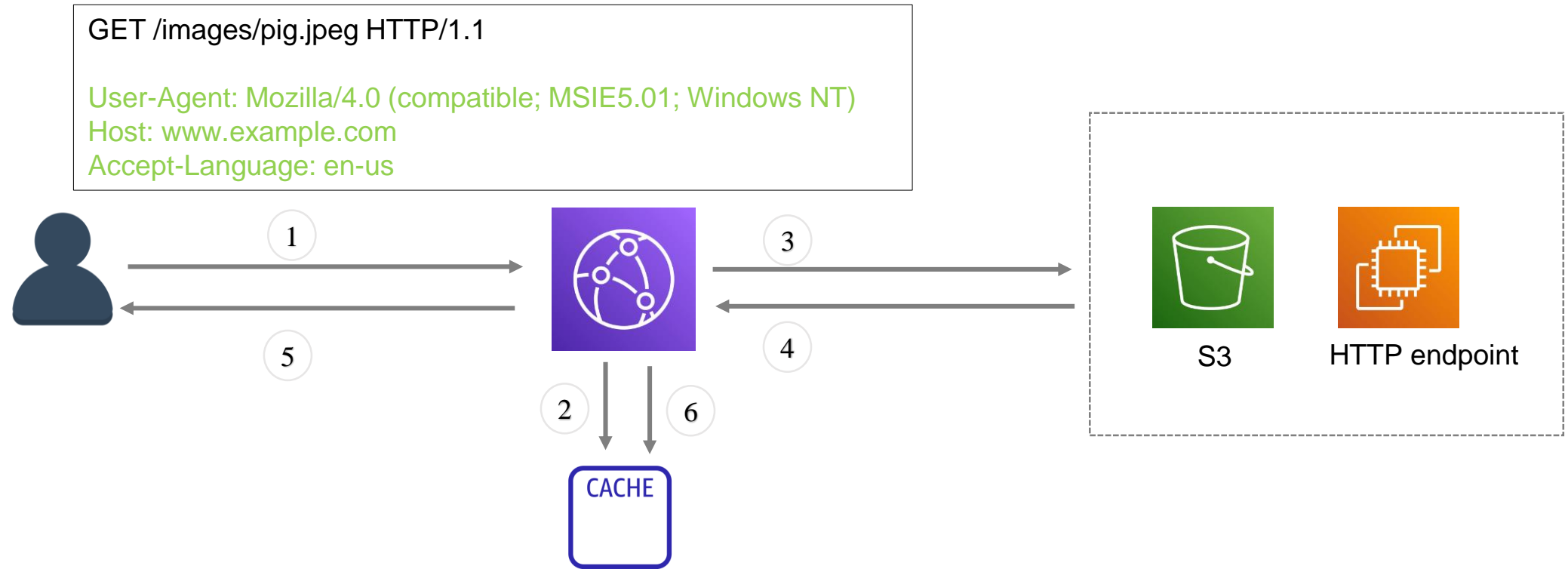
- Content Delivery Networking (CDN)

- For caching content to improve read performance

- Contents are cached at Edge Location

- DDoS resilence

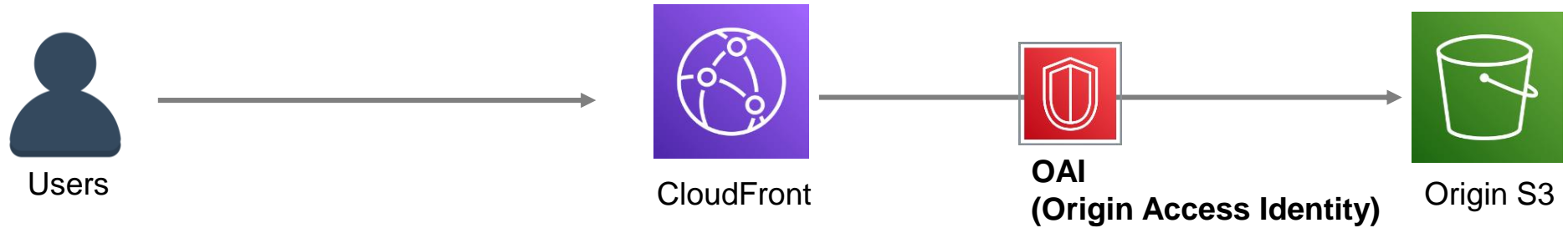 - AWS Shield

  - AWS Web Application Firewall

CloudFront Origin

- **S3**

  - Allow to cache S3 files at edge location

  - Using **OAI (Origin Access Identity)** with **Bucket Policy** for strictly ssecurity

  - Can setup as endpoint to upload objects to S3

- **Custom HTTP Endpoint**

  - Application Load Balancer

  - EC2
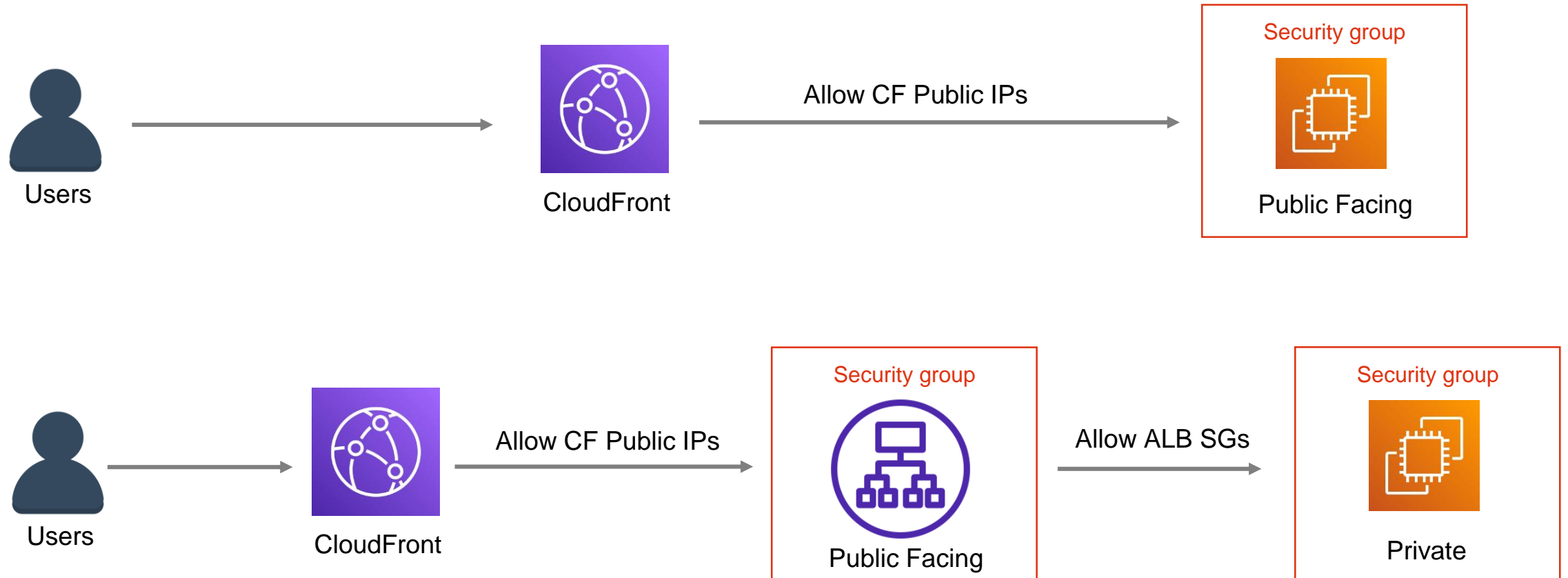
  - S3 static website or any HTTP endpoint

How CloudFront deliver contents

GET /images/pig.jpeg HTTP/1.1

User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
Host: www.example.com
Accept-Language: en-us

S3   HTTP endpoint

CACHE

CloudFront with S3 origin

Users → CloudFront → OAI (Origin Access Identity) → Origin S3

CloudFront with EC2 and ALB

Exam tips

- **Edge Location** is the location where content will be cached

- **Origin** is the origin of files that will be distributed by CloudFront (S3, ALB, EC2, HTTP endpoint...)

- **Geo Restriction** is used to control access based geolocation (Using public Geo-IP database)

- Edge Location is not just READ only, you can write to them

- Objects are cached for the period of TTL (Time To Live)

CloudFront
Signed URL and Cookies

CloudFront signed URL and signed Cookies?

- **A Signed URL** is for individual object

- A **Signed Cookie** is for multiple objects

- By using a Signed URL or Signed Cookie, you can specify

  - URL expiration (How long the URL is valid)

  - IP ranges (IP address ranges that can be used to access your content.)

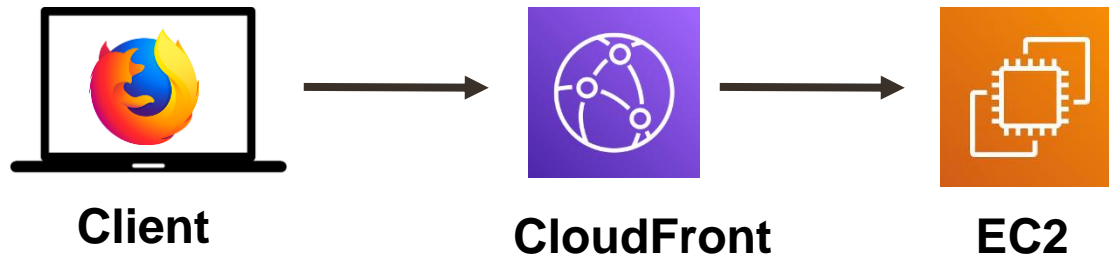 - Trusted signers (Key group or AWS account)

How Signed URL works
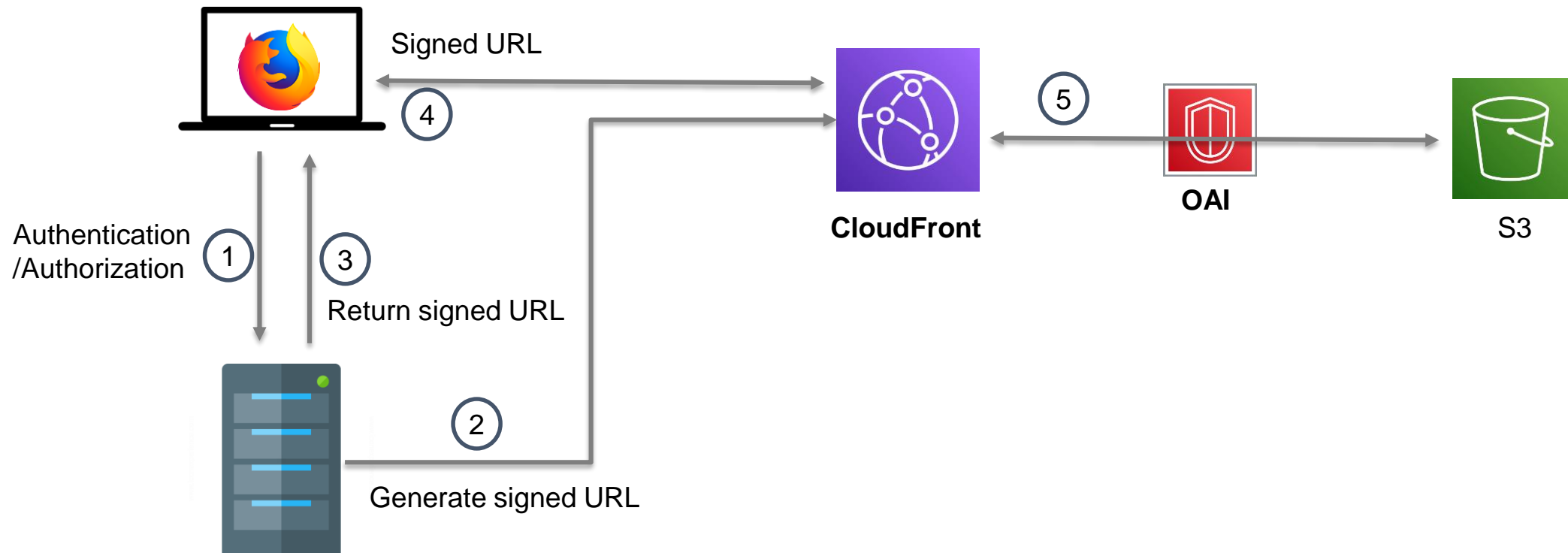
CloudFront signed vs S3 pre-signed URL

CloudFront signed URL

- Work with different origins (S3, HTTP endpoint)

- Account wide key group (key-pair), only the root can manage

- Restriction by IP, path, date, expiration

- Can leverage caching features

S3 pre-signed URL

- Work with S3 origin only

- Limited lifetime

- Issue a request as the creator (IAM user, Role) who creates pre-signed URL

Client → **CloudFront** → **EC2**

S3

Exam tips

- Using Signed URL or Signed Cookies when you wanna secure content that only can be accessed by authorized users

- A signed URL is for individual object. **1 URL = 1 object (file)**

- A signed cookie is for multiple objects. **1 cookie** = **multiple object (files)**

- CloudFront signed URL work with different type of origins

- S3 pre-signed URL only work with S3