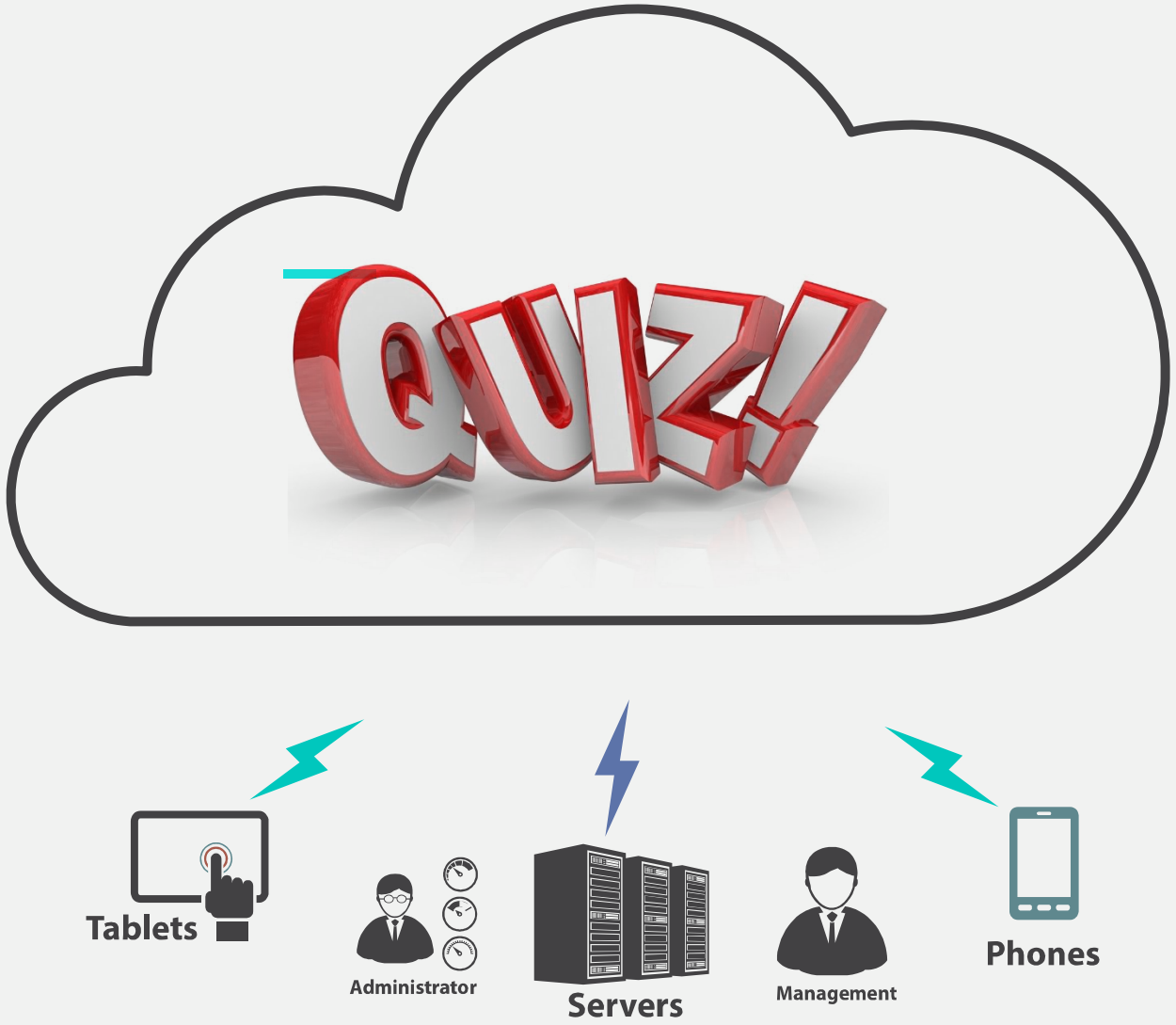
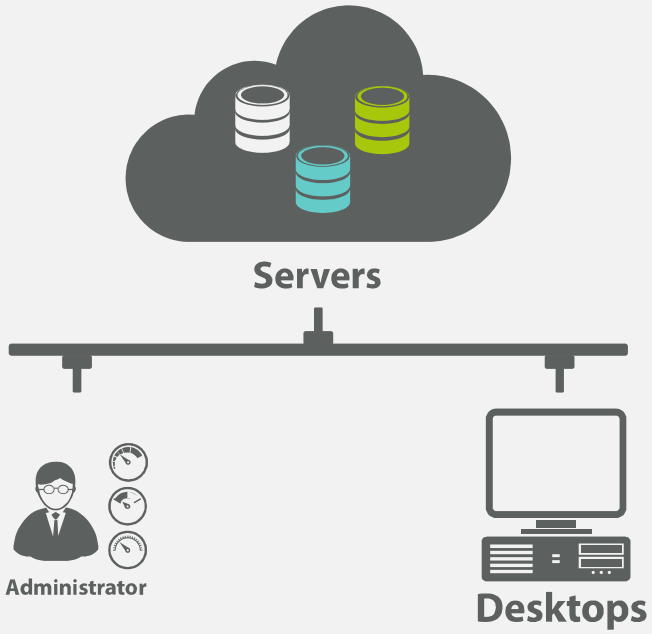
클라우드 아키텍처 구조

AWS Application Deployment Services

MEGAZONE CLOUD


QUIZ!
Tablets
Administrator
Servers
Management
Phones



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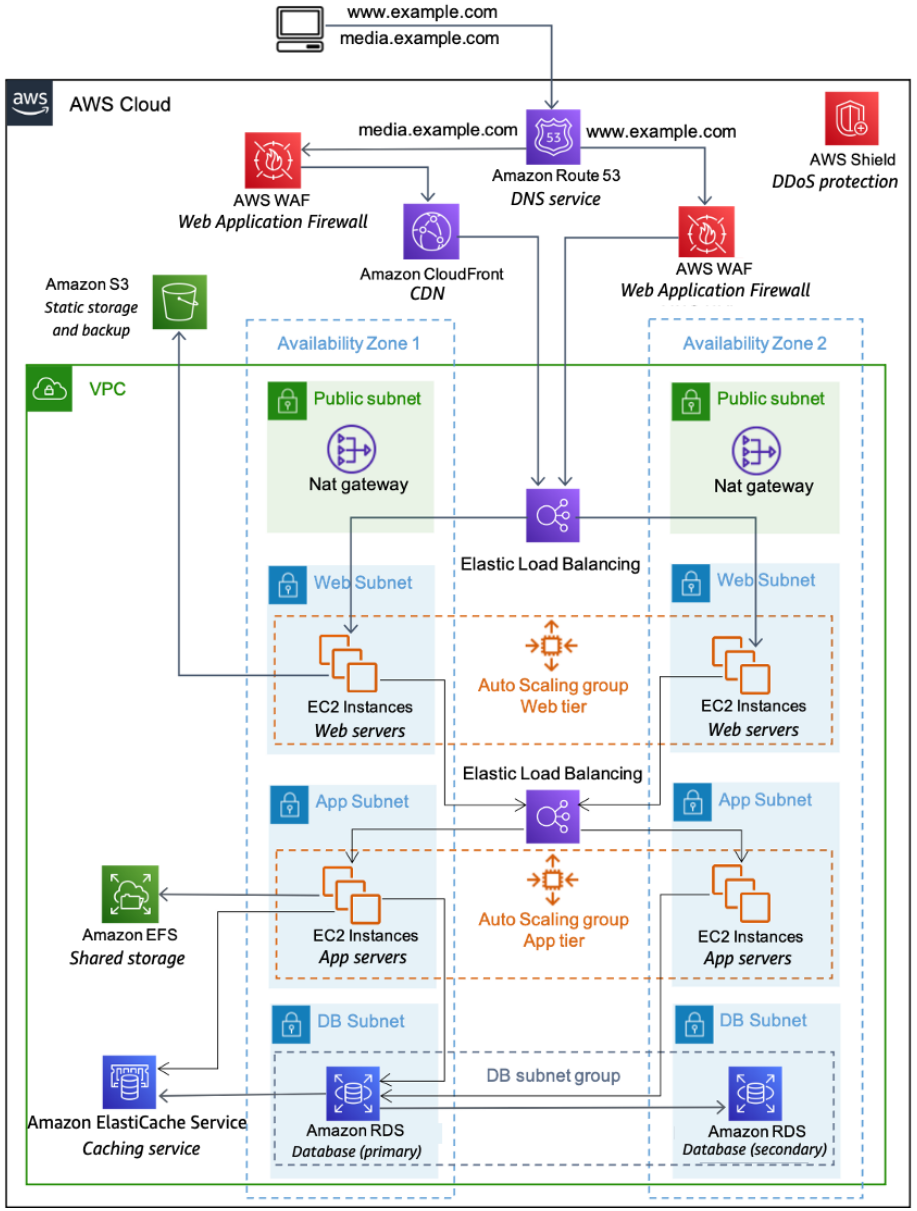
수업 목표

개요



- AWS CloudFront에 대한 이해
- Amazon Route 53에 대한 이해
- Amazon Lambda에 대한 이해

Amazon CloudFront

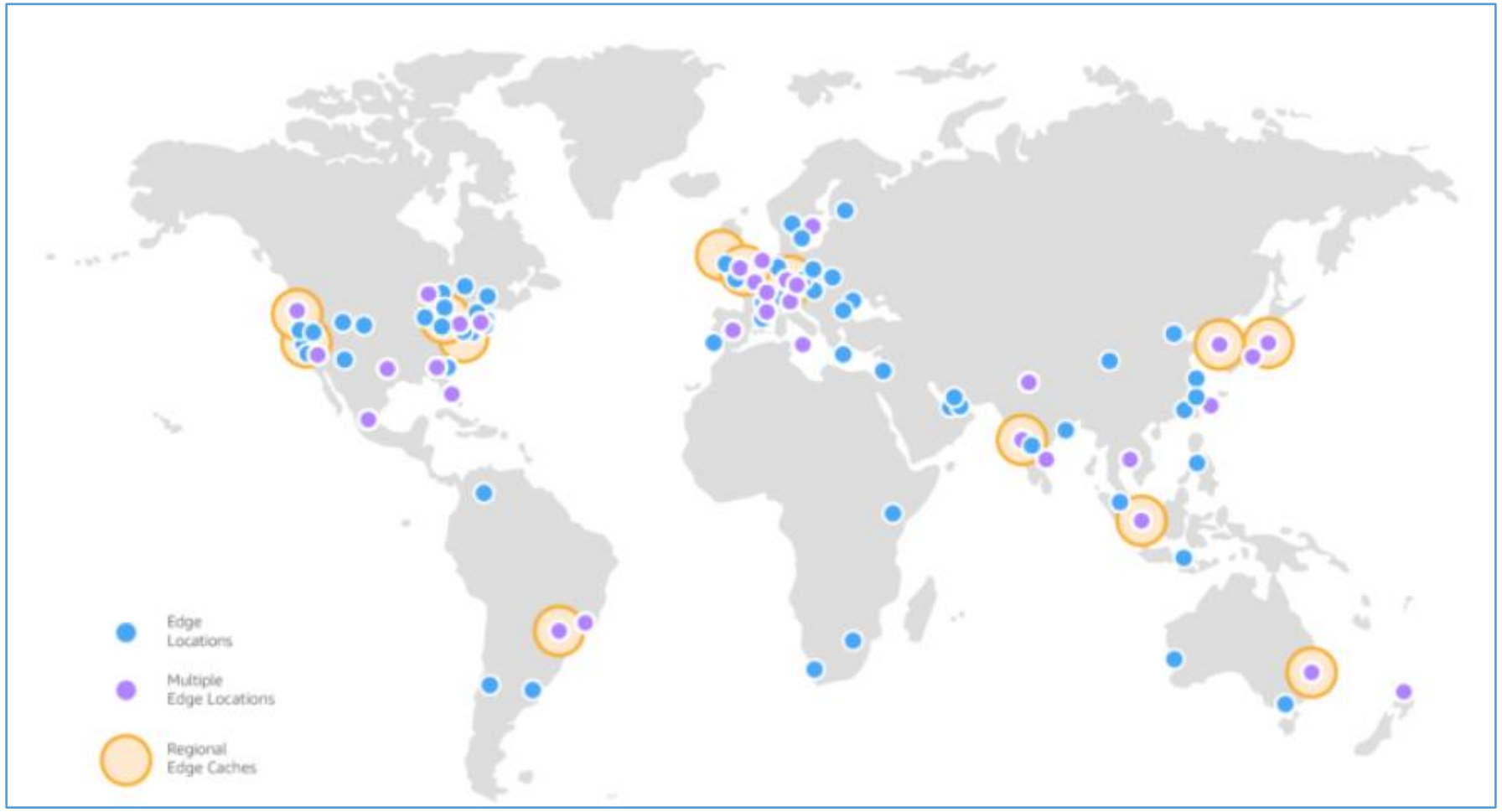
AWS CloudFront

Edge Locations

- Are a site that Amazon CloudFront uses to store ***cached copies*** of content closer to customers for faster delivery.
- Are AWS data centers designed to deliver services with the lowest latency possible.
- Amazon has dozens of these data centers spread across the world.
- They're closer to users than Regions or Availability Zones, often in major cities, so responses can be fast and snappy.
- A subset of services for which latency really matters use edge locations, in cluding : CloudFront, Route 53, Web Application Firewall, AWS Shield.
- https://aws.amazon.com/ko/cloudfront/features/?nc=sn&loc=2&whats-new-cloudfront.sort-by=item.additionalFields.postDateTime&whats-new-cloudfront.sort-order=desc

AWS CloudFront

Edge Locations



AWS CloudFront

Edge Locations

- **CloudFront**
  - Uses edge locations to cache copies of the content that it serves, so the content is closer to users and can be delivered to them faster.
- **Route 53**
  - Serves DNS responses from edge locations, so that DNS queries that originate near by can resolve faster.
- **Web Application Firewall** and **AWS Shield**
  - Filter traffic in edge locations to stop unwanted traffic as soon as possible.

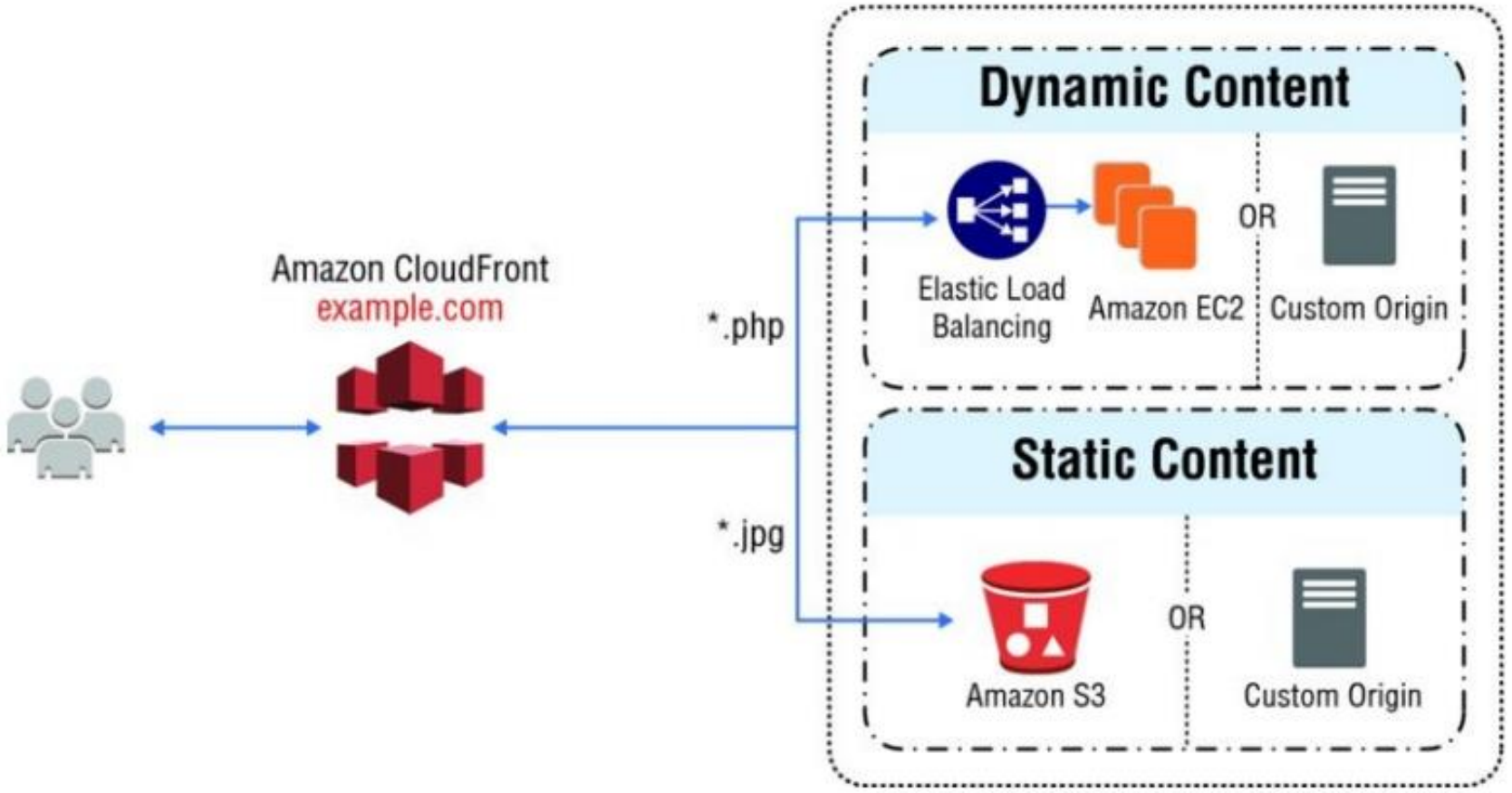
AWS CloudFront

What's Amazon CloudFront

- Is a web service that speeds up distribution of static and dynamic web content, such as .html, .css, .js, and image files.
- Delivers content through a worldwide network of data centers called edge locations.
  - If the content is already in the edge location with the lowest latency, CloudFront delivers it immediately.
  - If the content is not in that edge location, CloudFront retrieves it from an ***origin***—such as an Amazon S3 bucket, a MediaPackage channel, or an HTTP server (for example, a web server).

AWS CloudFront

What's Amazon CloudFront



https://medium.com/analytics-vidhya/amazon-cloudfront-ec0ce30f4eee

Amazon CloudFront Basics

- **Distributions**
  - To use Amazon CloudFront, start by creating a distribution.
  - Is identified by a DNS domain name.
  - To serve files from Amazon CloudFront, simply use the distribution domain name in place of website's domain name.
- **Origins**
  - When create a distribution, must specify the DNS domain name of the origin — the Amazon S3 bucket or HTTP server.
- **Cache-Control**
  - Once requested and served from an edge location, objects stay in the cache until expire or are evicted to make room for more frequently requested content.

AWS CloudFront

How AWS CloudFront delivery the content?

AWS CloudFront

How AWS CloudFront delivery the content?

1. The ***Client*** access a website and requests an object to download.
2. The ***DNS*** routes user request to AWS CloudFront.
3. AWS ***CloudFront*** connects to its nearest ***edge locations*** in order to serve the user request.
4. At edge location, AWS CloudFront looks for the requested cache file and if it is not there it compares the requirements with the specifications and shares it with the respective ***server***.
5. The server responds by sending the files back to the CloudFront edge locations.
6. Then CloudFront shares the file or request with the client.

Amazon Route 53

AWS Route 53

What's Amazon Route 53 ?

- Is a highly available and scalable Domain Name System (DNS) web service.
- It can use Route 53 to perform three main functions in any combination: **domain registration**, **DNS routing**, and **health checking**.

AWS Route 53

What's Amazon Route 53 ?

- Register domain names
  - User needs a name, such as example.com.
  - Route 53 lets user register a name for user's website or web application, known as a ***domain name***.
- Route internet traffic to the resources for user domain
  - When a user opens a web browser and enters domain name (example.com) or subdomain name (acme.example.com) in the address bar, Route 53 helps connect the browser with website or web application.

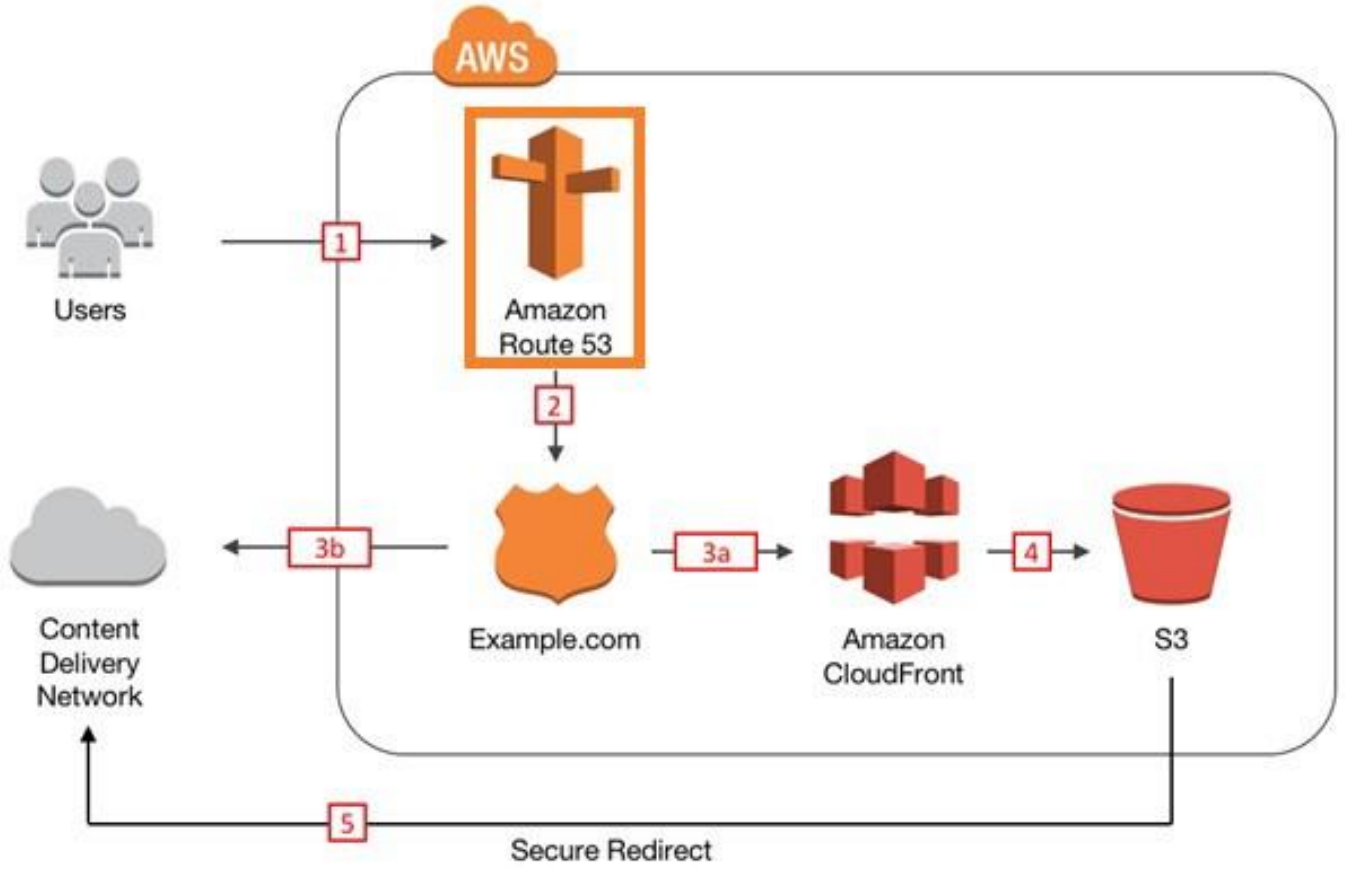
AWS Route 53

What's Amazon Route 53 ?

- Check the health of user's resources
  - Route 53 sends automated requests over the internet to a resource, such as a web server, to verify that it's reachable, available, and functional.
  - User also can choose to receive notifications when a resource becomes unavailable and choose to route internet traffic away from unhealthy resources.

AWS Route 53

DNS Routes

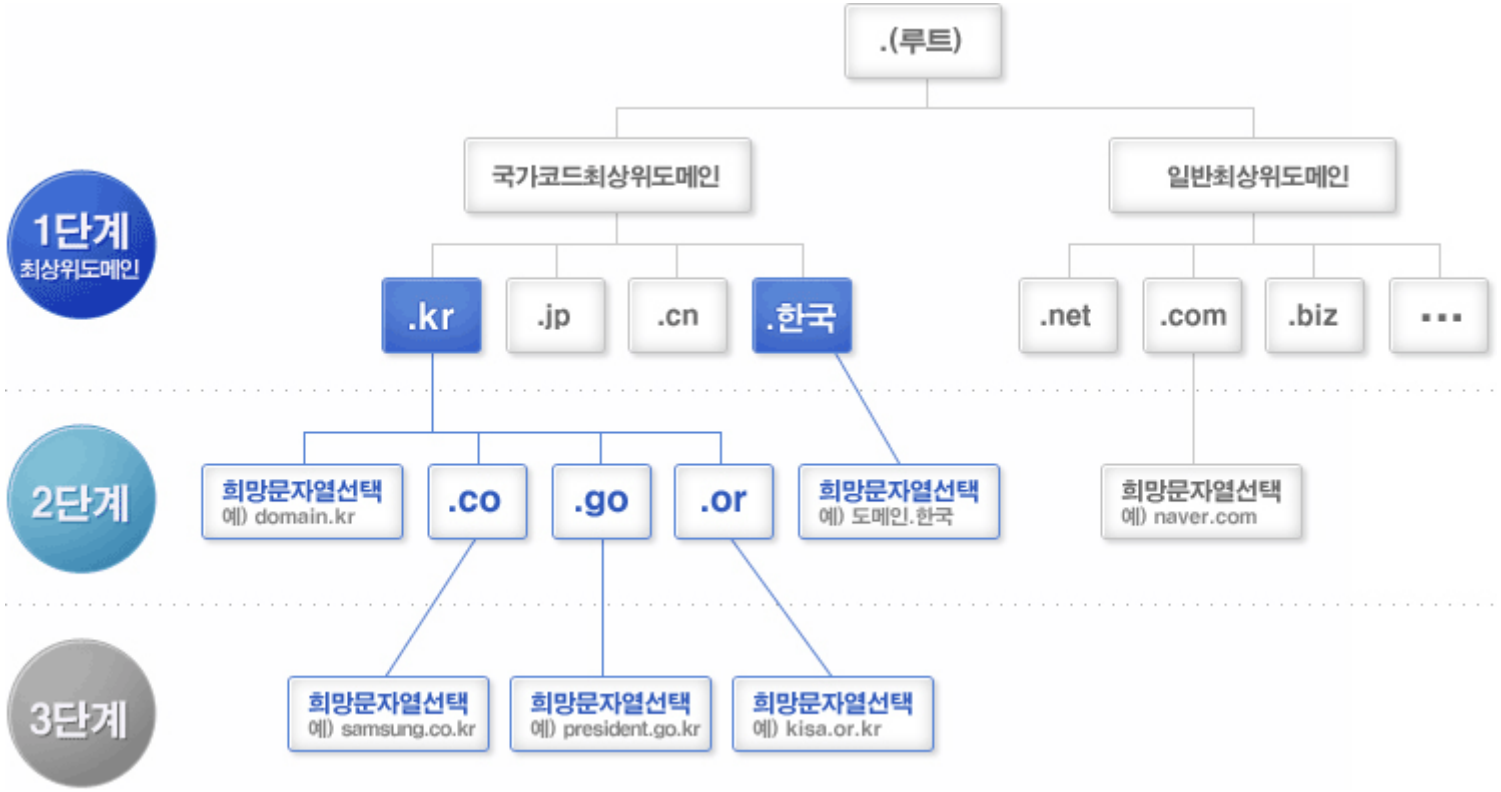


https://medium.com/@pushfyi/amazon-route-53-fcb0bed0fd2a

AWS Route 53

Amazon Route 53 concepts

- Domain name
- ICANN
- Domain registrar
- Domain registry
- Domain reseller
- Top-level domain

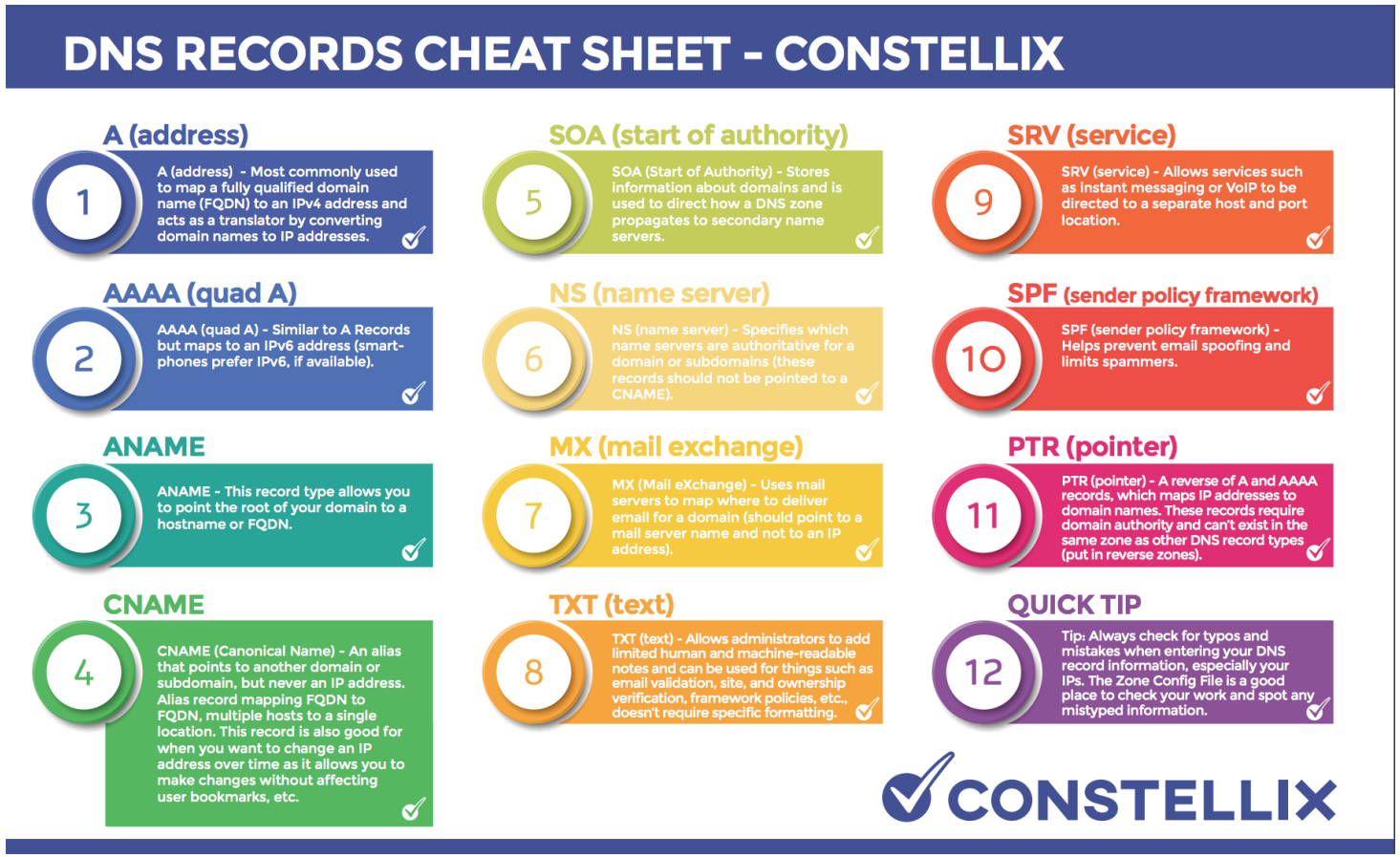


https://xn--3e0bx5euxnjje69i70af08bea817g.xn--3e0b707e/jsp/resources/domainInfo/domainInfo.jsp

AWS Route 53

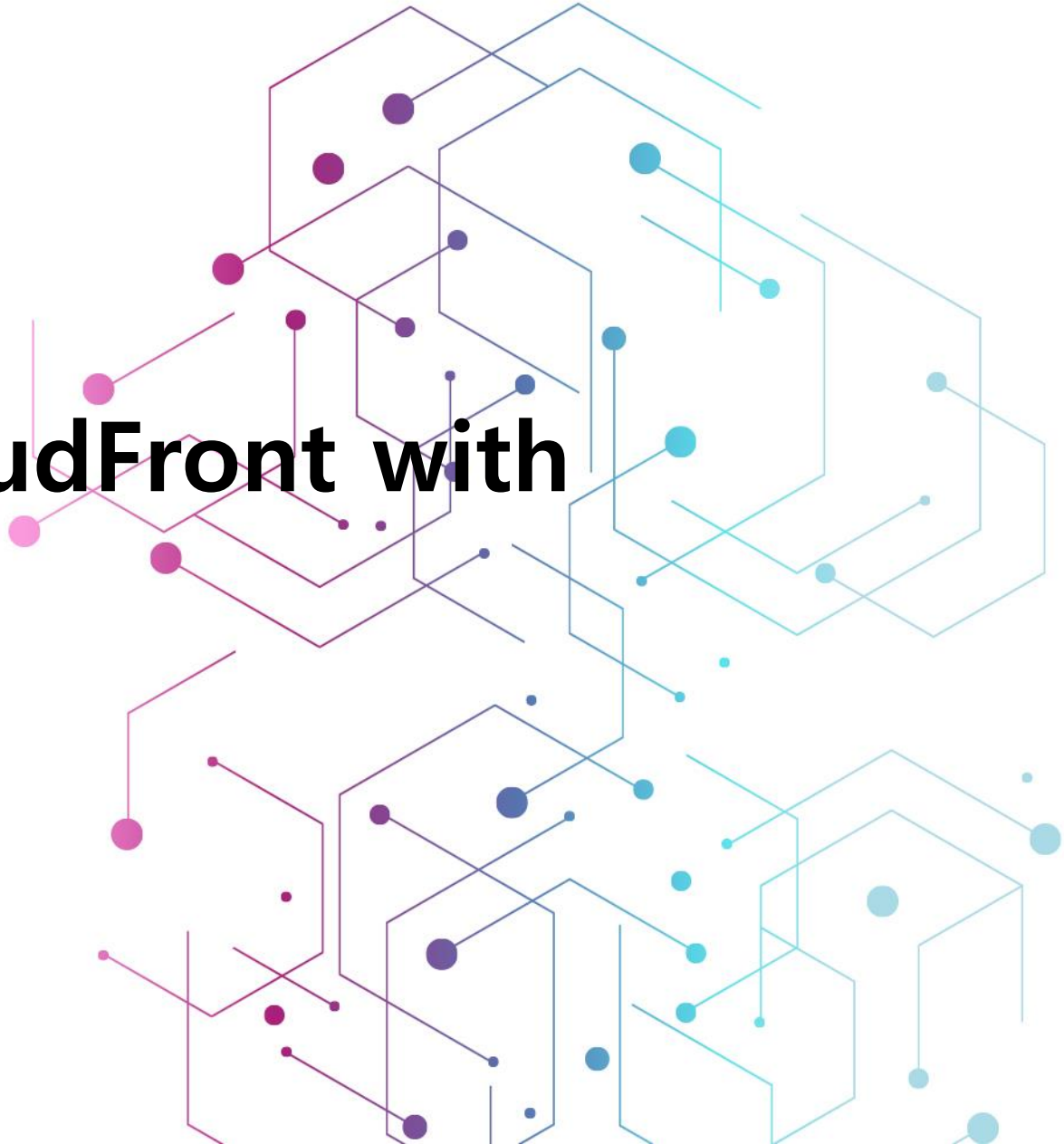
DNS Record Concepts

- A
- AAAA
- CNAME
- MX
- NS
- PTR
- SOA



https://constellix.com/news/dns-record-types-cheat-sheet

Lab1. Using CloudFront with AWS Route 53



Amazon Lambda

AWS Lambda

What's AWS Lambda?

- Is a compute service
- Lets user run code without provisioning or managing servers.
- Runs user's code on a high-availability compute infrastructure and performs all of the administration of the compute resources :
  - Server and operating system maintenance
  - Capacity provisioning and automatic scaling
  - Code monitoring and logging.
- Can run code for virtually any type of application or backend service.

Lambda runtimes

- Node.js runtimes

Name	Identifier	SDK for JavaScript	Operating system	Architectures
Node.js 16	`nodejs16.x`	2.1055.0	Amazon Linux 2	x86_64, arm64
Node.js 14	`nodejs14.x`	2.1055.0	Amazon Linux 2	x86_64, arm64
Node.js 12	`nodejs12.x`	2.1055.0	Amazon Linux 2	x86_64, arm64

AWS Lambda

Lambda runtimes

- Python runtimes

Name	Identifier	AWS SDK for Python	Operating system	Architectures
Python 3.9	`python3.9`	boto3-1.20.32 botocore-1.23.32	Amazon Linux 2	x86_64, arm64
Python 3.8	`python3.8`	boto3-1.20.32 botocore-1.23.32	Amazon Linux 2	x86_64, arm64
Python 3.7	`python3.7`	boto3-1.20.32 botocore-1.23.32	Amazon Linux	x86_64
Python 3.6	`python3.6`	boto3-1.20.32 botocore-1.23.32	Amazon Linux	x86_64

Lambda runtimes

- Java runtimes

Name	Identifier	JDK	Operating system	Architectures
Java 11	`java11`	amazon-corretto-11	Amazon Linux 2	x86_64, arm64
Java 8	`java8.al2`	amazon-corretto-8	Amazon Linux 2	x86_64, arm64
Java 8	`java8`	amazon-corretto-8	Amazon Linux	x86_64

Lambda runtimes

- .NET runtimes

Name	Identifier	Operating system	Architectures
.NET 6	`dotnet6`	Amazon Linux 2	x86_64, arm64
.NET Core 3.1	`dotnetcore3.1`	Amazon Linux 2	x86_64, arm64

Lambda runtimes

- Go runtimes

Name	Identifier	Operating system	Architectures
Go 1.x	`go1.x`	Amazon Linux	x86_64

- Ruby runtimes

Name	Identifier	SDK for Ruby	Operating system	Architectures
Ruby 2.7	`ruby2.7`	3.0.1	Amazon Linux 2	x86_64, arm64

Lab2. Using AWS Lambda

Quiz

#1

다음 중 Amazon DynamoDB를 가장 잘 설명한 것은 무엇인가?

① AWS 클라우드에서 관계형 데이터베이스를 실행할 수 있는 서비스

② 서버리스 키-값 데이터베이스 서비스

③ 관계형 데이터베이스, 비관계형 데이터베이스 및 기타 유형의 데이터 저장소를 마이그레이션하는 데 사용할 수 있는 서비스

④ 엔터프라이즈급 관계형 데이터베이스

Quiz

#2

한 유저가 관계형 데이터베이스가 필요하지만, 탄력적 운영, 복제 및 하드웨어 관리를 하는 리소스를 가지고 있지 않다면 다음 중 유저의 요구사항을 만족할 수 있는 AWS 서비스 옵션은 무엇인가?

① Amazon EC2위에 MySQL을 실행한다.

② Amazon ECS 서비스에서 MySQL을 실행한다.

③ Amazon RDS for MySQL을 선택한다.

④ Redis를 위한 Amazon ElasticCache 서비스를 선택한다.

Quiz

#3

다음 중 MySQL과 PostgreSQL과 호환이 되는 관계형 데이터베이스 서비스는 무엇인가?

① Amazon Redshift

② Amazon DynamoDB

③ Amazon Aurora

④ Amazon Neptune