Understanding the Core Services of AWS

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Overview

Elastic Cloud Compute (EC2)

Simple Storage Service (S3)

Relational Database Service (RDS)

Route53

Elastic Cloud Compute

Elastic Cloud Compute (EC2)
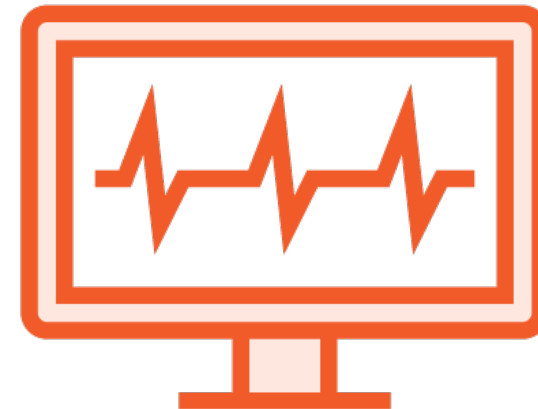
The solution for your computing needs
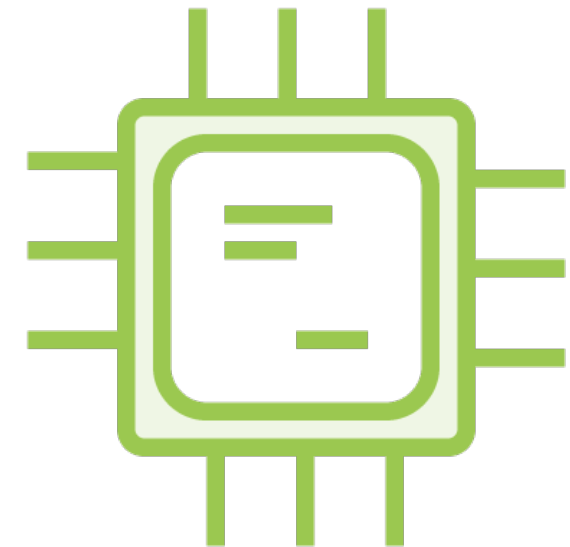
What Can You Do with EC2?

Run Applications

Virtual Desktop

3rd Party Software

Computing!

Elastic Cloud Compute

Instances running computing operations can increase or decrease at will

Computing services operating in remote data servers around the world

Basic Unit of EC2

EC2 Instance

Demo in the AWS Console!

Amazon Machine Image (AMI)

Operating system and software used on an EC2 instance

Amazon updates the image software...

... not your instance

Large Instance Type Comparison

	vCPU	Memory	Network
General Purpose t3.large	2	8	Up to 5Gbps
Memory Optimized r5.large	2	16	Up to 10Gbps
Compute Optimized c5.large	2	4	Up to 10Gbps

Auto Scaling Group

Rules for automatically scaling EC2 images up and down

Use EC2 for scaling AMIs

Use EB for scaling applications

Use EBS for
EC2
file systems

Use S3 for
file storage

Security Group

IP-based communication rules for a single or group of service instances

Example Security Group Scenarios

Control who can SSH into EC2 instance

Allow access between EC2 instances

Allow access to databases

Accept HTTP requests

Amazon EC2 Pricing

EC2 instances are charged by the hour

Prices change based on: Instance type

AMI type

EC2 Pricing Example

Instance type	AMI	Rate per hour
r5.large	**Amazon Linux**	**$0.126 USD**

Daily rate: **$3.02 USD**

*** Please see https://aws.amazon.com/ec2/pricing/ for current pricing

EC2 Pricing Example

Instance type	AMI	Rate per hour
t2.micro	**Amazon Linux**	**$0.013 USD**

Daily rate: **$0.31 USD**

*** Please see https://aws.amazon.com/ec2/pricing/ for current pricing

EC2 Instance Pricing Types

On-demand instances   Cheap

Reserved instances   Cheaper

Spot instances   Cheapest

Current EC2 Free Offering

750 hours of t2.micro running Linux

750 hours of t2.micro running Windows Server

750 hours of Elastic Load Balancing + 15 GB processing

30GB Elastic Block Storage

Each month for one year!

Additional Pricing

Elastic Block Storage	$0.10 USD per GB/month
Auto Scaling Groups	Free
Load Balancer	$0.0225 USD/hour

*** Please see https://aws.amazon.com/ec2/pricing/ for current pricing

More to come on EC2!

Simple Storage Service

Simple Storage Service (S3)

The solution for your storage needs

Maximum file size is 5 terabytes!

Structure of S3

Bucket

Objects

S3 Buckets Can

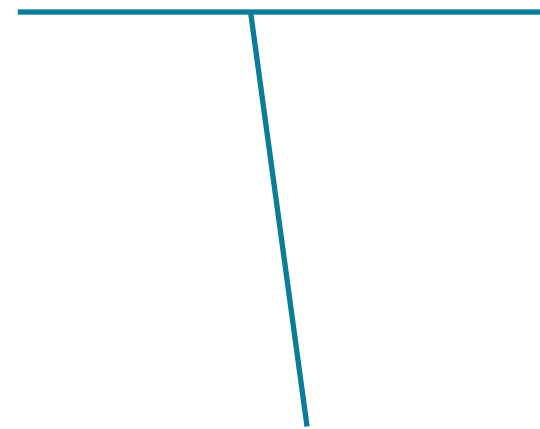Trigger events when objects are added/modified/deleted

Preserve older versions of objects

Replicate objects across regions

S3 buckets are accessed via URL

S3 Bucket URL Example

https://s3-us-west-1.amazonaws.com/okfido.org/img/okfido_logo.png

S3 Bucket Region

Bucket Name

Object Path

How to Solve Latency in S3

Step 1:   Use CloudFront

Step 2:   Relax!   😎

S3 Pricing Structure

Amount of Data Stored

Number of Requests

Amount of Data Transferred

*Prices differ per region

S3 Oregon Region Pricing Example

Amount of Data Stored	Number of Requests	Amount of Data Transferred
$0.023 USD per GB	$0.005 USD per 1,000 requests	$0.09 USD per GB

*** Please see https://aws.amazon.com/s3/pricing/ for current pricing

Relational Database Service

Relational Database Service (RDS)

The solution for your database needs

Managed Database Aspects

Scheduled automated backups

Simple software updates

Managed infrastructure

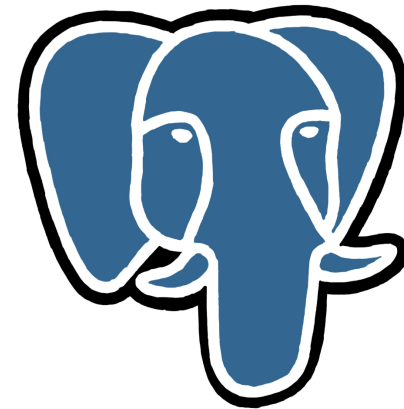# Database on EC2 vs. RDS

Database backups

Redundancy

Software patches

AWS handles it all

+

Easy configuration

Read replicas

RDS Database Options

RDS Databases Run on EC2 Instances

Yes, you can install a database with EC2 on your own...

...but having Amazon manage the database for you will save you headaches
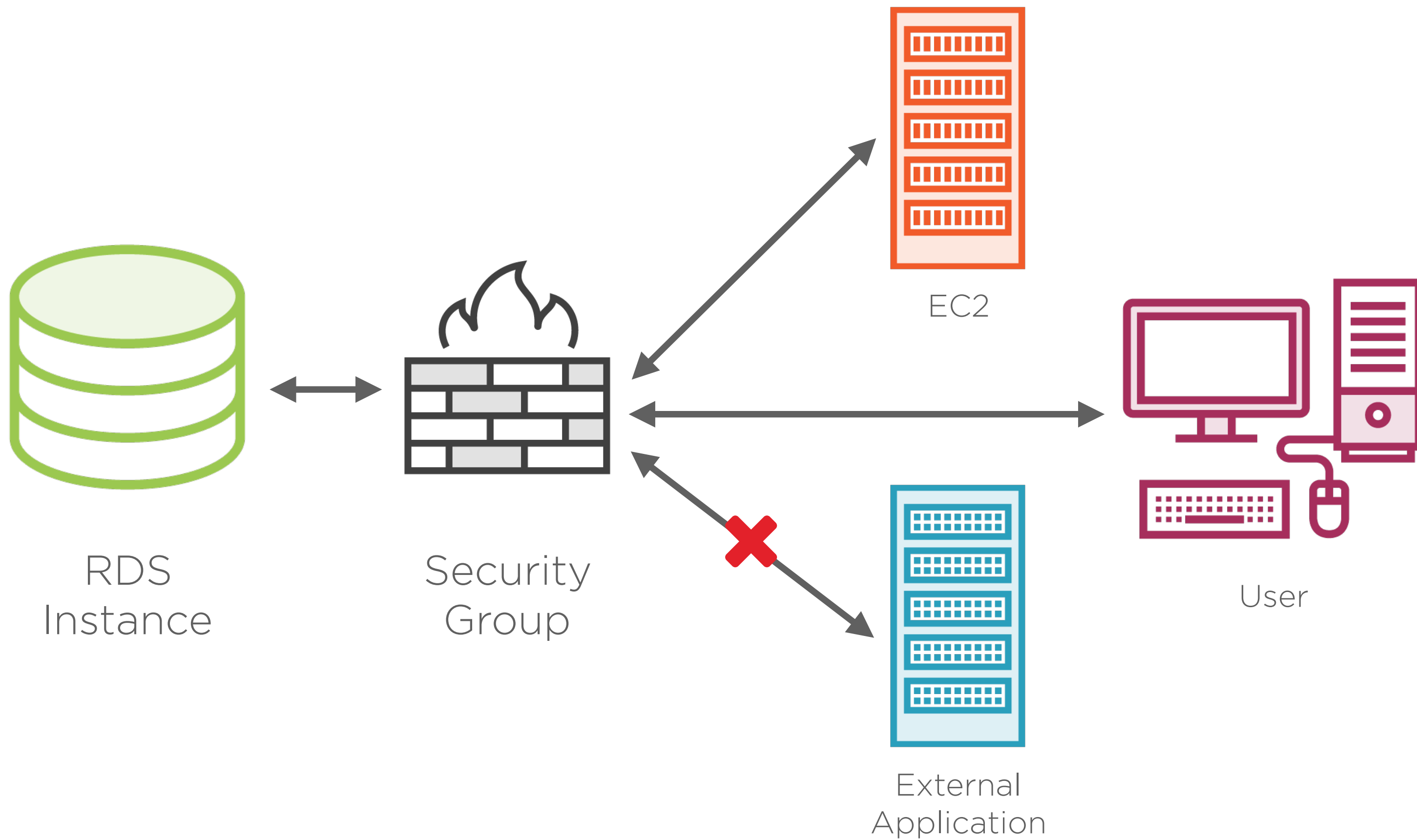
RDS Makes It Easy to...

Take DB Snapshots

Change the Hardware

AWS Takes Security Seriously

RDS Instance

Security Group

EC2

External Application

User

RDS Pricing Structure

Type of Database

Region

EC2 Instance Type

RDS Pricing Example

MySQL Database

Oregon Region

db.m4.xlarge Instance

$0.35 USD
per hour

$8.40 USD
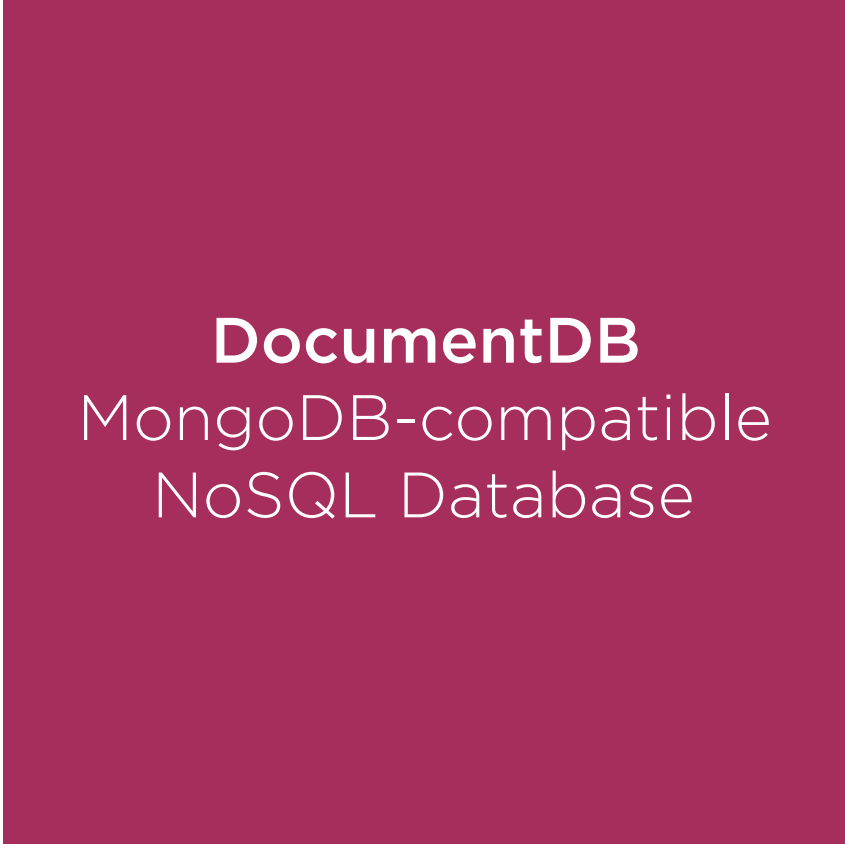per day

*** Please see https://aws.amazon.com/rds/pricing/ for current pricing

Pricing changes based on the database type

Other Managed Database Offerings from Amazon

DynamoDB
NoSQL Database

DocumentDB
MongoDB-compatible
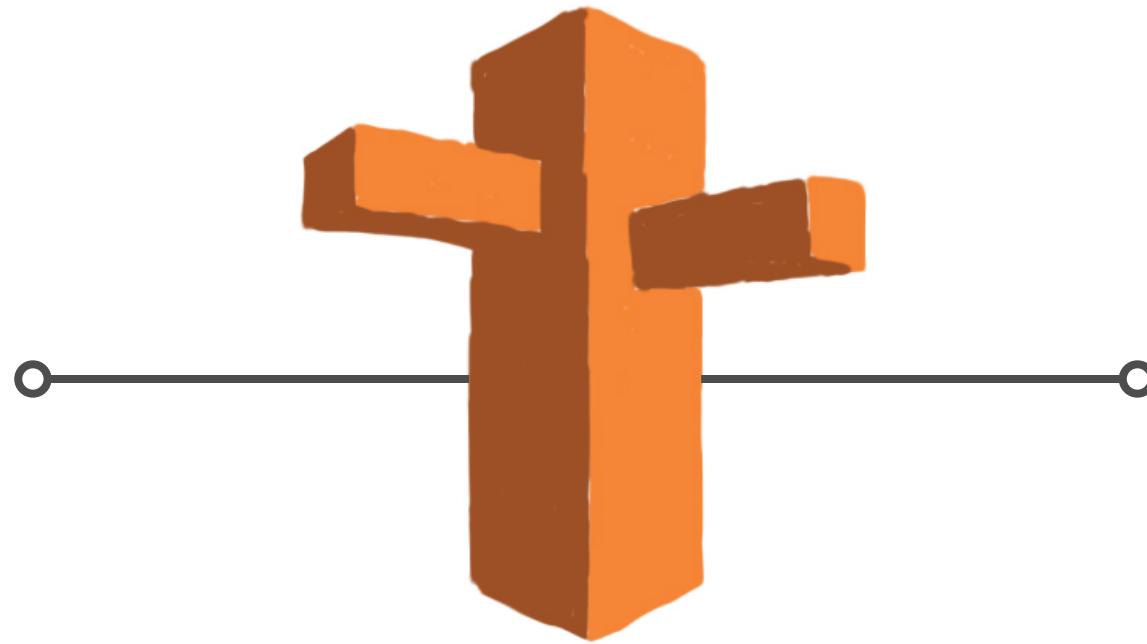NoSQL Database

Route53

Route53

The solution for your DNS needs

Domain Name System

System that translates human-readable URLs to IP addresses

www.example.com

EC2
Application

Route53 is Core to letting users interact with services in AWS

Route53 Pricing Structure

Hosted Zone	Queries	DNS Entries
$0.50 USD per month	$0.40 USD per 1M	Free

*** Please see https://aws.amazon.com/route53/pricing/ for current pricing

Route53 Health Checks

Conclusion

Summary

EC2 for computing

S3 for storage

RDS for databases

Route53 for URLs

Up Next:

Enhancing Your App with AWS Databases and Application Services
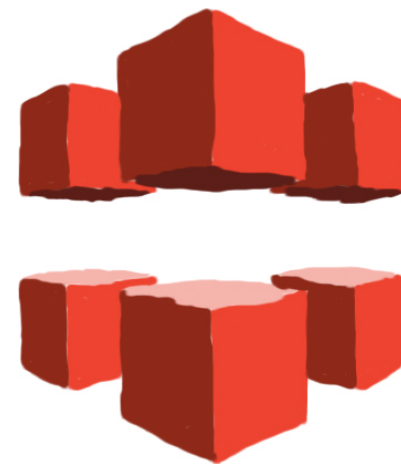
AWS Extended Services

EB

Lambda

DynamoDB

VPC

CloudFront

CloudWatch