

Understanding the Core Services of AWS



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Summary

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?



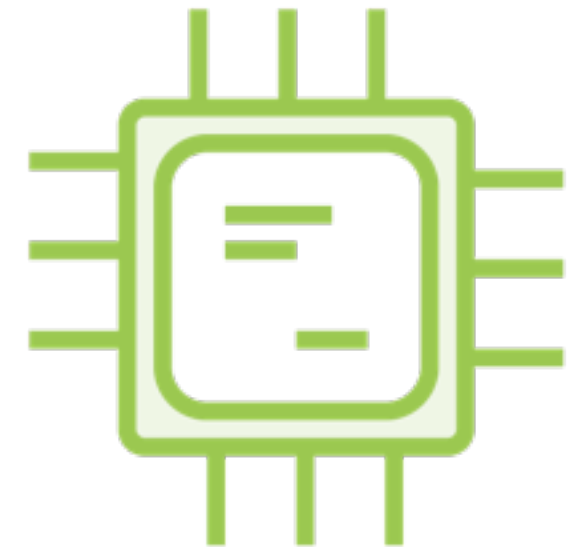
Run Applications



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 + Software used on an EC2 Instance

Amazon updates the image software...
... not your instance

Large Instance Type Comparison

	vCPU	Memory	Network
General Purpose t2.large	2	8	Low to Moderate
Memory Optimized r3.large	2	15	Moderate
Compute Optimized c4.large	2	3.75	Moderate

Auto Scaling Group

Rules for automatically scaling EC2 instances 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
r3.large	Amazon Linux	\$0.166 USD

Daily Rate: **\$3.98 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

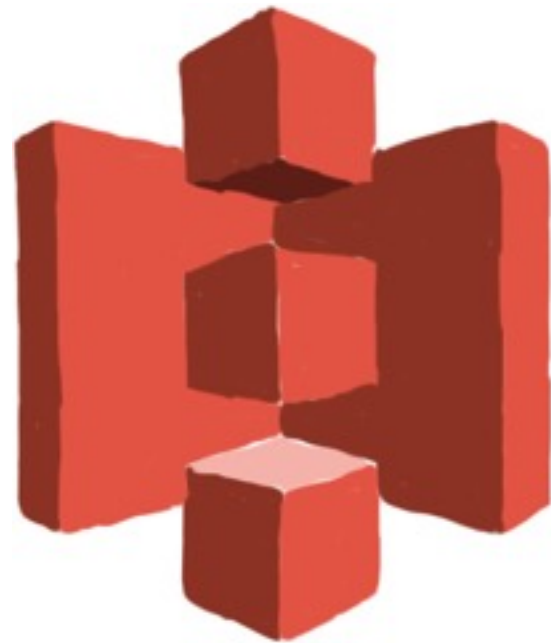
Auto Scaling Groups Free! / month

Load Balancer \$0.025 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

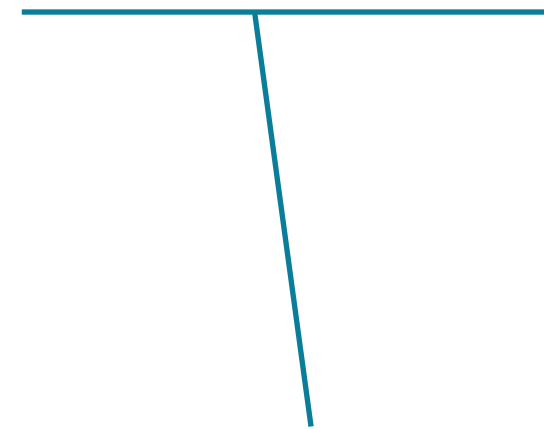
... preserve older versions of objects

... 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



The diagram consists of three vertical rectangular blocks arranged horizontally. The first block on the left is orange and contains the text 'Amount of Data Stored'. The middle block is maroon and contains the text 'Number of Requests'. The third block on the right is purple and contains the text 'Amount of Data Transferred'.

**Amount of Data
Stored**

**Number of
Requests**

**Amount of Data
Transferred**

*Prices differ per region

S3 Oregon Region Pricing Example

Amount of Data
Stored

\$0.03 USD
per GB

Number of
Requests

\$0.005 USD
per 1,000
Requests

Amount of Data
Transferred

\$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

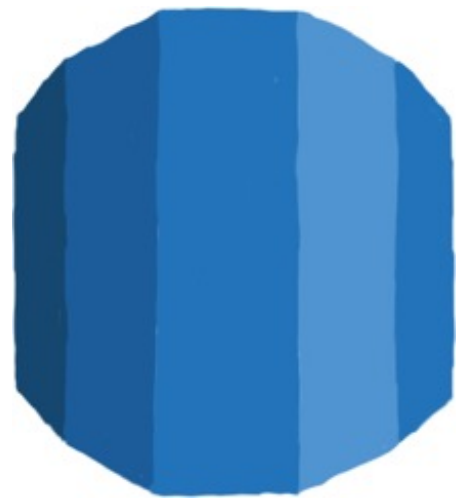
Read Replicas

RDS Database Options



Amazon Aurora

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.

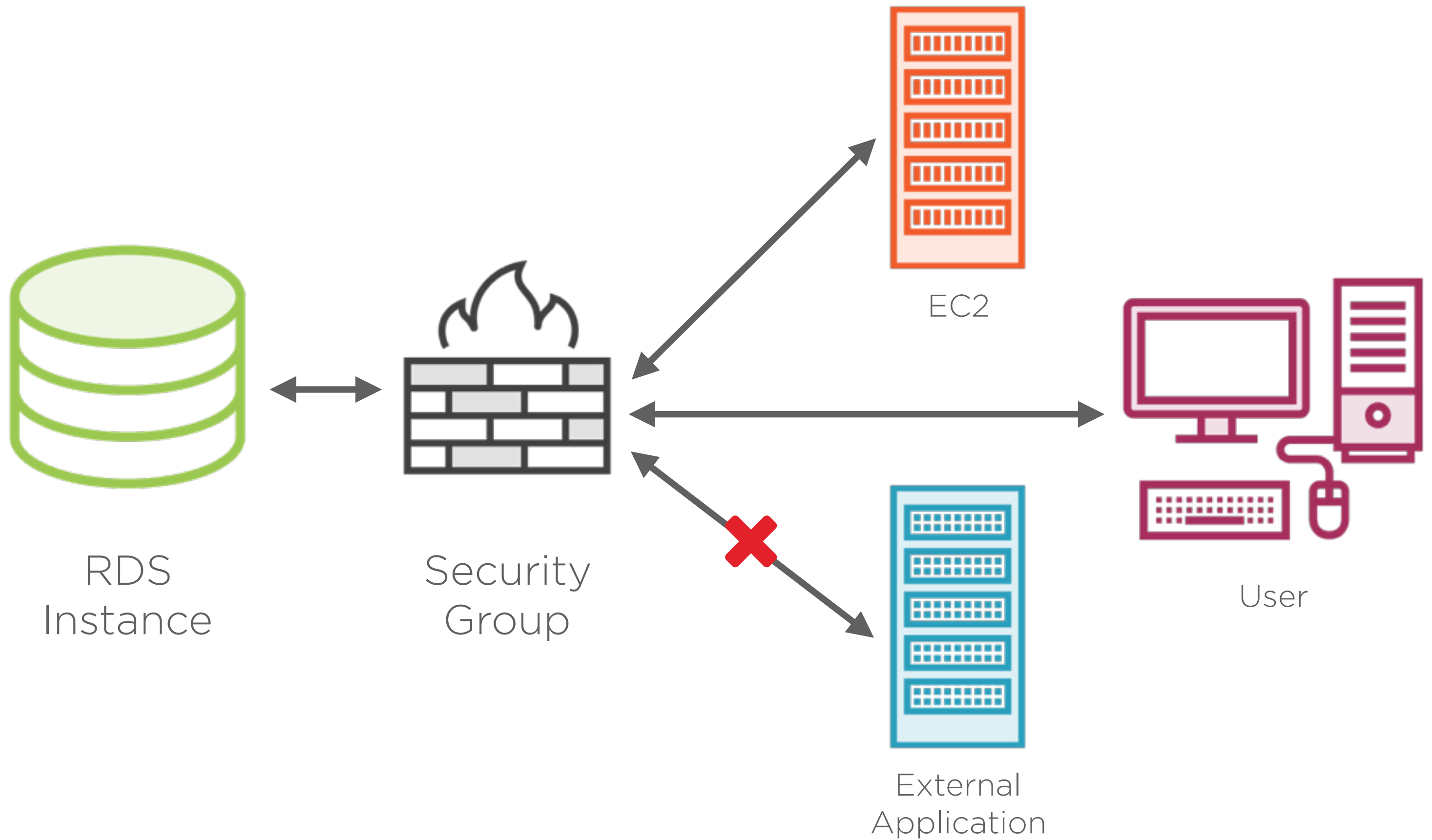
RDS Makes It Easy To...

A solid teal square.

Take DB Snapshots

A solid purple square.

Change the Hardware



RDS Pricing Structure



The diagram consists of three vertical rectangular blocks arranged horizontally. The first block on the left is green and contains the text 'Type of Database'. The middle block is blue and contains the text 'Region'. The third block on the right is maroon and contains the text 'EC2 Instance Type'. All three blocks are of equal height and width, and are separated by small gaps.

Type of Database

Region

EC2 Instance Type

RDS Pricing Example

MySQL Database

\$0.35 USD
per hour

Oregon Region

db.m4.xlarge Instance

\$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



RedShift
Data Warehouse

Route53



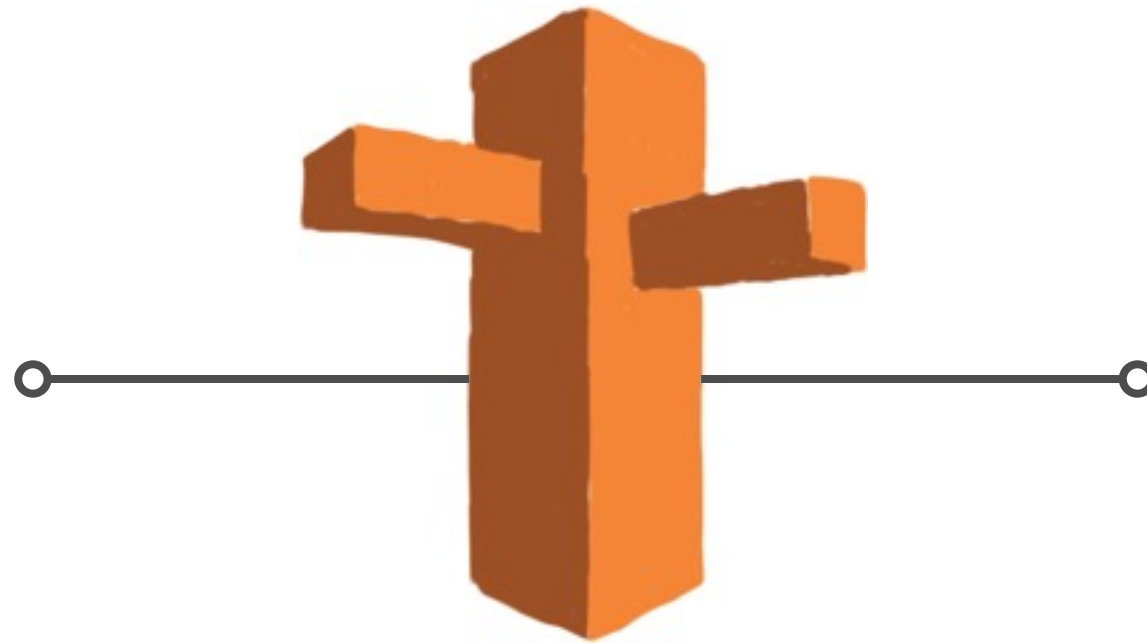
Route53

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



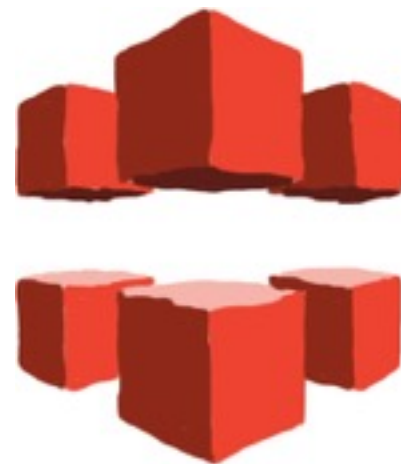
DynamoDB



RedShift



VPC



CloudFront



CloudWatch