

GETTING TO KNOW AMAZON WEB SERVICES

Introduction and core services

Luigi Libero Lucio Starace

luigiliberolucio.starace@unina.it

March 23, 2020

University of Naples, Federico II

1 A little bit of context

OUTLINE

1 A little bit of context

2 AWS Infrastructure

OUTLINE

1 A little bit of context

2 AWS Infrastructure

3 Core AWS services

OUTLINE

- 1 A little bit of context
- 2 AWS Infrastructure
- 3 Core AWS services
- 4 Take Home Messages

A LITTLE BIT OF CONTEXT

Cloud computing is the on-demand delivery of computing resources through a cloud services platform via the internet with pay-as-you-go pricing.

Cloud computing is the **on-demand delivery** of computing resources through a cloud services platform via the internet with pay-as-you-go pricing.

Cloud computing is the **on-demand delivery** of computing resources through a cloud services platform via the internet with **pay-as-you-go** pricing.

- Software as a Service (SaaS)

- **Software as a Service (SaaS)**

The service vendor provides the user with a completed product that is run and managed by the service provider.

- **Software as a Service (SaaS)**

The service vendor provides the user with a completed product that is run and managed by the service provider.

- **Platform as a Service (PaaS)**

- **Software as a Service (SaaS)**

The service vendor provides the user with a completed product that is run and managed by the service provider.

- **Platform as a Service (PaaS)**

The service vendor provides the user with a set of API which can be used to build, test and deploy applications.

- **Software as a Service (SaaS)**

The service vendor provides the user with a completed product that is run and managed by the service provider.

- **Platform as a Service (PaaS)**

The service vendor provides the user with a set of API which can be used to build, test and deploy applications.

- **Infrastructure as a Service (IaaS)**

- **Software as a Service (SaaS)**

The service vendor provides the user with a completed product that is run and managed by the service provider.

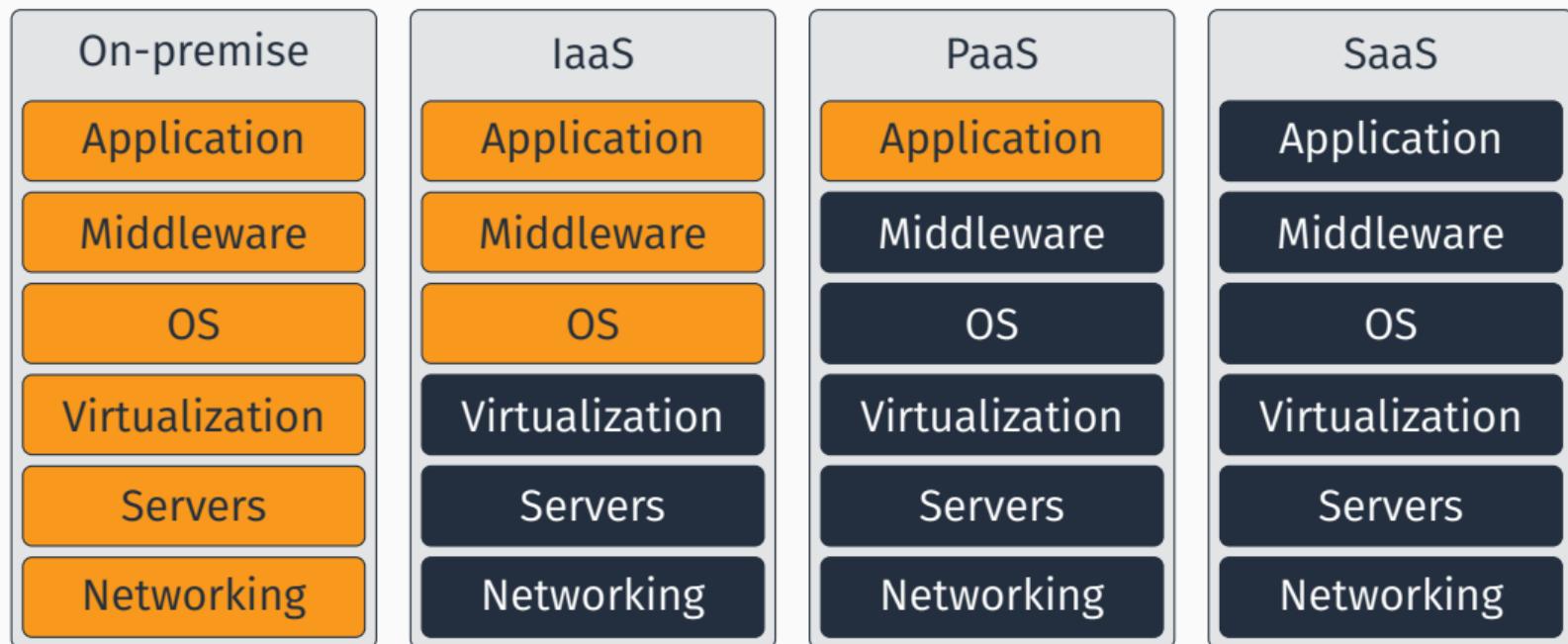
- **Platform as a Service (PaaS)**

The service vendor provides the user with a set of API which can be used to build, test and deploy applications.

- **Infrastructure as a Service (IaaS)**

The service vendor provides users access to computing resources such as servers, storage and networking.

SERVICE MODELS: A VISUAL COMPARISON



User manages



Someone else manages

- Google



Google Cloud

THE BIGWIGS

- Google
- IBM



IBM Cloud

- Google
- IBM
- Microsoft



THE BIGWIGS

- Google
- IBM
- Microsoft
- Alibaba



THE BIGWIGS

- Google
- IBM
- Microsoft
- Alibaba
- Amazon



PUBLIC CLOUD ADOPTION AND THE MULTI-CLOUD TREND

According to [Fle19]:

- 91% of the surveyed companies uses public cloud services

PUBLIC CLOUD ADOPTION AND THE MULTI-CLOUD TREND

According to [Fle19]:

- 91% of the surveyed companies uses public cloud services
- 84% of these enterprises have a multi-cloud strategy

PUBLIC CLOUD ADOPTION AND THE MULTI-CLOUD TREND

According to [Fle19]:

- 91% of the surveyed companies uses public cloud services
- 84% of these enterprises have a multi-cloud strategy
 - they buy cloud services from different providers;

PUBLIC CLOUD ADOPTION AND THE MULTI-CLOUD TREND

According to [Fle19]:

- 91% of the surveyed companies uses public cloud services
- 84% of these enterprises have a multi-cloud strategy
 - they buy cloud services from different providers;
 - they combine public and private clouds (hybrid cloud approach).

PUBLIC CLOUD ADOPTION

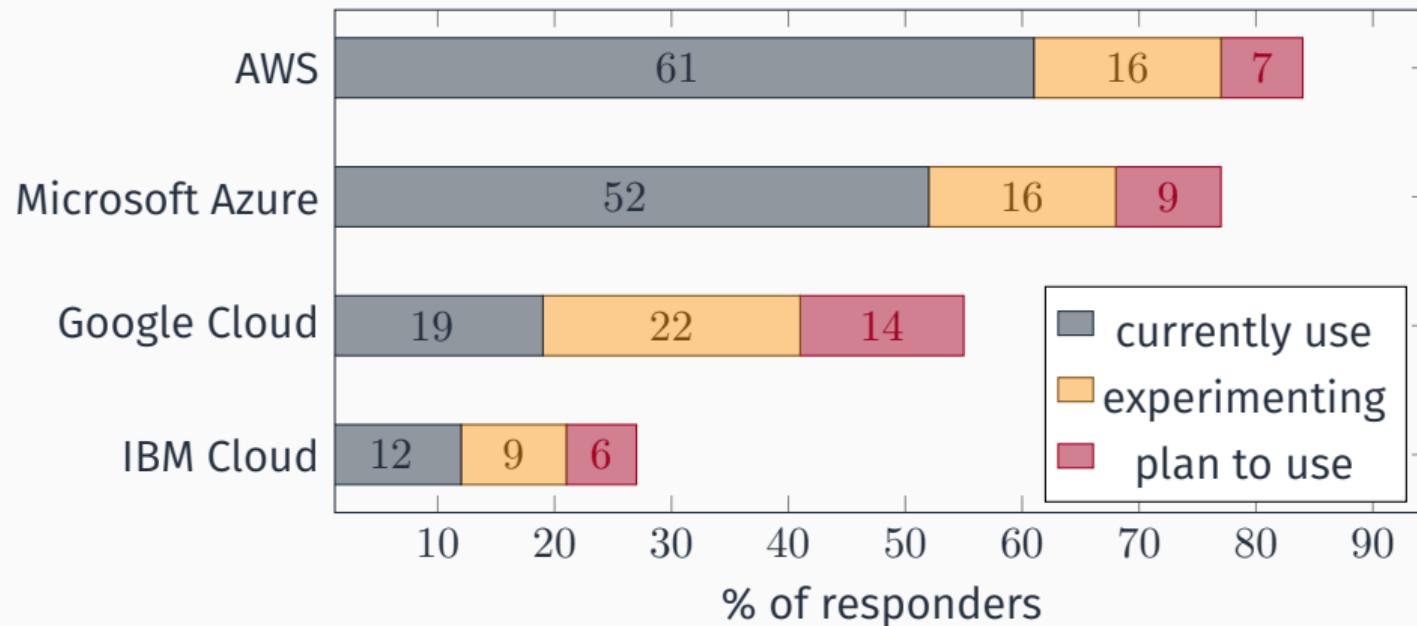


Figure 2: Public cloud adoption [Fle19]

AWS INFRASTRUCTURE

- AWS is present in 22 geographical regions.



AWS INFRASTRUCTURE

- AWS is present in 22 geographical regions.
- Each region consists of multiple (3–6) availability zones.



- AWS is present in 22 geographical regions.
- Each region consists of multiple (3–6) availability zones.
- An availability zone can be multiple data centers, with up to hundreds of thousands of servers.



- AWS is present in 22 geographical regions.
- Each region consists of multiple (3–6) availability zones.
- An availability zone can be multiple data centers, with up to hundreds of thousands of servers.
- 216 points of presence for effective caching and content delivery.



CORE AWS SERVICES



Amazon Web Services is a collection of cloud-based services.



Amazon Web Services is a collection of cloud-based services. **A very big one.**



Amazon Web Services is a collection of cloud-based services. **A VERY big one.**

Periodic Table of Amazon Web Services

by [@awsgeek](#)

A athena	S3 simple storage service
Cs cloudsearch	Sg storage gateway
Gs ground station	
Mr elastic map reduce	V virtual private cloud
G glue	Bs elastic block store
Analytics	Amplify
Application Integration	Amplify
AR & VR	Virtual Private Cloud
AWS Cost Management	Cr cloudfront
Blockchain	Fs elastic file system
Business Applications	Fx fsx for lustre
Compute	GeeksforGeeks
Customer Engagement	GeeksforGeeks
Database	GeeksforGeeks
Developer Tools	GeeksforGeeks
End User Computing	GeeksforGeeks
Mobile	GeeksforGeeks
Game Tech	GeeksforGeeks
Internet of Things	GeeksforGeeks
Machine Learning	GeeksforGeeks
Media Services	GeeksforGeeks
Migration & Transfer	GeeksforGeeks
Management & Governance	GeeksforGeeks
Network & Content Delivery	GeeksforGeeks
Robotics	GeeksforGeeks
Satellite	GeeksforGeeks
Storage	GeeksforGeeks
Security, Identity & Compliance	GeeksforGeeks
Wa well-architected tool	GeeksforGeeks
Lm license manager	GeeksforGeeks
Et elastic transcoder	GeeksforGeeks
Mh migration hub	GeeksforGeeks
Am amplify	GeeksforGeeks
V virtual private cloud	GeeksforGeeks
Bs elastic block store	GeeksforGeeks
Gs storage gateway	GeeksforGeeks
Cs cloudsearch	GeeksforGeeks
Gs ground station	GeeksforGeeks
Mr elastic map reduce	GeeksforGeeks
G glue	GeeksforGeeks
Es elasticsearch	GeeksforGeeks
Lf lake formation	GeeksforGeeks
Ce cost explorer	GeeksforGeeks
Ax amazon for business	GeeksforGeeks
Cs elastic container service	GeeksforGeeks
L lambda	GeeksforGeeks
Co connect	GeeksforGeeks
Cb codebuild	GeeksforGeeks
Au aurora	GeeksforGeeks
Ds dynamodb	GeeksforGeeks
I iot core	GeeksforGeeks
Dd iot device defender	GeeksforGeeks
Ac auto scaling	GeeksforGeeks
Ms managed services	GeeksforGeeks
Mc elemental mediaconnect	GeeksforGeeks
Dm database migration service	GeeksforGeeks
Po pinpoint	GeeksforGeeks
53 route 53	GeeksforGeeks
Fx fsx for lustre	GeeksforGeeks
K kinesis	GeeksforGeeks
SF step functions	GeeksforGeeks
Bu budgets	GeeksforGeeks
Ch chime	GeeksforGeeks
Ks elastic container service for Kubernetes	GeeksforGeeks
O outposts	GeeksforGeeks
Pi pinpoint	GeeksforGeeks
Cc codecommit	GeeksforGeeks
D dynamodb	GeeksforGeeks
Rs redshift	GeeksforGeeks
Os iot freertos	GeeksforGeeks
Dm iot device management	GeeksforGeeks
Cf cloudformation	GeeksforGeeks
Ow opsworks	GeeksforGeeks
Mv elemental mediavoice	GeeksforGeeks
Ds datasync	GeeksforGeeks
As appsync	GeeksforGeeks
Pi vpc privatelab	GeeksforGeeks
Fw fsx for windows file server	GeeksforGeeks
Ka managed streaming for kafka	GeeksforGeeks
Mq activemq	GeeksforGeeks
Cu cost & usage report	GeeksforGeeks
Wm workmail	GeeksforGeeks
Ls lightsail	GeeksforGeeks
Sa serverless application repository	GeeksforGeeks
E single email service	GeeksforGeeks
Cd codedeploy	GeeksforGeeks
Do documentdb	GeeksforGeeks
Ti timestream	GeeksforGeeks
Gg iot greengrass	GeeksforGeeks
Ev iot events	GeeksforGeeks
Ct cloudtrail	GeeksforGeeks
Ph personal health dashboard	GeeksforGeeks
MI elemental mediavoice	GeeksforGeeks
Sm server migration service	GeeksforGeeks
Df device farm	GeeksforGeeks
Am App Mesh	GeeksforGeeks
Gl s3 glacier	GeeksforGeeks
R redshift	GeeksforGeeks
N simple notification service	GeeksforGeeks
Ri reserved instance reporting	GeeksforGeeks
C elastic cloud compute	GeeksforGeeks
Ba batch	GeeksforGeeks
Lb elastic load balancing	GeeksforGeeks
Cs codestar	GeeksforGeeks
Cp codepipeline	GeeksforGeeks
Ec elasticache	GeeksforGeeks
Ms database migration service	GeeksforGeeks
Ic iot 1-click	GeeksforGeeks
Sw iot sitewise	GeeksforGeeks
Co config	GeeksforGeeks
Sc service catalog	GeeksforGeeks
Mp elemental mediapackage	GeeksforGeeks
Sn snow family	GeeksforGeeks
Ga global accelerator	GeeksforGeeks
Cm cloud map	GeeksforGeeks
Ba backup	GeeksforGeeks
Qs quicksight	GeeksforGeeks
Q simple queue service	GeeksforGeeks
Bc managed blockchain	GeeksforGeeks
Au elastic auto scaling	GeeksforGeeks
Eb elastic beanstalk	GeeksforGeeks
Bm vmware cloud on aws	GeeksforGeeks
Co corretto	GeeksforGeeks
Cli command line interface	GeeksforGeeks
Ne neptune	GeeksforGeeks
Gl gamelift	GeeksforGeeks
An iot analytics	GeeksforGeeks
Tg iot things graph	GeeksforGeeks
Ct control tower	GeeksforGeeks
Sm systems manager	GeeksforGeeks
Ms elemental mediastore	GeeksforGeeks
SF transfer for sftp	GeeksforGeeks
Tg transit gateway	GeeksforGeeks
Dc direct connect	GeeksforGeeks
Sn snow family	GeeksforGeeks
Dp data pipeline	GeeksforGeeks
Ap appsync	GeeksforGeeks
Su sumerian	GeeksforGeeks
Cr elastic container registry	GeeksforGeeks
F fargate	GeeksforGeeks
Rm rembaker	GeeksforGeeks
Cg cloud9	GeeksforGeeks
Sd tools & skills	GeeksforGeeks
OI quantum ledger db	GeeksforGeeks
Ly lumberyard	GeeksforGeeks
Bu int button	GeeksforGeeks
Dc iot partner device catalog	GeeksforGeeks
Cm console mobile app	GeeksforGeeks
Ta trusted advisor	GeeksforGeeks
Mt elemental mediastore	GeeksforGeeks
Wd workdocs	GeeksforGeeks
Wo worklink	GeeksforGeeks
Ws workspaces	GeeksforGeeks
As apigee 2.0	GeeksforGeeks
Sm sagemaker	GeeksforGeeks
Co comprehend	GeeksforGeeks
Ei elastic inference	GeeksforGeeks
Fc forecast	GeeksforGeeks
Lx lex	GeeksforGeeks
Pe personalize	GeeksforGeeks
Po poly	GeeksforGeeks
Rk rekognition	GeeksforGeeks
Gt semantic ground truth	GeeksforGeeks
Tx textract	GeeksforGeeks
Tr translate	GeeksforGeeks
Ta transcribe	GeeksforGeeks
DI deep learning studio	GeeksforGeeks
DI deepinsights	GeeksforGeeks
Dr deepspace	GeeksforGeeks
If inferentia	GeeksforGeeks
Mx apex monitor on aws	GeeksforGeeks
Tf tessarowl on aws	GeeksforGeeks
Im identity & access management	GeeksforGeeks
Cd cloud directory	GeeksforGeeks
Co cognito	GeeksforGeeks
Gd guardduty	GeeksforGeeks
I inspector	GeeksforGeeks
M macie	GeeksforGeeks
Ar artifact	GeeksforGeeks
Cm certificate manager	GeeksforGeeks
Hs cloudhsm	GeeksforGeeks
Ds directory service	GeeksforGeeks
Fm firewall manager	GeeksforGeeks
Km key management service	GeeksforGeeks
O organizations	GeeksforGeeks
Sm secrets manager	GeeksforGeeks
Sh security hub	GeeksforGeeks
Ss single sign-on	GeeksforGeeks
Wf web application firewall	GeeksforGeeks

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand



EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand
- Different types of instances to suit computing needs



EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand
- Different types of instances to suit computing needs
- Per-second (or per-hour) billing



EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand
- Different types of instances to suit computing needs
- Per-second (or per-hour) billing
- Data transfer **not** included!



EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand
- Different types of instances to suit computing needs
- Per-second (or per-hour) billing
- Data transfer **not** included!
- Persistent storage **not** included!



EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON ELASTIC COMPUTE CLOUD (EC2)

- (Virtual) Servers on demand
- Different types of instances to suit computing needs
- Per-second (or per-hour) billing
- Data transfer **not** included!
- Persistent storage **not** included!
- Scaling **not** included!



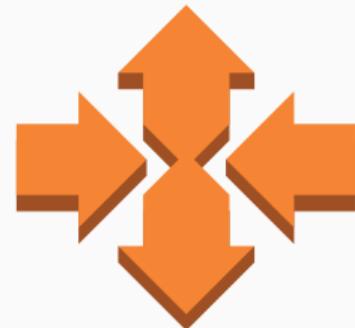
EC2 pricing [↗ web](#)

Azure: Virtual Machines [↗ web](#)

Google Cloud: Compute Engine [↗ web](#)

AMAZON EC2 AUTO SCALING

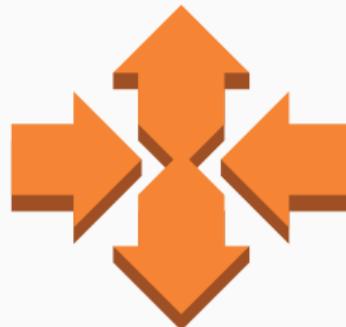
- *Scaling is the ability to increase or decrease the compute capacity of your application*



Azure: Virtual Machine Scale Sets [\[web\]](#)
Google Cloud: Load Balancing [\[web\]](#)

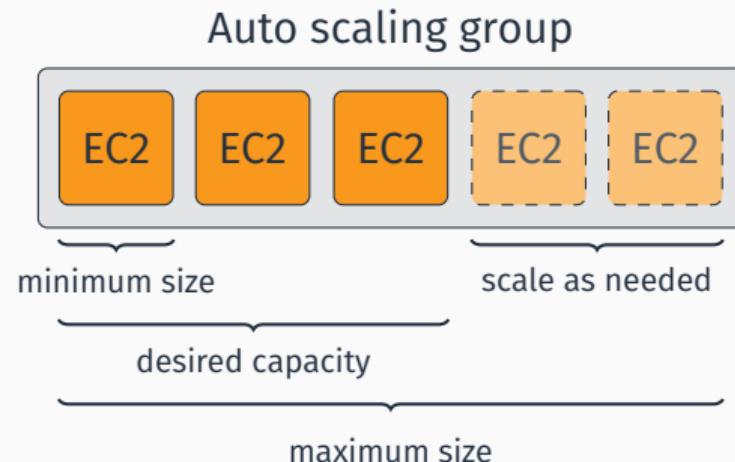
AMAZON EC2 AUTO SCALING

- *Scaling is the ability to increase or decrease the compute capacity of your application*
- Scale your application manually, on a scheduled basis or on demand



Azure: Virtual Machine Scale Sets  web
Google Cloud: Load Balancing  web

AMAZON EC2 AUTO SCALING: DETAILS



AMAZON ELASTIC LOAD BALANCING (ELB)

- Distributes incoming traffic across multiple EC2 instances



Azure: Load Balancer  web

AMAZON ELASTIC LOAD BALANCING (ELB)

- Distributes incoming traffic across multiple EC2 instances
- Pay-per-use billing



Azure: Load Balancer  web

AMAZON ELASTIC LOAD BALANCING (ELB)

- Distributes incoming traffic across multiple EC2 instances
- Pay-per-use billing
 - Execution time



Azure: Load Balancer  web

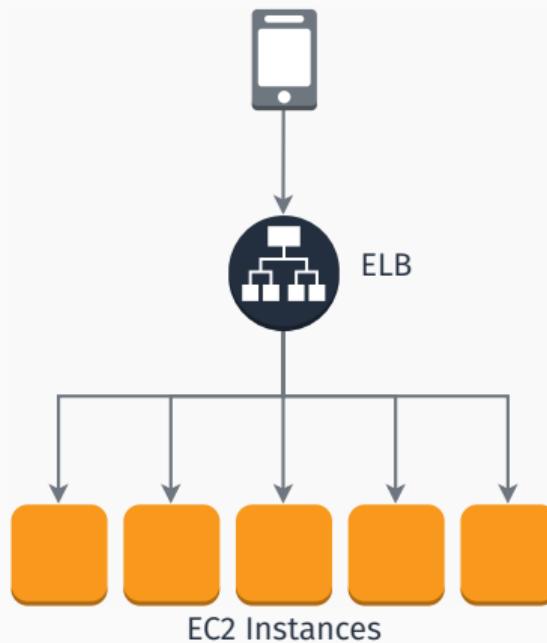
AMAZON ELASTIC LOAD BALANCING (ELB)

- Distributes incoming traffic across multiple EC2 instances
- Pay-per-use billing
 - Execution time
 - Number of requests / traffic

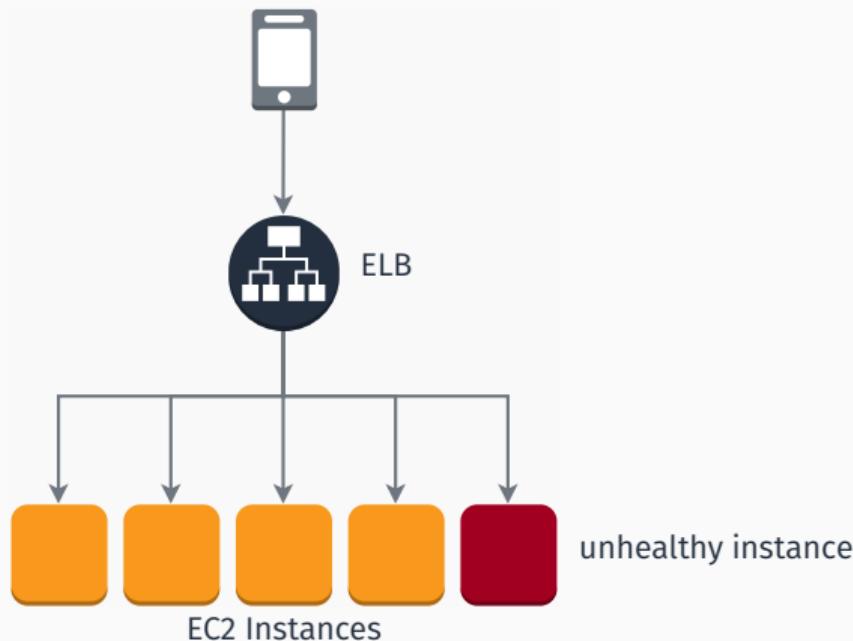


Azure: Load Balancer  web

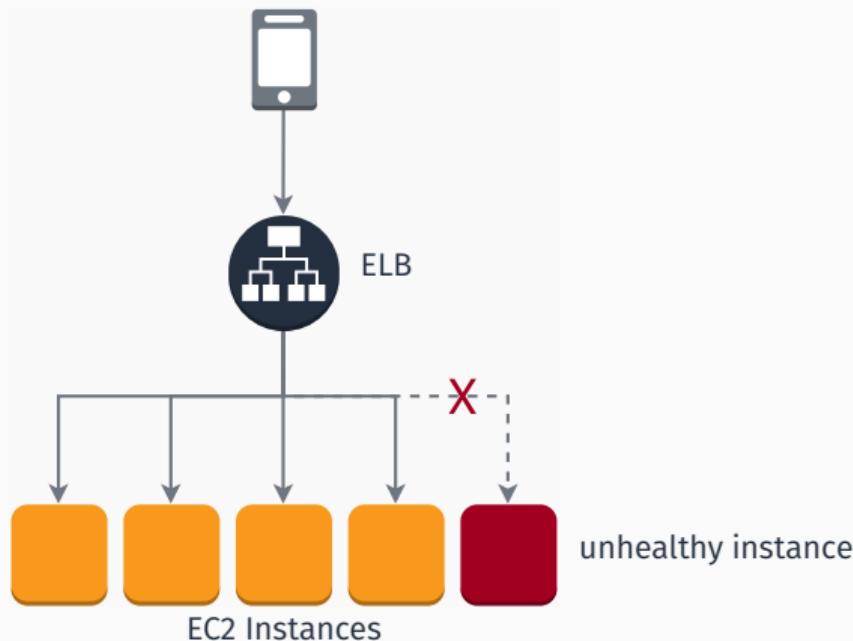
AMAZON ELASTIC LOAD BALANCING (ELB)



AMAZON ELASTIC LOAD BALANCING (ELB)



AMAZON ELASTIC LOAD BALANCING (ELB)



CLOUD STORAGE PRODUCTS

- Elastic Block Storage (EBS)
 - Persistent local storage for EC2 instances.

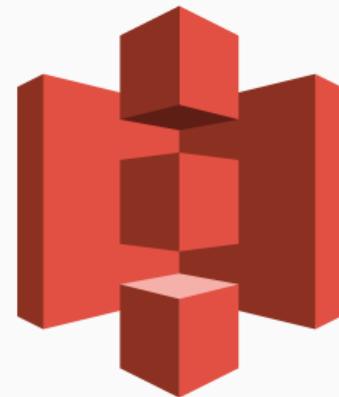


- Elastic Block Storage (EBS)
 - Persistent local storage for EC2 instances.
- Elastic File System (EFS)
 - File system interface to share data between EC2 instances.



CLOUD STORAGE PRODUCTS

- Elastic Block Storage (EBS)
 - Persistent local storage for EC2 instances.
- Elastic File System (EFS)
 - File system interface to share data between EC2 instances.
- Simple Storage Service (S3)

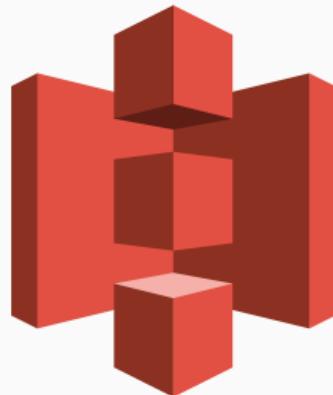


- Elastic Block Storage (EBS)
 - Persistent local storage for EC2 instances.
- Elastic File System (EFS)
 - File system interface to share data between EC2 instances.
- Simple Storage Service (S3)
- Glacier
 - Durable and cheap long-term storage.



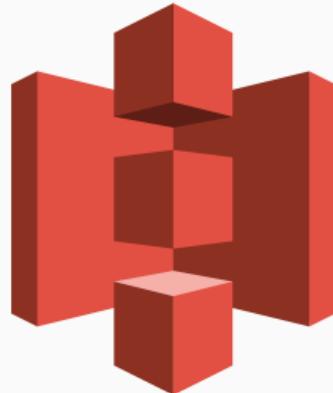
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*



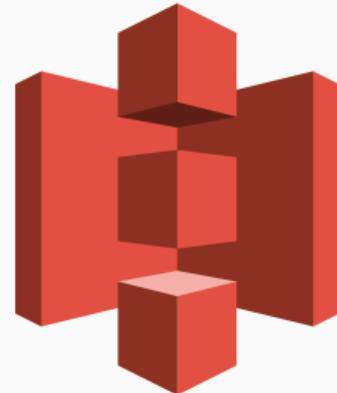
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)



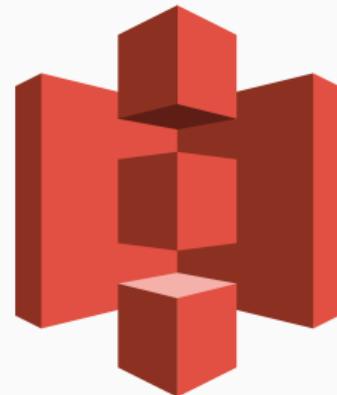
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones



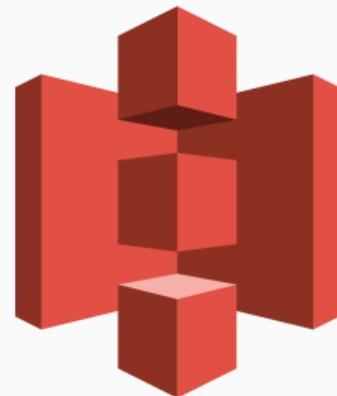
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*



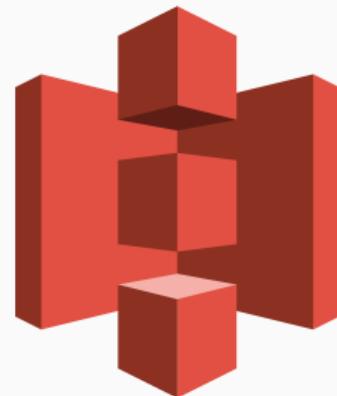
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*
- Multiple storage classes



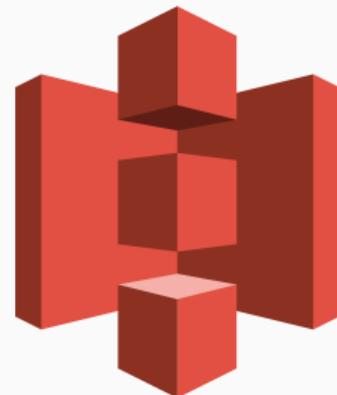
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*
- Multiple storage classes
 - Standard



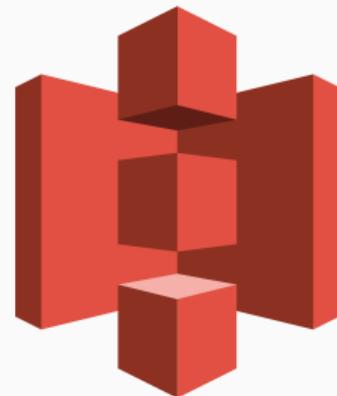
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*
- Multiple storage classes
 - Standard
 - Infrequent Access



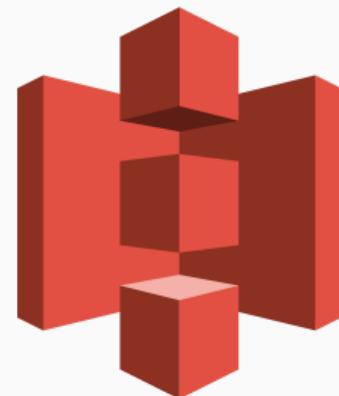
AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*
- Multiple storage classes
 - Standard
 - Infrequent Access
 - One zone-Infrequent Access



AMAZON SIMPLE STORAGE SERVICE (S3)

- *store and retrieve any amount of data from anywhere*
- 99.99999999% durability (nine nines!)
- Data is distributed across a *minimum* of three availability zones
- A logical unit of storage is a *bucket*
- Multiple storage classes
 - Standard
 - Infrequent Access
 - One zone-Infrequent Access
 - Amazon Glacier



AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

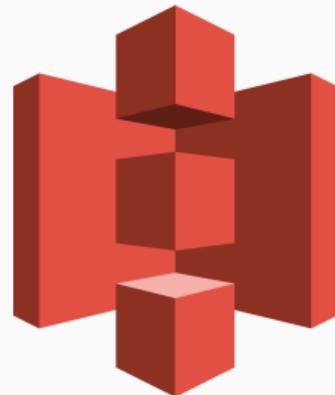
Pricing:

Storage class	Storage (per month)	Retrieval (per 1K req.)
Standard	\$0.022 per GB	\$0.0004
Infrequent access	\$0.0125 per GB	\$0.001
IA single zone	\$0.01 per GB	\$0.001
Glacier	\$0.004 per GB	\$0.0004

Table 1: S3 pricing (Ireland)

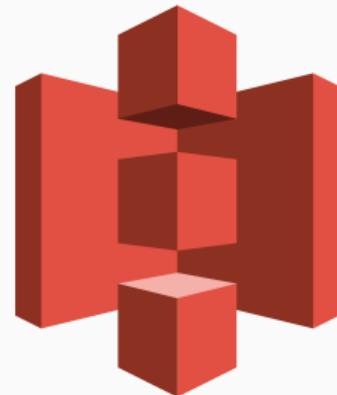
AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

- Well-integrated with other services



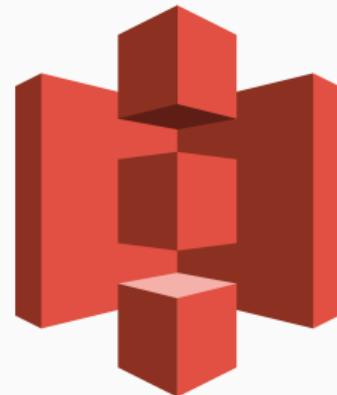
AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

- Well-integrated with other services
 - Machine Learning



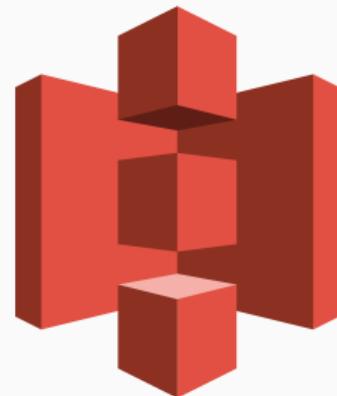
AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

- Well-integrated with other services
 - Machine Learning
 - Big Data Analysis



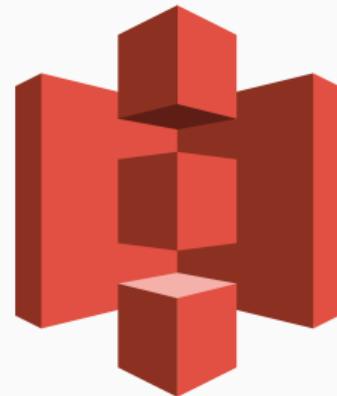
AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

- Well-integrated with other services
 - Machine Learning
 - Big Data Analysis
- REST API

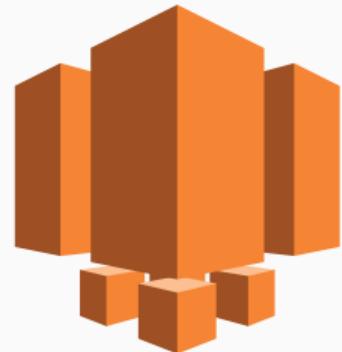


AMAZON SIMPLE STORAGE SERVICE (S3) - MORE

- Well-integrated with other services
 - Machine Learning
 - Big Data Analysis
- REST API
- Can be used to host static websites



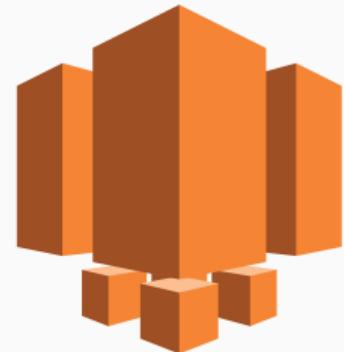
- A lightweight, simplified offer



Websites: [EC2](#) [Lightsail](#)

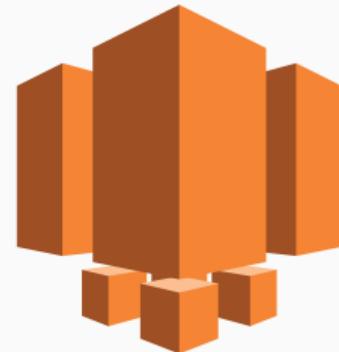
AMAZON LIGHTSAIL

- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity



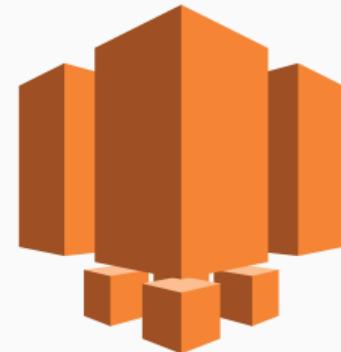
Websites: [EC2](#) [Lightsail](#)

- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity
- Preconfigured instances for



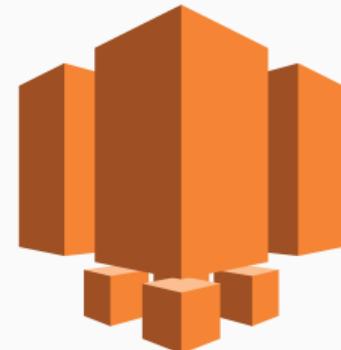
Websites: [EC2](#) [Lightsail](#)

- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity
- Preconfigured instances for
 - Debian, Windows Server, ...



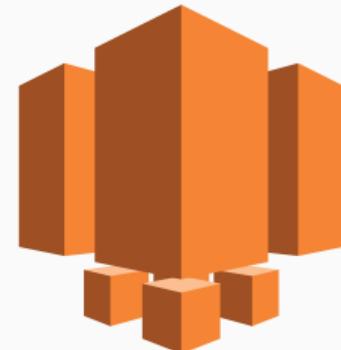
Websites: [EC2](#) [Lightsail](#)

- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity
- Preconfigured instances for
 - Debian, Windows Server, ...
 - Wordpress, Magento, Redmine, ...



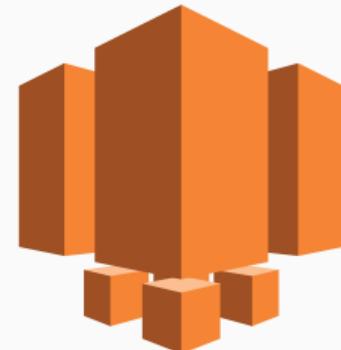
Websites: [EC2](#) [Lightsail](#)

- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity
- Preconfigured instances for
 - Debian, Windows Server, ...
 - Wordpress, Magento, Redmine, ...
 - LAMP stack, Nginx, ...



Websites: [EC2](#) [Lightsail](#)

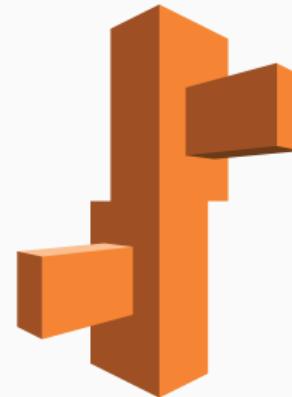
- A lightweight, simplified offer
- Bundles computing, storage, and networking capacity
- Preconfigured instances for
 - Debian, Windows Server, ...
 - Wordpress, Magento, Redmine, ...
 - LAMP stack, Nginx, ...
- Low and **predictable** monthly costs



Websites: [EC2](#) [Lightsail](#)

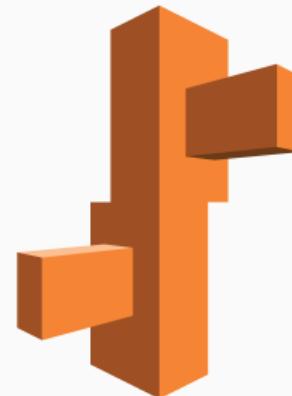
AMAZON ELASTIC BEANSTALK

- “Easy to begin, impossible to outgrow”



AMAZON ELASTIC BEANSTALK

- “*Easy to begin, impossible to outgrow*”
- Easy-to-use service to deploy web apps



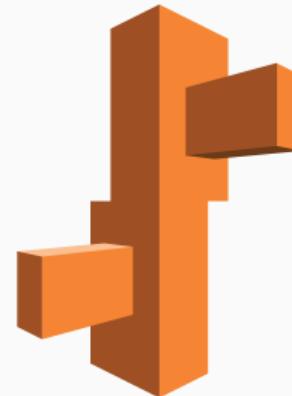
AMAZON ELASTIC BEANSTALK

- “*Easy to begin, impossible to outgrow*”
- Easy-to-use service to deploy web apps
- Supports Apache, Nginx, IIS and more



AMAZON ELASTIC BEANSTALK

- “Easy to begin, impossible to outgrow”
- Easy-to-use service to deploy web apps
- Supports Apache, Nginx, IIS and more
- Supports Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker



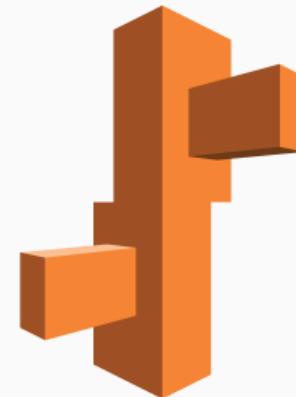
AMAZON ELASTIC BEANSTALK

- “*Easy to begin, impossible to outgrow*”
- Easy-to-use service to deploy web apps
- Supports Apache, Nginx, IIS and more
- Supports Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker
- Manages auto-scaling, load balancing, health monitoring



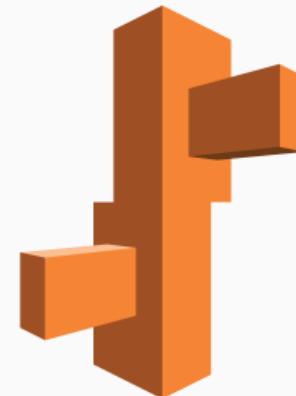
AMAZON ELASTIC BEANSTALK

- “Easy to begin, impossible to outgrow”
- Easy-to-use service to deploy web apps
- Supports Apache, Nginx, IIS and more
- Supports Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker
- Manages auto-scaling, load balancing, health monitoring
- Customizable



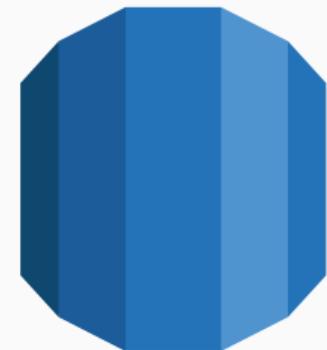
AMAZON ELASTIC BEANSTALK

- “Easy to begin, impossible to outgrow”
- Easy-to-use service to deploy web apps
- Supports Apache, Nginx, IIS and more
- Supports Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker
- Manages auto-scaling, load balancing, health monitoring
- Customizable
- Free of charge. Pay only for the AWS resources you use.



RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.



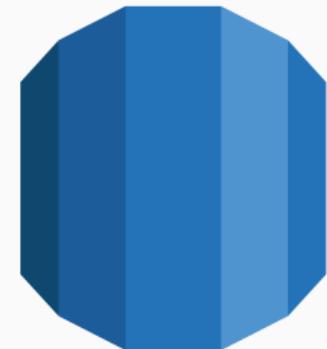
RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.
- Takes care of backups, patching.



RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.
- Takes care of backups, patching.
- Supports:



RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.
- Takes care of backups, patching.
- Supports:
 - MySQL, PostgreSQL, MariaDB



RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.
- Takes care of backups, patching.
- Supports:
 - MySQL, PostgreSQL, MariaDB
 - Oracle, MS SQL Server



RELATIONAL DATABASE SERVICE (RDS)

- Set up, operate a relational database in the cloud.
- Takes care of backups, patching.
- Supports:
 - MySQL, PostgreSQL, MariaDB
 - Oracle, MS SQL Server
 - Amazon Aurora



Practice time!

SCENARIO

- You just had a million dollar idea.

SCENARIO

- You just had a million dollar idea.
- Your web application is finished. It looks great and works like a charm.

SCENARIO

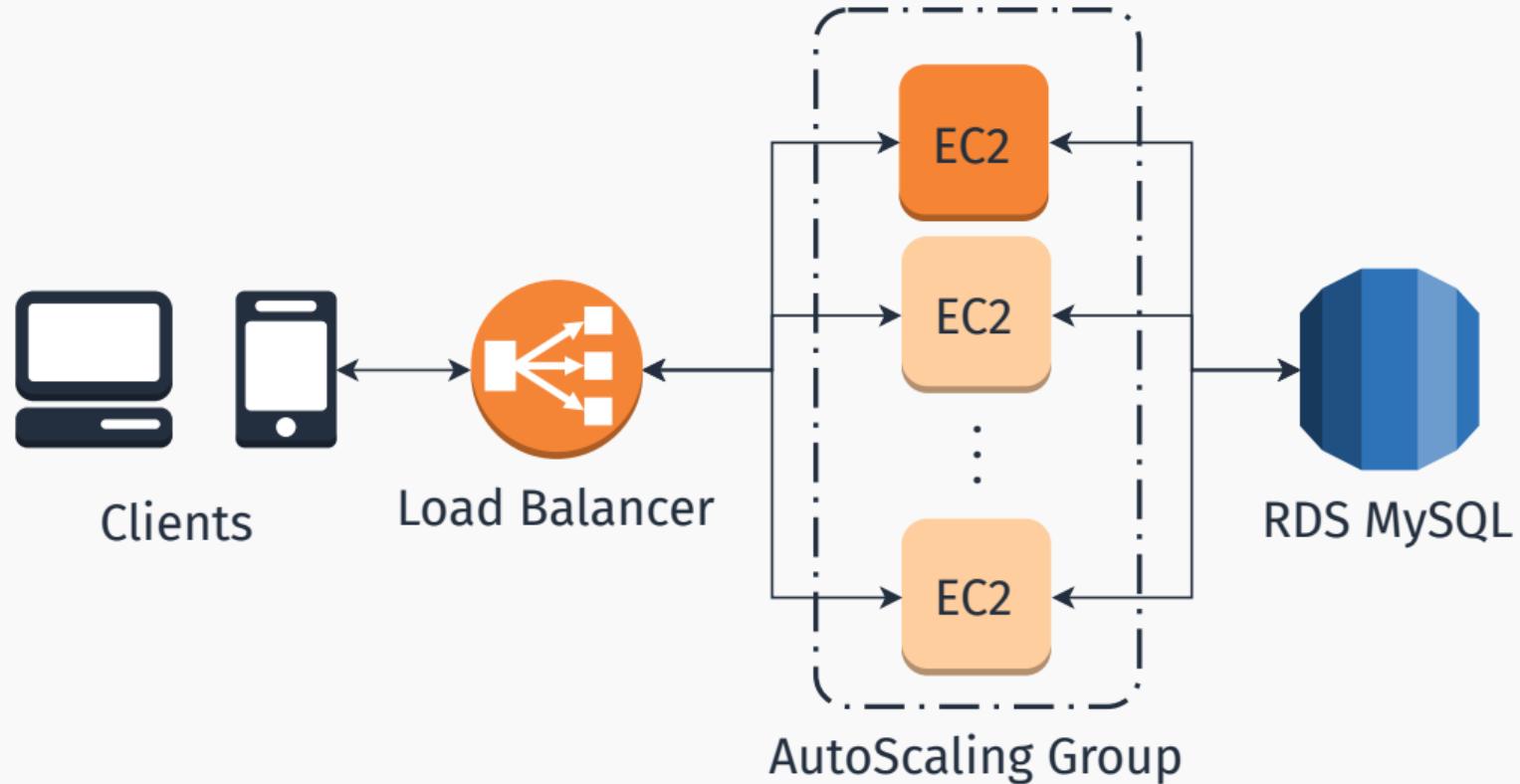
- You just had a million dollar idea.
- Your web application is finished. It looks great and works like a charm.
- You're ready to start earning some dough!

The web app is built with a classic LAMP stack:

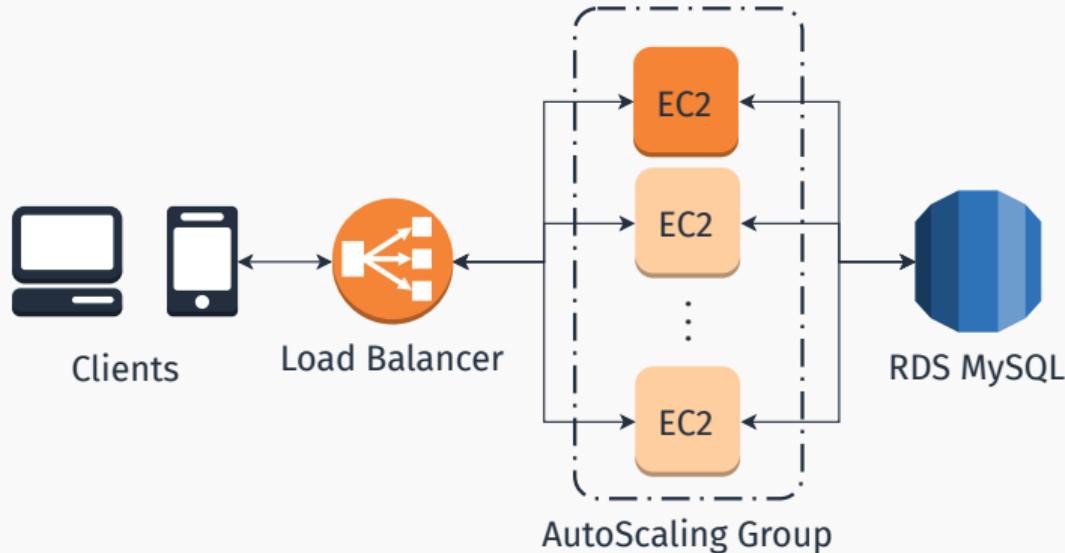
- Linux
- Apache web server
- MySQL relational database
- PHP

How WOULD YOU DO IT?

PROPOSED ARCHITECTURE



PROPOSED ARCHITECTURE



- Is this *really* scalable?

TAKE HOME MESSAGES

TAKE HOME MESSAGES

- Cloud computing and service models

TAKE HOME MESSAGES

- Cloud computing and service models
- Core AWS services:

TAKE HOME MESSAGES

- Cloud computing and service models
- Core AWS services:
 - EC2, AutoScaling groups

TAKE HOME MESSAGES

- Cloud computing and service models
- Core AWS services:
 - EC2, AutoScaling groups
 - S3, EBS/EFS

TAKE HOME MESSAGES

- Cloud computing and service models
- Core AWS services:
 - EC2, AutoScaling groups
 - S3, EBS/EFS
 - RDS

TAKE HOME MESSAGES

- Cloud computing and service models
- Core AWS services:
 - EC2, AutoScaling groups
 - S3, EBS/EFS
 - RDS
- A cloud architecture for a classic web application on AWS

SEE YOU TOMORROW!

REFERENCES I

- [Fle19] Flexera. *Cloud Computing Trends: 2019 State of the Cloud Survey*. Feb. 27, 2019. URL:
<https://www.flexera.com/blog/cloud/2019/02/cloud-computing-trends-2019-state-of-the-cloud-survey/> (visited on 03/21/2020).