



AWS

Diego Pacheco

# About Me



- ❑ Cat's Father
- ❑ Principal Software Architect
- ❑ Agile Coach
- ❑ SOA/Microservices Expert
- ❑ DevOps Practitioner
- ❑ Speaker
- ❑ Author

 diegopacheco

 @diego\_pacheco

 <http://diego-pacheco.blogspot.com.br/>



# Cloud Benefits

## Cloud Computing Benefits

No Up-Front  
Investment



Low Total Cost



Pay Only for  
What You Use



Self-Service  
Infrastructure



Easily Scale Up  
and Down



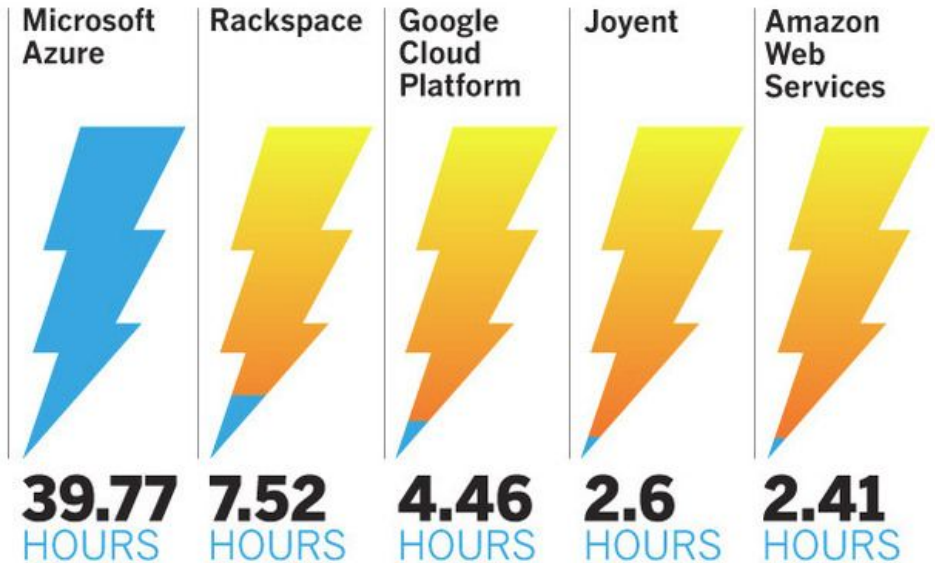
Improve Agility &  
Time-to-Market



# Some Reliability Information

## How reliable is the cloud?

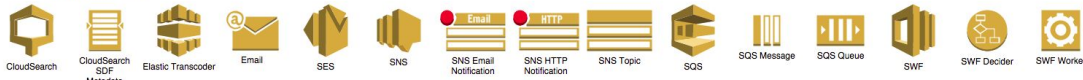
Downtime in 2014 of compute services (in hours)



SOURCE: CLOUDHARMONY

# Services - APIs for everything

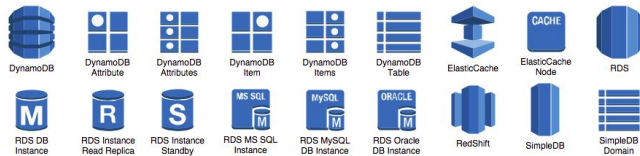
## Application Services



## Compute and Networking



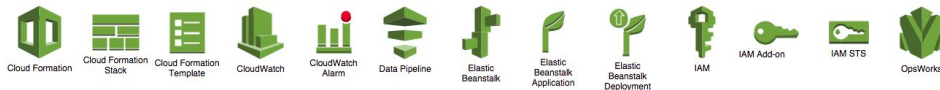
## Database



## On-Demand Workforce



## Deployment and Management



# AWS Global Infrastructure

13 Regions

35 Availability Zones

63 Edge Locations



# AWS Console



Services ▾

Edit ▾

## Amazon Web Services

### Compute & Networking



#### Direct Connect

Dedicated Network Connection to AWS



#### EC2

Virtual Servers in the Cloud



#### Elastic MapReduce

Managed Hadoop Framework



#### Route 53

Scalable Domain Name System



#### VPC

Isolated Cloud Resources

### Storage & Content Delivery



#### CloudFront

Global Content Delivery Network



#### Glacier

Archive Storage in the Cloud



#### S3

Scalable Storage in the Cloud



#### Storage Gateway

Integrates On-Premises IT Environments with Cloud Storage

### Database



#### DynamoDB

Predictable and Scalable NoSQL Data Store



#### ElastiCache

In-Memory Cache



#### RDS

Managed Relational Database Service



#### Redshift NEW

Managed Petabyte-Scale Data Warehouse Service

### Deployment & Management



#### CloudFormation

Templated AWS Resource Creation



#### CloudWatch

Resource and Application Monitoring



#### Data Pipeline

Orchestration for Data-Driven Workflows



#### Elastic Beanstalk

AWS Application Container



#### IAM

Secure AWS Access Control



#### OpsWorks NEW

DevOps Application Management Service

### App Services



#### CloudSearch

Managed Search Service



#### Elastic Transcoder NEW

Easy-to-use Scalable Media Transcoding



#### SES

Email Sending Service



#### SNS

Push Notification Service



#### SQS

Message Queue Service



#### SWF

Workflow Service for Coordinating Application Components

# Compute

## AWS Compute Offerings

- VMs
  - Machine as the unit of scale
  - Abstracts the hardware
- Containers
  - Application as the unit of scale
  - Abstracts the OS
- Serverless
  - Functions as the unit of scale
  - Abstracts the language runtime

**EC2**

**ECS**

**Lambda**



# Compute

## Compute and Networking

### Amazon Elastic Compute Cloud



Amazon EC2



Instance



Instances



AMI



DB on  
Instance



Instance with  
CloudWatch



Elastic IP

### Amazon Elastic MapReduce



Amazon EMR



Cluster



HDFS Cluster

### Auto Scaling



Auto Scaling

### Elastic Network Interface



Elastic Network  
Interface

# Security Groups - Least Privilege principle

Edit inbound rules

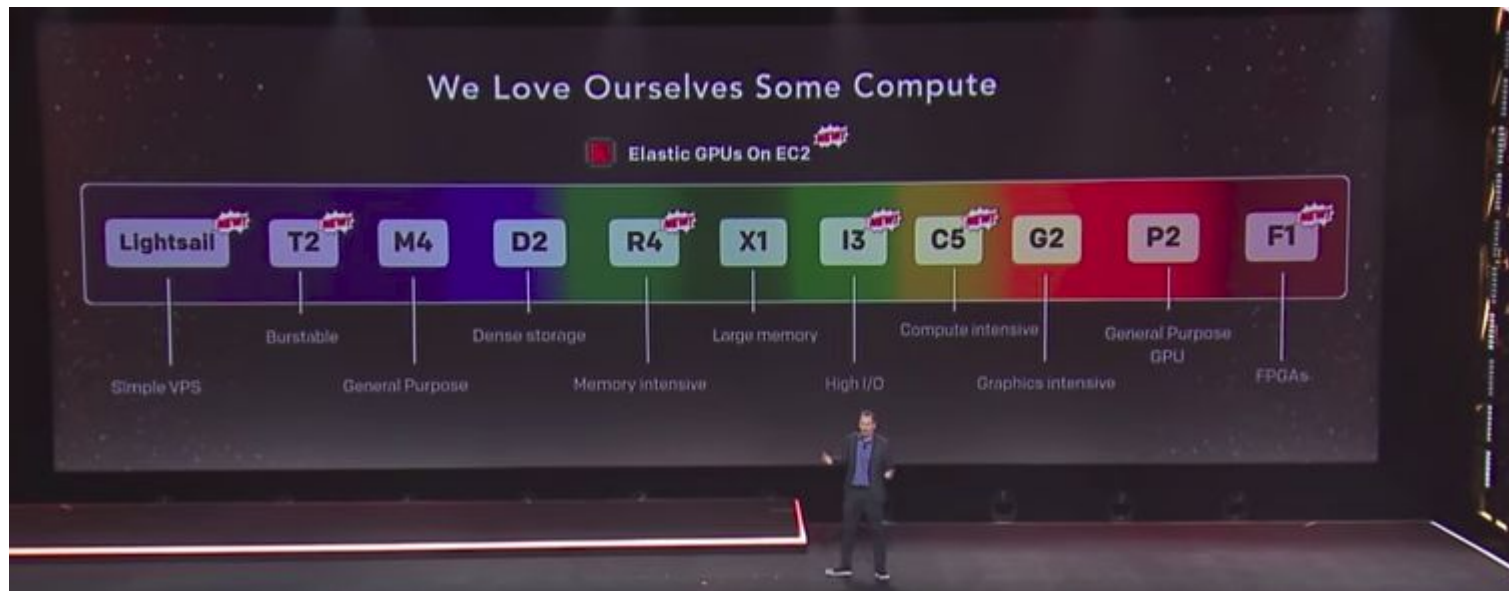
Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	
All TCP ▾	TCP	0 - 65535	Custom IP ▾ sg-39b6175d	✕
SSH ▾	TCP	22	Custom IP ▾ 207.114.222.3	✕
Custom TCP Rule ▾	TCP	6868	Custom IP ▾ 207.114.222.3	✕
Custom TCP Rule ▾	TCP	25555	Custom IP ▾ 207.114.222.3	✕
All UDP ▾	UDP	0 - 65535	Custom IP ▾ :	✕

sg-39b8175d - bosh

sg-4db21329 - default

Add Rule

# Compute Spectrum (2017)



# Compute by Type

## EC2 Instance Families

General  
purpose



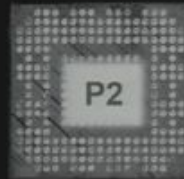
Compute  
optimized



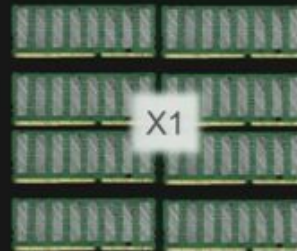
Storage and I/O  
optimized



GPU  
optimized



Memory  
optimized



# Instance Families and Types

EC2 instances: Types and Sizes

Instance generation

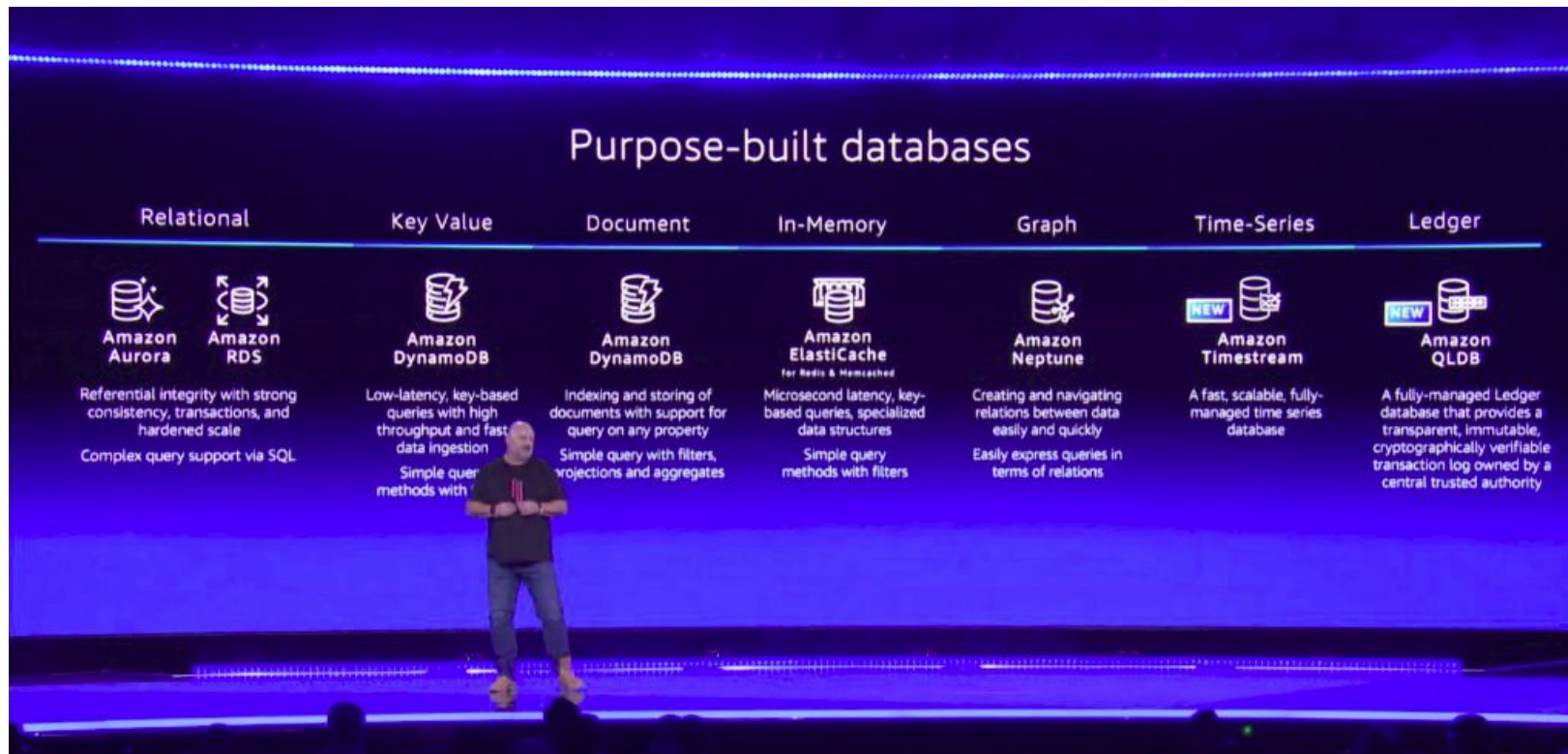
c4.large

Instance family

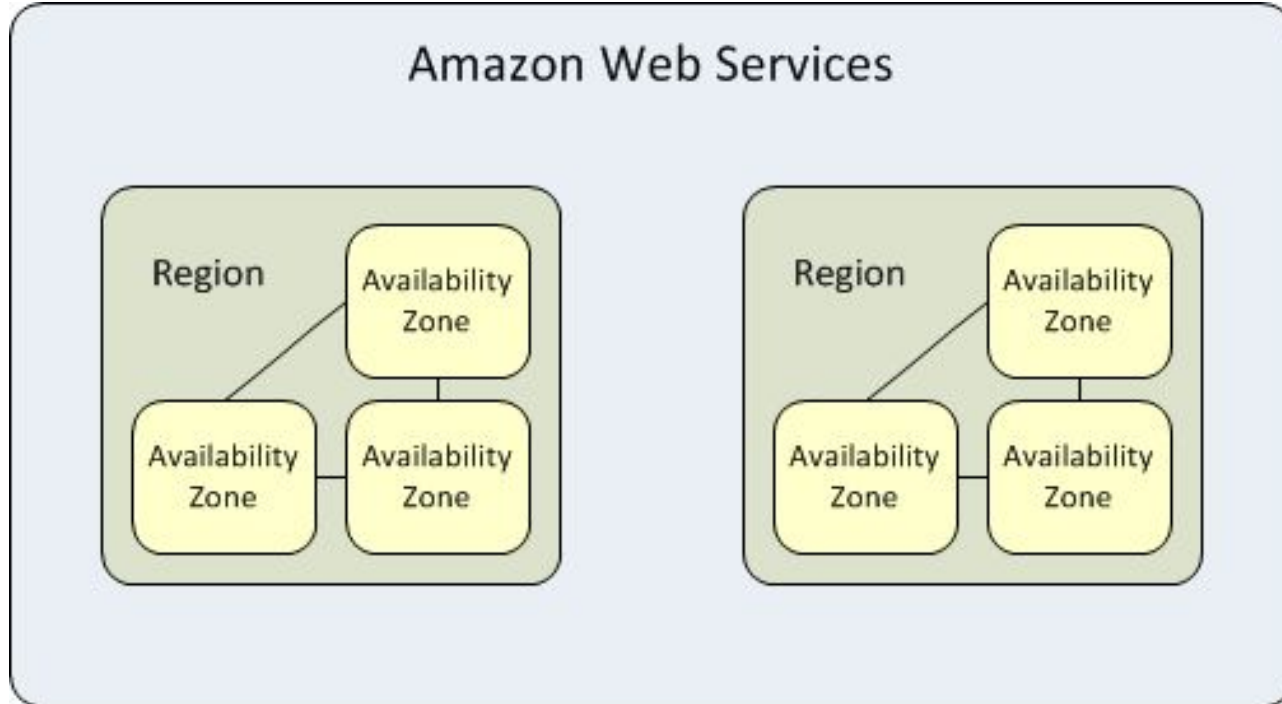
Instance size

<https://www.ec2instances.info/>

# Database Spectrum (Re-Invent 2018)

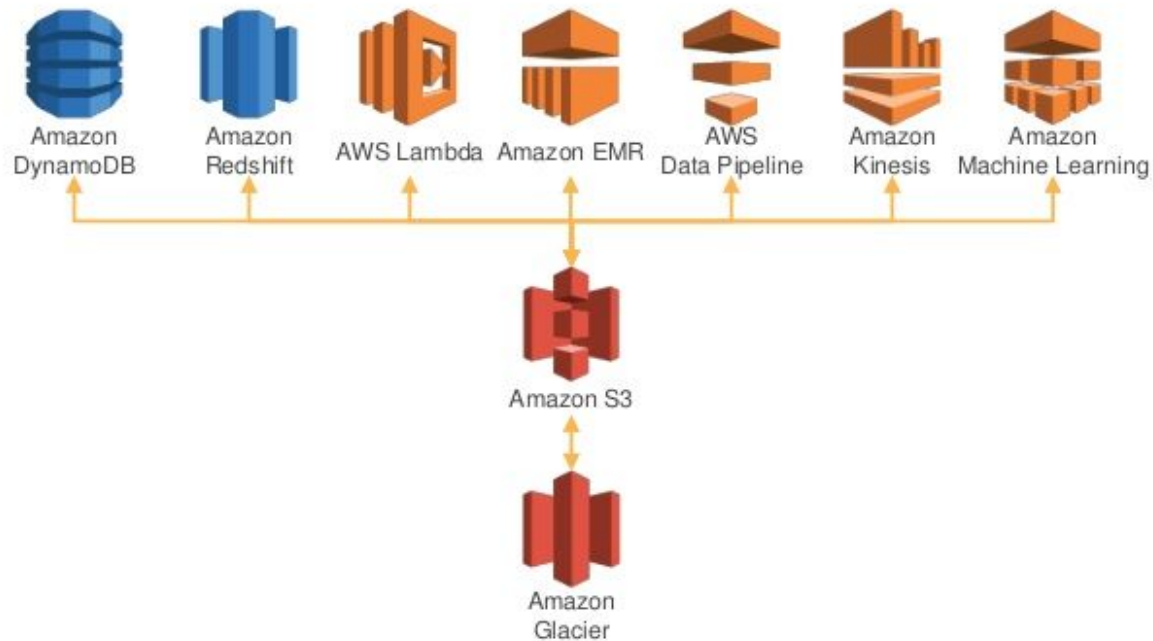


# High Availability & Multi-Region



# S3

## Amazon S3 as primary store





# S3 - Storage Classes

## AWS: Storage Choices



### Amazon S3

Durable object storage for all types of data



### Amazon Glacier

Archival storage for infrequently accessed data



### Amazon EBS

Block storage for use with Amazon EC2



### Amazon EFS

File storage for use with Amazon EC2

### Economics

Pay as you go

No upfront investment  
No commitment

### Easy to Use

Self service administration

SDKs for simple integration

### Reduce risk

Durable and Secure

Avoid risks of physical media handling

### Agility, Scale

Reduce time to market

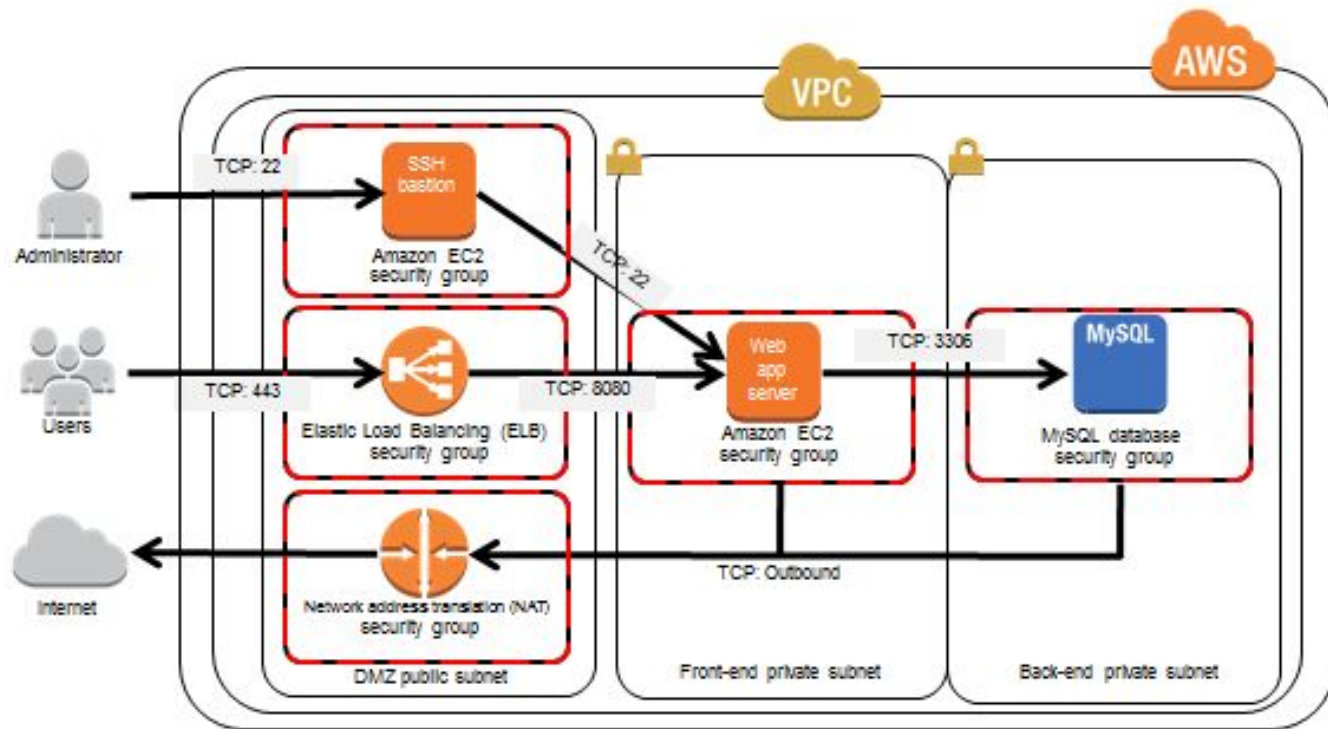
Focus on your business, not your infrastructure



# S3 (Re-Invent 2018)



# AWS VPCs



# DRP Spectrum

**AWS** offers four levels of DR support across a spectrum of complexity and time



# AWS - Cloud Architecture

## AWS Architecture Center

AWS Well-Architected

This is My Architecture

AWS Answers

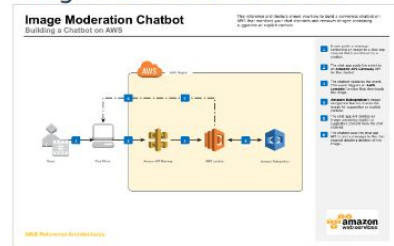
AWS Solutions

AWS Quick Starts

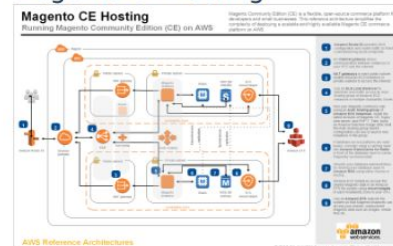
Cloud Security

### Latest Reference Architectures

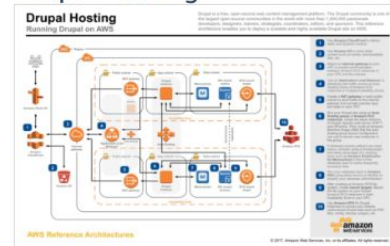
#### Image Moderation Chatbot



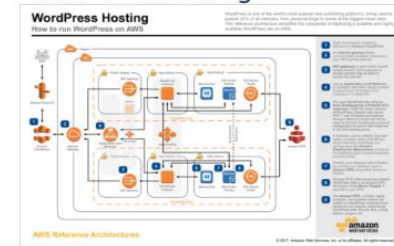
#### Magento CE Hosting



#### Drupal Hosting



#### WordPress Hosting



<https://aws.amazon.com/architecture/>



AWS

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