AWS Deep Dive

Release 1.0

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Contents

Contents:

1.1 Preface

1.1.1 Authors

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Who Should Read This Book?

Expected Audience

The intended audience for this book is those with a general need to understand main AWS services. While AWS certification candidates may experience the largest benefit from this content, the materials included herein may be of use to a much wider audience, especially given modern industry trends towards AWS cloud computing technologies.

There are many elements in this book that explore topics outside the typical contents of AWS certifications. For example the use of AWS python SDK can be viewed as a development-oriented task, however has specific relevance to cloud computing configuration and function, taking a very different approach than traditional CLI-based interface configuration.

Organization of this Book

1.2 AWS Global Infrastructure

1.2.1 AWS Regions

The global infrastructure that supports AWS cloud platform is distributed in several separate geographic areas around the world. These areas are called **regions** which consist of two or more **Availability Zones** (AZ) - most of the regions have 3 AZs. Currently, these are the following regions represented by a region code:

Note: Available Regions.

AWS GovCloud (US-West) account provides access to the AWS GovCloud (US-West) Region only. An Amazon AWS (China) account provides access to the Beijing and Ningxia Regions only.

You can't describe or access additional Regions from an AWS account, such as AWS GovCloud (US-West) or the China Regions.

To use a Region introduced after March 20, 2019, you must enable the Region. For more information, see Managing AWS Regions in the AWS General Reference.

Note: Enabled Regions.

If the Region is enabled by default, the output includes the following:

"OptInStatus": "opt-in-not-required"

If the Region is not enabled, the output includes the following:

"OptInStatus": "not-opted-in"

After an opt-in Region is enabled, the output includes the following:

"OptInStatus": "opted-in"

This is the script used to obtain this AWS Region List:

Describing your Regions

Describe Amazon EC2 Regions and Availability Zones

1.2.2 AWS Availability Zones

An Availability Zone (AZ) consists of several datacenters, all of them linked via intra-AZ connections and each with with redundant power supplies, networking and connectivity, housed in separated facilitiess. All AZ are connected among them through inter-AZ connections and to the exterior via Transit Center connections. AZs are represented by a region code followed by a letter identifier.

1.2.3 AWS Edge Locations

Amazon Web Services (AWS) publishes its current IP address ranges in JSON format. To view the current ranges, download ip-ranges.json. For more information, see AWS IP Address Ranges in the Amazon Web Services General Reference.

Locations and IP Address Ranges of CloudFront Edge Servers.

1.3 Overview of Amazon Web Services

1.3.1 AWS General Reference

AWS General Reference

1.3.2 AWS products and services

AWS technology consists of a series of interrelated products or services whose release frecuency varies among services. AWS has significantly increase the number of services and features released during the last years as you can see in figure fig-innovation. You can read Release Notes to have a summary of all new features, resolved issues, and known issues in the latest versions of AWS products and services.

services_d/innovation.png

Listing 1: Get available partitions

```
>>> import boto3
>>> session = boto3.Session()
>>> session.get_available_partitions()
[u'aws', u'aws-cn', u'aws-us-gov', u'aws-iso', u'aws-iso-b']
```

Listing 2: Get available regions

```
>>> session.get_available_regions('ec2')
[u'ap-east-1', u'ap-northeast-1', u'ap-northeast-2', u'ap-south-1', u'ap-southeast-1
→', u'ap-southeast-2', u'ca-central-1', u'eu-central-1', u'eu-north-1', u'eu-west-1',
→ u'eu-west-2', u'eu-west-3', u'me-south-1', u'sa-east-1', u'us-east-1', u'us-east-2
→', u'us-west-1', u'us-west-2']
```

Listing 3: Get available resources

```
>>> session.get_available_resources()
['cloudformation', 'cloudwatch', 'dynamodb', 'ec2', 'glacier', 'iam', 'opsworks', 's3
→', 'sns', 'sqs']
```

Region Table

1.4 Adding a compute layer

1.4.1 Amazon EC2 instance types

Script:

Setting Up Notifications

1.5 AWS Billing and Cost Management

Download offers

Setting up notifications

Awesome Sns

AWS Cost Explorer Report Generator

Serverless Automated Cost Controls

1.5.1 Projects

aws_pricing project

Concurrency Labs - AWS Price Calculator tool

AWS Pricing

awspricing

AWS EC2 Price Comparison Chart

CHAPTER 2

Indices and tables

- genindex
- modindex
- search