

AWS Basic Concepts

For Argent Customers

Executive Summary

The cloud services business is massive and is growing like a weed. For customers moving to AWS or Azure, it is simply a matter of how much and when – it is no longer "if".

This Argent AWS White Paper is a tour d'horizon of the current state of AWS.

As Heraclitus rightly observed "*Only Change Is Constant*," so AWS and Azure are both likely to evolve rapidly over the next 10 years.

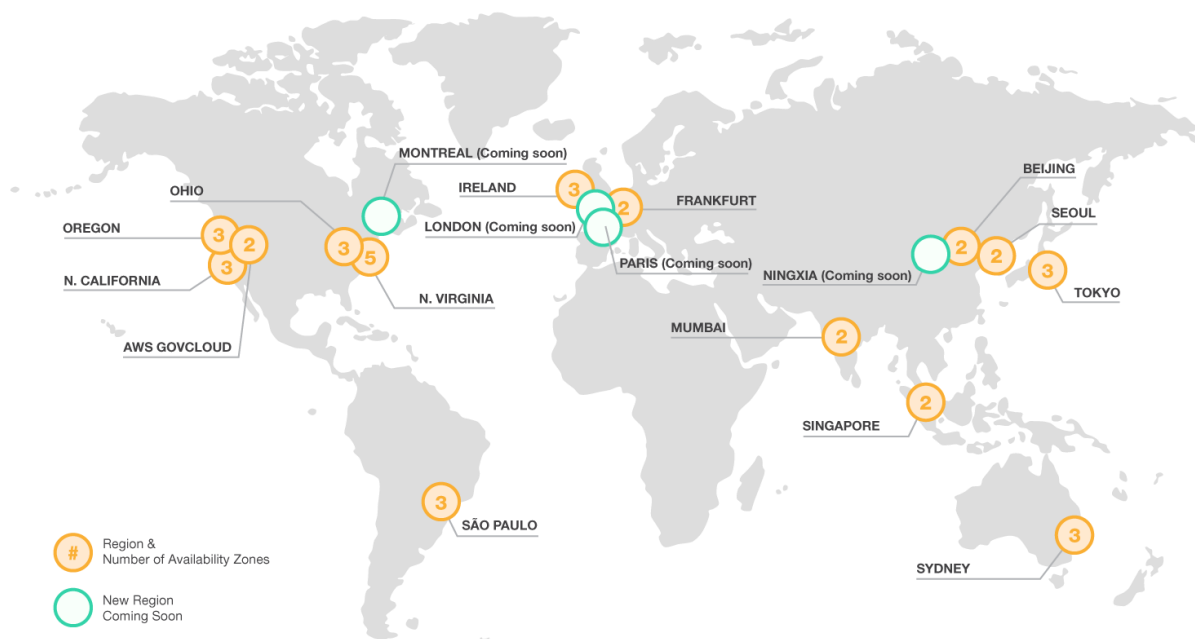
Common AWS Abbreviations

S3	Simple Storage Service
EC2	Elastic Compute Cloud
EBS	Elastic Block Store
RDS	Relational Database Service
ELB	Elastic Load Balancer

Availability Regions

AWS currently operates in 38 "Availability Regions" in 14 different geographic locations, as the following map shows:

(Map is from <https://aws.amazon.com/about-aws/global-infrastructure/>)



In each Availability Region there are one or more Availability Zones, which is simply a fancy name for an industrial-strength data center – redundant everything. In addition to Availability Regions, AWS also has dozens of Edge Locations. These are specialized, light-weight servers that cache data closer to the end user, decreasing network hops.

AWS Console

This is the console to manage Amazon Web Service (AWS).

It can be compared with VMware vSphere.

See CloudWatch below for monitoring AWS.

Elastic EC2 Instances

These are Linux or Windows virtual machines running in the cloud.

They are essentially standalone servers in the DMZ.

EC2 Instance = Linux or Windows machine.

Over 65% of EC2 Instances are Windows machines and this percentage over Linux is increasing.

In most respects EC2 can be seen as akin to Rackspace and other service providers.

Studies show that most AWS customers spend at least 70% of their AWS investments in EC2.

EBS – Elastic Block Store

While most EC2 instances come with local disks, these disks only exist for the life of the instance, that is, the existence of the virtual machine.

For permanent storage – for such things as databases – AWS customers use an Elastic Block Store, which is persistent.

Security Group

This is similar to a hardware firewall. Security Groups control the allowed in/out traffic to EC2 instances.

CloudWatch

This is the AWS performance metric facility.

It can be compared with Windows Performance Monitor, or more similarly, to Performance tab in VMware vSphere.

A performance metric is defined by:

- Namespace, which can be compared to Windows Performance Objects.
- Metric, which can be compared to Windows Performance Counters.
- Dimension, which can be compared to Instances for Windows Performance Objects.

CloudWatch performance metrics are only kept for 14 days.

Elastic Beanstalk Application

This is a facility to deploy and monitor web applications.

It can be compared to a typical web farm with load balancers, web servers, and backend servers, but put under a single umbrella.

This is similar to an Argent Enterprise Application Object in Argent AT.

Simple Storage Service (S3)

It is the AWS cloud storage solution. It can be thought of as Dropbox, Google Drive, etc.

S3 has only two levels:

- **Bucket** - it can be thought of as a drive in the File System
- **Object** - it can be thought of as an individual file in the File System.

There is no real folder hierarchy like a typical file system. All objects are actually directly under the bucket.

To simulate the folder hierarchy, the object can have a name like *folder1/folder2/.../name*. The AWS Console organizes objects in the folder hierarchy. But this is just for presentation.

Relational Database Service (RDS)

AWS provides traditional Relational Databases, including MySQL, PostgreSQL, Oracle, and SQL Server.

A critical difference between an AWS RDS and an on-premises database is control: like many AWS services, customers lose control to gain ease of use and the ability to scale. Thus, fine-tuning the RDS is not available. It is simply pointing the connection code to the RDS IP address provided by AWS.

Of course, the performance might be slower due to Internet connection, and the cost might be daunting because of the traffic.

Most importantly, AWS users do not own their database servers. RDS is available and can be assigned by AWS to any location.

DynamoDB and SimpleDB

They are No-SQL databases. SimpleDB is a bare bone service with zero management, while DynamoDB can be managed in detail.

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