EC2

2019年2月10日 星期日　　上午1:04

What is Elastic Compute Cloud (EC2)?

ECC

Simplified Definition:
Think of EC2 as your basic desktop computer.

AWS Definition:
"Amazon Elastic Compute Cloud (Amazon EC2) provides **scalable computing capacity** in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to **launch as many or as few virtual servers as you need**, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic."
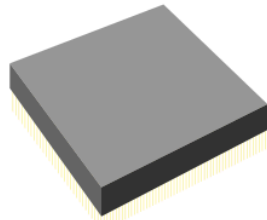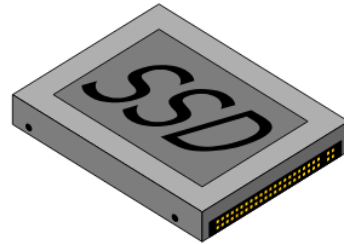
AWS EC2

EC2 Basics (components):
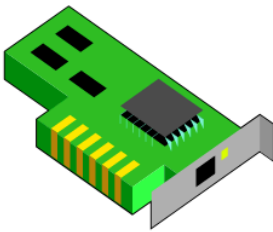
Basic Computer Components

Operating System (Linux or Windows)

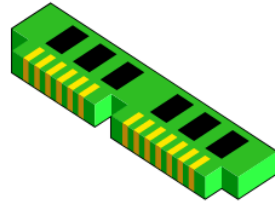**CPU (Processing Power)**

Hard Drive (Local Storage)

SSD

Network Card (Internet Access)

Firewall (Security)

RAM

EC2 Basics (components):

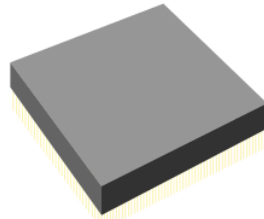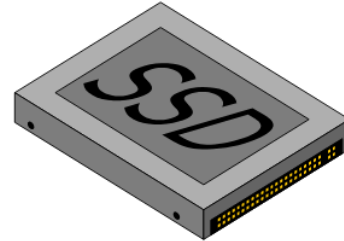**EC2 Instance Components**

NOTE: *This is an overly-simplified comparison.*
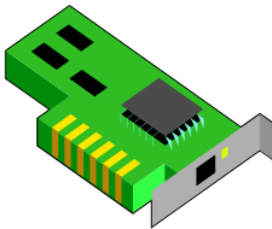
AMIs
(Linux or
Windows)

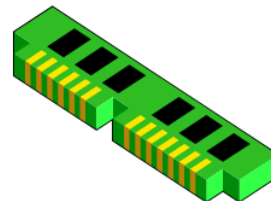**Instance Type**
(Processing
Power)

EBS
(Local Storage)

IP Addressing
(Internet Access)

Security Groups
(Security)

RAM

EC2 Basics (components):

AMI Options:

AMIs come in three main categories:

(1) **Community AMIs:**
  -Free to use

-Free to use
-Generally, with these AMIs you are just selecting the OS you want.

(2) **AWS Marketplace AMIs:**
-Pay to use
-Generally comes packaged with additional, licensed software.

(3) **My AMIs:**
-AMIs that you create yourself

Instance Type Options:
(1) General purpose
(2) Compute optimized
(3) GPU optimized
(4) Memory optimized
(5) Storage optimized

Step 1: Choose an Amazon Machine Image (AMI)

Community AMIs

Free tier only (i)

Free tier eligible   software packages through extras.   ◯ 64-bit (Arm)

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0080e4c5bc078760e   **Select**

Amazon Linux
Free tier eligible   The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP,   64-bit (x86)
MySQL, PostgreSQL, and other packages.

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

SUSE Linux Enterprise Server 15 (HVM), SSD Volume Type - ami-06ea7729e394412c8   **Select**

SUSE Linux
Free tier eligible   SUSE Linux Enterprise Server 15 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.   64-bit (x86)

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Red Hat Enterprise Linux 7.6 (HVM), SSD Volume Type - ami-011b3ccf1bd6db744 (64-bit x86) / ami-0e3688b4a755ad736 (64-bit Arm)   **Select**

Red Hat
Free tier eligible   Red Hat Enterprise Linux version 7.6 (HVM), EBS General Purpose (SSD) Volume Type   ● 64-bit (x86)
◯ 64-bit (Arm)

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-0ac019f4fcb7cb7e6 (64-bit x86) / ami-01ac7d9c1179d7b74 (64-bit Arm)   **Select**

Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).   ● 64-bit (x86)
Free tier eligible   ◯ 64-bit (Arm)

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Are you launching a database instance? Try Amazon RDS.   Hide

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can
Amazon RDS   easily deploy **Amazon Aurora, MariaDB, MySQL, Oracle, PostgreSQL, and SQL Server** databases on AWS. Aurora is a MySQL- and PostgreSQL-compatible, enterprise-class database at 1/10th
the cost of commercial databases. Learn more about RDS

Launch a database using RDS

Step 1: Choose an Amazon Machine Image (AMI)

🔍 Search for an AMI by entering a search term e.g. "Windows"

Quick Start

aws marketplace

Find and buy software that runs in the AWS Cloud, software from trusted vendors like SAP, Zend, Microsoft, as well as m Marketplace AMI products. View Marketplace products you are currently subscribed to by visiting Your Software in the A

▼ Categories

All Categories

Infrastructure Software (2563)

Developer Tools (571)

Business Software (1059)

Featured Software

Barracuda

Barracuda CloudGen Firewall for AWS -...
Rating ★★★★★
By Barracuda Networks, Inc.
Starting from $0.60/hr or from $4,599/yr (12% savings) for software

JUNIPER NETWORKS

vSRX Next Generation Firewall
By Juniper Networks
$0.55/hr or $2,280/yr (53% savings) for software

MATILLION

Matillion ETL for Amazon Redshift
Rating ★★★★★
By Matillion
Starting from $1.37/hr or from $9,950/yr (17% savings) for software

TREND MICRO

Trend Micro Deep Security
Rating ★★★★★
By Trend Micro
Starting from $0.01 per host/hr for software usage

Popular Software

f5

F5 BIG-IP Virtual

TLC

CentOS 7.2 LAMP

SoftNAS

SoftNAS Cloud

f5

F5 BIG-IP Virtual

EC2 Basics (buying options):

On-Demand:
On-demand purchasing allows you to choose any **instance type** you like and provision/terminate it at any time (on-demand).

(1) Is the **most expensive** purchasing option.
(2) Is the **most flexible** purchasing option.
(3) You are only charged when the instance is **running** (and billed by the second).
(4) You can provision/terminate an on-demand instance at any time.

Reserved: *cheap*
Reserved purchasing allows you to purchase an instance for a **set time period** of one (1) or three (3) years.

(1) This allows for a **significant price discount** over using on-demand.
(2) You can select to pay upfront, partial upfront, no upfront.
(3) Once you buy a reserved instance, you own it for the selected time period and are **responsible for the entire price** - regardless of how often you use it.

even x use, still pay

Spot:
Spot pricing is a way for you to **"bid"** on an instance type and only pay for and use that instance when the spot price is **equal to or below** your "bid" price.

(1) This option allows Amazon to sell the use of **unused instances**, for short amounts of time, at a **substantial discount**.

(2) **Spot prices fluctuate** based on supply and demand in the spot marketplace.
(3) You are **charged by the second (but bid pricing based on and hourly rate)**
(4) When you have an active bid, an instance is **provisioned for you when the spot price is equal to or less than you bid price**.
(5) Provisioned instances **automatically terminate when the spot price is greater than your bid price**.

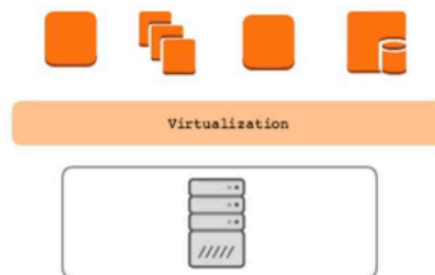**Full list of Instance Purchasing Options:**
https://aws.amazon.com/ec2/pricing/

What is Instance Store ?

AWS Instance Store provides a temporary block storage volumes for use with EC2.

This storage is located on the disks that are physically attached to the host computer

Size of instance store varies depending on your instance type.

Virtualization

AMI: Amazon Machine Image

What is EBS ?

- AWS Elastic Block Store is a persistent block storage volumes for use with EC2.

- Each EBS volume is designed for 99.9999% availability & are automatically replicated within its availability zone.

- EBS can be elastic in nature, thus supports dynamic increase in capacity, performance

and can change instance type or live volumes.

Elastic Block Store

AWS Elastic Block Store is based on Network Attached Storage.

Since the storage are attached via network, they can be easily detached as well hence providing the portability based feature.

Compute != Storage

- AWS EC2 is regarded as compute based service.

- Compute generally refers to Memory & CPU

Instance:

Instance Purchasing Options

Amazon EC2 provides the following purchasing options to enable you to optimize your costs based on your needs:

- **On-Demand Instances** – Pay, by the second, for the instances that you launch.
- **Reserved Instances** – Purchase, at a significant discount, instances that are always available, for a term from three years.
- **Scheduled Instances** – Purchase instances that are always available on the specified recurring schedule, for a year term.
- **Spot Instances** – Request unused EC2 instances, which can lower your Amazon EC2 costs significantly.
- **Dedicated Hosts** – Pay for a physical host that is fully dedicated to running your instances, and bring your ex per-socket, per-core, or per-VM software licenses to reduce costs.
- **Dedicated Instances** – Pay, by the hour, for instances that run on single-tenant hardware.
- **Capacity Reservations** – Reserve capacity for your EC2 instances in a specific Availability Zone for any durati

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