Using Amazon Web Services

Amazon Web Services

AWS stands for Amazon Web Services.
provided by the Amazon that uses distributed IT infrastructure to provide different IT resources available on demand.
provides different services such as infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS).

Amazon Web Services

Features of AWS

1.Flexibility

The traditional models used to deliver IT solutions that require large investments in a new architecture, programming languages, and operating system. Although these investments are valuable, it takes time to adopt new technologies and can also slow down your business.

2.Cost-effective

For example, developing and deploying an application can incur a low cost, but after successful deployment, there is a need for hardware and bandwidth. Owing our own infrastructure can incur considerable costs, such as power, cooling, real estate, and staff.

Features of AWS

3.Scalable and elastic

Scalability in aws has the ability to scale the computing resources up or down when demand increases or decreases respectively.

Elasticity in aws is defined as the distribution of incoming application traffic across multiple targets such as Amazon EC2 instances, containers, IP addresses, and Lambda functions.

Elasticity load balancing and scalability automatically scale your AWS computing resources to meet unexpected demand and scale down automatically when demand decreases.

Features of AWS

Secure

AWS maintains confidentiality, integrity, and availability of your data which is the utmost importance of the aws.
An aws infrastructure is incorporated in AWS controlled data centers throughout the world.
The data centers are physically secured to prevent unauthorized access.
Secure services: Each service provided by the AWS cloud is secure.
Data privacy: A personal and business data can be encrypted to maintain data privacy.

Experienced

The AWS cloud provides levels of scale, security, reliability, and privacy.

Components and Services of AWS

Amazon Elastic Compute Cloud

It enables the creation, use, and management of virtual private servers running the Linux or Windows operating system over a Xen hypervisor.

Amazon Machine Instances are sized at various levels and rented on a computing/hour basis

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.

Features of Amazon EC2

Virtual computing environments, known as instances
Preconfigured templates for your instances, known as Amazon Machine Images (AMIs),
it package the bits you need for your server (including the operating system and additional software)
Various configurations of CPU, memory, storage, and networking capacity for your instances, known as instance types
Secure login information for your instances using key pairs (AWS stores the public key, and you store the private key in a secure place)
Storage volumes for temporary data that's deleted when you stop, hibernate, or terminate your instance, known as instance store volumes

Features of Amazon EC2

Persistent storage volumes for your data using Amazon Elastic Block Store (Amazon EBS), known as Amazon EBS volumes

Multiple physical locations for your resources, such as instances and Amazon EBS volumes, known as Regions and Availability Zones

A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using security groups

Static IPv4 addresses for dynamic cloud computing, known as Elastic IP addresses

Metadata, known as tags, that you can create and assign to your Amazon EC2 resources

Tools are used to support EC2 services

Amazon Simple Queue Service

Amazon SQS is a web service that gives you access to a message queue that can be used to store messages while waiting for a computer to process them.

Messages can contain up to 256 KB of text in any format such as json, xml, etc.

It helps to send, store, and receive messages between software components.

Amazon Simple Notification Service

a fully managed messaging service for both application-to-application (A2A) and application-to-person (A2P) communication.

It is a web service which makes it easy to set up, operate, and send a notification from the cloud

provides developers with the highly scalable, cost-effective, and flexible capability to publish messages from an application and sends them to other applications.

a way of sending messages. When you are using AutoScaling, it triggers an SNS service which will email you that "your EC2 instance is growing".

allows you to group multiple recipients using topics where the topic is a logical access point that sends the identical copies of the same message to the subscribe recipients.

To prevent the loss of data, all messages published to SNS are stored redundantly across multiple availability zones.

Amazon CloudWatch

Monitoring and observability service built for DevOps engineers, developers, site reliability engineers (SREs), and IT managers.

Provides you with data and actionable insights to monitor your applications, respond to system-wide performance changes, optimize resource utilization, and get a unified view of operational health.

Collects monitoring and operational data in the form of logs, metrics, and events, providing you with a unified view of AWS resources, applications, and services that run on AWS and on-premises servers

Elastic Load Balancing

A load-balancing service for Amazon Web Services (AWS) deployments.

ELB automatically distributes incoming application traffic and scales resources to meet traffic demands.

ELB helps an IT team adjust capacity according to incoming application and network traffic.

Users enable ELB within a single availability zone or across multiple availability zones to maintain consistent application performance.

ELB offers enhanced features including:

- Detection of unhealthy Elastic Compute Cloud (EC2) instances.
- Spreading instances across healthy channels only.
- Flexible cipher support.
- Centralized management of Secure Sockets Layer (SSL) certificates.
- Optional public key authentication.
- Support for both IPv4 and IPv6.

Amazon Simple Storage System

provides object storage, which is built for storing and recovering any amount of information or data from anywhere over the internet.

It provides this storage through a web services interface.

It allows to upload, store, and download any type of files up to 5 TB in size.

S3 used for

- Store and Backup
- Application File Hosting
- Media Hosting
- Software Delivery
- Storing AMI’s and Snapshots

Amazon Elastic Block Store

Provides block level storage volumes for use with EC2 instances. EBS volumes behave like raw, unformatted block devices.

Can mount these volumes as devices on your instances.

EBS volumes that are attached to an instance are exposed as storage volumes that persist independently from the life of the instance.

You can create a file system on top of these volumes, or use them in any way you would use a block device

Can dynamically change the configuration of a volume attached to an instance.

Types of Storage

Block storage

An approach to data storage in which each storage volume acts as an individual hard drive that is configured by the storage administrator.

Data is stored in fixed-size blocks. A unique address serves as the metadata describing each block.

Object storage

Takes each piece of data and designates it as an object. Data is kept in separate storehouses versus files in folders and is bundled with associated metadata and a unique identifier to form a storage pool.

Cloud storage services like Amazon S3, Azure Blob Storage and Google Cloud Storage are all based on object storage hardware.

AWS S3 Vs AWS EBS

S3 is an object-level data storage that distributes the data objects across several machines and allows the users to access the storage via the internet from any corner of the world.

Amazon EBS is a block-level data storage offered by Amazon. Block storage stores files in multiple volumes called blocks, which act as separate hard drives, and this storage is not accessible via the internet.

Amazon RDS (Relational Database Service)

A fully-managed SQL database cloud service that allows to create and operate relational databases.

Using RDS you can access your files and database anywhere in a cost-effective and highly scalable way.

Gives you access to several familiar database engines, including Amazon Aurora, MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server.

This means that the code, applications, and tools you already use with your existing databases can be used with Amazon RDS.

Automatically patches the database software and backs up your database, storing the backups for a user-defined retention period and enabling point-in-time recovery

Amazon CloudFront

A fast content delivery network (CDN) service that securely delivers

- data, videos, applications, and APIs

to customers globally with low latency, high transfer speeds, all within a developer-friendly environment.
securely transfers content such as software, SDKs, videos, etc., to the clients, with high transfer speed.
It retrieves data from Amazon S3 bucket and distributes it to multiple datacenter locations.
It delivers the data through a network of data centers called edge locations.
The nearest edge location is routed when the user requests for data, resulting in lowest latency, low network traffic, fast access to data, etc.

Amazon partners

Alexa Web Information Service

An API that can be used to create innovative web solutions and services based on Alexa's vast repository of information about the web.

AWIS provides the following actions

UrlInfo

UrlInfo offers access to Alexa's information about websites, including Traffic Rank, site statistics, and more.

TrafficHistory

The TrafficHistory action returns historical Alexa Traffic Rank, Reach per Million, and Pageviews per Million metrics for websites. The data is updated daily.

SitesLinkingIn

The SitesLinkingIn action returns a list of websites linking to a given website. The data is updated weekly.

Amazon partners

Amazon Associates Web Services (A2S)

The machinery for interacting with Amazon's vast product data and eCommerce catalog function.

it is the means for vendors to add their products to the Amazon.com site and take orders and payments.

Amazon DevPay

A billing and account management service that can be used by businesses that run applications on top of AWS.

Provides a developer API that eliminates the need for application developers to build order pipelines, because Amazon does the billing based on your prices and then uses Amazon Payments to collect the payments.

Amazon partners

Amazon Elastic MapReduce

is an interactive data analysis tool for performing indexing, data mining, file analysis, log file analysis, machine learning, financial analysis, and scientific and bioinformatics research.

Elastic MapReduce is built on top of a Hadoop framework using the Elastic Compute Cloud (EC2) and Simple Storage Service (S3).

Amazon Mechanical Turk

a crowdsourcing marketplace that makes it easier for individuals and businesses to outsource their processes and jobs to a distributed workforce who can perform these tasks virtually

MTurk enables companies to harness the collective intelligence, skills, and insights from a global workforce to streamline business processes, augment data collection and analysis, and accelerate machine learning development.

Amazon partners

AWS Multi-Factor Authentication

A simple best practice that adds an extra layer of protection on top of your user name and password

A user must provide two or more pieces of evidence to verify their identity to gain access to an app or digital resource.

Amazon Flexible Payments Service

it is the first payments service designed from the ground up specifically for developers.

The set of web services APIs allows the movement of money between any two entities, humans or computers.

It is built on top of Amazon's reliable and scalable payment infrastructure

Amazon partners

Amazon Fulfillment Web Services

Allows merchants to access Amazon.com's world-class Fulfillment capabilities through a simple web services interface.

allows merchants to fill orders through Amazon.com fulfillment service

with Amazon handling the physical delivery of items on the merchant's behalf.

Merchant inventory is prepositioned in Amazon's fulfillment centers, and Amazon packs and ships the items.

Fulfillment by Amazon (FBA)

With FBA, merchants can store inventory in Amazon's warehouses and Amazon will pick, pack, and ship products directly to merchant's customers.

Amazon Virtual Private Cloud

A virtual private cloud (VPC) is a private cloud computing environment contained within a public cloud.

A VPC provisions logically isolated sections of a public cloud in order to provide a virtual private environment.

Amazon VPC is the networking layer for Amazon EC2.

you complete control over your virtual networking environment, including resource placement, connectivity, and security

provides a bridge between a company's existing network and the AWS cloud

Amazon partners

AWS Premium Support

AWS customers who sign up for AWS Premium Support will receive personalized technical assistance from the Amazon Web Services team, whenever and as frequently as their business demands.

AWS Support offers four support plans:

- Basic
- Developer
- Business
- Enterprise.

Working with the Elastic Compute Cloud (EC2)

Provides resizable compute capacity in the cloud.
Scale the compute capacity up and down as per the computing requirement changes.
EC2 changes the economics of computing by allowing you to pay only for the resources that you actually use.
A tiny part of a larger computer, a tiny part which has its own Hard drive, network connection, OS etc.
With EC2, you can launch and run server instances called Amazon Machine Images (AMIs) running different operating systems s

Where EC2?

- A high transaction level for a Web application
- A system that optimizes performance between servers in your system
- Data driver information services
- Network security
- The ability to grow your service on demand

Require a rack of components if not using EC2

- An application server with access to a large RAM allocation
- A load balancer, usually in the form of a hardware appliance such as F5's BIG-IP
- A database server
- Firewalls and network switches
- Additional rack capacity at the ISP

Amazon Machine Image(AMI)

An operating systems running on the Xen virtualization hypervisor.

A virtual image used to create a virtual machine within an EC2 instance.

Also create multiple instances using single AMI when you need instances with the same configuration.

Also create multiple instances using different AMI when you need instances with a different configuration.

provides a template for the root volume of an instance.

Amazon Machine Image Types

❖**General Purpose**

Instances provide a balance of compute, memory and networking resources, and can be used for a variety of diverse workloads.

❖**Compute Optimized**

for compute bound applications that benefit from high performance processors. high performance web servers, high performance computing (HPC), scientific modeling, dedicated gaming servers and ad server engines, machine learning inference and other compute intensive applications.

❖**Memory Optimized**

designed to deliver fast performance for workloads that process large data sets in memory.

Memory-intensive applications such as open-source databases, in-memory caches, and real time big data analytics

❖**Accelerated Computing**

use hardware accelerators, or co-processors, to perform functions, such as floating point number calculations, graphics processing, or data pattern matching, more efficiently than is possible in software running on CPUs.

❖**Storage Optimized**

designed for workloads that require high, sequential read and write access to very large data sets on local storage. They are optimized to deliver tens of thousands of low-latency, random I/O operations per second (IOPS) to applications.

General Purpose - Mac instances

Mac instances are powered by Apple Mac mini computers and built on the AWS Nitro System.
This EC2 family gives developers access to macOS so they can develop, build, test, and sign applications that require the Xcode IDE.

Intel core i7 processors with 3.2 GHz (4.6 GHz turbo)
6 physical / 12 logical cores32 GiB of memory
Instance storage is available via Amazon Elastic Block Store (EBS)
Mac instances are dedicated, bare-metal instances which are accessible in the EC2 console as dedicated hosts

General Purpose Instance

General Purpose

General purpose instances provide a balance of compute, memory and networking resources, and can be used for a variety of diverse workloads. These instances are ideal for applications that use these resources in equal proportions such as web servers and code repositories.

Mac | T4g | T3 | T3a | T2 | M6g | M6i | M5 | M5a | M5n | M5zn | M4 | A1

AWS Instance Types

Amazon Machine Image Instance Types

Type	Compute Engine	RAM (GB)	Storage (GB)1	Platform	I/O Performance	API Name
Micro instance	Up to 2 EC2 Compute Units (1 virtual core) in short bursts	0.613	EBS (Elastic Block Storage) storage only	32-bit or 64-bit	Low	T1.micro
Standard instance – small (default)	1 EC2 Compute Unit (1 virtual core)	1.7	160	32-bit	Moderate	m1.small
Standard instance – large	4 EC2 Compute Units (2 virtual cores X 2 EC2 Units)	7.5	850	64-bit	High	m1.large
Standard instance – extra large	8 EC2 Compute Units (4 virtual cores X 2 EC2 Units)	15	1,690	64-bit	High	m1.xlarge
High Memory Double Extra Large Instance	13 EC2 Compute Units (4 virtual cores X 3.25 EC2 Units)	34.2	850	64-bit	High	m2.2xlarge

AWS Instance Types

Type	Compute Engine	RAM (GB)	Storage (GB)1	Platform	I/O Performance	API Name
High Memory Quadruple Extra Large Instance	26 EC2 Compute Units (8 virtual cores X 3.25 EC2 Units)	68.4	1,690	64-bit	High	m2.4xlarge
High CPU Medium Instance	5 EC2 Compute Units (2 virtual cores X 2.5 EC2 Units)	1.7	350	32-bit	Moderate	c1.medium
High CPU Extra Large Instance	20 EC2 Compute Units (8 virtual cores X 2.5 EC2 Units)	7	1,690	64-bit	High	c1.xlarge

AMI Pricing Options

The pricing of these different AMI types depends on the operating system used, which data center
the AMI is located in (you can select its location), and the amount of time that the AMI runs.
Rates are quoted based on an hourly rate.
Additional charges are applied for

- ❖ the amount of data transferred
- ❖ whether Elastic IP Addresses are assigned
- ❖ your virtual private server's use of Amazon Elastic Block Storage (EBS)
- ❖ whether you use Elastic Load Balancing for two or more servers
- ❖ other features

EC2 Pricing Models

On Demand

It allows you to pay a fixed rate by the hour or even by the second with no commitment.

Reserved

It is a way of making a reservation with Amazon or we can say that we make a contract with Amazon. The contract can be for 1 or 3 years in length.

Spot Instances

It is useful for those users who have an urgent need for large amounts of additional computing capacity.

Dedicated Hosts

A dedicated host is a physical server with EC2 instance capacity which is fully dedicated to your use.

System images and software

choose to use a template AMI system image with the operating system of your choice or

create your own system image that contains your custom applications, code libraries, settings, and data.

Security can be set through passwords, Kerberos tickets, or certificates.

These operating systems are offered:

- Red Hat Enterprise Linux
- OpenSuse Linux
- Ubuntu Linux
- Sun OpenSolaris
- Fedora
- Gentoo Linux
- Oracle Enterprise Linux
- Windows Server 2003/2008 32-bit and 64-bit up to Data Center Edition

EC2 Instance Software Types

Application Type	Software
Application Development Environments	IBM sMash, JBoss Enterprise Application Platform, and Ruby on Rails
Application Servers	IBM WebSphere Application Server, Java Application Server, and Oracle WebLogic Server
Batch Processing	Condor, Hadoop, and Open MPI
Databases	IBM DB2, IBM Informix Dynamic Server, Microsoft SQL Server Standard 2005, MySQL Enterprise, and Oracle Database 11g
Video Encoding and Streaming	Windows Media Server and Wowza Media Server Pro
Web Hosting	Apache HTTP, IIS/ASP.Net, IBM Lotus Web Content Management, and IBM WebSphere Portal Server

EC2 service zones or regions

- US East (Northern Virginia)
- US West (Northern California)
- EU (Ireland)
- Asia Pacific (Singapore)

Launching an Amazon EC2 instance

1. Sign in to AWS Management Console and open the Amazon EC2 console at http://console.aws.amazon.com/ec2/
2. From the navigation bar select the region for the instance

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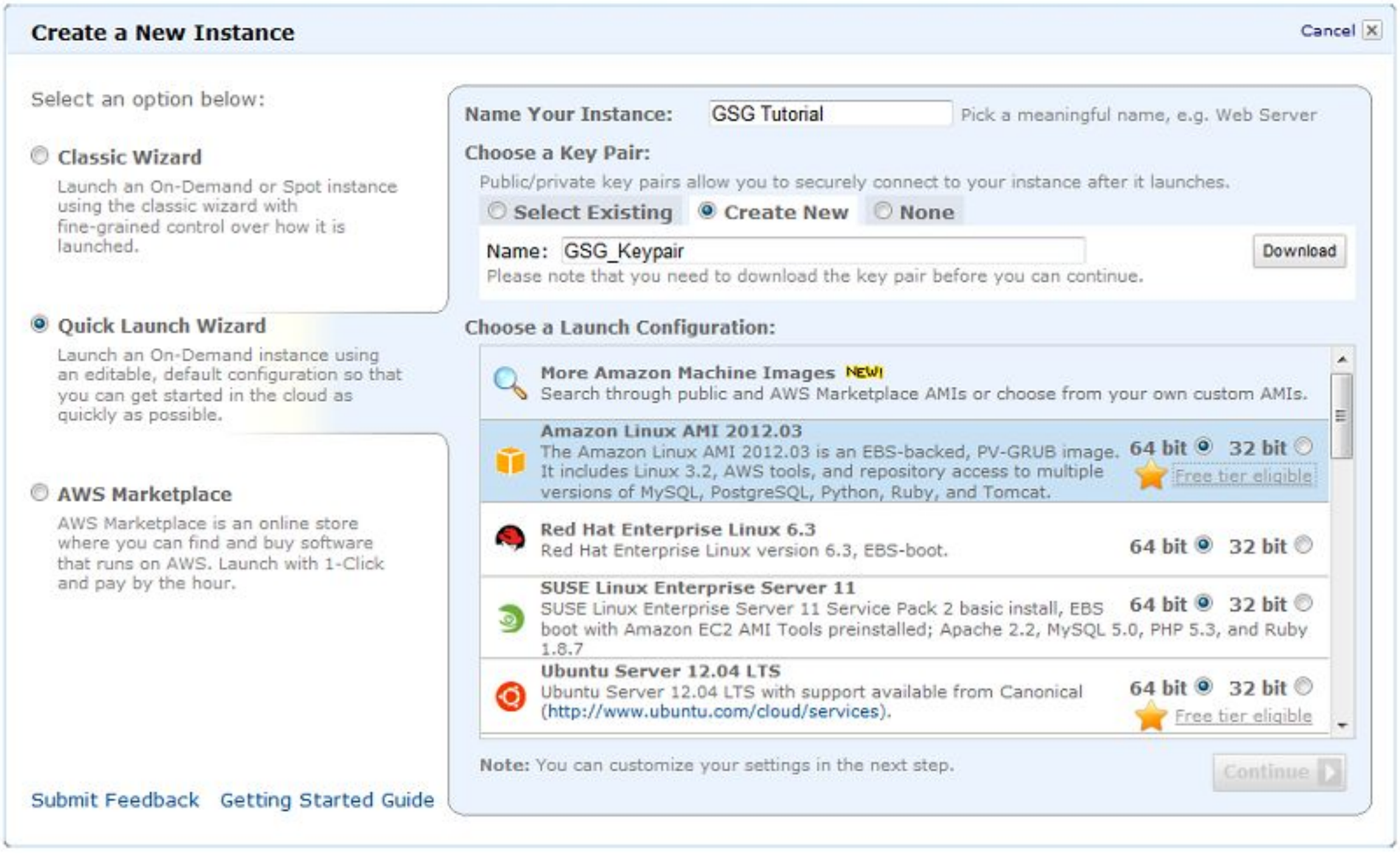
Launching an Amazon EC2 instance

3. From the Amazon EC2 console dashboard, click **Launch Instance**

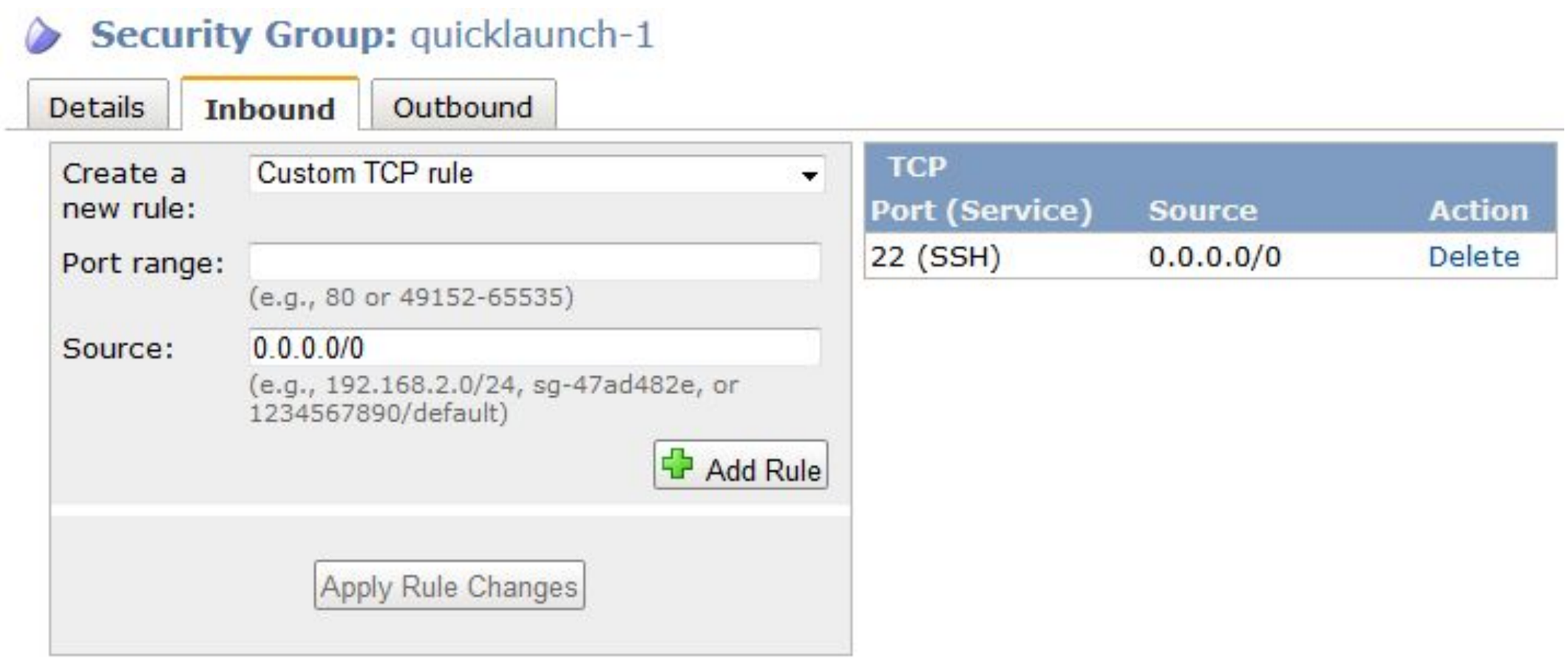


Launching an Amazon EC2 instance

4. On the **Create a New Instance** page, click **Quick Launch Wizard**
5. In **Name Your Instance**, enter a name for the instance
6. In **Choose a Key Pair**, choose an existing key pair, or create a new one
7. In Choose a Launch Configuration, a list of basic machine configurations are displayed, from which an instance can be launched
8. Click continue to view and customize the settings for the instance

Launching an Amazon EC2 instance

9. Select a security group for the instance. A **Security Group** defines the firewall rules specifying the incoming network traffic delivered to the instance. Security groups can be defined on the Amazon EC2 console, in **Security Groups** under **Network and Security**



Launching an Amazon EC2 instance

10. Review settings and click **Launch** to launch the instance
11. Close the confirmation page to return to EC2 console
12. Click **Instances** in the navigation pane to view the status of the instance. The status is **pending** while the instance is launching

After the instance is launched, its status changes to **running**

	Name	Instance	AMI ID	Root Device	Type	State	Public DNS
	GSG Tutorial	i-e1ab569a	ami-aecd60c7	ebs	t1.micro	pending	

	Name	Instance	AMI ID	Root Device	Type	State	Public DNS
	GSG Tutorial	i-e1ab569a	ami-aecd60c7	ebs	t1.micro	running	ec2-50-19-54-72.compute-1.amazonaws.com

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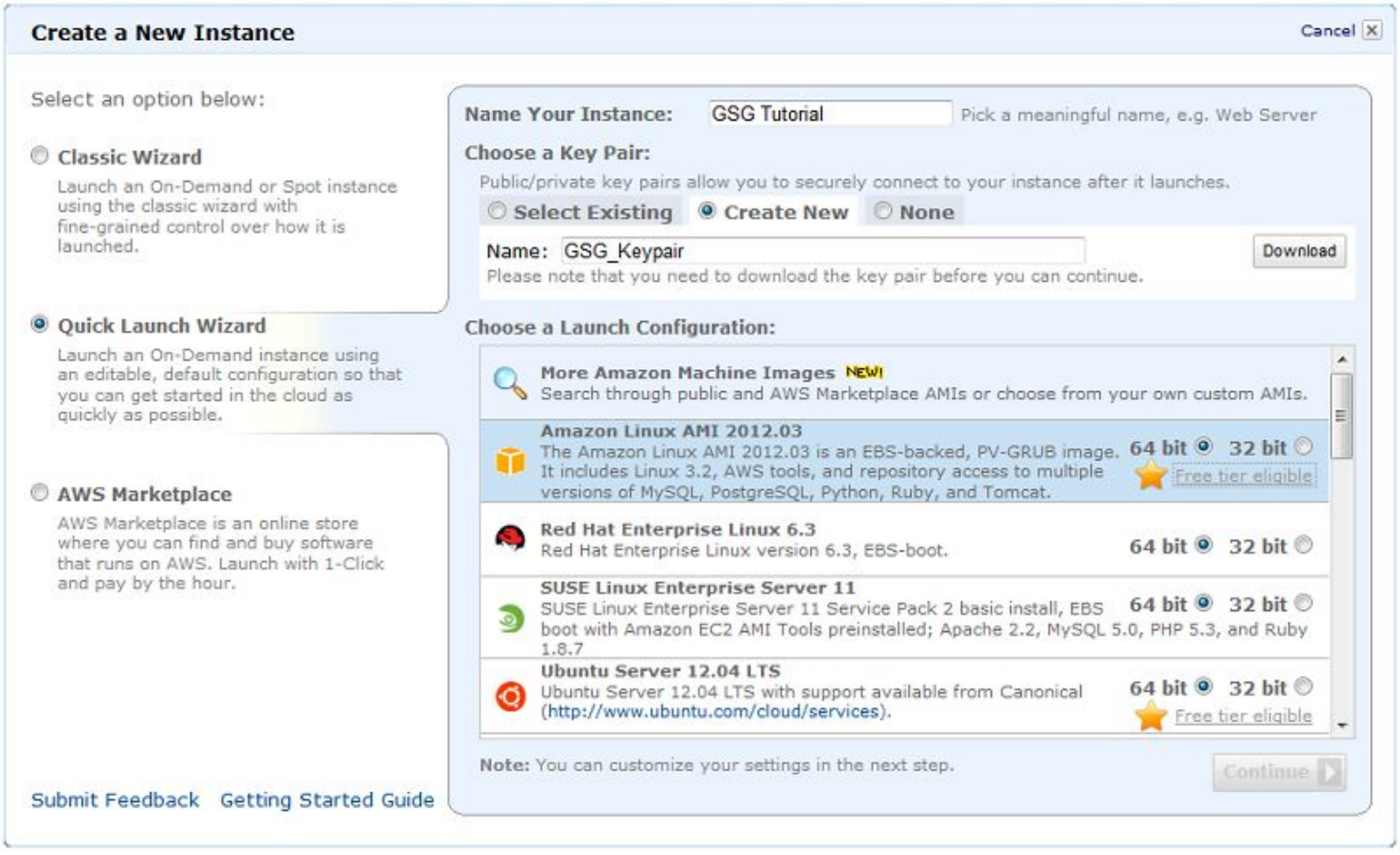

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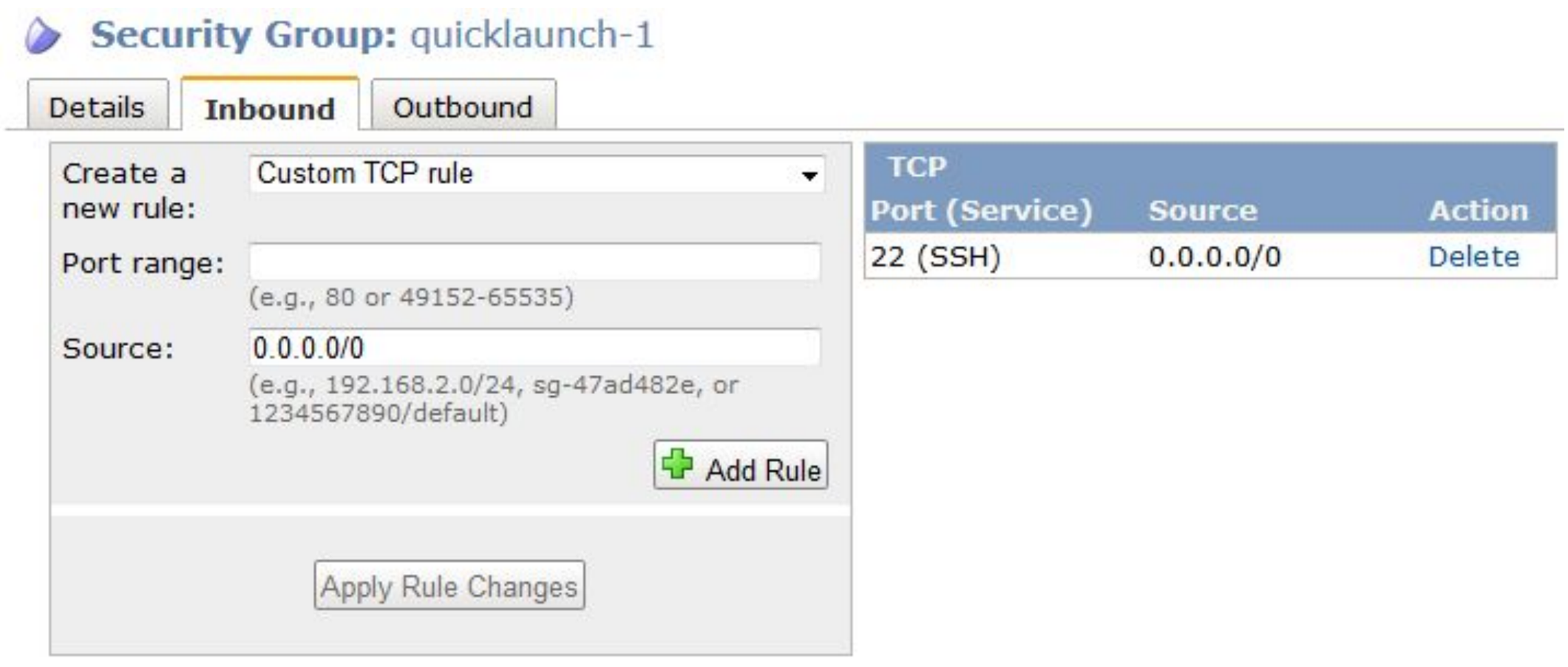

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Working with Amazon Storage Systems

- Amazon Simple Storage System (S3)
- Amazon Elastic Block Store (EBS)
- CloudFront

Amazon Simple Storage System

provides object (file) storage through a web interface
built to store, protect and retrieve data from “buckets” at any time from anywhere on any device.
it is Object-based storage, i.e., you can store the images, word files, pdf files, etc.
The files which are stored in S3 can be from 0 Bytes to 5 TB
It has unlimited storage means that you can store the data as much you want.
Files are stored in Bucket. A bucket is like a folder available in S3 that stores the files.
S3 is a universal namespace, i.e., the names must be unique globally. Bucket contains a DNS address.
Therefore, the bucket must contain a unique name to generate a unique DNS address.

# of AWS

If you create a bucket, URL look like:

If you upload a file to S3 bucket, then you will receive an HTTP 200 code means that the uploading of a file is successful.

S3 buckets through the APIs:

- Create, edit, or delete existing buckets
- Upload new objects to a bucket and download them
- Search for and find objects and buckets
- Find metadata associate with objects and buckets
- Specify where a bucket should be stored
- Make buckets and objects available for public access

S3 Buckets

S3 is a simple key-value store

S3 is object-based.

Objects consist of the following

Key

It is simply the name of the object. For example, hello.txt, spreadsheet.xlsx, etc. You can use the key to retrieve the object.

Value

It is simply the data which is made up of a sequence of bytes. It is actually a data inside the file.

Version ID

Version ID uniquely identifies the object. It is a string generated by S3 when you add an object to the S3 bucket.

Metadata

It is the data about data that you are storing. A set of a name-value pair with which you can store the information regarding an object. Metadata can be assigned to the objects in Amazon S3 bucket.

Subresources

Subresource mechanism is used to store object-specific information. Access control information: You can put the permissions individually on

Amazon Elastic Block Store

a block storage system used to store persistent data. Amazon EBS is suitable for EC2 instances by providing highly available block level storage volumes.

It has three types of volume,

General Purpose (SSD),

Provisioned IOPS (SSD), and

Magnetic.

These three volume types differ in performance, characteristics, and cost.

Each account will be limited to 20 EBS volumes.

EBS General Purpose

This volume type is suitable for small and medium workloads like Root disk EC2 volumes, small and medium database workloads, frequently logs accessing workloads, etc.

By default, SSD supports 3 IOPS (Input Output Operations per Second)/GB means 1 GB volume will give 3 IOPS, and 10 GB volume will give 30 IOPS.

Its storage capacity of one volume ranges from 1 GB to 1 TB. The cost of one volume is $0.10 per GB for one month.

Provisioned IOPS (SSD)

This volume type is suitable for the most demanding I/O intensive, transactional workloads and large relational, EMR and Hadoop workloads, etc.

By default, IOPS SSD supports 30 IOPS/GB means 10GB volume will give 300 IOPS. Its storage capacity of one volume ranges from 10GB to 1TB.

The cost of one volume is $0.125 per GB for one month for provisioned storage and $0.10 per provisioned IOPS for one month.

EBS Magnetic Volumes

This volume type is suitable for ideal workloads like infrequently accessing data, i.e. data backups for recovery, logs storage, etc.

Its storage capacity of one volume ranges from 10GB to 1TB.

The cost of one volume is $0.05 per GB for one month for provisioned storage and $0. 05 per million I/O requests.

Amazon EBS Benefits

Reliable and secure storage

Each of the EBS volume will automatically respond to its Availability Zone to protect from component failure.

Secure

Amazon's flexible access control policies allows to specify who can access which EBS volumes. Access control plus encryption offers a strong defense-in-depth security strategy for data.

Higher performance

Amazon EBS uses SSD technology to deliver data results with consistent I/O performance of application.

Easy data backup

Data backup can be saved by taking point-in-time snapshots of Amazon EBS volumes.

EC Storage Type Properties

Property	AMI Instance	Amazon Simple Storage Service (S3)	Amazon Elastic Block Storage (EBS)	Amazon CloudFront
Adaptability	Medium	Low	High	Medium
Best usage	Transient data storage	Persistent or archival storage	Operational data storage	Data sharing and large data object streaming
Cost	Low	Medium	High	Low
Ease of use	Low	High	High	High
Data protection	Very Low	Very High	High	Low
Latency	Medium	Low	High	High
Least best used as	Persistent storage	Operational storage	For small I/O transfers	Operational data
Reliability	High	Medium	High	Medium
Throughput	Variable	Slow	High	High

CloudFront

- content delivery network (CDN)
- *Edge computing*
- Securely deliver content with low latency and high transfer speeds
- A user requesting data from a CloudFront site is referred to the nearest geographical location.
- supports “geo-caching” data by performing static data transfers and streaming content from one CloudFront location to another.
- Reduce latency by delivering data through 275+ globally dispersed points of presence (PoPs) with automated network mapping and intelligent routing.
- Edge computing is a distributed computing paradigm that brings computation and data storage closer to the sources of data. This is expected to improve response times and save bandwidth

Amazon Database Services

- two different types of database services
- Amazon SimpleDB, which is non-relational
  to create a high performance data store with many database features
- SimpleDB database by scaling out and creating additional data domains
- integrates with EC2 instances and S3 storage. Data objects stored in S3 can be queried in SimpleDB, returning information about the objects' metadata and pointers to the objects' location. but without the overhead.

Amazon Database Services

Amazon Relational Database Service (Amazon RDS)

it easy to set up, operate, and scale a relational database in the cloud.

It provides cost-efficient and resizable capacity while automating time-consuming administration tasks such as hardware

Amazon RDS is available on several database instance types - provisioning, database setup, patching and backups

Amazon Relational Database Service Instance Class

Type1	Compute Engine	RAM (GB)	Platform	Price2
Small DB Instance (default)	1 EC2 Compute Unit (1 virtual core)	1.7	64-bit	$0.11
Large DB Instance	2 EC2 Compute Units (2 virtual cores X 2 EC2 Units)	7.5	64-bit	$0.44
Extra Large DB Instance	8 EC2 Compute Units (4 virtual cores X 2 EC2 Units)	15	64-bit	$0.88
Double Extra Large DB Instance	13 EC2 Compute Units (4 virtual cores X 3.25 EC2 Units)	34	64-bit	$1.55
Quadruple Extra Large DB Instance	26 EC2 Compute Units (8 virtual cores X 3.25 EC2 Units)	68	64-bit	$3.10

1. Storage available is from 5GB to 1TB.

2. Price for U.S. N. Virginia deployment for database machine; storage price is $0.10 per GB-month; and I/O rate price is $0.10 per 1 million requests for the same location. Data transfer rates also apply.

Choosing a database for AWS

- Choose SimpleDB when index and query functions do not require relational databasesupport.
- Use SimpleDB for the lowest administrative overhead.
- Select SimpleDB if you want a solution that autoscales on demand.
- Choose SimpleDB for a solution that has a very high availability.
- Use RDS when you have an existing MySQL database that could be ported and you wantto minimize the amount of infrastructure and administrative management required.
- Use RDS when your database queries require relation between data objects.
- Chose RDS when you want a database that scales based on an API call and has a pay-asyou-use-it pricing model.
- Select Amazon EC2/Relational Database AMI when you want access to an enterprise relational
- database or have an existing investment in that particular application.
- Use Amazon EC2/Relational Database AMI to retain complete administrative control overyour database server