

## Module 13. AWS Pricing Models

**This module covers the following subjects:**

- **Fundamentals of Pricing:** This section describes how pricing generally works in AWS. It educates you on the fundamental types of costs associated with using AWS.
- **Pricing Details:** This section ensures you understand the various factors in pricing for a given service. This section is critical for you to control your costs in AWS.

AWS can save you money, and there are many other advantages this public cloud offering can bring. However, you can most effectively save money only if you understand the pricing model in general, as well as the various factors that go into charges for the primary services of AWS. This module ensures you have this knowledge. Although not every service is covered in this module, knowing these variables and seeing some examples will help you understand how other services may be charged for.

## FOUNDATION TOPICS

# FUNDAMENTALS OF PRICING

Remember, AWS's general concept of pricing follows the utility company model. Furthermore, AWS pricing follows these general concepts:

- **Pay as you go:** This is done without excessive long-term commitments. It ensures adaptability and helps to eliminate CapEx costs for IT. Costs are related to cheaper variable costs as you operate. [Figure 13-1](#) shows some sample costs associated with an EC2 instance.

Linux	RHEL	SLES	Windows	Windows with SQL Standard	Windows with SQL Web
Windows with SQL Enterprise	Linux with SQL Standard	Linux with SQL Web	Linux with SQL Enterprise		
Region: Europe (Ireland) ▾					
	vCPU	ECU	Memory (GiB)	Instance Storage (GB)	Linux/UNIX Usage
<b>General Purpose - Current Generation</b>					
a1.medium	1	N/A	2 GiB	EBS Only	\$0.0288 per Hour
a1.large	2	N/A	4 GiB	EBS Only	\$0.0576 per Hour
a1.xlarge	4	N/A	8 GiB	EBS Only	\$0.1152 per Hour
a1.2xlarge	8	N/A	16 GiB	EBS Only	\$0.2304 per Hour
a1.4xlarge	16	N/A	32 GiB	EBS Only	\$0.4608 per Hour
a1.metal	16	N/A	32 GiB	EBS Only	\$0.461 per Hour
t3.nano	2	Variable	0.5 GiB	EBS Only	\$0.0057 per Hour
t3.micro	2	Variable	1 GiB	EBS Only	\$0.0114 per Hour
t3.small	2	Variable	2 GiB	EBS Only	\$0.0228 per Hour
t3.medium	2	Variable	4 GiB	EBS Only	\$0.0456 per Hour
t3.large	3	Variable	8 GiB	EBS Only	\$0.0684 per Hour

**Figure 13-1** Sample EC2 Instance Costs

### Note

Notice how there is a 30-day free trial for this sample EC2 instance. This way, you get to spin it up and ensure it works for you before you start paying for usage. This is common with many EC2 instances in the AWS Marketplace in the Management Console.

- **Pay less when you reserve:** You can use reserved EC2 instances and save as much as 70% over On-Demand pricing; you can pay all upfront, some, or nothing for these reserved instances. Discounts vary, as you pay less upfront. Remember, there is also spot pricing, where you can bid an amount, you are willing to pay for compute power. [Figure 13-2](#) shows an example of reserved instance pricing for a Windows Server running SQL Server Enterprise Edition on an instance type

called a t3.xlarge. As you might guess, these systems are packed with horsepower.

**Purchase Reserved Instances**

☒ Only show offerings that reserve capacity

Platform: **Windows wi...** Availability Zone: **Any** Tenancy: **Default** Offering Class: **Any**

Instance Type: **t3a.xlarge** Term: **Any** Payment Option: **Any**

Seller	Term	Effective Rate	Upfront Price	Hourly Rate	Availability Zone	Payment Option	Offering Class	Quantity Available	Desired Quantity	
AWS	36 months	\$1.659	\$43,607.00	\$0.000	eu-west-1c	All Upfront	convertible	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.659	\$43,607.00	\$0.000	eu-west-1a	All Upfront	convertible	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.659	\$43,607.00	\$0.000	eu-west-1b	All Upfront	convertible	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.635	\$42,967.00	\$0.000	eu-west-1c	All Upfront	standard	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.635	\$42,967.00	\$0.000	eu-west-1a	All Upfront	standard	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.635	\$42,967.00	\$0.000	eu-west-1b	All Upfront	standard	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.661	\$21,827.00	\$0.831	eu-west-1c	Partial Upfront	convertible	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>
AWS	36 months	\$1.661	\$21,827.00	\$0.831	eu-west-1a	Partial Upfront	convertible	Unlimited	<input type="text" value="1"/>	<input type="button" value="Add to Cart"/>

You currently have no items in your cart.

**Figure 13-2** Sample Reserved Instance Pricing

- **Pay even less per unit using more:** Services like S3 and EC2 offer volume discounts as your AWS infrastructure grows.
- **Pay even less as AWS grows:** Amazon is constantly learning how to host the cloud more efficiently; as it saves costs, it passes these savings on to you.

If you are a very large enterprise, Amazon can also offer custom pricing models. This might be required if you have a large volume project for which their pricing model would be cost-prohibitive.

Also, remember the Free Tier of service that you can start with. Remember that some AWS services can remain free (given certain service levels). These free services include the following:

- VPC
- CloudFormation
- IAM
- Auto Scaling

# PRICING DETAILS

It is essential that you memorise the general cost categories of AWS:

- Compute
- Storage
- Data Transfer Out (aggregated across services)

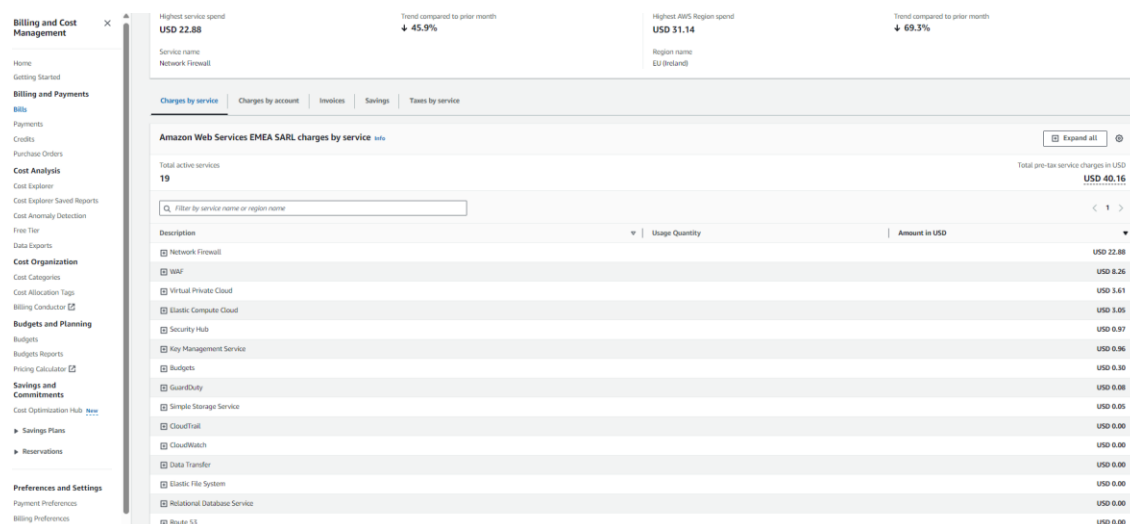
Notice that, in general, there are no charges for the following:

- Data transfers in
- Data transfers between AWS resources

What variables go into the pricing of the different fundamental services? Here are some to give you a feel for your abilities to control costs:

- **EC2:** Total clock hours of usage; amount and distribution of load balancing; machine configuration; detailed monitoring; machine purchase type; software/OS; elastic IP addresses; number of instances (including those created by Auto Scaling); cross-AZ data transfer
- **S3:** Storage type; storage class; requests; data transfer out
- **EBS:** Volume type; IOPS; snapshots
- **RDS:** Total clock hours of usage; additional storage; database configuration; purchase type; deployment type; number of databases; data transfer out; provisioned storage
- **CloudFormation:** Traffic distribution location; request; data transfer out

Remember, you can also obtain up-to-the-second details on your AWS costs thanks to the cost tools available in the AWS Management Console. **Figure 13-3** shows an example of a quick cost report.

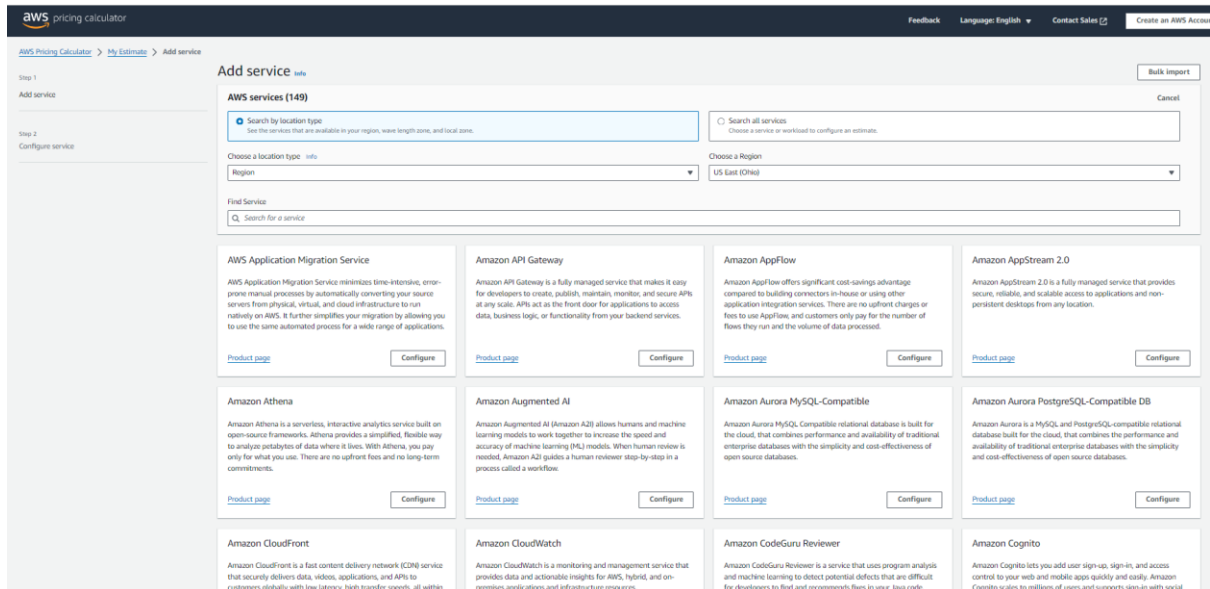


**Figure 13-3** Checking AWS Costs

## Pricing Calculator

The AWS Pricing Calculator is a valuable tool for estimating the cost of AWS services tailored to your needs. It allows you to configure a cost estimate that fits your unique business or personal requirements with a wide range of AWS products and services. The process is straightforward: add the services you need, configure your usage details, and view the estimated costs. This tool provides transparency in pricing, allowing you to see the math behind the price for your service configurations.

You do not need an AWS Account to use the pricing calculator.



The screenshot shows the AWS Pricing Calculator interface. At the top, there's a navigation bar with 'AWS pricing calculator', 'Feedback', 'Language: English', 'Contact Sales', and a 'Create an AWS Account' button. Below the navigation bar, the interface is divided into two main sections: a left sidebar and a main content area.

The left sidebar contains two steps: 'Step 1: Add service' and 'Step 2: Configure service'. The 'Add service' section is currently active.

The main content area is titled 'Add service' and includes a search bar for 'AWS services (149)'. Below the search bar, there are options to 'Choose a location type' (Region) and 'Choose a Region' (US East (Ore)). A 'Find Service' search bar is also present.

The main content area displays a grid of AWS services, each with a brief description, a 'Product page' link, and a 'Configure' button. The services shown are:

- AWS Application Migration Service**: AWS Application Migration Service minimizes time-intensive, error-prone manual processes by automatically converting your source servers from physical, virtual, and cloud infrastructure to run natively on AWS. It further simplifies your migration by allowing you to use the same automated process for a wide range of applications.
- Amazon API Gateway**: Amazon API Gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. APIs act as the front door for applications to access data, business logic, or functionality from your backend services.
- Amazon AppFlow**: Amazon AppFlow offers significant cost-savings advantage compared to building connectors in-house or using other application integration services. There are no upfront charges or fees to use AppFlow, and customers only pay for the number of flows they run and the volume of data processed.
- Amazon AppStream 2.0**: Amazon AppStream 2.0 is a fully managed service that provides secure, reliable, and scalable access to applications and non-persistent desktops from any location.
- Amazon Athena**: Amazon Athena is a serverless, interactive analytics service built on open-source frameworks. Athena provides a simplified, flexible way to analyze petabytes of data where it lives. With Athena, you pay only for what you use. There are no upfront fees and no long-term commitments.
- Amazon Augmented AI**: Amazon Augmented AI (Amazon A2I) allows humans and machine learning models to work together to increase the speed and accuracy of machine learning (ML) models. When human review is needed, Amazon A2I guides a human reviewer step-by-step in a process called a workflow.
- Amazon Aurora MySQL-Compatible**: Amazon Aurora MySQL-Compatible relational database is built for the cloud, that combines performance and availability of traditional enterprise databases with the simplicity and cost-effectiveness of open source databases.
- Amazon Aurora PostgreSQL-Compatible DB**: Amazon Aurora is a MySQL and PostgreSQL-compatible relational database built for the cloud, that combines the performance and availability of traditional enterprise databases with the simplicity and cost-effectiveness of open source databases.
- Amazon CloudFront**: Amazon CloudFront is 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
- Amazon CloudWatch**: Amazon CloudWatch is a monitoring and management service that provides data and actionable insights for AWS, hybrid, and on-premises applications and infrastructure resources.
- Amazon CodeGuru Reviewer**: Amazon CodeGuru Reviewer is a service that uses program analysis and machine learning to detect potential defects that are difficult for developers to find and recommends fixes in your Java code.
- Amazon Cognito**: Amazon Cognito lets you add user sign-up, sign-in, and access control to your web and mobile apps quickly and easily. Amazon Cognito scales to millions of users and supports sign-in with social

There is a tutorial on using the AWS Pricing Calculator here:

<https://docs.aws.amazon.com/pricing-calculator/latest/userguide/create-configure-estimate.html>

## EXAM PREPARATION TASKS

- **REVIEW ALL TOPICS**
- **DEFINE ALL KEY TERMS AND CHECK ANSWERS IN THE GLOSSARY.**
- **DO THE QUIZ – REPEAT UNTIL YOU PASS IT (100% PASSMARK).**

## DEFINE KEY TERMS

There are no key terms in this module.

## Q&A

- 1.** Name at least two fundamental cost areas of AWS.
- 2.** Name at least two cost variables for AWS S3.