

## Module 8 – Pricing and Support

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## Learning objectives

In this module, you will learn how to:

- Describe AWS pricing and support models.
- Describe the AWS Free Tier.
- Describe key benefits of AWS Organizations and consolidated billing.
- Explain the benefits of AWS Budgets.
- Explain the benefits of AWS Cost Explorer.
- Explain the primary benefits of the AWS Pricing Calculator.
- Distinguish between the various AWS Support Plans.
- Describe the benefits of AWS Marketplace.

## AWS Free Tier

The AWS Free Tier enables you to begin using certain services without having to worry about incurring costs for the specified period.

Three types of offers are available:

- Always Free
- 12 Months Free
- Trials

For each free tier offer, make sure to review the specific details about exactly which resource types are included.

### Always Free

These offers do not expire and are available to all AWS customers.

For example, AWS Lambda allows 1 million free requests and up to 3.2 million seconds of compute time per month. Amazon DynamoDB allows 25 GB of free storage per month.

### 12 Months Free

These offers are free for **12 months** following your initial sign-up date to AWS (12 Months Free category).

Examples include specific amounts of Amazon S3 Standard Storage, thresholds for monthly hours of Amazon EC2 compute time, and amounts of Amazon CloudFront data transfer out.

## Trials

Short-term free trial offers start from the date you activate a particular service. The length of each trial might vary by number of days or the amount of usage in the service. For example, Amazon Inspector offers a 90-day free trial. Amazon Lightsail (a service that enables you to run virtual private servers) offers 750 free hours of usage over a 30-day period.

## Examples

Let's illustrate with a few examples. Let's take AWS Lambda, our serverless compute option. As of March 2020, it allows for one million free invocations per month. That means if you stay under one million invocations, it's always free. This Free Tier never expires.

Another example is **S3, our object store service**. It's **free for 12 months for up to five gigs of storage**. Thereafter, you'll incur a cost. Great for trying out a static website on S3, I might say. And the last example is Lightsail where you can deploy ready-made application stacks. We offer a one month trial of up to 750 hours of usage.

Some other services that qualify under the free tier are SageMaker, Comprehend Medical, DynamoDB, SNS, Cognito, and so much more. If you want to see the full list of 60 or so services, please check out our Resources section.

## How AWS pricing works (AWS pricing concepts)

AWS offers a range of cloud computing services with pay-as-you-go pricing.

### **Pay for what you use.**

For each service, you pay for exactly the amount of resources that you actually use, without requiring long-term contracts or complex licensing.

### **Pay less when you reserve.**

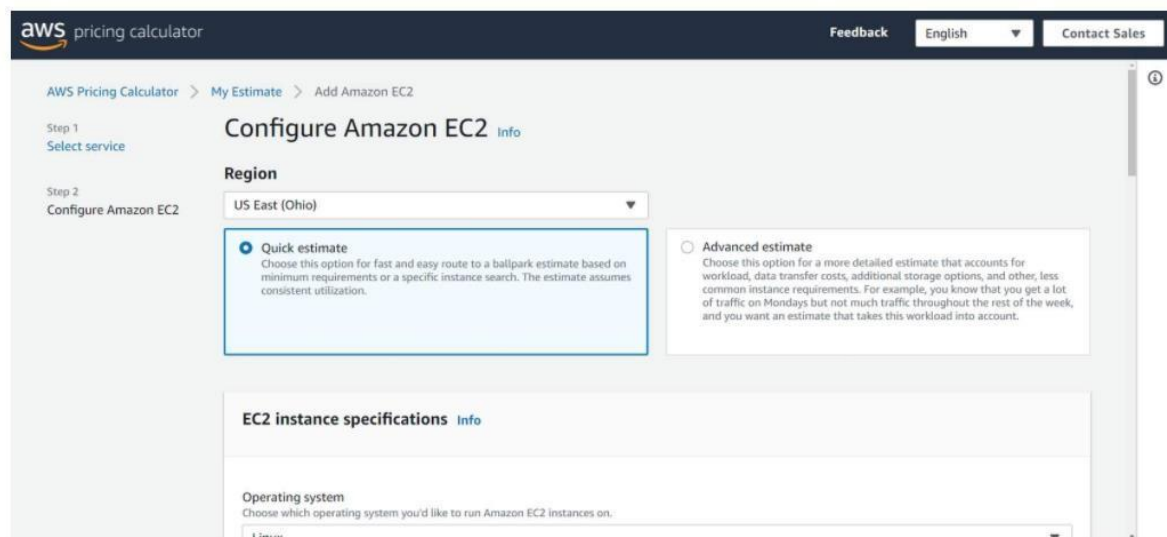
Some services offer **reservation options** that provide a significant **discount** compared to On-Demand Instance pricing. For example, suppose that your company is using Amazon EC2 instances for a **workload that needs to run continuously**. You might choose to run this workload on Amazon EC2 Instance **Savings Plans**, because the plan allows you to save up to 72% over the equivalent On-Demand Instance capacity.

### **Pay less with volume-based discounts when you use more.**

Some services offer tiered pricing, so the per-unit cost is incrementally lower with increased usage. For example, the more Amazon S3 storage space you use, the less you pay for it per GB.

## AWS Pricing Calculator

The **AWS Pricing Calculator** lets you explore AWS services and **create an estimate** for the cost of your use cases on AWS. You can organize your AWS estimates by groups that you define. A group can reflect how your company is organized, such as providing estimates by cost centre. When you have created an estimate, you can save it and generate a link to share it with others.

The screenshot shows the AWS Pricing Calculator interface. At the top, there's a navigation bar with the AWS logo, 'pricing calculator', and links for 'Feedback', 'English', and 'Contact Sales'. Below this, a breadcrumb trail reads 'AWS Pricing Calculator > My Estimate > Add Amazon EC2'. The main content area is titled 'Configure Amazon EC2' with an 'Info' link. On the left, a sidebar shows 'Step 1: Select service' and 'Step 2: Configure Amazon EC2'. The 'Region' dropdown is set to 'US East (Ohio)'. There are two radio button options: 'Quick estimate' (selected) and 'Advanced estimate'. The 'Quick estimate' description says: 'Choose this option for fast and easy route to a ballpark estimate based on minimum requirements or a specific instance search. The estimate assumes consistent utilization.' The 'Advanced estimate' description says: 'Choose this option for a more detailed estimate that accounts for workload, data transfer costs, additional storage options, and other, less common instance requirements. For example, you know that you get a lot of traffic on Mondays but not much traffic throughout the rest of the week, and you want an estimate that takes this workload into account.' Below these options is a section titled 'EC2 instance specifications' with an 'Info' link. Under 'Operating system', it says 'Choose which operating system you'd like to run Amazon EC2 instances on.' and has a dropdown menu currently showing 'Linux'.

Suppose that your company is interested in using Amazon EC2. However, you are not yet sure which AWS Region or instance type would be the most cost-efficient for your use case. In the AWS Pricing Calculator, you can enter details such as the kind of operating system you need, memory requirements, and input/output (I/O) requirements. By using the **AWS Pricing Calculator**, you can review an **estimated comparison of different EC2 instance types across AWS Regions**.

## AWS pricing examples

This section presents a few examples of pricing in AWS services.

### AWS Lambda

For AWS Lambda, you are charged based on the **number of requests for your functions and the time that it takes for them to run**. AWS Lambda allows 1 million free requests and up to 3.2 million seconds of compute time per month.

You can save on AWS Lambda costs by signing up for a **Compute Savings Plan**. A Compute Savings Plan offers lower compute costs in exchange for committing to a consistent amount of usage over a 1-year or 3-year term. This is an example of **paying less when you reserve**.

If you have used AWS Lambda in multiple AWS Regions, you can view the itemized charges by Region on your bill.

In this example, all the AWS Lambda usage occurred in the Northern Virginia Region. The bill lists separate charges for the number of requests for functions and their duration.

Both the **number of requests** and the **total duration of requests** in this example are under the thresholds in the AWS Free Tier, so the account owner would not have to pay for any AWS Lambda usage in this month.

▼ Lambda		\$0.00
▼ US East (N. Virginia)		\$0.00
AWS Lambda Lambda-GB-Second		\$0.00
AWS Lambda - Compute Free Tier - 400,000 GB-Seconds - US East (Northern Virginia)	254.575 seconds	\$0.00
AWS Lambda Request		\$0.00
AWS Lambda - Requests Free Tier - 1,000,000 Requests - US East (Northern Virginia)	680.000 Requests	\$0.00

### Amazon EC2

With Amazon EC2, you pay for only the compute time that you use while your instances are running.

For some workloads, you can significantly reduce Amazon EC2 costs by using Spot Instances. For example, suppose that you are running a **batch processing job that is able to withstand interruptions**. Using a **Spot Instance** would provide you with up to 90% cost savings while still meeting the availability requirements of your workload.

You can find additional cost savings for Amazon EC2 by considering Savings Plans and Reserved Instances.

The service charges in this example include details for the following items:

- Each Amazon EC2 **instance type** that has been used
- The **amount of Amazon EBS storage space** that has been provisioned
- The **length of time that Elastic Load Balancing** has been used

In this example, all the usage amounts are under the thresholds in the AWS Free Tier, so the account owner would not have to pay for any Amazon EC2 usage in this month.

▼ Elastic Compute Cloud		\$0.00
▼ US East (N. Virginia)		\$0.00
Amazon Elastic Compute Cloud running Linux/UNIX		\$0.00
\$0.00 per Linux t2.micro instance-hour (or partial hour) under monthly free tier	106.512 Hrs	\$0.00
EBS		\$0.00
\$0.00 per GB-month of General Purpose (SSD) provisioned storage under monthly free tier	11.294 GB-Mo	\$0.00
Elastic Load Balancing - Application		\$0.00
\$0.00 per Application LoadBalancer-hour (or partial hour) under monthly free tier	268.000 Hrs	\$0.00

## Amazon S3

For Amazon S3 pricing, consider the following cost components:

- **Storage** - You pay for only the storage that you use. You are charged the rate to store objects in your Amazon S3 buckets based on your objects' **sizes, storage classes**, and **how long** you have stored each object during the month.
- **Requests and data retrievals** - You pay for requests made to your Amazon S3 objects and buckets. For example, suppose that you are storing photo files in Amazon S3 buckets and hosting them on a website. **Every time a visitor requests the website that includes these photo files, this counts towards requests you must pay for.**
- **Data transfer** - There is no cost to transfer data between different Amazon S3 buckets or from Amazon S3 to other services within the same AWS Region. However, you **pay for data that you transfer into and out of Amazon S3**, with a few exceptions. There is no cost for data transferred into Amazon S3 from the internet or out to Amazon CloudFront. There is also no cost for data transferred out to an Amazon EC2 instance in the same AWS Region as the Amazon S3 bucket.
- **Management and replication** - You pay for the **storage management features** that you have enabled on your account's Amazon S3 buckets. These features include Amazon S3 inventory, analytics, and object tagging.

The AWS account in this example has used Amazon S3 in two Regions: Northern Virginia and Ohio. For each Region, itemized charges are based on the following factors:

- The number of **requests** to **add** or **copy** objects into a bucket
- The number of **requests** to **retrieve** objects from a bucket
- The amount of **storage space** used

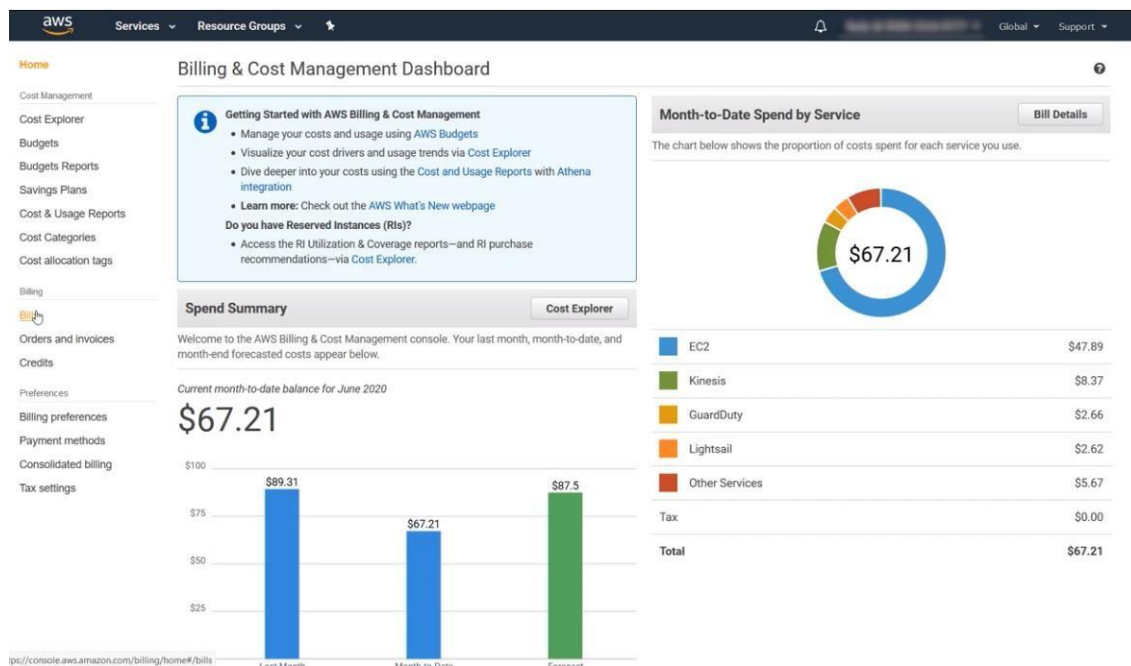
All the usage for Amazon S3 in this example is under the AWS Free Tier limits, so the account owner would not have to pay for any Amazon S3 usage in this month.

▼ Simple Storage Service		\$0.00
▼ US East (N. Virginia)		\$0.00
Amazon Simple Storage Service Requests-Tier1		\$0.00
\$0.00 per request - PUT, COPY, POST, or LIST requests under the monthly global free tier	185.000 Requests	\$0.00
Amazon Simple Storage Service Requests-Tier2		\$0.00
\$0.00 per request - GET and all other requests under the monthly global free tier	923.000 Requests	\$0.00
Amazon Simple Storage Service TimedStorage-ByteHrs		\$0.00
\$0.000 per GB - storage under the monthly global free tier	0.159 GB-Mo	\$0.00
▼ US East (Ohio)		\$0.00
Amazon Simple Storage Service USE2-Requests-Tier2		\$0.00
\$0.00 per request - GET and all other requests under the monthly global free tier	4.000 Requests	\$0.00
Amazon Simple Storage Service USE2-TimedStorage-ByteHrs		\$0.00
\$0.000 per GB - storage under the monthly global free tier	0.000001 GB-Mo	\$0.00

## Billing Dashboard

Use the **AWS Billing & Cost Management dashboard** to pay your AWS bill, monitor your usage, and analyse and control your costs.

- Compare your current month-to-date balance with the previous month, and get a forecast of the next month based on current usage.
- View month-to-date spend by service.
- View Free Tier usage by service.
- Access **Cost Explorer** and create budgets.
- Purchase and manage Savings Plans.
- Publish [AWS Cost and Usage Reports](#).



## Consolidated billing

In an earlier module, you learned about **AWS Organizations**, a service that enables you to manage multiple AWS accounts from a central location. AWS Organizations also provides the option for **consolidated billing**.

The consolidated billing feature of AWS Organizations enables you to **receive a single bill** for all AWS accounts in your organization. By consolidating, you can easily track the combined costs of all the linked accounts in your organization. The default maximum number of accounts allowed for an organization is **4**, but you can contact AWS Support to increase your quota, if needed.

On your monthly bill, you can **review itemized charges incurred by each account**. This enables you to have greater **transparency** into your organization's accounts while still maintaining the **convenience** of receiving a single monthly bill.

Another benefit of consolidated billing is the ability to **share bulk discount pricing**, Savings Plans, and Reserved Instances across the accounts in your organization. For instance, one account might not have enough **monthly usage to qualify for discount pricing**. However, when multiple accounts are combined, their **aggregated usage may result in a benefit** that applies across all accounts in the organization.

The best part about this is that the feature is free and easy to use. So it simplifies the billing process, lets you **share savings across accounts** and doesn't cost you any extra money.

## AWS Budgets

As you're ramping up your AWS deployments, you probably want to make sure you're not spending an unbudgeted amount. As with most companies, you want to track costs and make sure you keep within your limits.

In **AWS Budgets**, you can create budgets to plan your service usage, service costs, and instance reservations.

The information in AWS Budgets **updates three times a day**. This helps you to accurately determine how close your usage is to your budgeted amounts or to the AWS Free Tier limits.

In AWS Budgets, you can also set custom alerts when your usage exceeds (or is forecasted to exceed) the budgeted amount.

## Example: AWS Budgets

Suppose that you have set a budget for Amazon EC2. You want to ensure that your company's usage of Amazon EC2 does not exceed \$200 for the month.



In AWS Budgets, you could set a custom budget to notify you when your usage has reached half of this amount (\$100). This setting would allow you to receive an alert and decide how you would like to proceed with your continued use of Amazon EC2.

AWS Budgets

Filter by budget name

Download CSV

Create budget

All budgets (7)

Cost budgets (5)

Usage budgets (2)

Reservation budgets (0)

2

Budget name	Budget type	Current	Budgeted	Forecasted	Current vs. budgeted	Forecasted vs. budgeted	
Project Nemo Cost Budget	Cost	\$43.90	\$45.00	\$56.33	<div><div></div></div> 97.55%	<div><div></div></div> 125.17%	...
Eastern US Regional Budget	Cost	\$85.21	\$100.00	\$125.28	<div><div></div></div> 85.21%	<div><div></div></div> 125.28%	...
Total Monthly Cost Budget	Cost	\$141.50	\$175.00	\$187.00	<div><div></div></div> 80.86%	<div><div></div></div> 106.86%	...
Total EC2 Cost Budget	Cost	\$136.90	\$200.00	\$195.21	<div><div></div></div> 68.45%	<div><div></div></div> 97.61%	...
S3 Usage Budget	Usage	3,601 Requests	5,500 Requests	4,675.75 Requests	<div><div></div></div> 65.47%	<div><div></div></div> 85.01%	...

1

In this sample budget, you can review the following important details:

- The current amount that you have incurred for Amazon EC2 so far this month (\$136.90)
- The amount that you are forecasted to spend for the month (\$195.21), based on your usage patterns

You can also review comparisons of your current vs. budgeted usage, and forecasted vs. budgeted usage.

For example, in the top row of this sample budget, the forecasted vs. budgeted bar is at 125.17%. The reason for the increase is that the forecasted amount (\$56.33) exceeds the amount that had been budgeted for that item for the month (\$45.00).

aws

Services

Resource Groups

Create a budget

Step 1

Step 2

Step 3

Step 4

Set your budget

Set your budget details, including your budgeted amount. From there, you can refine your budget using the optional budget parameters.

Budget details

Name

Budget12

Period

Monthly

Budget effective dates

Recurring budgets will renew on the first day of every monthly billing period. Expiring budgets will stop renewing on the last day of the expiration month.

Recurring Budget

Expiring Budget

Start Month

Jun 2020

Budget amount

Fixed

Create a budget that tracks against a single monthly budgeted amount.

Monthly Budget Planning

Specify your budgeted amount for each budget period.

Budgeted amount

\$1,000

Last month's cost \$89.35

Budgeted amount is blank

Please enter a budgeted amount.

## AWS Cost Explorer

As we have already discussed, AWS has a variable cost model, and you only pay for what you use. You don't have one fixed billed amount at the end of every month. Instead, it fluctuates with the resources you use and how you use them. Because of this cost model, it's really important that you can **drill down into your bill** and see just how you are spending money.

**AWS Cost Explorer** is a console-based tool that enables you to **visualize, understand, and manage your AWS costs and usage over time**.

AWS Cost Explorer includes a default report of the costs and usage for your **top five** cost-accruing AWS services. You can apply custom filters and groups to analyse your data. For example, you can view resource usage at the **hourly level**.

It will show you which services you are spending the most money on, and it gives you 12 months of historical data, so you can track your spending over time. That way, if you see a bump in spending on, say, EC2 from October to December, you can then use that data to go on and figure out why exactly that happened.

### Example: AWS Cost Explorer



This example of the **AWS Cost Explorer dashboard** displays monthly costs for Amazon EC2 instances over a 6-month period. The bar for each month separates the costs for different Amazon EC2 instance types (such as t2.micro or m3.large).

By analysing your AWS costs over time, you can make informed decisions about future costs and how to plan your budgets.

One important grouping to note is to **group by tag**. Many resources in AWS are taggable. Tags are essentially user-defined key-value pairs. So you can tag an EC2 instance with a specific project name or a database with the same project name, and then you can come into the AWS Cost Explorer, filter by tag, and see all expenses associated with that tag.

So as you can see, Cost Explorer gives you some powerful defaults for reports, but you can build your own custom ones as well. This will help you identify cost drivers and take action when necessary to curb spending. **Cost optimization** is a priority you should be paying close attention to, and you can use the Cost Explorer to help get you going in the right direction.

## AWS Support

AWS offers four different **Support plans** to help you troubleshoot issues, lower costs, and efficiently use AWS services.

You can choose from the following Support plans to meet your company's needs:

- Basic
- Developer
- Business
- Enterprise

## Basic Support

**Basic Support** is free for all AWS customers. It includes access to customer service, whitepapers, documentation, and support communities. With Basic Support, you can also contact AWS for billing questions and service limit increases.

With Basic Support, you have access to a **limited** selection of **AWS Trusted Advisor checks**. Additionally, you can use the **AWS Personal Health Dashboard**, a tool that provides alerts and remediation guidance when AWS is experiencing events that may affect you.

These functions are free for everyone, but as you begin to move mission critical workloads into AWS, we offer higher levels of support to match your levels of need. If your company needs support beyond the Basic level, you could consider purchasing Developer, Business, or Enterprise Support.

## Developer, Business, and Enterprise Support

The Developer, Business, and Enterprise Support plans include all the benefits of Basic Support, in addition to the ability to **open an unrestricted number of technical support cases**. These three Support plans have **pay-by-the-month pricing** and require no long-term contracts.

The information in this course highlights only a selection of details for each Support plan. A complete overview of what is included in each Support plan, including pricing for each plan, is available on the [AWS Support](#) site.

In general, for pricing, the Developer plan has the lowest cost, the Business plan is in the middle, and the Enterprise plan has the highest cost.

### **Developer Support**

Customers in the **Developer Support** plan have access to features such as:

- Best practice guidance
- Client-side diagnostic tools
- **Building-block architecture support**, which consists of guidance for how to use AWS offerings, features, and services together

Plus, you can now **email customer support directly with a 24 hour response time** on any questions you have. And responses of less than **12 hours in case your systems are impaired**.

For example, suppose that your company is exploring AWS services. You've heard about a few different AWS services. However, you're unsure of how to potentially use them together to build applications that can address your company's needs. In this scenario, the building-block architecture support that is included with the Developer Support plan could help you to identify opportunities for combining specific services and features.

### **Business Support**

Customers with a **Business Support** plan have access to additional features, including:

- **Use-case guidance** to identify AWS offerings, features, and services that can best support your specific needs
- **All AWS Trusted Advisor** checks
- Limited support for third-party software, such as common operating systems and application stack components

Suppose that your company has the Business Support plan and wants to install a common third-party operating system onto your Amazon EC2 instances. You could contact AWS Support for assistance with installing, configuring, and troubleshooting the operating system. For advanced topics such as optimizing performance, using custom scripts, or resolving security issues, you may need to contact the third-party software provider directly.

You are given direct phone access to our support team that has a **four hour response SLA**. If your production system is impaired, and a one hour SLA for production systems down. Additionally, as part of the Business tier, we provide access to infrastructure event management, where for an extra fee, we can help you plan for massive events like brand new launches or global advertising blitzes.

## **Enterprise Support**

In addition to all the features included in the Basic, Developer, and Business Support plans, customers with an **Enterprise Support** plan have access to features such as:

- Application architecture guidance, which is a consultative relationship to support your company's specific use cases and applications
- Infrastructure event management: A short-term engagement with AWS Support that helps your company gain a better understanding of your use cases. This also provides your company with architectural and scaling guidance.
- **A Technical Account Manager**
- **15 minute SLA** for business critical workloads

## Technical Account Manager (TAM)

The Enterprise Support plan includes access to a **Technical Account Manager (TAM)**. If your company has an Enterprise Support plan, the TAM is your primary point of contact at AWS. They provide guidance, architectural reviews, and ongoing communication with your company as you plan, deploy, and optimize your applications.

Your TAM provides expertise across the full range of AWS services. They help you design solutions that efficiently use multiple services together through an integrated approach.

For example, suppose that you are interested in developing an application that uses several AWS services together. Your TAM could provide insights into how to best use the services together. They achieve this, while aligning with the specific needs that your company is hoping to address through the new application.

## AWS Marketplace

**AWS Marketplace** is a **curated digital catalogue** that includes thousands of **software listings** from **independent third party software vendors**. You can use AWS Marketplace to find, test, and buy software that runs on AWS. This allows you to accelerate innovation while rapidly and securely deploying a wide range of solutions, while also reducing your total cost of ownership.

The first key way that the AWS Marketplace helps customers, is that instead of needing to build, install and maintain the foundational infrastructure needed to run these third party applications in the marketplace, customers have options like **one-click deployment** that allows them to quickly procure and use products from thousands of software sellers right when you need them.

For each listing in AWS Marketplace, you can access detailed information on pricing options, available support, and reviews from other AWS customers.

More importantly, as you move forward, most vendors in the marketplace also offer **on-demand pay-as-you-go options**. These **flexible pricing** plans give you more options to pay for the software, the way you actually use it without wasted unused licenses weighing down your balance sheets.

You can also explore software solutions by industry and use case. For example, suppose that your company is in the healthcare industry. In AWS Marketplace, you can review use cases that software helps you to address, such as implementing solutions to protect patient records or using machine learning models to analyse a patient's medical history and predict possible health risks.

## AWS Marketplace categories



AWS Marketplace offers products in several categories, such as Infrastructure Products, Business Applications, Data Products, and DevOps.

Within each category, you can narrow your search by browsing through product listings in subcategories. For example, subcategories in the DevOps category include areas such as Application Development, Monitoring, and Testing.

## Summary

Well, you've heard a lot about pricing and support, and it's probably a lot more than you initially thought. You learned about the **pay-as-you-go** nature of using AWS cloud resources. We discussed the difference between on-premises and cloud costs, and we even showed you how you can get your feet wet with the **free tier** offered with most AWS services.

We talked about how AWS Organizations can be used and how it can help you with **consolidated billing** of multiple AWS accounts. We covered **AWS Budgets, Cost Explorer**. We even explored **AWS Console billing**, so you could get familiar with it, and then switched gears to talk about the **different support models** offered on AWS. Very handy if you're looking for assistance on your cloud journey.

Speaking of assistance, we introduced you to the expansive AWS partner ecosystem so you can find partners to help you with your workloads. And lastly, we touched upon **AWS Marketplace if you're looking for click-and-go services**.

## Quiz

Which action can you perform with consolidated billing?

- Combine usage across accounts to receive volume pricing discounts.

Which pricing tool is used to visualize, understand, and manage your AWS costs and usage over time?

- AWS Cost Explorer

Which pricing tool enables you to receive alerts when your service usage exceeds a threshold that you have defined?

- AWS Budgets

Your company wants to receive support from an AWS Technical Account Manager (TAM). Which support plan should you choose?

- Enterprise

Which service or resource is used to find third-party software that runs on AWS?

- AWS Marketplace

## Additional resources

To learn more about the concepts that were explored in Module 8, review these resources.

- [AWS Pricing](#)
- [AWS Free Tier](#)
- [AWS Cost Management](#)
- [Whitepaper: How AWS Pricing Works](#)
- [Whitepaper: Introduction to AWS Economics](#)
- [AWS Support](#)
- [AWS Knowledge Centre](#)