AWS

Introduction to AWS for Non-Engineers

Module 4

Billing and Pricing

Billing and Pricing domain

There are four domains in the AWS Certified Cloud Practitioner exam. They are

1. cloud concepts,
2. security,
3. technology, and
4. billing and pricing.

The four courses in the Introduction to AWS for Non-Engineers series follow these four domains. This course that you're watching now covers the fourth domain, billing and pricing. The billing and pricing domain makes up the smallest portion of the certification exam.

For this domain, you will need to be able to do a few things. First off, you need to be able to compare and contrast the various pricing models for AWS. Second, you need to recognize the various account structures in relation to the AWS billing and pricing. Finally, you need to identify resources available for billing support.

There are four different support plans available with fees separate from monthly usage fees. The monthly support plan fees range from free all the way to starting at $15,000 a month depending on how much support your organization requires from AWS.

There are also different types of charges that occur when utilizing the AWS Cloud, such as compute, storage and data out. And there are ways to save money when you're a multi-account organization with multiple AWS Cloud accounts under one roof called consolidated billing. Even though the billing and pricing domain is the smallest section by far in the exam, the questions pertaining to this domain are fairly nitty-gritty. So we want to make sure you are well prepared. Let's get started.

Billing concepts

You've decided to host your static website on AWS and registered a domain through Route 53, AWS's domain name system, and hosted your website on S3, a storage service. You've now got bills to pay for your AWS use, what do you do? Log into your AWS admin console and check out the Billing and Cost Management Dashboard.

The AWS Billing and Cost Management Dashboard allows you to estimate and plan your AWS costs. Through a service called consolidated billing, you can simplify your accounting if you have multiple AWS accounts. You can also receive alerts for service usage thresholds, which could help keep you from spending more money than anticipated.

You can utilize a feature called Cost Explorer to view your costs as graphs, filter results by values like availability zone, AWS Services, EC2 instance types, region, usage types, and much more. You can also see a forecast of potential costs based on historical usage data. You can even have AWS generate billing reports with a breakdown of your costs by the hour or month, by product or by tags for your organization's billing needs. As you begin to deep dive into AWS and start testing out and utilizing its services, the Billing and Cost Management Dashboard will become a very important ally in both making sure your services don't get turned off for any billing related reasons, and to keep tabs on costs.

Types of charges

One of the biggest alerts of cloud computing platforms is the pay-as-you-go model for resources. Instead of having the huge upfront cost of buying physical service and setting up a data center that has to be maintained. Cloud computing platforms like AWS only charge for resources as you use them. You can easily scale your resources up or down to suit your businesses demands and only be billed for the resources you consume.

The three fundamental drivers of costs with AWS are

- compute,
- storage, and
- outbound data transfer.

For compute resources, you pay hourly from the time you launch a resource until the time you terminate it. Think about virtual servers you would pay for the amount of time the server is up and running.

For data stores or transfer, you typically pay per gigabyte. An example would be storing profile images uploaded to your app for a social media application on the Cloud. You'll pay more if you have more users uploading images because you're using more space. In most cases, there are no charges for inbound data transfers or data transfers between different AWS services within the same region. This could be your social media application, saving the profile images to the

storage service, once the user clicks upload inside the app. Different services use different pricing models. For example, S3 AWS's storage service utilizes different prices by storage types. The most basic S3 storage type is the S3 Standard Storage. This storage type is the most expensive storage type because it boasts high availability and extremely low chances of data corruption. Even better, you can retrieve the data immediately. Compare this with S3 Glacier Storage, which is substantially cheaper, buffered a much lower price you must wait longer for the data to be retrieved and the availability is not as high. As a result the S3 Standard Storage is well suited for objects you will use often, like images live on a website, whereas S3 Glacier Storage will be better suited for backups of data for safekeeping. While S3 has different prices by storage types Aurora AWS has database service charges for storage and data input, and output. It's imperative even while using the AWS Free Tier to find out how AWS charges for service usage, so you aren't hit with surprise bills at the end of the month.

Consolidated billing

When a company embraces the cloud <u>and all of the infrastructure engineering teams</u> happily pounce onto AWS and begin building, a single company may end up with multiple AWS accounts. Maybe the development team wants to split up their production and test environments so there won't be any accidental deployments. Or maybe the marketing team wants their own instance for the company website. Other times it just might make sense for different projects to open different accounts to keep their billing responsibilities apparent. Whatever the reason may be, having multiple AWS accounts is likely a huge headache for the accounting team, when they need to keep track of all the accounts and numbers.

To make their lives easier, AWS introduces the consolidated billing option. As the name suggests, it allows an organization to create a payer account that views and pays combined billing charges for all linked accounts. It is strictly an accounting and billing account and can't use any other services. However, it's still an independent account, the account cannot deploy services into the linked accounts. Using consolidated billing comes with the great perk of all of the resource usage being considered part of one large organization. So even though they may be in separate accounts, the organization may be eligible for volume discounts for the combined usage. For busy organizations with many separate AWS accounts, consolidated billing is a must use for the accounting department to easily review and pay bills as well as take advantage of potential volume pricing discounts. Best of all, it's free!

Cost calculators

One of the most common questions people have about cloud services is how much will this cost? <u>Fortunately, AWS provides a few tools</u> to help estimate your costs. You'll be able to approximate your savings by moving from on-premises infrastructure to AWS cloud, as well as

your monthly AWS bill. When considering whether it makes financial sense to keep your on-premises IT infrastructure or to move it over to AWS cloud, you can plug your specific requirements in the AWS Total Cost of Ownership Calculator.

You can get detailed reports of estimated cost savings by modifying some assumptions to match your infrastructure. The total cost of ownership, also known as TCO, can be reduced by moving to the cloud, because you no longer need to invest in large capital expenditures by purchasing all the hardware and infrastructure up front. Rather, you will utilizing a pay-as-you-go model that allows you to invest capital, both financial and human, only when your business has a need. You can visit the AWS TCO Calculator by searching in your favorite search engine or by going directly to awstcocalculator.com.

Another calculator is the AWS Pricing Calculator, which used to be the simple monthly calculator. You can find this one at calculator.aws. And it helps you estimate the cost of a cloud architecture solution you're looking to build. You would add services and configurations to the calculator, which would provide a report with estimated totals per service, service group, and total infrastructure. You can utilize this service to compare service costs per region, reduce your EC2 spend, find the right EC2 instance for your needs, or estimate your overall AWS cloud spend. Cost Explorer is an AWS tool that enables you to view and analyze your cost in usage, forecast how much you'd likely spend, or get recommendations for what reserved instances to purchase to minimize costs. The Cost Explorer is part of the Billing and Cost Management Console dashboard. The pay-as-you-go model is one of the largest allures of moving your IT infrastructure into the cloud. And tools like the TCO Calculator and Pricing Calculator help you get a better idea about the potential costs for moving to the cloud.

AWS Free Tier

Are you excited to try out AWS Cloud and play with the services, but a little nervous about the potential costs associated with using it? Fear not, the AWS Free Tier is here for you. The AWS Free Tier allows potential customers to test out and become comfortable with many services offered by AWS Cloud for free. Most of the offers expire after 12 months, at which point you'll be charged for the services you consume at regular rates. As you near the expiration date of the Free Tier, you'll get a notification from AWS. You are then responsible for manually turning down or deleting the services for which you don't want to be charged.

You can find the Free Tier offerings by going to AWS.Amazon.com/free. Here, you'll notice that AWS has over 60 services available for use separated into three different types of offers. The three types of offers in AWS Free Tier are always free, 12 months free, and trials. First option is always free, which, as you might guess, shows services that are always free to use up to a certain point. There are generally usage limits after which point you must pay to use these services. The second option is 12 months free. These services are free for use, also generally up to a certain usage limit, for 12 months after your initial sign-up date. Some of the common uses limitations

are use time, number of requests, amount of storage, number of characters, and number of actions per month. Once you go above a usage limit, you'll be charged for the service you use, even if you're still within the first 12 months. The final type of Free Tier offerings are trials. Most of the trials are for less than 12 months and have stricter usage limits. The common limitations are use time, use of space or number of requests. The AWS Free Tier is a great opportunity to test out and learn about many of the core services that power the AWS Cloud, and I highly recommend that you go take advantage of the different offers.

Study Break: Billing and Pricing domain

Welcome to the billing and pricing study break. Let's review some of the concepts we learned about that will be good to know for the AWS Certified Cloud Practitioner Exam.

The AWS billing and cost management console is the go to a place to plan your AWS spending, simplify your accounts or consolidated billing and receive alerts for service uses this thresholds.

Cost explorer lets you get granular information about your AWS usage and generate billing reports with a breakdown of costs and usage.

The AWS billing and cost management console is an important part of making sure your AWS bills are expected and paid.

Additionally, the AWS pricing calculator and the AWS total cost of ownership calculator help you to evaluate how much running or migrating your it resources onto AWS Cloud could cost.

We just covered how to manage your billing. Now, let's cover the charges options provided by AWS.

The pay-as-you-go model of Cloud computing includes the different ways AWS charges you for your AWS Cloud resource usage.

The three fundamental ways you can be charged are compute, storage and outbound data transfer. Different services have different ways of charging and pricing. And in general, the more you do something compute store or transfer data, the cheaper per unit the action becomes. There are more ways that AWS services charge its users, but these are the three most common charges. You should always check the way service usage is charged before spinning up any resources in AWS Cloud that you have never used before, so that you aren't hit with surprised bills at the end of the month.

All of these charges, you may wonder, is there any way that I can save money? Yes, there is. Consolidated billing is one way of saving money, while making the administrative work of managing multiple AWS accounts within one organization much easier. Instead of manually

logging into each account owned by an organization to check usage and pay bills. The organization can create a billing only payer account that views and pays combined billing charges for all linked AWS accounts. One huge advantage of consolidated billing is that all resources used within the linked accounts are considered part of one large organization. This means that the organization as a whole maybe eligible for volume discounts for the combined usage instead of by account basis.

Basic

Support is something most organizations need to a varying degree. To address this need, AWS offers four types of support plans for all users and organizations on its platform, depending on their budget, level of engagement with AWS, and support requirements. The cost can range from free all the way up to starting at $15,000 a month with different kinds of resources and support at every level.

It's important to keep in mind that the cost of the plan does not include usage costs, so this is the monthly cost to have the support option in case you need AWS's technical support. In addition, you will be paying usage fees separately. The cheapest option is the Basic Support Plan which is absolutely free. This level of support is perfect for users learning about AWS who might be spending some time testing the services and functions out. It goes very well with the AWS Free Tier, which is a 12-month period after you create your AWS account when you can try out many of the core services for free. This support plan offers no tech support, but does provide access to the AWS community forums where you can ask technical questions to other AWS users and engineers. Sometimes engineers working for AWS may step in and provide guidance or resources. Their customer service is limited to account and billing questions. With the Basic Support Plan, you have access to the seven core Trusted Advisor checks and guidance to help provision your IT resources into AWS Cloud using best practices. You also get a personalized view of the health of AWS Services and receive alerts when your resources are impacted through AWS Personal Health Dashboard. Since you won't have access to technical support from AWS, the Basic Support Plan is great for organizations or people testing out AWS without any mission-critical resources on the platform.

Developer

If you are in need of more support than the basic plan can offer, the next step up is the Developer Plan. The Developer Plan starts at $29 a month and scales with use. Scaling is the concept that an infrastructure grows and shrinks with your projects or needs. In this case, the plan starts at $29 a month but the ultimate monthly bill scales up with different bells and whistles added to fit your specific needs. AWS will charge you either $29 a month, or 3% of your AWS use costs, whichever is larger. This Developer Plan Support is perfect for people and

organizations experimenting with AWS at a higher intensity than those using the Basic Level Support Plan, and may require a bit more technical assistance. One person in the organization is specified as a primary contact and they can ask technical questions through the support portal. This person can open an unlimited number of cases, and technicians will respond during business hours via email.

The SLA, or service-level agreement, defines the amount of time it will take before a technician will respond to a support case. For the Developer Support Plan, AWS commits to a technician following up within 12 hours for an impaired system or 24 hours for general guidance. Those typically on a Developer Plan will be testing out features and potentially deploying prototypes and resources to see if they are good fits for their organization's goals. Because they are digging deeper into how the AWS Services work, assessing them for viability within their IT infrastructure, having technical support is important. However, since they are not yet fully committed to AWS, they don't want to pay the higher fees associated with the higher level support plans. One thing to keep in mind is that the technical support is not anywhere near immediate, so this plan is not ideal for production use of resources where service failures could have severe business impact.

Business

The third Support tier is the Business Support Plan, <u>which is an ideal plan for those who use AWS in production.</u> The fees associated with the Support Plan begin at $100 a month, and scale up with use. AWS will charge you the higher value of 100 a month, or anywhere from 3 to 10% of your monthly AWS bill when you select this Support Plan. You can find out more by accessing aws.amazon.com/premiumsupport/plans.

An unlimited numbers of users in your organization, called contacts, can open an unlimited number of Technical Support cases at the Support Center. You also have access to the AWS Support API for support case automation. With Support API access, your developer team can retrieve detailed information about support operations and data types in JSON format. If you are subscribed to the Business Support Plan, you have access to the full suite of AWS Trusted Advisor checks, instead of just the seven core checks that come with the basic and developer plan. Trusted Advisor checks, whether basic or full suite, help you optimize your IT infrastructure hosted on the AWS Cloud. You can also retrieve lists of checks, check results, and refresh status of checks using AWS Support API mentioned earlier.

For an additional fee, you also get access to Infrastructure Event Management, which helps you plan for large-scale events, ranging from mobile app launches to IT infrastructure migrations into AWS Cloud. AWS provides planning assistance and real-time support during your event so you can proceed with confidence. The Business Support Plan also provides support for common third-party application stack components, operating systems, and platforms. AWS's support team will provide guidance, configuration support, and troubleshooting of AWS

interoperability with many other third-party software. SLA for tickets in the Business Support Plan is 24/7 support via phone, email, and chat, and they strive to provide one-hour response time to your urgent support cases when a production system is down. The Developer Support Plan only offers email and Support Center support, whereas the Business Support Plan allows you to contact them via phone and chat as well. The Business Level Support Plan is the best bang for buck in terms of cost versus the level of support provided compared with other Support plans.

Enterprise

The fourth support tier is the Enterprise Support Plan, which is an ideal plan for those with mission-critical use of AWS. It comes with 24/7 technical support via email, chat and phone and has an SLA of 15 minutes for business-critical support cases with priority. Your organization can have unlimited number of contacts who can open an unlimited number of support cases. Like the Business Support Plan, Enterprise Support Plan comes with a full set of Trusted Advisor best practice checks, AWS Support API access, and third-party software support.

The Enterprise Support Plan is the only tier that provides Technical Account Manager, or TAM, and Support Concierge access. TAMs provide proactive best practices guidance which helps you develop and run your AWS infrastructure efficiently. This includes proactively monitoring your infrastructure and helping you optimize it. Support Concierge provides account and billing analysis to help you cut service fees. The support plan also provides various proactive programs like Infrastructure Event Management, which was for an additional fee with the Business Support Plan, but is complimentary with the Enterprise Support Plan. They also provide Well-Architected Reviews, which are detailed reviews of your architecture to guide you on how to best design your systems. They also provide Architecture Support to help you better align your infrastructure with AWS. And operations support which provides reviews of your operations and provide advice for optimization.

On top of this, AWS provides training by way of self-paced online labs provided through an AWS training provider. For all these perks and speedy service, you are looking at price tags starting at $15,000 a month. With the Enterprise Support Plan, AWS charges you for the higher of $15,000 a month or three to 10% of your monthly AWS usage bill. The Enterprise Plan is great for big organizations with mission-critical use of AWS who cannot afford to have long-standing downtime. They would also need to have fairly big wallets too, as the starting price of $15,000 a month does not include the usage charges for the AWS service being utilized.

Which one's best for you?

Which support plan should you choose for the AWS Certified Cloud Practitioner exam? If you're going to be taking the AWS Certified Cloud Practitioner exam, knowing what type of support plan is best for a sample organization's needs and budget is a question that comes up a lot. As

we just learned, support plan prices can very drastically, from free to over $15,000 a month. And the type and speed of support also vary from tier to tier. When considering exam questions about appropriate support plans, you need to balance the support needs with the potential funding available.

Let's try a sample question: Company Y is a mid-sized company looking to migrate their IT infrastructure into the cloud. They are shopping around for the right fit and testing different cloud computing platforms. They have a deadline in choosing the platform, so they would like to test things out efficiently, but also without spending too much money. Which support plan should they choose? Take a stab at this question. Should they choose Basic, Developer, Business or Enterprise Support Plan?

The answer will be Developer Support Plan. They are just in a testing phase and don't want to spend a lot of money, but they also don't want to spend too much time poking around and figuring things out, so they would like some level of technical support for questions. The Developer Support Plan gives you 12 to 24 hour SLA for one technical contact to open as many tickets as they want for just $29 a month. The Basic Plan only allows you to ask questions at the support forum where you may or may not get a response, so it would not be a very efficient way to evaluate the platform for corporate use. Of course, Business and Enterprise Support Plans provide a lot of support but also come with heftier price tags. If they are just testing the services out, there's really no need for a full-blown business account, much less an enterprise account. What do you think, how about your company? Can you identify a support plan that would fit its current needs for IT infrastructure?

Study break: Reviewing AWS support plans

For this study break, let's review the four different support plans available for AWS Cloud. Questions about the AWS Support Plans appear in the AWS Certified Cloud Practitioner exam. So it's important to understand the differences and similarities between the four options, if you're looking into taking the exam.

Organizations can choose a support plan based on their budget, level of engagement with AWS, and support requirements. One important thing to remember when considering support plans in real use case scenarios, is that it is a separate charge from your usage cost.

The four different support plans are Basic, Developer, Business and Enterprise Support Plans.

The Basic Support Plan has no monthly fees and is a great way for both organizations and users to test out and learn about the AWS Cloud and to evaluate the different services and functions. With this plan, you will not be able to receive any tech support aside from access to the AWS Community Forums, or you can pose questions for other users. You can receive customer service for account and billing questions directly from AWS. The Basic Support Plan is best for organizations without any mission critical resources hosted on AWS Cloud.

The Developer Support Plans starts at $29 a month and scales with use. You will be charged either $29 a month or 3% of your AWS monthly usage cost, whichever is larger. So if 3% of your monthly AWS cost is less than $29, you'll receive a flat $29 bill. If it's larger than $29, you'll pay the larger fee. This plan is great for organizations that are experimenting with AWS in a more serious way for potential mission critical usage, and require more technical assistance than what the community forum can offer with the Basic Support Plan. However, the technical support is not immediate, so this plan is not ideal for production or mission critical use of AWS, where service failures could lead to business disruption.

The Business Support Plan starts at $100 a month and scales with use. As with the Developer Support Plan, AWS will charge you the higher value of either $100 a month, or between 3% to 10% of your monthly AWS bill. You can receive 24/7 tech support and for a fee could receive additional services like infrastructure event management. The Billing Support Plan is often considered the best bang for buck in terms of monthly cost versus the level of support compared with other support plans.

Finally, the Enterprise Support Plan. It comes with a hefty price tag starting at $15,000 a month and scaling with use. As with the Business Support Plan AWS charges the higher of the static fee, or 3% to 10% of monthly AWS usage bill This plan comes with all the bells and whistles, including a technical account manager, support concierge, proactive programs, well architected reviews and training, along with 24/7 tech support with a service level agreement or SLA of 15 minutes for emergencies. The Enterprise Support Plan is great for large organizations with substantial mission critical usage of AWS that cannot afford to have long standing downtime of their infrastructure. Remember, the support plan cost of $15,000 and up is an addition to the AWS usage bill. Aside from the costs and AWS use cases, there are more nitty gritty features and options with each support plan. Some options include number of contacts that can open support cases, and what the service level agreements or SLAs are for number of tickets.

Most of the questions about support plans are evaluating your ability to pick an appropriate support plan.

Study break: Exam tips and resources

 Of the four domains in the AWS Certified Cloud Practitioner Exam, the Billing and Pricing domain has the smallest amount of content at 12% of the exam. However, the multiple choice questions on the exam require you to know the concepts inside and out. Especially important is the ability to compare and contrast the different support plans.

The first thing you need to be able to do is compare and contrast the various pricing models for AWS. The questions could ask about the different ways AWS charges for resource usage, with the most fundamental ones being compute, storage, and data transfer out. It may also require you to realize that for many AWS services, the more you do something, such as storage or

compute, the cheaper per unit the action becomes. So, transferring 50 gigabytes of data may be cheaper per kilobyte of transfer than transferring just 400 megabytes of data. Another component of this domain is to recognize the various account structures in relation to AWS billing and pricing.

Questions about this section could be asking about consolidated billing, which helps lower organizational cost as a whole by creating a billing-only account that links all AWS accounts together within the organization. By doing so, the organization may be eligible for volume discounts by combining their resource usage from all the accounts.

The questions could also ask about different support plans and ask you to identify the most suitable support plan for a certain situation. There are four support plans available from AWS ranging in monthly fees from free to starting at $15,000 a month. The monthly fees do not include the monthly AWS usage costs, which are billed separately. The basic support plan is free and goes very well with the AWS free tier offer, which is 12 months of free service usage offered for new customers. And for the three plans that have monthly fees, AWS bills you for the higher of the monthly flat fee or somewhere between three to 10% of monthly AWS usage.

Are you thinking, "well, which is more expensive, "the business support plan or developer support plan?"

A silly memory aid that I came up with to memorize the four support plans in order of monthly cost was BDBE.

B for Basic, D for Developer, B for Business, and E for Enterprise.

The monthly prices and features provided go up in that order. Finally, you need to be able to identify resources available for billing support. These could be in the form of white papers, knowledge bases, contacting AWS Billing Support, or utilizing calculators like the AWS Cost Explorer, AWS Total Cost of Ownership Calculator, or the AWS Simple Monthly Calculator to find out how much you can expect to pay by running your resources on the AWS cloud.

How do you feel about your support plan compare and contrast skills? Or the different ways that you can be charged by AWS? If you have a few minutes, I highly recommend that you pick out a service like Amazon EC2, and search around the official AWS website for ways they bill for service usage and find out how you can reduce the cost of running that service. The best way to digest information is by testing it out, and you'll learn a lot from going out and trying to find the information yourself for future use.

Next steps

Well, that was a lot of information in such a short amount of time. I'm so glad you stuck with me to the end. I hope you not only learned a few things, but enjoyed the process too. If you are interested in learning more about Amazon Web Services, and even potentially taking the AWS Certified Cloud Practitioner exam. The courses cover the four domains of the AWS Certified Cloud Practitioner exam, which are cloud concepts, security, technology, which we refer to as core services, and billing and pricing. If you have questions or want to learn more about cloud computing and potential careers that work with or in cloud computing, please come visit Cloud Newbies, a community of cloud newbies and seasoned pros, where we learn about cloud computing and study for certifications together. You can visit us at cloudnewbies.com. If you're looking for a resource website, while you're beginning your research into Amazon Web Services, you can visit me at awsnewbies.com, where I introduce cloud computing and AWS in a jargon-free way. Thanks again for watching and I hope to see you again in one of my other courses or resources. Good luck!