EPAM University Programs

DevOps external course

Module 2 Virtualization and Cloud Basic

TASK 2.3

1. Ознайомтесь з умовами безкоштовного використання AWS Free Tier

https://docs.aws.amazon.com/en\_us/awsaccountbilling/latest/aboutv2/billing-

free-tier.html та можливостями контролю власних витрат.

2. Перегляньте 10-хвилиннй приклад Launch a Linux Virtual Machine.

https://aws.amazon.com/getting-started/tutorials/launch-a-virtual-

machine/?trk=gs\_card. Повторити дії, створити власну VM в хмарі AWS та

підключитись до неї. Рекомендовано використати інстанс t2.micro та операційну

систему CentOS.

3. Перегляньте 10-хвилиннй приклад Store and Retrieve a File

https://aws.amazon.com/getting-started/tutorials/backup-files-to-amazon-

s3/?trk=gs\_card. Повторити дії, створивши власне сховище.

4. Перегляньте 10-хвилиннй приклад https://aws.amazon.com/ru/getting-

started/tutorials/launch-a-wordpress-website/. Повторити дії, створити власний

сайт.

5. Перегляньте 10-хвилиннй приклад https://aws.amazon.com/ru/getting-

started/tutorials/get-a-domain/. Вивчити можливості створення власного домену

та доменного імені для свого сайту.

6. Перегляньте 10-хвилиннй приклад https://aws.amazon.com/ru/getting-

started/tutorials/backup-to-s3-cli/. Створити користувача AWS IAM, налаштувати

CLI AWS та завантажити будь-які файли в S3.

7. Створити статичний сайт в S3, доступний публічно. Розмістити на сторінці власне

фото, назву тренінга та перелік сервісів AWS з якими працював студент в межах

тренінгу чи раніше.

1. AWS give 12 months of free using their services without any charge. You can also try out services for developers, such as AWS CodePipeline, AWS Data Pipeline, and AWS Device Farm.

12 months tier have some limits and if your usage exceeds the limits AWS take charge for it.

To avoid charges while on the Free Tier, you must keep your usage below the Free Tier limits.

All services that offer a Free Tier have limits on what you can use without being charged. Amazon S3 has a limit on how much storage you can use and on how often you can call certain operations each month. For example, the Free Tier covers the first 20,000 times you retrieve a file from Amazon S3, but you're charged for additional file retrievals. Each service has limits that are unique to that service.

In Billing and Cost Management console we can find charges for using AWS services

2. Amazon Elastic Compute Cloud (EC2) — use for create and launch virtual machine in cloud.

For create and launch:

1. Create an Amazon Lightsail Account

2. Create an Amazon Linux instance in Lightsail(Choose Create instance in the Instances tab of the Lightsail home page)

3. Configure your Amazon Lightsail instance()

* An AWS Region and Availability Zone is selected for you. Choose Change Region and Availability Zone to create your instance in another location.
* Choose the Linux/Unix platform option, and choose OS only to view the operating system-only instance images available in Lightsail.
* Choose the Amazon Linux blueprint option
* (Optional) Choose Add launch script to add a shell script that will run on your instance when it launches.
* (Optional) Choose Change SSH key pair to select, create, or upload the key pair you would like to use to SSH into your instance.
* (Optional) Choose Enable Automatic Snapshots to automatically create a backup image of your instance and attached disks on a daily schedule.
* Choose your instance plan. You can try the $3.50 USD Lightsail plan free for one month (up to 750 hours). We'll credit one free month to your account.
* Enter a name for your instance.
* (Optional) Choose one of the following options to add tags to your instance:
  + (Optional) Add key-only tags— Enter your new tag into the tag key text box, and press Enter. Choose Save when you’re done entering your tags to add them, or choose Cancel to not add them.
  + (Optional) Create a key-value tag— Enter a key into the Key text box, and a value into the Value text box. Choose Save when you’re done entering your tags, or choose Cancel to not add them.
* Chose Create instance

After that you can try connect to your machine.

3. Amazon S3 is a service that enables you to store your data (referred to as *objects*) in at massive scale.

For confugure:

* Enter the Amazone S3 console
* Create an S3 Bucket
  + In the S3 dashboard, click Create Bucket.
  + Enter a bucket name. Bucket names must be unique across all existing bucket names in Amazon S3. Then select a region to create your bucket in.
  + Select options if need
  + Set permission settings for your S3 bucket(use default or select by yourself)
  + Review your configuration settings and select Create bucket.

After that you can Add file, Delete file in your S3 bucket or Delete your S3 bucket .

4. With Amazon EC2 you can create your own site.

For create:

* Sign into the Lightsail console.
* On the Instances tab of the Lightsail home page, choose Create instance.
* Choose the AWS Region and Availability Zone for your instance.
* Choose your instance image.
  + Choose Linux/Unix as the platform.
  + Choose WordPress as the blueprint.
* Choose an instance plan
* Enter a name for your instance.
* Choose Create instance

Connect to your instance:

* On the Instances tab, choose the SSH quick-connect icon for your WordPress instance.
* Enter the following command to retrieve the default application password:

$HOME/bitnami\_application\_password

* Make note of the password displayed on the screen.

### Sign in to the administration dashboard of your WordPress website

* In a browser, go to: http://PublicIpAddress/wp-login.php
* Log into your instance.

### Create a Lightsail static IP address and attach it to your WordPress instance

* On the Instances tab choose your running WordPress instance.
* Choose the Networking tab, then choose Create static IP.
* The static IP location, and attached instance are pre-selected based on the instance that you chose earlier.
* Name your static IP, then choose Create.

### Create a Lightsail DNS zone and map a domain to your WordPress instance

* On the Networking tab choose Create DNS zone.
* Enter your domain, then choose Create DNS zone.
* Make note of the name server address listed on the page.
* After management of your domain’s DNS records are transferred to Lightsail, add an A record to point the apex of your domain to your WordPress instance, as follows:

You add these name server addresses to your domain name’s registrar to transfer management of your domain’s DNS records to Lightsail.

1. In the DNS zone for your domain, choose Add record.

2. In the Subdomain box, enter an @ symbol to map the apex of your domain to your instance.

3. In the Maps to box, choose the static IP that you attached to the WordPress instance in the previous step of this tutorial.

4. Choose the save icon.

Allow time for the change to propagate through the internet's DNS before your domain begins routing traffic to your WordPress instance.

5. To register domain name use Amazon Route 53

There's an annual fee to register a domain, ranging from $9 to several hundred dollars, depending on the top-level domain, such as .com.

* Open the *Elastic IP*s part of the *EC2 console* in a new window and click Allocate New Address.
* Set *EIP used in:* to VPC and click Yes, Allocate.
* Note your new *IP address* and click Close.
* Select the new IP address in the *Elastic IP* column. Press the Actions button and choose the Associate Address option.
* Click in the Instance text box and choose the option that has your instance name.
* Make a note of your new IP address in the *Elastic IP* column.

Verify that your new Elastic IP address is working by typing it into your web browser.

Register a Domain Name:

* Open the Route 53 console
* Select Get Started Now under *Domain Registration*.
* Click the Register Domain button. On the next screen, enter the domain you want in the *Choose a Domain* box, then select a Top Level Domain (TLD). And click the Check button to see if the domain is available. If the domain is available, click the Add to cart button and scroll to the bottom of the page to click Continue.
* Enter your Contact Details.
* Review the details as they are listed and, if they are correct, check the box titled *I have read and agree to the AWS Domain Name Registration Agreement*. Then click the Complete Purchase button.
* If you registered a domain that has a generic top-level domain(such as .com), you'll receive an email that asks you to confirm your email address.

## Configure DNS:

* Open the *Hosted Zones* part of the Route 53 console, click on the domain name you created
* Click the Create Record Set button. On the right side of the window, enter www in the *Name* text box. Enter the Elastic IP address you created in the *Value* box and then click Create.
* Verify that you have a new entry in the main table with the value you entered.
* Verify that your website is now available at your new domain by typing your new website address into your web browser

6. Create an AWS IAM User:

* Open AWS management console. Then type IAM in the search bar and select IAM to open the Identity and Access Management dashboard.
* From the AWS Identity and Access Management dashboard, click on Users
* Click the Add user button.
* Enter a user name in the textbox next to *User name* and select Programmatic access in the Select AWS Access Type section. Click the Next: Permissions button.
* Click on Attach existing policies directly option. Select AdministratorAccess then click Next: Review.
* Click on Create user.
* Click the Download Credentials button and save the *credentials.csv* file in a safe location and then click the Close button.

Install the AWS Command Line Interface (CLI):

* Select PC or Mac/Linux
* For Windows Download and run the Windows installer
* open cmd and type aws configure
* *AWS Access Key ID [None]:* enter the Access Key Id from the credentials.csv

*AWS Secret Access Key [None]:* enter the Secret Access Key from the credentials.csv

*Default region name [None]:* enter us-east-1

*Default output format [None]:* enter json

For Linux:

* Download and install awscli2
  + curl "https://awscli.amazonaws.com/awscli-exe-linux-x86\_64.zip" -o "awscliv2.zip"
  + unzip awscliv2.zip
  + sudo ./aws/install
* In terminal:
  + aws configure
  + AWS Access Key ID [None]: enter the Access Key Id from the credentials.csv

AWS Secret Access Key [None]: enter the Secret Access Key from the credentials.csv

Default region name [None]: enter us-east-1

Default output format [None]: enter json

After that you can use awscli.

7.

* Create account on Amazone
* Register a Custom Domain with Route 53
* Create Two Buckets:
  + Domain bucket
  + Subdomain bucket
* Configure Your Root Domain Bucket for Website Hosting
* Configure Your Subdomain Bucket for Website Redirect
* Configure Logging for Website Traffic
* Upload Index and Website Content
* Edit Block Public Access Settings
* Attach a Bucket Policy
* Add Alias Records for Your Domain and Subdomain

After this site must be reacheble.

For make this task was used AWS such as:

* Amazon Elastic Compute Cloud (EC2)
* Amazon S3
* Amazon Route 53