

Выполнение домашнего задания по модулю AWS

RDS

В качестве RDS был создан инстанс MySQL со следующим id: vkuvshinov-25stream-wp

В качестве vpc была выбрана ветка default и security zone: by-ru

Рис 1. Общая информация об RDS

DB instance ID vkuvshinov-25stream-wp	Instance class db.t2.micro	Encryption Not enabled	Performance Insights enabled No
Engine version 8.0.28	vCPU 1	Storage type General Purpose SSD (gp2)	Database activity stream
DB name wordpress	RAM 1 GB	Storage 20 GiB	Status Stopped
License model General Public License	Availability	Provisioned IOPS -	
Option groups default:mysql-8-0 In sync	Master username [REDACTED]	Storage autoscaling Enabled	
Amazon Resource Name (ARN) arn:aws:rds:eu-central-1:156001095759:db:vkuvshinov-25stream-wp	IAM DB authentication Not enabled	Maximum storage threshold 1000 GiB	
Resource ID db-MRSDJH27PNZE5PXPEK3Q5YBT34	Multi-AZ No		
Created time April 13, 2022, 05:10 (UTC+5:10)	Secondary Zone -		
Parameter group default.mysql8.0 In sync			
Deletion protection Enabled			

Более подробная информация представлена на скриншотах 1-2.

AWS Home Task

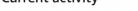
Summary			
DB identifier	CPU	Status	Class
vkuvshinov-25stream-wp	-	⌚ Stopping	db.t2.micro
Role	Current activity	Engine	Region & AZ
Instance	 0 Connections	MySQL Community	eu-central-1a
Connectivity & security			
Monitoring	Logs & events	Configuration	Maintenance & backups
Tags			
Connectivity & security			
Endpoint & port		Networking	Security
Endpoint	vkuvshinov-25stream-wp.cyivsvklcv5h.eu-central-1.rds.amazonaws.com	Availability Zone eu-central-1a	VPC security groups  -by-ru (sg-0a8b5db...dcca42a) ⌚ Active
Port	3306	VPC vpc-6c6dfe06	Publicly accessible No
		Subnet group default-vpc-6c6dfe06	Certificate authority rds-ca-2019
		Subnets subnet-2965d455 subnet-dc4a30b6 subnet-18068254	Certificate authority date August 22, 2024, 10:08 (UTC±10:08)

Рис 2. Информация о коннективностях

EFS

Также была создана файловая система EFS, которая в дальнейшем была подключена к директории /var/www/html/wp-content/uploads, целью хранения файлов, загружаемых в виде контента.

General	
Performance mode	Automatic backups
General Purpose	<input checked="" type="checkbox"/> Enabled
Throughput mode	Encrypted
Bursting	59f4b6e3-980d-4502-8afd-10a64b822ce4 (aws/elasticfilesystem)
Lifecycle management	File system state
Transition into IA: 30 days since last access	<input checked="" type="checkbox"/> Available
Transition out of IA: On first access	DNS name
Availability zone	 fs-046377ffe449873fd.efs.eu-central-1.amazonaws.com
Regional	

EC2

Были созданы 2 EC2-инстанса в разных подсетях.

Instances (1/2) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
wp_node_2_v...	i-0b742dc79bc576051	Stopped	t2.micro	-	No alarms	eu-central-1a	-

Instance: i-0f42f84df0af556c3 (wp_node_1_vkuvsh)

Networking details

Public IPv4 address	Private IPv4 addresses	VPC ID
3.68.74.153 open address	172.31.38.29	vpc-6c6dfe06
Public IPv4 DNS	Private IP DNS name (IPv4 only)	Subnet ID
ec2-3-68-74-153.eu-central-1.compute.amazonaws.com open address	ip-172-31-38-29.eu-central-1.compute.internal	subnet-2965d455
IPV6 addresses	Secondary private IPv4 addresses	Availability zone
-	-	eu-central-1b
Carrier IP addresses (ephemeral)	Outpost ID	Use RBN as guest OS hostname
-	-	Disabled
Answer RBN DNS hostname IPv4		

Instances (1/22) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
wp_node_2_v...	i-0b742dc79bc576051	Stopped	t2.micro	-	No alarms	eu-central-1a	-
Wordpress_A	i-0c42e4ee4657f147b	Stopped	t2.micro	-	No alarms	eu-central-1a	-
wordpress1	i-0a108fc3da03694cd	Running	t2.micro	2/2 checks passed	No alarms	eu-central-1a	ec2-18-

Instance: i-0b742dc79bc576051 (wp_node_2_vkuvsh)

You can now check network connectivity with Reachability Analyzer.

Networking details

Public IPv4 address	Private IPv4 addresses	VPC ID
-	172.31.30.85	vpc-6c6dfe06
Public IPv4 DNS	Private IP DNS name (IPv4 only)	Subnet ID
-	ip-172-31-30-85.eu-central-1.compute.internal	subnet-dc4a30b6
IPV6 addresses	Secondary private IPv4 addresses	Availability zone
-	-	eu-central-1a
Carrier IP addresses (ephemeral)	Outpost ID	Use RBN as guest OS hostname
-	-	Disabled

После создания на инстансах была выполнена установка Wordpress с использованием следующих команд:

```
amazon-linux-extras install -y php7.2 # Install Amazon Linux
yum install -y httpd
systemctl start httpd
systemctl enable httpd
usermod -a -G apache ec2-user
chown -R ec2-user:apache /var/www
cd /var/www/html
curl -O https://raw.githubusercontent.com/wp-cli/builds/gh-pages/phar/wp-
cli.phar
chmod +x wp-cli.phar
php wp-cli.phar core download
chmod 2775 /var/www && find /var/www -type d -exec sudo chmod 2775 {} \;
find /var/www -type f -exec sudo chmod 0664 {} \;
```

Затем было выполнено монтирование EFS к директории
/var/www/html/wp-content/uploads при помощи следующих команд:

```
yum install -y amazon-efs-utils
yum install -y nfs-utils
```

```
file_system_id_1=fs-046377ffe449873fd
efs_mount_point_1=/var/www/html/wp-content/uploads
mkdir -p "${efs_mount_point_1}"
test -f "/sbin/mount.efs" && printf "\n${file_system_id_1}:/ ${efs_mount_point_1} efs
tls,_netdev\n" >> /etc/fstab || printf "\n${file_system_id_1}.efs.eu-central-
1.amazonaws.com:/ ${efs_mount_point_1} nfs4
nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport,_n
etdev 0 0\n" >> /etc/fstab
test -f "/sbin/mount.efs" && grep -ozP 'client-info]\nsource' '/etc/amazon/efs/efs-
utils.conf'; if [[ $? == 1 ]]; then printf "\n[client-info]\nsource=liw\n" >>
/etc/amazon/efs/efs-utils.conf; fi; retryCnt=15; waitTime=30; while true; do mount -a -
t efs,nfs4 defaults; if [ $? = 0 ] || [ $retryCnt -lt 1 ]; then echo File system mounted
successfully; break; fi; echo File system not available, retrying to mount.; ((retryCnt--));
sleep $waitTime; done;
```

```
[ec2-user@ip-172-31-38-29 ~]$ cat /etc/fstab
#
UUID=008cdb03-aa96-41b3-8e92-b11c5b511efd    /          xfs    defaults,noatime 1  1

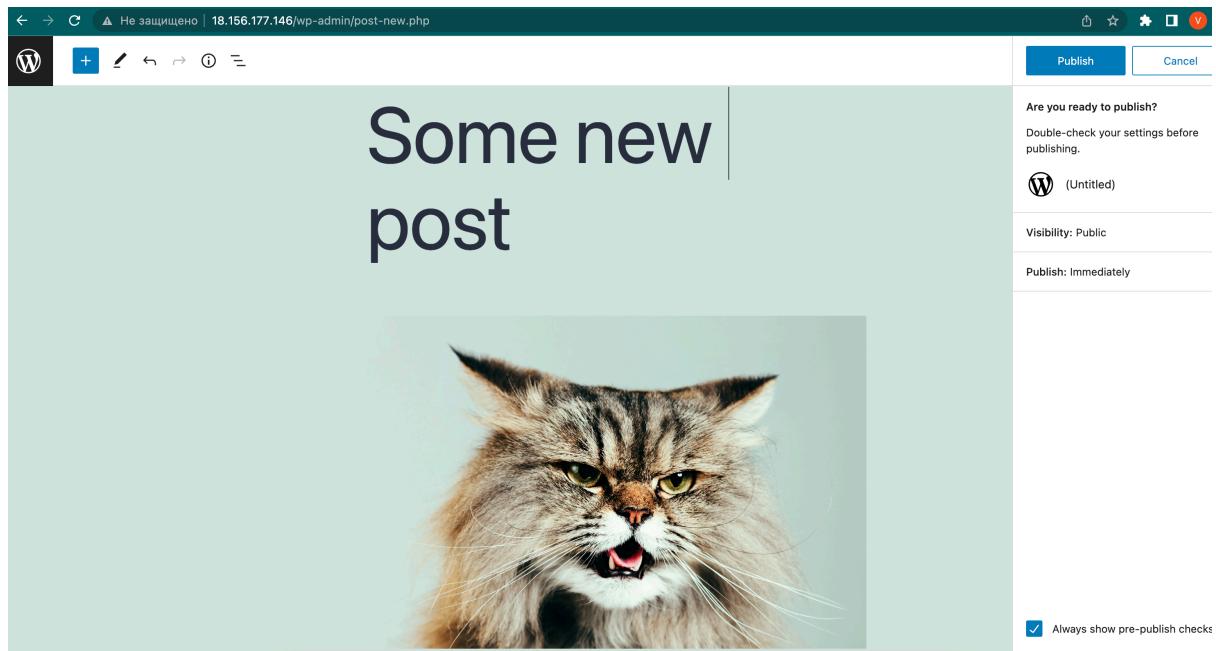
fs-046377ffe449873fd:/var/www/html/wp-content/uploads efs tls,_netdev
[ec2-user@ip-172-31-38-29 ~]$
```

Рис 3. Примонтированный каталог

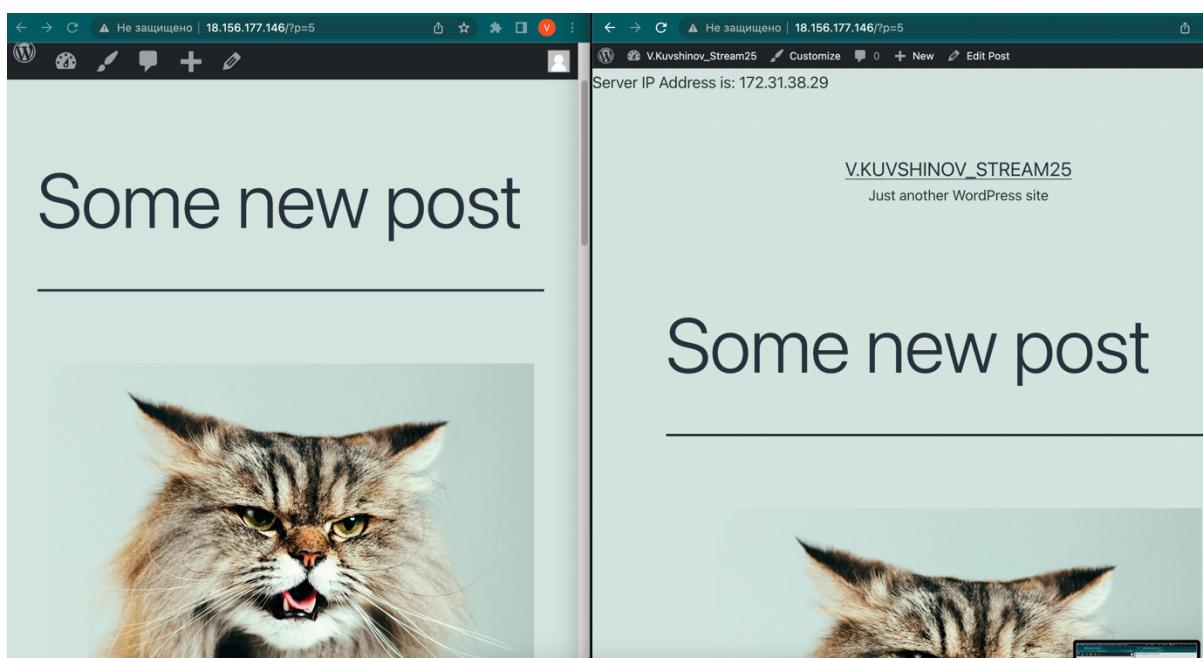
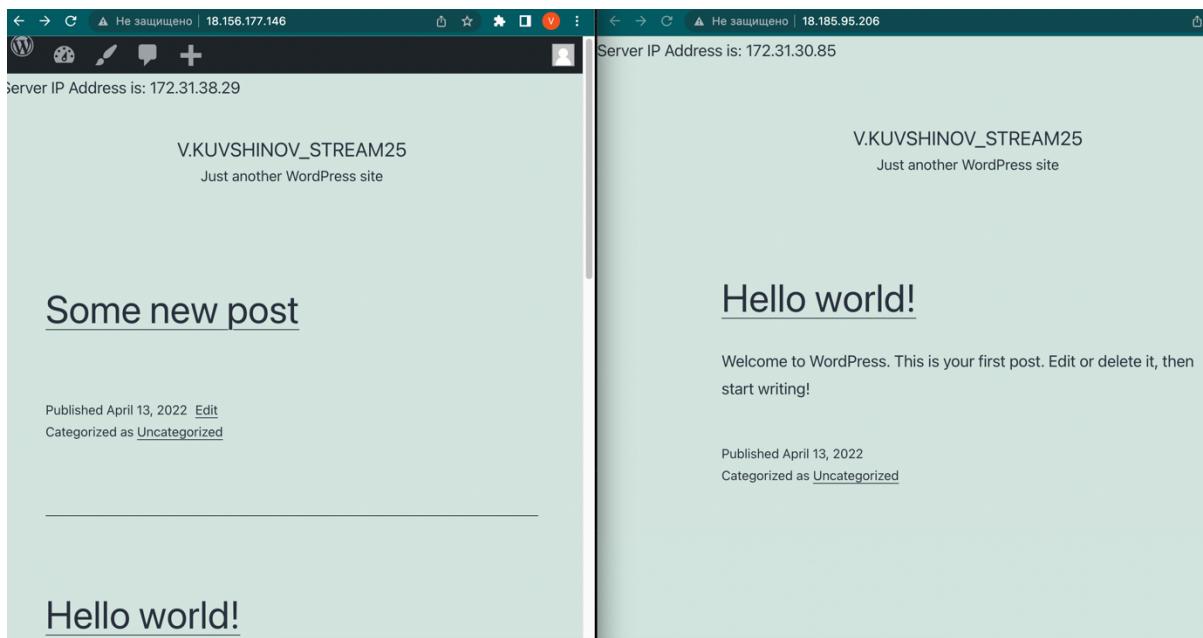
Также при запуске было выполнено подключение к созданному RDS-инстансу с использованием endpoint.

```
/** Database hostname */
define( 'DB_HOST', 'vkuvshinov-25stream-wp.cyivvsk1cv5h.eu-central-1.rds.amazonaws.com' );
```

После установки и настройки консоли в браузере была проверена работа EFS.



AWS Home Task



Load balancer

Первоначально была создана target-группа для проверок доступности приложения в корневом url.

The screenshot shows the AWS Elastic Load Balancing Target Groups page. At the top, there is a header with the ARN: arn:aws:elasticloadbalancing:eu-central-1:156001095759:targetgroup/vkuvsh-stream25/025a7939cac8d628. Below the header, there is a table with the following details:

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-6c6dfe06
IP address type IPv4	Load balancer None associated		
Total targets 2	Healthy 0	Unhealthy 0	Unused 0
	Initial 2		Draining 0

Below the table, there are tabs: Targets (highlighted in orange), Monitoring, Health checks, Attributes, and Tags.

Registered targets (2)

<input type="checkbox"/>	Instance ID	Name	Port	Zone	Health status	Health status details
<input type="checkbox"/>	i-0b742dc79bc576051	wp_node_2_vkuvsh	80	eu-central-1a	initial	Target registration is in progress
<input type="checkbox"/>	i-0f42f84df0af556c3	wp_node_1_vkuvsh	80	eu-central-1b	initial	Target registration is in progress

Данная группа ссылается на instance id, и не зависит от привязки по ip.

После создания target-группы был создан load-balancer для нод wordpress.

The screenshot shows the AWS Elastic Load Balancing Load Balancers page. At the top, there is a search bar with the text 'search : vkuvshinov-alb-stream25' and a 'Actions' dropdown. Below the search bar, there is a table with the following data:

Name	DNS name	State	VPC ID	Availability Zones	Type	Cr...
vkuvshinov-alb-stream25	vkuvshinov-alb-stream25-71...	Provisioning	vpc-6c6dfe06	eu-central-1c, eu-centr...	application	Ap...

Below the table, there is a detailed configuration for the load balancer 'vkuvshinov-alb-stream25':

Basic Configuration

Name	vkuvshinov-alb-stream25
ARN	arn:aws:elasticloadbalancing:eu-central-1:156001095759:loadbalancer/app/vkuvshinov-alb-stream25/7511618344d794a4
DNS name	vkuvshinov-alb-stream25-71395421.eu-central-1.elb.amazonaws.com
State	Provisioning
Type	application
Scheme	internet-facing
IP address type	ipv4
VPC	vpc-6c6dfe06
Availability Zones	subnet-18068254 - eu-central-1c

AWS Home Task

Create Load Balancer Actions ▾

Name	DNS name	State	VPC ID	Availability Zones	Type
vkuvshinov-alb-stream25	vkuvshinov-alb-stream25-71...	Provisioning	vpc-6c6dfe06	eu-central-1c, eu-centr...	application

VPC: vpc-6c6dfe06

Availability Zones: subnet-18068254 - eu-central-1c (IPv4 address: Assigned by AWS)
subnet-2965d455 - eu-central-1b (IPv4 address: Assigned by AWS)
subnet-dc4a30b6 - eu-central-1a (IPv4 address: Assigned by AWS)

Edit subnets

Hosted zone: Z215JYRZR1TBD5

Creation time: April 13, 2022 at 5:52:43 PM UTC+5

Security

Security groups: sg-0a8b5db2a7dc4a2a, epam-by-ru
Belarus, Russia offices

Edit security groups

Balancer создавался в default vpc и с использованием ерам-by-ru security group. После старта балансера изначально была проведена проверка работы target group.

arn:aws:elasticloadbalancing:eu-central-1:156001095759:targetgroup/vkuvsh-stream25/025a7939cac8d628

Details					
Target type	Protocol : Port	Protocol version	VPC		
Instance	HTTP: 80	HTTP1	vpc-6c6dfe06		
IP address type	Load balancer				
IPv4	vkuvshinov-alb-stream25				

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	2	0	0	0	0

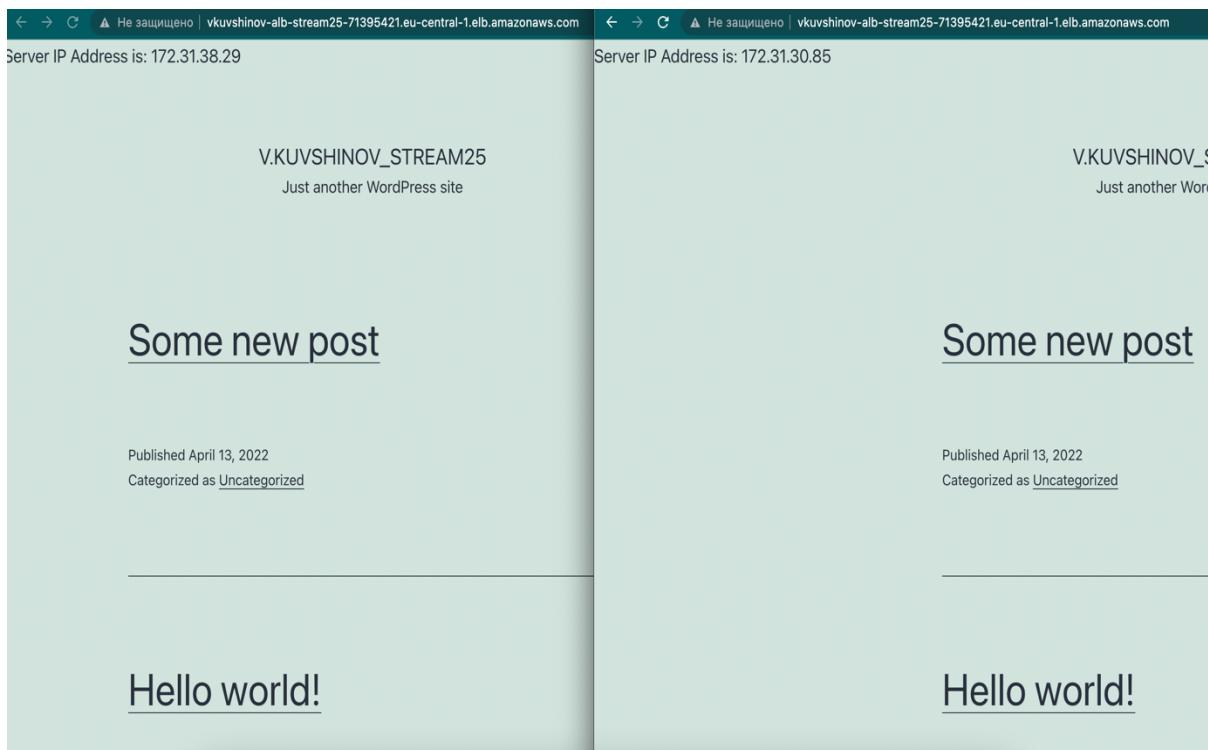
Targets | Monitoring | Health checks | Attributes | Tags

Registered targets (2)

Instance ID	Name	Port	Zone	Health status	Health status details
i-0b742dc79bc576051	wp_node_2_vkuvsh	80	eu-central-1a	healthy	
i-0f42f84df0af556c3	wp_node_1_vkuvsh	80	eu-central-1b	healthy	

После появления статуса healthy было проведено тестирование работы балансира.

AWS Home Task



Обращения проводились к доменному имени балансера, для удобства понимания разных нод в код wordpress был добавлен код, отображающий ip-адрес инстанса (`$ip_server = $_SERVER['SERVER_ADDR']; echo "Server IP Address is: $ip_server";`).

