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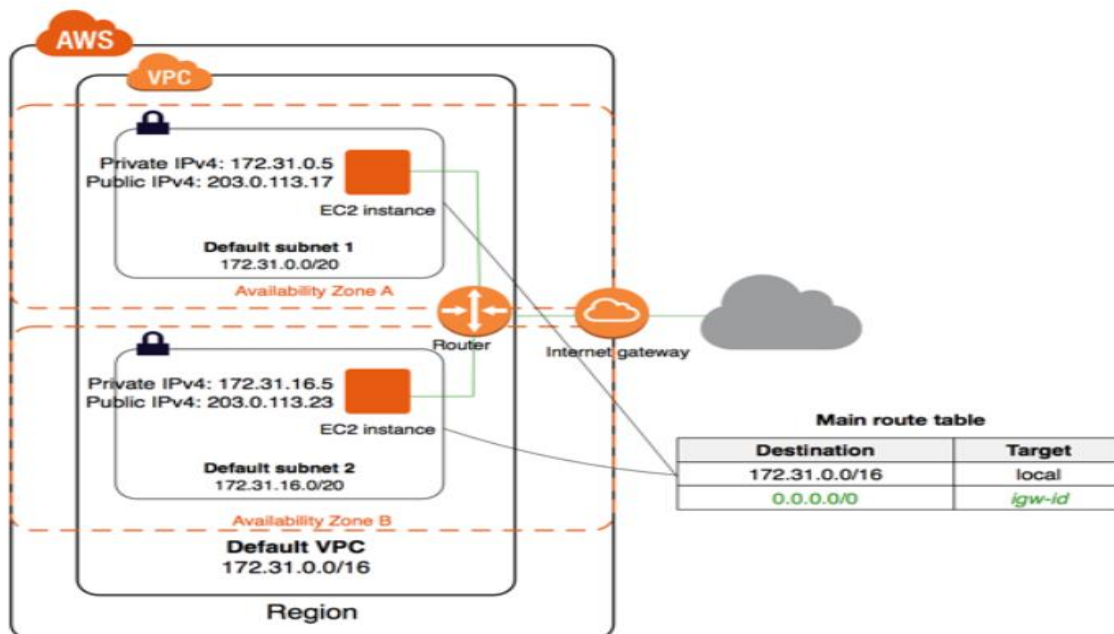
AWS VPC CLOUD INFRASTRUCTURE USING BASH & CLOUD FORMATION

VPC (EC2 INSTANCE) CLOUD INFRASTRUCTURE USING THE GIVEN RESOURCES

PART 1: CREATE VPC INFRASTRUCTURE USING CLI (BASH)

<mark>Constraints while developing the script</mark>

region="us-east-1"

vpcName="$1-ipa-vpc-1"

internetGatewayName="$1-ipa-InternetGateway-1"

vpc_cidr="10.0.0.0/16"

publicRouteTableName="$1-ipa-public-route-table"

privateRouteTableName="$1-ipa-private-route-table"

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```
ZONE1="us-east-1a"

ZONE2="us-east-1b"

ZONE3="us-east-1c"

PublicSubnet1="$1-ipa-public-subnet-1"

PublicSubnet2="$1-ipa-public-subnet-2"

PublicSubnet3="$1-ipa-public-subnet-3"

PrivateSubnet1="$1-ipa-private-subnet-1"

PrivateSubnet2="$1-ipa-private-subnet-2"

PrivateSubnet3="$1-ipa-private-subnet-3"
```

Firstly, we have developed a code using bash script and installed the aws cli on the terminal.

AWS VPC CREATION USING BASH :-

Shell script named as: IPA5360-aws-cf-create-stack.sh

```
[MacBook-Pro:bin shreyasbhagavath$ /Users/shreyasbhagavath/PycharmProjects/Cloud/IPA5360-aws-cf-create-stack.sh
Creating VPC in preferred region...
Enter VPC Name:
STACK_NAME-IPA5360-vpc
VPC ID 'vpc-0dc90386934ef12e4' created in 'us-east-1' region.
VPC ID 'vpc-0dc90386934ef12e4' named as 'STACK_NAME-IPA5360-vpc'.
Creating public subnet 1...
Enter Public Subnet 1:
10.0.1.0/24
Subnet ID 'subnet-0cdff8c327574a30a' created in 'us-east-1a' availability zone.
Subnet ID 'subnet-0cdff8c327574a30a' named as 'ipa-public-subnet-1'.
Creating public subnet 2...
Enter Public Subnet 2:
10.0.2.0/24
Subnet ID 'subnet-001a1ac19f4c2547d' created in 'us-east-1b' availability zone.
Subnet ID 'subnet-001a1ac19f4c2547d' named as 'ipa-public-subnet-2'.
Enter Public Subnet 3:
10.0.3.0/24
Creating public subnet 3...
Subnet ID 'subnet-0c840060d0f4cb6af' created in 'us-east-1c' availability zone.
Subnet ID 'subnet-0c840060d0f4cb6af' named as 'ipa-public-subnet-3'.
Creating private subnet 1...
Enter Private Subnet 1:
10.0.4.0/24
Subnet ID 'subnet-0a8aaac36a98c15da' created in 'us-east-1a' availability zone.
Subnet ID 'subnet-0a8aaac36a98c15da' named as 'ipa-private-subnet-1'.
Creating private subnet 2...
Enter Private Subnet 2:
10.0.5.0/24
Subnet ID 'subnet-05f75b320102b35f1' created in 'us-east-1b' availability zone.
Subnet ID 'subnet-05f75b320102b35f1' named as 'ipa-private-subnet-2'.
Creating private subnet 3...
Enter Private Subnet 3:
10.0.6.0/24
Subnet ID 'subnet-018998ea4bfb9c9ff' created in 'us-east-1c' availability zone.
Subnet ID 'subnet-018998ea4bfb9c9ff' named as 'ipa-private-subnet-3'.
Creating internet gateway...
Internet gateway ID 'igw-0da9ca8294f39b8a8' created.
Internet gateway ID 'igw-0da9ca8294f39b8a8' named as 'STACK_NAME-IPA5360-InternetGateway'.
Internet gateway ID 'igw-0da9ca8294f39b8a8' attached to VPC ID 'vpc-0dc90386934ef12e4'.
Creating route table...
Route table ID 'rtb-06240b0d687d10eb4' created
Public route table 'rtb-06240b0d687d10eb4' named as 'STACK_NAME-IPA5360-public-route-table'.
Creating route table...
Route table ID 'rtb-0a1410a30451000ff' created
Private route table 'rtb-0a1410a30451000ff' named as 'STACK_NAME-IPA5360-private-route-table'.
Route to '0.0.0.0/0' via internet gateway ID 'igw-0da9ca8294f39b8a8' added to route table ID 'rtb-06240b0d687d10eb4'.
Public subnet ID 'subnet-0cdff8c327574a30a' associated with route table ID 'rtb-06240b0d687d10eb4'.
Public subnet ID 'subnet-001a1ac19f4c2547d' associated with route table ID 'rtb-06240b0d687d10eb4'.
Public subnet ID 'subnet-0c840060d0f4cb6af' associated with route table ID 'rtb-06240b0d687d10eb4'.
Private subnet ID 'subnet-0a8aaac36a98c15da' associated with route table ID 'rtb-0a1410a30451000ff'.
Private subnet ID 'subnet-05f75b320102b35f1' associated with route table ID 'rtb-0a1410a30451000ff'.
Private subnet ID 'subnet-018998ea4bfb9c9ff' associated with route table ID 'rtb-0a1410a30451000ff'.
Successfully created VPC and all its Dependencies.
MacBook-Pro:bin shreyasbhagavath$ ▮
```

VPC BASH SCRIPT EXECUTION ON TERMINAL

Filter by tags and attributes or search by keyword |< < 1 to 2 of 2 > >|

	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set	Main Route table
		vpc-d7c248ad	available	172.31.0....	-	dopt-0092a67b	rtb-ff594880
■	STACK_NAME-IPA5360-vpc	vpc-0dc90386934ef12e4	available	10.0.0.0/16	-	dopt-0092a67b	rtb-02a5f522d5db81e16

Create subnet   Actions ∨   ↻ ⚙ ❓

Filter by tags and attributes or search by keyword |< < 1 to 12 of 12 > >|

	Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv
	ipa-public-subnet-2	subnet-001a1ac19f4c2547d	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.2.0/24	251
	ipa-private-subnet-3	subnet-018998ea4bfb9c9ff	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.6.0/24	251
		subnet-047d382a	available	vpc-d7c248ad	172.31.80.0/20	4091
	ipa-private-subnet-2	subnet-05f75b320102b35f1	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.5.0/24	251
	ipa-private-subnet-1	subnet-0a8aaac36a98c15da	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.4.0/24	251
	ipa-public-subnet-3	subnet-0c840060d0f4cb6af	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.3.0/24	251
	ipa-public-subnet-1	subnet-0cdff8c327574a30a	available	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5360-vpc	10.0.1.0/24	251
		subnet-3c4f3460	available	vpc-d7c248ad	172.31.32.0/20	4091
		subnet-6216266d	available	vpc-d7c248ad	172.31.48.0/20	4091
		subnet-76710f11	available	vpc-d7c248ad	172.31.0.0/20	4091
		subnet-cc323c86	available	vpc-d7c248ad	172.31.16.0/20	4091
		subnet-ce68eaf0	available	vpc-d7c248ad	172.31.64.0/20	4091

Create route table   Actions ∨   ↻ ⚙ ❓

Filter by tags and attributes or search by keyword |< < 1 to 4 of 4 > >|

	Name	Route Table ID	Explicitly Associated with	Main	VPC ID
		rtb-02a5f522d5db81e16	-	Yes	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5
	STACK_NAME-IPA5360-public-route-table	rtb-06240b0d687d10eb4	3 subnets	No	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5
	STACK_NAME-IPA5360-private-route-table	rtb-0a1410a30451000ff	3 subnets	No	vpc-0dc90386934ef12e4 | STACK_NAME-IPA5
		rtb-ff594880	-	Yes	vpc-d7c248ad

Create internet gateway   Actions ∨   ↻ ⚙ ❓

Filter by tags and attributes or search by keyword |< < 1 to 2 of 2 > >|

	Name	ID	State	VPC	Owner
		igw-07708e7c	attached	vpc-d7c248ad	947039964959
	STACK_NAME-IPA5360-InternetGateway	igw-0da9ca8294f3...	attached	vpc-0dc90386934...	947039964959

AWS VPC TERMINATION USING BASH :-

Shell script named as: IPA5360-aws-cf-terminate-stack.sh

```
MacBook-Pro:bin shreyasbhagavath$ /Users/shreyasbhagavath/PycharmProjects/Cloud/IPA5360-aws-cf-terminate-stack.sh vpc-0dc90386934ef12e4
Region us-east-1
Found default vpc vpc-0dc90386934ef12e4
Detaching and deleting internet gateway igw-0da9ca8294f39b8a8
Retrieve Route Table ID
First Route-Table ID: 'rtb-0a1410a30451000ff'
Second Route-Table ID: 'rtb-06240b0d687d10eb4'
Subnet and Public Route Table Disassociation
Completed
Subnet and Private Route Table Disassociation
Completed
Deleting subnet subnet-0c840060d0f4cb6af
Deleting subnet subnet-018998ea4bfb9c9ff
Deleting subnet subnet-05f75b320102b35f1
Deleting subnet subnet-0a8aaac36a98c15da
Deleting subnet subnet-001a1ac19f4c2547d
Deleting subnet subnet-0cdff8c327574a30a
Retrieving Route Table
id = rtb-02a5f522d5db81e16
Deleting Route Table
rtb-0a1410a30451000ff
rtb-06240b0d687d10eb4
Route table deleted!
Deleting vpc vpc-0dc90386934ef12e4
Successfully Deleted VPC and all its Dependencies.
MacBook-Pro:bin shreyasbhagavath$
```

	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set	Main Route table
☑		vpc-d7c248ad	available	172.31.0....	-	dopt-0092a67b	rtb-ff594880

Create VPC   Actions ▾

Filter by tags and attributes or search by keyword   1 to 1 of 1

The VPC is successfully terminated

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PART 2: AWS VPC INFRASTRUCTURE USING CLOUD FORMATION

TEMPLATE USED HERE IS THE JSON

CloudFormation allows you to use a simple text file to model and provision, in an automated and secure manner, all the resources needed for your applications across all regions and accounts. This file serves as the single source of truth for your cloud environment.

The JSON template is then used to create the stack and delete the stack

Shell script to create the Cloud formation stack

tele5360-aws-cf-create-stack.sh

#!/bin/bash

echo "Enter Stack Name"

read stack_name

echo "Enter Template"

read template

aws   cloudformation   create-stack   --stack-name ${stack_name}   --template-body file://${template}

echo "Successfully Created the Stack MyStack"

```
[MacBook-Pro:bin shreyasbhagavath$ ./tele5360-aws-cf-create-stack.sh
Enter Stack Name
MyStack
Enter Template
/Users/shreyasbhagavath/PycharmProjects/Cloud/tele5360-cf-networking.json
{
    "StackId": "arn:aws:cloudformation:us-east-1:947039964959:stack/MyStack/3ec9d8f0-632b-11e9-94f0-0a5c603a1bba"
}
Successfully Created the Stack MyStack
MacBook-Pro:bin shreyasbhagavath$ 
```

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MyStack

| | | Other Actions ▾ | Update Stack |

Stack name:	MyStack
Stack ID:	arn:aws:cloudformation:us-east-1:947039964959:stack/MyStack/3ec9d8f0-632b-11e9-94f0-0a5c603a1bba
Status:	CREATE_COMPLETE
Status reason:	
Termination protection:	Disabled
Drift status:	NOT_CHECKED View details
Last drift check time:	
IAM role:	
Description:	AWS CloudformationDeletion

Shell Script to Terminate the Cloud formation stack:

tele5360-aws-cf-terminate-stack.sh

```bash
#!/bin/bash


stackname="MyStack"


while true;
do
echo "Enter Stack Name to be Deleted"
read stack_name
if [[ $stack_name != $stackname ]]; then
    while true;
    do
    echo "No Stack Called $stack_name"
    break;
```

```
        done
else
        aws cloudformation delete-stack --stack-name $stack_name
        echo "Successfully Deleted the Stack $stack_name"
        break;
fi
done
```

```
[MacBook-Pro:bin shreyasbhagavath$ ./tele5360-aws-cf-terminate-stack.sh
 Enter Stack Name to be Deleted
 MyStack
 Successfully Deleted the Stack MyStack
 MacBook-Pro:bin shreyasbhagavath$ ▊
```

MyStack   Other Actions ▼   Update Stack

Stack name:	MyStack
Stack ID:	arn:aws:cloudformation:us-east-1:947039964959:stack/MyStack/3ec9d8f0-632b-11e9-94f0-0a5c603a1bba
Status:	DELETE_COMPLETE
Status reason:	
Termination protection:	Disabled
Drift status:	NOT_CHECKED View details
Last drift check time:	
IAM role:	
Description	AWS CloudformationDeletion

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REFERENCES:

https://docs.aws.amazon.com/cli/

https://docs.aws.amazon.com/cli/latest/reference/ec2/delete-vpc.html

https://aws.amazon.com/cloudformation/