How to Create Virtual Private Cloud (VPC) with AWS CloudFormation

Lab Details:

1. This lab walks you through how to create a VPC using AWS CloudFormation Stack. In this lab we will launch a AWS CloudFormation template to create a four-subnet Amazon VPC that spans two Availability Zones and a NAT that allows servers in the private subnets to communicate with the Internet in order to download packages and updates.

2. Duration: 00:55:00 Hrs

3. AWS Region: US East (N. Virginia)

Tasks:

1. Login to AWS Management Console.
2. Deploy an AWS CloudFormation template that creates an Amazon VPC
3. Examine the components of the template
4. Update a CloudFormation stack
5. Examine a template with the AWS CloudFormation Designer

Steps:

1. Launch your lab environment by clicking on **Start Lab** button.
2. Once your lab environment is created successfully your **Console Login** button will be active, Now click on **Console Login** button, this will open your **AWS Console** Account for this lab in a new tab.
3. Navigate to S3 by clicking on the "services" menu in the top,then click on S3 (in the "Management Tools" section).
    1. You can see the bucket name with some numeric digits like - 1234564543
    2. Open that bucket and click on object name VPC_template.json .
    3. Now copy the **Object URL** to the clipboard for use in cloudFormation template.
4. Navigate to CloudFormation by clicking on the "services" menu in the top,then click on "CloudFormation" (in the "Management Tools" section).
5. **Create a VPC Stack :**
    a. **Select Template** :
        i. **Choose a template :** choose the option **Specify an Amazon S3 template URL** and Paste the s3 object URL you copied in step 3.

        ii. Click on Next.
    b. **Specify Details** :
        i. **Stack name :** Enter a stack name.
        ii. Click on Next.
    c. **Options** :
        a. **Tags** : Enter a tag name with key value combination for stack Identification.
        b. Permissions : No need to select for this lab leave it blank.

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c. **Rollback Triggers** : No need to change anything leave it blank.

d. **Advanced** : No need to change for this lab leave it default values.

e. Click on Next.

d. **Review** : Review your stack details and click on **Create Stack** button.

e. Once you clicked on create button you will redirect to CloudFormation stack list.

f. **Stacks** Here select your stack from the list and you can see its status **CREATE_IN_PROGRESS**

g. You need to wait till 5-10 min for complete the stack resource creation.

h. Once your stack status changed to **CREATE_COMPLETE** Navigate to Resources section,This will show you the VPC resources created by cloudFormation.

6. Navigate to S3 by clicking on the "services" menu in the top,then click on S3 (in the "Management Tools" section).

   1. You can see the bucket name with some numeric digits like - 1234564543

   2. Open that bucket and click on object name VPC_II_template.json .

   3. Now copy the **Object URL** to the clipboard for use in cloudFormation template.

7. **Update the Stack :**

   a. It is good practice that any changes to the aws resources should be made through CloudFormation rather than by directly modifying the resources.

   b. In this task, we will update the stack with a new CloudFormation template that defines the following resources:

      i. Additional public and private subnets have been added in another Availability Zone.

      ii. Select your stack and Goto **Actions** menu, click **Update Stack**.

      iii. **Choose a template :** choose the option **Specify an Amazon S3 template URL** and Paste s3 URL you copied in step 6.

      iv. Click on Next.

      v. The stack name is displayed but cannot be edited.

      vi. Click Next

      vii. **Options :** No need to change in this step, click on next

      viii. **Review :** Review the stack changes in section "Preview your changes" and click on **Update**

   c. Check the **Events** tab while the stack is updating.

   d. Once your stack status changed to **CREATE_COMPLETE** Navigate to Resources section,This will show you the VPC resources created by cloudFormation.

   e. Click the **Outputs** tab.

   f. You can see an additional Availability Zone is displayed, with a different value to the original Availability Zone.

8. **Verify Stack Changes on VPC :**

   a. In the **Services** menu, click **VPC**.

   b. Select Your VPC from vpc list.

   c. In the left navigation pane, click **Subnets**.

   d. Four subnets are now displayed.

   e. The VPC has now been updated with new Stack.

9. You have successfully completed the lab

10. Once you completed the steps click on End Lab from your whizlabs dashboard.