Updating CloudFormation Stacks with Direct Updates and Change Sets

Introduction

In this hands-on lab, we will walk through proper ways to update CloudFormation stacks. We will first update a stack with direct updates, and then use change sets to update a stack.

Solution

Make sure you are using `us-east-1` (N. Virginia) as the selected region.

The lab uses two CloudFormation templates, which you can download at the lab GitHub repository.

Deploy a LAMP Stack Using an AWS CloudFormation Template

1. Navigate to EC2 > Key Pairs.
2. Click Create Key Pair.
3. Give it any name and click Create Key Pair.
4. Navigate to CloudFormation.
5. Click Create stack > With new resources (standard).
6. In the *Specify Template* section, select Upload a template file.
7. Download the sample template from GitHub and then upload it to CloudFormation: (LampStack.yaml)
8. Click Next.
9. On the stack details page, set the following values:
    - *Stack name*: Give it any name (e.g., 'lamp')
    - *KeyName*: Select previously created keypair
    - *Subnet1*: Select any subnet in the VPC supplied
    - *Subnet2*: Select a second subnet in the VPC
    - *myVPC*: Select the default VPC from the dropdown.
10. Click Next.
11. Leave the defaults on the stack options page, and click Next.
12. Scroll to the bottom and click Create stack. It will take a few minutes for it to fully be created.

13. Once the stack is `CREATE_COMPLETE`, click the Outputs tab and copy the load balancer DNS name.

Update the LAMP Stack

Perform an Update Stack to Scale Up

1. Back in CloudFormation, with our stack selected, click Update.
2. Select Use current template, and click Next.
3. Change the *InstanceType* to t3.medium.
4. Click Next.
5. Leave the defaults on the stack options page, and click Next.
6. Click Update stack. It may take a few minutes to fully update.
7. Monitor the availability of the site using the load balancer URL in a new browser.

Use a Change Set to Scale Out

1. On the stacks dashboard, click Stack actions > Create change set for current stack.
2. Select Edit template in designer, and click View in Designer.
3. In the template (either JSON or YAML) add a second WebServerInstance (e.g., WebServerInstance2) and add it to the load balancer's TargetGroup `Targets` property. *(NOTE: You can find an already updated YAML file in GitHub here: changeset.yaml.)*
4. Click Next then click Create change set. *(NOTE: Keep the default change set name - you can add a description e.g., scaling environment out to two servers.)*
5. Select Create Change Set.
6. CloudFormation will then calculate all the changes required and show them in the console. Review the planned changes. We should see a new server is planned for creation, and the target group will be changed.
7. Click Execute.
8. Check the EC2 console and confirm a new server launching.
9. Once the change set is complete you can use the load balancer DNS name to open the website from the second server too.
10. Now that we have an extra server on our hands, try scaling the two instances back down to t3.small using a Change Set or an Update Stack.

Conclusion

Congratulations on successfully completing this hands-on lab!