TNGS Learning Solutions
AWS Solutions Architect
Online Course
CloudFormation

CloudFormation

- AWS CloudFormation is a service provided by Amazon Web Services (AWS) that allows you to define and provision infrastructure resources in a declarative way, using code.
- It is a key component of Infrastructure as Code (IaaC) and enables you to create, update, and delete AWS resources by writing templates in JSON or YAML format.

CloudFormation

- **Declarative Templates**: With CloudFormation, you define your infrastructure using templates that declare the desired state of your AWS resources. You specify the resources you need, their configurations, and their interdependencies.
- **Resource Creation and Management**: CloudFormation takes care of provisioning and managing AWS resources based on your templates. It automatically creates and configures resources, ensuring that they match the desired state defined in your template.

CloudFormation

- **Idempotent Operations**: CloudFormation templates are idempotent, meaning you can apply them repeatedly without causing conflicts or unintended side effects. If resources already exist, CloudFormation will update them to match the template definition.
- **Version Control**: Infrastructure code written as CloudFormation templates can be stored in version control systems like Git, enabling versioning, collaboration, and change tracking.

CloudFormation

- **Resource Relationships**: You can define dependencies and relationships between resources in your templates. CloudFormation ensures that resources are created in the correct order and with the correct dependencies.
- **Parameterization**: Templates can be parameterized to allow customization of resource properties. This enables you to reuse templates for different environments or configurations.

CloudFormation

- **Cross-Stack References**: CloudFormation supports cross-stack references, allowing resources in one stack to reference resources in another stack. This is useful for managing complex applications and services.
- **Rollbacks and Drift Detection**: CloudFormation provides rollback mechanisms to handle resource creation failures and allows you to detect and manage drift (differences between template and actual resource configurations).

CloudFormation

- **Change Sets**: Before making changes to your infrastructure, you can create and preview change sets to understand the impact of updates. This helps prevent unexpected changes to your resources.
- **Integration with AWS Services**: CloudFormation integrates with other AWS services, enabling the management of a wide range of resources, including EC2 instances, RDS databases, Lambda functions, IAM roles, and more.

CloudFormation

- **Stack Policies**: You can define stack policies to control updates to your CloudFormation stacks, allowing fine-grained control over resource modification.
- **Rolling Updates**: For resources like Auto Scaling groups and Elastic Load Balancers, CloudFormation supports rolling updates to minimize downtime during updates.
- **Monitoring and Automation**: You can use AWS CloudWatch and AWS Lambda functions to monitor and automate responses to changes in your CloudFormation stacks.

CloudFormation

- **AWS CLI and SDKs**: CloudFormation can be managed using the AWS Command Line Interface (CLI) and SDKs, allowing programmatic control over infrastructure provisioning and updates.
- **Templates in JSON/YAML**: CloudFormation templates can be written in JSON or YAML syntax, making them human-readable and easy to work with.

CloudFormation

- AWS CloudFormation is a powerful tool for managing and automating your AWS infrastructure, making it easier to maintain consistent, reliable, and scalable environments.
- It is particularly valuable for DevOps practices and continuous delivery pipelines, enabling teams to provision and manage infrastructure alongside application code.