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A stack in AWS cloud formation is a collection of AWS resources that you can manage as a single unit. In other words, you can create, update, or delete a collection of resources by creating, updating, or deleting stacks. All the resources in a stack are defined by the stack's AWS CloudFormation template.

**Setting up infrastructure on client from scratch using tools like Cloud Formation.**

We understand that you want to know the steps to configure infra using cloud formation. AWS CloudFormation is a service that gives developers and businesses an easy way to create a collection of related AWS and third-party resources, and provision and manage them in an orderly and predictable fashion.

It is basically a service. Given a scenario where we have executable file, we first install the application. Subsequently, a folder is created and certain files of a package are copied. In short, it is a step to be followed with all files to be executed.

The steps include:

1) Creation of a Security Group

2) Creation of a Key Pair File

3) Launch of an EC2 Instance

4) Installation of Apache, MySQL or any other file.

5) Get Code from S3 and deploy in Web Server

6) Creation of Elastic Load Balancer and give the URL.

This scenario happens when creating a development environment. Every time we have new version of application it follows the steps and only then will it provide a ready environment. A point to note is that it won’t be advisable to do it every time since its a long process. Amazon Cloud formation provides an offering where we can follow the steps in an orderly fashion which basically involves providing a template in JSON format scripted language that gives steps to configure data.

**CloudFormation** is an easy way to create a collection of related AWS resources and provision them in an orderly and predictable fashion. It lets user to create a template and deploy a Stack of **AWS resources** as defined in the template. The template is in JSON format and the stack will use any resource and follow all these as per template. Also, it’s important to note that if any creation fails, stack will roll out everything. It also becomes easy for User to use **CloudFormation** since Amazon has a lot of ready templates as well as third parties who have their own templates.

CloudFormation applies when creating a development environment. In a scenario where we have 500 testers and want each tester to test on their own, then we initiate the process by creating environment with steps like launching instance, downloading code, setting up database which becomes a long process. It also includes cases where there is a multiple roll out on application. To shorten time and make it simpler, we run template which will automatically take care of it.

The biggest advantage of cloud formation is that it supports a wide range of Amazon resources along with which we can also configure parameters and gain access to the ready-made templates.

**Cloud formation templates used for building the ELK cluster?**

Yes, you can use AWS CloudFormation templates to build an ELK (Elasticsearch, Logstash, and Kibana) cluster. AWS provides official templates for this purpose that you can use as a starting point for your own deployments.

The CloudFormation templates for an ELK cluster typically include the following resources:

Amazon Elastic Compute Cloud (Amazon EC2) instances for Elasticsearch and Logstash.

Amazon Elastic Block Store (Amazon EBS) volumes for storing data and logs.

Security groups to control inbound and outbound traffic to the instances.

An Amazon Virtual Private Cloud (Amazon VPC) for networking.

An Auto Scaling group for Elasticsearch instances to ensure high availability and scalability.

An Amazon Elastic Load Balancer (ELB) to distribute traffic across the Elasticsearch instances.

Amazon CloudWatch alarms for monitoring the health and performance of the cluster.

You can customize these templates to suit your specific requirements, such as the number of instances, instance types, and storage capacity. Once you have defined your template, you can use it to create and manage your ELK cluster in a repeatable and automated way.