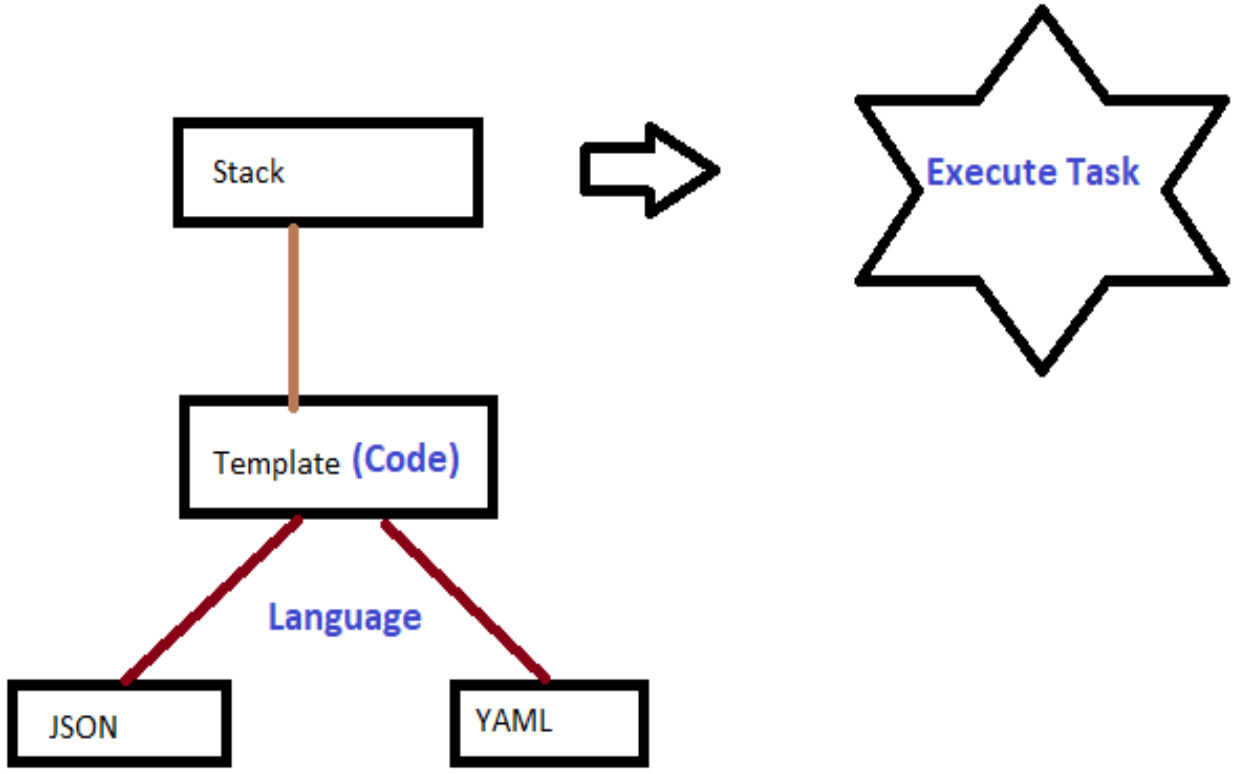
AWS CloudFormation


Stack
Execute Task
Template (Code)
Language
JSON
YAML

Topics to be covered--Cloudformation

1) Introduction to IaaC

2) How to Use cloudformation sample template

3) Create a S3 bucket using cloudformation

4) Configure Wordpress server using cloudformation.

5) Configure Lamp Server

6) Create EC2 Instance using cloudformation.

What is configuration management?

- ✓ Configuration management is a process for maintaining computer systems, servers, and software in a desired, consistent state. It's a way to make sure that a system performs as it's expected to as changes are made over time.
- ✓ Automation plays an essential role in server configuration management. It's the mechanism used to make the server reach a desirable state, previously defined by provisioning scripts using a tool's specific language and features.
- ✓ Another common term used to describe the automation features implemented by configuration management tools is *Server Orchestration* or *IT Orchestration*, since these tools are typically capable of managing one to hundreds of servers from a central controller machine.

Configuration Management Benefits

- ✓ The primary benefit of configuration management is consistency of systems and software. With configuration management, you no longer guess or hope that a configuration is current. It is correct because the configuration management system ensures that it is correct.
- ✓ When combined with automation, configuration management can improve efficiency because manual configuration processes are replaced with automated processes. This also makes it possible to manage more targets with the same or even fewer resources.

DevOps Concepts: Pets vs. Cattle

pets

vs

cattle

Service Model

- Pets are given names like pussinboots.cern.ch
- They are unique, lovingly hand raised and cared for
- When they get ill, you nurse them back to health

- Cattle are given numbers like vm0042.cern.ch
- They are almost identical to other cattle
- When they get ill, you get another one

- Future application architectures should use Cattle but Pets with strong configuration management are viable and still needed

Infrastructure as Code

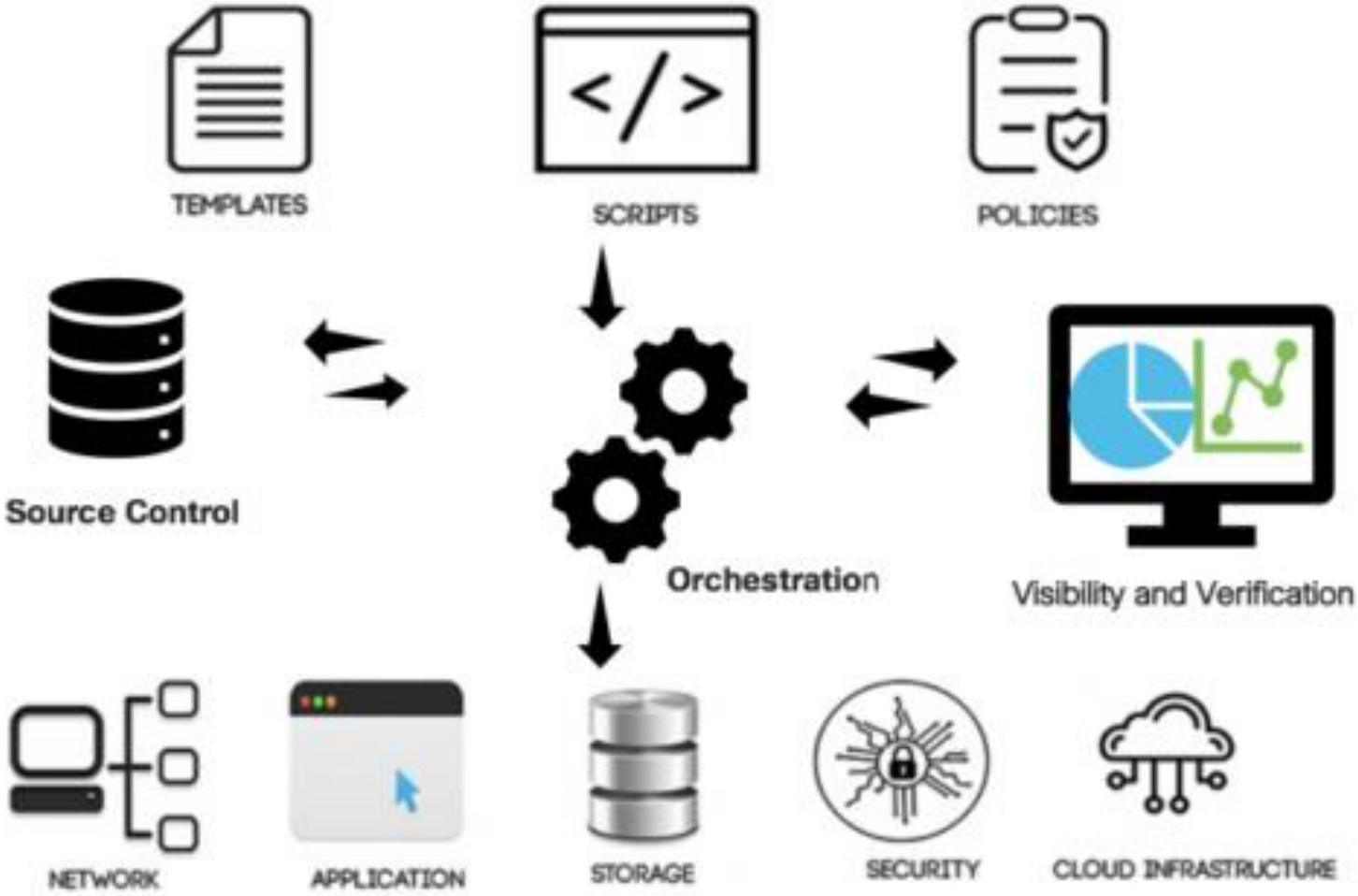
Infrastructure as Code (IaC)

- IaC allows developers to modify infrastructure in a way that makes provisioning automated, faster, and repeatable. It's a key component of Agile and DevOps practices such as version control, continuous integration, and continuous deployment.

- Infrastructure as code can help with the following:

✓ Improve speed:
✓ Improve reliability:
✓ Prevent configuration drift:
✓ Support experimentation, testing, and optimization:

Infrastructure as Code



CloudFormation

- ✓ Amazon Web Services CloudFormation is a free service that provides Amazon Web Service (AWS) customers with the tools they need to create and manage the infrastructure a particular software application requires to run on Amazon Web Services.

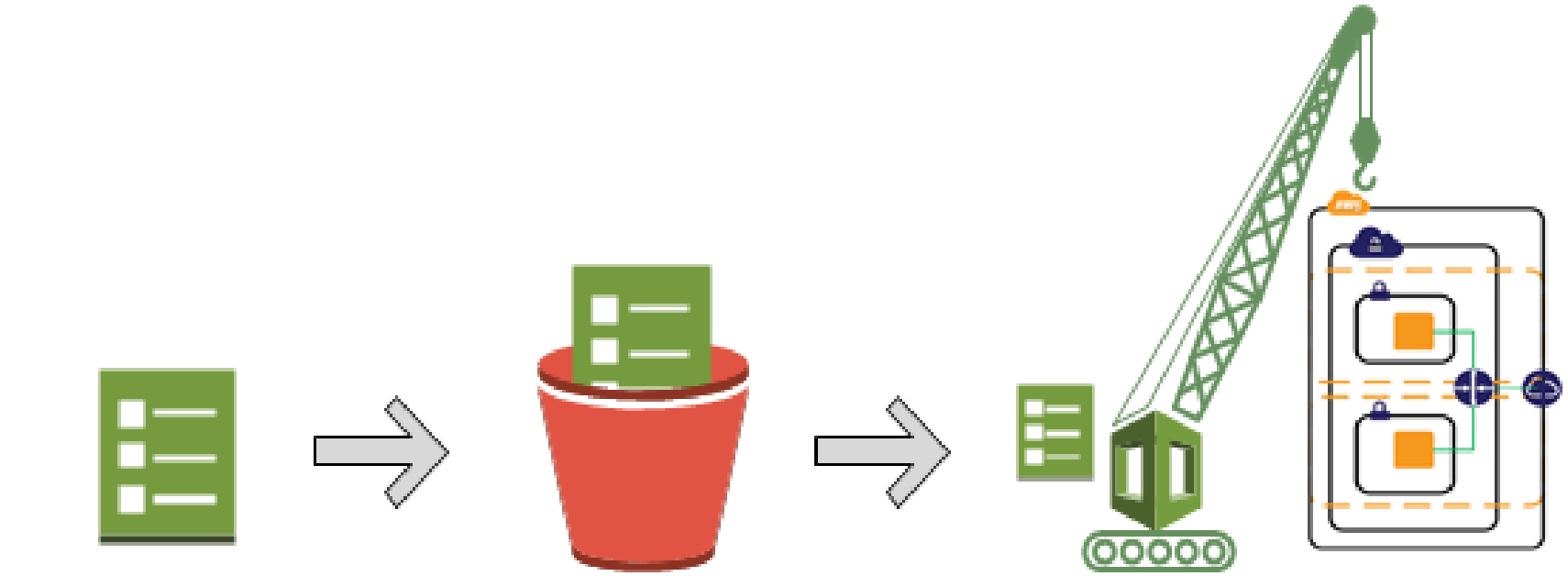
- ✓ An important advantage of CloudFormation is that it allows developers to automate service provisioning steps in a fairly simple way. There is no extra charge for AWS CloudFormation; customers only pay for the AWS resources that are required to run their applications.

CloudFormation

- ✓ CloudFormation has two parts: **templates** and **stacks**. A template is a JavaScript Object Notation (JSON) text file. The file, which is declarative and not scripted, defines what AWS resources or non-AWS resources are required to run the application.

- ✓ When the template is submitted to the service, CloudFormation creates the necessary resources in the customer's account and builds a running instance of the template, putting dependencies and data flows in the right order automatically. The running instance is called a stack.

- ✓ Customers can make changes to the stack after it’s been deployed by using CloudFormation tools and an editing process that is similar to version control. When a stack is deleted, all related resources are deleted automatically as well.


1 Create or use an existing template
2 Save locally or in S3 bucket
3 Use AWS CloudFormation to create a stack based on your template. It constructs and configures your stack resources.


Source
Code
GitHub
VPC
AWS
Load
Balancer
Amazon ECS
AWS CodePipeline
AWS
Cloudformation

CloudFormation Lab--1

1) Create a S3 bucket using cloudformation

2) Configure Wordpress server using cloudformation.

3) Configure Lamp Server

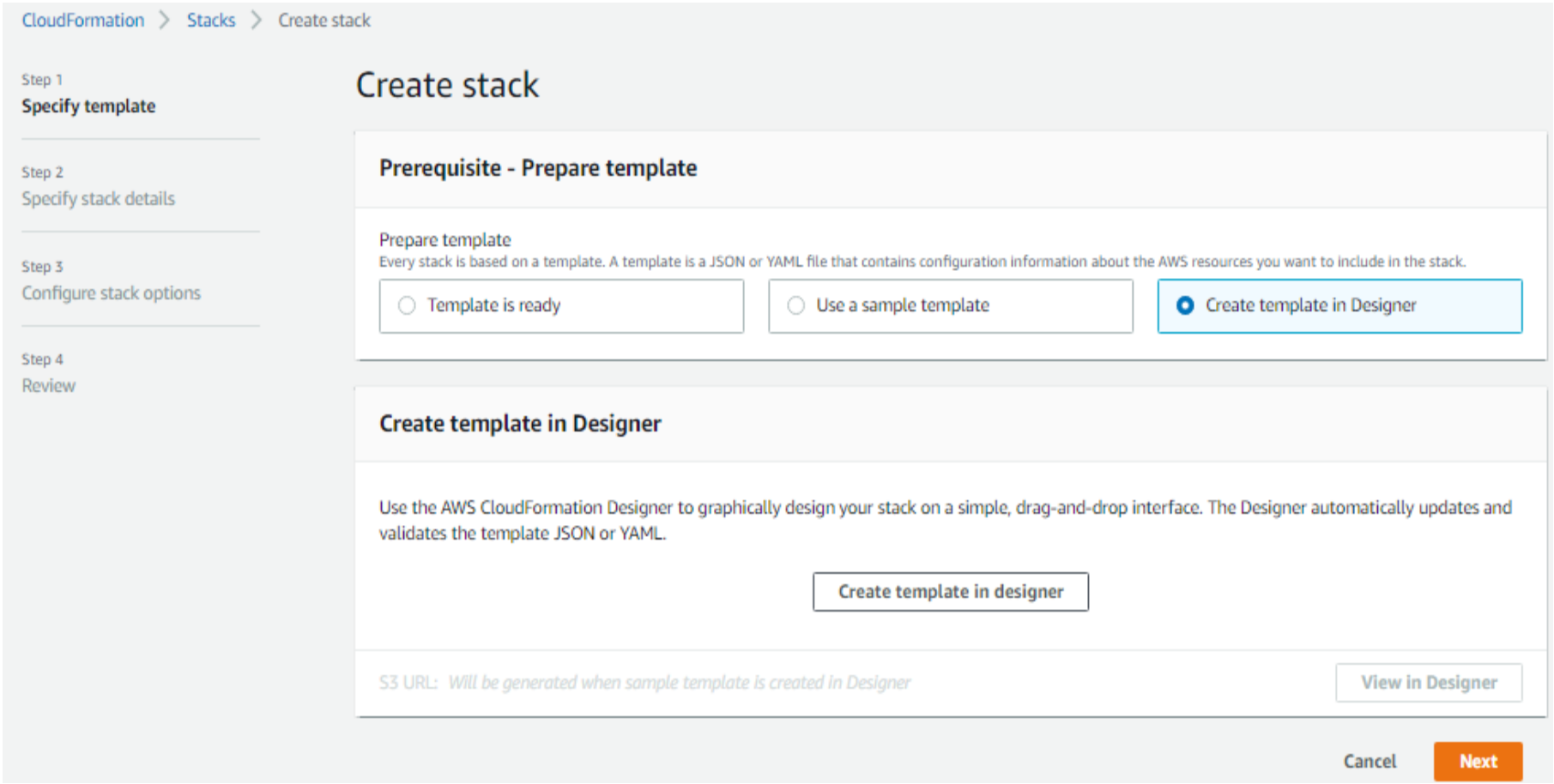
4) Create EC2 Instance using cloudformation.

5) How to Use cloudformation sample template

CloudFormation Lab--1

1) Create a S3 bucket using cloudformation.

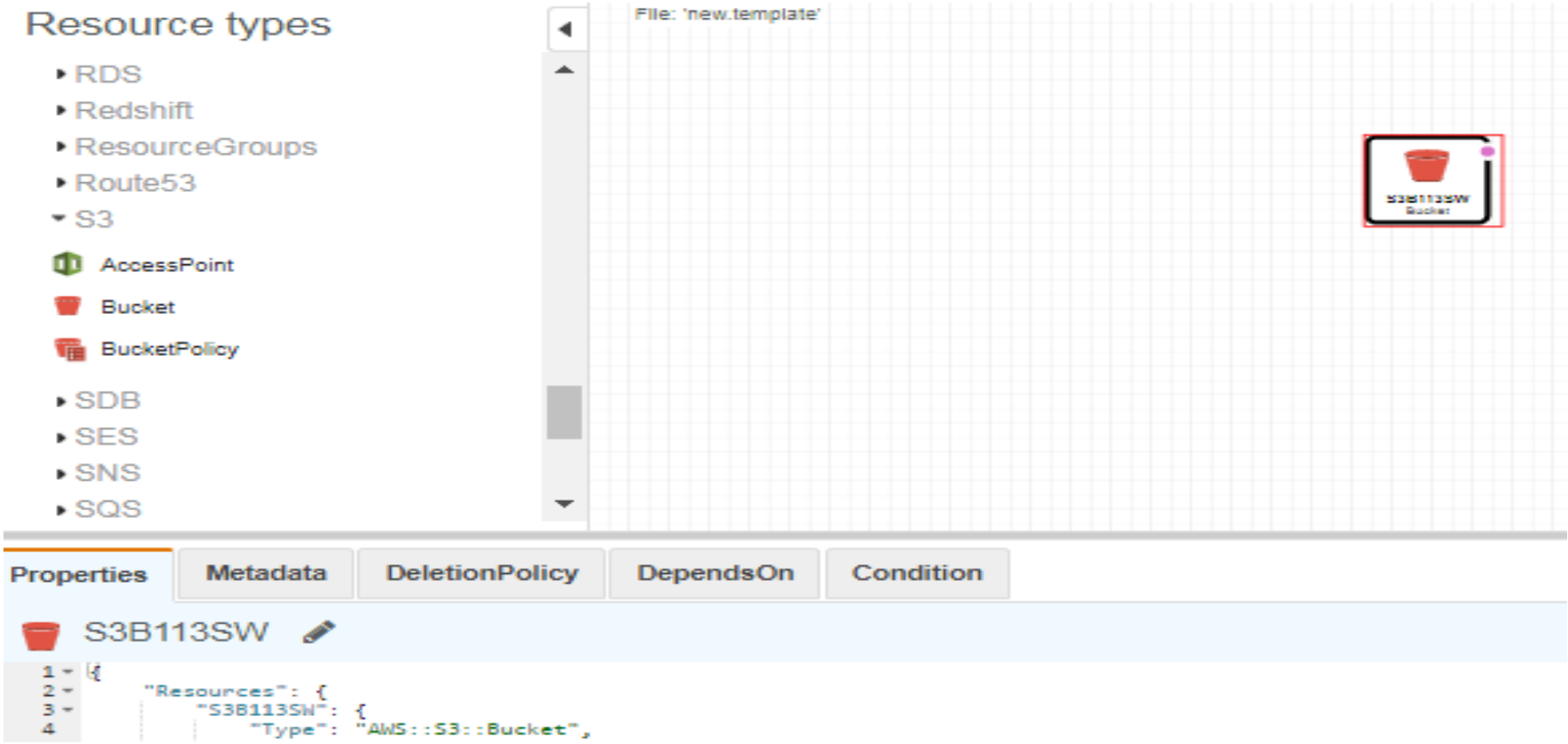
Sol: Open cloudwatch --create Stack –create template in designer –select again



CloudFormation Lab--1

Left side scroll down –expand S3—drag bucket and keep in Middle windows –then click on create stack—next—give stack name—next—next-create stack

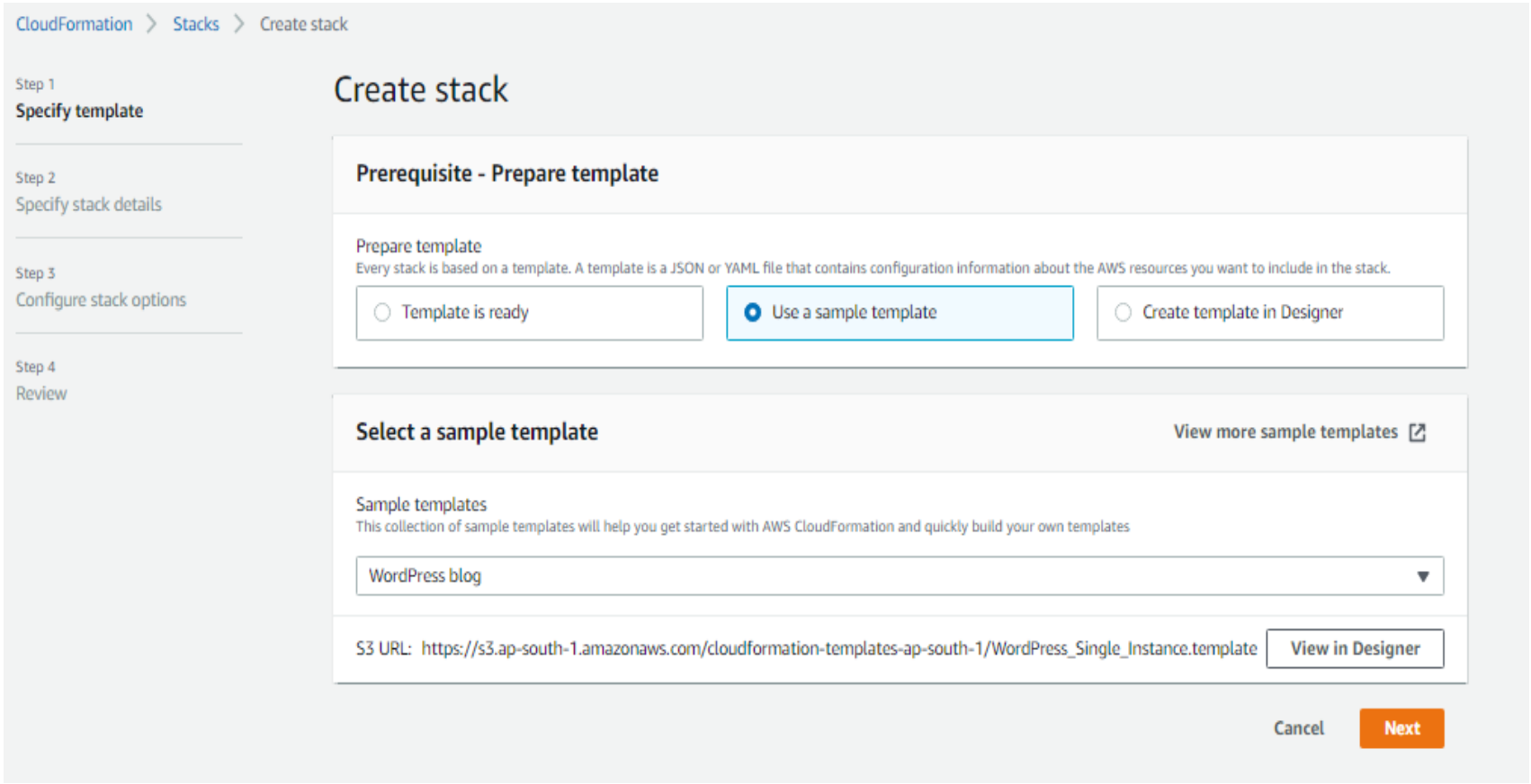
Go to S3 and check the created bucket



CloudFormation Lab--2

1) Configure Wordpress server using cloudformation.

Open Cloudformation—create stack – Use a sample template—select wordpress(simple) --next



CloudFormation Lab--2

1) Fill the database detail –next—next--create