

Autonomous IT

PROBLEM STATEMENT:

One of the Retail customer is looking to automate various phases of Infrastructure Lifecycle i.e., Design, Build, Operate & Optimize. Overall objectives of the Autonomous Infrastructure are to improve agility of the business requirement and reduce manual intervention while managing the overall lifecycle of application. Overall solution should consist of

- ✓ Create the WordPress application stack – 2 Servers, 1 ELB (1-LB, 1-Apache PHP, 1-MySql)
- ✓ Patch the system to latest kernel and security updates
- ✓ Create the test Blog site
- ✓ Create self-healing automation which will monitor the Apache-PHP and MySQL process and in case it is not running/hung it will stop/start the daemon/process.
- ✓ Add Apache-PHP server in case of increase in CPU utilization above 70-80%

CONSIDERATION:

Find a way to collect the infra details from the user and Create CFT/ARM/Terraform Template through code which will create core constructs of public cloud AWS/Azure – VPC, SG, RT, LB, Apache-PHP & MySQL.

Automated Build

- Create AWS-CloudFormation/ARM Template to create core constructs required of public cloud i.e., VPC, SG, RT, LB, Apache-PHP & MySQL server
- Update the both the servers with the latest patch/kernel version
- Install & Configure Apache-PHP, MySQL
- Configure test blog site

Self-Healing – Rightsizing - Autoscaling based on CPU utilization

- Create Autoscaling Group for Apache-PHP servers and configure min=1, max=3 count.
- Configure the Autoscaling scale-up policy based on below criteria
 - CPU > 70% - It will spin up EC2 Instance
 - CPU < 70% - It will terminate additional EC2 Instance

APPROACH:

No.	Task
1	Collect the infra details from the user and Create CFT/ARM/Terraform Template through code. (e.g. Using files or any other means)
2	Create CFT/ARM/Terraform Template which will create core constructs of public cloud AWS/Azure – VPC, SG, RT, LB, Apache-PHP & MySQL.
3	<p>A network with 2 subnets</p> <ul style="list-style-type: none"> - One public subnet i.e., internet facing subnet (instances launched in this subnet should be able to access the internet and the instances should be accessible from the internet over public IP address of the instance) - One private subnet i.e., internal subnet (instances launched in this subnet should not be accessible from the internet). Consider necessary cloud network components in your solution to provide the appropriate access for the respective subnets.
4	Security Requirements – Traffic allowed to Apache-PHP only from LB, Traffic allowed to MySQL DB only allowed from Apache-PHP (Respective Port Only)
5	Once Servers are ready – both the servers Apache-PHP & MySQL need to be patched to latest version using Ansible
6	Configure the WordPress and configure the test blog and validate
7	Create Autoscaling Group and add the Apache-PHP/ELB as target group setup minimum 1 nodes & maximum 3 nodes
8	Configure the threshold so that in case CPU of Apache-PHP will increase > 70% it will add one more instance to handle the traffic
	Emulate the CPU utilization > 70%, additional Apache PHP should be added in LB
10	Once CPU utilization < 70%, no. of servers will be back to 1

POINTS TO REMEMBER:

The below listed will be the upcoming events/ process which will be carried on from the next week onwards regarding Inframind Season 4 Round 2,

- For each and every tower there will be webinar session for the students for explaining about the problem statement, where the webinar link will be shared on via emails, Campus commune channels and text messages.
- Also, for further more details regarding Inframind Season 4 students can visit the “Inframind Season 4 “and “IT Infrastructure Services - Powering IT Infrastructure Globally - Be the Future!” channels in Campus Commune.
- If students have any queries during webinar session there will be assigned a mentor for that tower. Students can feel free to ask any queries regarding that tower.
- For Any queries, login to your campus commune portal and navigate to the link that is provided below, which is a Forum Communication channel for Inframind Season 4 Round 2.

<https://campuscommune.tcs.com/channels/it-infrastructure-services-powering-it-infrastruct/discussions/inframind-season-iv-round-ii-query-corner>

- **Malpractice will be strictly monitored for each and every solution document received. If any solution document found to be suspicious of malpractice, either copied or duplicated from another participant, the corresponding participants will be disqualified and cannot proceed with further Rounds of Inframind Season 4.**
- **Upload your Video Presentation of the prototype in YouTube and attach the link URL of that video in Solution Document. Also, make sure in the Solution Document you submit has the Prototype Video Presentation Link. If the Document is found with no YouTube Link of your Prototype’s Video Presentation then the corresponding person will be disqualified and cannot proceed with further Rounds of Inframind Season 4.**
- **While Uploading the Prototype Presentation Video to YouTube, make sure the **Visibility** of your video is set to **Unlisted**.**