Emirates Group IT

**Case Study – Future Airlines**

Role: Principal DevOps Engineer Duration: 6 Hours

**Background**

You are a newly appointed DevOps Engineer in the IT department of Future Airlines. The airline is investing in digital transformation initiatives to address the market and competitive forces that are consolidating through disruptive business models. IT is playing a central role in the digital enablement program with key focus on building strong technology foundations and customer center capabilities. Key focus areas to enhance delivery capabilities are to harness the potential of hybrid cloud, data and analytics, Automation, DevOps and Site reliability practices.

**Challenges**

One of the initiatives undertaken by the Future Airline’s Digital engineering team is to build unified middleware service layer (**UMSL**) using microservices architecture to serve Omni channels (like desktop app, IOS/Android app and other services). Due to complex technology landscape and systemic issues around environments, the changes to the products are moving too slowly. “Business would come to us with a million ideas that would dazzle the end customer, and we’d just tell them, out of your list, pick the two things you’d like to get in the next 6–12 months”. Business had tried hiring and outsourcing their way out of the problem, but nothing had worked.

“IF UMSL has to come off the critical path”, the targets set by the digital leadership team is to improve deployment frequency by minimum of 5X times.

**Task for Today**

As a DevOps engineer assigned to the UMSL team, you are expected to achieve the following towards meeting the objective:

1. Automate infrastructure provisioning and configuration using “Infrastructure as a code” principle.
2. Automate application/services deployment using CI/CD pipelines to reduce error rate and gain agility.
3. Automate quality checks and reduce the amount of manual stabilization required prior to release.

You have advised to templatise and automate provisioning of infrastructure installation/configuration, automate the build and release of the provided services on a Cloud environment (any Cloud that you are familiar with can be used). You are expected do this by creating configuration formulas that your servers can use to automatically install the needed software to run services, and also have the ability to pull the latest version from GIT repo to the server.

Your solution is expected to cover the following deliverables:

1. A GITHUB repo to demonstrate Infrastructure provisioning templates/files.
2. Provisioned infrastructure should be well defined with proper tagging and naming conventions.
3. Provisioned infrastructure and deployed services should be secured and have well defined security groups and ACL’s to restrict access.
4. Upload the provided springboot maven microservices code in GITHUB repo and integrate CI/CD pipeline with GIT to auto deploy on code commit.
5. CI/CD pipeline to demonstrate auto provisioning of infrastructure and deployment of application. The configuration management/bootstrapping of the servers using a masterless setup is preferred using Bash or Go.
6. Provide URL of the app which can be accessed in browser to view the result.

A High-level architecture (roughly sketched) to demonstrate how you approached the problem and your solution will help.

Please send the link of your GITHUB repository by email to the administrator.