CAPSTONE PROJECT - II

You are hired as a DevOps engineer for XYZ.pvt.co, The company is a product based company they are using Docker containers for their containerization inside the company, but in the meantime, the product got a lot of traffic, now they need to have a platform for automating deployment, scaling, and operations of application containers across clusters of hosts, As a DevOps engineer, you need to work on this and implement a DevOps life cycle, such that the Docker containers in the testing environment will not change.

As the company is a monolithic architecture with 2 developers and the product is present on https://github.com/hshar/website.git

Following are the specifications of life-cycle:

o Git workflow should be implemented, as the company is a monolithic architecture you need to take care of versions. The release should happen only on 25 of every month.
o Code build should be triggered once the commits are made in the master or hotfix branch.
o The code should be containerized with the help of the Docker file, The Dockerfile should be built every time if there is a push to git-hub. Use the container with Ubuntu and apache installed in it. After the build, this container should be pushed to the Docker hub.
o The above tasks should be done in a Jenkins pipeline with the following jobs.
    o Build website
    o Test website
    o Push to Docker hub
    o Push to production

o As per the requirement In the production server, you need to use the Kubernetes cluster and the containerized code from Docker hub should be deployed with 2 replicas. Use kubernetes dashboard for health checks of those containers using dashboard.
o Once the application is built on the production server you need to design a test case, Which will basically check whether the configurations are displaying on the website or not. The test should pass if the configurations are displayed for the product on both the production and testing server.
o For configuration management of the product, you need to deploy the configuration file in '/home/ubuntu' for the execution of the configuration in both testing and production server.
o The above task should be accomplished with the help of Ansible roles.
o Create a monitoring service for the website on the production server.
o Before that, as a Devops engineer test this monitoring service by stopping the apache service and check whether the email is sent to you or not.

Architectural advice:

Server1 jenkins master,Nagios master
Server2 jankins slave,Testing server, nrpe plugin, PHP
Server3 jenkins slave, production server,nrpe plugin, kubernetes master,
PHP Server4 kubernetes node,nrpe plugin, host machine.

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