# DevOps

## Instructions

* Don’t google and be honest with your answers. We will verify your knowledge in the next phase.
* Try to reply with concise answers. Answer just enough to prove your knowledge about the topic.
* Do not worry about leaving unanswered questions. We could not answer all of them either :).

Questions:

* Describe the latest DevOps project you’ve worked on.

eEvidence, build from scratch both devops culture and dev and prod environments in oracle cloud with jenkins pipelines also from scratch, obserbability, secutity measures and automatic deployments from git on docker and oracle cloud automatic load balancing

* Can you describe your workflow when you create a script?

My scripts are usually simple scripts to do simple tasks. For more complex tasks i usually call scripts or functions within the main script, but my workflow usually is:  
1.- taking requisites or identify the real problem

2.- open ide editor and write the script

3.- test the script

4.- put it on server

5.- check if it is working when it’s needed

* What is the difference between Containers and VMs? What container runtimes do you know ?

Both are a form of isolatating process in operating system. Containers isolate process with kernel techniques like cgroups and vm isolate process into a module kernel. The main difference is containers does not need to boot up a entire operating system and then the application with the libraries.

I do know docker, containerd, lxc and openvz

* What is a wildcard certificate?

For web is the common certificate that can be used for all subdomains of single domain.

For example, the wildcard \*.mycompany.com can be used for subdomains:

A.mycompany.com

B.mycompany.com

Etc.mycompany.com

* You need to upgrade kernel at 100-1000 servers, how you would do this?

With ansible script. Also i would use techniques to reload kernel without rebooting entire server. I remember oracle ksplice for that.

* Have you got experience working with Kubernetes clusters? in which cloud ?

Yes. In Oracle Cloud, both OKS and self-managed kubernetes clusters.

* How do you resize a volume in the cloud ? How would you expand or reduce it's size?

It depends on the cloud provider. I could talk in oracle cloud which i have more experience and it can be expanded online (both boot and block volumes) via graphical console and via api, and in second step expanding ext4 or xfs with respective resizefs comands, everything without affecting any running services on that servers.

* How can would you secure a the access to a network in virtual private cloud ?

Techniques i’ve used is with linux iptables, vpn, and intrusion detection systems. Also I’ve tried a SaaS product named Lacework for AI based intrusion detection

* You have two independent clusters that you want to connect. How would you do it ?

Depend on what kind of clusters. Database clusters? Kubernetes clusters? CDN clusters? Java/Tomcat clusters? Python app clusters?

* Data engineering wants to deploy a new API that needs to be exposed to the internet. In a Kubernetes environment, what practices would you ask them to follow? What should you do on your side?

I would create for them a ci/cd pipeline to do it automatically triggered by data engineers and they caan deploy the APY simply by running it

* How would you create a mirrored volume in a physical server?

With a second identical disk and personally i do prefer software mirror over hardware mirror because they are much more flexible than hardware mirroring techniques. In linux i created that software mirrors with mdadm

* Can you explain difference between UDP and TCP ?

TCP needs answer back to complete the transmission of the packet, UDP does not waits for answer back so is much faster

* You are trying to connect to an aws instance from the internet but you can't. You are able to login to the instance from another machine in the same VPC. What would you review?

Does it have public IP address?

Gateway is correctly setup?

Route table as well?

Problem with iptables/firewall?

* What's your experience working with VPNs ?

Connecting with VPN/IPSEC several offices around the world, external clients and also with our cloud network.

* You must migrate database to another faster volume. How would you do it?

In oracle cloud you simply has to change the iops of the block volume where database files are and automatically applied the changes and having much more faster disk both in iops and throughput with the database online. In aws/azure this process is much complex and expensive.

Exercise:

The development team ask to you that they need deploy a new api rest service. This service use a dedicate postgres database. You must:

* Create the infrastructure as a code necessary to deploy the rest api.
* All components must be run in docker.
* The rest api is a containerized application.
* Is mandatory use TLS certificates.
* Upload the content in git repository.

Github repo:

https://github.com/ffuented/iomed.git