

**Below is the written test for Bongo's Site Reliability Engineer position. Please read through the entire test before starting to write it.**

Q. Certain web pages are loading slow in user's browser for our live web application. What steps will you take to resolve the issue?

A. The steps are as below:

- a. Firstly, check the application log if there are any mention of this issue
- b. Check the content optimization of that webpage e.g. images, videos, flash etc.
- c. Check if there are too many requests for that particular web page.
- d. Check if there are any high network usage.

Q. Imagine a scenario where a web application is serving from a single web server to the internet. What are the problems in this scenario? Design and architect a solution that will mitigate these problems? Or How would you design a scalable architecture with resiliency in mind for the following situations:

- a. if a service is resource intensive
- b. a service needs to be low latency
- c. if parts of a service need to be restricted to certain geographical boundaries

A. The major problem is that there is no redundancy for the web application instance. If that single node goes down user can't use that web application. Also, if there is more traffic than usual system will slow down and become unresponsive.

To resolve this issue, we need to have at least two servers/hosts in different machine to ensure redundancy. Also, there should be load balancer between these two to make sure the traffics goes evenly to the servers.

Q. Currently there's no monitoring in place for the above single web server. How and what application will you use to monitor the resources/process in your new design?

A. There are several open source and paid tools for this purpose eg. Zabbix, Nagios, Cacti, Splunk etc.

To implement this, we need to setup a monitoring sever that will store the data of clients. Then we need to install the agent of that tool in the client host and establish communication between server and client.

Q. In our server we want to create a user who can only view logs using `less` from this path `/var/log`. Please explain how to achieve this.

A. First of all, we need to create a restricted shell and create an user with that. Then we need to set the commands which the user can use in its bash profile. Also make sure to change the permission of the bash profile so that user cant change the bash profile file. Then add the user in the ACL of `/var/log/` directory contents.

- a. In -s /bin/bash /bin/rbash
- b. useradd -s /bin/rbash -d <HOME DIRECTORY> username
- c. Then replace the PATH variable to PATH=\$HOME/bin in user .bash\_profile
- d. In -s /bin/less \$HOME/bin/less

Now the user can only use less command. We can now set the read only ACL for this user using below command.

```
setfacl -R -m user:<username>:r /var/log/*
```

here -R is for recursive use in the /var/log directory.

Q. Explain how you can ssh into a private server from the internet.

A. There should be a Jump host which is connected to both public and private network. This should be properly secured so that no misuse occurs.

Q. Write a bash function that will find all occurrences of an IPv4 from a given file.

A. `egrep -o '^[0-9]{1,3}\.){3}[0-9]{1,3}' <filename>`

### **Submission:**

- 1) Implement solution for these problems.
- 2) Upload to github/bitbucket or any other code sharing platform.
- 3) Send an email to [hr@bongobd.com](mailto:hr@bongobd.com) with subject "Bongo SRE Test" with your code repository URL in the email body.

If you have any questions, please send them to [matt@bongobd.com](mailto:matt@bongobd.com) with a subject line of "Questions on Bongo SRE Test".