Below is the written test for Bongo's Site Reliability Engineer position

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?

Answer:

To resolve above issue we can take below actions

1. We can enable caching on browser side http caching & server side caching like redis.
2. We can remove harmful plugins that causes the slow loading.
3. We can optimize images size.
4. We can use CDN(Content Delivery Network) like cloudfront in aws

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

Answer:

To serve the web application from a single web server will create single point of failure. Any kind of failure to the server will impact the web application directly.

To mitigate this problem we can setup HA proxy as a load balancer. To do this we need two web servers.Requests from the HA proxy will forward to the web servers in a round robin format. If one web server fails to serve the request HA proxy will forward to the another web server.

To restrict some parts of the web service we can use Geo-restriction to prevent users in specific geographic locations from accessing content.

AWS cloudfront geo restriction feature provide this kind of solution.

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?

Answer:

We can use the zabbix monitoring tool to monitor the resources/process of the webserver.

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.

Answer:

```
>> cp /bin/bash /bin/rbash                  //Create the restricted shell
>> useradd -s /bin/rbash abcd               // add new user abcd on restricted shell
>> mkdir /home/abcd/test                   // Create a directory under home directory of abcd

>> cat /home/abcd/.bash_profile    // Edit the bash profile of abcd user to change the env PATH veriable
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
. ~/.bashrc
fi
# User specific environment and startup programs in test
PATH=$HOME/test
export PATH

>> ln -s /bin/less /home/localuser/test/          // create the softlink of command less which will be executed by the user

>> chattr +i /home/abcd/.bash_profile          //make the .bash_profile file as immutable so that user can't change this file. To change this root user can remove immutability by using (-i) parameter

>> setfacl -m u:abcd:r /var/log/          // Permission to read files on /var/log/ directory.
```

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

Answer: Using VPN we can ssh to a pricate server form the internet.

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

Answer: If we want to check hit count more than 500 from any specific ips on access log we can follow below bash script..

```
#!/bin/bash
FILE=/var/log/access.log;
 for ip in `cat $FILE |cut -d ' ' -f 1 |sort |uniq`;
 do { COUNT=`grep ^$ip $FILE |wc -l`;
 if [[ "$COUNT" -gt "500" ]]; then echo "$COUNT:   $ip";
 fi }; done
```

Q. Share with us a steps to run a web service container on 80 port.

Answer:

Step 1: Need to install docker on the host. Docker service must be up & running on the host.

Step 2: Need to pull nginx(for web service) image from docker hub or we can build a web page to serve on nginx

Step3: We can run the nginx docker container on port 80 using below cmd (For image from docker hub)

>> docker run --name docker-nginx -p 80:80 nginx

>> docker ps –a // to check the docker images status

Step 4: Start the docker image with containder id

>> docker start nginx