Linux Based questions for L1 SRE's:

1. What is your experience with Linux administration?
2. How do you handle system backups and disaster recovery?
3. How do you troubleshoot network connectivity issues in Linux?
4. Describe your experience with automation and configuration management tools such as Ansible or Puppet.
5. How do you monitor and optimize system performance in Linux?
6. How do you handle security vulnerabilities and patches in Linux systems?
7. What is your experience with virtualization technologies such as KVM or VMware?
8. How do you handle storage management in Linux, including LVM and RAID?
9. Describe your experience with bash scripting and shell scripting in general.
10. How do you ensure high availability and scalability in Linux systems?
11. Describe your experience with network protocols and services such as TCP/IP, DNS, and DHCP.
12. How do you manage and troubleshoot log files in Linux?
13. Describe your experience with package management systems such as apt or yum.
14. How do you handle user account management in Linux?
15. Describe your experience with firewalls and iptables.
16. How do you handle software upgrades and updates in Linux systems?
17. Describe your experience with containerization technologies such as Docker or Kubernetes.
18. How do you handle performance tuning and optimization of Linux systems?
19. Describe your experience with cloud computing platforms such as AWS or GCP.
20. How do you handle incident response and post-mortem analysis in Linux systems?

Monitoring based questions:

1. What is your experience with monitoring tools such as Nagios ?
2. How do you set up and configure monitoring for different Linux services and applications?
3. Describe your experience with log monitoring and analysis tools such as Elasticsearch, Logstash, and Kibana.
4. How do you handle alerting and notifications for system issues in Linux?
5. Describe your experience with performance monitoring tools such as top, htop, or sar.
6. How do you handle monitoring of network traffic and bandwidth usage in Linux?
7. Describe your experience with APM (Application Performance Management) tools such as New Relic or AppDynamics.
8. How do you handle monitoring of cloud infrastructure using tools like AWS CloudWatch or GCP Stackdriver.
9. Describe your experience with container orchestration monitoring using tools like Prometheus or Grafana.
10. How do you handle monitoring of distributed systems and microservices in Linux?
11. How do you handle monitoring of storage and disk usage in Linux?

12. Describe your experience with monitoring of CPU and memory usage in Linux.
13. How do you handle monitoring of process and service uptime in Linux?
14. Describe your experience with monitoring of web servers such as Apache or Nginx.
15. How do you handle monitoring of database servers such as MySQL or PostgreSQL?
16. Describe your experience with monitoring of network devices such as switches and routers.
17. How do you handle monitoring of applications and services written in programming languages such as Java or Python?
18. Describe your experience with monitoring of virtualization infrastructure using tools like VMware vCenter or KVM.
19. How do you handle setting up and maintaining monitoring dashboards and reports in Linux?
20. Describe your experience with alert correlation and incident management in Linux monitoring.

Questions and answers: How to Use Linux commands and troubleshoot ?

1. How would you monitor and troubleshoot a high CPU usage issue on a Linux server?

> To monitor and troubleshoot a high CPU usage issue on a Linux server, you can use the following commands:

- `top`: This command provides a real-time, scrolling view of the processes running on the system, including the process name, user, CPU usage, and memory usage.
- `ps aux`: This command lists all running processes on the system, including the process name, user, CPU usage, and memory usage.
- `lsof -p <pid>`: This command lists all open files and network connections for a specific process, as identified by its PID. This can help identify which process is causing high CPU usage.
- `strace -p <pid>`: This command traces system calls and signals for a specific process, as identified by its PID. This can help identify the cause of high CPU usage, such as a process stuck in a loop or making excessive system calls.
- `perf top`: The command `perf top` allows you to see the cpu usage of various processes and also the system calls that are being made by the processes.

2. How would you monitor and troubleshoot a high memory usage issue on a Linux server?

> To monitor and troubleshoot a high memory usage issue on a Linux server, you can use the following commands:

- `free`: This command provides information about the total amount of free and used memory in the system, as well as the total amount of swap space and the amount of used and free swap space.
- `vmstat`: This command provides information about system memory, including the amount of free memory, the amount of used memory, and the amount of memory used by the file system cache.
- `ps aux --sort -rss`: This command lists all running processes on the system, sorted by the amount of resident set size (RSS) memory they are using.
- `pmap <pid>`: This command shows the detailed memory map of a specific process, including the memory regions and their sizes.
- `top`: This command provides a real-time, scrolling view of the processes running on the system, including the process name, user, CPU usage, and memory usage.

3. How would you monitor and troubleshoot a high network usage issue on a Linux server?

To monitor and troubleshoot a high network usage issue on a Linux server, you can use the following commands:

- `netstat`: This command provides information about network connections, including the protocol, source and destination IP and port, and the status of the connection.
- `iptraf`: This command is a text-based network monitoring tool that provides detailed information about network traffic, including the source and destination IP, port, and protocol, as well as the number of packets and bytes transferred.
- `ifconfig`: This command provides information about network interfaces, including the IP address, netmask, and status of the interface, as well as the number of packets and bytes transferred.
- `tcpdump`: This command captures and analyzes network traffic in real-time, providing detailed information about the source and destination IP, port, and protocol, as well as the number of packets and bytes transferred.
- `sar`: This command provides information about the network usage and statistics on the system, including the number of packets and bytes transferred, the number of errors and collisions, and the number of dropped packets

4. How would you monitor and troubleshoot disk I/O issues on a Linux server?

- `iostat`: This command provides information about disk I/O statistics, including the number of read and write operations, the number of bytes transferred, and the average response time.
- `iotop`: This command provides a real-time, scrolling view of the processes that are currently performing disk I/O, including the process name, user, the number of read and write operations, and the number of bytes transferred.
- `lsof`: This command lists all open files and network connections for a specific process, as identified by its PID. This can help identify which process is causing high disk I/O.
- `strace`: This command traces system calls and signals for a specific process, as identified by its PID. This can help identify the cause of high disk I/O, such as a process making excessive system calls.
- `dstat`: The command `dstat` allows you to see the real-time statistics of various system resources including the disk utilization.

5. How would you monitor and troubleshoot issues related to system process and services?

- `ps`: This command provides information about running processes on the system, including the process name, user, CPU usage, and memory usage.
- `systemctl`: This command provides detailed information about the status of system services, including the current status, whether the service is enabled or disabled, and the last time the service was started.
- `systemd-cgtop`: This command provides a real-time, scrolling view of the control groups on the system, including the group name, the number of tasks and processes, and the CPU and memory usage.
- `systemd-analyze`: This command provides detailed information about the system boot process, including the time taken to start each service, the time taken to start the system, and the time taken to reach the login prompt.

6. How would you monitor and troubleshoot issues related to system logs?

- `tail` : This command allows you to see the last few lines of a file, it's commonly used to check the log files.
- `grep`: This command allows you to search for a specific string within a file or multiple files. This can be useful when looking for specific log entries or errors.

- **`sed`**: This command allows you to perform search and replace operations on a file. This can be useful when trying to remove unnecessary log entries or anonymize sensitive data in log files.
- **`awk`**: This command allows you to perform complex text processing and manipulation, including searching, filtering, and formatting log files.
- **`logrotate`**: This command is used to manage the rotation, compression, removal and mailing of log files. It's a great tool to make sure that the log files don't consume all the disk space.

7. **How would you monitor and troubleshoot issues related to system performance and resources?**

- **`sar`**: This command provides information about system performance and resources, including CPU, memory, disk, network, and system statistics.
- **`mpstat`**: This command provides information about individual CPU cores and their usage, including the number of interrupts, context switches, and idle time.
- **`pidstat`**: This command provides information about individual processes and their resource usage, including CPU, memory, disk, and network statistics.
- **`nmon`**: This command provides a real-time, scrolling view of system performance and resources, including CPU, memory, disk, network, and filesystem usage.
- **`perf`**: This command allows you to profile the performance of various system resources, including CPU, memory, disk, network, and system calls.
- **`systemd-cgtop`**: This command provides a real-time, scrolling view of the control groups on the system, including the group name, the number of tasks and processes, and the CPU and memory usage.

Shell Script Questions If he is Good in Scripting you can ask one or two from below:

1. Write a shell script that takes a file name as an argument and renames it by adding the current date and time to the file name.

```
#!/bin/bash

file=$1

if [ -f $file ]; then
  timestamp=$(date +%Y%m%d_%H%M%S)
  new_file="${file%.*}_$timestamp.${file##*.}"
  mv $file $new_file
  echo "File $file has been renamed to $new_file"
else
  echo "File $file does not exist"
fi
```

2. Write a shell script that takes a directory path as an argument and prints all the files in the directory and its subdirectories.

```
#!/bin/bash

path=$1

if [ -d $path ]; then
  for file in $(find $path -type f); do
    echo $file
  done
else
  echo "Directory $path does not exist"
Fi
```

3. Write a shell script that takes a URL as an argument and checks if the website is up or down

```
#!/bin/bash

url=$1

status_code=$(curl -s -o /dev/null -w "%{http_code}" $url)

if [ $status_code -eq 200 ]; then
  echo "Website $url is up"
else
  echo "Website $url is down"
fi
```

4. Write a shell script that takes a process name as an argument and checks if the process is running or not.

```
#!/bin/bash

process=$1

if pgrep -x "$process" > /dev/null; then
  echo "Process $process is running"
else
  echo "
```

If a Candidate is Good in Python Scripting you can ask any one or two from below:

1. Write a Python program to check if a given string is a palindrome.

```
def is_palindrome(string):
    return string == string[::-1]

print(is_palindrome("racecar")) # True
print(is_palindrome("hello")) # False
```

2. Write a Python program to find the common elements between two lists.

```
list1 = [1, 2, 3, 4, 5]
```

```
list2 = [4, 5, 6, 7, 8]

def common_elements(list1, list2):
    return list(set(list1) & set(list2))

print(common_elements(list1, list2)) # [4, 5]
```

3. Write a Python program to count the occurrences of each word in a given sentence.

```
from collections import Counter

def word_count(sentence):
    words = sentence.split()
    return dict(Counter(words))

print(word_count("this is a test sentence with multiple words"))
```

4. Write a Python program to remove duplicates from a list.

```
def remove_duplicates(lst):
    return list(set(lst))

print(remove_duplicates([1, 2, 3, 4, 4, 5, 5])) # [1, 2, 3, 4, 5]
```

5. Write a python program to get Nth fibonacci number where N can be greater than 100.

```
def nth_fibonacci_number(n):
    last_two = [0, 1]

    for i in range(3, n+1):
        next_number = last_two[0] + last_two[1]
        last_two[0] = last_two[1]
        last_two[1] = next_number
    return last_two[1]

if __name__ == '__main__':
    print(nth_fibonacci_number(9))
```

Linux.

What is the command to list number of files under a directory?

- wc or wc -l

How many kernel are available in Linux system?

- 1

Which file can be used to change the boot loader?

Ans. grub.conf

An application process 100 messages in 1 sec with single cpu if we would have 2 cpu how much time it can take to process?
And. 0.5 second or 500 ms

What command can be used in ubuntu to change selinux from enforcing to permissive without reboot?
Ans. Ubuntu not having selinux it's only application for Redhat/Centos based system.

You are seeing your system keep on rebooting, what could be the reason?
Ans. Probably it's running with init 6 value (which denotes keep on rebooting the system).

How anacron is differ from cron?
Ans. Anacron can be used for the system which is not 24x7 and it won't miss the job even your system is in powered off state.

What is the maximum compression level we can use with gzip.
Ans - 9

If you accidentally deleted the /etc/passwd file but anyhow you have not restarted your system, Can we recover it ? if yes then how?
Ans. we have a copy of /etc/passwd file with different name /etc/passwrd-

Which is the right command to list all name from below content.
Name, Id, Phonenumber
Anny, 1, +919876543521
Denny, 2, +9184765352361
Diwa, 3, +913398432861

Desired Output.
Anny
Denny
Diwa

print Name
cat filename | awk '{print $1}' | head -1
cat filename | grep Name | awk '(print $2)' | tail -n -1
cat filename | awk print{'$1'}

How can an administrator know whether a user account is locked or not?
passwd –S username
passwd -L username
USERLOCK username
passwd -a username

Which is the right to see hidden file?
ls -k
ls -ld
ls -h
ls -la

What is the command to identify Linux OS type?
Lsb_release
cat /etc/*-release
Lsb_os
All of the above.
1,2 are correct.

What is the command to change user shell from /bin/bash to nologin?

usermod -s username /sbin/nologin
userchange -d username /sbin/nologin
usermodify -shell /sbin/nologin
modifyuser --username user nologin

Identify the service which is used to translate a domain name to IP address?

Domain Name service
Domain Name system
DNS
All of the above.

Database:

Can we restrict user to run select query in particular database ?
Ans. Yes , If yes then how?

We can restrict by

How to list table in mysql database.
Ans. show tables

What is the mysql backup command.

mysqldump -uuser -ppass databasename > databaseout.sql

What is master to master replication?
Ans. It's call both way replication, both the machine can synchronize data between each other.

What are the network requirements for setting up the SQL Replication between two servers?

Sufficient network bandwidth between the Publisher, Distributor and Subscriber servers to avoid any network latency issue
The Publisher, Distributor and Subscriber servers are able to reach (ping) and connect (telnet) to each other

5) You are managing a database server and your application is having latency what could be the possible reason behind this.
Ans. First we will check in Infrastructure level like, cpu, memory, disk.what kind of disk we have SSD or HDD (SSD is fast weather HDD is slow, SSD is recommededed for database last will check Network.

Docker -

You want to create a local Image with name docker-test from dockerfile what is the command?
Docker build -t docker-test path

What is the use of Dockerfile in docker.
Ans. Dockerfile can be used to create custome images in docker.

How to execute a command inside container without login?
Docker exec

When we use persistent volume in docker or kubernetes?
Ans. For stateful set application like database where we don't want to loose the data even after restart or delete the pod/container we use persistent volume like database.

Kubernetes -

What is yml file in kubernetes and why we use that?

And. YML is a markup language like json and xml. kubernetes default usage yml file to launch the resource.

What is the difference between docker and kubernetes or Openshift?
Ans. Docker is a container technology where the kubernetes and openshift are container orchestration tool.

What is the kubernete command to see the log of a pod.
And. Kubectl logs

CI/CD tools.

1) What is CI/CD? and give an example of both?

2) What is scm?

Python/Bash/shell

How do you declare global declaration?

What is bash interpreter and why we use that?
#!/bin/bash

Which commands are used to print output in bash?
echo and printf commands can be used to print output in bash

Is indentation required in Python?
Indentation in Python is compulsory and is part of its syntax.

All programming languages have some way of defining the
How will you read a random line in a file?
We can read a random line in a file using the random module.

For example:

```
import random
def read_random(fname):
lines = open(fname).read().splitlines()
return random.choice(lines)
print(read_random (‘hello.txt’))
```