

NETWORKING REVISION

Networking Basics & Internet Connectivity

1. How do you check if your Linux system has internet connectivity?

Ping command can be used to check for the internet connectivity

2. What is the function of the ping command? How is it different from curl?

Ping command helps to check for the internet connectivity

Curl command is used to download files and folders from internet

3. What is ifconfig? Is there a better alternative in modern systems?

ifconfig is used to view the connection interfaces and the ip address and the macc address of the machine

4. Explain what netstat, ss, and ip a do.

Netstat - is used to show the state , address and the path of the files present

Ss shows the receive queue , sends queue ports , state of the file and the path of the file

Ip -a is an alternative command of ifconfig which is used to show the ip address of the machine

5. How do you view current routing table entries?

ip route command is used

6. How do you restart the network service in RHEL-based systems?

systemctl restart NetworkManager

7. Explain what happens when you type ping google.com.

They give out certain amount of data in bytes from the website

8. What does `tcpdump` do? How is it useful in network troubleshooting?

`tcpdump` is used to capture the network packets from an interface

`tcpdump -I <interface>`

9. What's the difference between `wget` and `curl`?

`Wget` is used as an external download where we can download packages from an external source

`Curl` command is used to download files, get api connection and etc

10. How do you assign a static IP to your Linux system manually?

Using the purpose `nmcli` , `nmtui` commands or `nm—connection-editor`

Section 2: NIC, Port Bonding, and Configuration Files

11. How do you check NIC (Network Interface Card) hardware details in Linux?

`ethtool -i <interface>` is used to check the details of the hardware and other things of the interface

12. What is the use of the `ethtool` command?

`Ethtool` is used to check the details of the interface that have been given hardware details of the provides the driver and he firmware details

13. What is NIC bonding? Why is it used in enterprise environments?

NIC bonding is used to bring up an bonding between 2 physical interfaces by creating an new bonding containing both the physical interface

These are used in the enterprise environments because they are highly available and also contain modes that can be used to create an stable environment for high availability

14. Name and explain the purpose of these configuration files:

- /etc/hostname - displays the hostname
- /etc/hosts - displays the ip for the hostnames given
- /etc/resolv.conf - they give out the dns nameserver and also its IP
- /etc/sysconfig/network-scripts/ifcfg-* - they are the configuration file for the interface

15. How do you bring a NIC interface up or down using CLI?

Nmcli - nmcli device connect < interface >

nmcli device disconnect < interface >

ip command - ip link set dev <interface> up

ip link set dev <interface> down

Section 3: File Transfers & Remote Access

16. How do you use scp to transfer a file to another machine?

scp is used for secured copy protocol - that is used to copy file from one user to another user

create a new file - touch copyfile.txt

scp copyfile.txt user@<ip> /home/user

enter the username and password

17. What's the difference between scp and rsync?

rsync is used to transfer file between locally and remotely between systems

rsync -av /path/to/filedirectory user@remote_IP:/path/to/filedirectory

backup - rsync -av /path/to/source /path/to/backup

18. How do you establish an SSH connection from your system to another?

Use the command ssh and know the ip address of the machine

And then use the putty window and then use the hostname and create an connection and then use the username and password to connect to the machine

19. How can you disable root SSH login for hardening?

```
vi /etc/ssh/sshd.config
```

And then vi into the file and then change the PermitEmptyPasswords to no to disable root login

20. What are the key differences between **SSH** and **Telnet**?

Ssh is known as the secured shell hosting where its an better way to host an machine using an secured way using password and ip address

Telnet is an low profile way which is less secure and cannot handle data breaches

Section 4: DNS & Lookup Utilities

21. What is DNS? How does name resolution work in Linux?

Dns or the domain naming system which is used to name the complex ip address dealing with the system website

PTR - is used to transfer ip to hostname

A record - is used to transfer hostname to ip

Cname - hostname to hostname

Mx record - is used to maintain mail for the hostname

22. What does nslookup do? How is it different from dig?

Both the commands are used to find the ip of the certain IP

23.How do you manually set DNS nameservers in Linux?

Using command `resolvectl status`

Now we can set the 2 servers - `resolvectl dns < interface > <server1>
<server2>`

Now set search domains - `resolvectl domain < interface > domain1 domain2`

`Resolvectl flush-caches`

24.How would you troubleshoot DNS resolution issues in Linux?

Check the `/etc/resolv.conf` configuration files whether there is some problem in the files

Now check the resolution problems using `dig` and `nslookup` commands

Check the firewall setting or otherwise flush the dns cache using the `resolvectl flush-cache` command

25.If `ping google.com` doesn't work but `ping 8.8.8.8` does, what's the issue?

First try flushing the dns cache , second check whether the command works they are reachable if not try other dns servers , check the firewall setting and also check for the proxy settings

Section 5: NTP and Time Sync

26.What is NTP and why is it important on Linux servers?

Network time protocol is used to create an time sync between 2 servers like creating an per connection and dealing with it command to enter the interactive mode is `ntpq` and to set this up :

`Systemctl start ntpd`

`vi /etc/ntp.conf`

now add the peer server in it

now restart the connection `systemctl restart ntpd`

now enter the command `ntpq` to enter interactive mode

27. What's the difference between `ntpd` and `chronyd`?

Both `ntp` and `chrony` are used for the network time protocols but more over the `ntpd` is old version and `chronyd` is an modern version where they are having an stable networking connection flexible to use in environments with unstable networks and unstable time speed

28. How do you view the current NTP synchronization status?

`timedatectl` command - `timedatectl timesync-status`

29. What does the file `/etc/chrony.conf` contain?

This is an configuration file that Is mostly use to add servers to bring an network time sync between the server we put through to the server we want to connect

30. How do you manually sync time once with an NTP server?

Using `timedatectl` command using the command `timedatectl timesync-status` to know the sync of the ntp server

Section 6: Package Management (RPM, YUM, Repos)

31. What is `yum` used for? How do you install a package with it?

`yum` is an linux based package manager that is used to upgrade install remove packages from the machine

`yum install <servive_name>` - is the command

32. How do you list all installed packages?

`rpm -qa` and `apt list --installed`

33. How do you create a local YUM repository using a DVD?

34. What file contains repository configuration in RHEL/CentOS?

`/etc/yum.repos.d`

Section 7: Patch Management and System Updates

36. How do you update all packages on your system using YUM?

`Yum upgrade and yum update <service_name>`

37. How do you check for available updates without installing them?

`Yum check update or apt list --upgradable`

38. How can you exclude a package from being updated in YUM?

`Yum update -exclude="package_name"` or just by configuring the conf file

`/etc/yum.conf - under main - exclude=package1*,package2*`

39. What does `yum clean all` do and when should you use it?

`Yum clean all` , cleans the package managers cache and frees up the disk present

40. What is the difference between `yum update` and `yum upgrade`?

`Yum update` is used for updating an single service or an process but `upgrade` removes all the old files and replaces the new files in the whole linux machine

Section 8: Apache Web Server

41. How do you install Apache on a RHEL-based system?

`Yum install httpd -y`

42. What is the default Apache configuration file?

`/var/www/html`

`/etc/httpd/conf/httpd.conf`

43.What is the default document root for Apache in CentOS?

`/var/www/html/index.html`

Index.html is the root of the system

44.How do you start, stop, and enable Apache using systemctl?

`Systemctl start httpd`

`Systemctl stop httpd`

`Systemctl enable httpd`

45.How do you test whether Apache is serving a page on port 80?

Just hit the Ip address in the browser and check whether u get response or not

46.How do you change the default Apache port to 8080?

`Vi /etc/httpd/conf/httpd.conf`

Change the listening port to 8080

`Systemctl restart httpd`

47.What is the purpose of `/var/www/html`?

`/var/www/html` is the root place where we have to place our programming file such as the index.html to host the site

48.What command shows Apache's current status?

`Systemctl status httpd`

49.How would you host a simple HTML page using Apache?

First install yum install httpd

Now change the port to 8080 in the `/etc/httpd/httpd.conf`

Now go to `/var/www/html`

Vi index.html and create an html content

Now drop down the firewall `systemctl stop` and disable firewall

Now `systemctl restart httpd`

Host the ip address in the browser < ip > : 8080

50. What command allows you to check if port 80 is already in use?

`Lsof -i:80` to check whether the port is used or not

Bonus: Real-Time Scenarios (Asked Frequently at Zoho)

51. You try to access a webpage via Apache, but it shows "403 Forbidden." What are the possible causes?

Maybe because the port number might be taken or the `index.html` file might be missing

52. You configured DNS but cannot ping by hostname. How do you troubleshoot this?

First flush out the dns cache using `ipconfig | flushdns`

Then check the hostname using `nslookup your_hostname` if this is don't correctly its better based on the ping itself

Then not check the network adapters the network gateways are configured correctly

Temporarily disable the firewall and then check the dns hosting

53. You updated a config file in Apache. Changes don't reflect. What might you be missing?

- If the changes don't reflect the process if to restart or reload the services to take in the particular changes that have been done

54. The server is not syncing time. What steps do you take to fix it?

`timedatectl` in the command of `ntp` or `chronyd` we can just set the status to yes to activate the `timedatectl` to get active and sync the peer server to act upon it

By using the command `timedatectl status` , it gives out the `ntp sync` option if its set to `no` then you have to change them in the `ntpd.conf` or `chronyd.conf` files

55.You try installing a package, but YUM throws a repository not found error. How do you fix this?

Create an new repository named as `yum .repos.d`

First `ls /etc/yum.repos.d`

`Vi /etc/yum.repos.d/Centos-Base.repo`

If the `centos-Base.repo` is missing then create an custom repo named `custom-repo`

`Vi /etc/yum.repos.d/custom.repo`

Now add the server content into the repo save and quit and then try to install the package

`Yum install <package_name>`