Study of various Network commands used in Linux

1) arp -a

gateway (172.16.8.1) at 7C:5A:1C:cf:be:45 [ether] on wlp3s0
gateway (172.16.8.1) at 7C:5A:1C:cf:be:45 [ether] on enp2s0

2) hostname

localhost.localdomain

3) ifconfig

enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 172.16.11.3 netmask 255.255.252.0 broadcast

wlp3s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 172.11.165 netmask 255.255.252.0 broadcast

3) nmblookup -A 192.168.1.1

Looking up status of 192.168.1.1
No reply from 192.168.1.1

4) netstat -r

Kernal IP routing table

Destination	Gateway	Genmask	Flags	MSS window	irtt	Iface
default	gateway	0.0.0.0	UG	0 0	0	enp2s0
172.16.8.0	0.0.0.0	255.255.252.0	U	0 0	0	wlp3s0

5) nslookup www.google.com

Server: 172.16.8.1
Address: 172.16.8.1#53

Study of various Network commands used in Windows

1) arp -a,

Interface : 192.168.26.1 --- 0xe

Internet Address	Physical Address	Type
192.168.26.255	ff-ff-ff-ff-ff-ff	static
224.0.0.22	01-00-5e-00-00-16	static

Interface : 172.16.8.113 --- 0xf

Internet Address	Physical Address	Type
172.16.8.1	f8-bc-12-90-42-d8	dynamic
172.16.11.255	ff-ff-ff-ff-ff-ff	static

2) hostname

DESKTOP-A7IULD8

3) ipconfig :-

Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . : fe80::d29a:90fd:6093:115a%15
IPv4 Address . . . . . : 172.16.8.113
Subnet Mask . . . . . : 255.255.252.0
Default Gateway . . . . . : 172.16.8.1

Wireless LAN adapter Local Area Connection* 1:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix :

4) nbtstat -a (hostname)

Input: nbtstat -a DESKTOP-A7IULD8

Output:- Ethernet:

Node IpAddress: [172.16.8.113] Scope ID: []
Host not found

VMware Network Adapter VMnet8:

Node IPAddress: [192.168.186.1] Scope Id: []

5) nbtstat -a :-

Displays protocol statistics and current TCP/IP connections using NBT (NetBIOS over TCP/IP)

NBTSTAT [[-a Remote Name] [-A IP Address] [-c] [-n] [-r] [-R] [-RR] [-s] [-S] [interval]]

-a — lists the remote machine's name table given its name
-A — lists the remote machine's name table given its IP Addr
-c — List NBT's cache of remote names and their IP addresses
-n — Lists local NetBIOS names.
-r — Lists names resolved by broadcast and via WINS
-R — Purges and reloads the remote names.
-S — List sessions table with the destination IP address
-s — Lists sessions table converting destination IP addresses to computer NETBIOS names
-RR — Sends Name Release packets to WINS and then, starts Refresh

6) nbtstat -r

NETBIOS Names Resolution and Registeration Statistics

Resolved By Broadcast = 0
Resolved By Name Server = 0

Registered By Broadcast = 40
Registered By Name Server = 0

7) nbtstat -S

Ethernet:
Node IPAddress: [172.16.8.113] Scope Id: []

No Connections

VMware Network Adapter VMnet8:
Node IP Address: [192.168.186.1] Scope Id: []

No Connections

vEthernet (Default Switch):
Node IpAddress: [172.25.192.1] Scope Id: []

No Connections

Wi-Fi
Node IpAddress: [0.0.0.0] Scope Id: []

No Connections

Local Area Connection* 1:
Node IPAddress: [0.0.0.0] Scope Id: []

No Connections

8) netstat :-

Active Connections

Proto	Local Address	Foreign Address	State
TCP	172.16.8.113.50119	20.42.73.24:https	Close_wait
TCP	172.16.8.113.50122	a23-11-215-105:https	Close_wait
TCP	172.16.8.113.50124	152.195.38.76:http	Close_wait

9) nslookup www.facebook.com

Default Server: Unknown
Address: 172.16.8.1

Non-authoritative answer:
Name: star-mini.c10r.facebook.com
Addresses: 2a03:2880:f137:182:face:b00c:0:25de
157.240.192.35
Aliases: www.facebook.com

10) Pathping :-

Usage: Pathping [-g host-list] [-h maximum_hops]
[-i address] [-n] [-p period] [-q num_queries]
[-w timeout] [-4] [-6] target_name

pathping -n 172.16.8.1

Tracing route to 172.16.8.1 over a maximum of 30 hops

0 172.16.8.113
1 172.16.8.1

pathping -4 172.16.8.1

Tracing route to 172.16.8.1 over a maximum of 30 hops

0 DESKTOP-A7I02DS
1 172.16.8.1

11) ping

ping [-t][-a][-n count][-l size][-f][-i TTL]
[-v TOS][-r count][-s count][-j host-list]
[-k host-list]][-w timeout][-R][-S srcaddr]
[-c compartment][-p][-4][-6] target_name

ping -t 172.16.8.1

Pinging 172.16.8.1 with 32 bytes of data:
Reply from 172.16.8.1 : bytes=32 time<1ms TTL=64
Reply from 172.16.8.1 : bytes=32 time<1ms TTL=64

~~ping 172.172.8.1~~

Ping statistics for 172.16.8.1:
Packets: Sent = 26, Received = 26, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds.
Minimum = 0ms, Maximum = 0ms, Average = 0ms

Some important linux networking commands

1) ip

Eg: ip address show

1) lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo

2) enp2s0: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
link/ether 60:9a:4c:34:d3:b5 brd ff:ff:ff:ff:ff:ff

3) wlp3s0: <BROADCAST, MULTICAST, UP, LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
link/ether d4:6a:6a:82:cd:0b brd ff:ff:ff:ff:ff:ff

2) ifconfig

enp2s0: flags=4099<UP, BROADCAST, MULTICAST> mtu 1500
ether 50:9a:4c:34:d3:b5 txqueuelen 1000 (Ethernet)
RX packets 0 bytes 0 (0.0 B)

lo: flags=73<UP, LOOPBACK, RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
loop txqueuelen 128 (Local Loopback)

wlp3s0: flags=4163<UP, BROADCAST, RUNNING, MULTICAST> mtu 1500
inet 172.16.11.78 netmask 255.255.252.0 broadcast 172.16.11.255
inet6 fe80::fefb:b6ce:2ea6:bd0a prefixlen 64 scopeid 0x20<link>
ether d4:6a:6a:82:cb:0b txqueuelen 1000 (Ethernet)
RX packets 32323 bytes 3291155 (3.1 MiB)

3) mtr

eg: mtr google.com

	Packets			Pings		
Loss%	Snt	Last	Avg	Best	Wrst	StDev
28.0%	78	150	71.6	4.5	459.5	93.9
25.7%	92	188.3	100.1	7.5	1292.	200.7
26.1%	96	248.0	191.7	9.5	2003	327.5

4) tcpdump.

eg: tcpdump -D

1) wlp3s0 [UP, Running]
2) any (Pseudo-device that captures on all interfaces)
3) lo [UP, Running, Loopback]
4) enp2s0 [UP]
5) bluetooth-monitor (Bluetooth Linux Monitor)
6) bluetooth0 (Bluetooth adapter number 0)
7) nflog (Linux netfilter log (NFLOG) interface)
8) nfqueue (Linux netfilter queue (NFQUEUE) interface)
9) usbmon1 (USB bus number 1)
10) usbmon2 (USB bus number 2)

Result:-

Thus, the various Network commands used in Linux and Windows are successfully executed and the output is verified

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