CNT Assignment 1 Theory

Aim: **Study of Network Commands on Linux.**

Problem statement:

Explore and Study of TCP/IP utilities and Network Commands on Linux.

a) Ping
b) ifconfig
c) Hostname
d) Whois
e) Netstat
f) Route
g) Tracert/Traceroute/Tracepath
h) NSlookup
i) Arp
j) Finger
k) Port Scan / nmap

Commands:

IFCONFIG:

Displays all current TCP/IP network configuration values and refreshes Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings. This command is most useful on computers that are configured to obtain an IP address automatically. This enables users to determine which TCP/IP configuration values have been configured by DHCP, Automatic Private IP Addressing (APIPA), or an alternate configuration.

SYNTAX:

ipconfig [/all] [/renew [Adapter]] [/release [Adapter]] [/flushdns] [/displaydns] [/registerdns] [/showclassid Adapter] [/setclassid Adapter [ClassID]]

EXAMPLE:

ifconfig
ifconfig wlan0 down
ifconfig wlan0 up

PING:

Verifies IP-level connectivity to another TCP/IP computer by sending Internet Control Message Protocol (ICMP) Echo Request messages. The receipt

of corresponding Echo Reply messages are displayed, along with round-trip times. Ping is the primary TCP/IP command used to troubleshoot connectivity, reachability, and name resolution.

SYNTAX:

_____ping [options] <destination_ip_address>

EXAMPLE:

_____ping google.com

ping 192.168.2.6

HOSTNAME

The hostname command shows or sets the system hostname. Hostname is used to display the system's DNS name, and to display or set its hostname or NIS (Network Information Services) domain name.

SYNTAX:

_____hostname [options]

EXAMPLE:

hostname

NETSTAT:

Displays active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, IPv4 statistics (for the IP, ICMP, TCP, and UDP protocols), and IPv6 statistics (for the IPv6, ICMPv6, TCP over IPv6, and UDP over IPv6 protocols).

SYNTAX:

netstat [-a] [-e] [-n] [-o] [-p Protocol] [-r] [-s] [Interval]

EXAMPLE:

netstat -a

ROUTE:

Show / manipulate the IP routing table. Route manipulates the kernel's IP routing tables. Its primary use is to set up static routes to specific hosts or networks via an interface after it has been configured with the ifconfig.

SYNTAX:

route [-v] [-A family] add [-net|-host] target [netmask Nm] [gw Gw] [metric N] [mss M] [window W] [irtt I] [reject] [mod] [dyn] [reinstate] [[dev] If]

EXAMPLE:

route add -net 127.0.0.0

route add -net 192.56.76.0 netmask 255.255.255.0 dev eth0

TRACEROUTE:

Determines the path taken to a destination by sending Internet Control Message Protocol (ICMP) Echo Request messages to the destination with incrementally increasing Time to Live (TTL) field values. The path displayed is the list of near-side router interfaces of the routers in the path between a source host and a destination.

SYNTAX:

traceroute [options]<destination>

EXAMPLE:

traceroute google.com

traceroute 192.168.2.55

ARP:

Displays and modifies entries in the Address Resolution Protocol (ARP) cache, which contains one or more tables that are used to store IP addresses and their resolved Ethernet or Token Ring physical addresses. There is a separate table for each Ethernet or Token Ring network adapter installed on your computer.

SYNTAX

arp [-a [InetAddr] [-N IfaceAddr]] [-g [InetAddr] [-N IfaceAddr]] [-d InetAddr [IfaceAddr]] [-s InetAddr EtherAddr [IfaceAddr]]

EXAMPLE:

arp

arp -a -N 10.0.0.99

NSLOOKUP:

Nslookup (Name Server lookup) is a UNIX shell command to query Internet domain name servers.

SYNTAX:

nslookup [-option] [name | -] [server]

EXAMPLE:

nslookup google.com

FINGER:

finger looks up and displays information about system users.

SYNTAX:

finger [-lmsp] [user ...] [user@host ...]

EXAMPLE:

finger

finger pict

NMAP:

The Nmap aka Network Mapper is an open source and a very versatile tool for Linux system/network administrators. Nmap is used for exploring networks, perform security scans, network audit and finding open ports on remote machine

SYNTAX:

nmap [Scan Type...] [Options] {target specification}

EXAMPLE:

nmap 207.218.248.50

nmap -sS 207.218.248.50

nmap -sU 207.218.248.50

Conclusion: I've Studied and implemented the given TCP/IP utilities and Network Commands on Linux.