CN LAB

ASSIGNMENT-1

AIM: TCP/IP UTILITIES AND NETWORK COMMANDS

PROBLEM: EXPLORE AND STUDY TCP/IP UTILITIES AND NETWORK COMMANDS ON LINUX.

THEORY:

- IPCONFIG:
  - Displays all current TCP/IP N/w configuration values & refreshes DHCP & DNS settings
  - Most useful on computers configured to obtain IP addresses automatically.
  - Syntax:
    ipconfig [/all] [/renew [Adapter]] [/release [Adapter]] [/flushdns] [/displaydns] [/registerdns] [/showclassid Adapter] [/setclassid [Adapter] [Class ID]]
  - Used without parameters, ipconfig displays IP addresses, subnet mask & default gateway for all adapters

- PING:
  - Verifies IP level connectivity to another TCP/IP computer by sending ICMP echo request messages
  - Receipt of corresponding echo reply messages are displayed along with RTT.

Primary TCP/IP command used to troubleshoot

connectivity, reachability, & name resolution.

- Syntax: ping <IP address>

ex: ping 192.68.0.1

- HOSTNAME:
- This command shows or sets system hostname.
- Used to display system's DNS name, & display or sets its host name or NIS domain name.
- Syntax:

hostname [-v] [-a | --alias] [-d | --domain] [-f | --fqdn] [-f | --fqdn | --long] [-A | --all-fqdns] [-i | --ip-addr] [-I | --all-ip-addresses] [-s | --short] [-y | --yp | --nis]

hostname [-v] [-b | --boot] [-F | --file filename] [hostname]

hostname [-v] [-h | --help] [-V | --version]

- NETSTAT:
- Displays active TCP connection, ports on which the computer is listening, ethernet statistics, the IP routing table, IPv4 statistics (for the IP, ICMP, TCP & UDP protocols), & IPv6 statistics.

- Syntax:

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

- NETBIOS:
  - NetBIOS name tables for both local computer & remote computers, & the NetBIOS name cache
  - Nbstat allows refresh of NetBIOS name cache & names registered with WINS.
  - Parameters are case-sensitive
  - Syntax:
    nbstat [-a RemoteName] [-A IPAddress] [-c] [-n] [-r] [-R] [-RR] [-s] [-S] [Interval]

- ROUTE:
  - Show/ manipulate IP routing tables
  - Its primary use is to setup static routes to specific hosts or N/Ws via an interface after it has been configured with the ifconfig (s) program.
  - 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]

    route [-v] [-A family] del [-net | -host] target [gw Gw] [netmask Nm] [metric N] [[dev] If]

    route [-V] [--version] [-h] [--help]

ex: route add -net 127.0.0.0

- TRACERT / TRACEROUTE :
- tracert : Determines path taken to a destination by sending ICMP echo request messages to the destination with incrementally increasing TTL values.

- Syntax : tracert [-d] [-h Maximum Hops] [-j HostList] [-w Timeout] [TargetName]

- ARP :
- Displays & modifies entries in ARP cache which contains one or more tables that are used to store IP addresses & their resolved ethernet or token ring physical addresses.

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

- NSLOOKUP :
- Name server lookup (NSlookup) is a UNIX shell command to query internet domain name servers.

- FINGER:
  - Looks up & displays information about system users
  - Syntax: finger [-lmsp] [users...] [user@host]

- NMAP / PORT SCAN:
  - Network map (Nmap) is an open-source tool for Linux system / NW administrators
  - Used for exploring N/Ws, perform security scans N/W audits, & finding open ports on remote machine
  - Ex: nmap 207.218.248.50

- CONCLUSION:
  In this assignment, we studied TCP/IP utilities & network commands