Computer Networks

Lab # 03:

Network Commands

Objective:

The objective of this lab is to learn different network related commands.

Scope:

On the completion of this lab students shall be familiar with basic networking commands.

Useful Concept:

Learn various network related commands

To know and learn about various network related commands [pathping, netstat].

Exercises for lab

3.1 PATHPING Command

This command is used as IP trace utility and so it is similar to the tracert command. It has some extra features compared to tracert command.

PATHPING [-n] [-h max_hops] [-g host-list] [-p period] [-q num_queries] [-w timeout] [-t] [-R] [-r] target_name

-n	don't resolve addresses to hostnames
-h max_hops	Max number of hops to search
-g host-list	loose source route along host-list
-p period	Wait between pings (milliseconds)
-q num_queries	Number of queries per hop
-w timeout	Wait timeout for each reply (milliseconds)
-T	Test each hop with Layer-2 priority tags
-R	Test if each hop is RSVP aware

Exercise:

- Repeat the exercises provided to you in Ping and Tracert commands.

3.2 NETSTAT Command

This command is used to get information about the open connections on your system (ports, protocols being used, etc.), incoming and outgoing data and also the ports of remote systems to which you are connected.

Various options available in the **netstat** command:

-a -> Displays all connections and listening ports.

-e -> Displays Ethernet statistics. This may be combined with the -s option.

-n -> Displays IP addresses and port numbers in numerical form.

-p proto -> Shows connections for the **protocol** specified by proto; proto may be TCP or UDP. If used with the -s option to display per-protocol statistics, proto may be TCP, UDP, or IP.

-r -> Displays the routing table.

-s -> Displays per-protocol statistics. By default, statistics are shown for TCP, UDP and IP; the –p (protocol) option may be used to specify a subset of the default.

Example:

- To display all connections and listening ports

  netstat –a

- To find out the statistics on your Ethernet card

  netstat –e

- To get to know the routing table.

  netstat –r

- To get a quick overview of all connections and ports.

  netstat –n

- To get the Executable responsible making the connections.

  netstat –b

- To get the fully qualified domain names.

  netstat –f

- You can also use combination of options like "–an" and "-bf".

  netstat –an

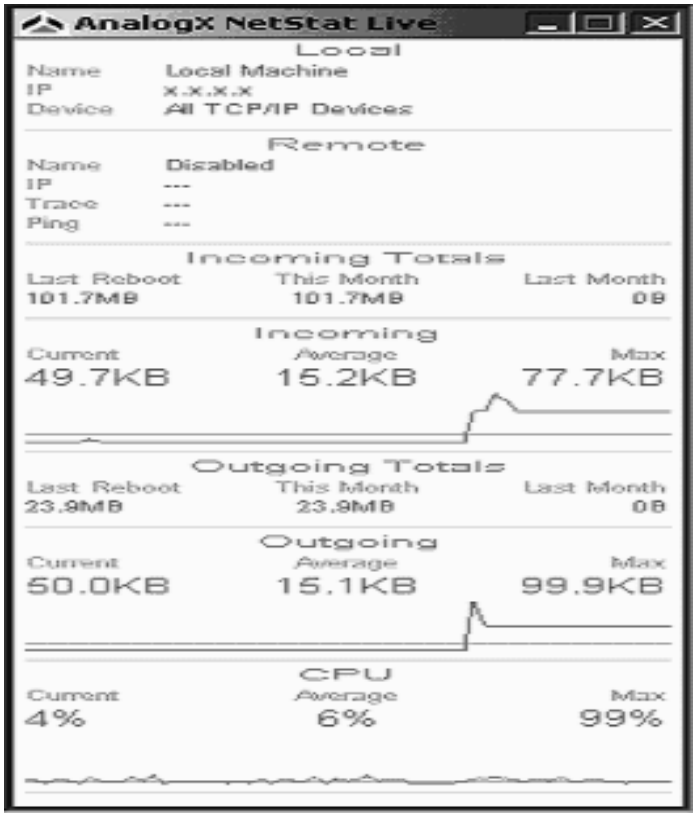
  netstat –bf

Exercise:

- Open a browser connection to https server [www.au.edu.pk] and write down the outcome of the command '**netstat -an**'.

3.3 NetStat Live

Have you ever wondered just how fast your network connection is? Not just how fast the modem is connected at, but how much data you can actually get? Does your internet connection sometimes seem slower than normal? NetStat Live is a small, easy to use TCP/IP protocol monitor which can be used to see your exact throughput on both incoming and outgoing data - whether you're using a modem, cable modem, DSL, or even local network! NSL doesn't just stop there, it lets you see how quickly your data goes from your computer to another computer on the internet; it even will tell you how many other computers your data must go through to get there! NSL also graphs your CPU usage of your system!



Home Work

1) Generate traffic to any server/website (google, yahoo etc.) using ping command using [various packet size options] and see how much of your outgoing interface is being used.
2) Practice and perform all the options of **netstat** provided in the "Example" section.