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NETWORK ADMIN TOOL

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Abstract--*In this modern era computer network became basic choice for every aspect of day to day life. Computer network growing vigorously. Managing this complex network only through the human effort is difficult. Hence there is need of tool. This tool helps to handle each aspect of network administration with the user friendly graphical interface, with visually enrich output to display the command utilities. These information provided by the tool is easily summarized and necessary action will be taken by the administrator.*

Key words- computer network, interface, tool, utilities, administration.

I .INTRODUCTION

In today's world computer network has become an essential part in everyone's life, the world without the computers is impossible to imagine, every action and transaction of this modern era crosses the computer network at least once. Every corner of society like Education, Banking, Hospitals, Business, Transport, Governance, etc. All dependents on internet, computer network has developed vastly, to work this system smoothly and optimally network management system is necessary which includes configuration, performance, fault tolerance, accounting of computer network.

Network became more complex as it supports many application and more users, larger and complex network are difficult to handle by the human effort alone, for that administration tools are developed; these tools are also called management tools. Administration system is to manage and maintain the computer networks and provide optimal usages of network.

Networks is not fixed in size, as number of users increase network needs additional resources. In networks users to gain access some login mechanism are maintained, logging gives the detail information about resource access. This helps to analyses the network for security.

Hence there is a need of some kind of tool to monitor, rule, maintain, control unauthorized user access and also to provide security in networks. Tool is also part of network that contain all network user information to register the resource details with corresponding users. It acts like a console portion of the network.

II. PROBLEM STATEMENT

There are many networking tool and utilities are available. They provide information about specific module of the network. Network administration measure the performance of network by considering the parameters such as monitoring the entire network, configuration of network devices, network analyzing and network monitoring. Through collected information from specific module by utilities. These parameters need to be continuously monitored by administration tools, this monitoring time is more than the response time for failures and it also takes skilled persons for each section. It creates another burden of remembering each utility and commands for the admins. This method consumes time, to fetch information and analyze the information a make necessary decision. It creates a delay in network handling. This approach is not effective.

III. PROPOSED SYSTEM

The proposed paper will overcome the above mentioned drawbacks of the existing system

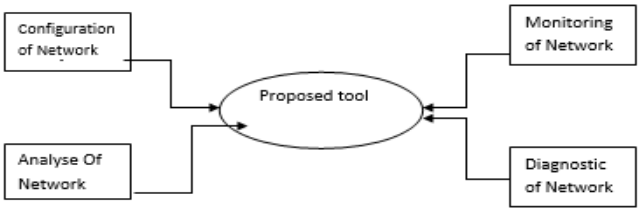

Fig 1. Proposed block diagram

Configuration module- this module is for configuration of the network. intern provide the assigning ip addresses, assigning hostnames, assigning network interface and setting a network interfaces up and down.

Monitoring of network- monitoring is continuously scanning mechanism, it provide the information about failure of the component or abnormal behavior of the network. Monitoring include bandwidth, performance, route, security health of the connection.

Diagnostic of the network- this module helps to verify the connectivity problem of the network and failure problem of the network.

Analyzing module-this module helps to analyze the packets which are generated by the network , sniffing and capturing the packets from the network interface and analyzing the data packet, traffic produced for the further need.

Iv. SYSTEM ARCHITECTURE

Interaction between the each module is shown in this architecture diagram.

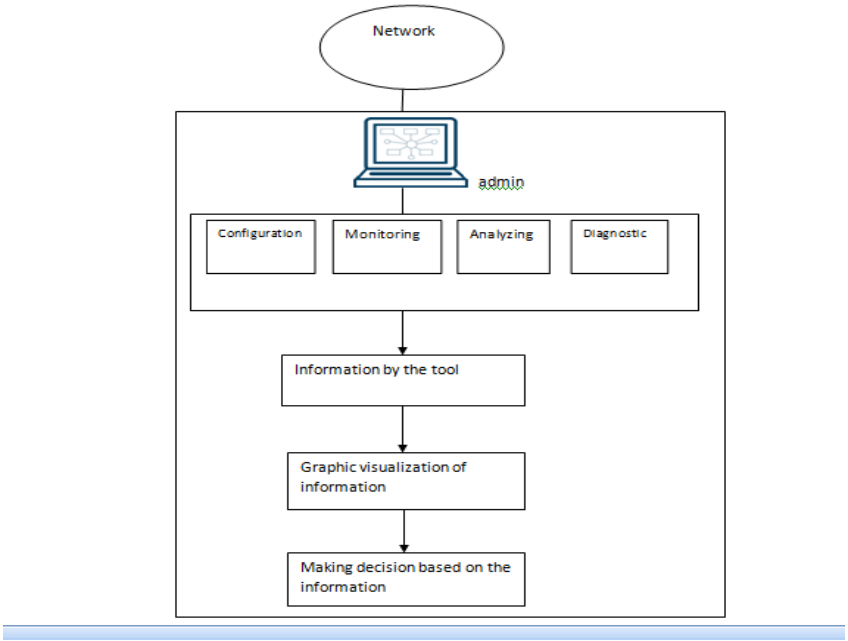

Fig 2. System architecture.

Table 1. Utilities used

Legacy utility	**Note**
Ifconfig	Address and link configuration
Route	Routing tables
Arp	Neighbor's
Tcpdump	Traffic monitor
Nameif	Rename network interfaces
Hostname	To assign hostname to the device
Netstat	Show various networking statistics

WORKING OF THE SYSTEM

4.1 Network monitoring

1. Bandwidth monitoring- utility used iftop is open source utility it monitor the bandwidth utilization of the the network.
2. Security monitoring - ip filtering is simple mechanism in which authorized data packets is transmitted and received, others were rejected.

The Ipchains Utility:

It's chaining mechanism in which many ip filleting rules are kept. It is easy where multiple commands are added together.

Nmap tool- used for security purpose

Nap features include:

- Host discovery – finding the hosts available on a network.
- Port scanning–finding the open ports on target hosts.
- Version detection – finding network services on remote devices to determine application name and version number.
- Operating system detection – Determining the operating system and hardware statistics of network devices.

4.2 System monitoring - top command is used to display information regarding process. It includes process id, memory usage, cup usage, and all current running processes in the system. This helps to take decisions about the processes.
Iostat: it is command which display the statistics about the input output devices, and the information about the storage devices. It helps to take decision about the Io and storage devices.

4.3 Performance – Collect is utility which helps to measure the performance of the network. It display the overall network usage and CPU usage. This tool displays the information about bandwidth usage, in coming bandwidth, outgoing band width.

4.4 Configuring- this module is designed using the commands which are related to configure the network.

- Ping utility – sends icmp packets to check the connectivity of the network.
- Netstat- this tool helps to give the statics about network.
- Ifconfig- this tool helps allow the configuration of the network such as assigning the static address to network ports. And also display the information regarding the each network ports, and broadcast id, gateway address all are viewed through this tool.
- Ifup- this utility helps to active state of the ports.
- Ifdown- this utility helps to off the service regarding the particular port or system.
- Route-this commands help to display the routing table information.
- Trace route- this utility helps to display the route information of the packet.
- Dig- command helps to retrieve the information about the host.
- Arp- display the internet to Ethernet address translation table.
- Host- is utility to give the host information.

4.5 Network analyzing- is module which is designed to analyze the packets in the network.

Tcpdump- this tool provides the capturing packets from the port and allows to packet sniffing. It displays the packet information.

Wire shark tool- this is sniffing tool with more color interface and gives the detailed information about packets. And allows capturing the packets originated from the ports.

V. RESULTS

1. nload command

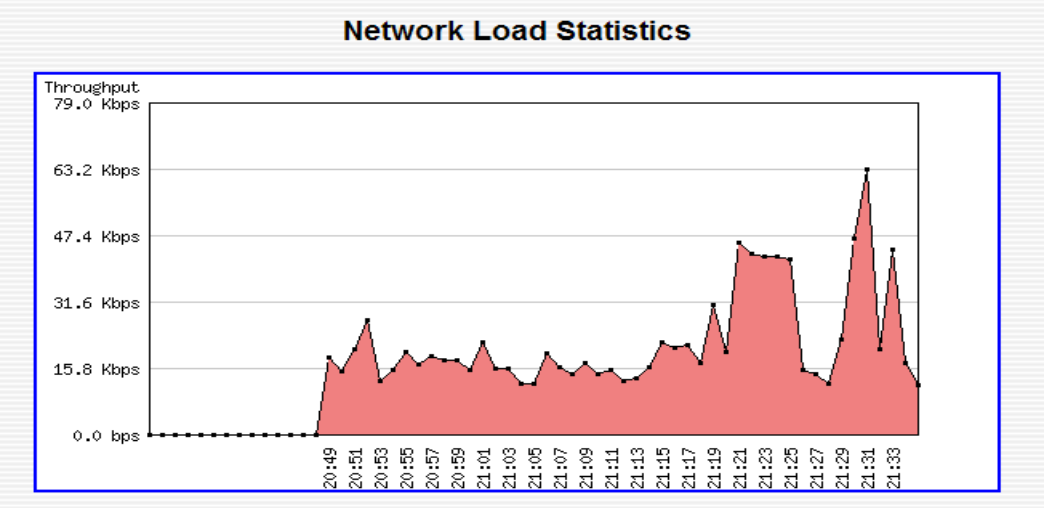

Fig 3. Output of nload command

2. top command

```
File  Edit  View  Terminal  Tabs  Help
top - 22:20:34 up  9:54,  2 users,  load average: 0.15, 0.21, 0.21
Tasks: 139 total,   1 running, 138 sleeping,   0 stopped,   0 zombie
Cpu(s):  5.9%us,  1.1%sy,  0.0%ni, 92.8%id,  0.0%wa,  0.0%hi,  0.2%si,  0.0%st
Mem:    504628k total,   498108k used,     6520k free,     7388k buffers
Swap:   995988k total,    49676k used,   946312k free,    94100k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 5557 root      20   0  419m  35m 8404 S    8  7.3  11:11.88 Xorg
10027 kucing    20   0 28072  14m 9076 S    3  3.0   0:00.42 gnome-screensho
 8327 kucing    20   0  215m  79m  23m S    2 16.0   1:34.71 firefox
 5967 kucing    20   0 25608  15m 6664 S    1  3.2   2:12.11 compiz.real
 5979 kucing    20   0 21708 6268 4960 S    1  1.2   0:20.58 gnome-screensav
 5983 kucing    20   0 20976 9620 6672 S    1  1.9   0:06.52 gtk-window-deco
 5984 kucing    20   0 37872  19m  11m S    1  3.9   0:15.54 gnome-panel
 6145 kucing    20   0 24100  12m 7352 S    1  2.6   0:02.70 notification-da
 7036 kucing    20   0  134m  19m  10m S    1  4.0   8:30.97 transmission
10022 kucing    20   0  2416 1156  876 R    1  0.2   0:00.12 top
    1 root      20   0  3056 1776  496 S    0  0.4   0:01.46 init
    2 root      15  -5     0    0    0 S    0  0.0   0:00.00 kthreadd
    3 root      RT  -5     0    0    0 S    0  0.0   0:00.00 migration/0
    4 root      15  -5     0    0    0 S    0  0.0   0:03.94 ksoftirqd/0
    5 root      RT  -5     0    0    0 S    0  0.0   0:00.00 watchdog/0
    6 root      RT  -5     0    0    0 S    0  0.0   0:00.00 migration/1
    7 root      15  -5     0    0    0 S    0  0.0   0:01.14 ksoftirqd/1
```

Fig 4. Top command output

VI. CONCLUSION

This proposed paper made network administration easier by providing the information about the network parameter under one framework. The output will be enrich with color, graphs and charts which helps to admin quickly visualize the information, and allows taking required decision quickly. This work reduced the number of special skilled persons required for the administration of the network.

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