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1. (i) arp command

- arp command manipulates the system's ARP cache (Address Resolution Protocol). It also allow a complete dump of the ARP cache.
- The primary function of ARP protocol is to resolve the IP address of a system to its mac address and hence it works between Data Link layer and Network layer.
- Syntax: arp [-v] [-i if] [-H type] -a [hostname]

(ii) ifconfig (interface configuration) command

- This command used to configure the Kernal-resident network interfaces. This also used to assign the IP address and net mask to an interface or to enable or disable a given interface.
- Syntax: ifconfig [...OPTIONS] [INTERFACE]

(iii) route command

- This command is used when we want to work with the kernal's IP routing table. It is used for showing or manipulating the kernal's IP routing table.

(iv) host command

- This command is used for DNS (Domain Name System) lookup operations. It is used to find the IP address of a particular domain name.
- Syntax: host [-aCdlriTWV] [-c class] [-N ndots] [-t type] [-R number] [-m flag] hostname [server]

(iv) ping command

- PING (Packet Internet Groper) command is used to check the network connectivity between host and server. It sends ICMP ECHO_REQUEST to network hosts. This command takes IPaddress or the URL as input and sends a data packet to the specified address with the message "PING" and get the response from the server this time is recorded which is called latency.

(vi) tcpdump command

- It is used to capture, filter and analyze network traffic such as TCP/IP packets going through your system.

(vii) netstat command

- This command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships etc.

~~2. Interface to~~ ---------- IPaddress

2.

	Interface	IPaddress
h_1	eth0	10.0.2.15
	eth1	192.168.1.2
	lo	127.0.0.1
h_2	eth0	10.0.2.15
	eth1	192.168.1.3
	lo	127.0.0.1
h_3	eth0	10.0.2.15
	eth1	192.168.2.2
	lo	127.0.0.1

	Interface	IPaddress
h_4	eth0	10.0.2.15
	eth1	192.168.2.3
	lo	127.0.0.1
h_5	eth0	10.0.2.15
	eth1	192.168.3.2
	lo	127.0.0.1
r_1	eth0	10.0.2.15
	eth1	192.168.1.1
	eth2	192.168.101.1
	eth3	192.168.102.1
	lo	127.0.0.1
r_2	eth0	10.0.2.15
	eth1	192.168.2.1
	eth2	192.168.101.2
	eth3	192.168.103.1
	lo	127.0.0.1
r_3	eth0	10.0.2.15
	eth1	192.168.3.1
	eth2	192.168.102.2
	eth3	192.168.103.2
	lo	127.0.0.1