KUBH/GH Network Training Network_Administration_101

Day 3

Ashish Belwase
& CE-IV

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Day 3

- Setting up DHCP Server
- DHCP Clients
- Traffic Shaping
- Bandwidth Management

DHCP

- enables a server to automatically assign an IP
- Dynamic IP
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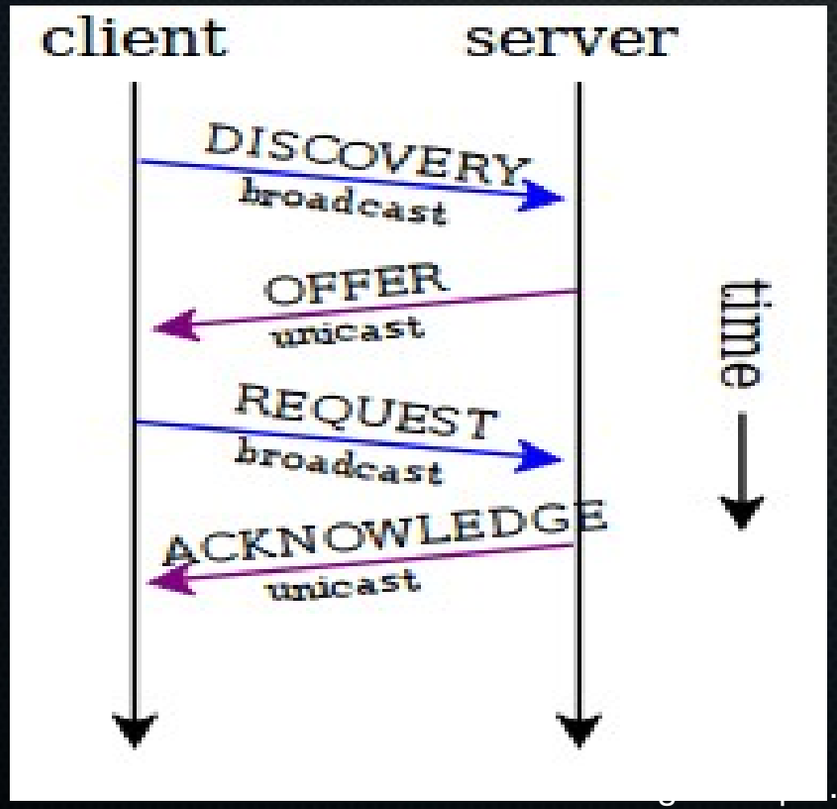
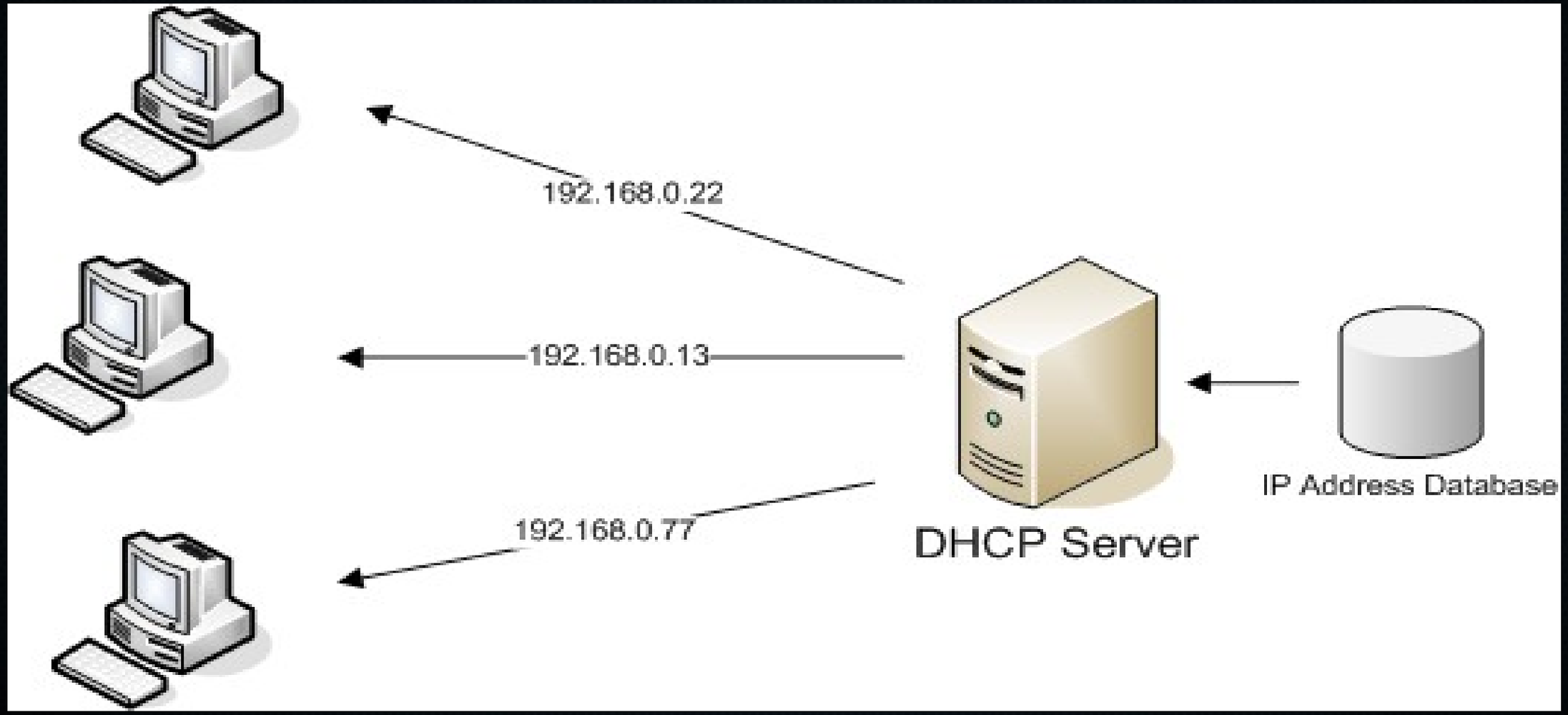


DHCP


192.168.0.22
192.168.0.13
192.168.0.77
DHCP Server
IP Address Database

DHCP

- yum -y install dhcp
- */etc/sysconfig/network-scripts/ifcfg-eth0*
- *vi /etc/sysconfig/dhcpd*
-

DHCP

- *open /etc/dhcp/dhcpd.conf file and paste the below lines and save it.*
- *#specify domain name*
- *option domain-name "geeknepal.com";*
- *#specify DNS server ip and additional DNS server ip*
- *option domain-name-servers 192.168.1.1, 8.8.8.8;*
- *#specify default lease time*
- *default-lease-time 600;*
- *#specify Max lease time*
- *max-lease-time 7200;*
- *#specify log method*
- *log-facility local7;*
- *#Configuring subnet and iprange*
- *subnet 192.168.1.0 netmask 255.255.255.0 {*
- *range 192.168.1.50 192.168.1.254;*
- *option broadcast-address 192.168.1.255;*
- *#Default gateway ip*
- *option routers 192.168.1.1;*
- *}*

DHCP

- *#Fixed ip address based on MAC id*
- *host abgeek{*
- *hardware ethernet 02:34:37:24:c0:a5;*
- *fixed-address 192.168.1.55;*
- *}*
-

DHCP

- *service dhcpd restart*
-

DHCP

- *#Fixed ip address based on MAC id*
- *host abgeek{*
- *hardware ethernet 02:34:37:24:c0:a5;*
- *fixed-address 192.168.1.55;*
- *}*
-

Bandwidth Management

- Limited Bandwidth & High Reliability
- Traffic Shaping : (1) control network services, (2) limit bandwidths and (3) guarantee Quality Of Service (QoS).
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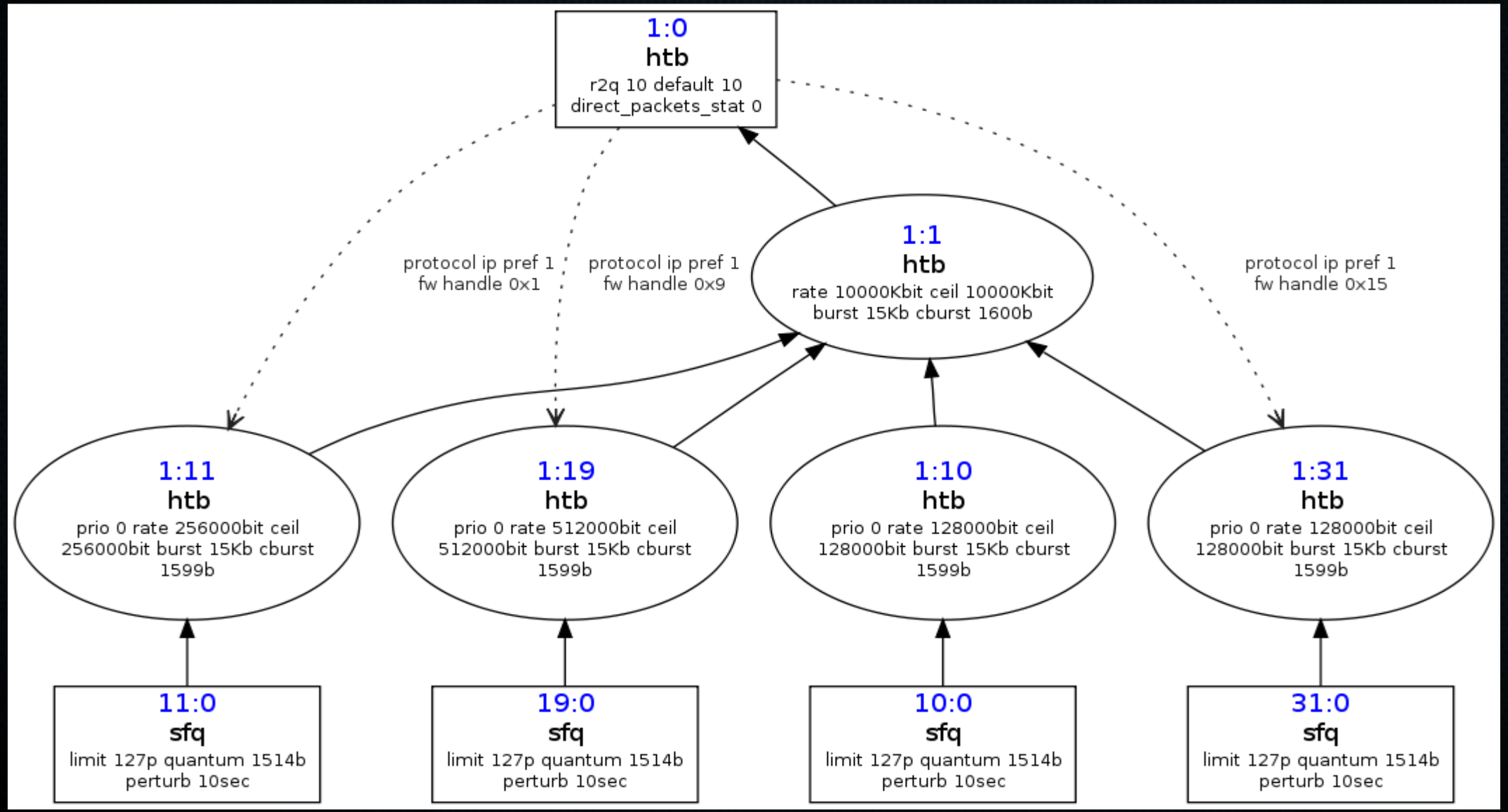
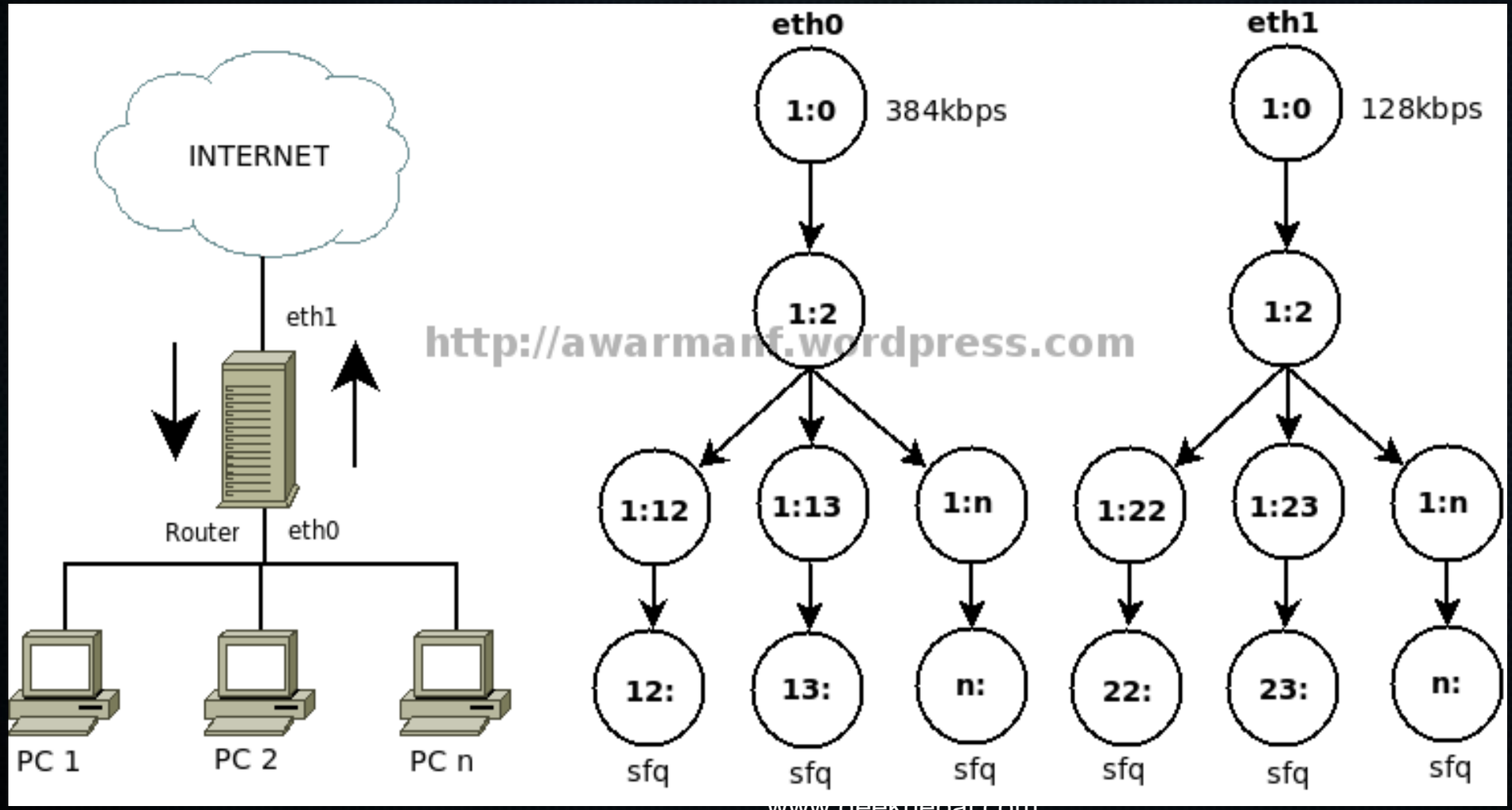
Bandwidth Management

- Queue Discipline
  - Token bucket
  - Hierarchical Token bucket (HTB)
  - Leaky bucket
  - First In First Out (FIFO)
  - Hierarchical Fair Service Curve (HFSC)
- We'll do with both FIFO and HTB algorithms.

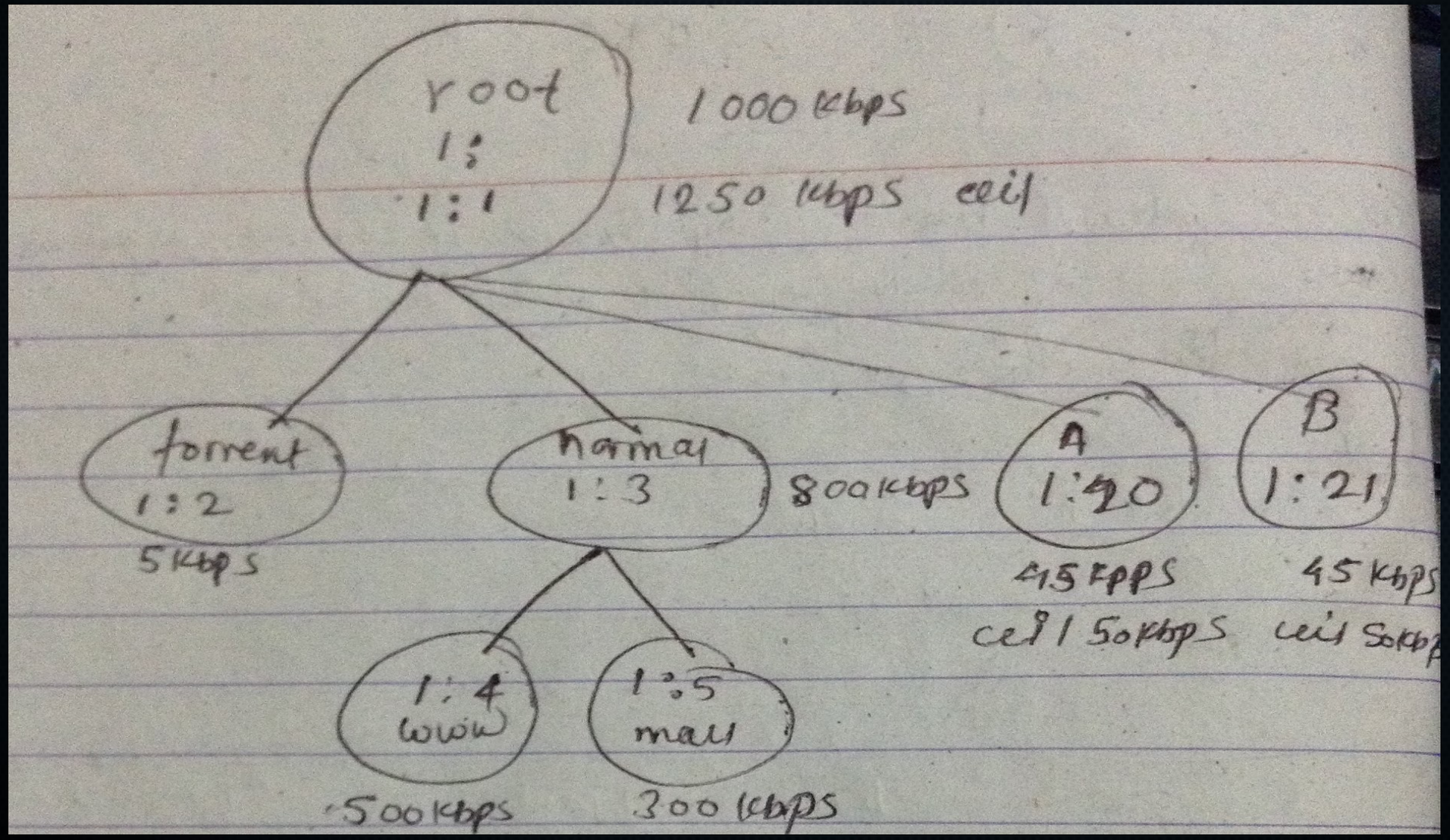
Bandwidth Management - HTB



Bandwidth Management - HTB



Bandwidth Management - HTB



Bandwidth Management

- tc qdisc add dev eth1 root handle 1: htb default 12 #main node
- tc class add dev eth1 parent 1: classid 1:1 htb rate 1000kbps ceil 1250kbps
- tc class add dev eth1 parent 1:1 classid 1:2 htb rate 5kbps
- tc class add dev eth1 parent 1:1 classid 1:3 htb rate 800kbps
- tc class add dev eth1 parent 1:1 classid 1:20 htb rate 45kbps ceil 50kbps
- tc class add dev eth1 parent 1:1 classid 1:21 htb rate 45kbps ceil 50kbps

Bandwidth Management

- Allocate Bandwidth Based on Ip
  - tc filter add dev eth1 parent 1:0 protocol ip prio 1 u32 match ip src 74.125.235.13/32 flowid 1:3 #youtube.com
  - Here we are assigning class 1:3 i.e. 800Kbps bandwidth to youtube.com server
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Bandwidth Management

- Bandwidth Allocation to Users
- At first assign a node to some limit
  - #bw allocate
  - tc class add dev eth1 parent 1:1 classid 1:21 htb rate 45kbps ceil 50kbps
  - tc class add dev eth1 parent 1:1 classid 1:22 htb rate 45kbps

Bandwidth Management

- Now assign bandwidth to IP of user
  - tc filter add dev eth1 protocol ip parent 1:0 prio 1 u32 match ip dst 192.168.1.11 flowid 1:21 #
  - tc filter add dev eth1 protocol ip parent 1:0 prio 1 u32 match ip dst 192.168.1.12 flowid 1:22 #
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