EL5373

INTERNET ARCHITECTURE AND PROTOCOLS

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workstation: APAH

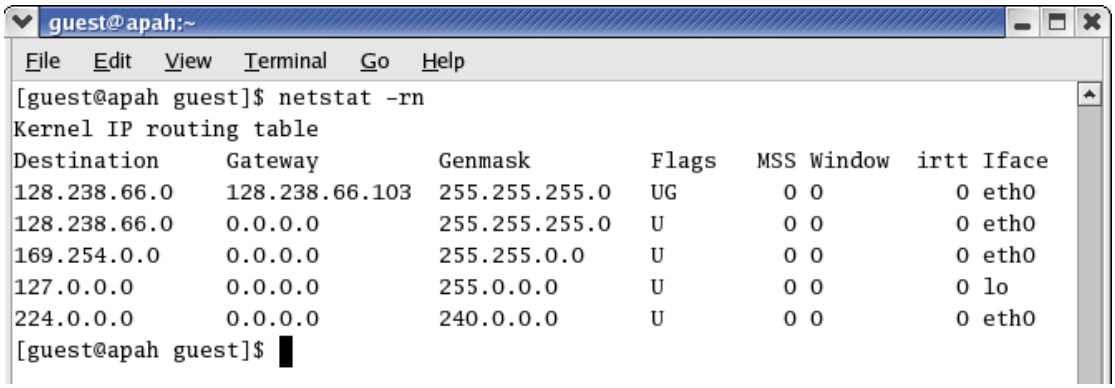
MAC: 00:16:76:a9:82:01

Lab Report 7

Due 24 April 2013

[4 Pages]

Exercise 1



Exercise 2

There is one multicast group. The multicast group is 224.0.0.1. The meaning of the group ID is all systems in the subnet.

Exercise 3

```
[guest@apah guest]$ ping 224.0.0.1
PING 224.0.0.1 (224.0.0.1) 56(84) bytes of data.
64 bytes from 128.238.66.103: icmp_seq=1 ttl=64 time=0.028 ms
64 bytes from 128.238.66.104: icmp_seq=1 ttl=64 time=0.393 ms (DUP!)
64 bytes from 128.238.66.107: icmp_seq=1 ttl=64 time=0.576 ms (DUP!)
64 bytes from 128.238.66.105: icmp_seq=1 ttl=64 time=0.697 ms (DUP!)
64 bytes from 128.238.66.100: icmp_seq=1 ttl=64 time=0.789 ms (DUP!)
64 bytes from 128.238.66.102: icmp_seq=1 ttl=64 time=0.974 ms (DUP!)
64 bytes from 128.238.66.106: icmp_seq=1 ttl=64 time=1.09 ms (DUP!)
64 bytes from 128.238.66.101: icmp_seq=1 ttl=64 time=1.29 ms (DUP!)
```

all seven hosts (128.238.66.100, 128.238.66.101, 128.238.66.102, 128.238.66.103128.238.66.104, 128.238.66.105, 128.238.66.106, 128.238.66.107) reply when the multicast address was pinged.

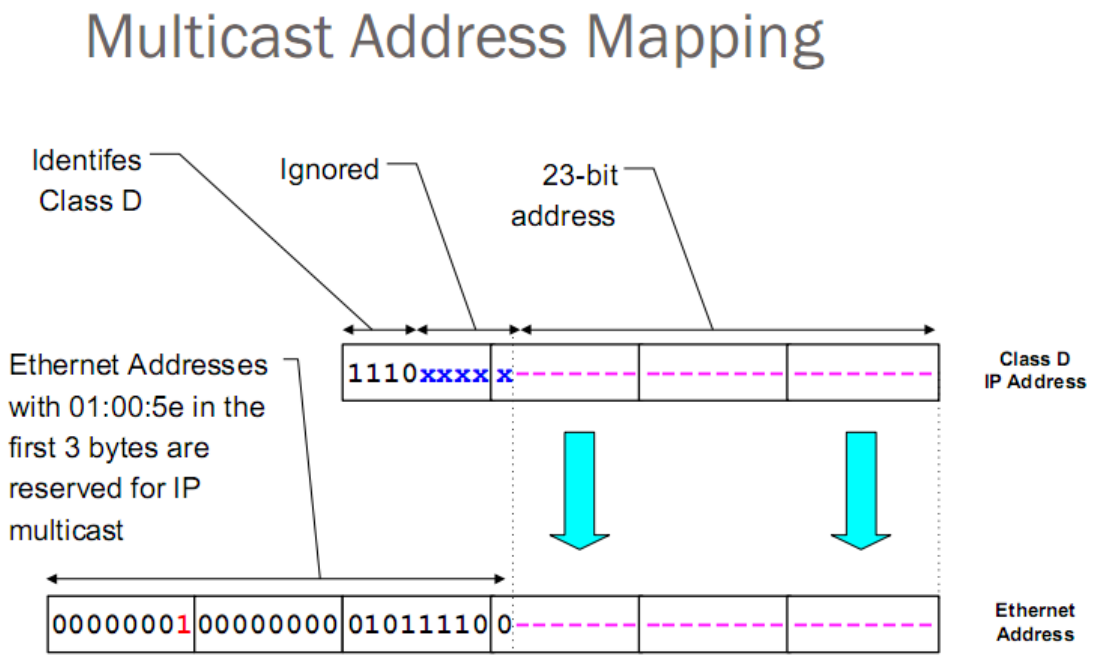
```
[guest@apah guest]$ ping -b 128.238.66.255
WARNING: pinging broadcast address
PING 128.238.66.255 (128.238.66.255) 56(84) bytes of data.
64 bytes from 128.238.66.103: icmp_seq=1 ttl=64 time=0.035 ms
64 bytes from 128.238.66.104: icmp_seq=1 ttl=64 time=0.326 ms (DUP!)
```

```
64 bytes from 128.238.66.100: icmp_seq=1 ttl=64 time=0.451 ms (DUP!)
64 bytes from 128.238.66.105: icmp_seq=1 ttl=64 time=0.669 ms (DUP!)
64 bytes from 128.238.66.107: icmp_seq=1 ttl=64 time=0.830 ms (DUP!)
64 bytes from 128.238.66.101: icmp_seq=1 ttl=64 time=0.932 ms (DUP!)
64 bytes from 128.238.66.106: icmp_seq=1 ttl=64 time=1.39 ms (DUP!)
64 bytes from 128.238.66.102: icmp_seq=1 ttl=64 time=1.58 ms (DUP!)
```

all seven hosts (128.238.66.100, 128.238.66.101, 128.238.66.102, 128.238.66.103128.238.66.104, 128.238.66.105, 128.238.66.106, 128.238.66.107) reply when the broadcast address was pinged.

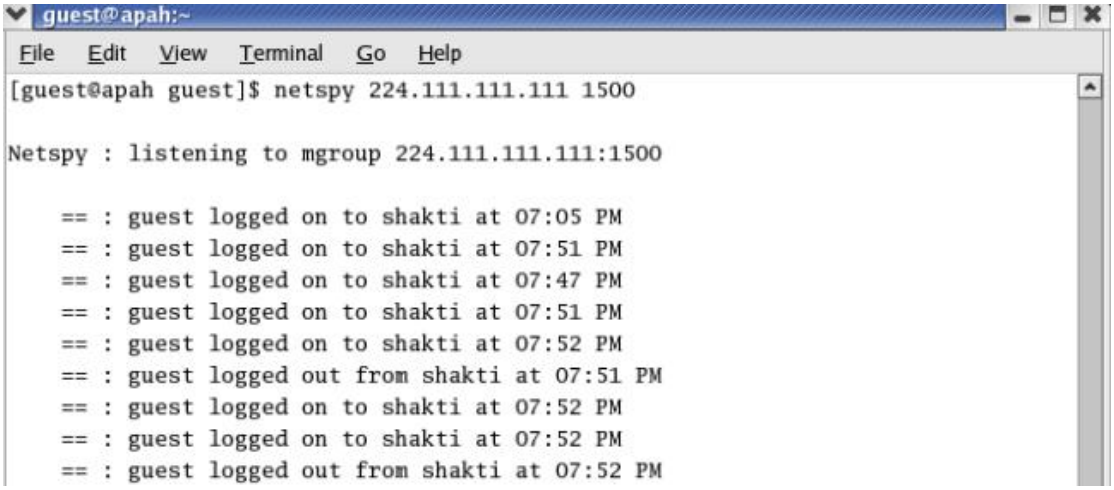
Exercise 4

Unicast:
source MAC:00:16:76:a9:82:01
destination MAC: 00:04:75:b5:20:b5
source MAC address is host MAC address.
destination MAC address is remote host MAC address.
Multicast:
(1)
source MAC: 00:16:76:a9:82:01
destination MAC: 01:00:5e:0b:6f:0a
(2)
source MAC: 00:16:76:a9:82:01
destination MAC: 01:00:5e:0b:6f:0a



Mapping a Class D multicast IP address to an Ethernet multicast address is 01-00-5E(is used for IP Multicast) +0+the last 23-bit of IP address.
230.11.111.10=230.00001011.111.10
232.139.111.10=232.10001011.111.10
For these two IP addresses, the last 23-bit address are the same, so the MAC address are the same 01:00:5e:0b:6f:0a.
Broadcast:
source MAC: 00:16:76:a9:82:01
destination MAC: ff:ff:ff:ff:ff:ff
source MAC address is host MAC address.
destination MAC address is broadcast address.

Exercise 5



When a new user logged in to Shakti, one message is sent by netspyd.
From the netspy outputs on all the hosts, eight copies of the message are received in total.
Shakti will receive the multicast datagram because it is the member of multicast group. It will receive this datagram through its loopback interface.