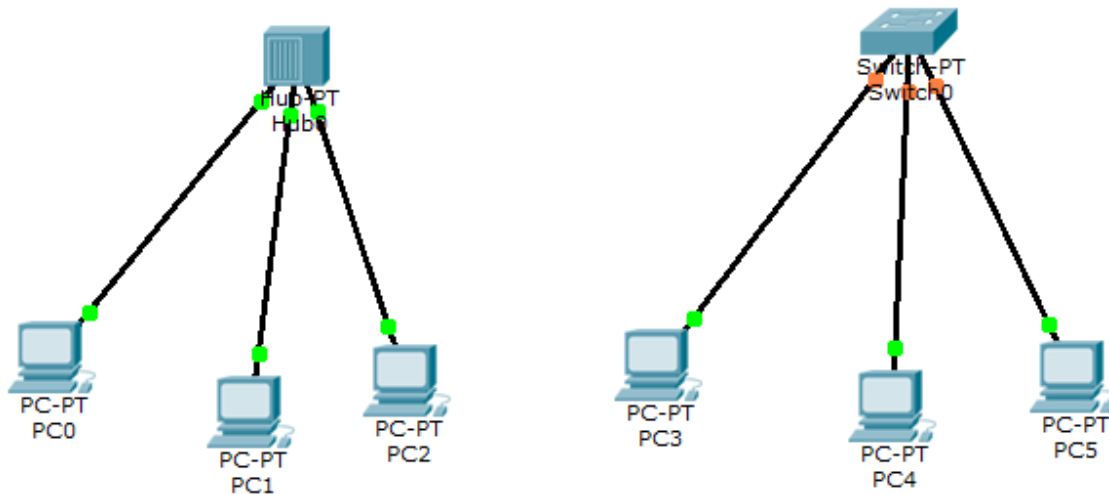# CCN Lab-2   Date:15/1/2018

SOFTWARE: CISCO PACKET TRACER

1. Construct a 3 or more node topology, by connecting a hub and switch as shown in the figure.

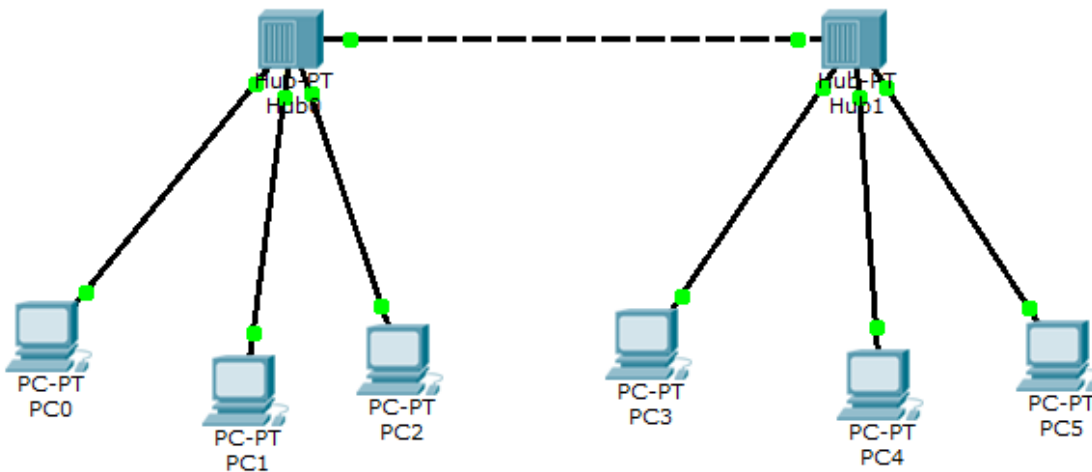Consider IP address for each system as follows.

Node ID	IP address
PC0	192.168.2.2
PC1	192.168.2.3
PC2	192.168.2.4
PC3	192.168.2.5
PC4	192.168.2.6
PC5	192.168.2.7

Write a note on ICMP and ARP packet.

Perform following experiments and observe, what type of packets get transferred? Whether packets are unicasted or broadcasted?

- Set ICMP packet transfer/Ping between PC0 and PC2 and record the result.
- Set ICMP packet transfer /Ping between PC3 and PC5 and record the results. What is the difference between hub and switch?
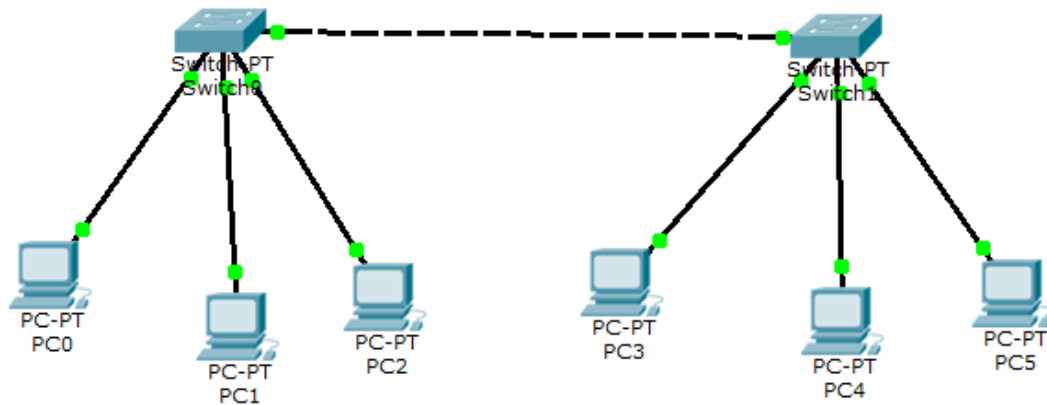
2. Consider following topology of a network with 6 nodes and 2 hubs.

Consider the IP addresses same as (1). Perform following simulation and note down the results.

- ICMP packet transfer from PC0 to PC2. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to hub1? Whether the packet is transferred to PC3, PC4 and PC5?
- Set new scenario, with ICMP packet transfer between PC0 to PC4. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to hub1? Whether the packet is transferred to PC3, PC4 and PC5?
- Set new scenario, with ICMP packet transfer between PC0 to PC2 and PC3 to PC5 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to hub1? Whether the packet is received by destination properly or not?
- Set new scenario, with ICMP packet transfer bewteen PC0 to PC4 and PC5 to PC2 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to hub1? Whether the packet is transferred to PC3, PC4 and PC5? Whether packet is accepted by destination? Justify your answer?
- Now change the IP address of the PC3, PC4 and PC5 as 192.168.3.4, 192.168.3.5 and 192.168.3.6 and default gateway as 192.168.3.1. Set new scenario and set ICMP packet transfer between PC0 to PC4. Record your observation.
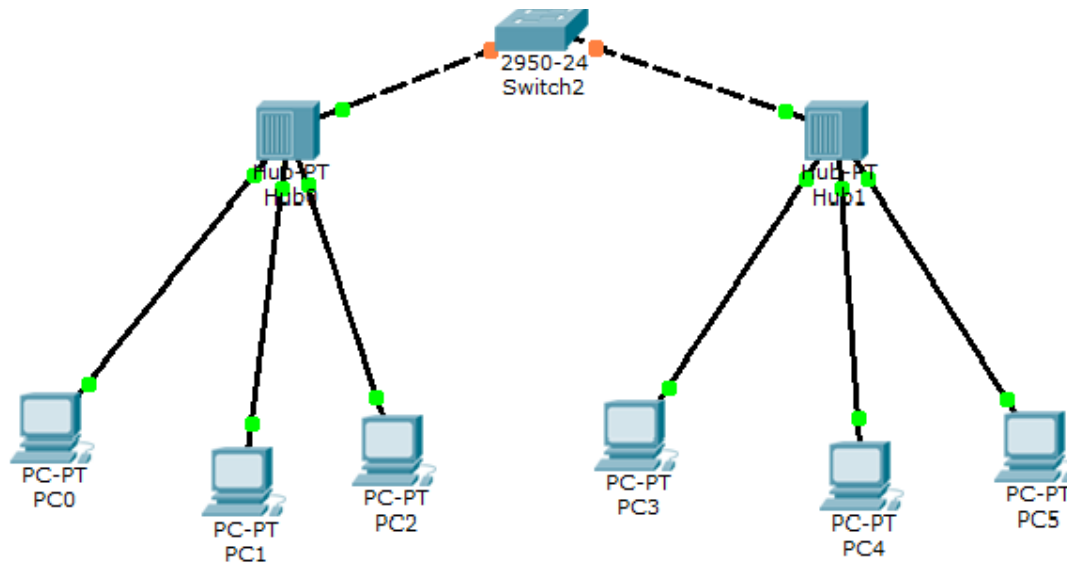
3. Consider following topology of a network with 6 nodes and 2 switches.

Consider the IP addresses same as (1). Perform following simulation and note down the results.

- ICMP packet transfer from PC0 to PC2. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch1? Whether the packet is transferred to PC3, PC4 and PC5?
- Set new scenario, with ICMP packet transfer between PC0 to PC4. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch1? Whether the packet is transferred to PC3, PC4 and PC5?
- Set new scenario, with ICMP packet transfer between PC0 to PC2 and PC3 to PC5 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch1? Whether the packet is received by destination properly or not?
- Set new scenario, with ICMP packet transfer between PC0 to PC4 and PC5 to PC2 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred other hub? Whether the packet is accepted by destination? Justify your answer?
- Now change the IP address of the PC3, PC4 and PC5 as 192.168.3.4, 192.168.3.5 and 192.168.3.6 and default gateway as 192.168.3.1. Set new scenario and set ICMP packet transfer between PC0 to PC4. Record your observation.

4. Consider following topology of a network with 6 nodes and 2 hubs and one switch.

Consider the IP addresses same as (1). Perform following simulation and note down the results.

- ICMP packet transfer from PC0 to PC2. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch2? Whether the packet is transferred to PC3, PC4 and PC5?

- Set new scenario, with ICMP packet transfer between PC0 to PC4. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch2? Whether the packet is transferred to PC3, PC4 and PC5?

- Set new scenario, with ICMP packet transfer between PC0 to PC2 and PC3 to PC5 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred to switch2? Whether the packet is received by destination properly or not?

- Set new scenario, with ICMP packet transfer between PC0 to PC4 and PC5 to PC2 simultaneously. Note down, what type of packets is transferred? Broadcast or unicast? Whether packet gets transferred other hub? Whether the packet is accepted by destination? Justify your answer?

- Now change the IP address of the PC3, PC4 and PC5 as 192.168.3.4, 192.168.3.5 and 192.168.3.6 and default gateway as 192.168.3.1. Set new scenario and set ICMP packet transfer between PC0 to PC4. Record your observation.

Write summary of working principle of hub and switch.