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Lab5- Networking using Switches

Objective

1- Making a pear to pear two PC network using a switch.
2- Connected switches by a central switch in an extended star topology.
3- Searching workgroups and computers in the network.

Requirements

1- Two PCs with windows 7.
2- Two NICs (in this lab you will use Ethernet NICs)
3- straight forward cat5e UTP cables
4- Regular/Fast Ethernet switches. (in the first part of the Lab you will use D-link "DES-1008D" switches, D-link "DES-1016D" will be used as the central switch.

Background

Switches are multiport datalink layer devices, used to connect tow or more PCs in a physical star topology, switches do the functions of hubs but they direct the incoming data only on the port that provides access to the destination system.

In this lab ,first you will made a simple LAN by connecting two PCs each of them has Windows XP as the OS and an Ethernet NIC by a through a 10/100 MBps Ethernet switch using straight through cat5e UTP cable. You also have to set the IP address which lie in the 3rd layer of the OSI reference model.

Then, in the second part of the lab you will connect the star network you just make to the star networks of the rest groups (in this lab we have totally six groups) through a central switch to implement a physical extended star topology

Procedure:-

1- Install (if not installed) a NIC in each PC.
2- The computers in this lab will be divided into six groups, each group consists of two PCs. For each group; set the; computer name, workgroup, and IP address as follows:-

Group No.	PC name	Workgroup	IP address
1	PC11	Group1	192.168.1.11
	PC12	Group1	192.168.1.12
2	PC21	Group2	192.168.1.21
	PC22	Group2	192.168.1.22
3	PC31	Group3	192.168.1.31
	PC32	Group3	192.168.1.32
4	PC41	Group4	192.168.1.41
	PC42	Group4	192.168.1.42
5	PC51	Group5	192.168.1.51

	PC52	Group5	192.168.1.52
6	PC61	Group6	192.168.1.61
	PC62	Group6	192.168.1.62

Notes:-

- **Computer Name , Workgroup, and IP Address for each PC is set according to the procedure of Lab4.**
- **The 1st number in PC name is taken from the group number while the 2nd number is the order of the PC in the group.**
- **The number in the last section of the IP address is taken from the number in the PC name**

3- **In each group:-**
   a- **Power ON the DES-1008D switch.**
   b- **Connect each PC in the group to a port in the switch using a straight forward cat5e cable. Notice the LEDs that indicates connectivity.**
   c- **Use the ping DOS command to check connectivity between the two PCs (as was described in Lab4)**

4- **Central switch**
   a- **Power on the central switch**
   b- **Use a cat5e straight forward cable to connect each group switch to the central switch.**
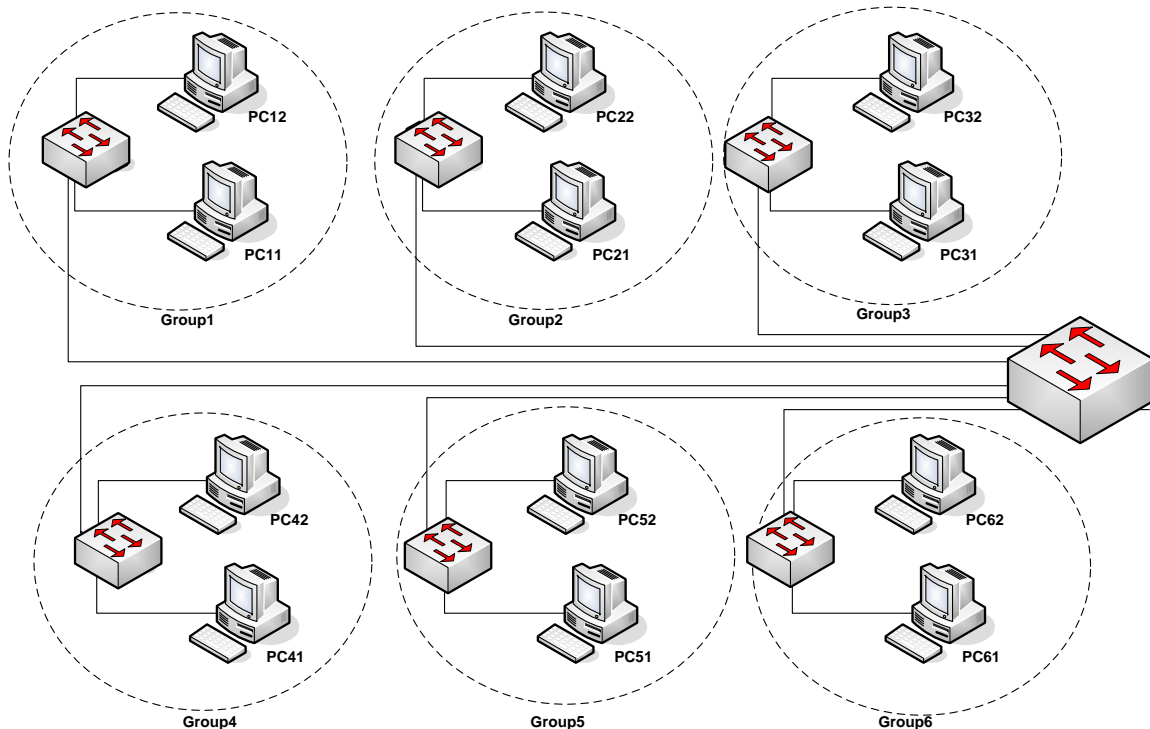
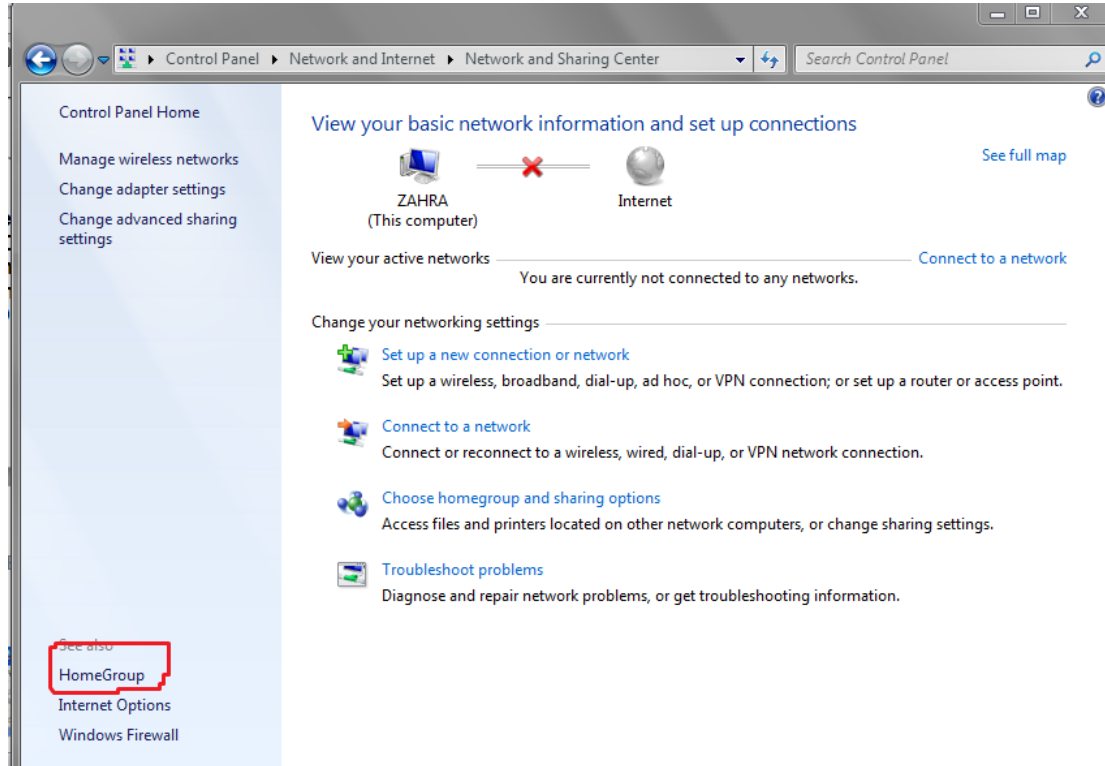**5-serching for workgroups and computers**

a- On the <u>network icon</u> double click on <u>network and sharing center</u>.

b- In the <u>network and sharing center</u> window select <u>homeGroup</u>

c- Double click on the work group name to see connected computers.

Discussion:-

1- Suggest another method to search for computers on the network?

2- Why a cross cable cannot be used to connect computers through switches?

3- What are the main functions of switches?

4- What are the physical and logical topologies of the network implemented in the first part of the lab?