King Fahd University of Petroleum & Minerals
Electrical Engineering Department
EE 400, Experiment # 3

Point to Point Local Communications and Remote Access Service (RAS)

Objectives:

After this experiment, the students shall know how to connect two computers locally through, cross-over Unshielded Twisted Pair (UTP), Parallel and Serial Cables. They shall also know how to setup and configure the Remote Access Service (RAS) for dial-up modems.

Computer Network Configuration:

1. Log on computer as **Administrator**.
2. Specify the *computer name* (computer name would be ee400pcX where X is the number of your computer).
3. Specify the IP address of your computer (ask IP address, subnet mask and default gateway from lab instructor) and *DNS Servers IP addresses* (Primary DNS is 10.140.3.165 and Secondary DNS is 10.140.1.160) in the network settings.

Connecting Computers through Parallel/Serial Cables:

1. Log on computer as **Administrator**.
2. Connect two computers with Parallel Cable or Serial Cable. One computer would be configured as Host (Server) and other as Guest (Client).
3. Go to **Start**, **Settings**, **Network and Dial-up Connections**, open **Make New Connection**, then Click **Next**.
4. Check *Connect directly to another computer* option, then Click **Next**.
5. For Server; Check *Host*, For Client; Check *Guest*. Guest computer can access the shared resources on the Host computer.
6. Select *Connection Device* that is if you are connecting through parallel cable then select Direct Parallel (LPT1) or if you are connecting through serial cable then select Communication Port (COM1) or Communication Port (COM2). Then Click **Next**. Note: The data transfer rate of LPT Port is very much faster than COM Port.
7. For Host computer; Select *usernames* to give privilege to login from Client machine,

For Guest computer; Select either *For all users* or *only for myself* then click **Next**. Click **Finish**.

8. Hence the Guest computer can connect to Host computer and can access the shared resources on the Host computer by finding it from "Search Computers" by name.

Connecting Computers through Twisted-Pair Cross-over Cable:

1. Log on computer as **Administrator**.

2. Connect two computers with twisted-pair crossover cable.

3. Here both computers can access each other's shared resources by finding each other in the network neighbor hood.

MODEMS

The modem is a device that converts digital information to analog by MODulating it on the sending end , and DEModulating the analog information into digital information at the receiving end. They act as textual and voice mail systems, facsimiles, and are connected or integrated into cellular phones and in notebook computers enabling sending data from anywhere. Modem speeds are not expected to be increased much over today's 56 kbps. Further dramatic speed increases will require digital phone technology such as ISDN, xDSL and fiber optic lines.

RAS Setup:

You can configure your computer as *RAS Server* or *RAS Client* or *both* but you can use one service (Server/Client) at one time. Log on computer as **Administrator** and follow one of the following setup procedures.

RAS Server Setup:

1. Go to **Start**, **Settings**, **Network and Dial-up Connections**, open **Make New Connection**, then Click **Next**.

2. Check *Accept incoming Connections* option, then Click **Next**.

3. Check *modem*, click **Next**, Click **Next** again.

4. Select *usernames* to give privilege of RAS service, then click **Next**.

5. Click **Next** and Click **Finish**.

6. Hence the client machine can connect to server machine and can access the local area network of server machine. If accessing local area network is stopped by the server machine, then client can only access the shared resources on the RAS server. For this

purpose, go to *Incoming Connections* **Properties**, go to **Networking**, check *TCP/IP properties*, (if you uncheck the option *Allow callers to access my local area network* then client machine can not access local area network of RAS server).

RAS Client Setup:

1. Go to **Start**, **settings**, **Network and Dial-up Connections**, open **Make New Connection**, then Click **Next**.

2. Check *Dial-up to Private Network* option, then Click **Next**.

3. Enter phone number of RAS Server, click **Next**, and then type *dial up* name like RAS EE-400 or anything you like, then click **Finish**.

4. A small window will appear connect to RAS EE-400, click on **Properties** and go to **Networking** and assign *TCP/IP* settings, like *DNS IP addresses,* and *gateway IP address*.

5. Click on **Dial**, after get connected to the RAS Server, the client machine will be treated as if it is on the local area network of RAS server machine.