Experiment 5: Remote Access using SSH

1. Aim: To configure Routers and Switches remotely using SSH protocol.

2. Tools Used: Cisco Packet Tracer

3. Related Theory:

SSH is a software package that enables secure system administration and file transfers over insecure networks. It is used in nearly every data center and in every large enterprise. Its most notable applications are remote login and command-line execution.

The SSH protocol uses encryption to secure the connection between a client and a server. All user authentication, commands, output, and file transfers are encrypted to protect against attacks in the network.

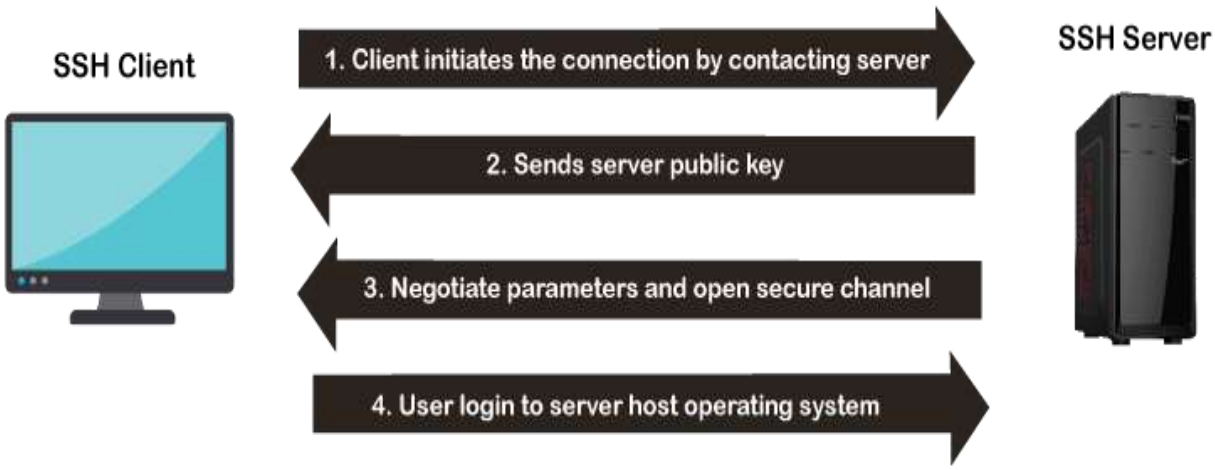

Fig 1: SSH Client-Server Architecture

SSH applications are based on a client–server architecture, connecting an SSH client instance with an SSH server. The IANA has assigned TCP port 22, UDP port 22 and SCTP port 22 for this protocol.

Network admins life is simplified to a great extent due to availability of SSH protocol. The entire network including networking devices like Routers, Switches and Severs can be remotely configured and managed.

4. Laboratory Exercise:

Task: Manage Router & switch in following network remotely using SSH.

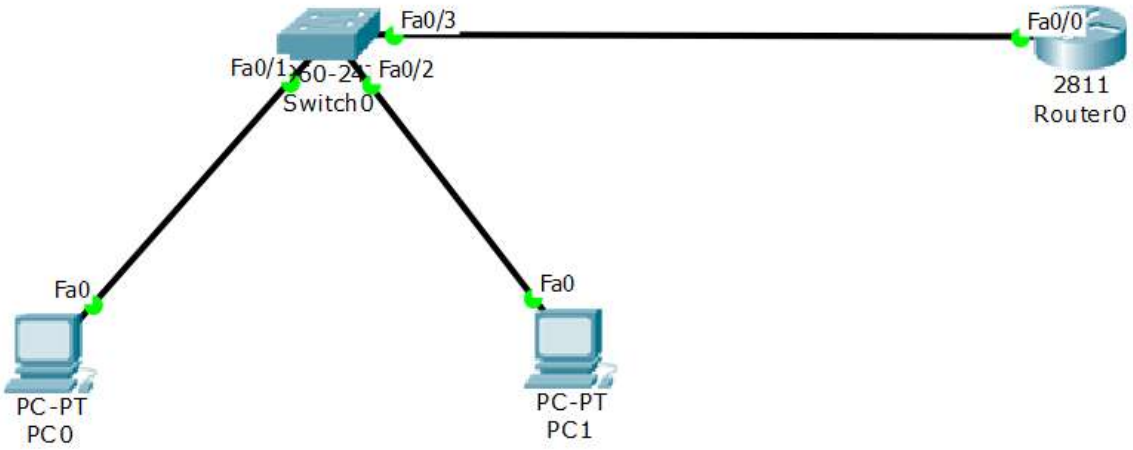

Fig 2: Remote management of Network Devices

In fig 2 above, do following related to **telnet**:

i. Take remote access of switch from PC using telnet
ii. Change the hostname of the switch
iii. Verify mac-address-table of switch
iv. Check the running configuration on switch
v. Understand why telnet is not preferred in insecure environment.

In fig 2 above, do following related to **SSH**:

i. Take remote access of switch from PC using SSH
ii. Change the hostname of the switch
iii. Verify mac-address-table of switch
iv. Check the running configuration on switch
v. Understand why SSH is preferred over telnet.

In fig 2 above, do following related to **SSH**:

i. Take remote access of Router using SSH.
ii. Change the hostname of the Router
iii. Verify routing table of Router
iv. Verify running configuration on Router
v. Configure Router to act like a DHCP server

5. Post-Experiment Exercise:

A. Conclusion

B. Questions:

1. List all the applications of telnet and SSH.
2. Explain how SSH provides security over telnet.
3. Explain with the help of scp command, use of SSH in file transfer.