IK1203
## Networks and Communication

Recitation 4 – Data link layer and wireless networks

1. A network has two Ethernet switches, an access point, and a router. See the figure below. There is a client and a server connected to the network. The client sends a web request to the server, which responds with a web page (the client and the server know each other's IP addresses). As usual, assume that the network has recently been brought into operation and all tables are empty.
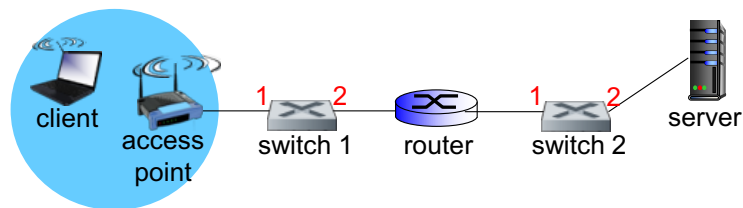
    a) Specify the content in the switch tables (MAC address tables, learning tables, …) in switch 1 and 2 after the web transaction. Use suitable names for the MAC addresses that appear in the tables.

    b) In the network, there are also ARP tables. Specify where the ARP tables are, and give their contents after the web transaction. Use suitable names for the addresses in the tables here as well.

Solutions

1.

   a) MAC address tables:

      Switch 1:

MAC address	Port
Client MAC	1
Router left MAC	2

      Switch 2:

MAC address	Port
Server MAC	2
Router right MAC	1

   b) ARP tables:

      Client:

IP address	MAC address
Router left IP	Router left MAC

      Router port 1:

IP address	MAC address
Client IP	Client MAC

      Router port 2:

IP address	MAC address
Server IP	Server MAC

      Server:

IP address	MAC address
Router right IP	Router right MAC