Department of Computer Science and Engineering

Islamic University of Technology (IUT)

A subsidiary organ of OIC

Laboratory Report

CSE 4412: Data Communication and Networking Lab

Name	**: A Z Hasnain Kabir**
Student ID	**: 200042102**
Section	**: SWE**
Semester	**: Summer**
Academic Year	**: 2021 - 2022**
Date	**: 16-01- 2023**
Lab No	**: 02**

Title: Understanding the basics of OSI Model

Objective:

1. Examine HTTP Web Traffic
2. Display Elements of the TCP/IP Protocol Suite

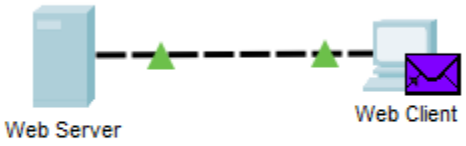
Devices/ software Used:

1. Cisco Packet Tracer

Working Procedure:

1. Open the cisco packet tracer application with the file provided.
2. In the logical view, there is a web server and web client present.
3. Click on the simulation button and start simulation.
4. Click on the web server and click on desktop then web browser.
5. A pop up will appear where we will insert the domain name www.osi.local.
6. Then we have to click on go.
7. An animation of request sending will be shown in simulation where we observe the details of request processing and impact of different layer of OSI model in the panel called simulation.

Diagram of the experiment:



OSI Model | Inbound PDU Details | Outbound PDU Details

At Device: Web Server
Source: Web Client
Destination: HTTP CLIENT

In Layers	Out Layers
Layer 7: HTTP	Layer 7: HTTP
Layer6	Layer6
Layer5	Layer5
Layer 4: TCP Src Port: 1028, Dst Port: 80	Layer 4: TCP Src Port: 80, Dst Port: 1028
Layer 3: IP Header Src. IP: 192.168.1.1, Dest. IP: 192.168.1.254	Layer 3: IP Header Src. IP: 192.168.1.254, Dest. IP: 192.168.1.1
Layer 2: Ethernet II Header 0060.47CA.4DEE >> 0001.96A9.401D	Layer 2: Ethernet II Header 0001.96A9.401D >> 0060.47CA.4DEE
Layer 1: Port FastEthernet0	Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

Challenge Me | << Previous Layer | Next Layer >>

Observation:

The process starts with client sending an HTTP request to server through starting with layer 7. Through layer 4, segmented information is sent using TCP source port 1030 and destination port 80. In network layer, Since the destination Ip address is in the same subnet, the devices sets next hop to destination. In source case the Ip is 192.168.1.254 and in destination case, Ip is 192.168.1.1. In layer 2, also called data link layer, the destination MAC address is set to the one found in ARP table. In layer 1 or the physical layer, FasterEthernet0 is up which means that interface is physically up and protocol is operational.
At the Web server device where source is the web client, process starts with port FastEthernet0 receiving the frame. The other processes of the OSI model performs exactly the same as the out layer defined it.

Challenges:

Since we did not need to configure anything, little to no challenges were faced in this lab. All we needed to do was run the simulation.