CSE 320 ID: ___18301297_____

Application Layer Protocols (HTTP.SMTP/POP and DHCP) Examination Lab

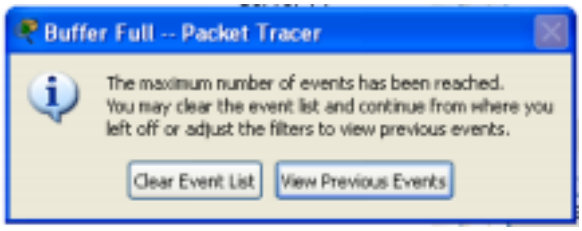
Objectives:

Capture traffic and observe the PDUS for HTTP, SMTP, POP and DHCP. **Task 1:**

Observe HTTP traffic exchange between a client and server. Step 1 –

Run the simulation and capture the traffic.

- Enter **Simulation** mode.
- Click on the PC1. Open the **Web Browser** from the **Desktop**.
- Enter **www.bracu.ac.bd** into the browser. Clicking on **Go** will initiate a web server request. Minimize the Web Client configuration window.
- Two packets appear in the **Event List**, a DNS request needed to resolve the URL to the IP address of the web server and an ARP request needed to resolve the IP address of the server to its hardware MAC address.
- Click the **Auto Capture / Play** button to run the simulation and capture events. • Sit tight and observe the packets flowing through the network.



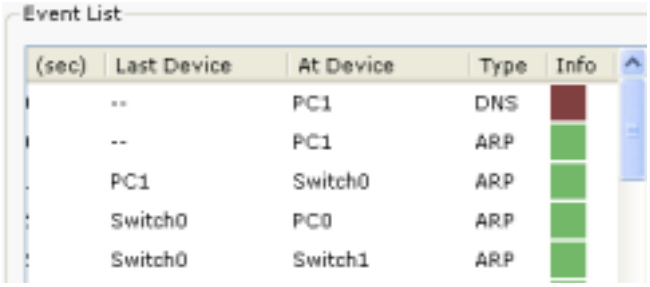
- When the above message appears Click “View Previous Events".
- Click on PC1. The web browser displays a web page appears.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe HTTP traffic.

Last Device At Device Type 1. PC1 Switch 0 HTTP 2.. Local Web Server Switch 1 HTTP

- Find the following packets given in the table above in the **Event List**, and click on the colored square in the **Info** column.



- When you click on the Info square for a packet in the event list the **PDU Information** window opens. If you click on these layers, the algorithm used by the device (in this

case, the PC) is displayed. View what is going on at each layer.

- Examine the PDU information for the remaining events in the exchange.

For packet 1::

What kind of HTTP packet is packet no. 1?
Answer : Request GET http packet

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Click onto “Inbound PDU details” tab. Scroll down at the end, what do you see?

Answer :

Protocol=HTTP

Language: en-us(english)

Root base accepted.

Connection=close

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For packet 2:

Click onto “Inbound PDU details” tab. Scroll down at the end, what do you see? What kind of HTTP packet is this?

Answer :

response HTTP packet.

Protocol=HTTP

Connection=close

Packet tracer name= PT-Server/5.2

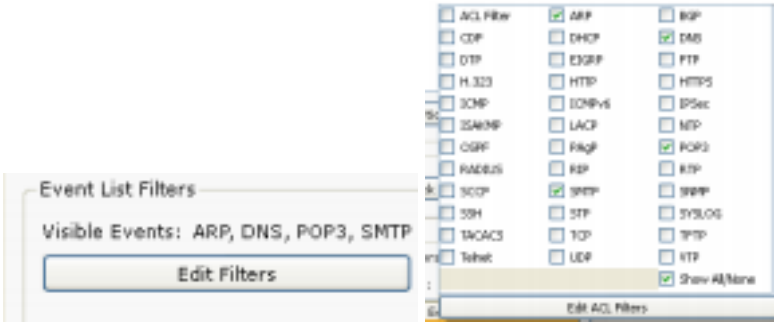
Content text=HTML

Data= HTTP data

Task 2: Observe email traffic exchange between a client and email server using SMTP and POP3.

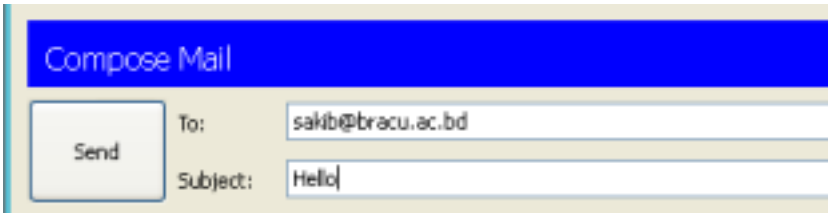
Step 1 – Run the simulation and capture the traffic.

- On the Event List window click “Reset Simulation” button. All previous packets will disappear.
- At the bottom of the Event List window, there is a filter which filters the protocols that we want to see. Click Edit filters. Another window appears showing different protocols, unclick HTTP and click SMTP and POP3.



- Click a space anywhere outside the popup window, then it will disappear.
- Your Event List Filter should be as shown below:

- Now click on the PC1. Close the web browser window. Open the **Email** from the **Desktop**. A mail browser window will open. Click “compose”, another window appears.



- Fill the window as shown and press send.
- Minimize the client window .
- Click the **Auto Capture / Play** button to run the simulation and capture events.
- Sit tight and observe the packets flowing through the network.

• This interaction is between the sender client and its email server.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe SMTP traffic.

Last Device At Device Type 3. PC1 Switch 0 DNS 4. PC1 Switch 0 SMTP 5. Bracu Email Server Switch 1 SMTP

- Find the following packets given in the table above in the **Event List**, and click on the colored square in the **Info** column.
- Examine the PDU information.

For packet 4::

What is the purpose of this DNS packet?
Answer : To resolve the IP addresses.

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For packet 5& 6::

Explain why SMTP packet was sent to the email server and the server replied with an SMTP packet?
Answer : SMTP is used for sending mails. One SMTP can send the mail to the other SMTP server & relay it to the destination through several hops. SMTP server proceeds to hand over the email to the SMTP server of the recipient's email service. As client sent the mail to the server with SMTP so the server replied to the client that the massage was sent or not.

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Step 3 – Run the simulation and capture the traffic for POP.

- On the Event List window click "Reset Simulation" button. All previous packets will disappear.
- Now click on the PC0. Open the **Email** from the **Desktop**. A mail browser window will open. Click "**receive**", minimize the window.
- Click the **Auto Capture / Play** button to run the simulation and capture events. • Sit tight and observe the packets flowing through the network.
- This interaction is between the sender client and its email server.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe POP traffic.

Last Device At Device Type 6. PC1 Switch 0 DNS 7. PC1 Switch 0 POP3 8. Bracu Email Server Switch 1 POP3

- Find the following packets given in the table above in the **Event List**, and click on the colored square in the **Info** column.
- Examine the PDU information.

For packet 6::

What is the purpose of this DNS packet?

Answer : The purpose of this DNS Packet is to resolve the IP Address.

For packet 7&8::

Explain why POP packet was sent to the email server and the server replied with a POP packet?

Answer :

POP packet main motto is to receive mails. When the message is gone to pop3 server it is kept and stored in the mail account till the recipient logs in and checks the mail.As client received the mail from the server with POP3, so the server replied to the client that the massage was received or not.

Homework Task:

Observe DHCP Traffic and write down the steps for the DHCP process. • Reset simulation. Change the Event Filter to show **ARP** and **DHCP** only. • Click to PC2. Go to the **Physical Tab** and turn on the PC by clicking the power button on the CPU shown.

• Then go to the **Desktop Tab** and then to **IP Configuration**. Click DHCP. Wait for a while. Then the IP address and other data will appear in the boxes for this PC. • **Note:** If the IP addresses do not appear, click the static radio button and again click the dhcp radio button again.