Eric Manuel R. Manzanero BSCpE 3A

Activity 3.2.3:
Client-Server Interaction

Learning Objectives

- Setup and run the simulation
- Examine the results

Introduction:

Clients, such as desktop PCs, request services from servers. The course lab environment, using actual PCs and servers, supports a full range of services. In a simulated environment, the number of services is limited. Packet Tracer allows the addition of simulated network servers that support DHCP, DNS, HTTP, and TFTP. Packet Tracer also supports the addition of simulated PCs that can request these services. This activity uses a simple network consisting of a PC connected directly to a server configured to supply DNS services and hosting a web page. The activity will track the flow of traffic when a web page is requested, the IP address of the web page is resolved and the web page is delivered.

Task 1: Setup and run the simulation

Step 1. Enter simulation mode

When Packet Tracer starts, it presents a logical view of the network in realtime mode. At the end of the yellow bar below the logical workplace is the **Realtime** tab. Behind and to the right of the **Realtime** tab is the **Simulation** tab. Click this tab to enter simulation mode.

Step 2. Set Event List Filters

In simulation mode, the default is to capture all events supported by Packet Tracer. You can limit what is captured by setting event list filters. We want to capture only DNS and HTTP events. In the **Event List** section, click the **Edit Filters**button. A list of available events is displayed with all of them selected. Select the check box **Show All/None** in the lower right. This will clear all of the checked boxes. Select the check box for **DNS** and **HTTP** to select only DNS and HTTP events. Click outside of the events window to close it. The **Event List** will now display only DNS and HTTP events when running the simulation.

Step 3. Request a web page from the PC

Packet Tracer provides simulated services on devices. You will open a simulated web

browser on the PC and request a web page from the server.

Click the PC in the logical workspace. Click the **Desktop** tab and click the **Web Browser** button. A simulated web browser opens. Type **www.example.com** into the URL box and click the **Go** button to the right. Minimize the simulated browser window.

Step 4. Run the simulation

In the **Play Controls** section of the **Simulation Panel**, click the **Auto Capture / Play** button. The exchange between the PC and the server is animated and the events are added to the **Event List**. These events represent the request of the PC to resolve the URL to an IP address. The DNS server provides the IP address, upon the request for the web page from the PC. The server renders the web page in two segments, and the PC acknowledges the web page. A dialog box appears indicating there are no more events and provides information on the timing of the simulation. Click **OK** to close it.

Task 2: Examine the results

Step 1. Access a specific PDU

Restore the simulated browser window on the PC. Notice there is a web page displayed. Minimize the simulated browser window.

In the **Simulation Panel Event List** section, the **Info** column contains a colored box that provides access to detailed information about an event. Click the colored box in the **Info** column for the first event. The **PDU Information** window opens.

Step 2. Examine the contents of the PDU Information Window

The first tab in the **PDU Information** window contains information about the inbound and outbound PDU as it relates to the OSI model. Click the **Next Layer >>** button repeatedly to cycle through the inbound and outbound layers and read the description in the box below the layers to get an overview of how the exchange works.

Examine the PDU information for the other events to get an overview of the entire exchange process.

If you have additional questions about the exchange process, be sure to ask your instructor.

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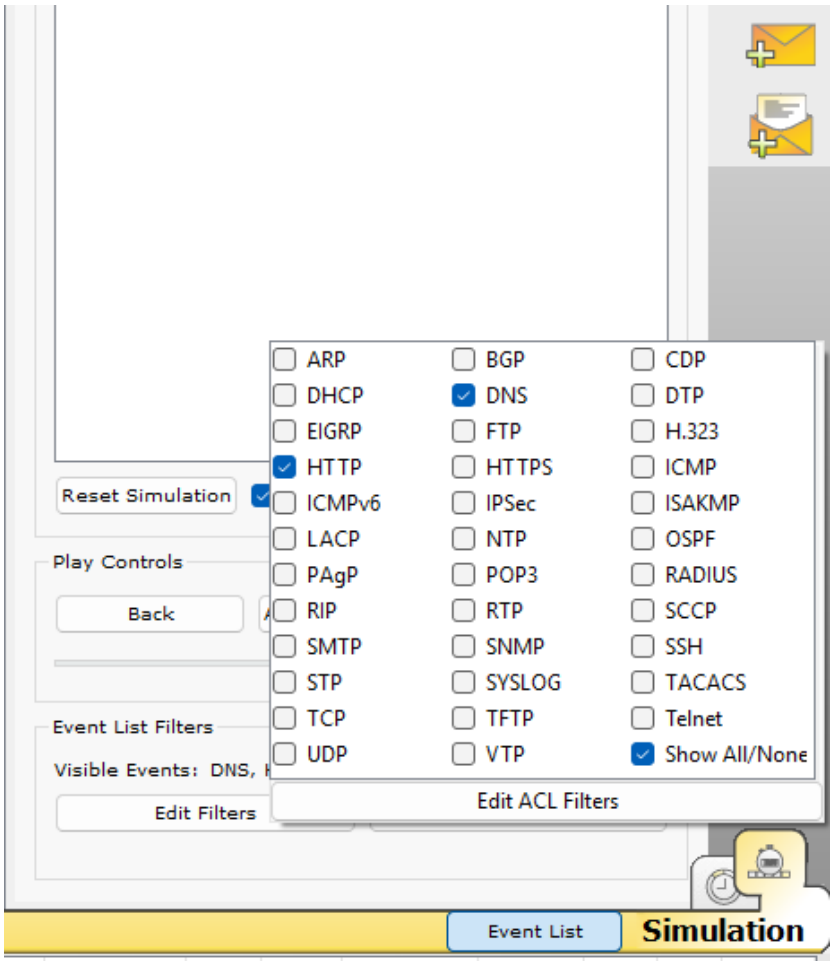
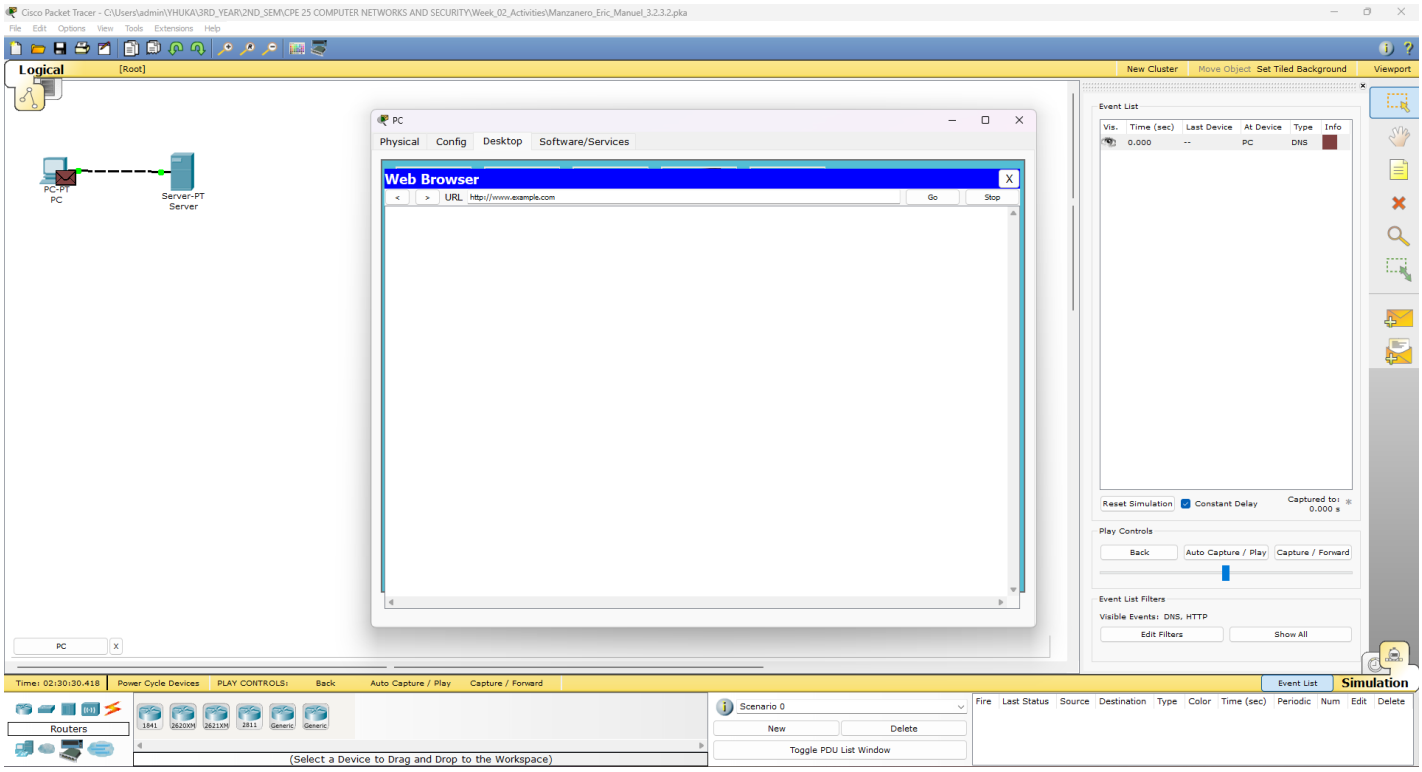
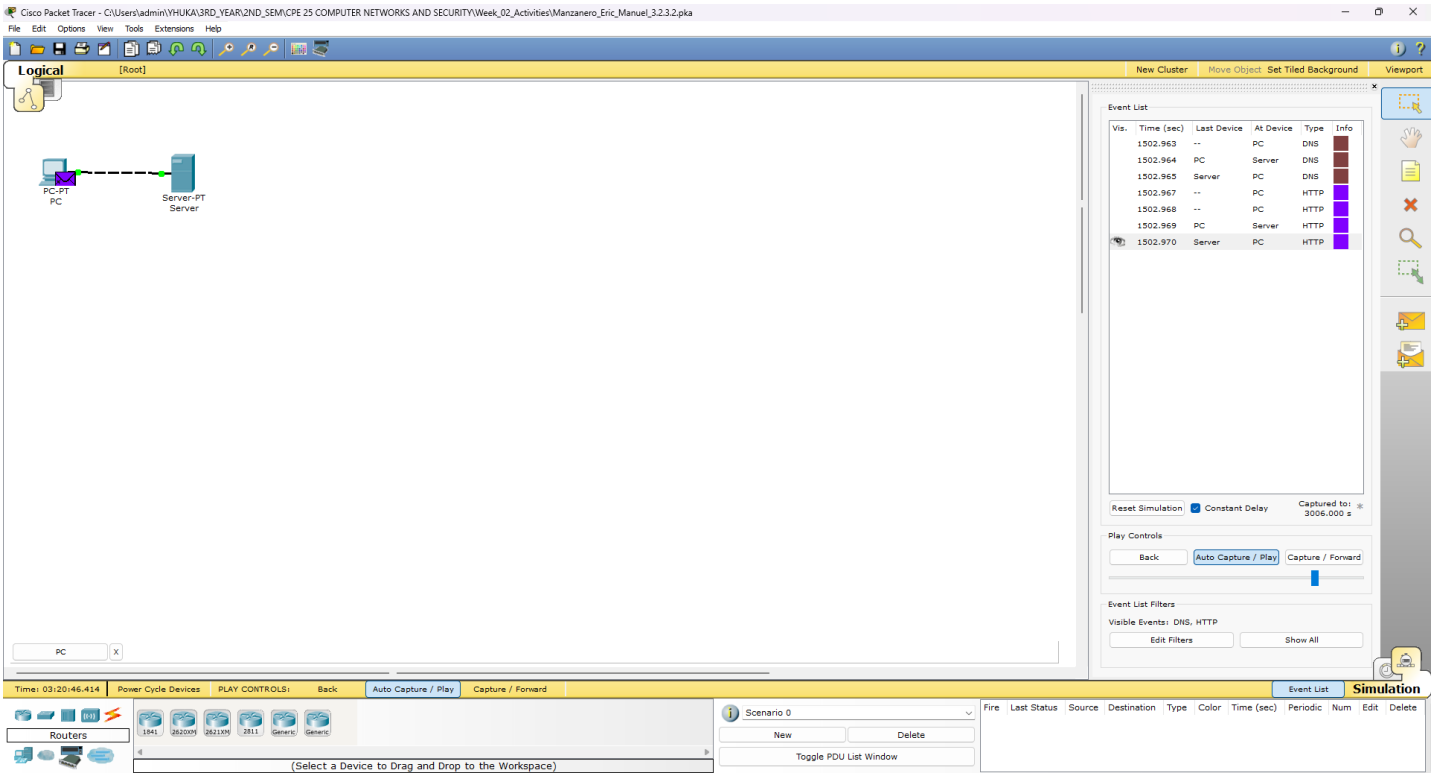
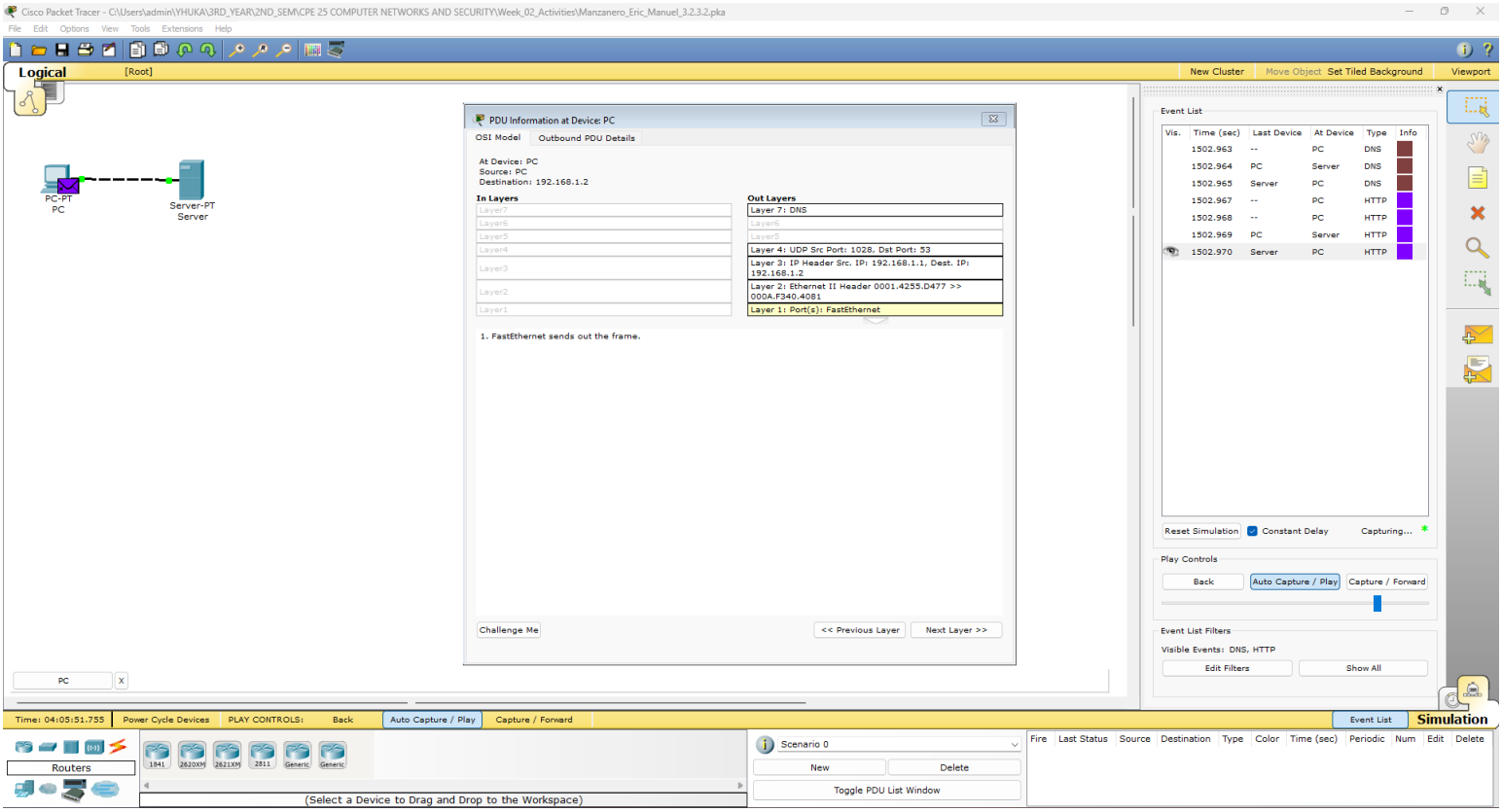
Result:

Cisco Packet Tracer - C:\Users\admin\YHUKA\3RD_YEAR\2ND_SEM\CPE 25 COMPUTER NETWORKS AND SECURITY\Week_02_Activities\Manzanero_Eric_Manuel_3.2.3.2.pka
File Edit Options View Tools Extensions Help
Activity Results
Time Elapsed: 00:20:27
Congratulations Guest! You completed the activity.
Overall Feedback
Assessment Items
Connectivity Tests
Assessment Ite Status Points Component(s Feedback
Network 0 Other Correct
Total Points : 0
Completed Items : 0
Required Items : 0
Component Correct/Total Points
Close


ARP
BGP
CDP
DHCP
DNS
DTP
EIGRP
FTP
H.323
HTTP
HTTPS
ICMP
ICMPv6
IPSec
ISAKMP
LACP
NTP
OSPF
PAgP
POP3
RADIUS
RIP
RTP
SCCP
SMTP
SNMP
SSH
STP
SYSLOG
TACACS
TCP
TFTP
Telnet
UDP
VTP
Show All/None
Edit ACL Filters
Reset Simulation
Play Controls
Back
Event List Filters
Visible Events: DNS,
Edit Filters
Event List
Simulation


Cisco Packet Tracer - C:\Users\admin\YHUKA\3RD_YEAR\2ND_SEM\CPE 25 COMPUTER NETWORKS AND SECURITY\Week_02_Activities\Manzanero_Eric_Manuel_3.2.3.2.pka
Logical
[Root]
PC-PT PC
Server-PT Server
PC
Physical
Config
Desktop
Software/Services
Web Browser
URL
http://www.example.com
Go
Stop
Event List
Vis.
Time (sec)
Last Device
At Device
Type
Info
0.000
PC
DNS
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters
Visible Events: DNS, HTTP
Edit Filters
Show All
Time: 02:30:30.418
Power Cycle Devices
PLAY CONTROLS:
Simulation
Routers
Scenario 0
New
Delete
Toggle PDU List Window
(Select a Device to Drag and Drop to the Workspace)


Cisco Packet Tracer - C:\Users\admin\YHUKA\3RD_YEAR\2ND_SEM\CPE 25 COMPUTER NETWORKS AND SECURITY\Week_02_Activities\Manzanero_Eric_Manuel_3.2.3.2.pka
Logical
[Root]
PC-PT PC
Server-PT Server
Event List
Vis.
Time (sec)
Last Device
At Device
Type
Info
1502.963
1502.964
1502.965
1502.967
1502.968
1502.969
1502.970
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters
Visible Events: DNS, HTTP
Edit Filters
Show All
Time: 03:20:46.414
Power Cycle Devices
PLAY CONTROLS:
Simulation
Routers
Scenario 0
New
Delete
Toggle PDU List Window
(Select a Device to Drag and Drop to the Workspace)


Cisco Packet Tracer - C:\Users\admin\YHUKA\3RD_YEAR\2ND_SEM\CPE 25 COMPUTER NETWORKS AND SECURITY\Week_02_Activities\Manzanero_Eric_Manuel_3.2.3.2.pka
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PC-PT
PC
Server-PT
Server
PDU Information at Device: PC
OSI Model
Outbound PDU Details
At Device: PC
Source: PC
Destination: 192.168.1.2
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
Layer 7: DNS
Layer 4: UDP Src Port: 1028, Dst Port: 53
Layer 3: IP Header Src. IP: 192.168.1.1, Dest. IP: 192.168.1.2
Layer 2: Ethernet II Header 0001.4255.D477 >> 000A.F340.4081
Layer 1: Port(s): FastEthernet
1. FastEthernet sends out the frame.
Challenge Me
<< Previous Layer
Next Layer >>
PC
Event List
Vis.
Time (sec)
Last Device
At Device
Type
Info
1502.963 -- PC DNS
1502.964 PC Server DNS
1502.965 Server PC DNS
1502.967 -- PC HTTP
1502.968 -- PC HTTP
1502.969 PC Server HTTP
1502.970 Server PC HTTP
Reset Simulation
Constant Delay
Capturing...
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters
Visible Events: DNS, HTTP
Edit Filters
Show All
Time: 04:05:51.755
Power Cycle Devices
PLAY CONTROLS:
Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Routers
1841
2620XM
2621XM
2811
Generic
Generic
(Select a Device to Drag and Drop to the Workspace)
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time (sec)
Periodic
Num
Edit
Delete