

# PES UNIVERSITY EC CAMPUS, BANGALORE

**Name:** R Sharmila

**SRN:** PES2UG19CS309

**Date:** 14/03/2021

**Subject:** Computer Network Laboratory

**WEEK No:** 7

**Observation:** Using Cisco packet tracer  
understand the life of packet in internet. Create  
the following topology in packet tracer.

# **1. Task 1**

## **1.1 Configuring Topology**

- The network devices are organised in the required topology shown.
- IP Addresses have been assigned to each interface being used on the routers and end systems.
- The routing tables are then configured manually by adding the required routing information.
- The two servers in the topology correspond to a DNS Server that serves DNS queries from the PC and a web server that serves webpages stored on it. The server is appropriately configured as well.
- An HTTP request is made from the PC for the page index.html in the domain google.com.

### **CONFIGURATIONS :**

#### **HOST A :**

IP Address ---> 10.10.1.1  
Gateway -----> 10.10.1.2  
DNS Server ---> 192.168.1.2

#### **ROUTER 1 :**

Incoming Interface IP --> 10.10.1.2 (Fast ethernet 0)  
Outgoing Interface IP --> 10.10.2.1 (Fast ethernet 1)

#### **ROUTER 2 :**

Incoming Interface IP --> 10.10.2.2 (Fast ethernet 0)  
Outgoing Interface1 IP --> 192.168.1.1 (Fast ethernet 1)  
Outgoing Interface2 IP --> 192.168.2.1 (External added interface)

**DNS Server :** IP Address ----> 192.168.1.2

**Default Gateway :** 192.168.1.1

**WEB Server :** IP Address ----> 192.168.2.2

**Default Gateway :** 192.168.2.1

### **ROUTING TABLE ENTRIES :**

Router name Network Gateway  
ROUTER 1 192.168.1.0 10.10.2.2  
ROUTER 1 192.168.2.0 10.10.2.2  
ROUTER 2 10.10.1.0 10.10.2.1

Cisco Packet Tracer - C:\Users\cagcs\Desktop\week7.pkt

File Edit Options View Tools Extensions Help

Logical Physical x 1415, y 255

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	15.012	Router0	Router1	TCP
	15.013	Router0	Router1	TCP
	15.312	--	PC0	TCP
	15.313	--	PC0	TCP
	15.313	--	PC0	TCP
	15.313	PC0	Router0	TCP
	15.313	--	PC0	TCP
	15.314	Router0	Router1	TCP
	15.314	--	PC0	TCP
	15.315	PC0	Router0	TCP
	15.315	Router0	Router1	TCP
	15.315	Router1	Server1	TCP
	15.316	Router0	Router1	TCP
	15.316	Router1	Server1	TCP
	15.316	Server1	Router1	TCP
	15.317	Router1	Server1	TCP
	15.317	Server1	Router1	TCP
	15.318	Server1	Router1	TCP

Reset Simulation ☒ Constant Delay Captured to: 10522.015 s

Play Controls

Event List Filters - Visible Events

DHCPv6, EIGRPv6, HSRPv6, ICMPv6, NDP, OSPFv6, RIPng, TCP

Edit Filters Show All/None

Time: 09:16:25.773 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

Windows taskbar: 15:41 08-03-2021

Cisco Packet Tracer - C:\Users\cagcs\Desktop\week7.pkt

File Edit Options View Tools Extensions Help

Logical Physical x 1415, y 295

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	Server1	ARP
	0.001	Server1	Router1	ARP
	0.002	--	Router1	ARP
	0.003	Router1	Server0	ARP
	0.003	--	Router1	ARP
	0.004	Server0	Router1	ARP
	0.004	--	Router1	ARP
	15.011	--	Router1	ARP
	15.012	Router1	Server1	ARP
	15.012	--	Router1	ARP
	15.013	Server1	Router1	ARP
	15.013	--	Router1	ARP

Reset Simulation ☒ Constant Delay Captured to: 7220.223 s

Play Controls

Event List Filters - Visible Events

ARP, DHCPv6, EIGRPv6, HSRPv6, ICMPv6, NDP, OSPFv6, RIPng

Edit Filters Show All/None

Time: 09:16:23.981 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

Windows taskbar: 15:40 08-03-2021

Cisco Packet Tracer - C:\Users\cagcs\Desktop\week7.pkt

File Edit Options View Tools Extensions Help

Logical Physical x 1418, y 470

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	15.320	--	PC0	HTTP
	15.321	--	PC0	HTTP
	15.322	PC0	Router0	HTTP
	15.323	Router0	Router1	HTTP
	15.324	Router1	Server1	HTTP
	15.325	Server1	Router1	HTTP
	15.326	Router1	Router0	HTTP
	15.327	Router0	PC0	HTTP

Reset Simulation ☒ Constant Delay Capturing...

Play Controls

Event List Filters - Visible Events  
DHCPv6, EIGRPv6, HSRPv6, HTTP, HTTPS, ICMPv6, NDP, OSPFv6, RIPng

Edit Filters Show All/None

Time: 06:33:50.554 PLAY CONTROLS

Scenario 0 New Delete

Toggle PDU List Window

Type here to search

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 1228, y 492

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	13.871	--	PC0	DNS
	13.872	PC0	Router0	DNS
	13.873	Router0	Router1	DNS
	28.874	--	PC0	DNS
	28.875	PC0	Router0	DNS
	28.876	Router0	Router1	DNS

Reset Simulation ☒ Constant Delay Capturing...

Play Controls

Event List Filters - Visible Events  
DHCPv6, DNS, EIGRPv6, HSRPv6, ICMPv6, NDP, OSPFv6, RIPng

Edit Filters Show All/None

Time: 01:20:53.893 PLAY CONTROLS

Scenario 0 New Delete

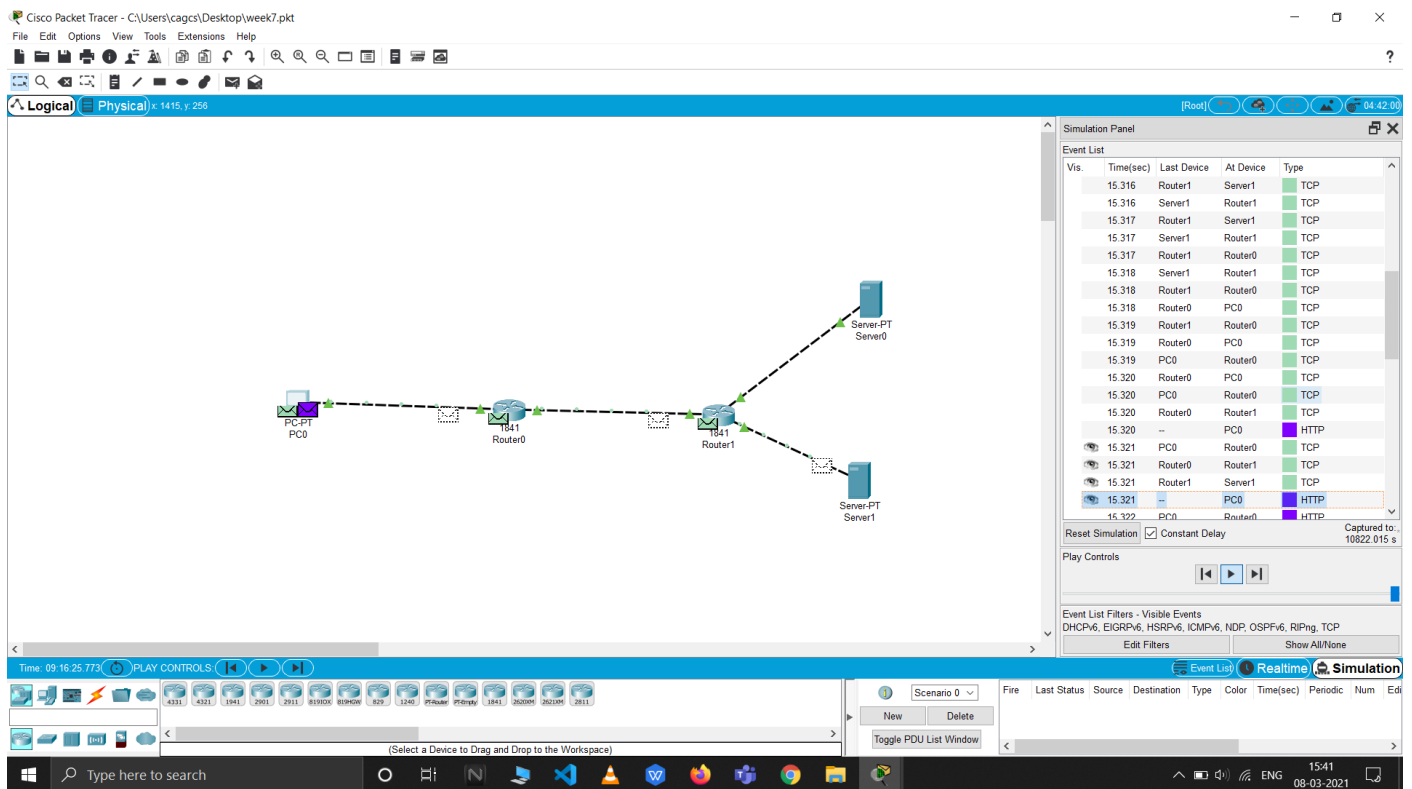
Toggle PDU List Window

Type here to search

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 1228, y 492



## 1.3 Observations

The simulation's first run takes about 0.32 seconds to complete, while the second run takes just 0.19 seconds. This difference is due to caching being performed, where the DNS Resource Record is cached and stored after the first run for the domain google.com. On the second run, the necessary DNS lookup is performed from the cache instead of the DNS server.