DAYANANDA SAGAR COLLEGE OF ENGINEERING

(An Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE & ISO 9001:2008 Certified)

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Minor Project Report

On

"Internet Service Provider Configuration"

Submitted By

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Fifth Semester B.E (CSE)

in

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19CS5DLCNL

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Abstract

An ISP (internet service provider) is a company that provides individuals and organizations access to the internet and other related services. An ISP has the equipment and the telecommunication line access required to have a point of presence on the internet for the geographic area served. ISPs make it possible for customers to access the internet while also providing additional services such as email, domain registration and web hosting. ISPs may also provide different internet connection types, such as cable and fiber. Connections can also come in the form of high-speed broadband or non-broadband.

ISPs are connected to one or more high-speed internet lines. Larger ISPs have their own high-speed leased lines, so they are less dependent on telecommunications services and can provide better service to their customers. ISPs also keep thousands of servers in data centers -- the number of servers depends on their internet service area. These large data centers manage all customer traffic. Multiple ISPs are also connected to large backbone routing centers.

Introduction

An Internet Provider (also referred to as Internet Service Provider (ISP), is the industry term for a company that provides access to the Internet. It is an organization that provides service for accessing, using, or participating in the internet. It serves as the access point or the gateway that provides a user access to everything available on the internet.

ISPs can be organized in various forms such as commercial, committee-owned, non-profit, or privately owned. ISPs are responsible for making sure efficient routing of Internet traffic, resolving domain names, and maintaining the network infrastructure that makes Internet access possible.

Examples:

- Google Fiber
- Vodafone
- Jio
- Airtel

Design and Configuration

1. Router IP Configuration:

ISP Router:

GigabitEthernet0/0 - 200.2.3.1 255.255.255.0

GigabitEthernet0/1 - 200.2.4.1 255.255.255.0

GigabitEthernet0/2 - 200.2.6.1 255.255.255.0

ISP Router A:

GigabitEthernet0/0 - 200.2.4.2 255.255.255.0

GigabitEthernet0/1 - 200.2.5.1 255.255.255.0

ISP Router B:

GigabitEthernet0/0- 200.2.6.2 255.255.255.0

GIgabitEthernet0/2 - 200.2.12.1 255.255.255.0

ISP Router C:

GigabitEthernet0/0 - 200.2.12.2 255.255.255.0

GigabitEthernet0/1 - 200.2.13.1 255.255.255.0

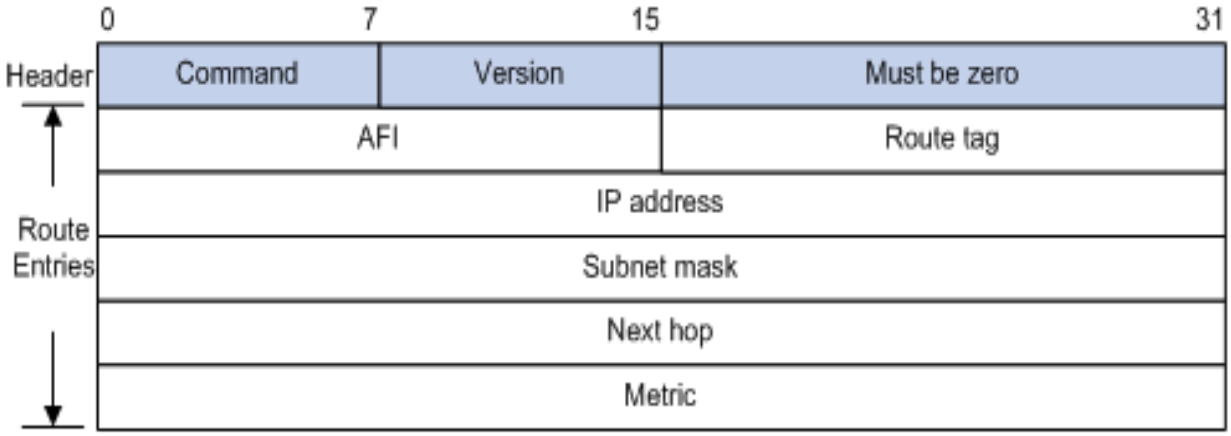
Company Router:

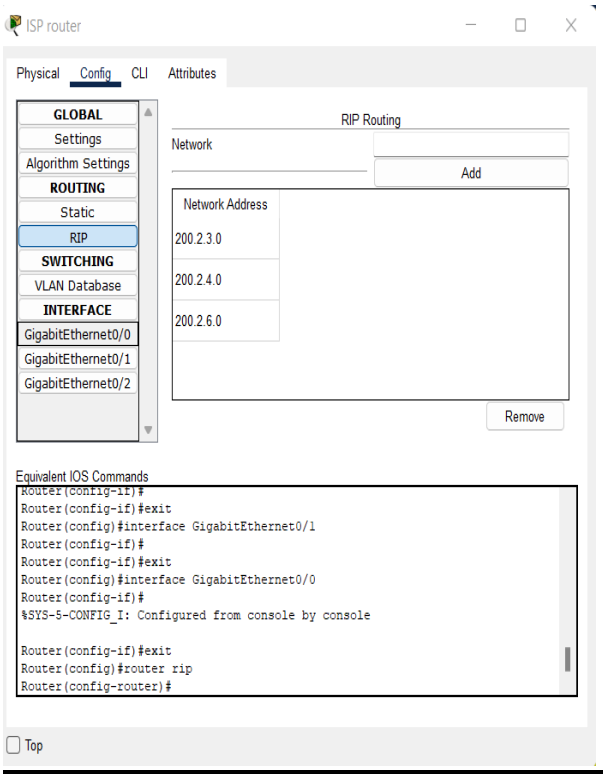
GigabitEthernet0/0 - 200.2.13.2 255.255.255.0

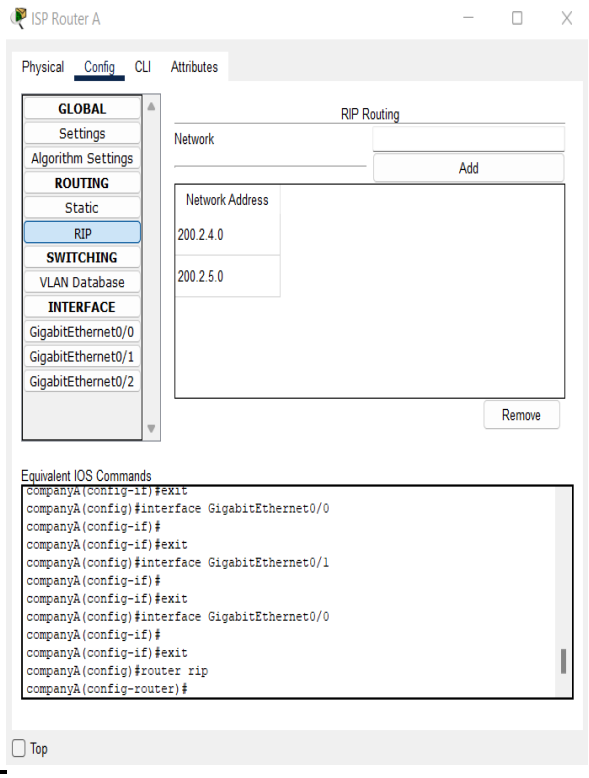
3. RIP (Routing Information Protocol) Configuration:

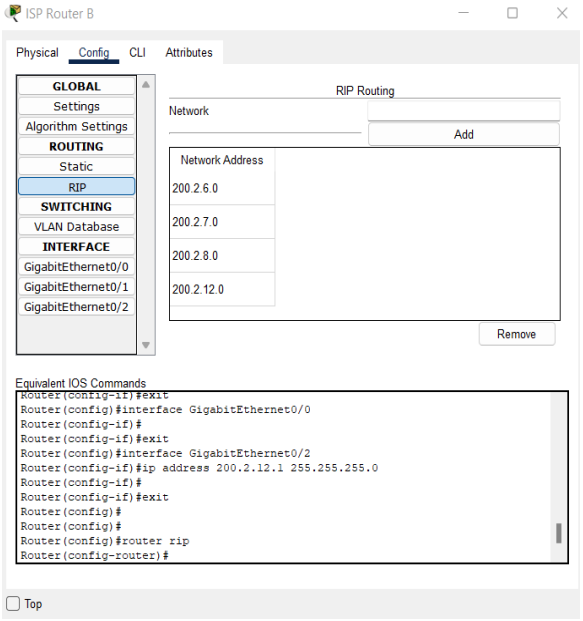
RIP (Routing Information Protocol) is one of the oldest distance vector routing protocols.

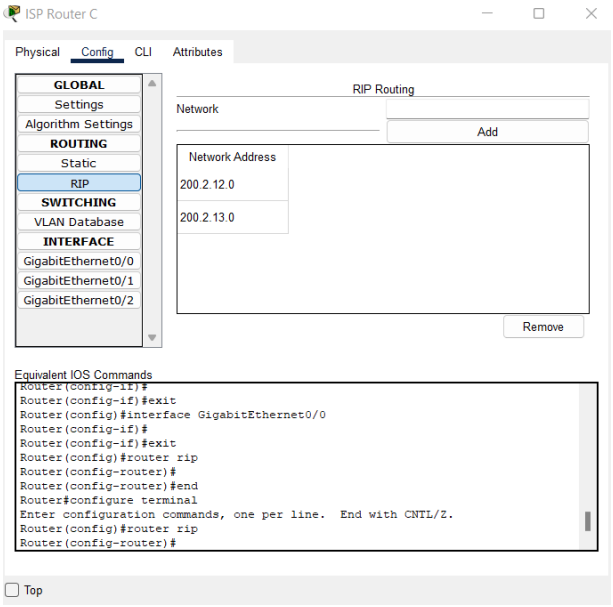
RIP Header:

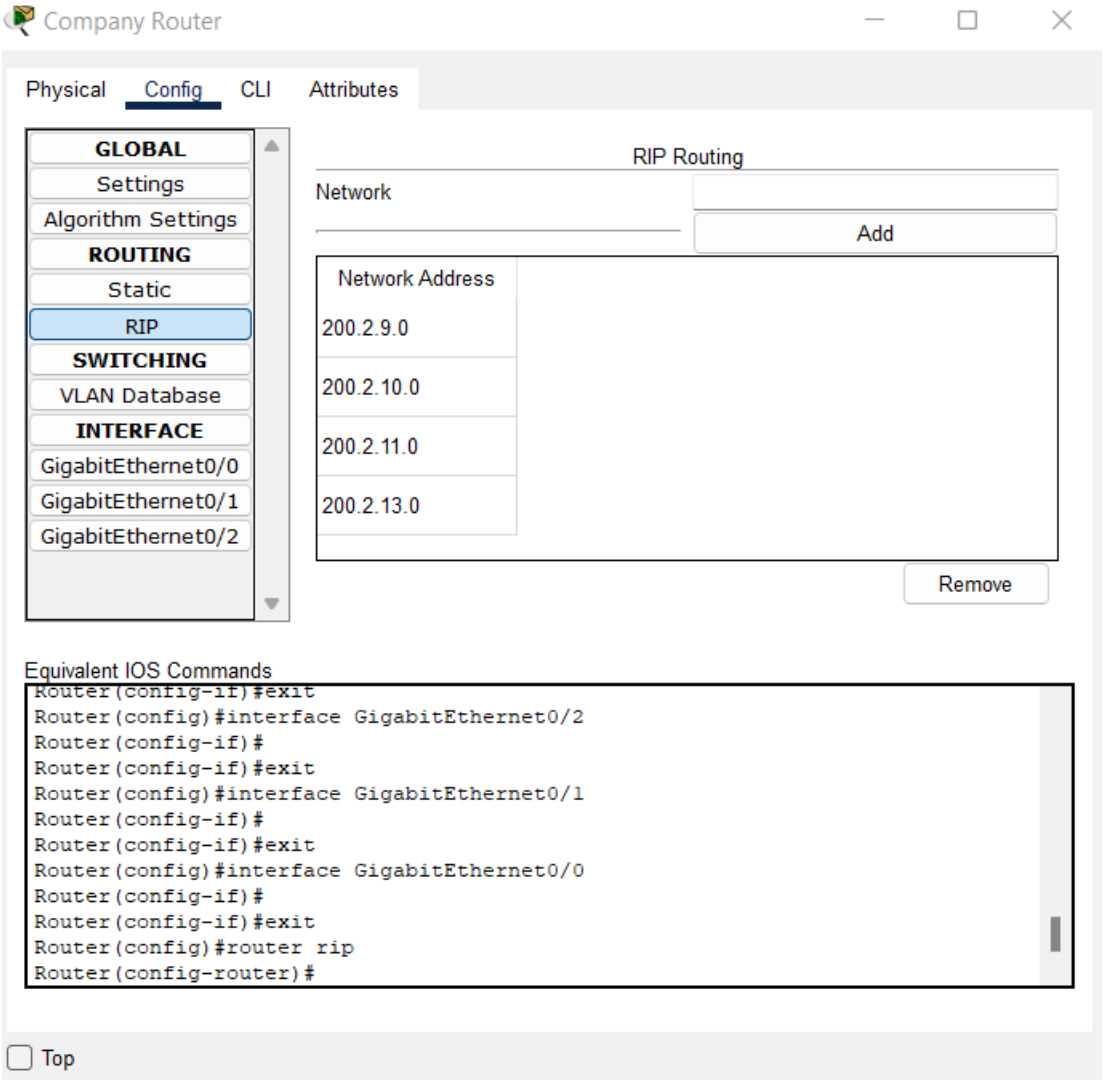







ISP Router B
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
RIP Routing
Network
Add
Network Address
200.2.6.0
200.2.7.0
200.2.8.0
200.2.12.0
Remove
Equivalent IOS Commands
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#ip address 200.2.12.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#router rip
Router(config-router)#
Top


ISP Router C
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
RIP Routing
Network
Add
Network Address
200.2.12.0
200.2.13.0
Remove
Equivalent IOS Commands
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
Top


Company Router
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
RIP Routing
Network
Add
Network Address
200.2.9.0
200.2.10.0
200.2.11.0
200.2.13.0
Remove
Equivalent IOS Commands
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
Top

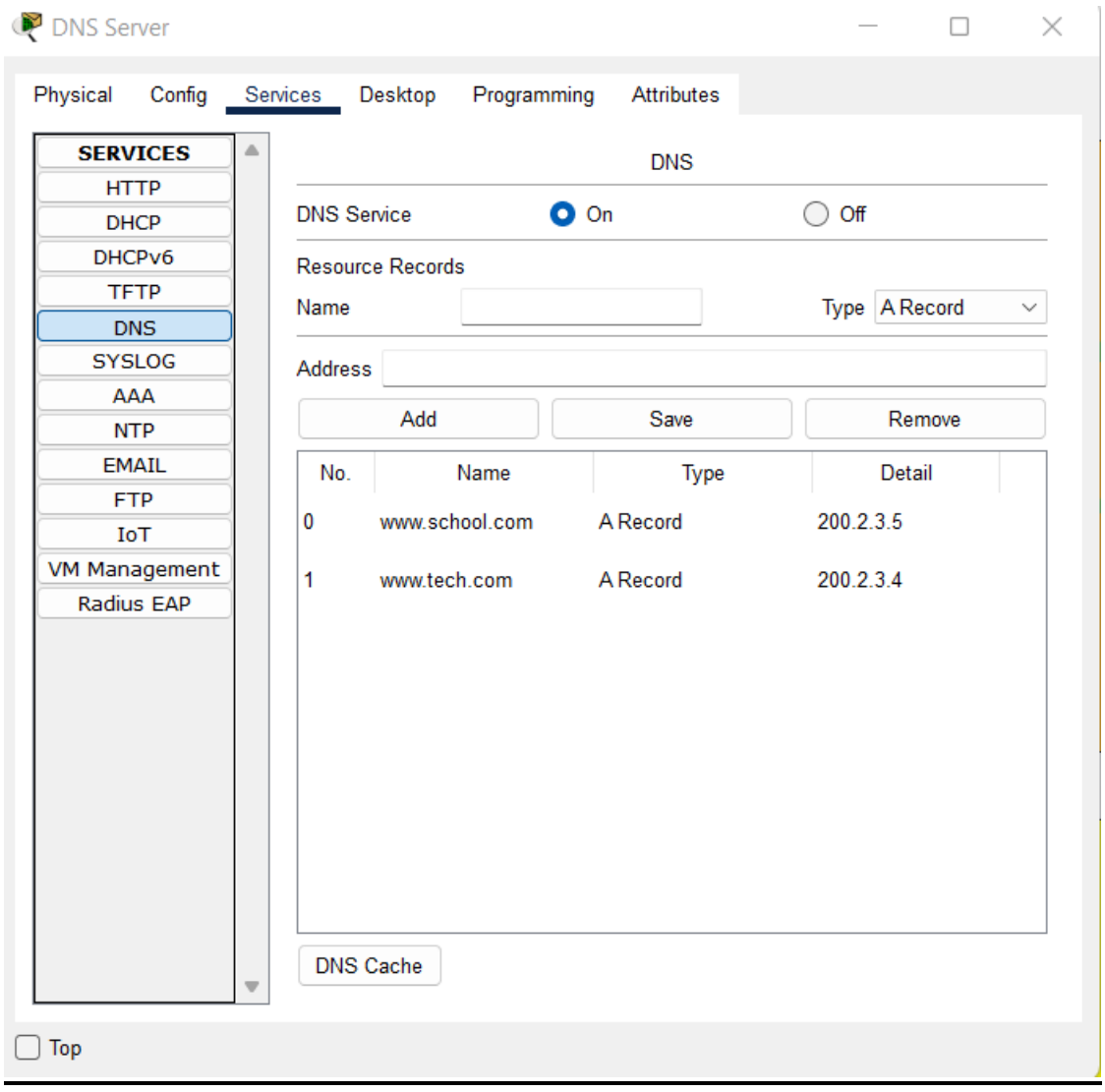
4. Web, DNS and DHCP Server Configuration:

Web Server - 200.2.3.4 255.255.255.0 (tech.com)

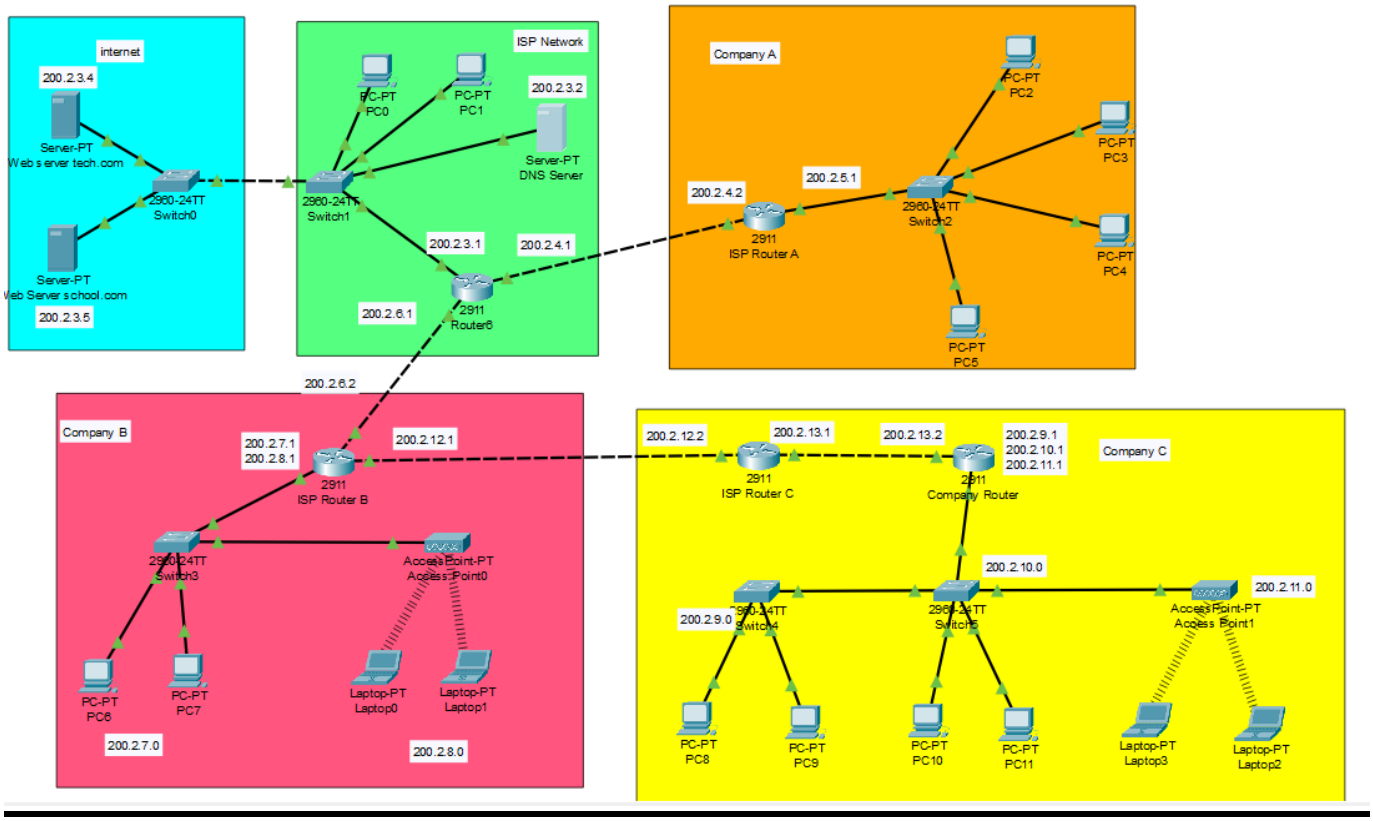
200.2.3.5 255.255.255.0 (school.com)

DNS Server – 200.2.3.2 255.255.255.0

DNS Server Configuration:

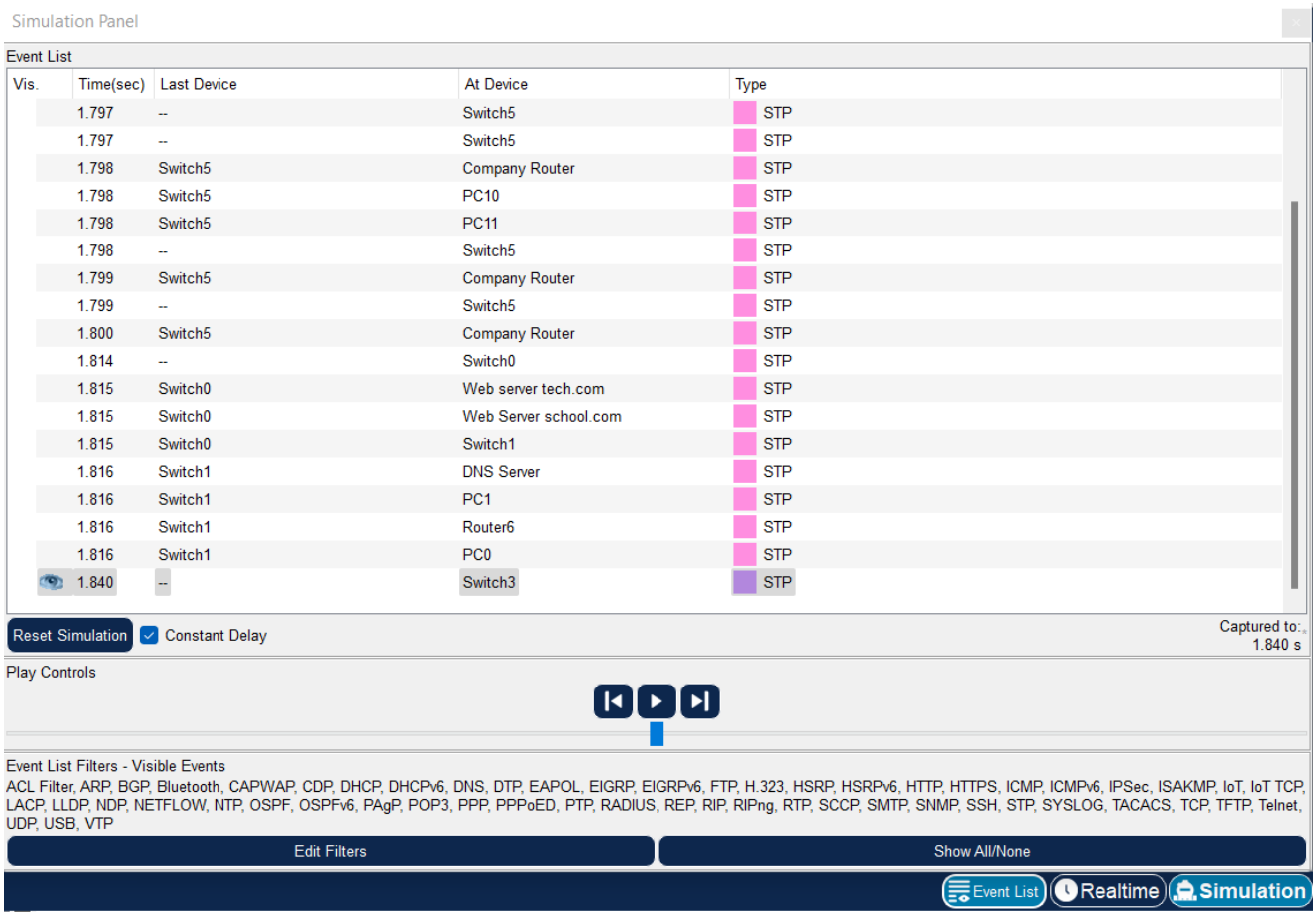


Topology



Real time Results

Simulation Mode Results



Conclusion and Future Enhancement :

An ISP can be configured for various devices including services, PCs and routers to provide access to the internet to various companies and users.

We can configure various subnets of Internet service provider using DHCP and even allow the client to send requests to an ISP and send the information back to the users.