

7-2 Project Two

Submission: Network Diagram and Rationale

Andree Salvo
Southern New Hampshire University
Cyb 210
Instructor: Bruce Gonzalez

Describing the Network Design Rational

IP Networking:

Communication between different networks is facilitated by internet protocol. In this instance, Project Two consists of Subnets 1 and 2 and Network 3. To accomplish the necessary work to establish connections between PC1 in Subnet 1 and PC1 in Subnet 2 and connect to Server Main, I had first to establish the necessary paths that would allow these two subsystems to talk to one another. I had to create static and dynamic routes at the Server Router in Subnet 2 to do this. I chose to make both routes because static routes can be somewhat unreliable.

Subnet Masks:

A network is divided into smaller networks with the help of subnet masks. Take Subnet1 and Subnet2, for example. They are components of the same large network but utilize different addressing schemes. Subnet1 has the address 192.168.1.1, while Subnet2 operates under 192.168.5.1. This kind of setup can enhance security and be a better way of managing network traffic.

Network (DHCP) infrastructure:

This project could have been designed using DHCP infrastructure, but I instead used static routes and RIP to focus my understanding of those protocols.

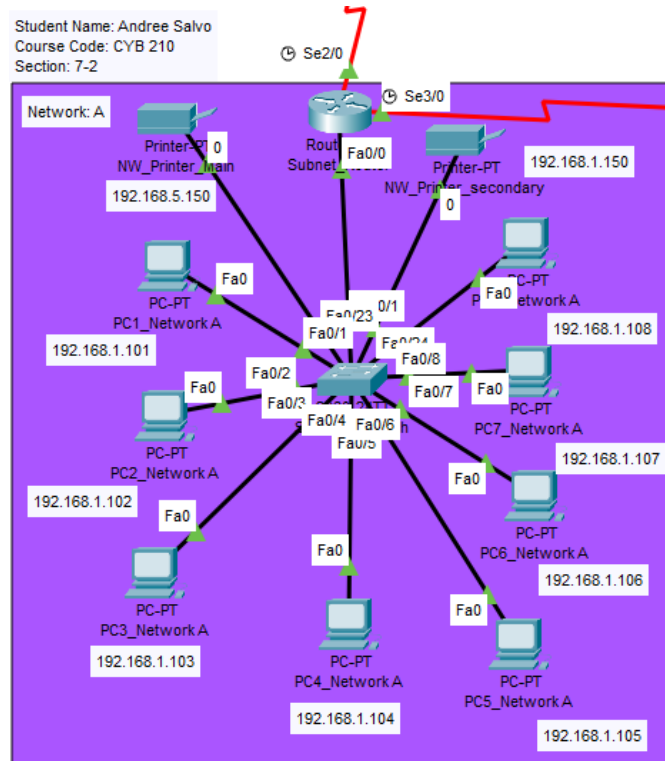
Network address translation (NAT) protocol and port address translation (PAT) protocol:

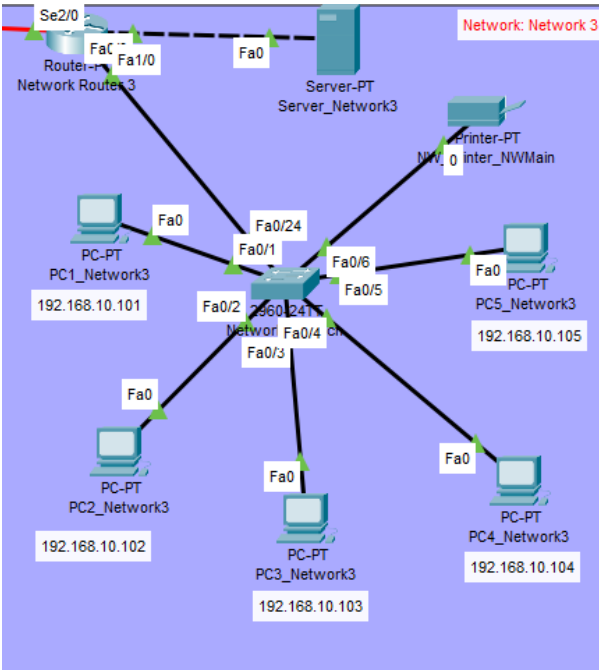
Use the NAT and PAT protocols at the CLI or GUI to designate which port on the router is inside or outside, enabling the end-to-end devices to interact. For example, the server router has two ports, Fa0/0 and Se2/0. In this case, port Fa0/0 was connected to server main outside the server router, and port Se2/0 was set up inside the server router to connect to subnet router.

For my project, I have been assigned as a “Junior Security Analyst,” and my task for this project is to integrate Subnet1 and Subnet2 into “Network A.” I configured both the static routing for both networks and Network 3. I configured DNS, DHCP, and NAT services. I pinged to check the communications between the two networks. I moved all the equipment from Subnet2 to Subnet1, including PCs and printers. For the new 192.168.1.1 gateway to replace the previous gateway, I reconfigured the gateway and assigned it a static IP address. Next, I used a serial cable to join the Subnet Router and the Network3 Router. Remember that, compared to fast ethernet connections, fiber connections, or simply faster methods to move packets around, this network won't perform as well. I implemented RIP, set up static routing between the two routers, and validated that both networks can interact. The Network 3 Server was configured so DHCP and DNS could operate. This limited the number of users that could log on to the network and assigned a logical IP address to those identified by the network. I then ran a PDU command to ping from a PC on Network 3 to a PC on Network A and viewed that output. Next, I executed the successful ping command from a PC on Network 3 to a PC on Network A. Then, just to ensure all was in

order, I commanded a ping from a PC on Network A to a PC on Network 3. Attached are the screen images of each step taken to complete this scenario.

Network A Diagram➡





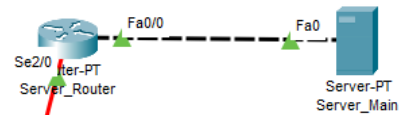
Network 3:

I added a new router, which was named Router0,, and I changed the name to “Network Router 3”.

Server Main ➡

Student File
Project Two
Scenario One

Student Name: Andree Salvo
Course Code: CYB 210
Section: 7-2



PC1_Network A:

Description: I sent a PDU to both PC1 Network A to PC2 Network A to see if it was a success and it was! I also sent a PDU to PC1_Network A to PC4_Network 3 to see if it was a success and it was successful!

PDU List Window										
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC1_Net...	PC2_Network A	ICMP		0.000	N	0	(edit)	
	Successful	PC2_Net...	PC3_Network A	ICMP		1.752	N	1	(edit)	
	Successful	PC1_Net...	PC4_Network3	ICMP		4.001	N	2	(edit)	

Subnet_Router

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 20.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
router1>enable
router1#
router1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router1(config)#interface Serial3/0
router1(config-if)#
```

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Subnet Router | Serial 3/0



Subnet Router |

RIP ➡

Subnet_Router

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Network Address

10.0.0.0

20.0.0.0

192.168.1.0

Add

Remove

Network Router 3 |
RIP➡

Network Router 3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

RIP Routing

Network

Add

Network Address

20.0.0.0

192.168.10.0

192.168.11.0

Remove

Equivalent IOS Commands

Server_Network3

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 20.0.0.2

DNS Server: 192.168.11.254

Start IP Address: 192 168 11 0

Subnet Mask: 255 255 255 0

Maximum Number of Users: 50

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	20.0.0.2	192.168...	192.168...	255.255...	50	0.0.0.0	0.0.0.0

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DHCP:



Full Project Scenario 2 Picture ↴

