

## ITNET04 Case Study

Alonzo IT Training Center Network Documentation

Phase 1

Submitted by:  
Arago, Amienz  
Dimero, Bernard T.  
Talaban, Brylle B.  
Razal, Jericko A.

Submitted to:  
Solomon, Katrina Isabel

09/08/2024

## **Table of Contents**

- 1. Introduction
- 2. IP Addressing Scheme
  - a. Manila 1 IP Addressing Scheme
  - b. Manila 2 IP Addressing Scheme
  - c. Brazil IP Addressing Scheme
- 3. Device Interconnection
  - a. Manila 1 Device Interconnection
  - b. Manila 2 Device Interconnection
  - c. Brazil Device Interconnection
- 4. Physical Topology
- 5. Logical Topology
- 6. Security Implementation
  - a. Manila 1 Security Table
  - b. Manila 2 Security Table
  - c. Brazil Security Table
- 7. Discussion of Design

## **Introduction**

This current case study is a continuation of the ITNET03 Case Study referring to the Alonzo IT Training Center (AITC) and its growth and expense referring to new sites and operations spanning from different sectors and locations at a time. The case study will still go over the floor planning, topologies, security implementations, but this time with a clearer scope towards the WAN connectivity to support site-to-site connections and Internet connectivity that uses an ISP.

With this in mind, the concurrent security policies will also be improved and implemented alongside ACLs for better security and network implementation overall. Overall, the topology of AITC will focus on the following based on the required subject matter that is covering the updated topology in accordance with the new Site and its out-of-country connectivity.

### A. Scope and Assumptions

ACLs will be disabled in this phase of the case study whilst it is expected that the three branches can communicate with each other. The specific VLANs of the respective branches as well will be the same, namely, the Student VLAN, Instructor VLAN, IT VLAN, Services VLAN, and the Operations VLAN.

### B. Design Considerations

The case study will consider the usage of OSPF, the splitting of the subnets within the IP addressing scheme and the respective branches and its VLANs. The design also considers a Three-layer hierarchical design or the core access distribution hierarchy. This will ensure strengths on the redundancies and will better highlight the respective positioning of the devices and its importance to the network.

### C. Case Study Expectations

#### 1. Phase 1 -

This phase will be directed onto the adding of the two new branches, namely, Manila 2 and the Brazil Branch. These two respective branches will be split between a ip address which is then equally distributed across each branch to and to make sure that little to no ip addresses are wasted within this process.

#### 2. Phase 2 -

The topology will use ACLs to prevent specific accesses that aren't necessary towards the topology and to allow proper security measures to take in place.

## IP Addressing Scheme

This section will contain the IP Addressing Tables and the IP Addressing Assignment Table. The IP Addressing Table contains all the VLAN IDs used, their host ranges, subnet masks and the network addresses, while each department has its own respective IP addressing table.

**Manila 1 IP Addressing Table**

**Table 1. IP Addressing Table**

The table below consists of all the Virtual LANs that would be used in AITC's building. The subnet masks were all chosen in anticipation of the company's doubling in size and an additional 20% just in case. These decisions will be expounded on the succeeding tables.

Network Name	Network Address	Subnet Mask	Subnet Address	Host Range	Broadcast Address	VLAN ID
Student	192.168.0.0	/24	255.255.255.0	192.168.0.1 - 192.168.0.254	192.168.0.255	10
Guest	192.168.1.0	/25	255.255.255.128	192.168.1.0 - 192.168.1.126	192.168.1.127	20
Instructors	192.168.1.128	/26	255.255.255.192	192.168.1.129 - 192.168.1.190	192.168.1.191	30
Management	192.168.1.192	/26	255.255.255.192	192.168.1.193 - 192.168.1.254	192.168.1.255	99
Operations	192.168.2.0	/26	255.255.255.192	192.168.2.1 - 192.168.2.62	192.168.2.63	40
IT	192.168.2.64	/27	255.255.255.224	192.168.2.65 - 192.168.2.94	192.168.2.95	50
Services	192.168.2.96	/28	255.255.255.240	192.168.2.97 - 192.168.2.110	192.168.2.111	60
<b>Black Hole</b>	N/A	N/A	N/A	N/A	N/A	70

The VLANs chosen were based on order. The Management VLAN will be set on VLAN 99 whilst a Storage VLAN or a Black Hole on VLAN 70 will be inputted in unused devices for additional security and protection. The other VLANS implemented will be set into their IDs accordingly. Note that Address 192.168.1.195 will be assigned to HSRP configurations, address 192.168.1.196 will be assigned as a helper address for the DHCP

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 99	192.168.1.193	255.255.255.192	
R2	VLAN 99	192.168.1.194	255.255.255.192	
MLS1	VLAN 99	192.168.1.197	255.255.255.192	192.168.1.192
MLS2	VLAN 99	192.168.1.198	255.255.255.192	192.168.1.192
ITSW1	VLAN 99	192.168.1.199	255.255.255.192	192.168.1.192
TRSW1	VLAN 99	192.168.1.200	255.255.255.192	192.168.1.192
TRSW2	VLAN 99	192.168.1.201	255.255.255.192	192.168.1.192
TRSW3	VLAN 99	192.168.1.202	255.255.255.192	192.168.1.192
GueSW1	VLAN 99	192.168.1.203	255.255.255.192	192.168.1.192
TRSW4	VLAN 99	192.168.1.204	255.255.255.192	192.168.1.192
TRSW5	VLAN 99	192.168.1.205	255.255.255.192	192.168.1.192

TRSW6	VLAN 99	192.168.1.206	255.255.255.192	192.168.1.192
InsSW1	VLAN 99	192.168.1.207	255.255.255.192	192.168.1.192
OpeSW1	VLAN 99	192.168.1.208	255.255.255.192	192.168.1.192

**Table 2. IP Addressing Table for Students**

This table contains all the assigned IP addresses for VLAN 10. The subnet mask of 255.255.255.0 is used to accommodate 14 hosts. With an added consideration for 20% out of the total 17 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 10	192.168.0.1	255.255.254.0	
R2	VLAN 10	192.168.0.2	255.255.254.0	
OpePC1-14	VLAN 10	DHCP	255.255.254.0	192.168.0.0

**Table 3. IP Addressing Table for Guests**

This table contains all the assigned IP addresses for VLAN 20. The subnet mask of 255.255.255.128 is used to accommodate 17 hosts. With an added consideration for 20% out of the total 20 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 20	192.168.1.1	255.255.255.128	
R2	VLAN 20	192.168.1.2	255.255.128	
InsPC1-17	VLAN 20	DHCP	255.255.255.128	192.168.1.0

**Table 4. IP Addressing Table for Instructors**

This table contains all the assigned IP addresses for VLAN 30. The subnet mask of 255.255.255.192 is used to accommodate 120 hosts. With an added consideration for 20% out of the total 144 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 30	192.168.1.129	255.255.255.192	
R2	VLAN 30	192.168.1.130	255.255.255.192	
StuPC1-120	VLAN 30	DHCP	255.255.255.192	192.168.1.128

**Table 6. IP Addressing Table for Operations**

This table contains all the assigned IP addresses for VLAN 40. The subnet mask of 255.255.255.192 is used to accommodate 6 hosts. With an added consideration for 20% out of the total 8 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 40	192.168.2.1	255.255.255.192	
R2	VLAN 40	192.168.2.2	255.255.255.192	
OpePC1-10	VLAN 40	DHCP	255.255.255.192	192.168.2.0

**Table 7. IP Addressing Table for IT**

This table contains all the assigned IP addresses for VLAN 50. The subnet mask of 255.255.255.224 is used to accommodate 6 hosts. With an added consideration for 20% out of the total 8 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 50	192.168.2.65	255.255.255.224	
R2	VLAN 50	192.168.2.66	255.255.255.224	

ITPC1-2	VLAN 50	DHCP	255.255.255.224	192.168.2.64
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**Table 8. IP Addressing Table for Services**

This table contains all the assigned IP addresses for VLAN 60. The subnet mask of 255.255.255.240 is used to accommodate 6 hosts. With an added consideration for 20% out of the total 8 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R1	VLAN 60	192.168.2.97	255.255.255.240	
R2	VLAN 60	192.168.2.98	255.255.255.240	
Server Orion	VLAN 60	192.168.2.100	255.255.255.240	192.168.2.96
Printer1-2	VLAN 60	DHCP	255.255.255.240	192.168.2.96

### Manila 2 IP Addressing Table

**Table 9. IP Addressing Table**

The table below consists of all the Virtual LANs that would be used in AITC's building 2. The subnet masks were all chosen in anticipation of the company's doubling in size and an additional 20% just in case. These decisions will be expounded on the succeeding tables.

Network Name	Network Address	Subnet Mask	Subnet Address	Host Range	Broadcast Address	VLAN ID
Student	192.168.4.0	/25	255.255.255.128	192.168.4.1 - 192.168.4.126	192.168.4.127	10
Management	192.168.4.128	/27	255.255.255.224	192.168.4.129 - 192.168.4.158	192.168.4.159	99
Instructors	192.168.4.160	/28	255.255.255.240	192.168.4.161 - 192.168.4.174	192.168.4.175	30
IT	192.168.4.176	/28	255.255.255.240	192.168.4.177 - 192.168.4.192	192.168.4.193	50
<b>Black Hole</b>	N/A	N/A	N/A	N/A	N/A	70

The VLANs chosen were based on order. The Management VLAN will be set on VLAN 99 whilst a Storage VLAN or a Black Hole on VLAN 70 will be inputted in unused devices for additional security and protection. The other VLANs implemented will be set into their IDs accordingly.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R3	VLAN 99	192.168.4.129	255.255.255.224	
MLS3	VLAN 99	192.168.4.130	255.255.255.224	192.168.4.129
MGTSW1	VLAN 99	192.168.4.131	255.255.255.224	192.168.4.129
TRSW7	VLAN 99	192.168.4.132	255.255.255.224	192.168.4.129
TRSW8	VLAN 99	192.168.4.133	255.255.255.224	192.168.4.129
TRSW9	VLAN 99	192.168.4.134	255.255.255.224	192.168.4.129
InsSW2	VLAN 99	192.168.4.135	255.255.255.224	192.168.4.129

**Table 10. IP Addressing Table for Student**

This table contains all the assigned IP addresses for VLAN 10. The subnet mask of 255.255.255.128 is used to accommodate 128 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R3	VLAN 10	192.168.4.1	255.255.255.128	
StuPC1-60	VLAN 10	DHCP	255.255.255.128	192.168.4.1

**Table 11. IP Addressing Table for Instructors**

This table contains all the assigned IP addresses for VLAN 30. The subnet mask of 255.255.255.240 is used to accommodate 14 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R3	VLAN 30	192.168.4.161	255.255.255.240	
InsPC1-5	VLAN 30	DHCP	255.255.255.240	192.168.4.161

**Table 12. IP Addressing Table for IT**

This table contains all the assigned IP addresses for VLAN 50. The subnet mask of 255.255.255.240 is used to accommodate 14 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R3	VLAN 50	192.168.4.177	255.255.255.240	
ITPC1-2	VLAN 50	DHCP	255.255.255.240	192.168.4.177

**Brazil IP Addressing Table**  
**Table 13. IP Addressing Table**

The table below consists of all the Virtual LANs that would be used in AITC's building 3. The subnet masks were all chosen in anticipation of the company's doubling in size and an additional 20% just in case. These decisions will be expounded on the succeeding tables.

Network Name	Network Address	Subnet Mask	Subnet Mask	Host Range	Broadcast Address	VLAN ID
Student	192.168.3.0	/26	255.255.255.128	192.168.3.2 - 192.168.127	192.168.3.128	10
Instructors	192.168.3.128	/27	255.255.255.224	192.168.3.129 - 192.168.158	192.168.3.159	30
Operations	192.168.3.160	/27	255.255.255.224	192.168.3.161 - 192.168.190	192.168.3.191	40
Management	192.168.3.192	/27	255.255.255.224	192.168.3.193 - 192.168.222	192.168.3.223	99
IT	192.168.3.224	/28	255.255.255.240	192.168.3.225 - 192.168.3.238	192.168.3.239	50
<b>Black Hole</b>	N/A	N/A	N/A	N/A	N/A	70

The VLANs chosen were based on order. The Management VLAN will be set on VLAN 99 whilst a Storage VLAN or a Black Hole on VLAN 60 will be inputted in unused devices for additional security and protection. The other VLANS implemented will be set into their IDs accordingly.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R4	VLAN 99	192.168.3.193	255.255.255.224	
MLS4	VLAN 99	192.168.3.195	255.255.255.224	192.168.3.193
MGTSW2	VLAN 99	192.168.3.202	255.255.255.224	192.168.3.193
TRSW10	VLAN 99	192.168.3.196	255.255.255.224	192.168.3.193
TRSW11	VLAN 99	192.168.3.197	255.255.255.224	192.168.3.193
TRSW12	VLAN 99	192.168.3.198	255.255.255.224	192.168.3.193
TRSW13	VLAN 99	192.168.3.199	255.255.255.224	192.168.3.193
InsSW3	VLAN 99	192.168.3.200	255.255.255.224	192.168.3.193
OpeSW2	VLAN 99	192.168.3.201	255.255.255.224	192.168.3.193

**Table 14. IP Addressing Table for Instructors**

This table contains all the assigned IP addresses for VLAN 30. The subnet mask of 255.255.255.224 is used to accommodate 10 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R4	VLAN 30	192.168.3.129	255.255.255.224	
InsPC1-10	VLAN 30	DHCP	255.255.255.224	192.168.3.193

**Table 15. IP Addressing Table for Students**

This table contains all the assigned IP addresses for VLAN 10. The subnet mask of 255.255.255.128 is used to accommodate 120 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R4	VLAN 10	192.168.3.1	255.255.255.128	

StuPC1-120	VLAN 10	DHCP	255.255.255.128	192.168.3.193
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**Table 16. IP Addressing Table for Management**

This table contains all the assigned IP addresses for VLAN 99. The subnet mask of 255.255.255.248 is used to accommodate 4 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
MLS4	VLAN 99	192.168.3.195	255.255.255.248	192.168.3.193
MgmtPC1-4	VLAN 99	DHCP	255.255.255.248	192.168.3.193

**Table 17. IP Addressing Table for Operations**

This table contains all the assigned IP addresses for VLAN 40. The subnet mask of 255.255.255.224 is used to accommodate 14 hosts. With an added consideration for 20% out of the total 17 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R4	VLAN 40	192.168.3.161	255.255.255.224	
OpePC1-14	VLAN 40	DHCP	255.255.255.224	192.168.3.193

**Table 18. IP Addressing Table for IT**

This table contains all the assigned IP addresses for VLAN 50. The subnet mask of 255.255.255.240 is used to accommodate 6 hosts. With an added consideration for 20% out of the total 8 hosts.

Device Name	Interface	IP Address	Subnet Mask	Default Gateway
R4	VLAN 50	192.168.3.225	255.255.255.240	
ITPC1-8	VLAN 50	DHCP	255.255.255.240	192.168.3.193

## Device Interconnection

**Manila 1 Device Interconnection Table**

**Table 19. Device Interconnection Table for Operations\_Switch**

This table contains all the device connections on **Operations\_Switch**. All PCs are assigned to VLAN 10, whereas all unused ports are assigned to VLAN 70.

Operations_Switch			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS2	Gi1/0/16
Gi0/2	N/A	LAP_4	Gig1
Fa0/1	40	Operations_PC1	Fa0
Fa0/2	40	Operations_PC2	Fa0
Fa0/3	40	Operations_PC3	Fa0
Fa0/4	40	Operations_PC4	Fa0
Fa0/5	40	Operations_PC5	Fa0
Fa0/6	40	Operations_PC6	Fa0
Fa0/7	40	Operations_PC7	Fa0
Fa0/8	40	Operations_PC8	Fa0
Fa0/9	40	Operations_PC9	Fa0
Fa0/10	40	Operations_PC10	Fa0
Fa0/11	40	Operations_PC11	Fa0
Fa0/12	40	Operations_PC12	Fa0
Fa0/13	40	Operations_PC13	Fa0
Fa0/14	40	Operations_PC14	Fa0
Fa0/15	40	Operations_PC15	Fa0
Fa0/16	40	Operations_PC16	Fa0
Fa0/17	40	Operations_PC17	Fa0
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 20. Device Interconnection Table for Instructor\_Switch**

This table contains all the device connections on **Instructor\_Switch**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Instructor_Switch			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS2	Gi1/0/15
Gi0/2	N/A	LAP_3	Gig1
Fa0/1	30	Instructors_PC1	Fa0

Fa0/2	30	Instructors_PC2	Fa0
Fa0/3	30	Instructors_PC3	Fa0
Fa0/4	30	Instructors_PC4	Fa0
Fa0/5	30	Instructors_PC5	Fa0
Fa0/6	30	Instructors_PC6	Fa0
Fa0/7	30	Instructors_PC7	Fa0
Fa0/8	30	Instructors_PC8	Fa0
Fa0/9	30	Instructors_PC9	Fa0
Fa0/10	30	Instructors_PC10	Fa0
Fa0/11	30	Instructors_PC11	Fa0
Fa0/12	30	Instructors_PC12	Fa0
Fa0/13	30	Instructors_PC13	Fa0
Fa0/14	30	Instructors_PC14	Fa0
Fa0/15	30	Instructors_PC15	Fa0
Fa0/16	30	Instructors_PC16	Fa0
Fa0/17	30	Instructors_PC17	Fa0
Fa0/18	30	Instructors_PC18	N/A
Fa0/19	30	Instructors_PC19	N/A
Fa0/20	30	Instructors_PC20	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 21. Device Interconnection Table for Training\_RoomSW1 Switch**

This table contains all the device connections on **Training\_RoomSW1**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW1			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/21
Gi0/2	N/A	MLS1	Gi1/0/22
Fa0/1	10	Training_Room1_1	Fa0
Fa0/2	10	Training_Room1_2	Fa0
Fa0/3	10	Training_Room1_3	Fa0
Fa0/4	10	Training_Room1_4	Fa0
Fa0/5	10	Training_Room1_5	Fa0
Fa0/6	10	Training_Room1_6	Fa0
Fa0/7	10	Training_Room1_7	Fa0
Fa0/8	10	Training_Room1_8	Fa0
Fa0/9	10	Training_Room1_9	Fa0
Fa0/10	10	Training_Room1_10	Fa0
Fa0/11	10	Training_Room1_11	Fa0
Fa0/12	10	Training_Room1_12	Fa0
Fa0/13	10	Training_Room1_13	Fa0
Fa0/14	10	Training_Room1_14	Fa0
Fa0/15	10	Training_Room1_15	Fa0
Fa0/16	10	Training_Room1_16	Fa0

Fa0/17	10	Training_Room1_17	Fa0
Fa0/18	10	Training_Room1_18	Fa0
Fa0/19	10	Training_Room1_19	Fa0
Fa0/20	10	Training_Room1_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 22. Device Interconnection Table for Training\_RoomSW2 Switch**

This table contains all the device connections on **Training\_RoomSW2**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW2			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/20
Gi0/2	N/A	MLS1	Gi1/0/19
Fa0/1	10	Training_Room2_1	Fa0
Fa0/2	10	Training_Room2_2	Fa0
Fa0/3	10	Training_Room2_3	Fa0
Fa0/4	10	Training_Room2_4	Fa0
Fa0/5	10	Training_Room2_5	Fa0
Fa0/6	10	Training_Room2_6	Fa0
Fa0/7	10	Training_Room2_7	Fa0
Fa0/8	10	Training_Room2_8	Fa0
Fa0/9	10	Training_Room2_9	Fa0
Fa0/10	10	Training_Room2_10	Fa0
Fa0/11	10	Training_Room2_11	Fa0
Fa0/12	10	Training_Room2_12	Fa0
Fa0/13	10	Training_Room2_13	Fa0
Fa0/14	10	Training_Room2_14	Fa0
Fa0/15	10	Training_Room2_15	Fa0
Fa0/16	10	Training_Room2_16	Fa0
Fa0/17	10	Training_Room2_17	Fa0
Fa0/18	10	Training_Room2_18	Fa0
Fa0/19	10	Training_Room2_19	Fa0
Fa0/20	10	Training_Room2_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 20. Device Interconnection Table for Training\_RoomSW3 Switch**

This table contains all the device connections on **Training\_RoomSW3**. All PCs are assigned to VLAN 330, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW3			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/18
Gi0/2	N/A	MLS1	Gi1/0/17
Fa0/1	10	Training_Room3_1	Fa0
Fa0/2	10	Training_Room3_2	Fa0
Fa0/3	10	Training_Room3_3	Fa0
Fa0/4	10	Training_Room3_4	Fa0
Fa0/5	10	Training_Room3_5	Fa0
Fa0/6	10	Training_Room3_6	Fa0
Fa0/7	10	Training_Room3_7	Fa0
Fa0/8	10	Training_Room3_8	Fa0
Fa0/9	10	Training_Room3_9	Fa0
Fa0/10	10	Training_Room3_10	Fa0
Fa0/11	10	Training_Room3_11	Fa0
Fa0/12	10	Training_Room3_12	Fa0
Fa0/13	10	Training_Room3_13	Fa0
Fa0/14	10	Training_Room3_14	Fa0
Fa0/15	10	Training_Room3_15	Fa0
Fa0/16	10	Training_Room3_16	Fa0
Fa0/17	10	Training_Room3_17	Fa0
Fa0/18	10	Training_Room3_18	Fa0
Fa0/19	10	Training_Room3_19	Fa0
Fa0/20	10	Training_Room3_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 23. Device Interconnection Table for Training\_RoomSW4 Switch**

This table contains all the device connections on **Training\_RoomSW4**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW4			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS2	Gi1/0/22
Gi0/2	N/A	MLS2	Gi1/0/21
Fa0/1	10	Training_Room4_1	Fa0
Fa0/2	10	Training_Room4_2	Fa0
Fa0/3	10	Training_Room4_3	Fa0
Fa0/4	10	Training_Room4_4	Fa0
Fa0/5	10	Training_Room4_5	Fa0
Fa0/6	10	Training_Room4_6	Fa0
Fa0/7	10	Training_Room4_7	Fa0
Fa0/8	10	Training_Room4_8	Fa0
Fa0/9	10	Training_Room4_9	Fa0
Fa0/10	10	Training_Room4_10	Fa0

Fa0/11	10	Training_Room4_11	Fa0
Fa0/12	10	Training_Room4_12	Fa0
Fa0/13	10	Training_Room4_13	Fa0
Fa0/14	10	Training_Room4_14	Fa0
Fa0/15	10	Training_Room4_15	Fa0
Fa0/16	10	Training_Room4_16	Fa0
Fa0/17	10	Training_Room4_17	Fa0
Fa0/18	10	Training_Room4_18	Fa0
Fa0/19	10	Training_Room4_19	Fa0
Fa0/20	10	Training_Room4_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 24. Device Interconnection Table for Training\_RoomSW5 Switch**

This table contains all the device connections on **Training\_RoomSW5**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW4			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS2	Gi1/0/20
Gi0/2	N/A	MLS2	Gi1/0/19
Fa0/1	10	Training_Room5_1	Fa0
Fa0/2	10	Training_Room5_2	Fa0
Fa0/3	10	Training_Room5_3	Fa0
Fa0/4	10	Training_Room5_4	Fa0
Fa0/5	10	Training_Room5_5	Fa0
Fa0/6	10	Training_Room5_6	Fa0
Fa0/7	10	Training_Room5_7	Fa0
Fa0/8	10	Training_Room5_8	Fa0
Fa0/9	10	Training_Room5_9	Fa0
Fa0/10	10	Training_Room5_10	Fa0
Fa0/11	10	Training_Room5_11	Fa0
Fa0/12	10	Training_Room5_12	Fa0
Fa0/13	10	Training_Room5_13	Fa0
Fa0/14	10	Training_Room5_14	Fa0
Fa0/15	10	Training_Room5_15	Fa0
Fa0/16	10	Training_Room5_16	Fa0
Fa0/17	10	Training_Room5_17	Fa0
Fa0/18	10	Training_Room5_18	Fa0
Fa0/19	10	Training_Room5_19	Fa0
Fa0/20	10	Training_Room5_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 25. Device Interconnection Table for Training\_RoomSW6 Switch**

This table contains all the device connections on **Training\_RoomSW6**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW6			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS2	Gi1/0/18
Gi0/2	N/A	MLS2	Gi1/0/17
Fa0/1	10	Training_Room6_1	Fa0
Fa0/2	10	Training_Room6_2	Fa0
Fa0/3	10	Training_Room6_3	Fa0
Fa0/4	10	Training_Room6_4	Fa0
Fa0/5	10	Training_Room6_5	Fa0
Fa0/6	10	Training_Room6_6	Fa0
Fa0/7	10	Training_Room6_7	Fa0
Fa0/8	10	Training_Room6_8	Fa0
Fa0/9	10	Training_Room6_9	Fa0
Fa0/10	10	Training_Room6_10	Fa0
Fa0/11	10	Training_Room6_11	Fa0
Fa0/12	10	Training_Room6_12	Fa0
Fa0/13	10	Training_Room6_13	Fa0
Fa0/14	10	Training_Room6_14	Fa0
Fa0/15	10	Training_Room6_15	Fa0
Fa0/16	10	Training_Room6_16	Fa0
Fa0/17	10	Training_Room6_17	Fa0
Fa0/18	10	Training_Room6_18	Fa0
Fa0/19	10	Training_Room6_19	Fa0
Fa0/20	10	Training_Room6_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 26. Device Interconnection Table for Guest\_Switch**

This table contains all the device connections on **Guest\_Switch**. All PCs are assigned to VLAN 40, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW4			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/15
Gi0/2	N/A	LAP_2	Gig1
Fa0/1	20	Guest_PC1	Fa0
Fa0/2	20	Guest_PC2	Fa0

Fa0/3	20	Guest_PC3	Fa0
Fa0/4	20	Guest_PC4	Fa0
Fa0/5	20	Guest_PC5	Fa0
Fa0/6	20	Guest_PC6	Fa0
Fa0/7	20	Guest_PC7	Fa0
Fa0/8	20	Guest_PC8	Fa0
Fa0/9	70	N/A	Fa0
Fa0/10	70	N/A	Fa0
Fa0/11	70	N/A	Fa0
Fa0/12	70	N/A	Fa0
Fa0/13	70	N/A	Fa0
Fa0/14	70	N/A	Fa0
Fa0/15	70	N/A	Fa0
Fa0/16	70	N/A	Fa0
Fa0/17	70	N/A	Fa0
Fa0/18	70	N/A	Fa0
Fa0/19	70	N/A	Fa0
Fa0/20	70	N/A	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 27. Device Interconnection Table for IT\_Switch**

This table contains all the device connections on **IT\_Switch**. All PCs are assigned to VLAN 40, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW4			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/15
Gi0/2	N/A	WLC_1	Gig1
Fa0/1	20	Guest_PC1	Fa0
Fa0/2	20	Guest_PC2	Fa0
Fa0/3	20	Guest_PC3	Fa0
Fa0/4	20	Guest_PC4	Fa0
Fa0/5	20	Guest_PC5	Fa0
Fa0/6	20	Guest_PC6	Fa0
Fa0/7	20	Guest_PC7	Fa0
Fa0/8	20	Guest_PC8	Fa0
Fa0/9	99	Management_PC9	Fa0
Fa0/10	99	Management_PC10	Fa0
Fa0/11	99	Management_PC11	Fa0
Fa0/12	99	Management_PC12	Fa0
Fa0/13	60	Printer-1	Fa0
Fa0/14	60	Printer-2	Fa0
Fa0/15	60	Orion Server	Fa0
Fa0/16	99	Aries Server	Fa0
Fa0/17	N/A	LAP_1	Gig0

Fa0/18	70	N/A	Fa0
Fa0/19	70	N/A	Fa0
Fa0/20	70	N/A	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 28. Device Interconnection Table for MLS1**

This table contains all the device connections on **MLS1**. All unused ports are assigned to VLAN 70 (Storage VLAN).

MLS1			
Source Interface	VLAN	Connected To	Connected Interface
Gi1/0/1	N/A (trunk)	MLS2	Gi1/0/1
Gi1/0/2	N/A (trunk)	MLS2	Gi1/0/2
Gi1/0/3	70	N/A	N/A
Gi1/0/4	70	N/A	N/A
Gi1/0/5	70	N/A	N/A
Gi1/0/6	70	N/A	N/A
Gi1/0/7	70	N/A	N/A
Gi1/0/8	70	N/A	N/A
Gi1/0/9	70	N/A	N/A
Gi1/0/10	70	N/A	N/A
Gi1/0/11	70	N/A	N/A
Gi1/0/12	70	N/A	N/A
Gi1/0/13	70	N/A	N/A
Gi1/0/14	70	N/A	N/A
Gi1/0/15	N/A (trunk)	Guest_Switch	Gi0/1
Gi1/0/16	N/A (trunk)	IT Switch	Gi0/1
Gi1/0/17	N/A (trunk)	Training_Switch3	Gi0/1
Gi1/0/18	N/A (trunk)	Training_Switch3	Gi0/2
Gi1/0/19	N/A (trunk)	Training_Switch2	Gi0/1
Gi1/0/20	N/A (trunk)	Training_Switch2	Gi0/2
Gi1/0/21	N/A (trunk)	Training_Switch1	Gi0/1
Gi1/0/22	N/A (trunk)	Training_Switch1	Gi0/2
Gi1/0/23	70	N/A	N/A
Gi1/0/24	N/A (trunk)	R1	Gi0/0
Gi1/1/1	70	N/A	N/A
Gi1/1/2	70	N/A	N/A
Gi1/1/3	70	N/A	N/A
Gi1/1/4	70	N/A	N/A

**Table 29. Device Interconnection Table for MLS2**

This table contains all the device connections on **MLS2**. All unused ports are assigned to VLAN 70 (Storage VLAN).

MLS2			
Source Interface	VLAN	Connected To	Connected Interface
Gi1/0/1	N/A (trunk)	MLS1	Gi1/0/1
Gi1/0/2	N/A (trunk)	MLS1	Gi1/0/2
Gi1/0/3	70	N/A	N/A
Gi1/0/4	70	N/A	N/A
Gi1/0/5	70	N/A	N/A
Gi1/0/6	70	N/A	N/A
Gi1/0/7	70	N/A	N/A
Gi1/0/8	70	N/A	N/A
Gi1/0/9	70	N/A	N/A
Gi1/0/10	70	N/A	N/A
Gi1/0/11	70	N/A	N/A
Gi1/0/12	70	N/A	N/A
Gi1/0/13	70	N/A	N/A
Gi1/0/14	70	N/A	N/A
Gi1/0/15	N/A (trunk)	Instructor_Switch	N/A
Gi1/0/16	N/A (trunk)	Operations_Switch	Gi0/1
Gi1/0/17	N/A (trunk)	Training_Switch6	Gi0/1
Gi1/0/18	N/A (trunk)	Training_Switch6	Gi0/2
Gi1/0/19	N/A (trunk)	Training_Switch5	Gi0/1
Gi1/0/20	N/A (trunk)	Training_Switch5	Gi0/2
Gi1/0/21	N/A (trunk)	Training_Switch4	Gi0/1
Gi1/0/22	N/A (trunk)	Training_Switch4	Gi0/2
Gi1/0/23	70	N/A	N/A
Gi1/0/24	N/A (trunk)	R2	Gi0/0
Gi1/1/1	70	N/A	N/A
Gi1/1/2	70	N/A	N/A
Gi1/1/3	70	N/A	N/A
Gi1/1/4	70	N/A	N/A

**Table 30. Device Interconnection Table for R1**

This table contains all the device connections on **R1**.

MLS2			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/0	N/A (trunk)	MLS1	Gi0/24
Gi0/1	N/A	N/A	N/A

**Table 31. Device Interconnection Table for R2**

This table contains all the device connections on **R2**.

MLS2			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/0	N/A (trunk)	MLS2	Gi0/24
Gi0/1	N/A	N/A	N/A

## Manila 2 Device Interconnection Table

**Table 32. Device Interconnection Table for Training\_RoomSW7 Switch**

This table contains all the device connections on **Training\_RoomSW7**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW7			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS3	Gi1/0/1
Gi0/2	N/A	N/A	N/A
Fa0/1	30	Training_Room7_1	Fa0
Fa0/2	30	Training_Room7_2	Fa0
Fa0/3	30	Training_Room7_3	Fa0
Fa0/4	30	Training_Room7_4	Fa0
Fa0/5	30	Training_Room7_5	Fa0
Fa0/6	30	Training_Room7_6	Fa0
Fa0/7	30	Training_Room7_7	Fa0
Fa0/8	30	Training_Room7_8	Fa0
Fa0/9	30	Training_Room7_9	Fa0
Fa0/10	30	Training_Room7_10	Fa0
Fa0/11	30	Training_Room7_11	Fa0
Fa0/12	30	Training_Room7_12	Fa0
Fa0/13	30	Training_Room7_13	Fa0
Fa0/14	30	Training_Room7_14	Fa0
Fa0/15	30	Training_Room7_15	Fa0
Fa0/16	30	Training_Room7_16	Fa0
Fa0/17	30	Training_Room7_17	Fa0
Fa0/18	30	Training_Room7_18	Fa0
Fa0/19	30	Training_Room7_19	Fa0
Fa0/20	30	Training_Room7_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 33. Device Interconnection Table for Training\_RoomSW8 Switch**

This table contains all the device connections on **Training\_RoomSW8**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW8			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/3
Gi0/2	N/A	N/A	N/A
Fa0/1	30	Training_Room8_1	Fa0

Fa0/2	30	Training_Room8_2	Fa0
Fa0/3	30	Training_Room8_3	Fa0
Fa0/4	30	Training_Room8_4	Fa0
Fa0/5	30	Training_Room8_5	Fa0
Fa0/6	30	Training_Room8_6	Fa0
Fa0/7	30	Training_Room8_7	Fa0
Fa0/8	30	Training_Room8_8	Fa0
Fa0/9	30	Training_Room8_9	Fa0
Fa0/10	30	Training_Room8_10	Fa0
Fa0/11	30	Training_Room8_11	Fa0
Fa0/12	30	Training_Room8_12	Fa0
Fa0/13	30	Training_Room8_13	Fa0
Fa0/14	30	Training_Room8_14	Fa0
Fa0/15	30	Training_Room8_15	Fa0
Fa0/16	30	Training_Room8_16	Fa0
Fa0/17	30	Training_Room8_17	Fa0
Fa0/18	30	Training_Room8_18	Fa0
Fa0/19	30	Training_Room8_19	Fa0
Fa0/20	30	Training_Room8_20	Fa0
Fa0/21	70	N/	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 34. Device Interconnection Table for Training\_RoomSW9 Switch**

This table contains all the device connections on **Training\_RoomSW9**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW9			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS1	Gi1/0/5
Gi0/2	N/A	N/A	N/A
Fa0/1	30	Training_Room9_1	Fa0
Fa0/2	30	Training_Room9_2	Fa0
Fa0/3	30	Training_Room9_3	Fa0
Fa0/4	30	Training_Room9_4	Fa0
Fa0/5	30	Training_Room9_5	Fa0
Fa0/6	30	Training_Room9_6	Fa0
Fa0/7	30	Training_Room9_7	Fa0
Fa0/8	30	Training_Room9_8	Fa0
Fa0/9	30	Training_Room9_9	Fa0
Fa0/10	30	Training_Room9_10	Fa0
Fa0/11	30	Training_Room9_11	Fa0
Fa0/12	30	Training_Room9_12	Fa0
Fa0/13	30	Training_Room9_13	Fa0
Fa0/14	30	Training_Room9_14	Fa0
Fa0/15	30	Training_Room9_15	Fa0
Fa0/16	30	Training_Room9_16	Fa0

Fa0/17	30	Training_Room9_17	Fa0
Fa0/18	30	Training_Room9_18	Fa0
Fa0/19	30	Training_Room9_19	Fa0
Fa0/20	30	Training_Room9_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 35. Device Interconnection Table for Instructor\_Switch2**

This table contains all the device connections on **Instructor\_Switch2**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Instructor_Switch			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS3	Gi1/0/7
Gi0/2	N/A	N/A	N/A
Fa0/1	30	Instructors_PC1	Fa0
Fa0/2	30	Instructors_PC2	Fa0
Fa0/3	30	Instructors_PC3	Fa0
Fa0/4	30	Instructors_PC4	Fa0
Fa0/5	30	Instructors_PC5	Fa0
Fa0/6	70	N/A	N/A
Fa0/7	70	N/A	N/A
Fa0/8	70	N/A	N/A
Fa0/9	70	N/A	N/A
Fa0/10	70	N/A	N/A
Fa0/11	70	N/A	N/A
Fa0/12	70	N/A	N/A
Fa0/13	70	N/A	N/A
Fa0/14	70	N/A	N/A
Fa0/15	70	N/A	N/A
Fa0/16	70	N/A	N/A
Fa0/17	70	N/A	N/A
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 36. Device Interconnection Table for MGTSW1**

This table contains all the device connections on **MGTSW1**. All PCs are assigned to VLAN 40, whereas all unused ports are assigned to VLAN 70.

MGTSW1			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS3	Gi1/0/9
Gi0/2	N/A	N/A	N/A
Fa0/1	40	MgmtPC	Fa0
Fa0/2	50	IT_PC1	Fa0
Fa0/3	50	IT_PC2	Fa0
Fa0/4	70	N/A	N/A
Fa0/5	70	N/A	N/A
Fa0/6	70	N/A	N/A
Fa0/7	70	N/A	N/A
Fa0/8	70	N/A	N/A
Fa0/9	70	N/A	N/A
Fa0/10	70	N/A	N/A
Fa0/11	70	N/A	N/A
Fa0/12	70	N/A	N/A
Fa0/13	70	N/A	N/A
Fa0/14	70	N/A	N/A
Fa0/15	70	N/A	N/A
Fa0/16	70	N/A	N/A
Fa0/17	70	N/A	N/A
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 37. Device Interconnection Table for MLS3**

This table contains all the device connections on MLS1. All unused ports are assigned to VLAN 70 (Storage VLAN).

MLS3			
Source Interface	VLAN	Connected To	Connected Interface
Gi1/0/1	N/A (trunk)	N/A	N/A
Gi1/0/2	N/A (trunk)	N/A	N/A
Gi1/0/3	N/A (trunk)	Training_RoomSW7	Gi1/0/1
Gi1/0/4	N/A (trunk)	Training_RoomSW7	Gi1/0/1
Gi1/0/5	N/A (trunk)	Training_RoomSW8	Gi1/0/1
Gi1/0/6	N/A (trunk)	Training_RoomSW8	Gi1/0/1
Gi1/0/7	N/A (trunk)	Training_RoomSW9	Gi1/0/1
Gi1/0/8	N/A (trunk)	Training_RoomSW9	Gi1/0/1
Gi1/0/9	70	N/A	N/A
Gi1/0/10	N/A (trunk)	Instructor_Switch2	Gi1/0/1
Gi1/0/11	N/A (trunk)	MGTSW1	Gi1/0/1
Gi1/0/12	70	N/A	N/A

Gi1/0/13	70	N/A	N/A
Gi1/0/14	70	N/A	N/A
Gi1/0/15	70	N/A	N/A
Gi1/0/16	70	N/A	N/A
Gi1/0/17	70	N/A	N/A
Gi1/0/18	70	N/A	N/A
Gi1/0/19	70	N/A	N/A
Gi1/0/20	70	N/A	N/A
Gi1/0/21	70	N/A	N/A
Gi1/0/22	70	N/A	N/A
Gi1/0/23	70	N/A	N/A
Gi1/0/24	N/A (trunk)	R3	Gi0/0
Gi1/1/1	70	N/A	N/A
Gi1/1/2	70	N/A	N/A
Gi1/1/3	70	N/A	N/A
Gi1/1/4	70	N/A	N/A

### Brazil Device Interconnection Table

**Table 38. Device Interconnection Table for Training\_RoomSW10 Switch**

This table contains all the device connections on **Training\_RoomSW10**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW10			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/1
Gi0/2	N/A	MLS4	Gi1/0/2
Fa0/1	30	Training_Room10_1	Fa0
Fa0/2	30	Training_Room10_2	Fa0
Fa0/3	30	Training_Room10_3	Fa0
Fa0/4	30	Training_Room10_4	Fa0
Fa0/5	30	Training_Room10_5	Fa0
Fa0/6	30	Training_Room10_6	Fa0
Fa0/7	30	Training_Room10_7	Fa0
Fa0/8	30	Training_Room10_8	Fa0
Fa0/9	30	Training_Room10_9	Fa0
Fa0/10	30	Training_Room10_10	Fa0
Fa0/11	30	Training_Room10_11	Fa0
Fa0/12	30	Training_Room10_12	Fa0
Fa0/13	30	Training_Room10_13	Fa0
Fa0/14	30	Training_Room10_14	Fa0
Fa0/15	30	Training_Room10_15	Fa0
Fa0/16	30	Training_Room10_16	Fa0
Fa0/17	30	Training_Room10_17	Fa0
Fa0/18	30	Training_Room10_18	Fa0
Fa0/19	30	Training_Room10_19	Fa0
Fa0/20	30	Training_Room10_20	Fa0
Fa0/21	70	N/A	N/A

Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 39. Device Interconnection Table for Training\_RoomSW11 Switch**

This table contains all the device connections on **Training\_RoomSW11**. All PCs are assigned to VLAN 30, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW11			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/3
Gi0/2	N/A	MLS4	Gi1/0/4
Fa0/1	30	Training_Room11_1	Fa0
Fa0/2	30	Training_Room11_2	Fa0
Fa0/3	30	Training_Room11_3	Fa0
Fa0/4	30	Training_Room11_4	Fa0
Fa0/5	30	Training_Room11_5	Fa0
Fa0/6	30	Training_Room11_6	Fa0
Fa0/7	30	Training_Room11_7	Fa0
Fa0/8	30	Training_Room11_8	Fa0
Fa0/9	30	Training_Room11_9	Fa0
Fa0/10	30	Training_Room11_10	Fa0
Fa0/11	30	Training_Room11_11	Fa0
Fa0/12	30	Training_Room11_12	Fa0
Fa0/13	30	Training_Room11_13	Fa0
Fa0/14	30	Training_Room11_14	Fa0
Fa0/15	30	Training_Room11_15	Fa0
Fa0/16	30	Training_Room11_16	Fa0
Fa0/17	30	Training_Room11_17	Fa0
Fa0/18	30	Training_Room11_18	Fa0
Fa0/19	30	Training_Room11_19	Fa0
Fa0/20	30	Training_Room11_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 40. Device Interconnection Table for Training\_RoomSW12 Switch**

This table contains all the device connections on **Training\_RoomSW12**. All PCs are assigned to VLAN 330, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW12			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/5
Gi0/2	N/A	MLS4	Gi1/0/6
Fa0/1	30	Training_Room12_1	Fa0

Fa0/2	30	Training_Room12_2	Fa0
Fa0/3	30	Training_Room12_3	Fa0
Fa0/4	30	Training_Room12_4	Fa0
Fa0/5	30	Training_Room12_5	Fa0
Fa0/6	30	Training_Room12_6	Fa0
Fa0/7	30	Training_Room12_7	Fa0
Fa0/8	30	Training_Room12_8	Fa0
Fa0/9	30	Training_Room12_9	Fa0
Fa0/10	30	Training_Room12_10	Fa0
Fa0/11	30	Training_Room12_11	Fa0
Fa0/12	30	Training_Room12_12	Fa0
Fa0/13	30	Training_Room12_13	Fa0
Fa0/14	30	Training_Room12_14	Fa0
Fa0/15	30	Training_Room12_15	Fa0
Fa0/16	30	Training_Room12_16	Fa0
Fa0/17	30	Training_Room12_17	Fa0
Fa0/18	30	Training_Room12_18	Fa0
Fa0/19	30	Training_Room12_19	Fa0
Fa0/20	30	Training_Room12_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 41. Device Interconnection Table for Training\_RoomSW13 Switch**

This table contains all the device connections on **Training\_RoomSW13**. All PCs are assigned to VLAN 330, whereas all unused ports are assigned to VLAN 70.

Training_RoomSW13			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/7
Gi0/2	N/A	MLS4	Gi1/0/8
Fa0/1	30	Training_Room13_1	Fa0
Fa0/2	30	Training_Room13_2	Fa0
Fa0/3	30	Training_Room13_3	Fa0
Fa0/4	30	Training_Room13_4	Fa0
Fa0/5	30	Training_Room13_5	Fa0
Fa0/6	30	Training_Room13_6	Fa0
Fa0/7	30	Training_Room13_7	Fa0
Fa0/8	30	Training_Room13_8	Fa0
Fa0/9	30	Training_Room13_9	Fa0
Fa0/10	30	Training_Room13_10	Fa0
Fa0/11	30	Training_Room13_11	Fa0
Fa0/12	30	Training_Room13_12	Fa0
Fa0/13	30	Training_Room13_13	Fa0
Fa0/14	30	Training_Room13_14	Fa0
Fa0/15	30	Training_Room13_15	Fa0
Fa0/16	30	Training_Room13_16	Fa0

Fa0/17	30	Training_Room13_17	Fa0
Fa0/18	30	Training_Room13_18	Fa0
Fa0/19	30	Training_Room13_19	Fa0
Fa0/20	30	Training_Room13_20	Fa0
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 42. Device Interconnection Table for Instructor\_Switch3**

This table contains all the device connections on **Instructor\_Switch3**. All PCs are assigned to VLAN 20, whereas all unused ports are assigned to VLAN 70.

Instructor_Switch3			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/9
Gi0/2	N/A	MLS4	Gi1/0/10
Fa0/1	30	Instructors_PC1	Fa0
Fa0/2	30	Instructors_PC2	Fa0
Fa0/3	30	Instructors_PC3	Fa0
Fa0/4	30	Instructors_PC4	Fa0
Fa0/5	30	Instructors_PC5	Fa0
Fa0/6	30	Instructors_PC6	Fa0
Fa0/7	30	Instructors_PC7	Fa0
Fa0/8	30	Instructors_PC8	Fa0
Fa0/9	30	Instructors_PC9	Fa0
Fa0/10	30	Instructors_PC10	Fa0
Fa0/11	70	N/A	N/A
Fa0/12	70	N/A	N/A
Fa0/13	70	N/A	N/A
Fa0/14	70	N/A	N/A
Fa0/15	70	N/A	N/A
Fa0/16	70	N/A	N/A
Fa0/17	70	N/A	N/A
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 43. Device Interconnection Table for Operations\_Switch**

This table contains all the device connections on **Operations\_Switch2**. All PCs are assigned to VLAN 10, whereas all unused ports are assigned to VLAN 70.

Operations_Switch			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS4	Gi1/0/11
Gi0/2	N/A	MLS4	Gi1/0/12
Fa0/1	40	Operations_PC1	Fa0
Fa0/2	40	Operations_PC2	Fa0
Fa0/3	40	Operations_PC3	Fa0
Fa0/4	40	Operations_PC4	Fa0
Fa0/5	40	Operations_PC5	Fa0
Fa0/6	40	Operations_PC6	Fa0
Fa0/7	40	Operations_PC7	Fa0
Fa0/8	40	Operations_PC8	Fa0
Fa0/9	40	Operations_PC9	Fa0
Fa0/10	40	Operations_PC10	Fa0
Fa0/11	70	N/A	N/A
Fa0/12	70	N/A	N/A
Fa0/13	70	N/A	N/A
Fa0/14	70	N/A	N/A
Fa0/15	70	N/A	N/A
Fa0/16	70	N/A	N/A
Fa0/17	70	N/A	N/A
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 44. Device Interconnection Table for MGTSW2**

This table contains all the device connections on **MGTSW2**. All PCs are assigned to VLAN 40, whereas all unused ports are assigned to VLAN 70.

MGTSW1			
Source Interface	VLAN	Connected To	Connected Interface
Gi0/1	N/A	MLS3	Gi1/0/13
Gi0/2	N/A	MLS3	Gi1/0/14
Fa0/1	40	MgmtPC	Fa0
Fa0/2	40	Leo Server	Fa0
Fa0/3	50	IT_PC1	Fa0
Fa0/4	50	IT_PC2	Fa0
Fa0/5	50	IT_PC3	Fa0
Fa0/6	50	IT_PC4	Fa0
Fa0/7	50	IT_PC5	Fa0
Fa0/8	50	IT_PC6	Fa0
Fa0/9	70	N/A	N/A
Fa0/10	70	N/A	N/A

Fa0/11	70	N/A	N/A
Fa0/12	70	N/A	N/A
Fa0/13	70	N/A	N/A
Fa0/14	70	N/A	N/A
Fa0/15	70	N/A	N/A
Fa0/16	70	N/A	N/A
Fa0/17	70	N/A	N/A
Fa0/18	70	N/A	N/A
Fa0/19	70	N/A	N/A
Fa0/20	70	N/A	N/A
Fa0/21	70	N/A	N/A
Fa0/22	70	N/A	N/A
Fa0/23	70	N/A	N/A
Fa0/24	70	N/A	N/A

**Table 45. Device Interconnection Table for MLS3**

This table contains all the device connections on MLS1. All unused ports are assigned to VLAN 70 (Storage VLAN).

MLS3			
Source Interface	VLAN	Connected To	Connected Interface
Gi1/0/1	N/A (trunk)	Training_RoomSW10	Gi1/0/1
Gi1/0/2	N/A (trunk)	Training_RoomSW10	Gi1/0/2
Gi1/0/3	N/A (trunk)	Training_RoomSW11	Gi1/0/1
Gi1/0/4	N/A (trunk)	Training_RoomSW11	Gi1/0/2
Gi1/0/5	N/A (trunk)	Training_RoomSW12	Gi1/0/1
Gi1/0/6	N/A (trunk)	Training_RoomSW12	Gi1/0/2
Gi1/0/7	N/A (trunk)	Training_RoomSW13	Gi1/0/1
Gi1/0/8	N/A (trunk)	Training_RoomSW13	Gi1/0/2
Gi1/0/9	N/A (trunk)	Instructor_Switch2	Gi1/0/1
Gi1/0/10	N/A (trunk)	Instructor_Switch2	Gi1/0/2
Gi1/0/11	N/A (trunk)	Operation_Switch2	Gi1/0/1
Gi1/0/12	N/A (trunk)	Operation_Switch2	Gi1/0/2
Gi1/0/13	N/A (trunk)	MGTSW2	Gi1/0/1
Gi1/0/14	N/A (trunk)	MGTSW2	Gi1/0/2
Gi1/0/15	70	N/A	N/A
Gi1/0/16	70	N/A	N/A
Gi1/0/17	70	N/A	N/A
Gi1/0/18	70	N/A	N/A
Gi1/0/19	70	N/A	N/A
Gi1/0/20	70	N/A	N/A
Gi1/0/21	70	N/A	N/A
Gi1/0/22	70	N/A	N/A
Gi1/0/23	70	N/A	N/A
Gi1/0/24	70	N/A	N/A
Gi1/1/1	70	N/A	N/A
Gi1/1/2	70	N/A	N/A

Gi1/1/3	70	N/A	N/A
Gi1/1/4	70	N/A	N/A

## Physical Topology

This section explores the physical layout of the network infrastructure devices and cabling. The cables are to be installed through wall grommets all around the building. Cable ties and support floor raceways are used to clear the office of any loose or dangerous wiring that may be a danger to both the employees and to the network. These cable ties and raceways were used both on top or on the floor to support and create a safe and secure infrastructure

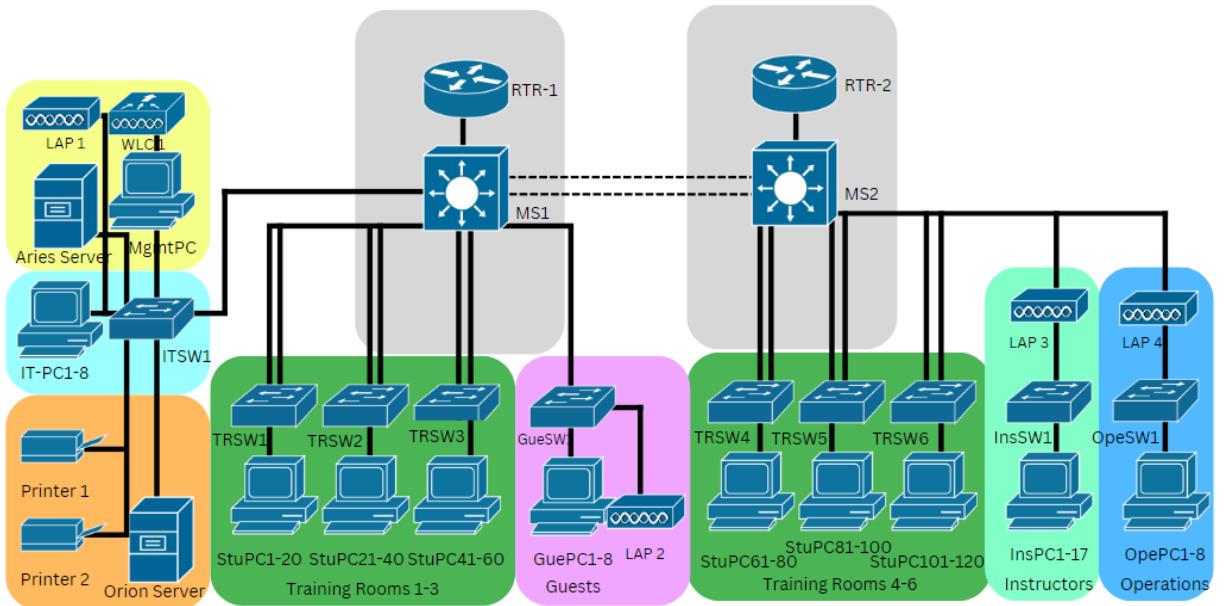
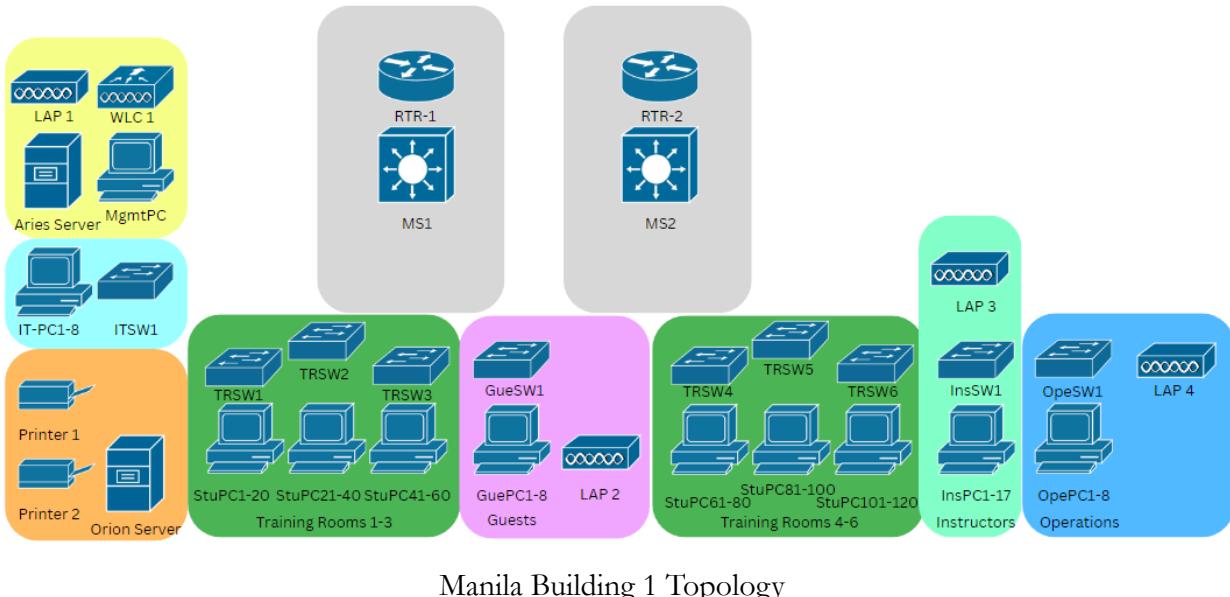


Figure 44. Physical Topology

## Logical Topology

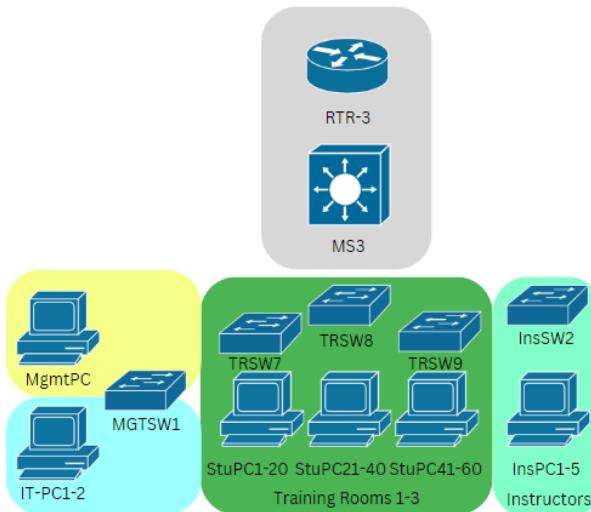
This section shall explore the design of the logical topology, which encompasses a comprehensive diagram illustrating the interconnection of end devices and infrastructure devices. This diagram serves as a visual representation of the network's structure, providing clear labeling of user groups and significant devices for enhanced clarity and understanding.



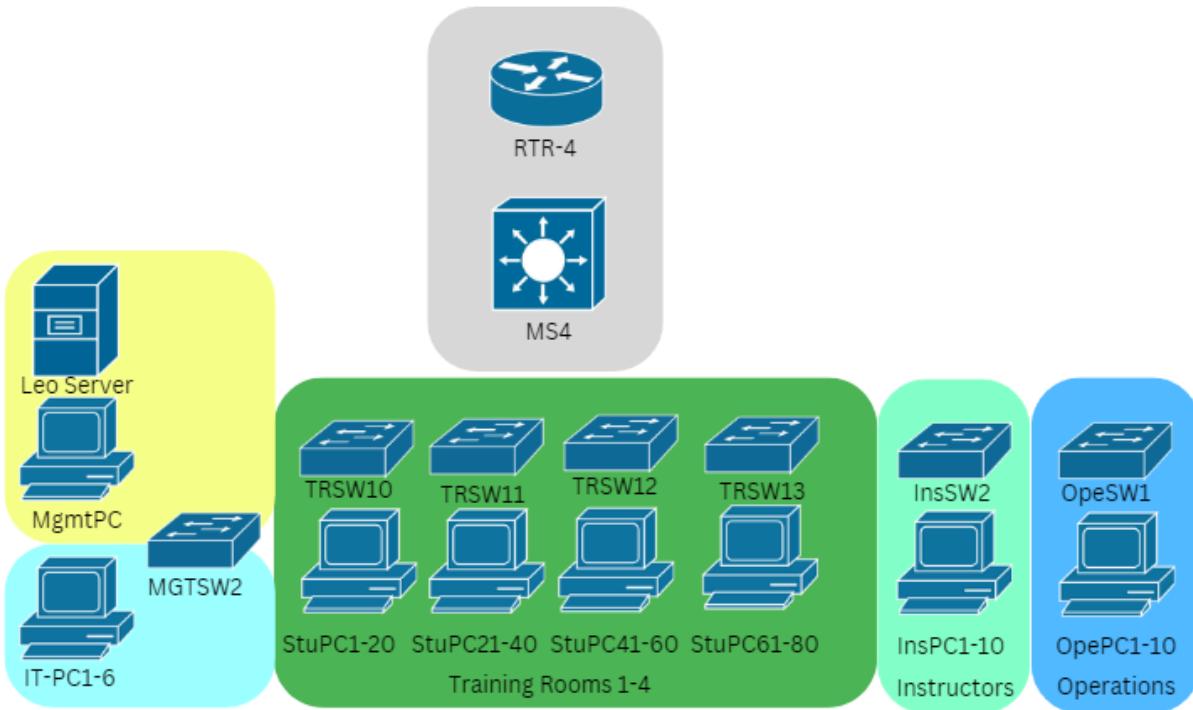
Manila Building 1 Topology

The logical topology displays the entire network not based on two floors but rather based on the hierarchical structure of the network topology itself. The training rooms alongside the guest rooms. Libraries, instructors and operators are at the bottom whilst the IT-Switch and the Multilayer Switches with the routers are on top of the topology itself, displaying the hierarchy of the network for AITC.

Manila Building 2 Topology



## Brazil Site Topology



## Security Implementation

This section shall explore the DHCP Implementation using the MS1 and MS2 Multilayer Switches as Servers for the DHCP Implementation. which IP addresses were used and excluded per department, and which default gateways and subnet masks were provided per each department as well. The table will serve as a visual representation of the DHCP Implementation, providing clear labeling of the DHCP IP addresses and their respective exclusions for enhanced clarity and understanding.

**Manila 1 Security Table**

Username	SSH	Line Con 0	VTY 0 - 15	Privileged Exec
MLS1	u}c9YL9;9	2fk8ZA3ln`	oOpx355q`L	4pUZ0/Z52o
MLS2	o1[N8\5>	%7z89Mbw+N	4u/Ku~4d0p	mzJ~350.&{
R1	Zyn99Lq,*3	5HVf02%\$rR	amVS3z(288	g~2r=i7~8Z
R2	2X?3a2dE/e	+6Zf-J84\3	06lB   2(4m^	X2gMZ92`S
TRS1	54%6@GMGsa	7p_OClP2d0	>6J eXmp06	953QRwk~Hq
TRS2	aG6e5F:\$65	m#I0(\6G9*	PE\$iK2[50L	1ksu~T4875
TRS3	89\Uw3mn~Y	Gi="4Y8'I5	zMY>835;@\\	2h+08jw,NB
TRS4	02e-w7bNg{	1nJkf\53(2	eO\4m2176a	3(4=L9`i*(
TRS5	GeD82V1v'4	@'iw\1J16	ph]N\S224j	8:9D3E4m,;
TRS6	9vS#7\$0L9E9	bAn1[*6R69	9S,rF,9k4)	xF17Q2"g8c
InsSW1	nEFA,*+484	1NuXqO8z87	0yr2I0YJz=	tI(x+390%-
ITSW1	\3=s>x0Of8	*m1`J69wa7	8@R3b4TA2>	&wn61Y93Y!
OpeSW1	5Z"03/G7tP	e83G1~FN!/	799x]Nta;d	V>2^n5;2"x
GueSW1	8Rag48q[V.	Pa:Y244p.C	vK40<15;f}	8T;f8M;9N7

**Manila 2 Security Table**

<b>Username</b>	<b>SSH</b>	<b>Line Con 0</b>	<b>VTY 0 - 15</b>	<b>Privileged Exec</b>
MLS3	uB5_Q954*c	u3bI22C9CV	e6I8mVv1Qt	Y1gT3n4M8C
R3	JRw81yvcn	HqgFsf83j0	R1cL4m7zYH	D5kN2m9R7X
TR7	c62A8Gzq	c42mt7Vo8u	k5U8dW2nJ9	w3O6p1J8fL
TR8	MRb175eh	NzI9g58D7S	Jv7N6pB3wE	s9H4y7N2vK
TR9	7V7VV6n2p	gcN17ko1M5	Z3hQ5m8dLt	L8cZ1m3T7d
InsSW2	lMU598fS	oCv29fb39W	q4B2z9L1Pr	P5gB9o2Y4N
MGTSW1	40qLy1cr9	X2fP90a7KJ	v0F8s7D6jW	F3jX6l8Q1v

**Brazil Security Table**

<b>Username</b>	<b>SSH</b>	<b>Line Con 0</b>	<b>VTY 0 - 15</b>	<b>Privileged Exec</b>
MLS4	3uU2CGy3e1	2fk8ZA3ln`	oOpx355q`L	4pUZ0/Z52o
R4	Zyn99Lq;*3	qe3eT84HWWh	M06FVn9Lqf	02p0698yZJ
TR10	5e0Nfx21P2	1rAo64p6SR	fj66u7oLz7	45v5XT46qm
TR11	D4igWUyI13	O4112O4e4f	2Evs5G06nv	S3m7OLQd37
TR12	oDvX8wq81a	mZS1F95LEA	6VGt1UR619	QfZx25p8i9
TR13	92QCo0C0gt	1y557AnUxb	xXr52l21xX	DG5fUT55rX
InsSW2	0X66WJJcer	92QCo0C0gt	eK2C640EY7	G24W679qZz
OpeSW2	232WuMlaA6	xWatM155Ub	E39Xk4SrST	kb4NvT32x9
MGTSW2	eiFjh041C	w647TVYydn	923WDuV7Td	804ZQ3vI4K

## **Discussion of Design**

Include a technical discussion of your design in paragraph form focusing on the implementation of Internet access and the new sites. Your discussion must answer the following questions:

### **1. What technology was implemented to address the requirement?**

We used NAT and Port Forwarding instead of RIP to complement the scale of the network. Although our case study from ITNET03 didn't use RIP, using OSPF is more ideal in this scenario as it is more ideal for larger topologies. We also used topics that were previously used and discussed such as etherchannels to supply the departments with the proper amount of bandwidth based on their requirements, and the topology kept the SNMP, NTP and Syslog to log the necessary actions of the users in each department as well. We added Extended Access Control Lists to ensure that each site will have their proper protocols to be met such as protocols on certain groups for each branch. An example of this is that training rooms with students are allowed access to the internet and mailing for the Aquarius server. We also implemented VPNs (GRE Tunneling) to ensure that intersite connectivity will be correct in terms of the protocols and the requirements as per the specifications.

### **2. How was the technology / protocol implemented (i.e. configuration options and parameters)?**

We used a three-layer hierarchy that is implemented alongside Manila-2 and Brazil to represent the different levels or hierarchy within the topology. This three-layer hierarchy makes sure that each part of the topology is highlighted equally and that the roles and distribution within the branches. The technologies that were discussed pertaining to implementation were implemented based on the following:

- a. The requirements of the department pertaining to their needs
- b. The scope and limitations of each department due to their size
- c. The availability of said technology (such as NAT, PAT, Port Forwarding)
- d. Implementation of GRE tunneling to ensure intersite connectivity .

These technologies were implemented in the proper ports to ensure connectivity and to make sure that the branches are getting translated properly when entering the ISP and that it is secure based on the contents from one branch to another. Some of the branches do not have these specifications due to their size but NAT, PAT, and Port Forwarding is applied to all branches to ensure connectivity within all the AITC branches. And VPNs (GRE Tunneling) to ensure intersite connectivity.

### **3. Why was the technology / protocol selected and why did you implement it in the way that you did?**

Cisco Packet Tracer Latest Version to prevent any unexpected bugs and to make sure that there is backwards compatibility for all of the other versions. NAT to hide/separate the internal networks of each branch to external entities and to ensure network connectivity and converge the

three branches. The NAT uses ACLs to make sure that traffic and packets between the specific branches are regulated and that they are communicating effectively with each other. Ether channel to ensure proper bandwidth allocation and to make sure that the speeds required by the branches are met depending on the departments and how it will be implemented. As an example, we implemented it in a way so that MNL1\_R1, the primary router, has access lists to permit specific subnets as well as NAT configurations using the pool MNL1-POOL2, this ensures that we have proper routing within the network.

Last but not the least, GRE tunneling was implemented to ensure intersite connectivity based on the specifications of AITC. This, as well as in accordance with the extended Access Control Lists, will allow each of the departments, branches, with explicit commands that deny or accept packets, Port Forwarding also allows Internet users to access only certain protocols on the Aquarius server such as the HTTP/HTTPPs, SMPT, POP3, and the Mail Services. These devices also have inside global addresses to ensure further security both within AITC and outside of it.

```
ip nat pool MNL1-POOL1 201.165.224.101 201.165.224.105 netmask 255.255.255.0
ip nat inside source list 1 pool MNL1-POOL1 overload
ip nat inside source static tcp 192.168.2.101 80 201.165.224.101 80
ip nat inside source static tcp 192.168.2.101 443 201.165.224.101 443
ip nat inside source static tcp 192.168.2.101 25 201.165.224.101 25
ip nat inside source static tcp 192.168.2.101 143 201.165.224.101 143
ip nat inside source static tcp 192.168.2.101 993 201.165.224.101 993
ip nat inside source static tcp 192.168.2.101 110 201.165.224.101 110
```

## Access Control Matrix

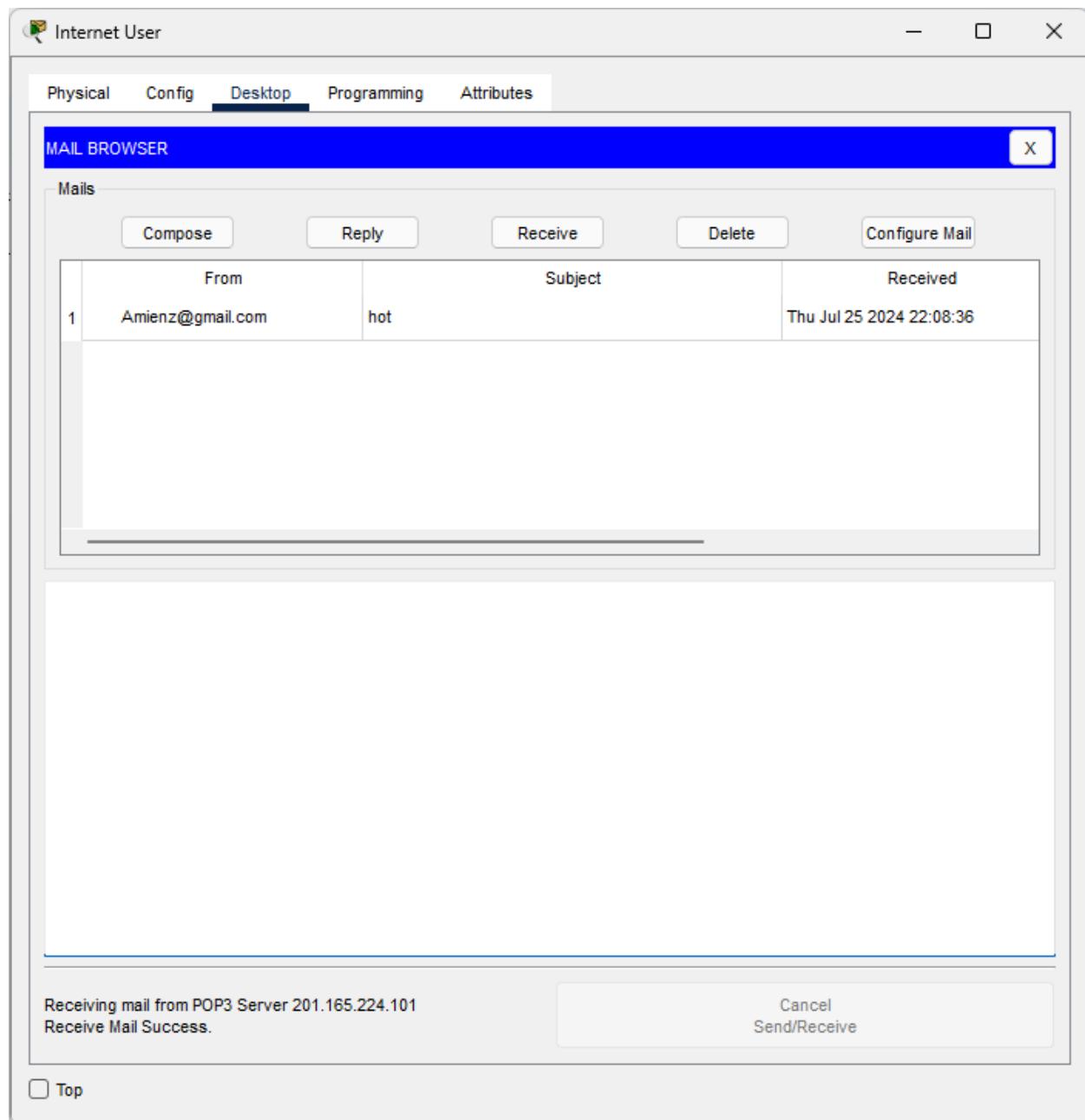
The section shall explore the Access Control List Matrix and the implementation of permitting and denying specific departments within the three networks.

Networks / User Groups		Receiver						
		Internet	Aquarius Server	Orion Server	Printers (Manila Bldg 1)	All Servers (Manila Bldg 1)	User Groups (Respective Sites)	Infrastructure Devices
Sender	Internet Users	Web, Mail	-	-	-	-	-	-
	Instructors	Web, DNS, Ping, Tracert	ICMP, Web, Mail	FTP	Full Access (Manila Bldg 1 only)	-	Full Access (Manila Bldg 1 only)	-
	Operations	Web, DNS, Ping, Tracert	ICMP, Web, Mail	FTP	Full Access (Manila Bldg 1 only)	-	Full Access (Manila Bldg 1 only)	-
	Students	Web, DNS, Ping, Tracert	ICMP, Web, Mail	FTP	-	-	-	-
	Guests	Web, DNS, Ping, Tracert	ICMP, Web, Mail	-	-	-	-	-
	IT Group	Web, DNS, Ping, Tracert	Full Access	Full Access	Full Access	Full Access	Full Access	SNMP Read Access
	Network Admin	Full Access	Full Access	Full Access	Full Access	Full Access	Full Access (Manila 1, 2, Brazil)	Full Access

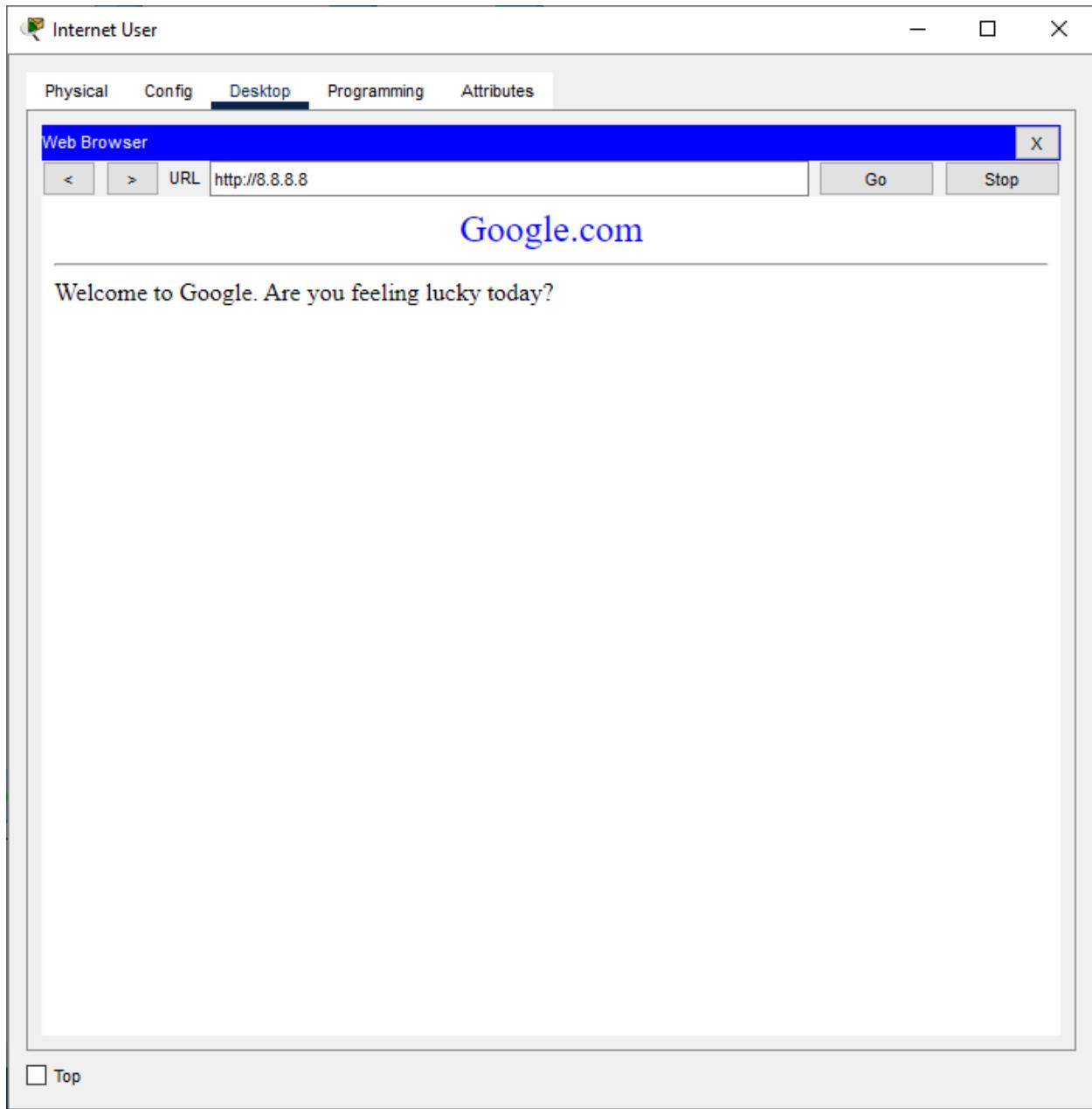
## Security Policy Testing Results

### Internet Users

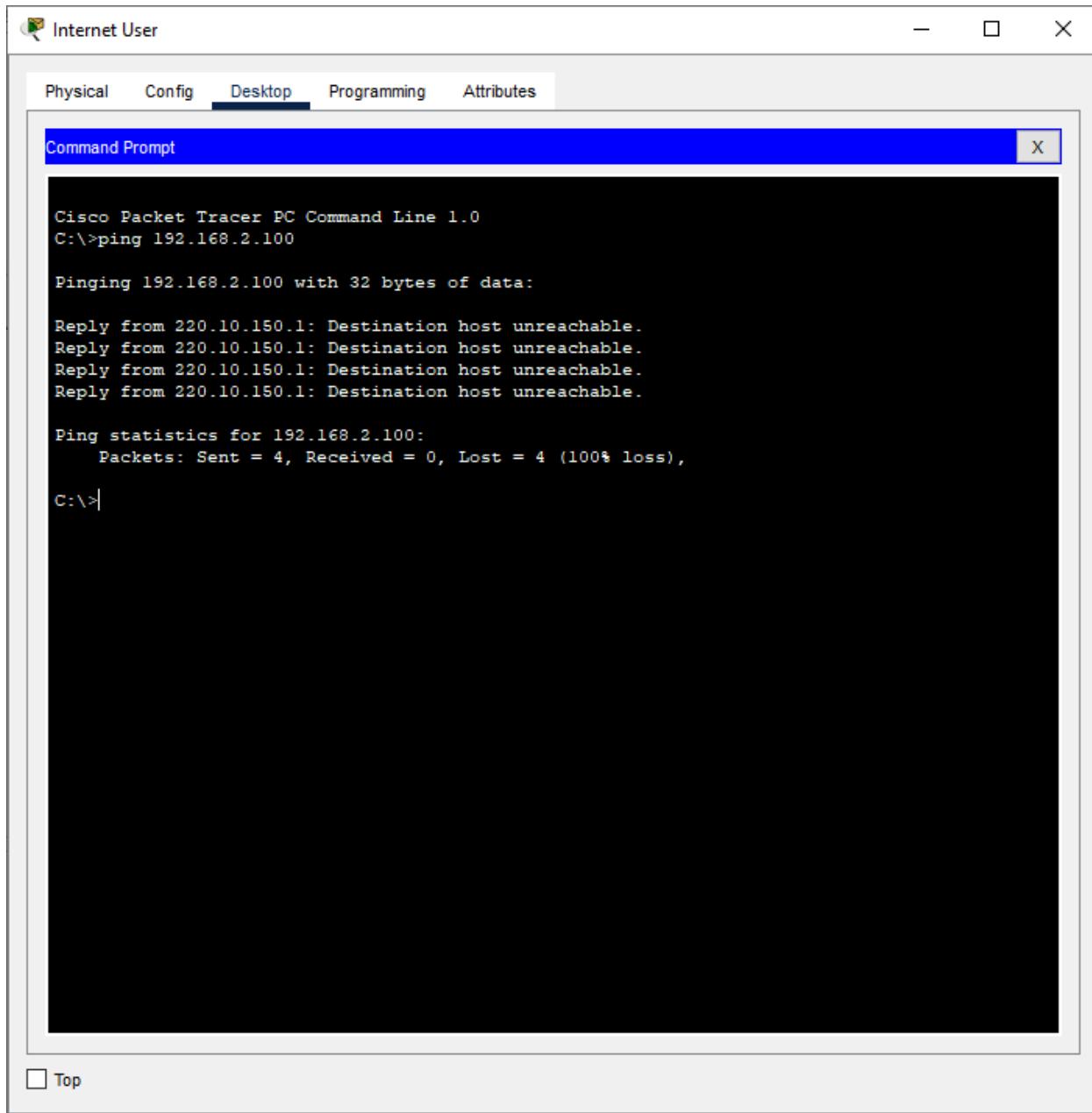
Source	Destination	Expected Result	Actual Result	Proof of Result
Internet User	Aquarius (Mail)	Access granted	Access granted	Internet Figure. 1
Internet User	Aquarius (Web)	Access granted	Access granted	Internet Figure. 2
Internet User	Orion	Access denied	Access denied	Internet Figure. 3



Internet Figure 1.



Internet Figure 2.



Internet Figure 3.

## Instructors and Operations

Source	Destination	Expected Result	Actual Result	Proof of Result
Instructor (Manila 1)	Instructor (Manila 2)	Full access granted	Access denied	Instructor Figure 1
Instructor (Manila 1)	Internet (Web)	Web access granted	Web access granted	Instructor Figure 2
Instructor (Manila 1)	Internet (DNS)	DNS access granted	DNS access granted	Instructor Figure 3
Instructor (Manila 1)	Internet (Tracert)	ICMP access granted	ICMP access granted	Instructor Figure 4
Instructor (Manila 1)	Aquarius (ICMP)	ICMP access granted	ICMP access granted	Instructor Figure 5
Instructor (Manila 1)	Aquarius (Web)	Web access granted	Web access granted	Instructor Figure 6

The screenshot shows a window titled "Instructors\_1-20" with a tab bar containing "Physical", "Config", "Desktop" (which is selected), "Programming", and "Attributes". Below the tabs is a "Command Prompt" window with a blue header bar. The command prompt output is as follows:

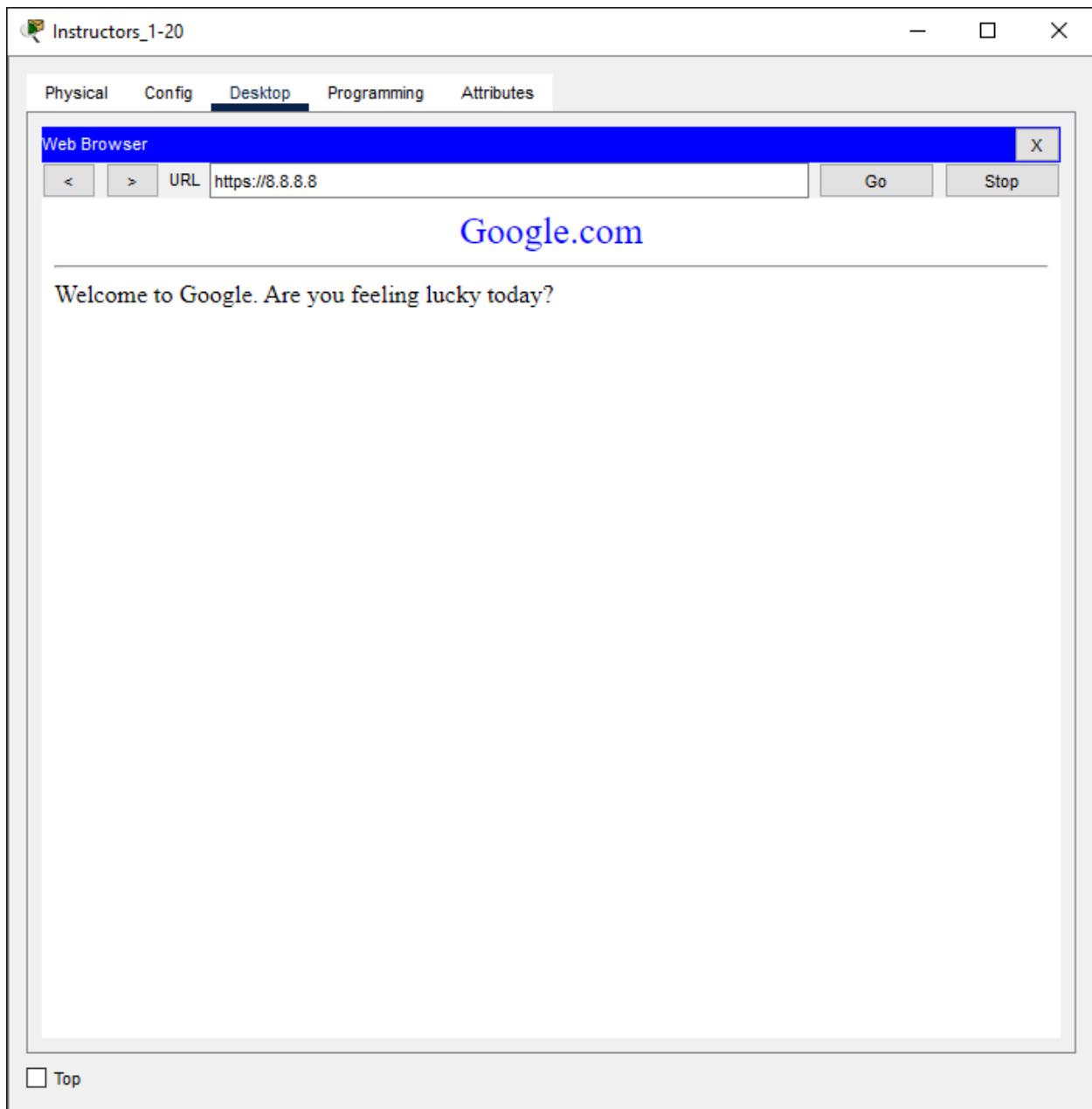
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.4.162

Pinging 192.168.4.162 with 32 bytes of data:

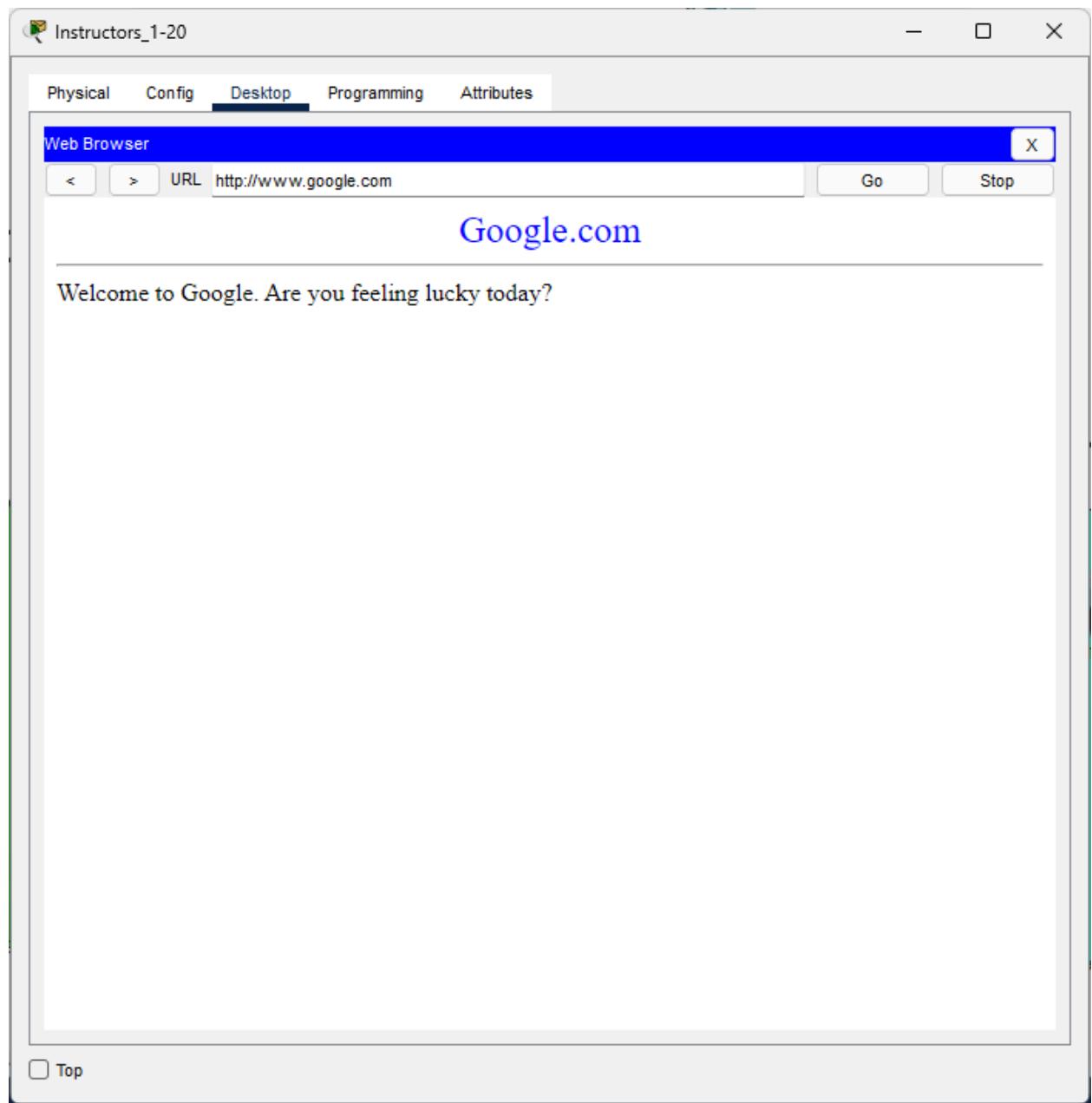
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.4.162:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Instructor Figure 1



Instructor Figure 2



Instructor Figure 3

Instructors\_1-20

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.4.162

Pinging 192.168.4.162 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.4.162:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

  1  77 ms      167 ms      77 ms      99 ms      90 ms      192.168.1.129157 ms
  2  56 ms       0 ms       12 ms      48 ms     140 ms      201.165.224.1
  3  4294967283 ms 86 ms      86 ms      47 ms      4294967284 ms 8.8.8.8

Trace complete.

C:\>
```

Top

Instructor Figure 4

Instructors\_1-20

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.4.162

Pinging 192.168.4.162 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.4.162:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

  1  77 ms    167 ms    77 ms    99 ms    90 ms    192.168.1.129 157 ms
  2  56 ms      0 ms    12 ms    48 ms   140 ms    201.165.224.1
  3  4294967283 ms 86 ms     86 ms    47 ms    4294967284 ms 8.8.8.8

Trace complete.

C:\>ping 201.165.224.101

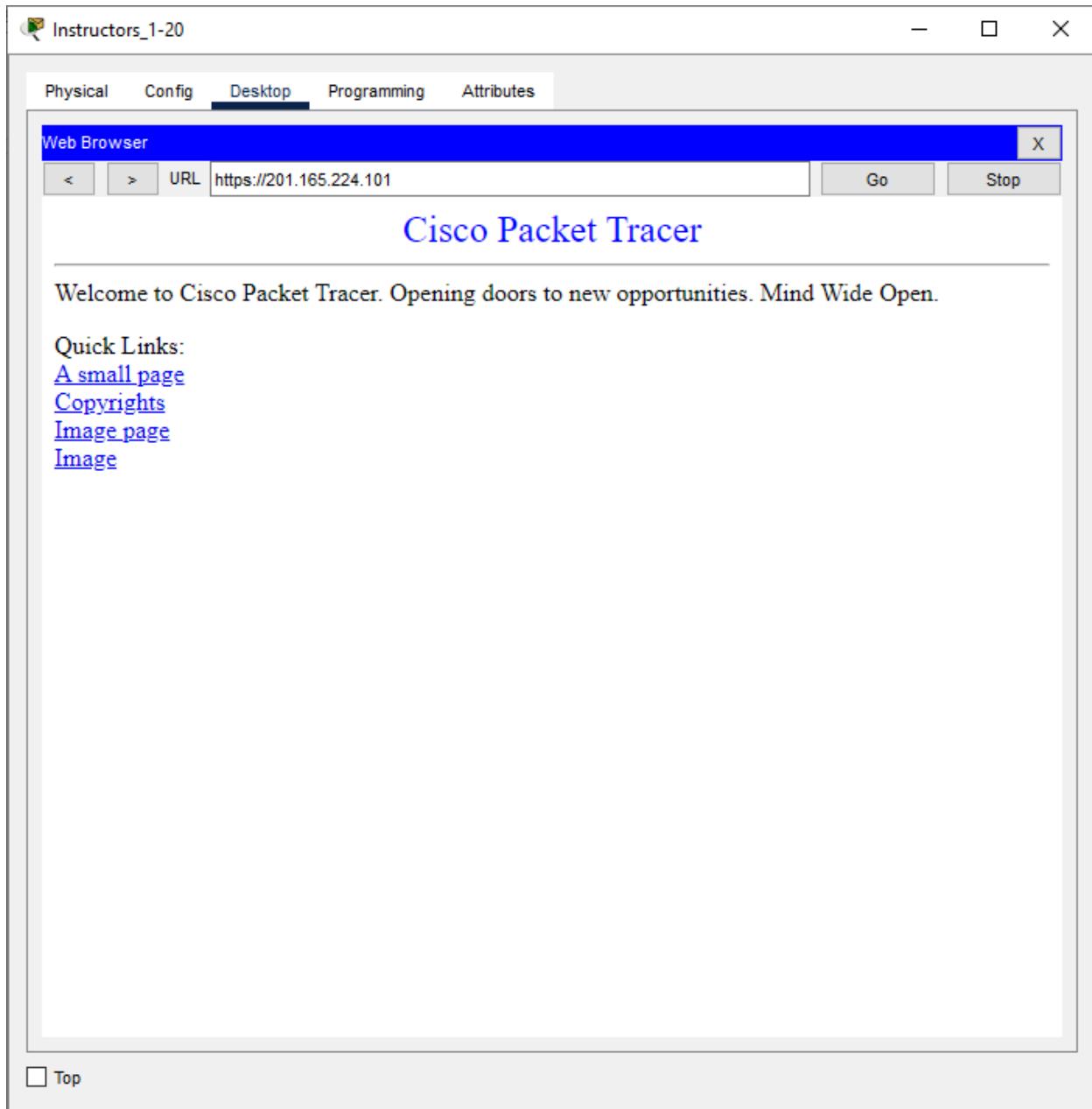
Pinging 201.165.224.101 with 32 bytes of data:

Reply from 192.168.1.130: Destination host unreachable.
Reply from 192.168.1.129: Destination host unreachable.
Reply from 192.168.1.130: Destination host unreachable.
Reply from 192.168.1.129: Destination host unreachable.
Reply from 192.168.1.130: Destination host unreachable.
Reply from 192.168.1.129: Destination host unreachable.
Reply from 192.168.1.129: Destination host unreachable.

Ping statistics for 201.165.224.101:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Top

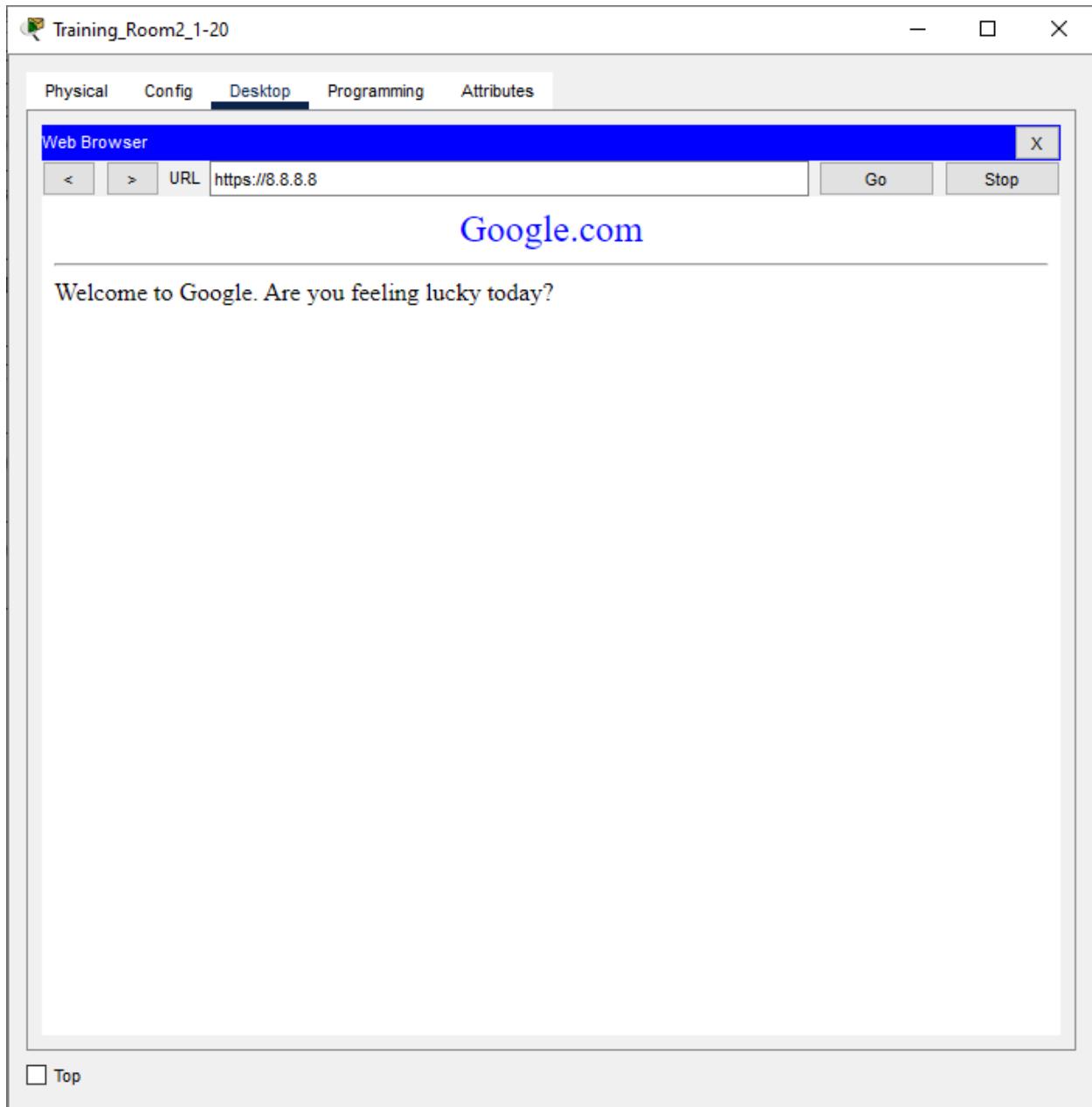
Instructor Figure 5



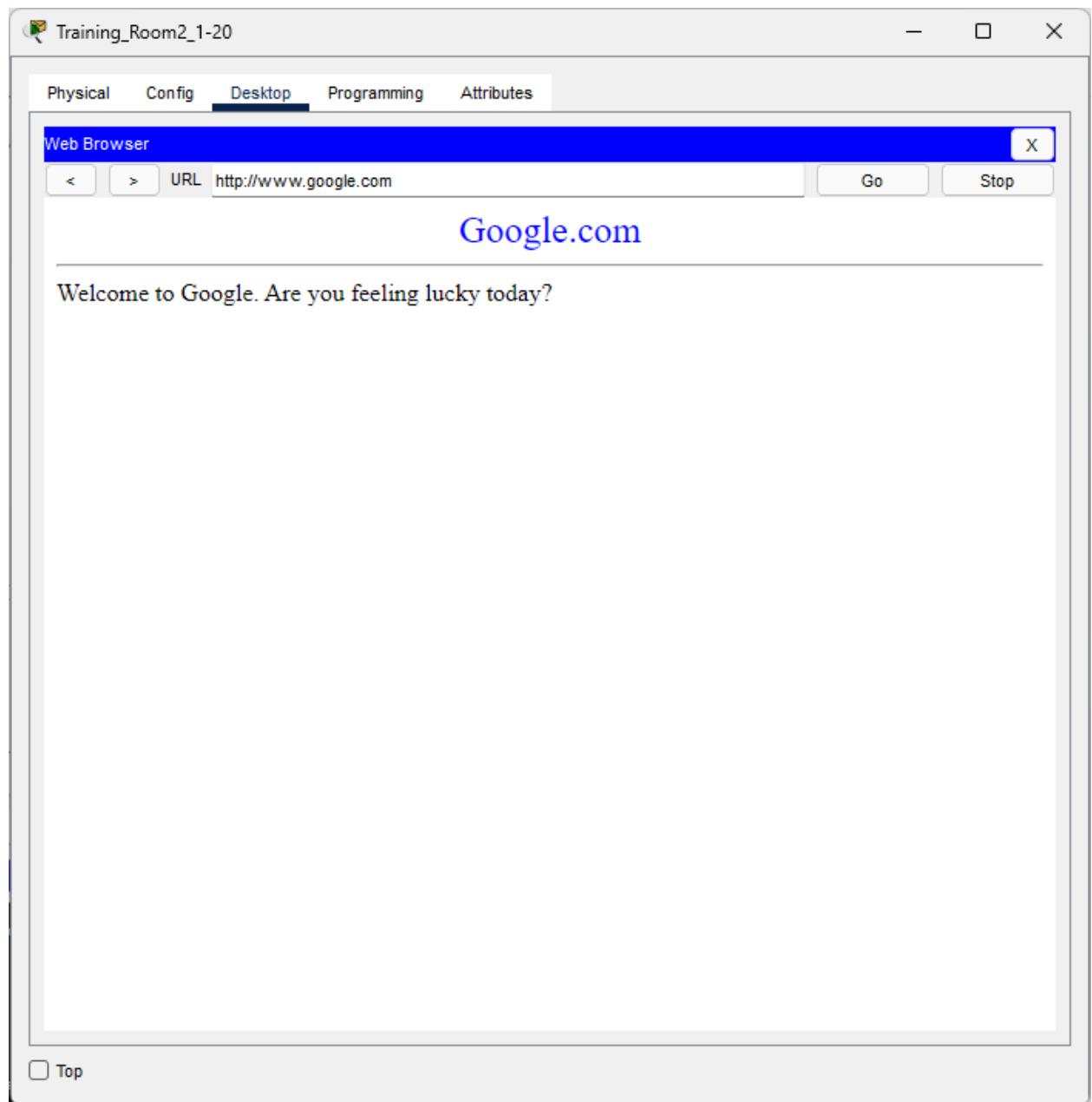
Instructor Figure 6

## Students

Source	Destination	Expected Result	Actual Result	Proof of Result
Student	Internet (Web)	Web access granted	Web access granted	Student Figure 1
Student	Internet (DNS)	DNS access granted	DNS access granted	Student Figure 2
Student	Internet (Ping)	ICMP access granted	ICMP access granted	Student Figure 3
Student	Internet (Tracert)	ICMP access granted	ICMP access granted	Student Figure 4
Student	Aquarius (Web)	Web access granted	Web access granted	Student Figure 5



Student Figure 1



Student Figure 2

Training\_Room2\_1-20

Physical Config Desktop Programming Attributes

Command Prompt X

```
Tracing route to 201.165.224.101 over a maximum of 30 hops:
 1  53 ms      84 ms      35 ms      23 ms    192.168.0.1120 ms    164 ms
 2
Control-C
^C
C:\>ping 201.165.224.101

Pinging 201.165.224.101 with 32 bytes of data:

Reply from 192.168.0.2: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.2: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.2: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 201.165.224.101:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.101: bytes=32 time=258ms TTL=127
Reply from 192.168.2.101: bytes=32 time=258ms TTL=127
Reply from 192.168.2.101: bytes=32 time=4516ms TTL=127
Reply from 192.168.2.101: bytes=32 time=4516ms TTL=127
Reply from 192.168.2.101: bytes=32 time=230ms TTL=127

Ping statistics for 192.168.2.101:
  Packets: Sent = 4, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 230ms, Maximum = 4516ms, Average = 1955ms
C:\>
```

Top

Student Figure 3

Training\_Room2\_1-20

Physical Config Desktop Programming Attributes

Command Prompt X

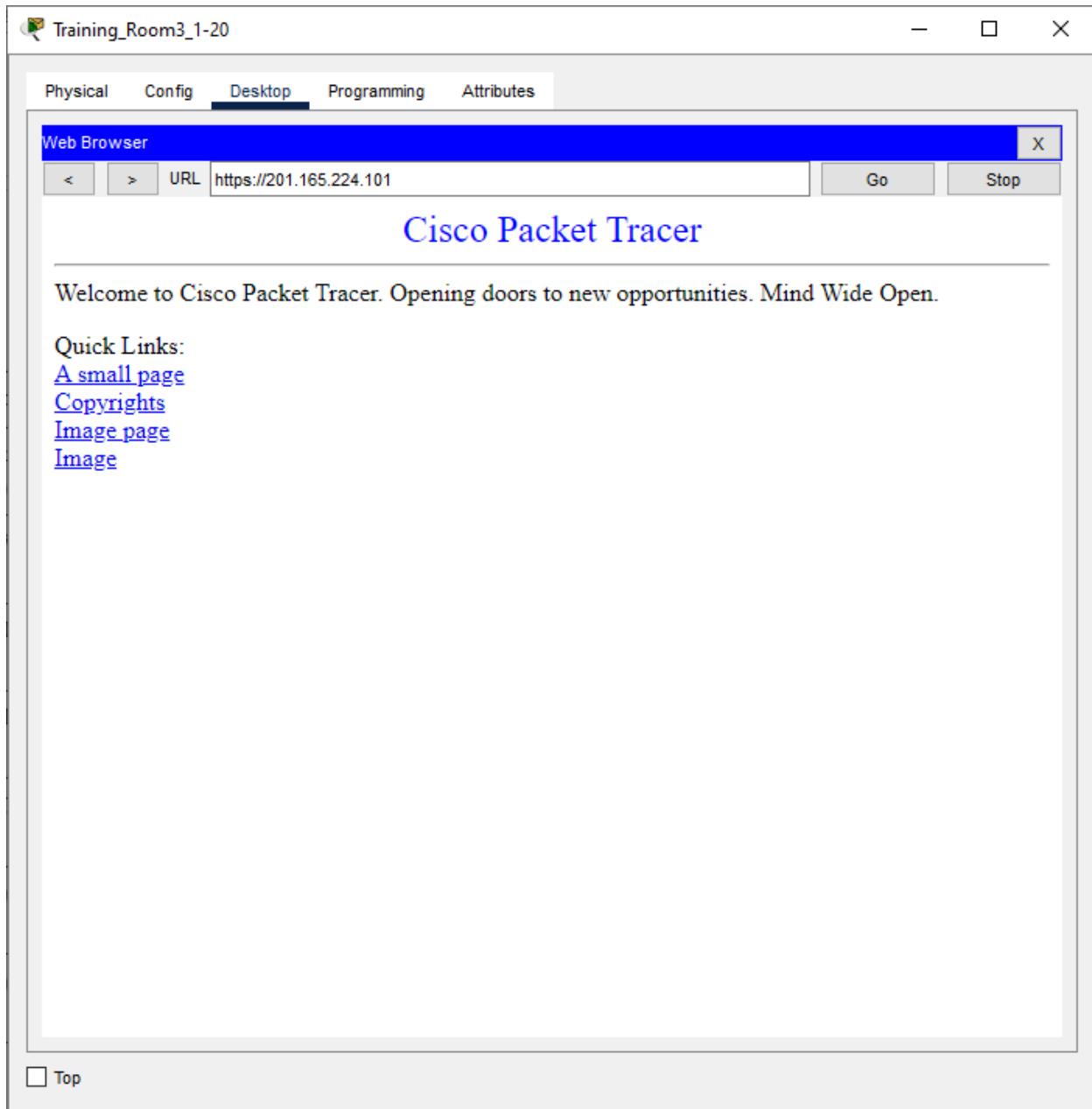
```
Cisco Packet Tracer PC Command Line 1.0
C:\>tracert 201.165.224.101

Tracing route to 201.165.224.101 over a maximum of 30 hops:

 1  116 ms    165 ms    0 ms      63 ms    192.168.0.273 ms    83 ms
 2  *          198 ms    152 ms    201.165.224.102172 ms
 3  71 ms     53 ms     216 ms    201.165.224.101
 4  203 ms    296 ms    208 ms    14 ms     192.168.0.234 ms
 5  51 ms     72 ms     143 ms    217 ms    4294967294 ms192.168.0.1
 6  94 ms     0 ms      13 ms     0 ms     192.168.0.254 ms
 7  0 ms      0 ms      0 ms     110 ms    110 ms    147 ms    220 ms    166 ms
192.168.0.2229 ms
 8  192 ms    265 ms    85 ms    4294967286 ms192.168.0.1
 9  89 ms     132 ms    250 ms    250 ms    101 ms    145 ms    171 ms
192.168.0.2171 ms
10  0 ms      4294967285 ms111 ms    192.168.0.1154 ms    154 ms
11  78 ms     154 ms    203 ms    178 ms    238 ms    220 ms    192.168.0.1
12  68 ms     111 ms    124 ms    134 ms    56 ms     192.168.0.1
13  0 ms      21 ms     127 ms    147 ms    147 ms    179 ms    166 ms    192.168.0.1
14  35 ms     10 ms     71 ms     192.168.0.2121 ms
15  31 ms     60 ms     0 ms      7 ms     192.168.0.1
16  0 ms      40 ms     40 ms     41 ms     114 ms    134 ms    134 ms    152 ms    0
ms    192.168.0.2
17  145 ms    124 ms    145 ms    145 ms    99 ms     226 ms    313 ms
192.168.0.1313 ms
18  211 ms    212 ms    277 ms    372 ms    260 ms    192.168.0.2339 ms
19  0 ms      84 ms     147 ms    148 ms    341 ms    192.168.0.1377 ms
20  100 ms    182 ms    219 ms    252 ms    336 ms    192.168.0.1419 ms
21  268 ms    250 ms    416 ms    470 ms    150 ms    192.168.0.1
22  0 ms      174 ms    181 ms    221 ms    221 ms    242 ms    192.168.0.1
23  52 ms     116 ms    116 ms    167 ms    12 ms     192.168.0.1
24  189 ms    47 ms     140 ms    140 ms    172 ms    101 ms    192.168.0.2
25  33 ms     0 ms      65 ms     4294967283 ms192.168.0.24294967284 ms
26  109 ms    175 ms    199 ms    249 ms    *        94 ms     192.168.0.2115 ms
27  157 ms    2 ms      11 ms     192.168.0.121 ms
28  0 ms      43 ms     25 ms     36 ms     6 ms     192.168.0.16 ms
29  75 ms     101 ms    101 ms    162 ms    274 ms    199 ms    192.168.0.2233 ms
```

Top

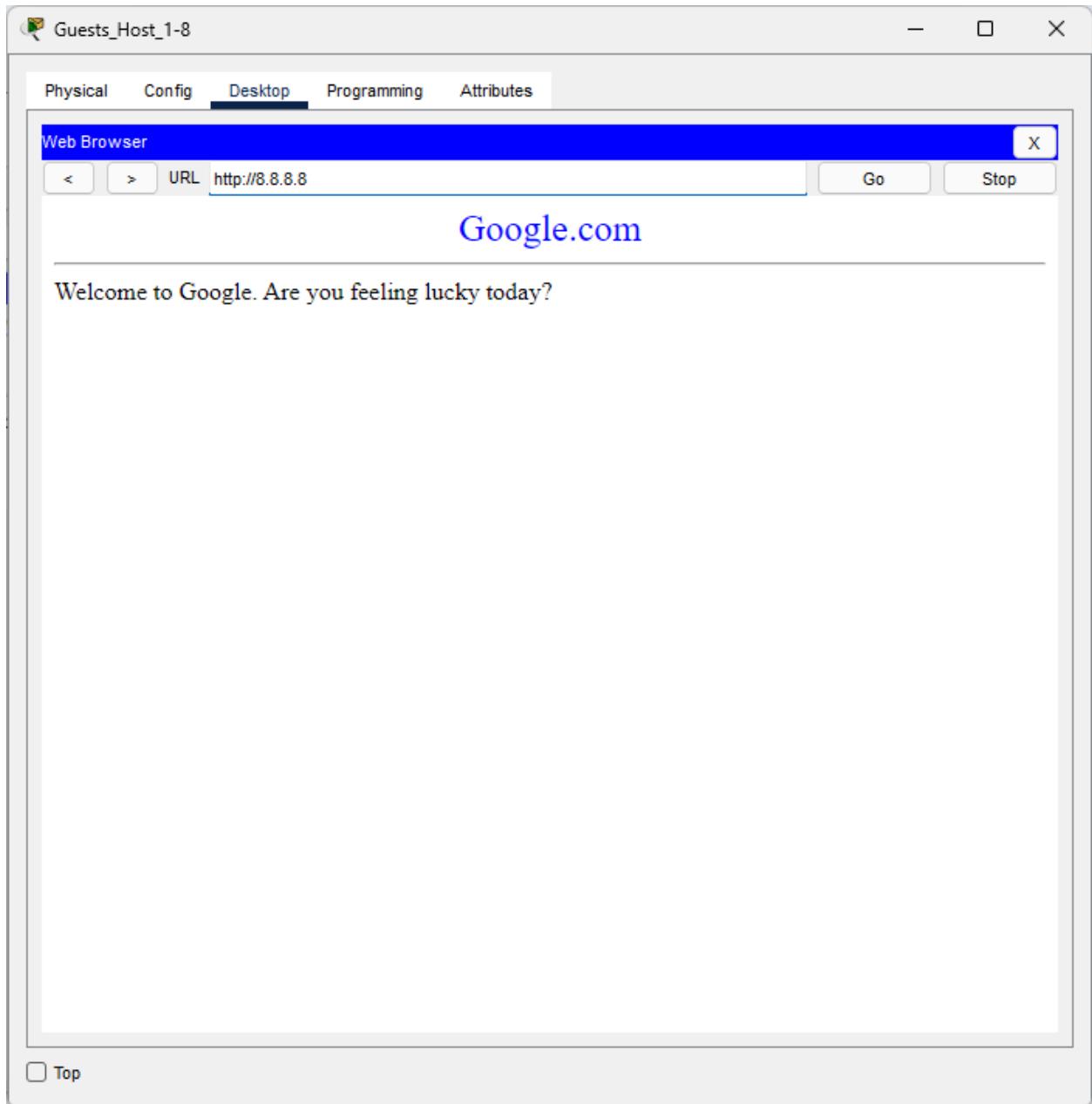
Student Figure 4



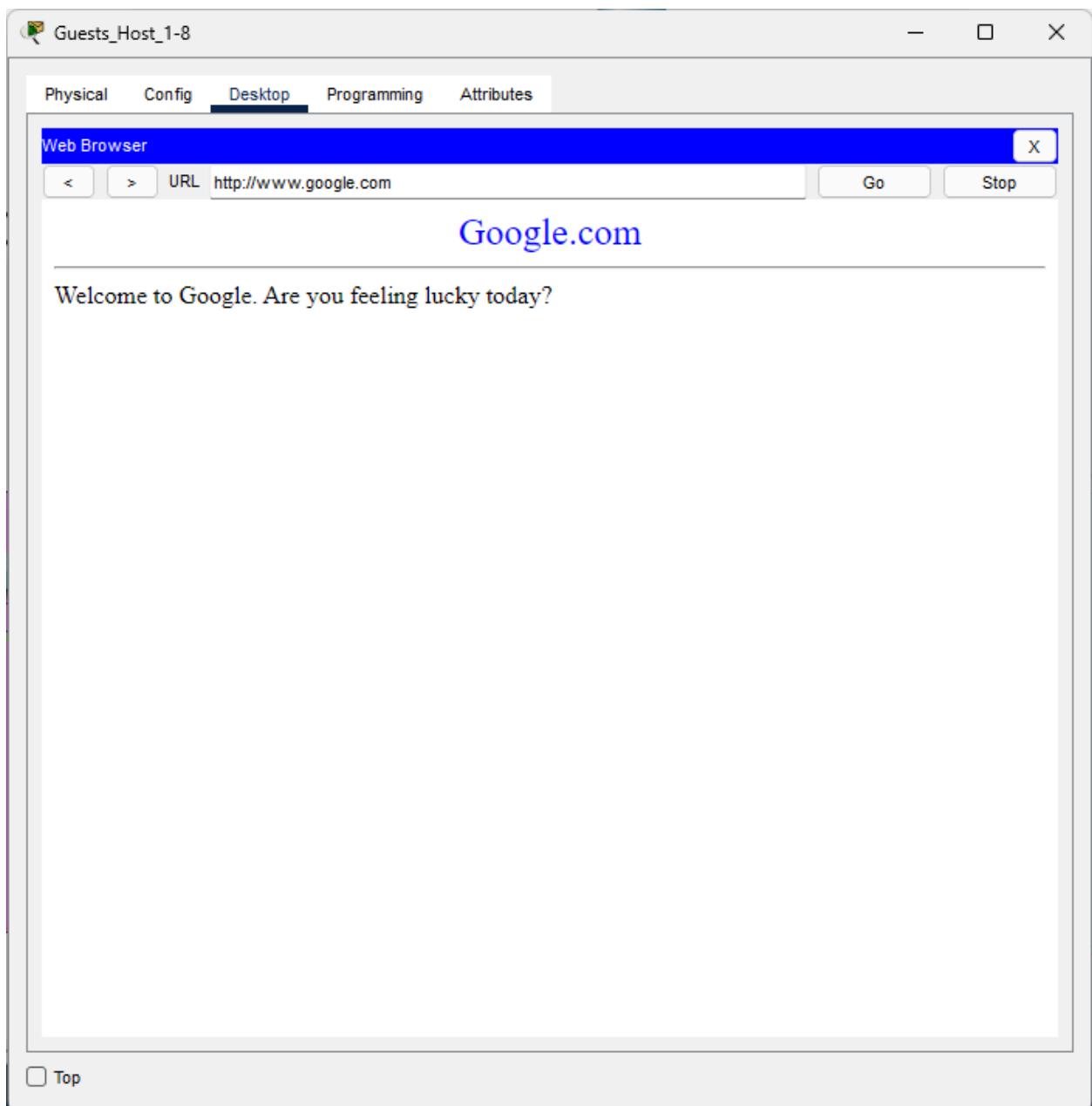
Student Figure 5

**Guest**

Source	Destination	Expected Result	Actual Result	Proof of Result
Guest	Internet (Web)	Web access granted	Web access granted	Guest Figure 1
Guest	Internet (DNS)	DNS access granted	DNS access granted	Guest Figure 2
Guest	Internet (Ping)	ICMP access granted	ICMP access granted	Guest Figure 3
Guest	Internet (Tracert)	ICMP access granted	ICMP access granted	Guest Figure 4



Guest Figure 1



Guest Figure 2

Guests\_Host\_1-8

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=286ms TTL=125
Reply from 8.8.8.8: bytes=32 time=242ms TTL=125
Reply from 8.8.8.8: bytes=32 time=201ms TTL=125
Reply from 8.8.8.8: bytes=32 time=2ms TTL=125

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 286ms, Average = 182ms

C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

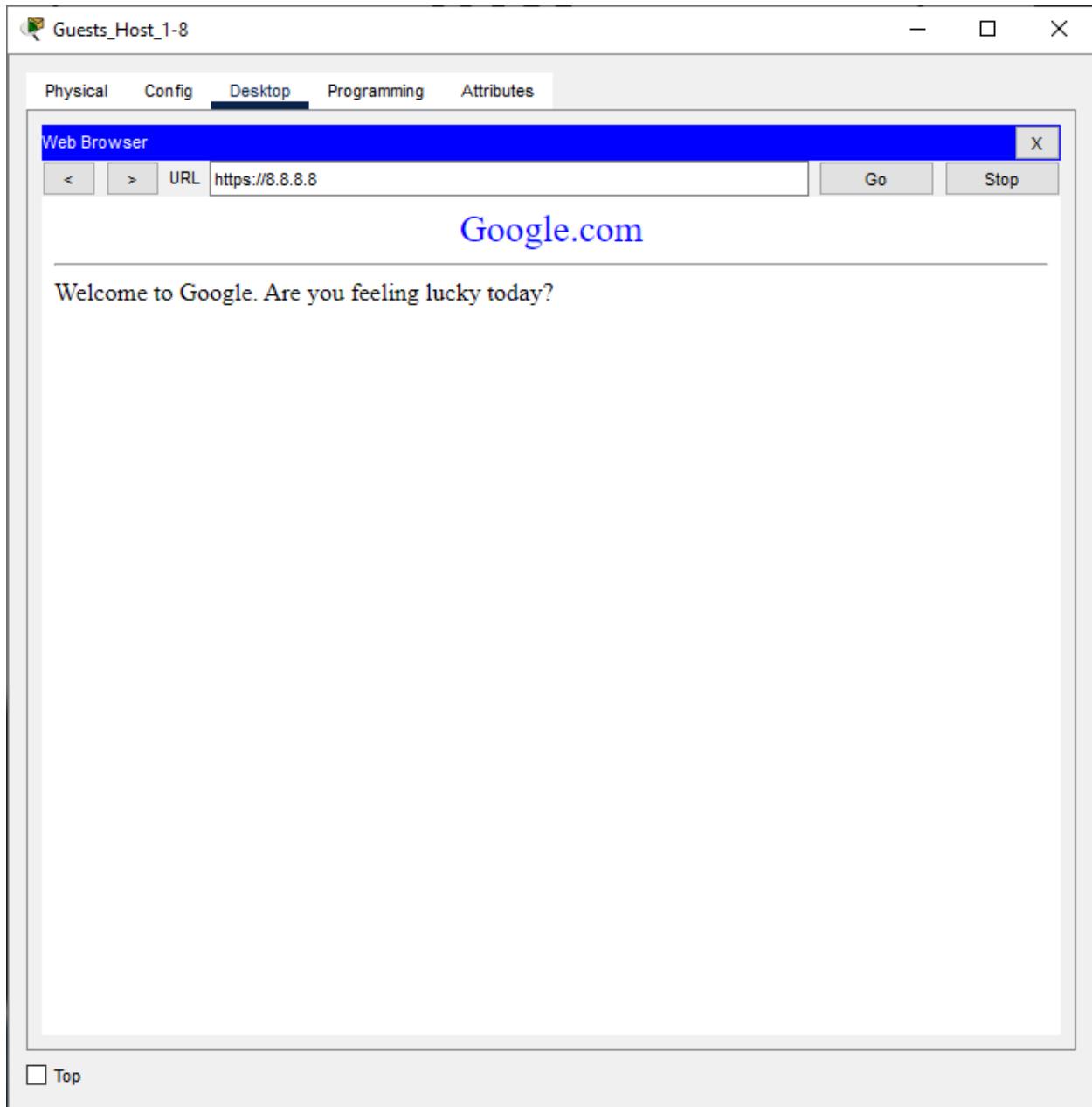
  1  145 ms    146 ms    275 ms    192.168.1.2
  2  142 ms    317 ms    266 ms    201.165.224.1
  3  213 ms     89 ms    142 ms    8.8.8.8

Trace complete.

C:\>
```

Top

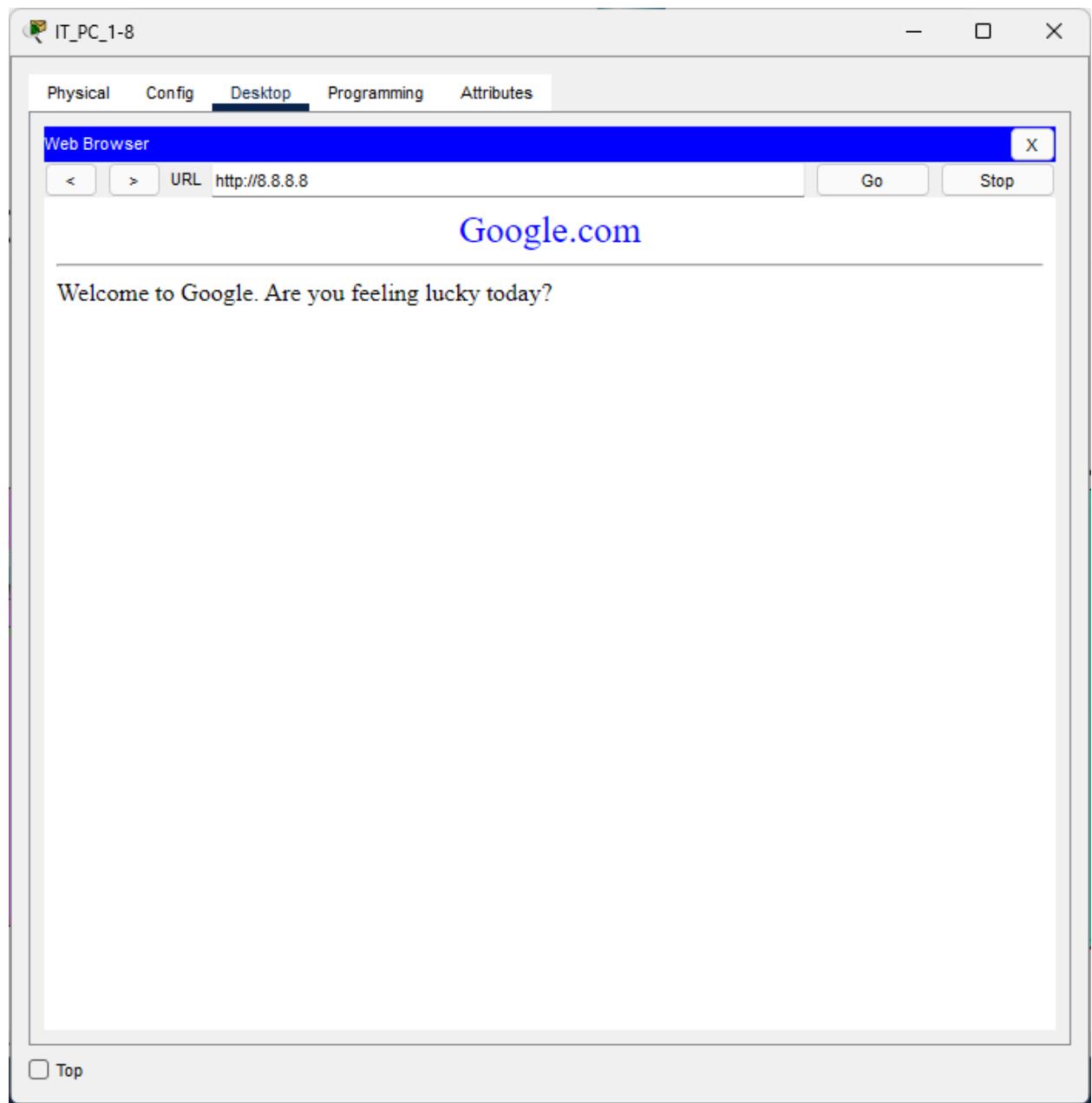
Guest Figure 3 & 4



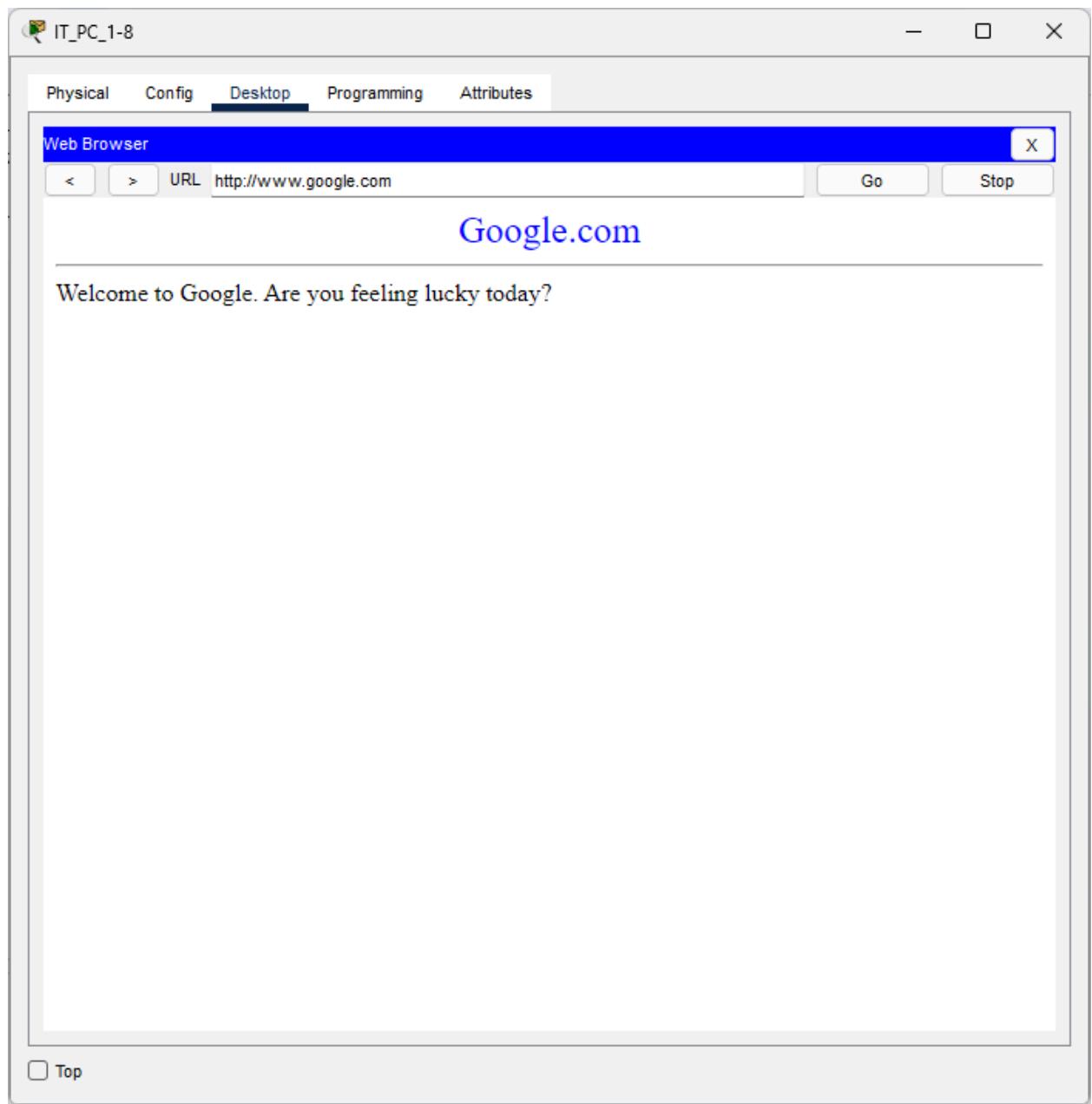
Guest Figure 1

## IT Group

Source	Destination	Expected Result	Actual Result	Proof of Result
IT Staff	Internet (Web)	Web access granted	Web access granted	IT Figure 1
IT Staff	Internet (DNS)	DNS access granted	DNS access granted	IT Figure 2
IT Staff	Internet (Ping)	ICMP access granted	ICMP access granted	IT Figure 3
IT Staff	Internet (Tracert)	ICMP access granted	ICMP access granted	IT Figure 4
IT Staff	Manila B1 (Servers)	Full access granted	Full access granted	IT Figure 5
IT Staff	Services Printers	Full access granted	Full access granted	IT Figure 7



IT Figure 1



IT Figure 2

IT\_PC\_1-8

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time<1ms TTL=126
Reply from 8.8.8.8: bytes=32 time=141ms TTL=126
Reply from 8.8.8.8: bytes=32 time=59ms TTL=126
Reply from 8.8.8.8: bytes=32 time=159ms TTL=126

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 159ms, Average = 89ms

C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

  1  301 ms    90 ms    170 ms    192.168.2.65
  2  119 ms    55 ms     46 ms    201.165.224.1
  3  112 ms   123 ms    394 ms    8.8.8.8

Trace complete.

C:\>
```

Top

IT Figure 3-4

IT\_PC\_1-8

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>tracert 201.165.225.1

Tracing route to 201.165.225.1 over a maximum of 30 hops:
  1  20 ms      12 ms      42 ms      192.168.2.65
  2  *          10 ms      29 ms    201.165.225.1

Trace complete.

C:\>
C:\>ping 192.168.2.103

Pinging 192.168.2.103 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.103: bytes=32 time=40ms TTL=127
Reply from 192.168.2.103: bytes=32 time=24ms TTL=127
Reply from 192.168.2.103: bytes=32 time=110ms TTL=127

Ping statistics for 192.168.2.103:
  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
  Minimum = 24ms, Maximum = 110ms, Average = 58ms

C:\>
```

Top

IT Figure 5&7

IT\_PC\_1-8

Physical Config Desktop Programming Attributes

Command Prompt X

```
Minimum = 24ms, Maximum = 110ms, Average = 30ms

C:\>ping 192.168.1.196

Pinging 192.168.1.196 with 32 bytes of data:

Reply from 192.168.1.196: bytes=32 time=128ms TTL=127
Reply from 192.168.1.196: bytes=32 time=171ms TTL=127
Reply from 192.168.1.196: bytes=32 time=75ms TTL=127
Request timed out.

Ping statistics for 192.168.1.196:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 75ms, Maximum = 171ms, Average = 124ms

C:\>ping 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:

Reply from 192.168.2.101: bytes=32 time=55ms TTL=127
Reply from 192.168.2.101: bytes=32 time<1ms TTL=127
Reply from 192.168.2.101: bytes=32 time=103ms TTL=127
Reply from 192.168.2.101: bytes=32 time=43ms TTL=127

Ping statistics for 192.168.2.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 103ms, Average = 50ms

C:\>ping 192.168.2.99

Pinging 192.168.2.99 with 32 bytes of data:

Reply from 192.168.2.99: bytes=32 time=37ms TTL=255
Reply from 192.168.2.99: bytes=32 time=51ms TTL=255
Reply from 192.168.2.99: bytes=32 time=16ms TTL=255
Reply from 192.168.2.99: bytes=32 time=34ms TTL=255

Ping statistics for 192.168.2.99:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 16ms, Maximum = 51ms, Average = 34ms

C:\>
C:\>
```

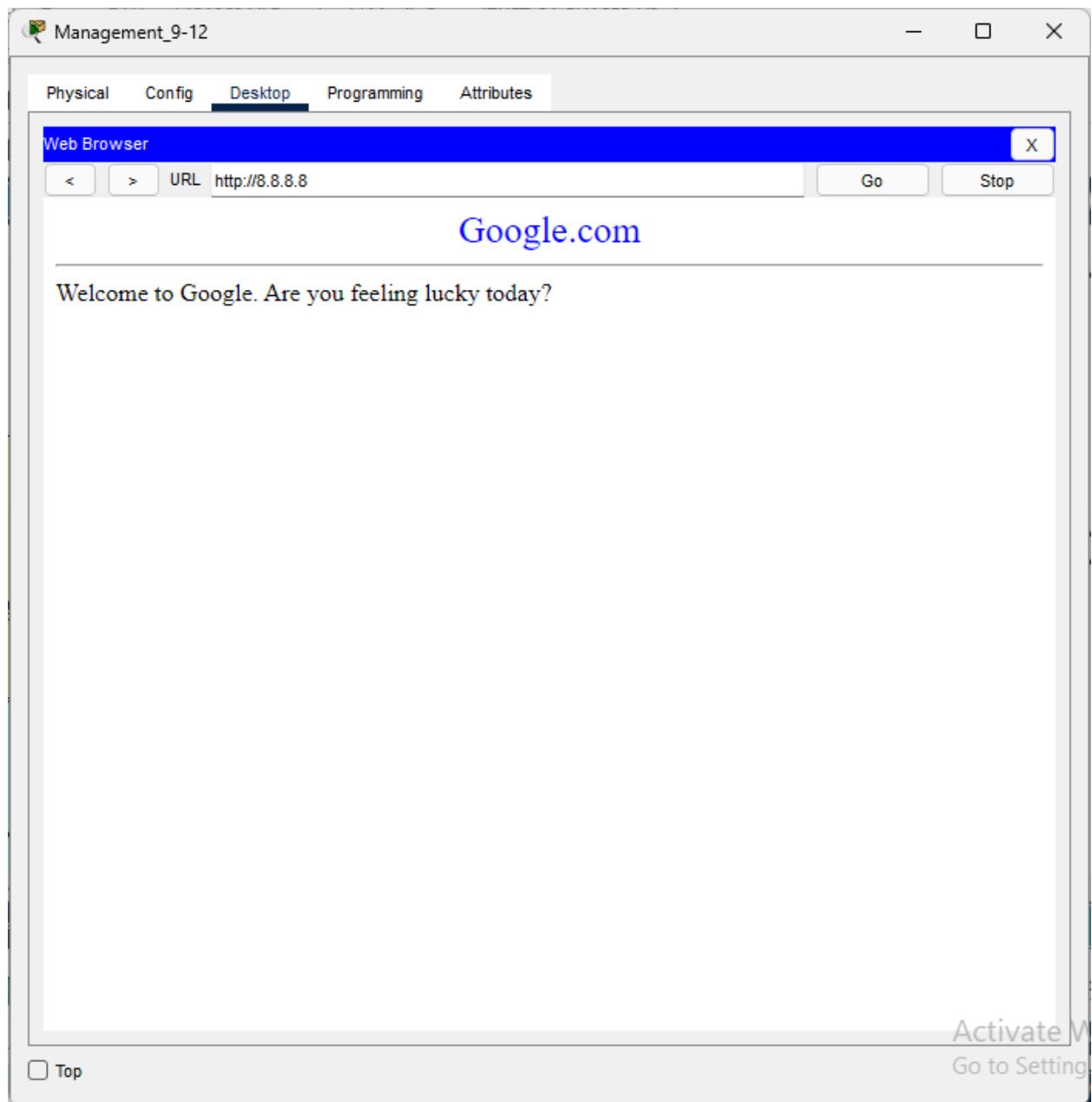
Top Activate Win  
Go to Settings to

IT Figure 6



## Network Admin

Source	Destination	Expected Result	Actual Result	Proof of Result
Network Admin (Site)	Internet	Full access granted	Full access granted	Admin Figure 1
Network Admin (Site)	Respective Site Hosts	Full access granted	Full access granted	Admin Figure 2
Network Admin (Site)	Infrastructure Devices	Full access granted	Full access granted	Admin Figure 3



Admin Figure 1

Management\_9-12

Physical Config Desktop Programming Attributes

Command Prompt X

```
Request timed out.  
Reply from 192.168.2.103: bytes=32 time=110ms TTL=127  
Reply from 192.168.2.103: bytes=32 time=1ms TTL=127  
Reply from 192.168.2.103: bytes=32 time=200ms TTL=127  
  
Ping statistics for 192.168.2.103:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 1ms, Maximum = 200ms, Average = 103ms  
  
C:\>ping 192.168.0.5  
  
Pinging 192.168.0.5 with 32 bytes of data:  
  
Request timed out.  
Reply from 192.168.0.5: bytes=32 time=280ms TTL=127  
Reply from 192.168.0.5: bytes=32 time=114ms TTL=127  
Reply from 192.168.0.5: bytes=32 time=269ms TTL=127  
  
Ping statistics for 192.168.0.5:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 114ms, Maximum = 280ms, Average = 221ms  
  
C:\>ping 192.168.1.4  
  
Pinging 192.168.1.4 with 32 bytes of data:  
  
Request timed out.  
Reply from 192.168.1.4: bytes=32 time=190ms TTL=127  
Reply from 192.168.1.4: bytes=32 time=335ms TTL=127  
Reply from 192.168.1.4: bytes=32 time=65ms TTL=127  
  
Ping statistics for 192.168.1.4:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 65ms, Maximum = 335ms, Average = 196ms  
  
C:\>
```

Top

Admin Figure 2

Management\_9-12

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.100

Pinging 192.168.2.100 with 32 bytes of data:

Reply from 192.168.2.100: bytes=32 time=215ms TTL=127
Reply from 192.168.2.100: bytes=32 time=236ms TTL=127

Ping statistics for 192.168.2.100:
    Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 215ms, Maximum = 236ms, Average = 225ms

Control-C
^C
C:\>ping 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.101: bytes=32 time<1ms TTL=127
Reply from 192.168.2.101: bytes=32 time=63ms TTL=127

Ping statistics for 192.168.2.101:
    Packets: Sent = 3, Received = 2, Lost = 1 (33% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 63ms, Average = 31ms

Control-C
^C
C:\>ping 192.168.2.103

Pinging 192.168.2.103 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.103: bytes=32 time=110ms TTL=127
Reply from 192.168.2.103: bytes=32 time=1ms TTL=127
```

Top

Admin Figure 3

## Revised Policy Testing

This section will show the proof or discussions of each segments that were insufficient or missing during the Phase 2 Progress Report.

### NTP & Syslog

The screenshot shows the Orion interface for managing services. The top navigation bar includes Physical, Config, Services (selected), Desktop, and Programming. On the left, a sidebar lists various services: SERVICES (HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT), VM Management, and Radius EAP. The main content area is titled 'Syslog' and shows the 'Service' configuration with an 'On' button (radio selected). Below is a table of log entries:

	Time	HostName	Message
1	06.19.2024 10:09:22.160 PM	192.168.2.97	22:09:22: %OSPF-5-ADJCHG: ...
2	06.19.2024 10:09:37.846 PM	192.168.2.97	22:09:37: %OSPF-5-ADJCHG: ...
3	06.19.2024 10:09:34.901 PM	192.168.2.98	22:09:34: %OSPF-5-ADJCHG: ...
4	06.19.2024 10:09:38.316 PM	192.168.2.98	%HSRP-6-STATECHANGE: ...
5	06.19.2024 10:09:38.867 PM	192.168.2.98	%HSRP-6-STATECHANGE: ...
6	06.19.2024 10:09:47.706 PM	192.168.2.97	22:09:47: %OSPF-5-ADJCHG: ...
7	06.19.2024 10:09:44.755 PM	192.168.2.98	22:09:44: %OSPF-5-ADJCHG: ...

A 'Clear Log' button is located at the bottom right of the log table. A 'Top' link is at the bottom left.

## PVST, Portfast, Rapid Mode PVST

The screenshot shows a Windows application window titled "Training\_RoomSW-1" with a tab bar containing "Physical", "Config", and "CLI". The "CLI" tab is selected, displaying the IOS Command Line Interface. The configuration shown is for PVST, Portfast, and Rapid Mode PVST.

```
username AdminTR1 secret 5 $1$eRR$1CUIM2pPm9e7VSY9Zs6BP/
!
ip arp inspection vlan 10,20,30,40,50,60,70,99
!
ip dhcp snooping vlan 70
no ip dhcp snooping information option
!
spanning-tree mode rapid-pvst
spanning-tree extend system-id
!
interface Port-channel1
switchport trunk native vlan 99
switchport trunk allowed vlan 10,20,30,40,50,60
switchport mode trunk
switchport nonegotiate
!
interface FastEthernet0/1
switchport access vlan 10
ip dhcp snooping limit rate 2
switchport mode access
switchport port-security
switchport port-security maximum 2
switchport port-security mac-address sticky
switchport port-security violation restrict
switchport port-security mac-address sticky 0060.7014.2B6C
switchport port-security mac-address sticky 00E0.F722.CDD6
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/2
switchport access vlan 10
ip dhcp snooping limit rate 2
switchport mode access
switchport port-security
switchport port-security maximum 2
switchport port-security mac-address sticky
switchport port-security violation restrict
spanning-tree portfast
spanning-tree bpduguard enable
```

A vertical scroll bar is visible on the right side of the CLI window. A small portion of the configuration is visible at the bottom right of the window.

## Management ACL

R1

Physical Config CLI

IOS Command Line Interface

```
50 permit icmp 192.168.0.0 0.0.0.255 192.168.2.64 0.0.0.31 echo-reply
60 permit icmp 192.168.0.0 0.0.0.255 192.168.1.192 0.0.0.63 echo-reply
70 permit icmp 192.168.0.0 0.0.0.255 host 192.168.2.101
80 permit tcp 192.168.0.0 0.0.0.255 host 192.168.2.101 eq www
90 permit tcp 192.168.0.0 0.0.0.255 host 192.168.2.101 eq smtp
100 permit tcp 192.168.0.0 0.0.0.255 host 192.168.2.101 eq pop3
110 deny ip 192.168.0.0 0.0.0.255 192.168.0.0 0.0.1.255 (18036 match(es))
120 deny ip 192.168.0.0 0.0.0.255 192.168.2.0 0.0.0.255
130 deny ip 192.168.0.0 0.0.0.255 192.168.4.0 0.0.0.255
140 deny ip 192.168.0.0 0.0.0.255 192.168.3.0 0.0.0.255
150 permit tcp 192.168.0.0 0.0.0.255 any eq www
160 permit tcp 192.168.0.0 0.0.0.255 any eq 443
170 permit tcp 192.168.0.0 0.0.0.255 any eq domain
180 permit udp 192.168.0.0 0.0.0.255 any eq domain
190 permit icmp 192.168.0.0 0.0.0.255 any echo

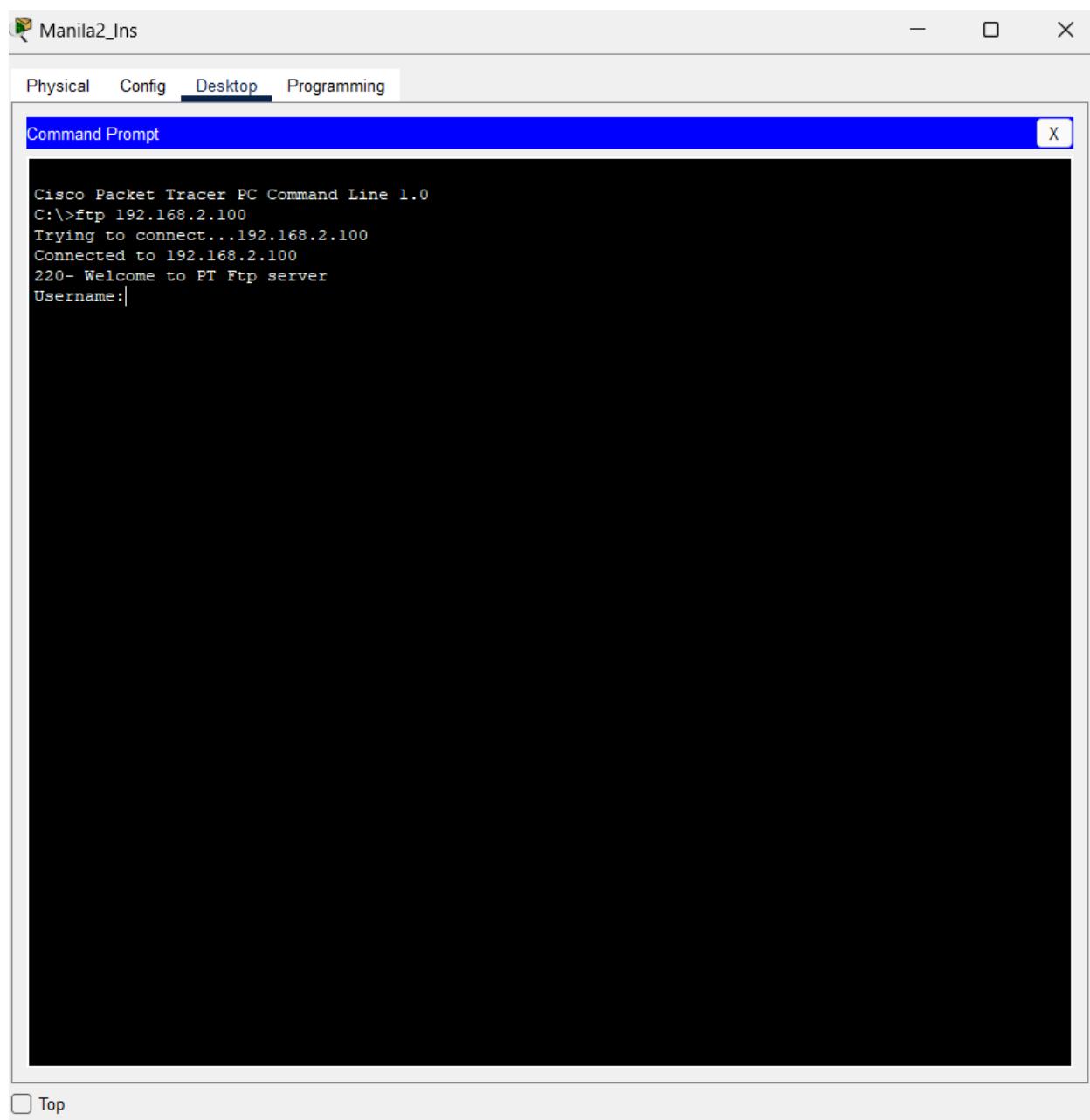
Extended IP access list Guest_ACL
10 permit udp any any range bootps bootpc (2 match(es))
20 permit icmp 192.168.1.0 0.0.0.127 192.168.2.64 0.0.0.31 echo-reply
30 permit icmp 192.168.1.0 0.0.0.127 192.168.1.192 0.0.0.63 echo-reply
40 permit icmp 192.168.1.0 0.0.0.127 host 192.168.2.101
50 permit tcp 192.168.1.0 0.0.0.127 host 192.168.2.101 eq www
60 permit tcp 192.168.1.0 0.0.0.127 host 192.168.2.101 eq smtp
70 permit tcp 192.168.1.0 0.0.0.127 host 192.168.2.101 eq pop3
80 deny ip 192.168.1.0 0.0.0.127 192.168.0.0 0.0.1.255 (17305 match(es))
90 deny ip 192.168.1.0 0.0.0.127 192.168.2.0 0.0.0.255
100 deny ip 192.168.1.0 0.0.0.127 192.168.4.0 0.0.0.255
110 deny ip 192.168.1.0 0.0.0.127 192.168.3.0 0.0.0.255
120 permit tcp 192.168.1.0 0.0.0.127 any eq www
130 permit tcp 192.168.1.0 0.0.0.127 any eq 443
140 permit tcp 192.168.1.0 0.0.0.127 any eq domain
150 permit udp 192.168.1.0 0.0.0.127 any eq domain
160 permit icmp 192.168.1.0 0.0.0.127 any echo

Extended IP access list Management_ACL
10 permit udp any any range bootps bootpc (18 match(es))
20 permit ip 192.168.1.192 0.0.0.63 192.168.0.0 0.0.1.255 (14 match(es))
30 permit ip 192.168.1.192 0.0.0.63 192.168.2.0 0.0.0.255 (4 match(es))
40 deny ip 192.168.1.192 0.0.0.63 192.168.4.0 0.0.0.255
50 deny ip 192.168.1.192 0.0.0.63 192.168.3.0 0.0.0.255
60 permit tcp 192.168.1.192 0.0.0.63 any
70 permit udp 192.168.1.192 0.0.0.63 any

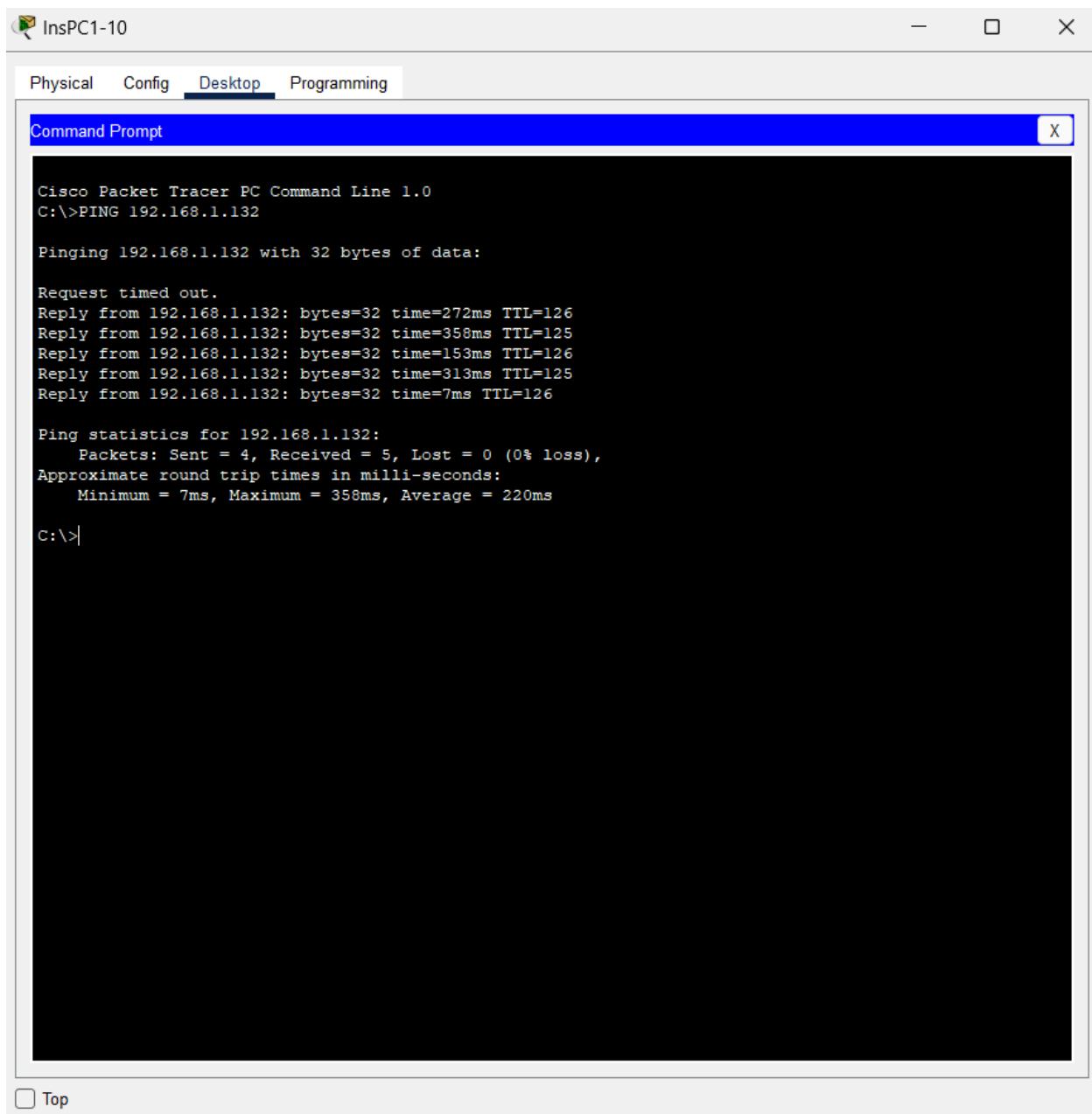
R1(config-if)#
```

Top

## FTP FROM MANILA 2 INST TO ORION



## BRAZIL BRANCH INSTRUCTOR TO MAIN BRANCH INSTRUCTOR



The screenshot shows a window titled "Command Prompt" from the Cisco Packet Tracer software. The window displays the output of a ping command sent from the local machine (192.168.1.132) to another host at 192.168.1.132. The output includes the request being timed out and the response from the destination host, followed by ping statistics.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>PING 192.168.1.132

Pinging 192.168.1.132 with 32 bytes of data:

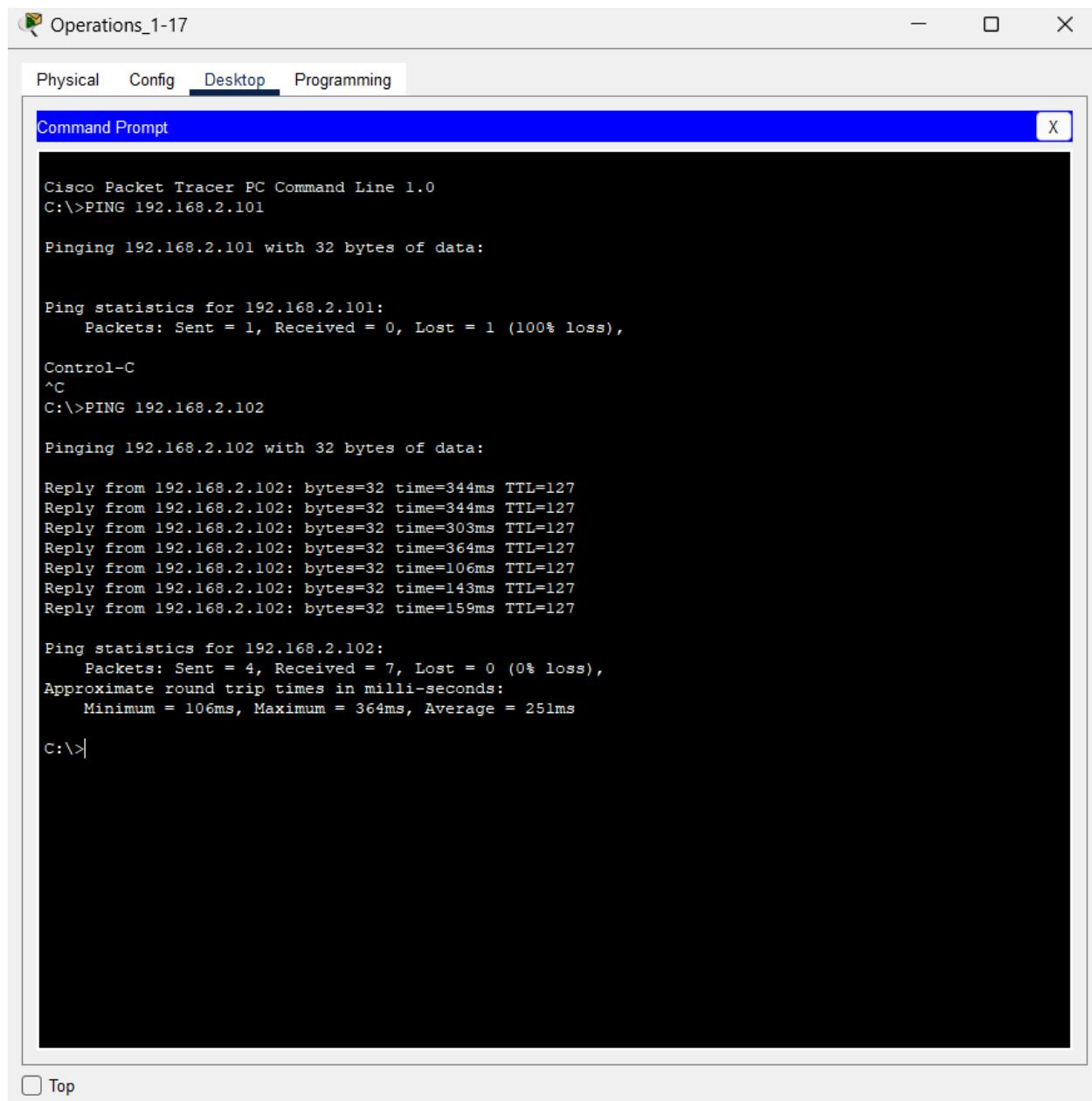
Request timed out.
Reply from 192.168.1.132: bytes=32 time=272ms TTL=126
Reply from 192.168.1.132: bytes=32 time=358ms TTL=125
Reply from 192.168.1.132: bytes=32 time=153ms TTL=126
Reply from 192.168.1.132: bytes=32 time=313ms TTL=125
Reply from 192.168.1.132: bytes=32 time=7ms TTL=126

Ping statistics for 192.168.1.132:
    Packets: Sent = 4, Received = 5, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 358ms, Average = 220ms

C:\>
```

Top

## OPERATIONS TO PRINTERS IN MANILA ONE BRANCH



The screenshot shows a window titled "Operations\_1-17" with tabs for Physical, Config, Desktop, and Programming. The Desktop tab is selected, displaying a "Command Prompt" window. The command prompt shows the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>PING 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:

Ping statistics for 192.168.2.101:
  Packets: Sent = 1, Received = 0, Lost = 1 (100% loss),
Control-C
^C
C:\>PING 192.168.2.102

Pinging 192.168.2.102 with 32 bytes of data:

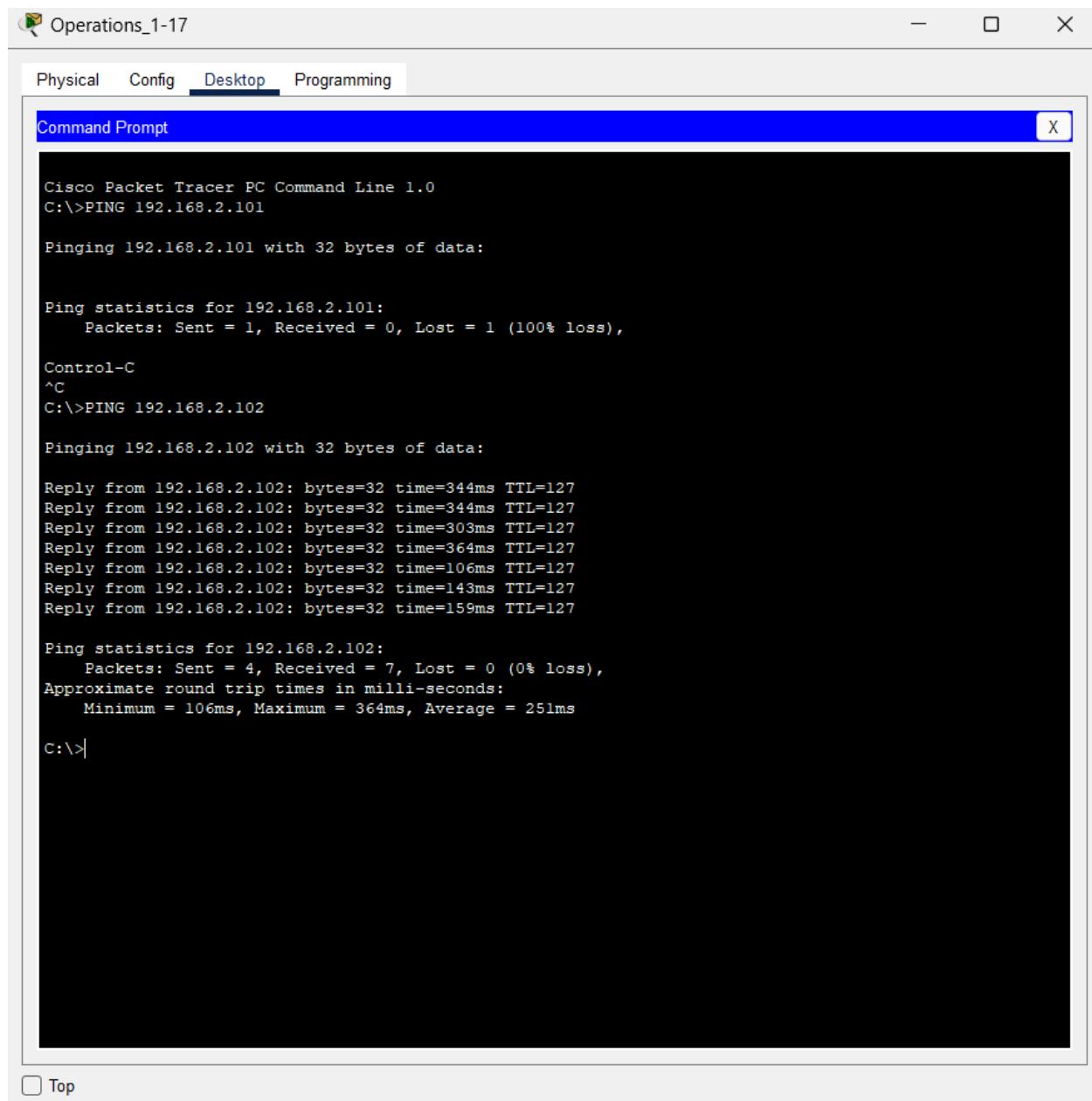
Reply from 192.168.2.102: bytes=32 time=344ms TTL=127
Reply from 192.168.2.102: bytes=32 time=344ms TTL=127
Reply from 192.168.2.102: bytes=32 time=303ms TTL=127
Reply from 192.168.2.102: bytes=32 time=364ms TTL=127
Reply from 192.168.2.102: bytes=32 time=106ms TTL=127
Reply from 192.168.2.102: bytes=32 time=143ms TTL=127
Reply from 192.168.2.102: bytes=32 time=159ms TTL=127

Ping statistics for 192.168.2.102:
  Packets: Sent = 4, Received = 7, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 106ms, Maximum = 364ms, Average = 251ms

C:\>|
```

Top

## OPERATIONS TO PRINTERS IN MANILA ONE BRANCH



The screenshot shows a window titled "Operations\_1-17" with tabs for Physical, Config, Desktop, and Programming. The Desktop tab is selected, displaying a "Command Prompt" window. The command prompt shows the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>PING 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:

Ping statistics for 192.168.2.101:
  Packets: Sent = 1, Received = 0, Lost = 1 (100% loss),
Control-C
^C
C:\>PING 192.168.2.102

Pinging 192.168.2.102 with 32 bytes of data:

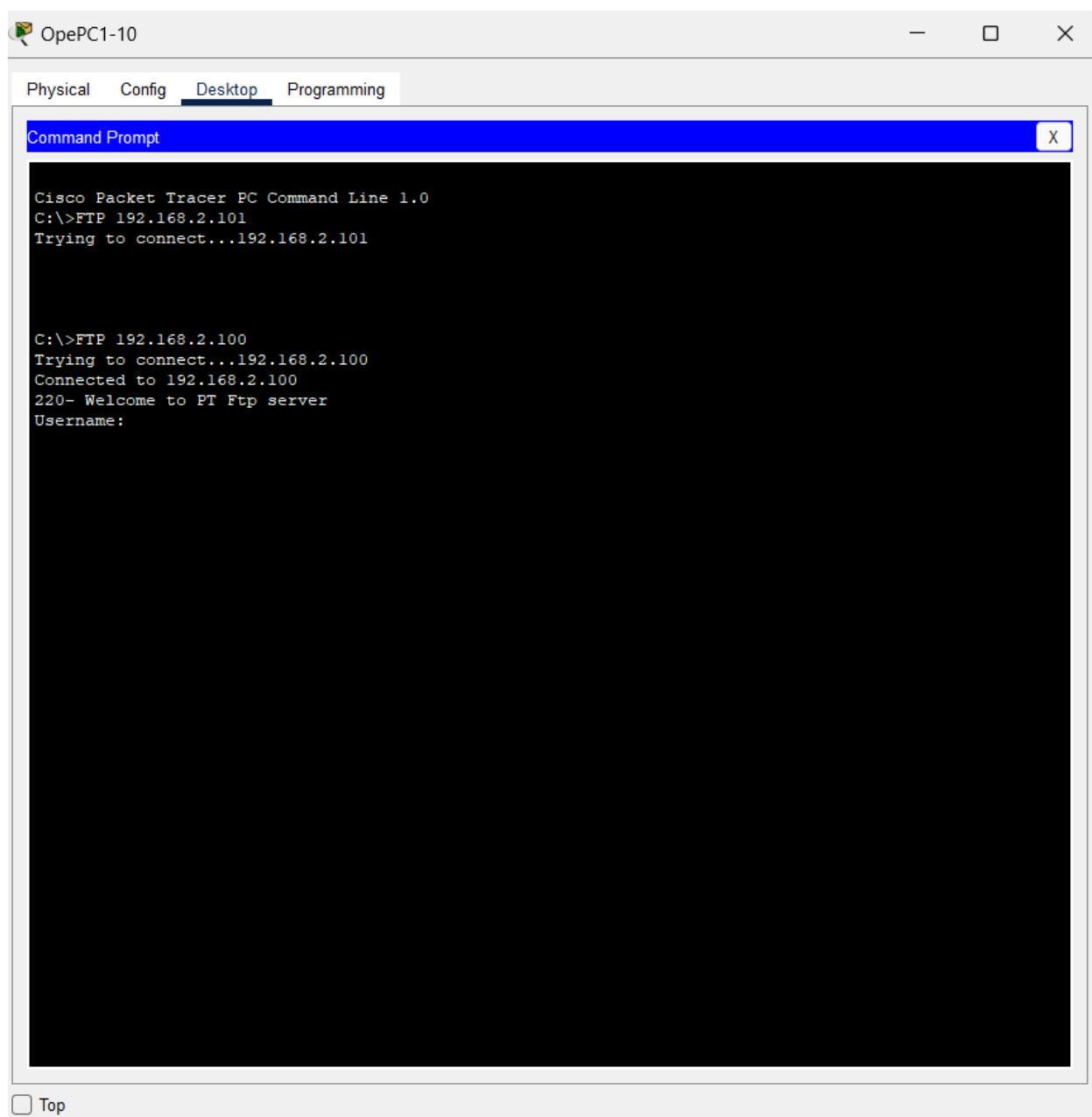
Reply from 192.168.2.102: bytes=32 time=344ms TTL=127
Reply from 192.168.2.102: bytes=32 time=344ms TTL=127
Reply from 192.168.2.102: bytes=32 time=303ms TTL=127
Reply from 192.168.2.102: bytes=32 time=364ms TTL=127
Reply from 192.168.2.102: bytes=32 time=106ms TTL=127
Reply from 192.168.2.102: bytes=32 time=143ms TTL=127
Reply from 192.168.2.102: bytes=32 time=159ms TTL=127

Ping statistics for 192.168.2.102:
  Packets: Sent = 4, Received = 7, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 106ms, Maximum = 364ms, Average = 251ms

C:\>|
```

Top

## OPERATIONS BRAZIL FTP TO ORION



## Mail Server Aquarius Received SMTP fixed

The screenshot shows the 'MAIL BROWSER' window of the Mail Server Aquarius application. The window title is 'Training\_Room3\_1-20'. The tab bar at the top includes 'Physical', 'Config', 'Desktop' (which is selected), and 'Programming'. Below the tabs is a toolbar with 'Compose', 'Reply', 'Receive', 'Delete', and 'Configure Mail' buttons. The main area is titled 'Mails' and contains a table of received messages:

	From	Subject	Received
1	Brylle@gmail.com	hello	Thu Jul 25 2024 22:22:13
2	Brylle@gmail.com	Baguio	Thu Jul 25 2024 22:18:06

Below the table, the message content for the first email is displayed:

hello  
Brylle@gmail.com  
Sent : Thu Jul 25 2024 22:22:13

hello amienz

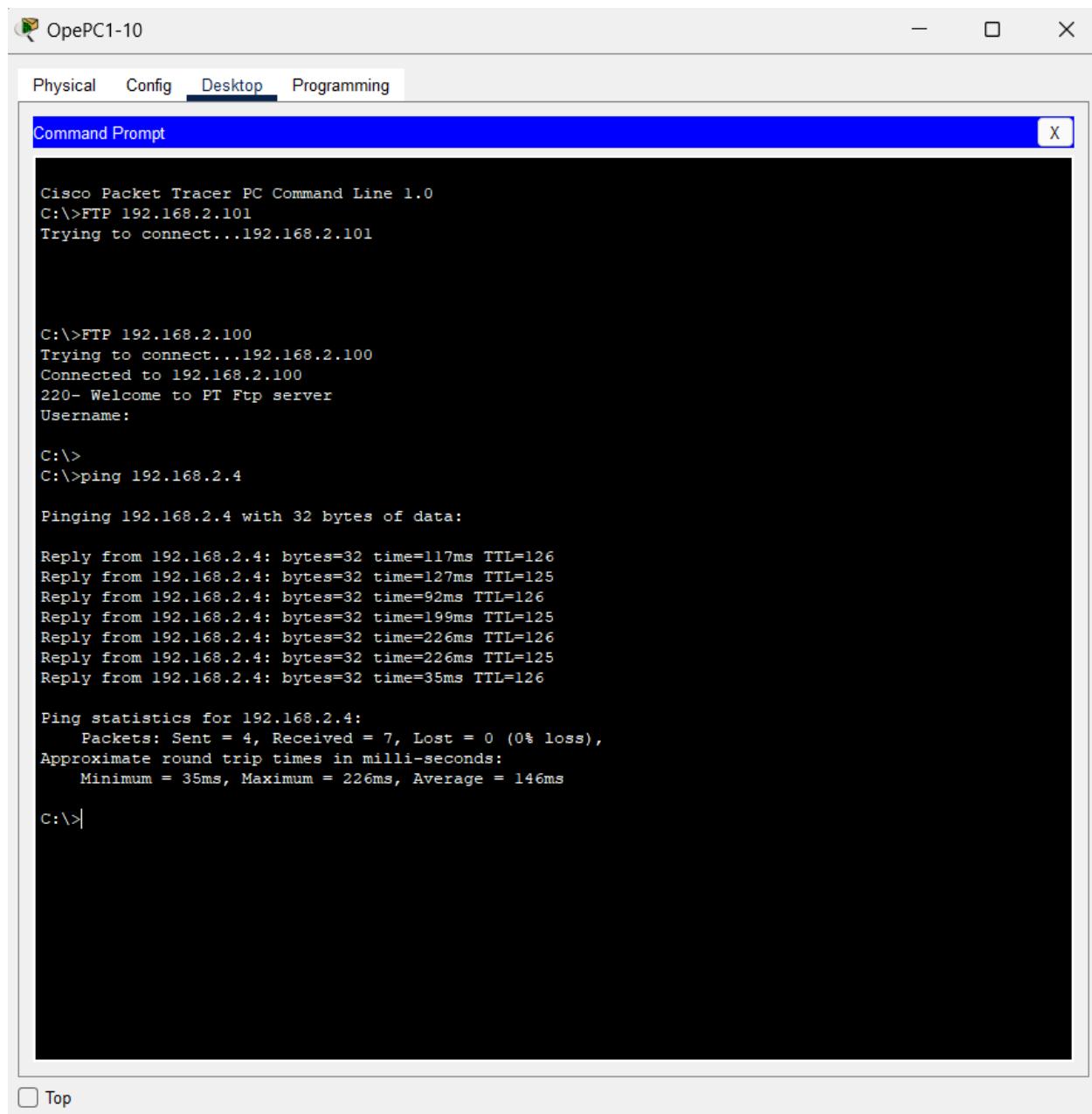
---

Receiving mail from POP3 Server 192.168.2.101  
Receive Mail Success.

Cancel  
Send/Receive

Top

## Operations brazil branch to operation manila main branch



The screenshot shows a window titled "Command Prompt" from the Cisco Packet Tracer PC Command Line 1.0. The window contains the following command-line session:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>FTP 192.168.2.101
Trying to connect...192.168.2.101

C:\>FTP 192.168.2.100
Trying to connect...192.168.2.100
Connected to 192.168.2.100
220- Welcome to PT Ftp server
Username:

C:\>
C:\>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

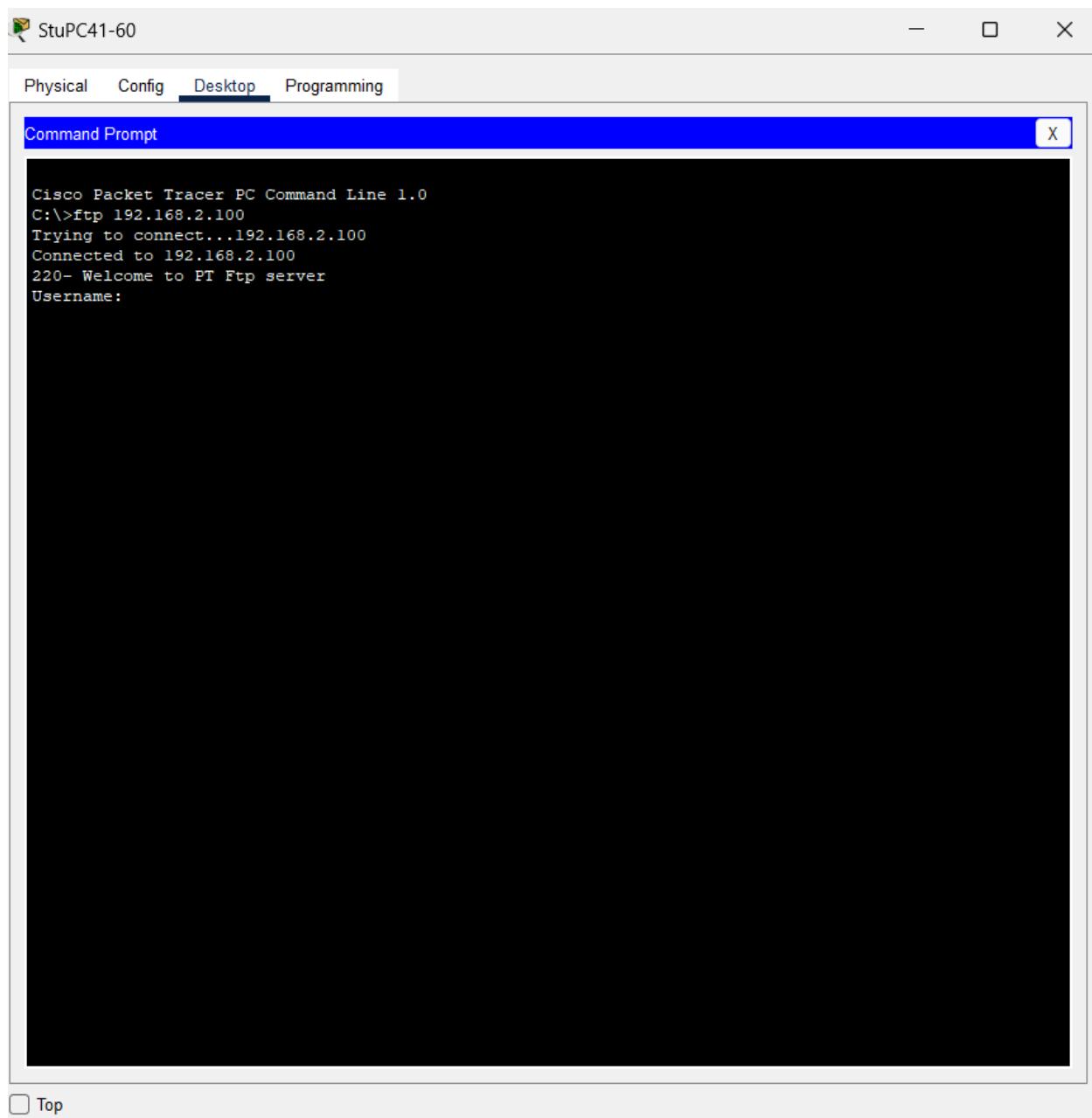
Reply from 192.168.2.4: bytes=32 time=117ms TTL=126
Reply from 192.168.2.4: bytes=32 time=127ms TTL=125
Reply from 192.168.2.4: bytes=32 time=92ms TTL=126
Reply from 192.168.2.4: bytes=32 time=199ms TTL=125
Reply from 192.168.2.4: bytes=32 time=226ms TTL=126
Reply from 192.168.2.4: bytes=32 time=226ms TTL=125
Reply from 192.168.2.4: bytes=32 time=35ms TTL=126

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 7, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 35ms, Maximum = 226ms, Average = 146ms

C:\>
```

At the bottom left of the window, there is a "Top" button.

## Brazil Students FTP to Orion



## Mail access done, Brazil Students to Main Branch Students

StuPC1-20

Physical Config Desktop Programming

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	Brylle@gmail.com	RE: Brylle	Thu Jul 25 2024 22:24:32

RE: Brylle  
Brylle@gmail.com  
Sent : Thu Jul 25 2024 22:24:32

hello amienz from brazil

---

Subject : Brylle  
From : Amienz@gmail.com  
Sent : Thu Jul 25 2024 22:24:23

i am in Brazil

---

Receiving mail from POP3 Server 192.168.2.101  
Receive Mail Success.

Cancel Send/Receive

Top