Computer Networking – Workshop No. 1

Packet Tracer Basics

Juan Sebastián Sánchez - 20182020118

INTRODUCTION

This report presents the design and implementation of a computer network simulation project, focuses on utilizing Packet Tracer, a network simulation tool, to create a functional network that meets specific set requirements.

The primary objective of this workshop is to achieve the challenge of being an internship computer engineer at the university, who is tasked with designing a network that includes:

1. An on-premises server hosting the university's home webpage

2. Cloud connectivity

4. Home network setup

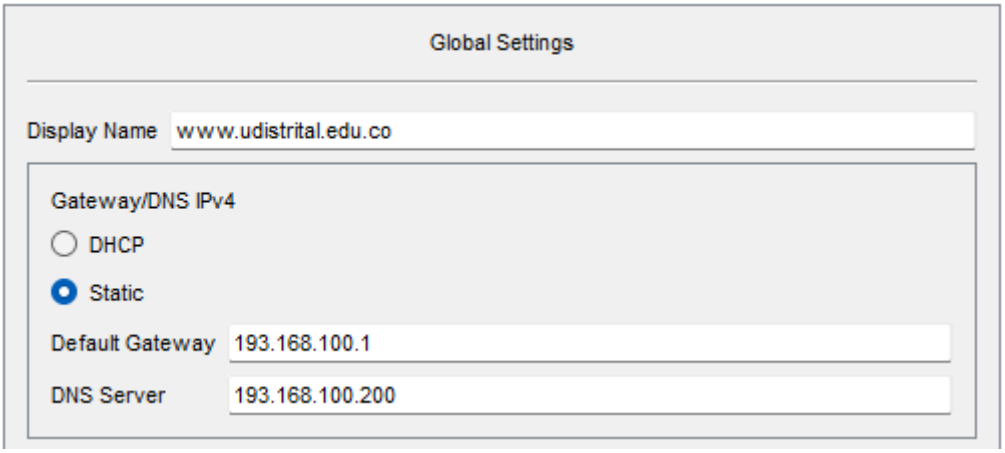
This comprehensive network design incorporates various elements such as server configuration, DNS and DHCP services, cloud connections, and wireless networking. The simulation aims to create a fully functional system where client devices can access the university's website through the designed network infrastructure.

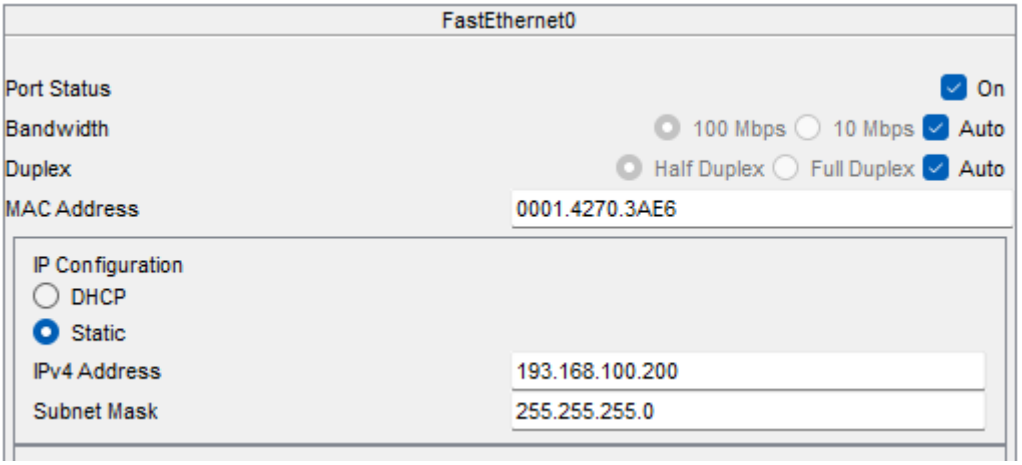
The following report will detail the network design process, technical decisions made during implementation, and the results of connectivity tests performed as per the workshop requirements. All components of this project, including the Packet Tracer (.pkt) file, HTML file for the university's homepage, and this report, are stored in a GitHub repository for easy access and evaluation.

PROCESS DESCRIPTION

Step 1: Server Configuration

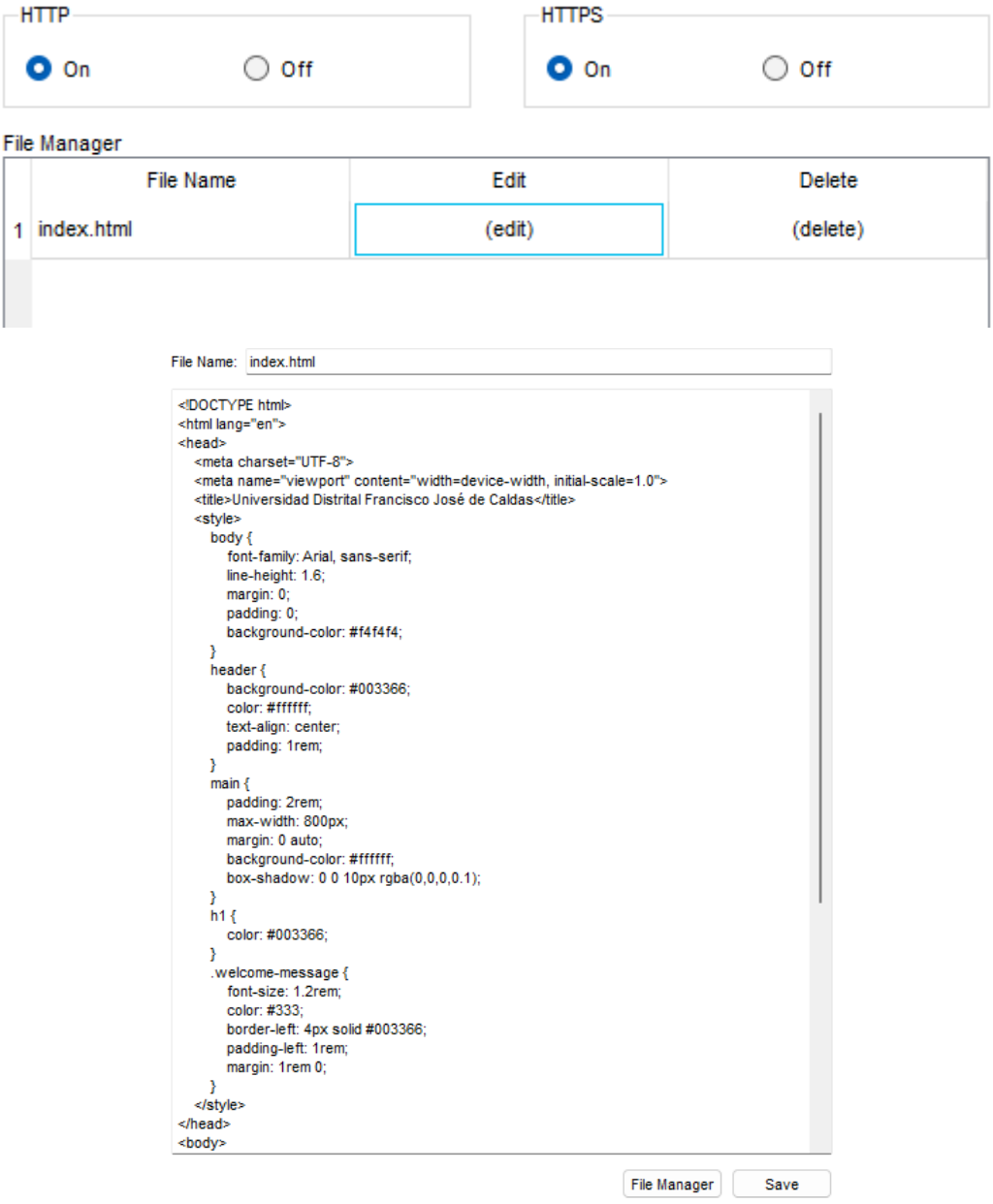
Set server configuration, Fast Ethernet and Global Settings.





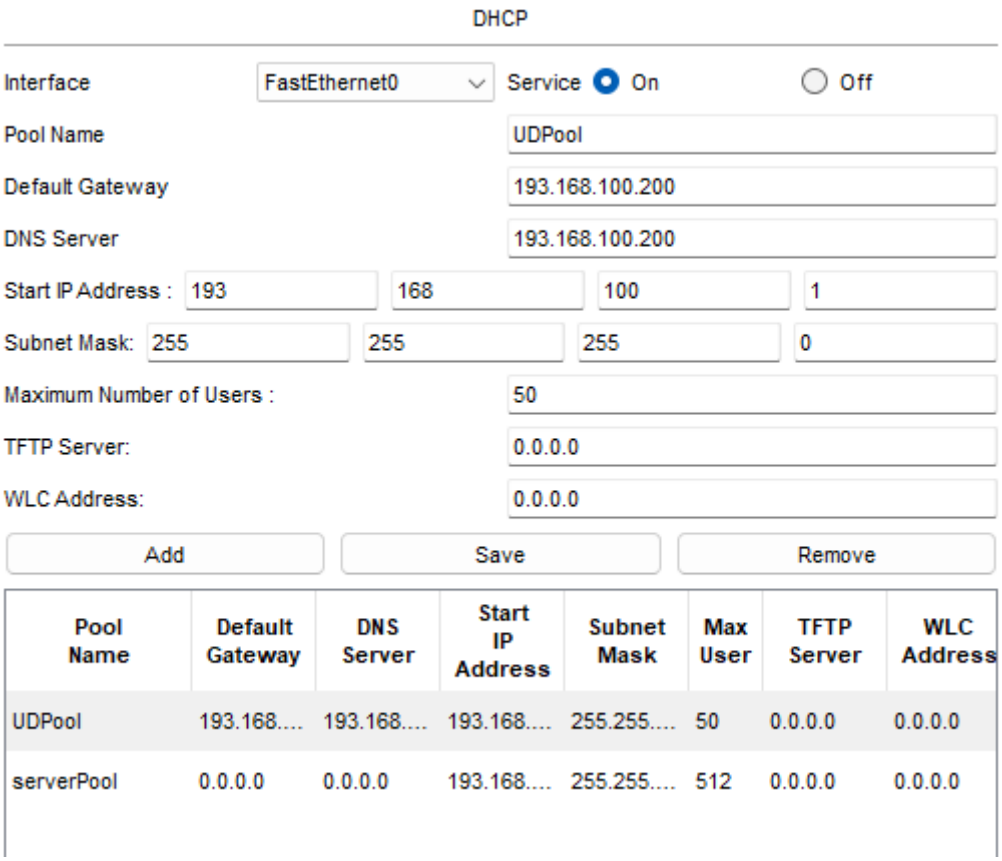
Step 2: Edit HTTP Services

Delete all web pages but index.html, edit this file.



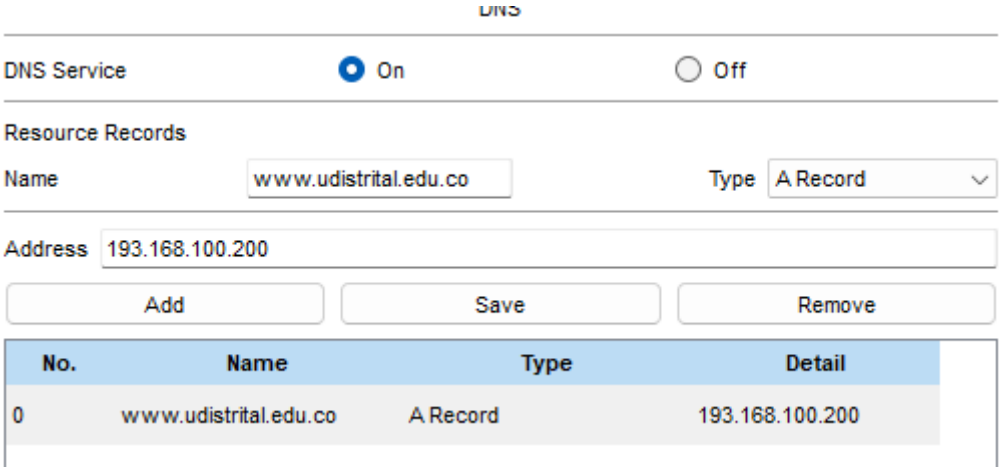
Step 3: Check DHCP Services

Verify DHCP service power-on and add a new pool.



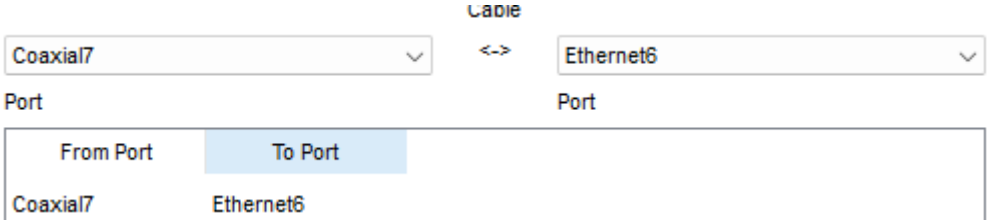
Step 4: Check DNS Services

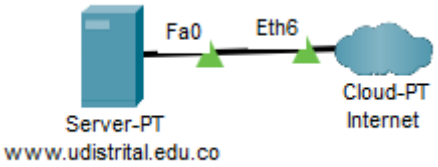
Verify DNS service power-on and add a new rule.



Step 5: Set Cloud "Internet" and connect to the server

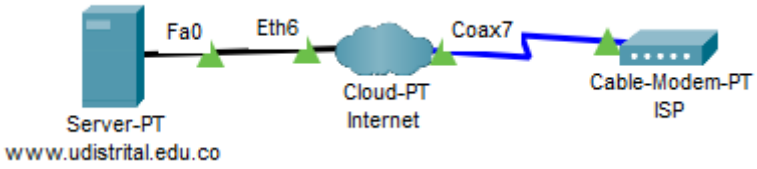
Add a Cloud "Internet" and set, then connect the Cloud to the server previously set.





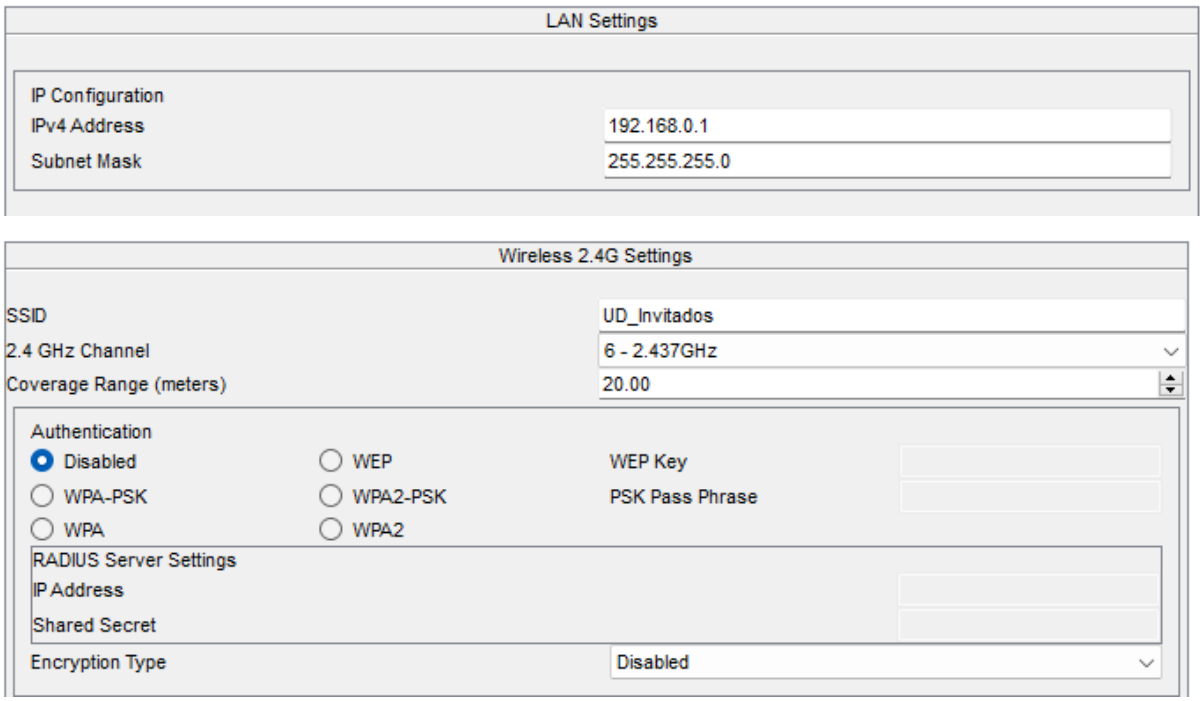
Step 6: Connect a Cable-Modem- PT "ISP" to the Cloud "Internet"

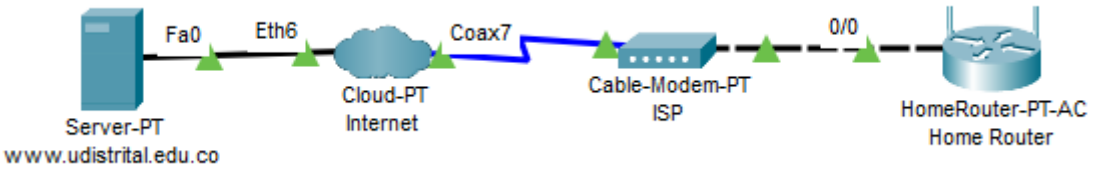
Connect the Cable-Modem to "Internet"



Step 7: Implement, set and connect Home Router

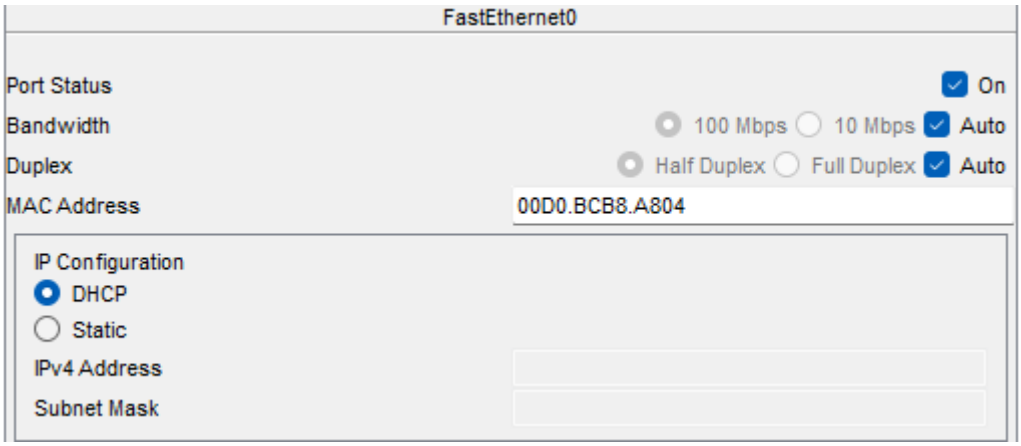
Set Home Router configuration, LAN Settings and Wireless Settings, then connect to "ISP"





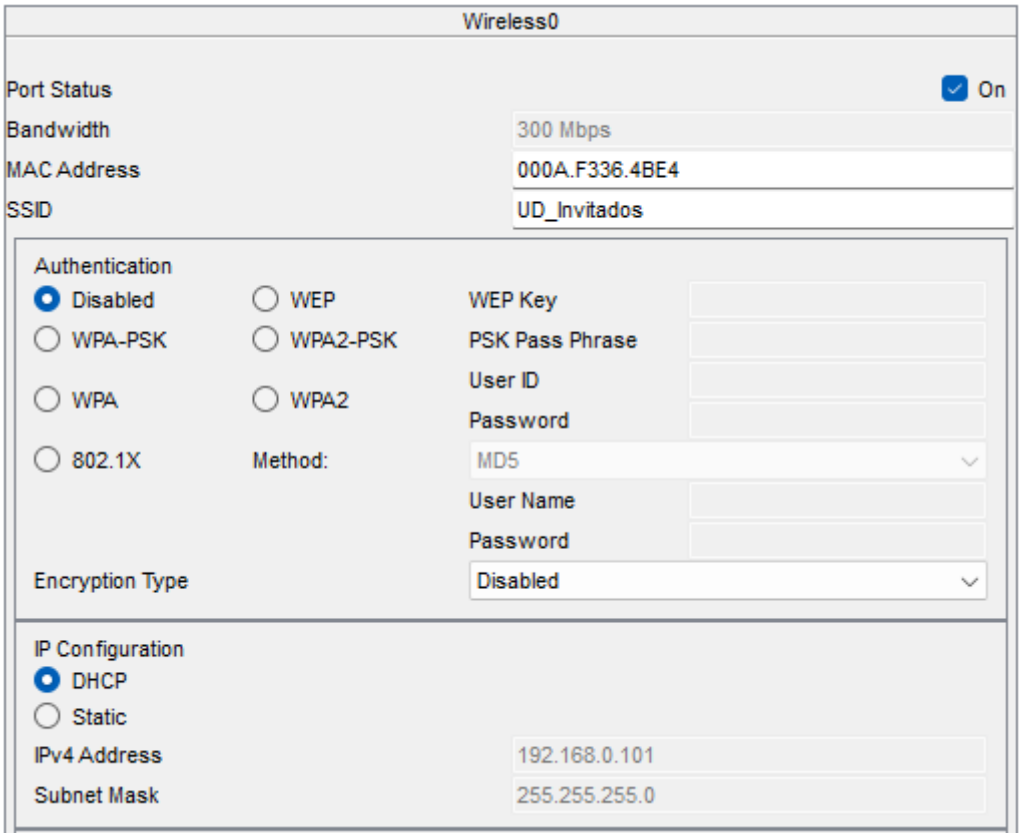
Step 8: Implement, set and connect PC-PT

Set PC-PT configuration, Fast Ethernet Settings, then connect to Home Router



Step 9: Implement, set and connect Laptop-PT

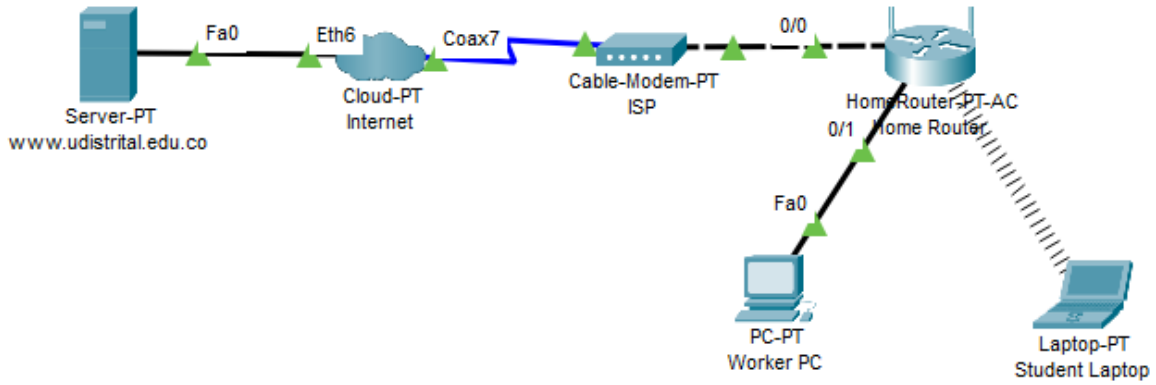
Set Laptop-PT configuration, Wireless Settings, then connect to Home Router



TEST AND RESULTS

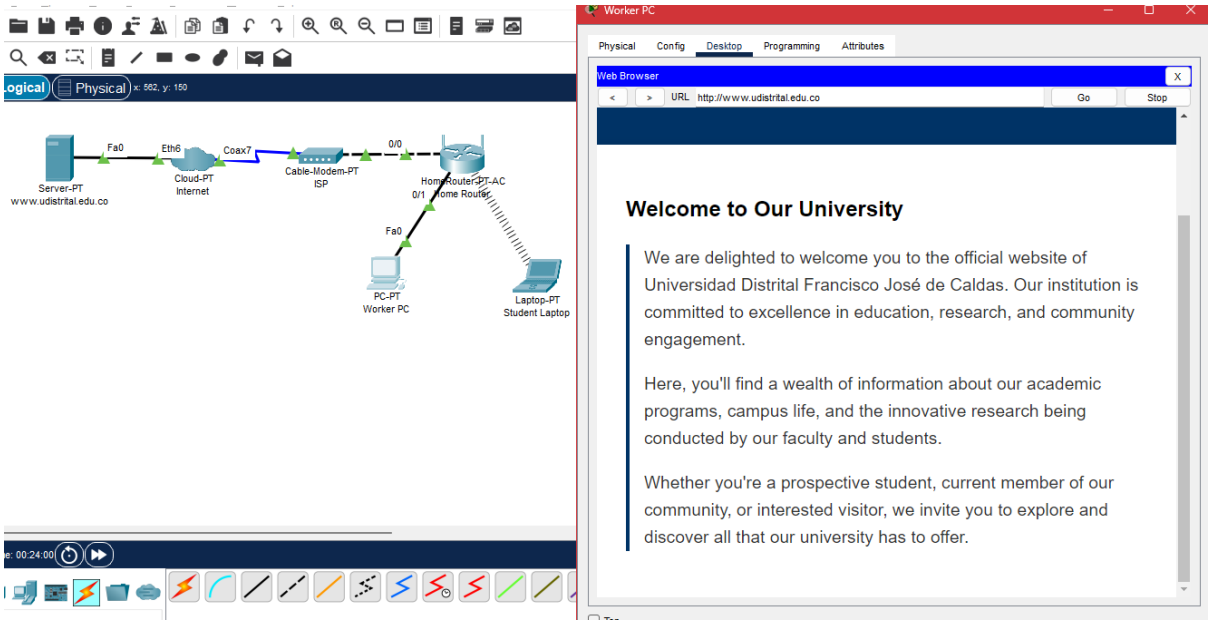
Results of the Topology

After of setting all the devices of our network we get a result like this:



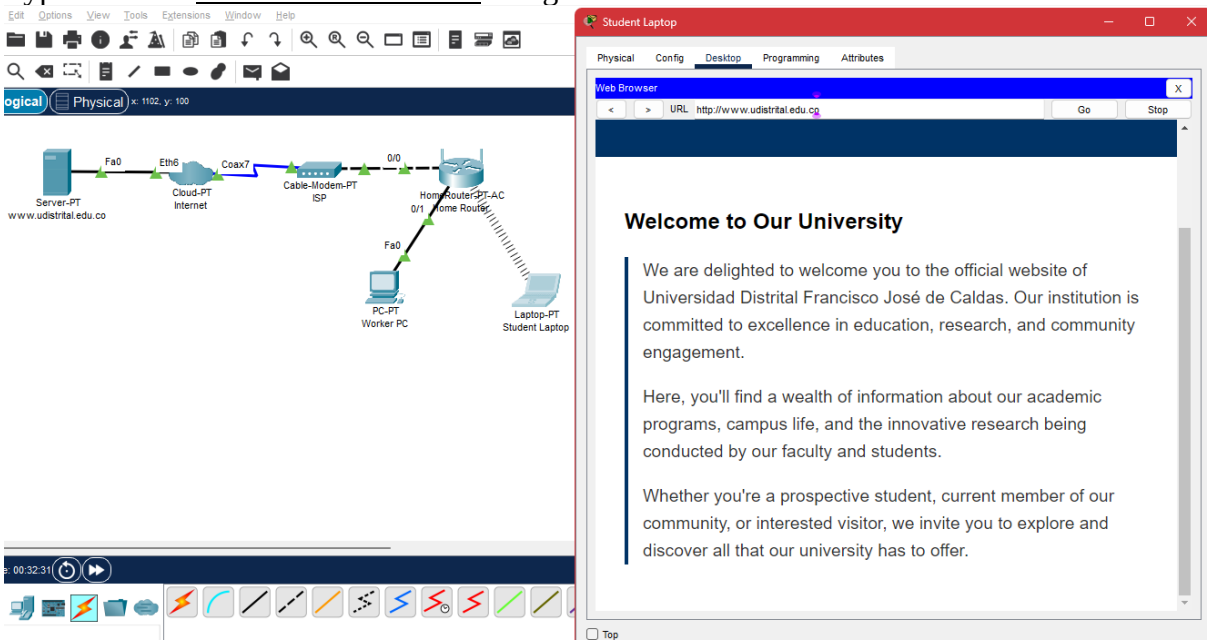
Test: Access in web browser of Worker PC

Type the URL www.udistrital.edu.co and get this:



Test: Access in web browser of Student Laptop

Type the URL www.udistrital.edu.co and get this:



CONCLUSIONS

The simulation project using Packet Tracer has successfully demonstrated the implementation of a functional computer network that meets the specified requirements. The network design incorporates key elements such as server configuration, cloud connectivity, and home network setup, effectively simulating a real-world scenario for the university's network infrastructure.

Through this project, several critical networking concepts were applied, including DHCP and DNS service configuration, server setup, and wireless networking. The successful connectivity tests, as evidenced by the ability of both wired and wireless client devices to access the university's webpage, validate the effectiveness of the network design and implementation.

This workshop has provided valuable hands-on experience in network simulation, offering insights into the complexities and considerations involved in designing and implementing a functional network infrastructure. The use of Packet Tracer as a simulation tool has proven to be an effective method for learning and applying networking principles in a controlled environment.