COMPUTER NETWORKING

Season 2024-III

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Computer Engineering

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Workshop # 1

INTRODUCTION

In this document I describe the whole configuration of a simulation for a network connection to a server with the host name of the university and the connection of that server to the cloud (called Internet), then a connection with a ISP simulated with a Cable-Modem-PT and finally a wireless router (named as HomeRouter) with some configurations that allows the connection to the site for some devices (in this case is only two, but the server allows 50 connections) to visualize the site on it.

DESIGN OF THE NETWORK

Server (UD_Server)

Related to the server it has to be configurated with a static IP address with the next values:

- IPv4 Address: 193.168.100.200
- DNS Server: 193.168.100.200
- Default Gateway: 193.168.100.1
- Subnet Mask: 255.255.255.0

The next step is to delete all the services except the index.html where will be developed the web site of the university, in this case I use styles for improve the visibility of the web site in .css, then is required turn the DHCP services to add a new pool to allow 50 users and is configurated with these parameters:

- Pool Name: UDPool
- Default Gateway: 193.168.100.200
- DNS Server: 193.168.100.200
- Start IP Address: 193.168.100.1
- Subnet Mask: 255.255.255.0
- Maximum Users: 50

To end the server configuration is needed to turn on the service and add a new rule with these parameters:

- Name: www.udistrital.edu.co
- Type: A Record
- Address: 193.168.100.200

Cloud (Internet)

Is necessary to add a Cloud-PT in Packet Tracer and rename as Internet and configure his port Ethernet6 in cable mode to allow the connection with the port FastEthernet0/0 of the server, and then create a relation between the Ethernet6 and Coaxial7 port in the cable config of the cloud.

Cable-Modem-PT (ISP)

The next step needs to create a cable modem that simulates the ISP and use a connection between ISP and Internet through the ports Coaxial7 of the internet and Port0 of the ISP.

Wireless router (HomeRouter)

Is needed to connect the devices to the server creates a conection and configuration of the HomeRouter with the isp with the next parameters:

- IPv4 LAN Address: 192.168.0.1
- LAN Subnet Mask: 255.255.255.0
- Wireless SSID: UD_Invitados
- Coverage Range (meters): 20

PC-PT (WorkerPC) and Laptop-PT (StudentLaptop)

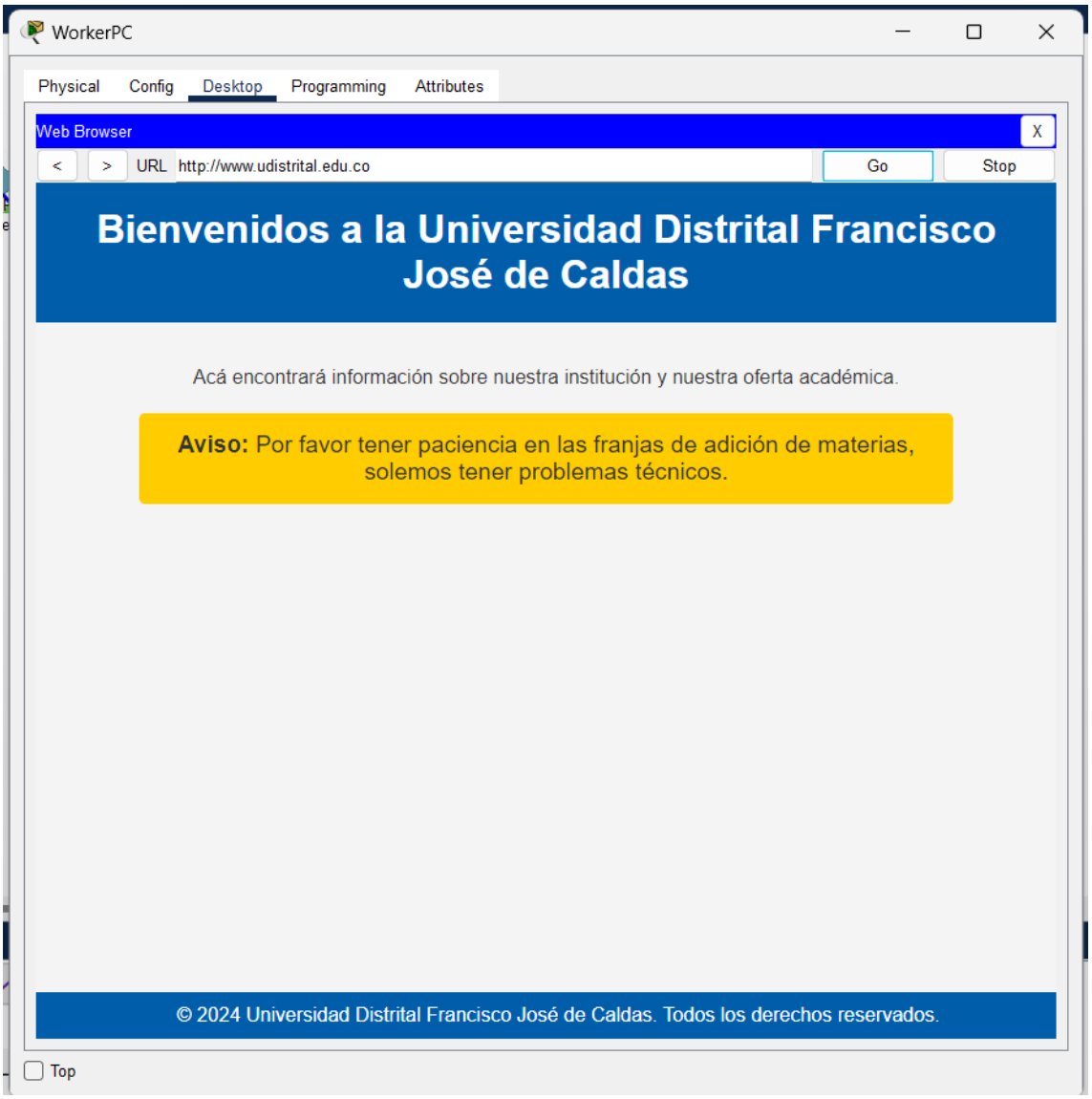
To prove the function of the web site hosted on the server is added two different devices like a pc and a laptop configured with DHCP in the IPv4 Address and is needed to connect wirelessly to the HomeRouter, but is needed to add a wireless module with the reference WMP300N to enable the connection with the router.

TECHNICAL DECISIONS

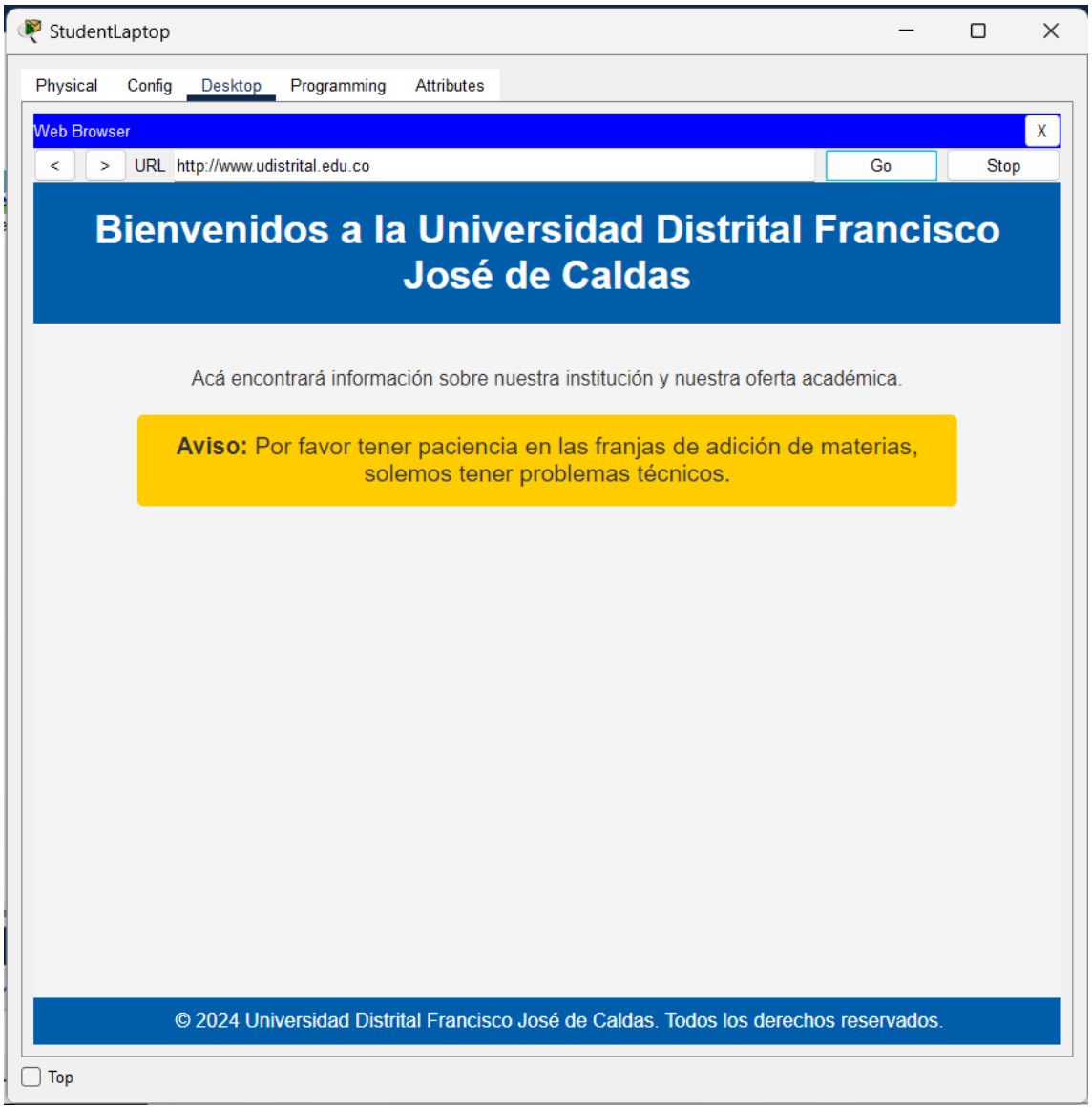
In the connection of the devices as server with cloud and Cable-Modem with Wireless Router I use Cooper Straight-Through that allows the connection of devices of different kind, and allows two channels of communication that prevents the collision problem in the communication of the network, meanwhile the connection between the Cloud and Cable-Modem is enabled by a Coaxial cable because the guide ask for connecting by Coaxial7 port of the cloud to Port0 of ISP that in the bought cases is permitted by the coaxial cable.

TEST RESULTS

In the case of the WorkerPC we have the next result consulting the web site of the university:



And in the case of StudentPc we have the next result consulting the site www.udistrital.edu.co:


StudentLaptop
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://www.udistrital.edu.co
Go
Stop
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