Packet Tracer Workshop I

Oliver Duarte Ramirez - 20221020018

Universidad Distrital Francisco José de Caldas
Systems Engineering
Computer Networking I

Introduction: One of the most important concerns when it comes to setting up a network is the infrastructure and design it is going to adopt, since different decisions end up in dramatically different outcomes in the long run, whether it is in terms of performance, scalability and the costs associated with maintenance. These consequences are a product of each network topologies' unique pros and cons depending on the context they're under.

In this workshop, we will be exploring the *on-premises* infrastructure, with a small, simple implementation of a clone webpage of the **Universidad Distrital Francisco José de Caldas** institute, built in the Cisco Packet Tracer Simulator.

Gateway setup:

As soon as the main server is created, the gateways, IPs and masks are set up so that forwarding from other devices works correctly.

Services configuration:

HTTP:

Since the main expected interaction with the server is through the http protocol, an html file is included to show how the front-end should look to the end user, the picture below shows the appearance of the page:

WEBPAGE LOOK HERE.

DHCP:

An important step in the setup is specifying parameters for the DHCP, since we want the amount of generated IPs limited by the estimated number of users expected concurrently.
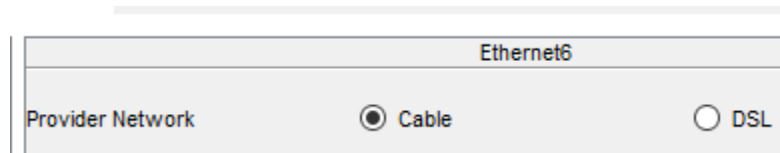
DNS:

Since the webpage is supposed to mirror a *Universidad Distrital* webpage, through the Domain Name System, we create the record *www.udistrital.edu.co* and associate it to the ip 192.168.100.200.
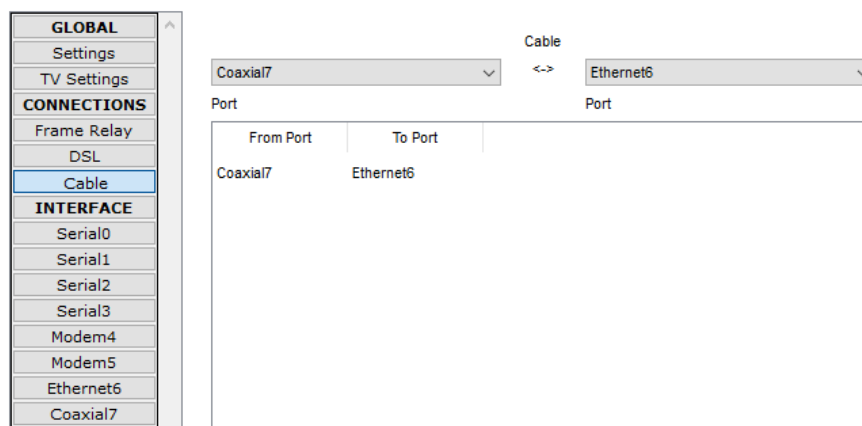
Connecting to the cloud:

For the server to be publicly available, it's ideal to have it connected to the cloud, so taking into account we intend to access it through Ethernet6, we set the Ethernet6 network provider to cable, which is nowadays more reliable and easily available.
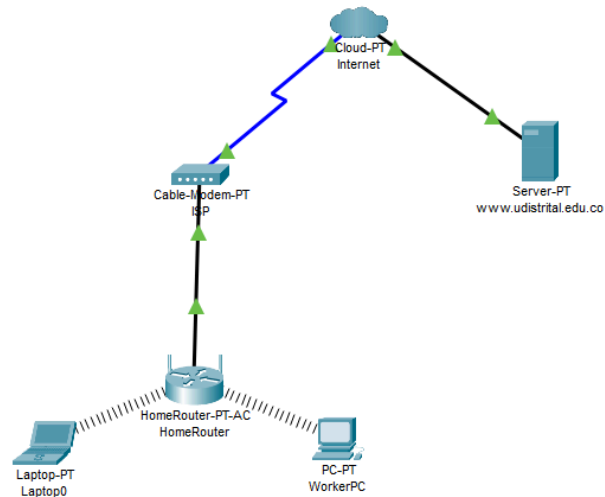
Initial connections:
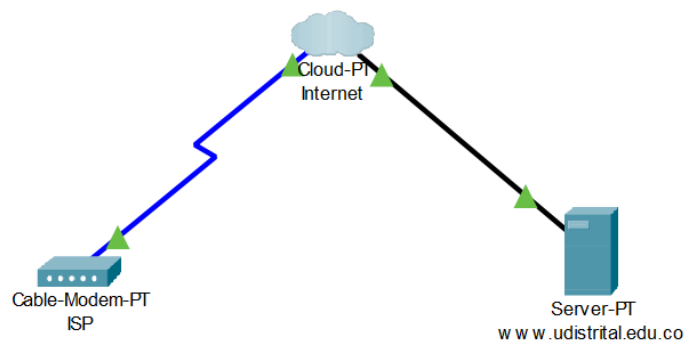
The server is connected to the cloud with a Straight-Through Twisted pair cable, and to the ISP Modem with a Coaxial cable, for this connection to effectively simulate the data transmission between the server and the modem, the connection parameter from Coaxial to Ethernet6 is set as seen below:


Connecting routers and test devices:

Once the modem is connected to the cloud, a local router is set up for wireless connection to nearby devices; through its interface, the Internet settings are set to use a DHCP IP configuration, instead of static. This setting is also required in the two computers to connect wirelessly, but the wireless module has to be installed first, thus requiring to turn them off while at it:
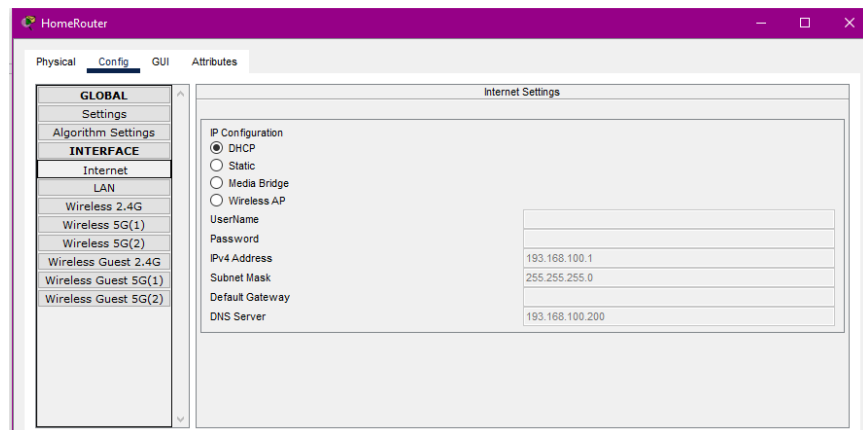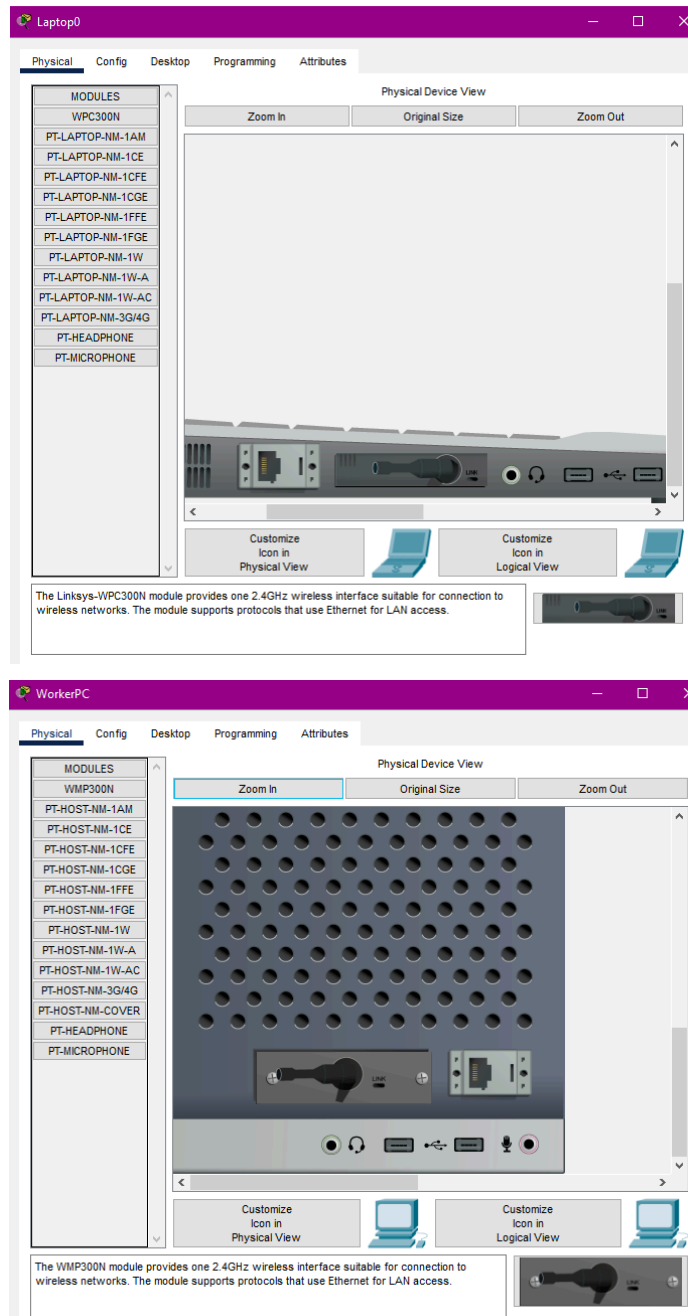
Once the modules are installed, since both have support of 2.4Hz wireless network, the ideal network interface to be configured in the router is the 2.4Hz one. The devices then successfully connect wirelessly to the router, and thus, the network.

Webpage from the laptop:

Webpage from the desktop PC: