Report: Results and Test

UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

Juan Sebastian Colorado Caro - 20202673001

Computer Networking
Eng. Carlos Andrés Sierra

Universidad Distrital Francisco José de Caldas
Ingeniería de Sistemas
Bogotá D.C.

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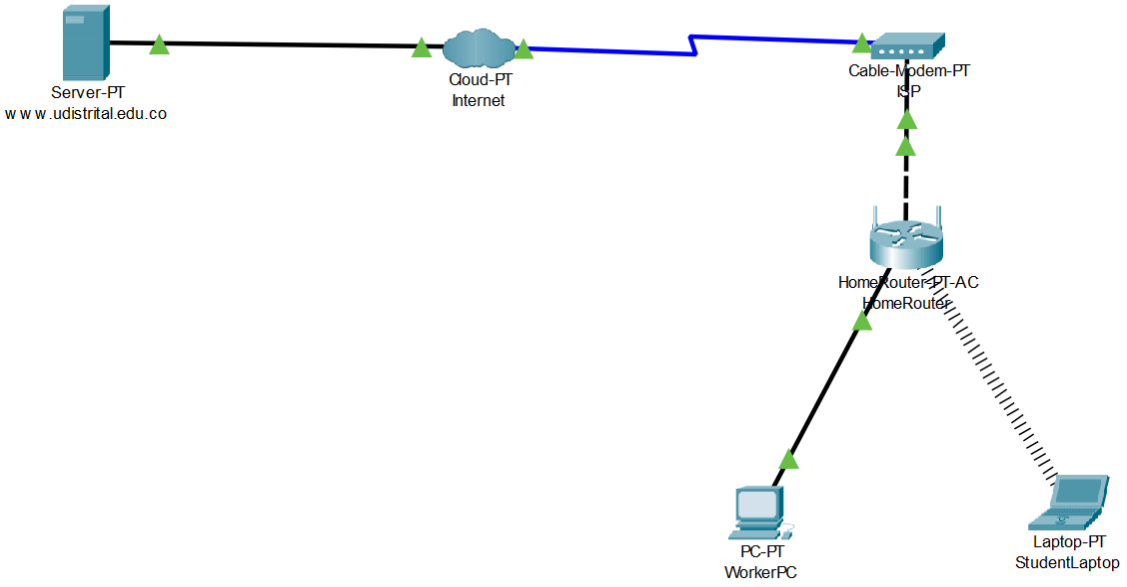
This report presents the development of workshop #1 which objective was to create a basic network that would allow an user to access a domain of the Universidad Distrital Francisco José de Caldas.

Configurations were made on a server with a domain name, HTTP, DHCP and DNS services, and devices were connected wirelessly and wired to test connectivity and access to the web page.

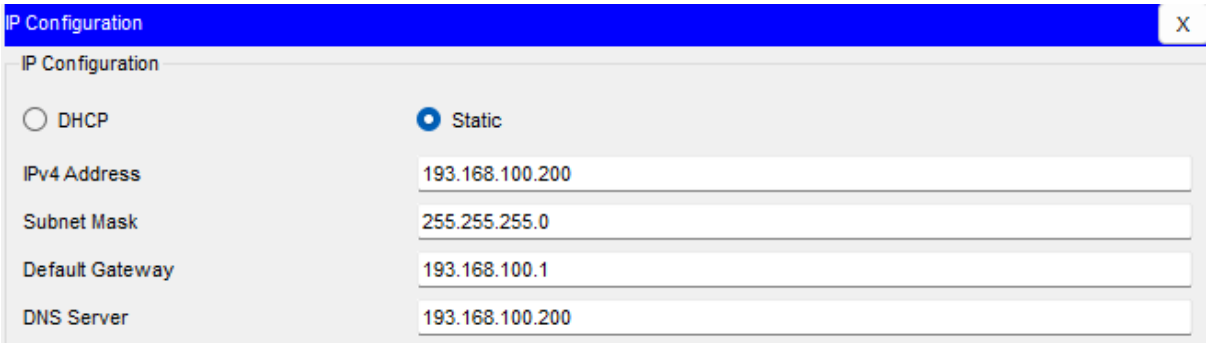
Network Design

The network design was based on the configuration of a server located at the university facilities, which is accessed from the Internet and from a home network. The following are the configurations made on the server and the connected devices.

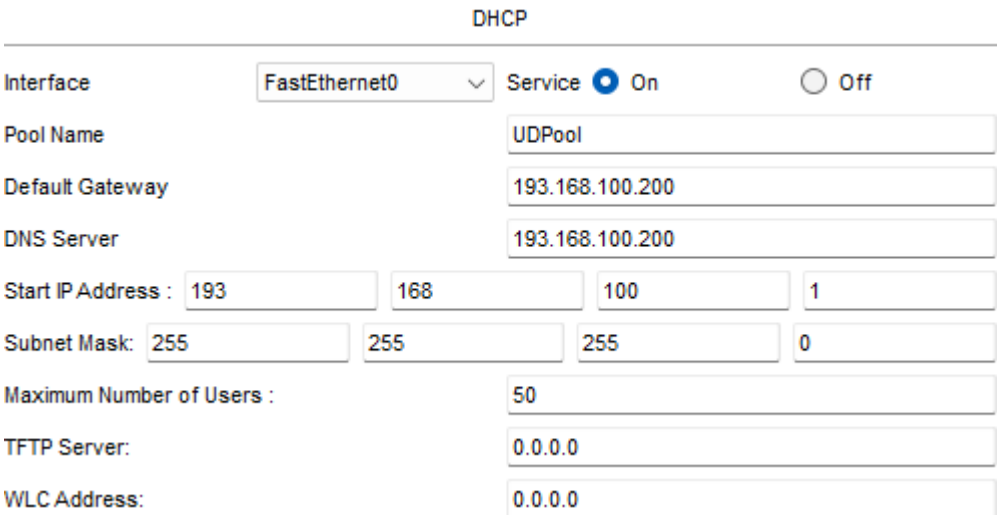


Server Configuration

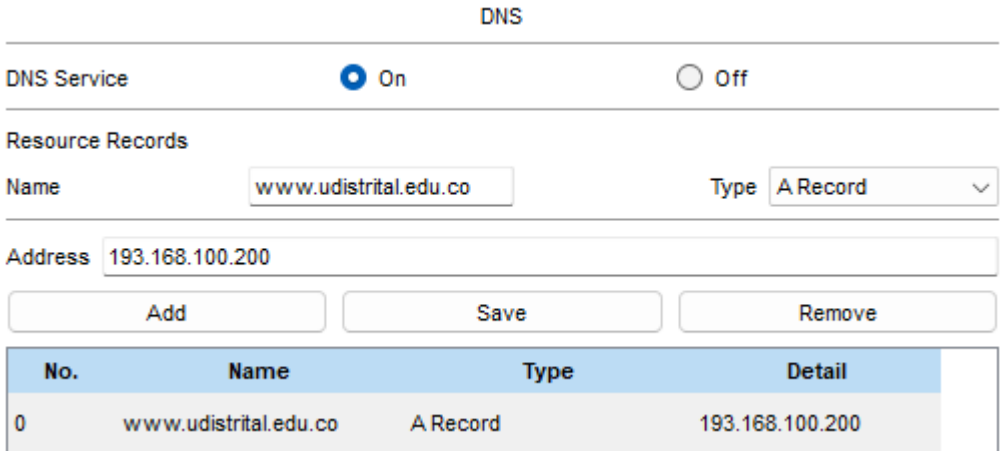
Server name: www.udistrital.edu.co
IP address: 193.168.100.200
Gateway: 193.168.100.1
Subnet mask: 255.255.255.0
DNS Server: 193.168.100.200
HTTP Service: index.html
DHCP Service: It was enabled with an address pool for a maximum of 50 users.



DHCP



DNS



Connections

- The server was connected to the cloud.
- Internet access was provided through a Cable-Modem-PT.

Technical Decisions

1. **Server Configuration:**
   The server was configured with the domain “www.udistrital.edu.co” and a public static IP “193.168.100.200” to ensure constant accessibility from anywhere on the network.
   Any unnecessary files in the HTTP service were removed, leaving only “index.html” to simplify the main page and “styles.css”.

   Index.html

```
<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Bienvenidos a la Universidad Distrital FJC</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>

    <header>
        <h1>Bienvenidos a la Universidad Distrital Francisco José de Caldas</h1>
    </header>

    <main>
        <section class="welcome">
            <h2>Una Institución de Excelencia en Bogotá</h2>
            <p>La Universidad Distrital FJC es una institución de educación superior comprometida con la formación integral de profesionales de alta calidad y con el desarrollo de la sociedad bogotana y colombiana.</p>
            <p>Nos enorgullece ofrecer programas académicos de vanguardia, investigación de impacto, y un compromiso con la sostenibilidad y el bienestar social.</p>
        </section>

        <section class="cta">
            <h3>Descubre más</h3>
            <p><a href="https://www.udistrital.edu.co" target="_blank">Visita nuestro sitio oficial</a> para más información sobre programas académicos, investigaciones y eventos institucionales.</p>
        </section>
    </main>

    <footer>
        <p>&copy; 2024 Universidad Distrital Francisco José de Caldas. Todos los derechos reservados.</p>
    </footer>
</body>
</html>
```

   Styles.css

```
* {
    margin: 0;
    padding: 0;
    box-sizing: border-box;
}
```

```css
body {
    font-family: Arial, sans-serif;
    background-color: #f4f4f4;
    color: #333;
    line-height: 1.6;
}

header {
    background-color: #00539b;
    color: #fff;
    padding: 20px;
    text-align: center;
}

header .logo img {
    width: 100px;
    height: auto;
}

h1 {
    font-size: 2.5rem;
    margin: 10px 0;
}

main {
    margin: 20px auto;
    max-width: 1000px;
    padding: 20px;
    background-color: #fff;
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
}

main .welcome h2 {
    font-size: 1.8rem;
    margin-bottom: 10px;
    color: #00539b;
}

main .welcome p {
    margin-bottom: 15px;
    font-size: 1.1rem;
}

.cta {
    text-align: center;
    margin-top: 20px;
}

.cta h3 {
    font-size: 1.6rem;
    color: #00539b;
}

.cta a {
    background-color: #00539b;
    color: #fff;
```

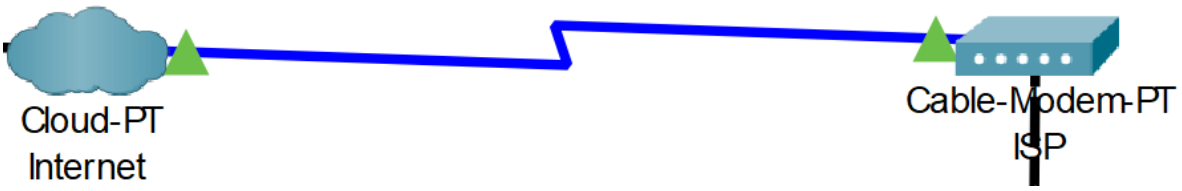
```
    padding: 10px 20px;
    text-decoration: none;
    border-radius: 5px;
    transition: background-color 0.3s;
}

.cta a:hover {
    background-color: #003366;
}

footer {
    text-align: center;
    padding: 10px;
    background-color: #00539b;
    color: #fff;
    margin-top: 20px;
}
```

The DHCP service was configured to automate IP address assignment, avoiding manual configuration on devices.

2. **DHCP configuration:**
   A pool called "UDPool" was created, with a maximum of 50 users, ensuring sufficient capacity for users on the network.

3. **DNS and Name Resolution:**
   The DNS server was configured to resolve the domain "www.udistrital.edu.co" with a type A record, pointing to "193.168.100.200".

4. **Internet Connection:**
   The connection to the cloud and ISP was configured using Cloud-PT and a cable modem to ensure Internet access from the server.

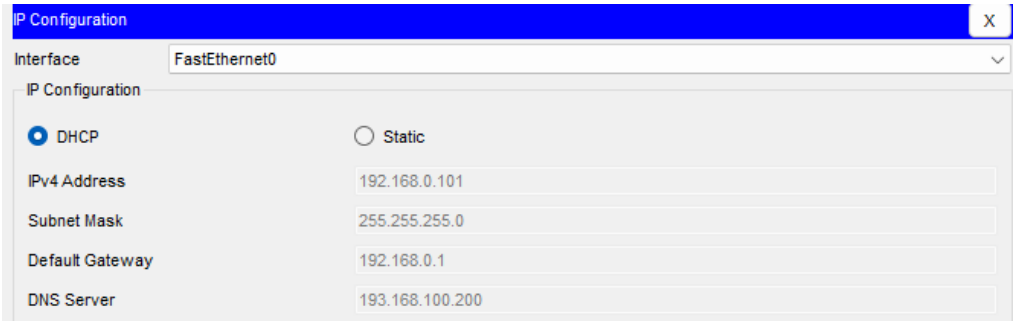


5. **Wireless Router Configuration:**
   A wireless router was configured with the SSID "UD_Invitados", which allowed the connection of devices via DHCP, ensuring an efficient connection in the home network.

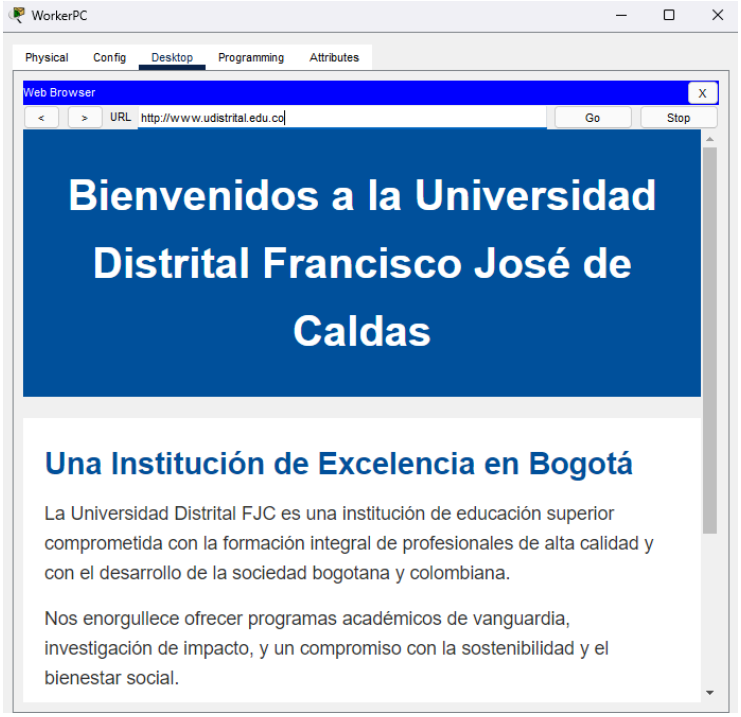
Tests and Results

The tests performed included checking if the DHCP request is successful and accessing the “www.udistrital.edu.co” domain from two devices:

1. **DHCP:** We check in the IP configuration section if the Dynamic Configuration has been successful and correctly done. We do this by checking if the values are logical and make sense.



2. **WorkerPC:** Connected via cable to the network, configured to obtain the IP address automatically via DHCP. Access to the web page was successful.



3. **StudentLaptop:** Connected wirelessly via SSID “UD_Invitado”, also configured with DHCP. The web page access test was equally successful.

Both devices were able to successfully connect to the server and access the university home page, confirming that the network configuration was successful.

Conclusions

The workshop allowed the application of knowledge on network design and configuration, using tools such as Packet Tracer. A server with HTTP, DHCP and DNS services was configured, and an Internet connection and a functional home network was established. The tests performed were successful, demonstrating the effectiveness of the network design and configurations implemented.