

SOLUCIÓN DE DOS ESTUDIOS DE CASO  
BAJO EL USO DE TECNOLOGÍA CISCO

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ESCUELA DE CIENCIAS BÁSICAS, TECNOLOGÍA E INGENIERÍA  
INGENIERÍA EN ELECTRONICA  
PALMIRA - COLOMBIA  
2013

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## INTRODUCCION

Con el presente trabajo se pretende realizar de manera pertinente la transferencia de conocimientos adquiridos durante del curso de profundización CISCO (diseño e implementación de soluciones integradas LAN / WAN) en sus módulos CCNA1 y CCNA2, para ello se ha dado solución a dos casos de estudio, uno para cada módulo.

La práctica correspondiente propuesta para el caso de estudio CCNA1 requiere la implementación en la empresa POLLOSAN una red corporativa para atender las necesidades de los clientes en las ciudades de Bogotá y Bucaramanga. Para el caso de estudio CCNA2 se realizara la implementación de una red para la Universidad Nacional Abierta Y A Distancia UNAD con la que se pretende atender las necesidades de sus estudiantes y personal administrativo.

Para cada caso de estudio se deberá calcular y definir las subredes a utilizar en la topología según sea el requerimiento y la cantidad de host en cada LAN, definir la tabla de direcciones IP indicando por cada subred la dirección de Red, dirección IP de Gateway, dirección IP del Primer PC, dirección IP del Último PC, dirección de Broadcast y la máscara de Subred, se debe también configurar cada router por medio del cable de consola y definiendo para cada uno el nombre del router, las direcciones IP de las Interfaces a utilizar, la descripción de cada interface, establecer las contraseñas para: CON 0, VTY y ENABLE SECRET.

Se realizara la configuración de cada red mediante el uso de Packet Tracer. Los routers que se utilizaron son de referencia 1841 y los Switches 2950. Por cada subred se dibujaron solamente dos (2) host identificados con las direcciones IP correspondientes al primer y último PC acorde con la cantidad de equipos establecidos por cada subred

## OBJETIVOS

- Realizar de manera pertinente la transferencia de conocimientos adquiridos durante el curso de profundización CISCO (diseño e implementación de soluciones integradas LAN / WAN) en sus módulos CCNA1 y CCNA2.
- Implementar en la empresa POLLOSAN una red corporativa para atender los clientes de las ciudades de Bogotá y Bucaramanga, y en la UNAD una red para atender las necesidades de los estudiantes y el personal administrativo.
- Calcular y definir las subredes necesarias utilizadas en la topología según sea el requerimiento y la cantidad de host en cada LAN
- Presentar las tablas de direcciones IP indicando por cada subred la dirección de Red, dirección IP de Gateway, dirección IP del Primer PC, dirección IP del Último PC, dirección de Broadcast y la máscara de Subred
- Configurar cada router por medio del cable de consola, definiendo para cada uno el nombre del router, las direcciones IP de las Interfaces a utilizar, la descripción de cada interface y las contraseñas para CON 0, VTY y ENABLE SECRET.
- Realizar la configuración de la RED POLLOSAN mediante el uso de Packet Tracer
- Probar de manera óptima el funcionamiento de la Red POLLOSAN, mediante el comando ping y tracert

## SEMINARIO DE PROFUNDIZACIÓN EN REDES LAN – WAN CISCO

### CASO DE ESTUDIO – CCNA1

La empresa POLLOSAN desea implementar su red corporativa para atender los clientes de las ciudades de Bogotá y Bucaramanga. Para ello, se requiere configurar los equipos considerando la siguiente topología:

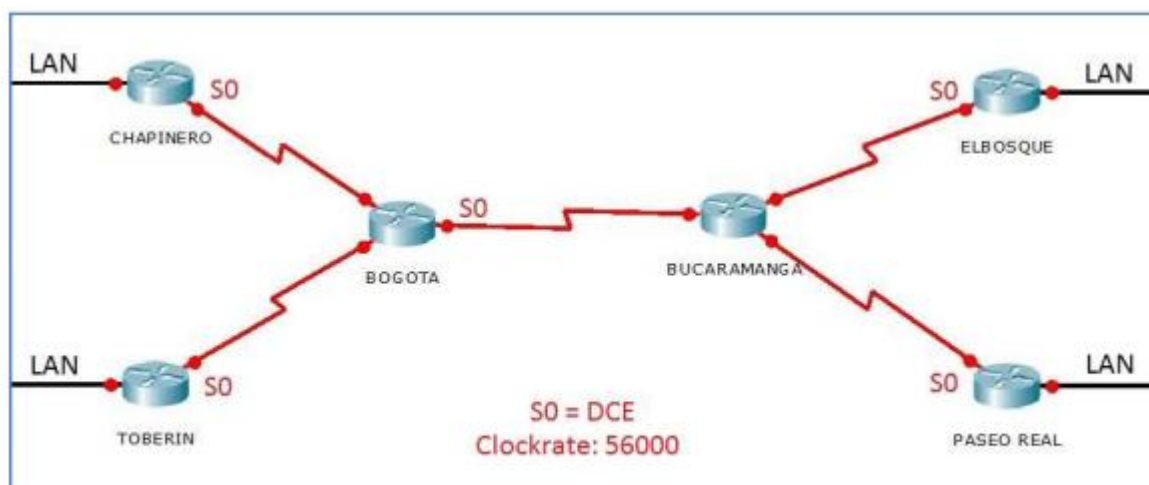


Figura 1: Topología RED POLLOSAN

La cantidad de host requeridos, por cada una de las redes LAN de las sucursales, es la siguiente:

#### **BOGOTÁ**

Sucursal CHAPINERO (40 hosts)

Sucursal TOBERÍN (20 hosts)

#### **BUCARAMANGA**

Sucursal ELBOSQUE (10 hosts)

Sucursal PASEOREAL (30 hosts)



Para el diseño de la red se deben aplicar los siguientes criterios:

El direccionamiento a utilizar en toda la red debe seguir la siguiente estructura:

**XXX.CC.XXX.XXX**

Donde,

**XXX**: cualquier número de 1 a 3 dígitos aplicable a direcciones IP

**CC**: dos (2) últimos dígitos de la cédula del estudiante que presenta el caso de estudio

Protocolo de enrutamiento: RIP Versión 2

Todos los puertos seriales 0 (S0 o S0/0/0) son terminales DCE

Todos los puertos seriales 1 y 2 (S1 y S2) son terminales DTE

Definir la tabla de direcciones IP indicando por cada subred los siguientes elementos:

Por cada LAN

- Dirección de Red
- Dirección IP de Gateway
- Dirección IP del Primer PC
- Dirección IP del Último PC
- Dirección de Broadcast
- Máscara de Subred

Por cada conexión serial

- Dirección de Red
- Dirección IP Serial 0 (Indicar a qué Router pertenece)
- Dirección IP Serial 1 o 2 (Indicar a qué Router pertenece)

- Dirección de Broadcast
- Máscara de Subred

En cada Router configurar:

- Nombre del Router (Hostname)
- Direcciones IP de las Interfaces a utilizar
- Por cada interface utilizada, hacer uso del comando DESCRIPTION con el fin de indicar la función que cumple cada interface. Ej: Interfaz de conexión con la red LAN PASEOREAL.
- Establecer una única contraseña para: CON 0, VTY, ENABLE SECRET. La contraseña establecida debe corresponder a las primeras 5 letras del primer nombre del estudiante que presenta el caso de estudio y debe ir minúscula. Ej: luz, alexa, alber, ana, andre, ludy, juan, mauri, isabe, etc.

Se debe realizar la configuración de la RED POLLOSAN mediante el uso de Packet Tracer. Los routers pueden ser de referencia 1841 o 2811, y los Switches 2950 ó 2960. Por cada subred se deben dibujar solamente dos (2) host identificados con las direcciones IP correspondientes al primer y último PC acorde con la cantidad de equipos establecidos por subred.

## DESARROLLO DE LA ACTIVIDAD

**Dirección IP a utilizar:** 192.05.30.0 (cedula 1.113.036.305)

**Cantidad de subredes:** Se requieren 9 Subredes distribuidas de la siguiente manera:

- Subred 1: Correspondiente a CHAPINERO con 40 Host
- Subred 2: Correspondiente a PASEOREAL con 30 host
- Subred 3: Correspondiente a TOBERIN con 20 Host
- Subred 4: Correspondiente a ELBOSQUE con 10 Host
- Subred 5: Correspondiente a la conexión entre BOGOTA y CHAPINERO
- Subred 6: Correspondiente a la conexión entre BOGOTA y TOBERIN
- Subred 7: Correspondiente a la conexión entre BOGOTA y BUCARAMANGA
- Subred 8: Correspondiente a la conexión entre BUCARAMANGA y ELBOSQUE
- Subred 9: Correspondiente a la conexión entre BUCARAMANGA y PASEOREAL

**Tabla de direcciones IP Subred 1 (CHAPINERO 40 HOST)**

<b>Subred 1</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.30.0	192.5.30.1	192.5.30.2	192.5.30.41	192.5.30.255	255.255.255.0

Tabla 1 – IP Subred 1 Chapinero

Máscara de bits en números binarios **11111111.11111111.11111111.00000000**

**Tabla de direcciones IP Subred 2 (PASEOREAL 30 HOST)**

<b>Subred 2</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.31.0	192.5.31.1	192.5.31.2	192.5.31.31	192.5.31.255	255.255.255.0

Tabla 2 – IP Subred 2 Paso Real

Máscara de bits en números binarios **11111111.11111111.11111111.00000000**

**Tabla de direcciones IP Subred 3 (TOBERIN 20 HOST)**

<b>Subred 3</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.32.0	192.5.32.1	192.5.32.2	192.5.32.21	192.5.32.255	255.255.255.0

Tabla 3 – IP Subred 3 Toberin

Máscara de bits en números binarios **11111111.11111111.11111111.00000000**

**Tabla de direcciones IP Subred 4 (ELBOSQUE 10 HOST)**

<b>Subred 4</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.33.0	192.5.33.1	192.5.33.2	192.5.33.11	192.5.33.255	255.255.255.0

Tabla 4 – IP Subred 4 El Bosque

Máscara de bits en números binarios **11111111.11111111.11111111.00000000**

**Tabla de direcciones IP Subred 5 (CONEXIÓN SERIAL BOGOTA-CHAPINERO)**

<b>Subred 5</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/0/0 (CHAPINERO)</b>	<b>Dirección IP Serial 0/1/0 (BOGOTA)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.34.0	192.5.34.1	192.5.34.2	192.5.34.3	255.255.255.252

Tabla 5 – IP Subred 5 BOGOTA - CHAPINERO

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 6 (CONEXIÓN SERIAL BOGOTA-TOBERIN)**

<b>Subred 6</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/0/0 (TOBERIN)</b>	<b>Dirección IP Serial 0/0/1 (BOGOTA)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.34.4	192.5.34.5	192.5.34.6	192.5.34.7	255.255.255.252

Tabla 6 – IP Subred 6 BOGOTA - TOBERIN

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 7 (CONEXIÓN SERIAL BOGOTA-BUCARAMANGA)**

<b>Subred 7</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/0/0 (BOGOTA)</b>	<b>Dirección IP Serial 0/0/0 (BUCARAMANGA)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.34.8	192.5.34.9	192.5.34.10	192.5.34.11	255.255.255.252

Tabla 7 – IP Subred 7 BOGOTA - BUCARAMANGA

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 8 (CONEXIÓN SERIAL BUCARAMANGA-ELBOSQUE)**

<b>Subred 8</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/0/1 (BUCARAMANGA)</b>	<b>Dirección IP Serial 0/0/0 (ELBOSQUE)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.34.12	192.5.34.13	192.5.34.14	192.5.34.15	255.255.255.252

Tabla 8 – IP Subred 8 BUCARAMANGA – EL BOSQUE

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 9 (CONEXIÓN SERIAL BUCARAMANGA-PASOREAL)**

<b>Subred 9</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/1/0 (BUCARAMANGA)</b>	<b>Dirección IP Serial 0/0/0 (PASOREAL)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.34.16	192.5.34.17	192.5.34.18	192.5.34.19	255.255.255.252

Tabla 9 – IP Subred 9 BUCARAMANGA – PASO REAL

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

## Configuración de cada PC

### CHAPINERO (Subred 1)

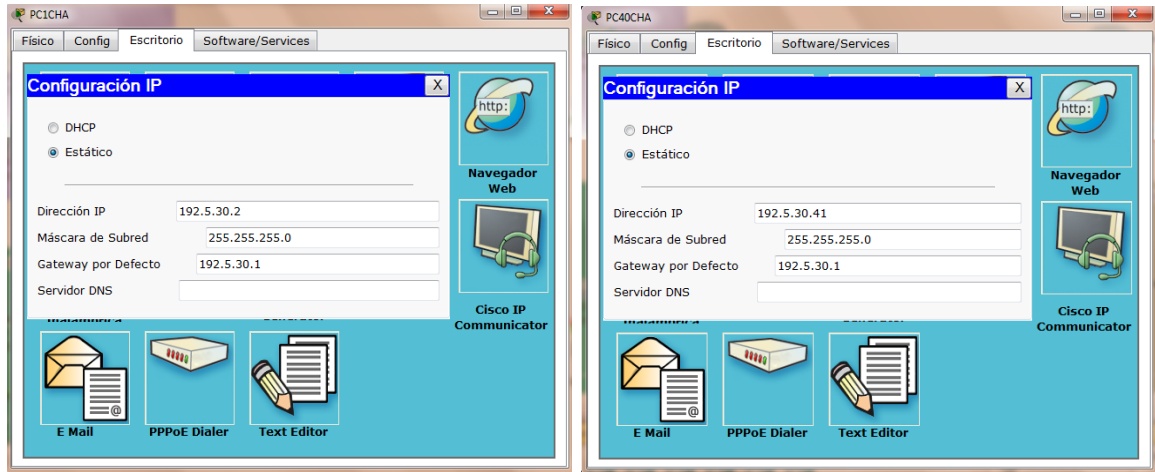


Figura 2 – Conf. Host Chapinero

### PASEOREAL (Subred 2)

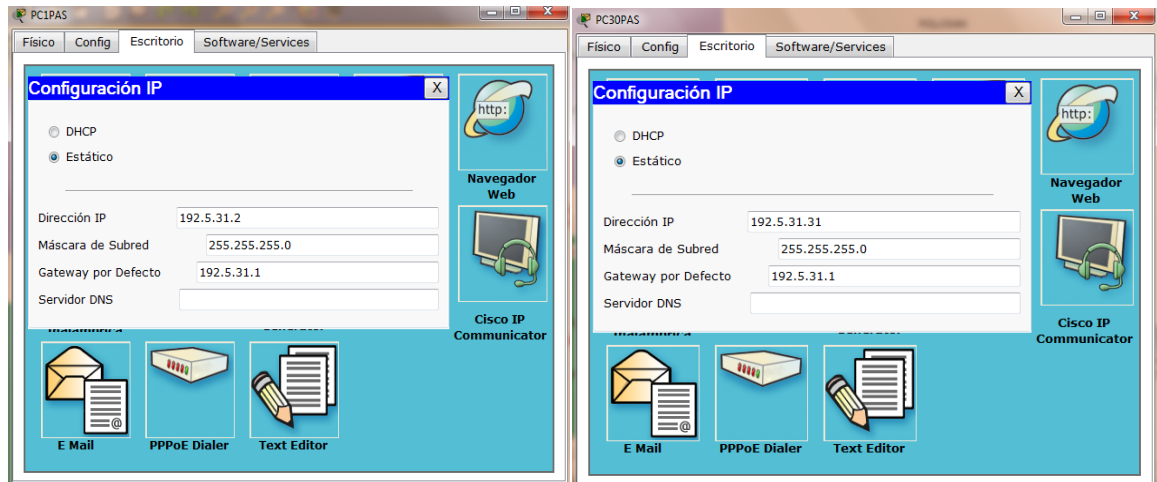


Figura 3 – Conf. Host Paso Real

### TOBERIN (Subred 3)

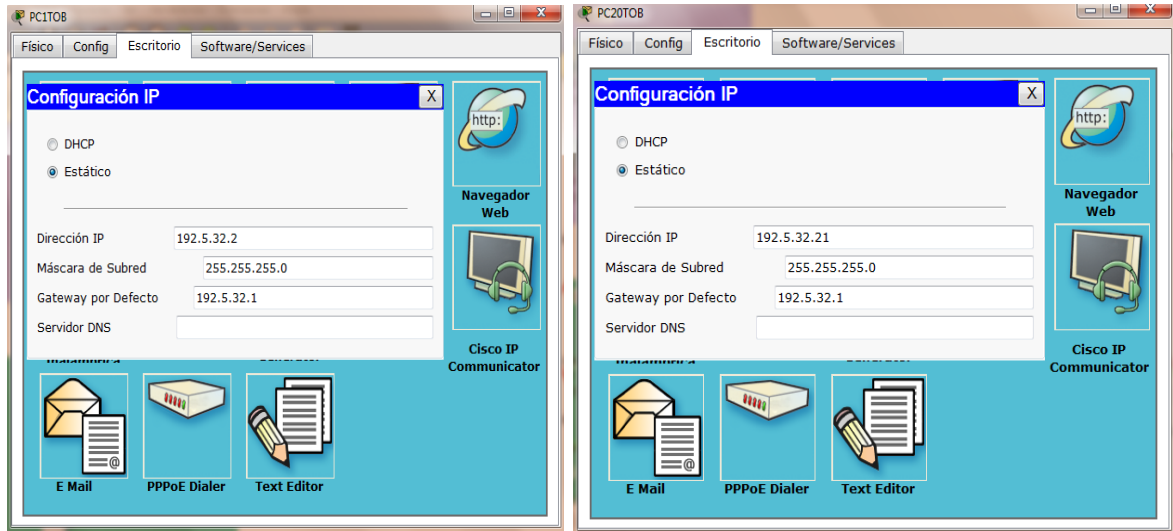


Figura 4 – Conf. Host Toberin

### ELBOSQUE (Subred 4)

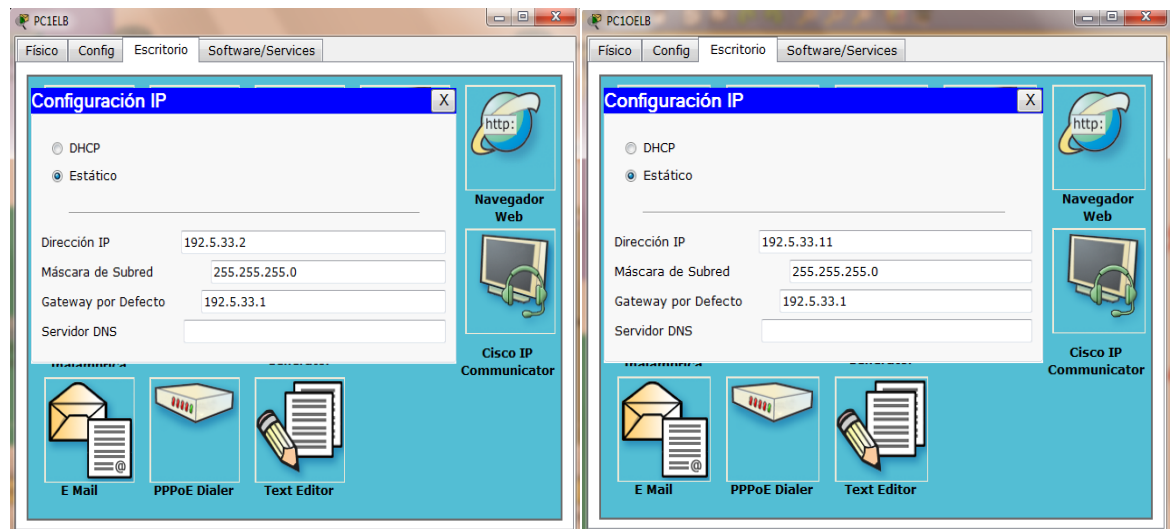


Figura 5 – Conf. Host El Bosque



## **Configuración de los Routers**

Para cada router se va a configurar: Nombre del Router (Hostname), Direcciones IP de las Interfaces a utilizar, Por cada interface utilizada, hacer uso del comando DESCRIPTION con el fin de indicar la función que cumple cada interface, se establecera una única contraseña para: CON 0, VTY, ENABLE SECRET. La contraseña establecida debe corresponder a las primeras 5 letras del primer nombre del estudiante que presenta el caso de estudio y debe ir minúscula. Ej: luz, alexa, alber, ana, andre, ludy, juan, mauri, isabe, etc.

### **Configuración del router CHAPINERO “Configuración por medio de consola”**

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

```
Router>enable
```

```
Router#config
```

```
Configuring from terminal, memory, or network [terminal]?
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#hostname CHAPINERO
```

```
CHAPINERO(config)#interface Fa0/0
```

```
CHAPINERO(config-if)#ip address 192.5.30.1 255.255.255.0
```

```
CHAPINERO(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
CHAPINERO(config-if)#exit
```

```
CHAPINERO(config)#interface Se0/0/0
```

```
CHAPINERO(config-if)#ip address 192.5.34.1 255.255.255.252
```

```
CHAPINERO(config-if)#no shutdown
```

```
CHAPINERO(config-if)#
```

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

```
CHAPINERO(config-if)#exit
CHAPINERO(config)#router rip
CHAPINERO(config-router)#network 192.5.30.1
CHAPINERO(config-router)#network 192.5.34.1
CHAPINERO(config-router)#exit
CHAPINERO(config)#interface Fa0/0
CHAPINERO(config-if)#description Conexion con Subred A
CHAPINERO(config-if)#description Conexion con Subred 1
CHAPINERO(config-if)#exit
CHAPINERO(config)#interface Se0/0/0
CHAPINERO(config-if)#description Conexion con Router BOGOTA
CHAPINERO(config-if)#exit
CHAPINERO(config)#enable secret andre
CHAPINERO(config)#line con 0
CHAPINERO(config-line)#password andre
CHAPINERO(config-line)#login
CHAPINERO(config-line)#exit
CHAPINERO(config)#line vty 0 4
CHAPINERO(config-line)#password andre
CHAPINERO(config-line)#login
CHAPINERO(config-line)#exit
CHAPINERO(config)#exit
CHAPINERO#
```

### **Configuración del router TOBERIN “Configuración por medio de consola”**

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname TOBERIN
TOBERIN(config)#interface Fa0/0
```

```
TOBERIN(config-if)#description Conexion con Subred 3
TOBERIN(config-if)#ip address 192.5.32.1 255.255.255.0
TOBERIN(config-if)#no shutdown
```

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

```
TOBERIN(config-if)#exit
TOBERIN(config)#interface Se0/0/0
TOBERIN(config-if)#description Conexion con Router BOGOTA
TOBERIN(config-if)#ip address 192.5.34.5 255.255.255.252
TOBERIN(config-if)#no shutdown
```

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down

```
TOBERIN(config-if)#
TOBERIN(config-if)#exit
TOBERIN(config)#router rip
TOBERIN(config-router)#network 192.5.32.1
TOBERIN(config-router)#network 192.5.34.5
TOBERIN(config-router)#exit
TOBERIN(config)#enable secret andre
TOBERIN(config)#line con 0
TOBERIN(config-line)#password andre
TOBERIN(config-line)#login
TOBERIN(config-line)#exit
TOBERIN(config)#line vty 0 4
TOBERIN(config-line)#password andre
TOBERIN(config-line)#login
TOBERIN(config-line)#exit
TOBERIN(config)#exit
TOBERIN#
```

## Configuración del router BOGOTA “Configuración por medio de consola”

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: NO

Press RETURN to get started!

```
Router>enable
```

```
Router#config
```

```
Configuring from terminal, memory, or network [terminal]?
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#hostname BOGOTA
```

```
BOGOTA(config)#interface Se0/0/0
```

```
BOGOTA(config-if)#description Conexion con Router BUCARAMANGA
```

```
BOGOTA(config-if)#ip address 192.5.34.9 255.255.255.252
```

```
BOGOTA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
```

```
BOGOTA(config-if)#exit
```

```
BOGOTA(config)#interface Se0/0/1
```

```
BOGOTA(config-if)#ip address 192.5.34.6 255.255.255.252
```

```
BOGOTA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

```
BOGOTA(config-if)#exit
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

```
BOGOTA(config)#interface Se0/1/0
```

```
BOGOTA(config-if)#description Conexion con Router CHAPINERO
```

```
BOGOTA(config-if)#ip address 192.5.34.2 255.255.255.252
```

```
BOGOTA(config-if)#no shutdown
```

```
BOGOTA(config-if)#
```

```
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
```

```
BOGOTA(config-if)#no shutdown
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
```

```
BOGOTA(config-if)#exit
```

```
BOGOTA(config)#interface Se0/0/1
```

```
BOGOTA(config-if)#description Conexion con Router TOBERIN
```

```
BOGOTA(config-if)#EXIT
```

```
BOGOTA(config)#router rip
BOGOTA(config-router)#network 192.5.34.2
BOGOTA(config-router)#network 192.5.34.6
BOGOTA(config-router)#network 192.5.34.9
BOGOTA(config-router)#exit
BOGOTA(config)#enable secret andre
BOGOTA(config)#line con 0
BOGOTA(config-line)#password andre
BOGOTA(config-line)#login
BOGOTA(config-line)#exit
BOGOTA(config)#line vty 0 4
BOGOTA(config-line)#password andre
BOGOTA(config-line)#exit
BOGOTA(config)#line vty 0 4
BOGOTA(config-line)#password andre
BOGOTA(config-line)#login
BOGOTA(config-line)#exit
BOGOTA(config)#exit
BOGOTA#
%SYS-5-CONFIG_I: Configured from console by console
```

BOGOTA#

### **Configuración del router BUCARAMANGA “Configuración por medio de consola”**

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: NO

Press RETURN to get started!

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname BUCARAMANGA
BUCARAMANGA(config)#interface Se0/0/0
BUCARAMANGA(config-if)#description Conexion con Router BOGOTA
BUCARAMANGA(config-if)#ip address 192.5.34.10 255.255.255.252
BUCARAMANGA(config-if)#no shutdown
```

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

```
BUCARAMANGA(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up
```

```
BUCARAMANGA(config-if)#interface Se0/0/1
BUCARAMANGA(config-if)#description Conexion con Router ELBOSQUE
BUCARAMANGA(config-if)#ip address 192.5.34.13 255.255.255.252
BUCARAMANGA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
BUCARAMANGA(config-if)#exit
BUCARAMANGA(config)#interface Se0/1/0
BUCARAMANGA(config-if)#description Conexion con Router PASOREAL
BUCARAMANGA(config-if)#ip address 192.5.34.17 255.255.255.252
BUCARAMANGA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
BUCARAMANGA(config-if)#exit
BUCARAMANGA(config)#router rip
BUCARAMANGA(config-router)#network 192.5.34.10
BUCARAMANGA(config-router)#network 192.5.34.13
BUCARAMANGA(config-router)#network 192.5.34.17
BUCARAMANGA(config-router)#exit
BUCARAMANGA(config)#enable secret andre
BUCARAMANGA(config)#line con 0
BUCARAMANGA(config-line)#password andre
BUCARAMANGA(config-line)#login
BUCARAMANGA(config-line)#exit
BUCARAMANGA(config)#line vty 0 4
BUCARAMANGA(config-line)#login
% Login disabled on line 66, until 'password' is set
% Login disabled on line 67, until 'password' is set
% Login disabled on line 68, until 'password' is set
% Login disabled on line 69, until 'password' is set
% Login disabled on line 70, until 'password' is set
BUCARAMANGA(config-line)#line vty 0 4
BUCARAMANGA(config-line)#password andre
BUCARAMANGA(config-line)#login
BUCARAMANGA(config-line)#exit
BUCARAMANGA(config)#exit
BUCARAMANGA#
%SYS-5-CONFIG_I: Configured from console by console
```

BUCARAMANGA#

## Configuración del router ELBOSQUE “Configuración por medio de consola”

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

```
Router>enable
```

```
Router#config
```

```
Configuring from terminal, memory, or network [terminal]?
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#hostname ELBOSQUE
```

```
ELBOSQUE(config)#interface Fa0/0
```

```
ELBOSQUE(config-if)#description Conexion con Subred 4
```

```
ELBOSQUE(config-if)#ip address 192.5.33.1 255.255.255.0
```

```
ELBOSQUE(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
ELBOSQUE(config-if)#interface Se0/0/0
```

```
ELBOSQUE(config-if)#description Conexion con Router BUCARAMANGA
```

```
ELBOSQUE(config-if)#ip address 192.5.34.14 255.255.255.252
```

```
ELBOSQUE(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

```
ELBOSQUE(config-if)#ex
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
```

```
% Ambiguous command: "e"
```

```
ELBOSQUE(config-if)#exit
```

```
ELBOSQUE(config)#router rip
```

```
ELBOSQUE(config-router)#network 192.5.33.1
```

```
ELBOSQUE(config-router)#network 192.5.34.14
```

```
ELBOSQUE(config-router)#exit
```

```
ELBOSQUE(config)#enable secret andre
```

```
ELBOSQUE(config)#line con 0
ELBOSQUE(config-line)#login
% Login disabled on line 0, until 'password' is set
ELBOSQUE(config-line)#line con 0
ELBOSQUE(config-line)#password andre
ELBOSQUE(config-line)#login
ELBOSQUE(config-line)#line vty 0 4
ELBOSQUE(config-line)#password andre
ELBOSQUE(config-line)#login
ELBOSQUE(config-line)#exit
ELBOSQUE(config)#exit
ELBOSQUE#
%SYS-5-CONFIG_I: Configured from console by console
```

```
ELBOSQUE#
```

### **Configuración del router PASEOREAL “Configuración por medio de consola”**

```
--- System Configuration Dialog ---
```

```
Continue with configuration dialog? [yes/no]: no
```

```
Press RETURN to get started!
```

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname PASEOREAL
PASEOREAL(config)#interface Fa0/0
PASEOREAL(config-if)#description Conexion con Subred 2
PASEOREAL(config-if)#ip address 192.5.31.1 255.255.255.0
PASEOREAL(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
PASEOREAL(config-if)#interface Se0/0/0
PASEOREAL(config-if)#description Conexion con Router BUCARAMANGA
```



```
PASOREAL(config-if)#ip address 192.5.34.18 255.255.255.252
PASOREAL(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

```
PASOREAL(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up
```

```
PASOREAL(config-if)#exit
```

```
PASOREAL(config)#router rip
```

```
PASOREAL(config-router)#network 192.5.31.1
```

```
PASOREAL(config-router)#network 192.5.34.18
```

```
PASOREAL(config-router)#exit
```

```
PASOREAL(config)#enable secret andre
```

```
PASOREAL(config)#line con 0
```

```
PASOREAL(config-line)#password andre
```

```
PASOREAL(config-line)#login
```

```
PASOREAL(config-line)#line vty 0 4
```

```
PASOREAL(config-line)#password andre
```

```
PASOREAL(config-line)#login
```

```
PASOREAL(config-line)#exit
```

```
PASOREAL(config)#exit
```

```
PASOREAL#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
PASOREAL#
```

## Diagrama en Packet Tracer

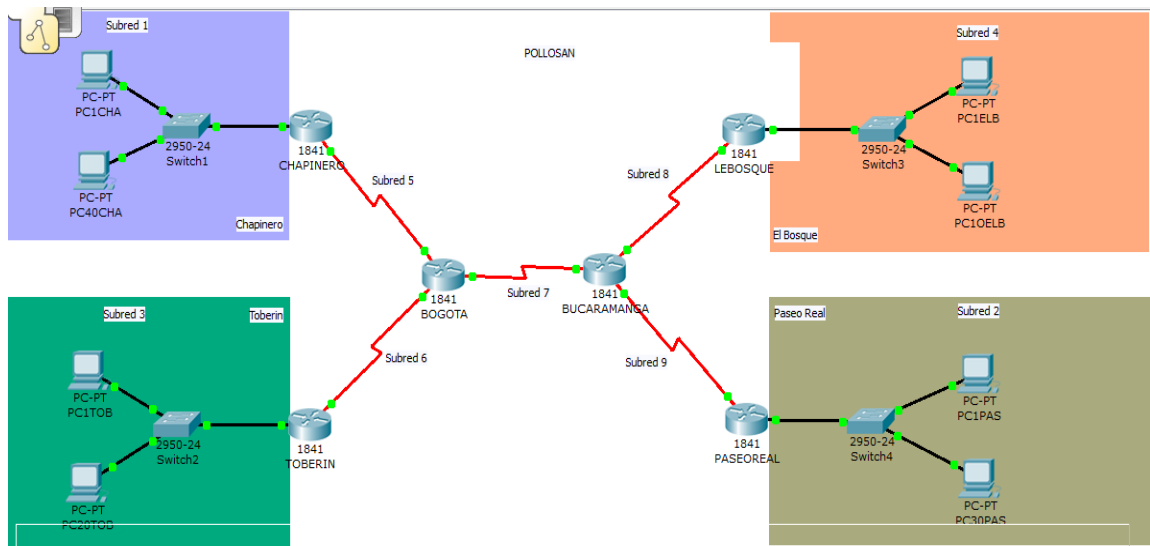


Figura 6 – Diagrama en Packet Tracer - POLLOSAN

## Verificación de funcionamiento mediante comando Ping y Tracer

Desde	Hacia	Resultados Ping	Resultados Tracert
PC1CHA <b>192.5.30.2</b>	PC40CHA <b>192.5.30.41</b>	<pre> PC&gt;ping 192.5.30.41 Pinging 192.5.30.41 with 32 bytes of data:  Reply from 192.5.30.41: bytes=32 time=15ms TTL=128 Reply from 192.5.30.41: bytes=32 time=7ms TTL=128 Reply from 192.5.30.41: bytes=32 time=7ms TTL=128 Reply from 192.5.30.41: bytes=32 time=7ms TTL=128  Ping statistics for 192.5.30.41:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 7ms, Maximum = 15ms, Average = 9ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.30.41  Tracing route to 192.5.30.41 over a maximum of 30 hops:    0  8 ms   10 ms   10 ms   192.5.30.41  Trace complete.  PC&gt; </pre>
PC1CHA <b>192.5.30.2</b>	PC1TOB <b>192.5.32.2</b>	<pre> PC&gt;ping 192.5.32.2 Pinging 192.5.32.2 with 32 bytes of data:  Reply from 192.5.32.2: bytes=32 time=26ms TTL=125 Reply from 192.5.32.2: bytes=32 time=21ms TTL=125 Reply from 192.5.32.2: bytes=32 time=28ms TTL=125 Reply from 192.5.32.2: bytes=32 time=24ms TTL=125  Ping statistics for 192.5.32.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 28ms, Average = 24ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.32.2  Tracing route to 192.5.32.2 over a maximum of 30 hops:    0  11 ms   10 ms   7 ms   192.5.30.1   1  11 ms   11 ms   11 ms   192.5.34.2   2  16 ms   16 ms   16 ms   192.5.34.5   3  20 ms   24 ms   27 ms   192.5.32.2  Trace complete.  PC&gt; </pre>
PC1CHA <b>192.5.30.2</b>	PC20TOB <b>192.5.32.21</b>	<pre> PC&gt;ping 192.5.32.21 Pinging 192.5.32.21 with 32 bytes of data:  Reply from 192.5.32.21: bytes=32 time=28ms TTL=125 Reply from 192.5.32.21: bytes=32 time=22ms TTL=125 Reply from 192.5.32.21: bytes=32 time=21ms TTL=125 Reply from 192.5.32.21: bytes=32 time=24ms TTL=125  Ping statistics for 192.5.32.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 28ms, Average = 23ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.32.21  Tracing route to 192.5.32.21 over a maximum of 30 hops:    0  13 ms   7 ms   8 ms   192.5.30.1   1  14 ms   13 ms   12 ms   192.5.34.2   2  16 ms   18 ms   17 ms   192.5.34.5   3  29 ms   25 ms   22 ms   192.5.32.21  Trace complete.  PC&gt; </pre>
PC1CHA <b>192.5.30.2</b>	PC1ELB <b>192.5.33.2</b>	<pre> PC&gt;ping 192.5.33.2 Pinging 192.5.33.2 with 32 bytes of data:  Reply from 192.5.33.2: bytes=32 time=27ms TTL=124 Reply from 192.5.33.2: bytes=32 time=30ms TTL=124 Reply from 192.5.33.2: bytes=32 time=29ms TTL=124 Reply from 192.5.33.2: bytes=32 time=26ms TTL=124  Ping statistics for 192.5.33.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 26ms, Maximum = 30ms, Average = 28ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.2  Tracing route to 192.5.33.2 over a maximum of 30 hops:    0  15 ms   8 ms   7 ms   192.5.30.1   1  14 ms   11 ms   11 ms   192.5.34.2   2  13 ms   18 ms   16 ms   192.5.34.10   3  19 ms   19 ms   19 ms   192.5.34.14   4  30 ms   29 ms   26 ms   192.5.33.2  Trace complete.  PC&gt; </pre>
PC1CHA <b>192.5.30.2</b>	PC10ELB <b>192.5.33.11</b>	<pre> PC&gt;ping 192.5.33.11 Pinging 192.5.33.11 with 32 bytes of data:  Reply from 192.5.33.11: bytes=32 time=31ms TTL=124 Reply from 192.5.33.11: bytes=32 time=25ms TTL=124 Reply from 192.5.33.11: bytes=32 time=25ms TTL=124 Reply from 192.5.33.11: bytes=32 time=31ms TTL=124  Ping statistics for 192.5.33.11:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 25ms, Maximum = 31ms, Average = 28ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.11  Tracing route to 192.5.33.11 over a maximum of 30 hops:    0  14 ms   6 ms   6 ms   192.5.30.1   1  13 ms   11 ms   11 ms   192.5.34.2   2  17 ms   15 ms   16 ms   192.5.34.10   3  16 ms   21 ms   21 ms   192.5.34.14   4  29 ms   30 ms   31 ms   192.5.33.11  Trace complete.  PC&gt; </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PC1CHA 192.5.30.2	PC1PAS 192.5.31.2	<pre> PC&gt;ping 192.5.31.2 Pinging 192.5.31.2 with 32 bytes of data: Reply from 192.5.31.2: bytes=32 time=30ms TTL=124 Reply from 192.5.31.2: bytes=32 time=25ms TTL=124 Reply from 192.5.31.2: bytes=32 time=31ms TTL=124 Reply from 192.5.31.2: bytes=32 time=24ms TTL=124  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 24ms, Maximum = 31ms, Average = 27ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2 Tracing route to 192.5.31.2 over a maximum of 30 hops:   0  6 ms   8 ms   9 ms   192.5.30.1   1  12 ms  12 ms  10 ms  192.5.34.2   2  17 ms  15 ms  14 ms  192.5.34.10   3  18 ms  22 ms  20 ms  192.5.34.18   4  25 ms  25 ms  29 ms  192.5.31.2  Trace complete. PC&gt; </pre>
PC1CHA 192.5.30.2	PC30PAS 192.5.31.31	<pre> PC&gt;ping 192.5.31.31 Pinging 192.5.31.31 with 32 bytes of data: Reply from 192.5.31.31: bytes=32 time=29ms TTL=124 Reply from 192.5.31.31: bytes=32 time=25ms TTL=124 Reply from 192.5.31.31: bytes=32 time=26ms TTL=124 Reply from 192.5.31.31: bytes=32 time=24ms TTL=124  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 24ms, Maximum = 29ms, Average = 26ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31 Tracing route to 192.5.31.31 over a maximum of 30 hops:   0  9 ms   8 ms   8 ms   192.5.30.1   1  11 ms  12 ms  14 ms  192.5.34.2   2  18 ms  18 ms  19 ms  192.5.34.10   3  22 ms  17 ms  24 ms  192.5.34.18   4  18 ms  24 ms  30 ms  192.5.31.31  Trace complete. PC&gt; </pre>
PC40CHA 192.5.30.4 1	PC1TOB 192.5.32.2	<pre> PC&gt;ping 192.5.32.2 Pinging 192.5.32.2 with 32 bytes of data: Reply from 192.5.32.2: bytes=32 time=23ms TTL=125 Reply from 192.5.32.2: bytes=32 time=24ms TTL=125 Reply from 192.5.32.2: bytes=32 time=26ms TTL=125 Reply from 192.5.32.2: bytes=32 time=28ms TTL=125  Ping statistics for 192.5.32.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 23ms, Maximum = 28ms, Average = 25ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.32.2 Tracing route to 192.5.32.2 over a maximum of 30 hops:   0  18 ms   6 ms   9 ms   192.5.30.1   1  11 ms  11 ms  14 ms  192.5.34.2   2  17 ms  16 ms  15 ms  192.5.34.5   3  23 ms  23 ms  25 ms  192.5.32.2  Trace complete. PC&gt; </pre>
PC40CHA 192.5.30.4 1	PC20TOB 192.5.32.21	<pre> PC&gt;ping 192.5.32.21 Pinging 192.5.32.21 with 32 bytes of data: Reply from 192.5.32.21: bytes=32 time=26ms TTL=125 Reply from 192.5.32.21: bytes=32 time=22ms TTL=125 Reply from 192.5.32.21: bytes=32 time=23ms TTL=125 Reply from 192.5.32.21: bytes=32 time=22ms TTL=125  Ping statistics for 192.5.32.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 22ms, Maximum = 26ms, Average = 23ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.32.21 Tracing route to 192.5.32.21 over a maximum of 30 hops:   0  15 ms   8 ms   7 ms   192.5.30.1   1  12 ms  16 ms  13 ms  192.5.34.2   2  14 ms  15 ms  18 ms  192.5.34.5   3  25 ms  22 ms  20 ms  192.5.32.21  Trace complete. PC&gt; </pre>
PC40CHA 192.5.30.4 1	PC1ELB 192.5.33.2	<pre> PC&gt;ping 192.5.33.2 Pinging 192.5.33.2 with 32 bytes of data: Reply from 192.5.33.2: bytes=32 time=30ms TTL=124 Reply from 192.5.33.2: bytes=32 time=30ms TTL=124 Reply from 192.5.33.2: bytes=32 time=30ms TTL=124 Reply from 192.5.33.2: bytes=32 time=33ms TTL=124  Ping statistics for 192.5.33.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 30ms, Maximum = 33ms, Average = 30ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.2 Tracing route to 192.5.33.2 over a maximum of 30 hops:   0  11 ms   7 ms   7 ms   192.5.30.1   1  12 ms  12 ms   9 ms  192.5.34.2   2  13 ms  17 ms  16 ms  192.5.34.10   3  21 ms  17 ms  22 ms  192.5.34.14   4  29 ms  29 ms  26 ms  192.5.33.2  Trace complete. PC&gt; </pre>
PC40CHA 192.5.30.4 1	PC10ELB 192.5.33.11	<pre> PC&gt;ping 192.5.33.11 Pinging 192.5.33.11 with 32 bytes of data: Reply from 192.5.33.11: bytes=32 time=33ms TTL=124 Reply from 192.5.33.11: bytes=32 time=27ms TTL=124 Reply from 192.5.33.11: bytes=32 time=29ms TTL=124 Reply from 192.5.33.11: bytes=32 time=29ms TTL=124  Ping statistics for 192.5.33.11:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:     Minimum = 27ms, Maximum = 33ms, Average = 29ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.11 Tracing route to 192.5.33.11 over a maximum of 30 hops:   0  9 ms   8 ms   6 ms   192.5.30.1   1  14 ms  12 ms  14 ms  192.5.34.2   2  14 ms  17 ms  16 ms  192.5.34.10   3  20 ms  18 ms  18 ms  192.5.34.14   4  28 ms  27 ms  29 ms  192.5.33.11  Trace complete. PC&gt; </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PC40CHA <b>192.5.30.4</b> <b>1</b>	PC1PAS <b>192.5.31.2</b>	<pre> PC&gt;ping 192.5.31.2  Pinging 192.5.31.2 with 32 bytes of data:  Reply from 192.5.31.2: bytes=32 time=27ms TTL=124 Reply from 192.5.31.2: bytes=32 time=23ms TTL=124 Reply from 192.5.31.2: bytes=32 time=26ms TTL=124 Reply from 192.5.31.2: bytes=32 time=27ms TTL=124  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 23ms, Maximum = 27ms, Average = 25ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2  Tracing route to 192.5.31.2 over a maximum of 30 hops:    0  9 ms   9 ms   6 ms   192.5.30.1   1  12 ms  11 ms  12 ms  192.5.34.2   2  15 ms  17 ms  16 ms  192.5.34.10   3  20 ms  19 ms  22 ms  192.5.34.18   4  33 ms  24 ms  25 ms  192.5.31.2  Trace complete.  PC&gt; </pre>
PC40CHA <b>192.5.30.4</b> <b>1</b>	PC30PAS <b>192.5.31.31</b>	<pre> PC&gt;ping 192.5.31.31  Pinging 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=41ms TTL=124 Reply from 192.5.31.31: bytes=32 time=27ms TTL=124 Reply from 192.5.31.31: bytes=32 time=24ms TTL=124 Reply from 192.5.31.31: bytes=32 time=25ms TTL=124  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 24ms, Maximum = 41ms, Average = 29ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31  Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  11 ms   8 ms   8 ms   192.5.30.1   1  10 ms  12 ms  12 ms  192.5.34.2   2  16 ms  16 ms  19 ms  192.5.34.10   3  18 ms  18 ms  22 ms  192.5.34.18   4  27 ms  26 ms  21 ms  192.5.31.31  Trace complete.  PC&gt; </pre>
PC1TOB <b>192.5.32.2</b>	PC20TOB <b>192.5.32.21</b>	<pre> PC&gt;ping 192.5.32.21 with 32 bytes of data:  Reply from 192.5.32.21: bytes=32 time=17ms TTL=128 Reply from 192.5.32.21: bytes=32 time=7ms TTL=128 Reply from 192.5.32.21: bytes=32 time=8ms TTL=128 Reply from 192.5.32.21: bytes=32 time=8ms TTL=128  Ping statistics for 192.5.32.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 7ms, Maximum = 17ms, Average = 10ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.32.21  Tracing route to 192.5.32.21 over a maximum of 30 hops:    0  5 ms   6 ms   8 ms   192.5.32.21  Trace complete.  PC&gt; </pre>
PC1TOB <b>192.5.32.2</b>	PC1ELB <b>192.5.33.2</b>	<pre> PC&gt;ping 192.5.33.2 with 32 bytes of data:  Reply from 192.5.33.2: bytes=32 time=24ms TTL=124 Reply from 192.5.33.2: bytes=32 time=32ms TTL=124 Reply from 192.5.33.2: bytes=32 time=31ms TTL=124 Reply from 192.5.33.2: bytes=32 time=25ms TTL=124  Ping statistics for 192.5.33.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 24ms, Maximum = 32ms, Average = 28ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.2  Tracing route to 192.5.33.2 over a maximum of 30 hops:    0  8 ms   8 ms   7 ms   192.5.32.1   1  13 ms  12 ms  13 ms  192.5.34.6   2  17 ms  17 ms  15 ms  192.5.34.10   3  20 ms  19 ms  12 ms  192.5.34.14   4  25 ms  29 ms  34 ms  192.5.33.2  Trace complete.  PC&gt; </pre>
PC1TOB <b>192.5.32.2</b>	PC10ELB <b>192.5.33.11</b>	<pre> PC&gt;ping 192.5.33.11  Pinging 192.5.33.11 with 32 bytes of data:  Reply from 192.5.33.11: bytes=32 time=21ms TTL=124 Reply from 192.5.33.11: bytes=32 time=30ms TTL=124 Reply from 192.5.33.11: bytes=32 time=31ms TTL=124 Reply from 192.5.33.11: bytes=32 time=26ms TTL=124  Ping statistics for 192.5.33.11:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 31ms, Average = 27ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.11  Tracing route to 192.5.33.11 over a maximum of 30 hops:    0  6 ms   7 ms   9 ms   192.5.32.1   1  12 ms  11 ms  15 ms  192.5.34.6   2  12 ms  16 ms  19 ms  192.5.34.10   3  22 ms  22 ms  20 ms  192.5.34.14   4  24 ms  31 ms  32 ms  192.5.33.11  Trace complete.  PC&gt; </pre>
PC1TOB <b>192.5.32.2</b>	PC1PAS <b>192.5.31.2</b>	<pre> PC&gt;ping 192.5.31.2  Pinging 192.5.31.2 with 32 bytes of data:  Reply from 192.5.31.2: bytes=32 time=30ms TTL=124 Reply from 192.5.31.2: bytes=32 time=28ms TTL=124 Reply from 192.5.31.2: bytes=32 time=20ms TTL=124 Reply from 192.5.31.2: bytes=32 time=36ms TTL=124  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 20ms, Maximum = 36ms, Average = 28ms  PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2  Tracing route to 192.5.31.2 over a maximum of 30 hops:    0  7 ms   6 ms   8 ms   192.5.32.1   1  13 ms  14 ms  12 ms  192.5.34.6   2  17 ms  15 ms  17 ms  192.5.34.10   3  19 ms  21 ms  18 ms  192.5.34.18   4  26 ms  28 ms  28 ms  192.5.31.2  Trace complete.  PC&gt; </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PC1TOB <b>192.5.32.2</b>	PC30PAS <b>192.5.31.31</b>	<pre> PC&gt;ping 192.5.31.31 Pinging 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=26ms TTL=124 Reply from 192.5.31.31: bytes=32 time=26ms TTL=124 Reply from 192.5.31.31: bytes=32 time=23ms TTL=124 Reply from 192.5.31.31: bytes=32 time=24ms TTL=124  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 24ms, Maximum = 28ms, Average = 26ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31 Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  8 ms    10 ms   4 ms    192.5.32.1   1  12 ms   13 ms   9 ms    192.5.34.6   2  14 ms   15 ms  18 ms   192.5.34.10   3  15 ms   19 ms  22 ms   192.5.34.18   4  30 ms   27 ms  29 ms   192.5.31.31  Trace complete. PC&gt; </pre>
PC20TOB <b>192.5.32.2</b> <b>1</b>	PC1ELB <b>192.5.33.2</b>	<pre> PC&gt;ping 192.5.33.2 with 32 bytes of data:  Reply from 192.5.33.2: bytes=32 time=40ms TTL=124 Reply from 192.5.33.2: bytes=32 time=26ms TTL=124 Reply from 192.5.33.2: bytes=32 time=30ms TTL=124 Reply from 192.5.33.2: bytes=32 time=27ms TTL=124  Ping statistics for 192.5.33.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 26ms, Maximum = 40ms, Average = 30ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.2 Tracing route to 192.5.33.2 over a maximum of 30 hops:    0  9 ms    8 ms    8 ms    192.5.32.1   1  13 ms   14 ms   13 ms   192.5.34.6   2  16 ms   15 ms   16 ms   192.5.34.10   3  25 ms   11 ms   18 ms   192.5.34.14   4  24 ms   28 ms   29 ms   192.5.33.2  Trace complete. PC&gt; </pre>
PC20TOB <b>192.5.32.2</b> <b>1</b>	PC10ELB <b>192.5.33.11</b>	<pre> PC&gt;ping 192.5.33.11 with 32 bytes of data:  Reply from 192.5.33.11: bytes=32 time=24ms TTL=124 Reply from 192.5.33.11: bytes=32 time=31ms TTL=124 Reply from 192.5.33.11: bytes=32 time=26ms TTL=124 Reply from 192.5.33.11: bytes=32 time=26ms TTL=124  Ping statistics for 192.5.33.11:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 24ms, Maximum = 31ms, Average = 26ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.11 Tracing route to 192.5.33.11 over a maximum of 30 hops:    0  6 ms    9 ms    7 ms    192.5.32.1   1  13 ms   14 ms   14 ms   192.5.34.6   2  17 ms   18 ms   14 ms   192.5.34.10   3  22 ms   20 ms   22 ms   192.5.34.14   4  29 ms   27 ms   30 ms   192.5.33.11  Trace complete. PC&gt; </pre>
PC20TOB <b>192.5.32.2</b> <b>1</b>	PC1PAS <b>192.5.31.2</b>	<pre> PC&gt;ping 192.5.31.2 with 32 bytes of data:  Reply from 192.5.31.2: bytes=32 time=30ms TTL=124 Reply from 192.5.31.2: bytes=32 time=30ms TTL=124 Reply from 192.5.31.2: bytes=32 time=29ms TTL=124 Reply from 192.5.31.2: bytes=32 time=28ms TTL=124  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 28ms, Maximum = 30ms, Average = 29ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2 Tracing route to 192.5.31.2 over a maximum of 30 hops:    0  8 ms    9 ms    9 ms    192.5.32.1   1  12 ms   11 ms   12 ms   192.5.34.6   2  22 ms   17 ms   14 ms   192.5.34.10   3  16 ms   18 ms   18 ms   192.5.34.18   4  29 ms   27 ms   32 ms   192.5.31.2  Trace complete. PC&gt; </pre>
PC20TOB <b>192.5.32.2</b> <b>1</b>	PC30PAS <b>192.5.31.31</b>	<pre> PC&gt;ping 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=31ms TTL=124 Reply from 192.5.31.31: bytes=32 time=25ms TTL=124 Reply from 192.5.31.31: bytes=32 time=25ms TTL=124 Reply from 192.5.31.31: bytes=32 time=26ms TTL=124  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 25ms, Maximum = 31ms, Average = 26ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31 Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  8 ms    6 ms    8 ms    192.5.32.1   1  12 ms   13 ms   7 ms    192.5.34.6   2  17 ms   16 ms   17 ms   192.5.34.10   3  17 ms   22 ms   23 ms   192.5.34.18   4  32 ms   29 ms   29 ms   192.5.31.31  Trace complete. PC&gt; </pre>
PC1ELB <b>192.5.33.2</b>	PC10ELB <b>192.5.33.11</b>	<pre> PC&gt;ping 192.5.33.11 with 32 bytes of data:  Reply from 192.5.33.11: bytes=32 time=28ms TTL=128 Reply from 192.5.33.11: bytes=32 time=8ms TTL=128 Reply from 192.5.33.11: bytes=32 time=7ms TTL=128 Reply from 192.5.33.11: bytes=32 time=8ms TTL=128  Ping statistics for 192.5.33.11:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 7ms, Maximum = 28ms, Average = 12ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.33.11 Tracing route to 192.5.33.11 over a maximum of 30 hops:    0  9 ms    10 ms   9 ms    192.5.33.11  Trace complete. PC&gt; </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PC1ELB 192.5.33.2	PC1PAS 192.5.31.2	<pre> PC&gt;ping 192.5.31.2 Pinging 192.5.31.2 with 32 bytes of data:  Reply from 192.5.31.2: bytes=32 time=22ms TTL=125 Reply from 192.5.31.2: bytes=32 time=23ms TTL=125 Reply from 192.5.31.2: bytes=32 time=23ms TTL=125 Reply from 192.5.31.2: bytes=32 time=26ms TTL=125  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 22ms, Maximum = 26ms, Average = 24ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2  Tracing route to 192.5.31.2 over a maximum of 30 hops:    0  9 ms   7 ms   9 ms   192.5.33.1   1  13 ms  11 ms  14 ms  192.5.34.13   2  18 ms  17 ms  18 ms  192.5.34.18   3  22 ms  26 ms  20 ms  192.5.31.2  Trace complete.  PC&gt; </pre>
PC1ELB 192.5.33.2	PC30PAS 192.5.31.31	<pre> PC&gt;ping 192.5.31.31 Pinging 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=38ms TTL=125 Reply from 192.5.31.31: bytes=32 time=21ms TTL=125 Reply from 192.5.31.31: bytes=32 time=23ms TTL=125 Reply from 192.5.31.31: bytes=32 time=21ms TTL=125  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 38ms, Average = 25ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31  Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  15 ms   9 ms   7 ms   192.5.33.1   1  12 ms  12 ms  12 ms  192.5.34.13   2  12 ms  18 ms  20 ms  192.5.34.18   3  23 ms  24 ms  22 ms  192.5.31.31  Trace complete.  PC&gt; </pre>
PC10ELB 192.5.33.1 1	PC1PAS 192.5.31.2	<pre> PC&gt;ping 192.5.31.2 Pinging 192.5.31.2 with 32 bytes of data:  Reply from 192.5.31.2: bytes=32 time=23ms TTL=125 Reply from 192.5.31.2: bytes=32 time=26ms TTL=125 Reply from 192.5.31.2: bytes=32 time=23ms TTL=125 Reply from 192.5.31.2: bytes=32 time=28ms TTL=125  Ping statistics for 192.5.31.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 22ms, Maximum = 28ms, Average = 24ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.2  Tracing route to 192.5.31.2 over a maximum of 30 hops:    0  9 ms   6 ms   9 ms   192.5.33.1   1  13 ms  14 ms   9 ms  192.5.34.13   2  15 ms  13 ms  17 ms  192.5.34.18   3  22 ms  24 ms  23 ms  192.5.31.2  Trace complete.  PC&gt; </pre>
PC10ELB 192.5.33.1 1	PC30PAS 192.5.31.31	<pre> PC&gt;ping 192.5.31.31 Pinging 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=22ms TTL=125 Reply from 192.5.31.31: bytes=32 time=21ms TTL=125 Reply from 192.5.31.31: bytes=32 time=23ms TTL=125 Reply from 192.5.31.31: bytes=32 time=24ms TTL=125  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 24ms, Average = 22ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31  Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  9 ms   7 ms   8 ms   192.5.33.1   1  10 ms  13 ms  11 ms  192.5.34.13   2  19 ms  15 ms  14 ms  192.5.34.18   3  23 ms  27 ms  27 ms  192.5.31.31  Trace complete.  PC&gt; </pre>
PC1PAS 192.5.31.2	PC30PAS 192.5.31.31	<pre> PC&gt;ping 192.5.31.31 Pinging 192.5.31.31 with 32 bytes of data:  Reply from 192.5.31.31: bytes=32 time=18ms TTL=128 Reply from 192.5.31.31: bytes=32 time=9ms TTL=128 Reply from 192.5.31.31: bytes=32 time=9ms TTL=128 Reply from 192.5.31.31: bytes=32 time=10ms TTL=128  Ping statistics for 192.5.31.31:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 9ms, Maximum = 18ms, Average = 11ms PC&gt; </pre>	<pre> PC&gt;tracert 192.5.31.31  Tracing route to 192.5.31.31 over a maximum of 30 hops:    0  7 ms   9 ms  10 ms  192.5.31.31  Trace complete.  PC&gt; </pre>

Tabla 10 – Verificación comandos Ping y Tracert

## SEMINARIO DE PROFUNDIZACIÓN EN REDES LAN – WAN CISCO

### CASO DE ESTUDIO – CCNA2

La Universidad nacional abierta y a distancia desea implementar su red corporativa para atender las necesidades de sus estudiantes y administrativas, estas se encuentran en las ciudades de Bogotá, Cali, Neiva y Pasto. Para ello, se requiere configurar los equipos considerando la siguiente topología:

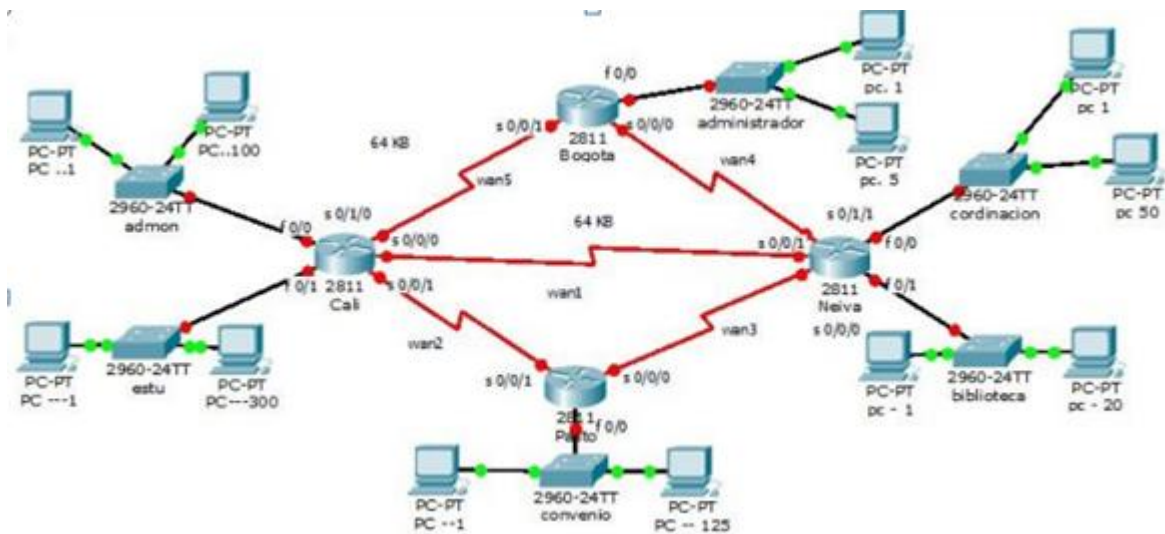


Figura 7 – Topología de Red UNAD

La cantidad de host requeridos, por cada una de las redes LAN de las sucursales, es la siguiente:

#### **BOGOTÁ**

Administrador (5 hosts)

#### **CALI**

Admon (100 hosts)

Estu (300 hosts)

#### **PASTO**

Convenio (125 hosts)

#### **NEIVA**

Biblioteca (20 hosts)

Coordinación (50 hosts)



Para el diseño de la red se deben aplicar los siguientes criterios:

El direccionamiento a utilizar en toda la red debe seguir la siguiente estructura:

**xxx.xxx.XX.xxx**

Donde,

**xxx**: cualquier número de 1 a 3 dígitos aplicable a direcciones IP

**XX**: dos (2) últimos dígitos de la cédula del estudiante que presenta el caso de estudio

Protocolo de enrutamiento: EIGRP

Todas las interfaces seriales de Cali son DCE, las interfaces serial 0/0/0 de Bogotá y Pasto son DCE. El resto de interfaces son DTE.

Definir la tabla de direcciones IP indicando por cada subred los siguientes elementos:

Por cada LAN

- Dirección de Red
- Dirección IP de Gateway
- Dirección IP del Primer PC
- Dirección IP del Último PC
- Dirección de Broadcast
- Máscara de Subred

Por cada conexión serial

- Dirección de Red
- Dirección IP Serial 0 (Indicar a qué Router pertenece)
- Dirección de Broadcast
- Máscara de Subred

En cada Router configurar:

- Nombre del Router (Hostname)
- Direcciones IP de las Interfaces a utilizar
- Por cada interface utilizada, hacer uso del comando DESCRIPTION con el fin de indicar la función que cumple cada interface. Ej: Interfaz de conexión con la red LAN Administrador.
- Establecer una única contraseña para: CON 0, VTY, ENABLE SECRET. La contraseña establecida debe corresponder a las primeras 5 letras del primer nombre del estudiante que presenta el caso de estudio y debe ir minúscula. Ej: luz, alexa, alber, ana, andre, ludy, juan, mauri, isabe, etc.
- El enlace entre Cali - Bogotá, como el de Cali – Neiva, su ancho de banda es de 64 Kbps.
- Cambie los intervalos hello para los enlaces de 64 kbps a 60 segundos.
- No realizar actualizaciones de EIGRP por las interfaces que no son necesarias

Se debe realizar la configuración de la RED mediante el uso de Packet Tracer. Los routers son de referencia 2811, y los Switches 2960. Por cada subred se deben dibujar solamente dos (2) host identificados con las direcciones IP correspondientes al primer y último PC acorde con la cantidad de equipos establecidos por subred.

## DESARROLLO DE LA ACTIVIDAD

**Dirección IP a utilizar:** 192.05.0.0 (cedula 1.113.036.305).

**Nota:** Se trabajara con los dos últimos números de la cedula en el segundo octeto, ya que en el tercer octeto como sugiere la guía interfiere para las sudredes con demasiados Hots. Esto fue aclarado y autorizado por el tutor mediante el correo interno en la plataforma.

**Cantidad de subredes:** Se requieren 11 Subredes distribuidas de la siguiente manera:

- Subred 1: Correspondiente a CALI (Estu) con 300 Host
- Subred 2: Correspondiente a CALI (Admon) con 100 host
- Subred 3: Correspondiente a PASTO (Convenio) con 125 Host
- Subred 4: Correspondiente a NEIVA (Coordinación) con 50 Host
- Subred 5: Correspondiente a NEIVA (Biblioteca) con 20 host
- Subred 6: Correspondiente a BOGOTA (Administrador) con 5 Host
- Subred 7: Correspondiente a la conexión entre BOGOTA y CALI
- Subred 8: Correspondiente a la conexión entre BOGOTA y NEIVA
- Subred 9: Correspondiente a la conexión entre CALI y NEIVA
- Subred 10: Correspondiente a la conexión entre CALI y PASTO
- Subred 11: Correspondiente a la conexión entre PASTO y NEIVA

**Tabla de direcciones IP Subred 1 (CALI (Estu) 300 HOST)**

<b>Subred 1</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.0.0	192.5.0.1	192.5.0.2	192.5.1.47	192.5.1.255	255.255.254.0

Tabla 11 – IP Subred 1 CALI - ESTU

Máscara de bits en números binarios **11111111.11111111.11111110.00000000**

**Tabla de direcciones IP Subred 2 (CALI (Admon) 100 HOST)**

<b>Subred 2</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.2.0	192.5.2.1	192.5.2.2	192.5.2.101	192.5.2.127	255.255.255.128

Tabla 12 – IP Subred 2 CALI - ADMON

Máscara de bits en números binarios **11111111.11111111.11111111.10000000**

**Tabla de direcciones IP Subred 3 (PASTO (Convenio) 125 HOST)**

<b>Subred 3</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.3.0	192.5.3.1	192.5.3.2	192.5.3.126	192.5.3.127	255.255.255.128

Tabla 13 – IP Subred 3 PASTO - CONVENIO

Máscara de bits en números binarios **11111111.11111111.11111111.10000000**

**Tabla de direcciones IP Subred 4 (NEIVA (Coordinación) 50 HOST)**

<b>Subred 4</b>					
<b>Dirección de Red</b>	<b>Dirección IP de Gateway</b>	<b>Dirección IP del Primer PC</b>	<b>Dirección IP del Último PC</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.4.0	192.5.4.1	192.5.4.2	192.5.4.51	192.5.4.63	255.255.255.192

Tabla 14 – IP Subred 4 NEIVA - COORDINACION

Máscara de bits en números binarios **11111111.11111111.11111111.11000000**

**Tabla de direcciones IP Subred 5 (NEIVA (Biblioteca) 20 HOST)**

<b>Subred 5</b>					
Dirección de Red	Dirección IP de Gateway	Dirección IP del Primer PC	Dirección IP del Último PC	Dirección de Broadcast	Máscara de Subred
192.5.5.0	192.5.5.1	192.5.5.2	192.5.5.21	192.5.5.31	255.255.255.224

Tabla 15 – IP Subred 5 NEIVA - BIBLIOTECA

Máscara de bits en números binarios **11111111.11111111.11111111.11100000**

**Tabla de direcciones IP Subred 6 (BOGOTA (Administrador) 5 HOST)**

<b>Subred 6</b>					
Dirección de Red	Dirección IP de Gateway	Dirección IP del Primer PC	Dirección IP del Último PC	Dirección de Broadcast	Máscara de Subred
192.5.6.0	192.5.6.1	192.5.6.2	192.5.6.6	192.5.6.7	255.255.255.248

Tabla 16 – IP Subred 6 BOGOTA-ADMINISTRADOR

Máscara de bits en números binarios **11111111.11111111.11111111.11111000**

**Tabla de direcciones IP Subred 7 (CONEXIÓN SERIAL BOGOTA-CALI)**

<b>Subred 7</b>				
Dirección de Red	Dirección IP Serial 0/2/0 (CALI)	Dirección IP Serial 0/3/1 (BOGOTA)	Dirección de Broadcast	Máscara de Subred
192.5.7.0	192.5.7.1	192.5.7.2	192.5.5.3	255.255.255.252

Tabla 17 – IP Subred 7 BOGOTA - CALI

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 8 (CONEXIÓN SERIAL BOGOTA-NEIVA)**

<b>Subred 8</b>				
Dirección de Red	Dirección IP Serial 0/3/0 (BOGOTA)	Dirección IP Serial 0/2/1 (NEIVA)	Dirección de Broadcast	Máscara de Subred
192.5.7.4	192.5.7.5	192.5.7.6	192.5.7.7	255.255.255.252

Tabla 18 – IP Subred 8 BOGOTA - NEIVA

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 9 (CONEXIÓN SERIAL CALI-NEIVA)**

<b>Subred 9</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/2/1 (CALI)</b>	<b>Dirección IP Serial 0/0/0 (NEIVA)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.7.8	192.5.7.9	192.5.7.10	192.5.7.11	255.255.255.252

Tabla 19 – IP Subred 9 CALI - NEIVA

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 10 (CONEXIÓN SERIAL CALI-PASTO)**

<b>Subred 10</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/0/0 (CALI)</b>	<b>Dirección IP Serial 0/2/1 (PASTO)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.7.12	192.5.7.13	192.5.7.14	192.5.7.15	255.255.255.252

Tabla 20 – IP Subred 10 CALI - PASTO

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

**Tabla de direcciones IP Subred 11 (CONEXIÓN SERIAL NEIVA-PASTO)**

<b>Subred 11</b>				
<b>Dirección de Red</b>	<b>Dirección IP Serial 0/2/0 (NEIVA)</b>	<b>Dirección IP Serial 0/2/0 (PASTO)</b>	<b>Dirección de Broadcast</b>	<b>Máscara de Subred</b>
192.5.7.16	192.5.7.17	192.5.7.18	192.5.7.19	255.255.255.252

Tabla 21 – IP Subred 11 NEIVA - PASTO

Máscara de bits en números binarios **11111111.11111111.11111111.11111100**

## Configuración de cada PC

### CALI “Estu” (Subred 1)

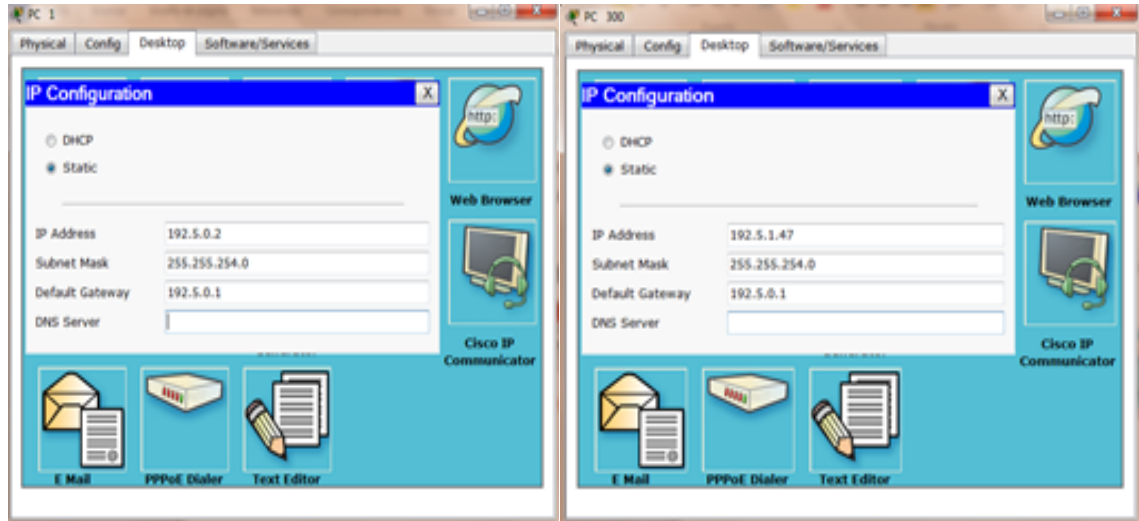


Figura 8 – Conf. Host CALI – ESTU

### CALI “Admon” (Subred 2)

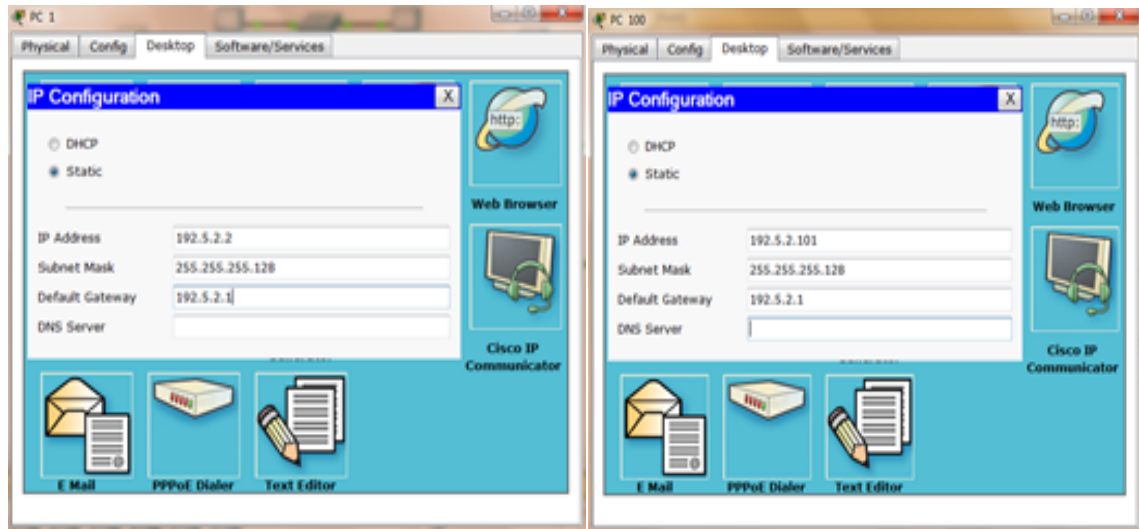


Figura 9 – Conf. Host CALI – ADMON

### PASTO “Convenio” (Subred 3)

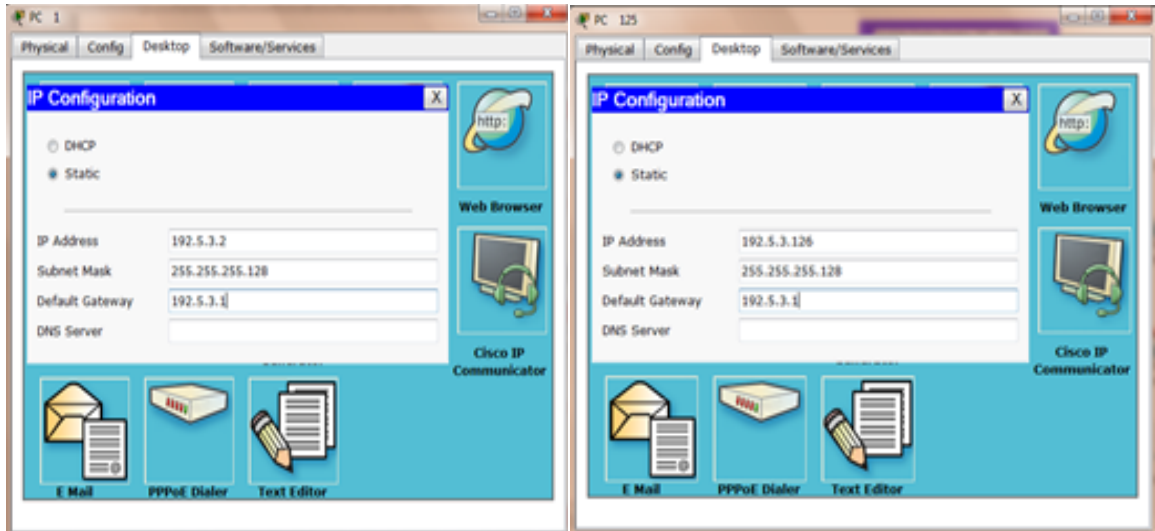


Figura 10 – Conf. Host PASTO - CONVENIO

### NEIVA “Coordinacion” (Subred 4)

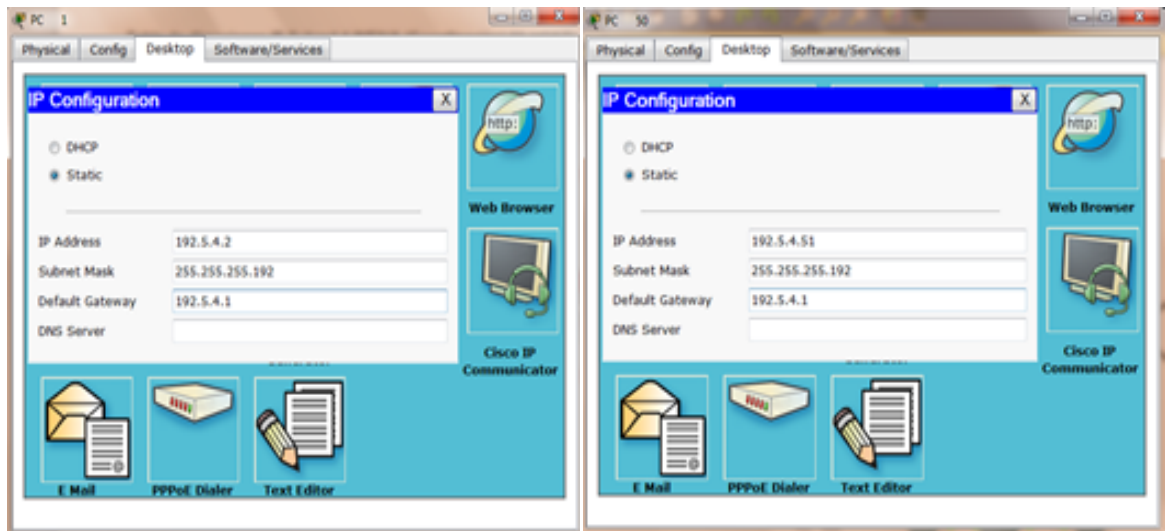


Figura 11 – Conf. Host NEIVA - COORDINACION



## NEIVA “Biblioteca” (Subred 5)

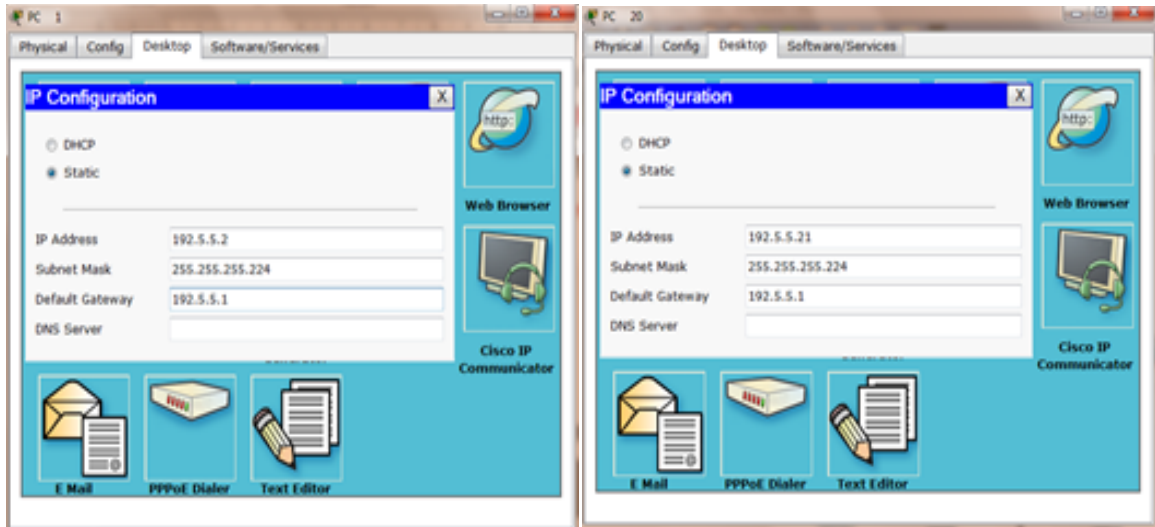


Figura 12 – Conf. Host NEIVA - BIBLIOTECA

## BOGOTA “Administrador” (Subred 6)

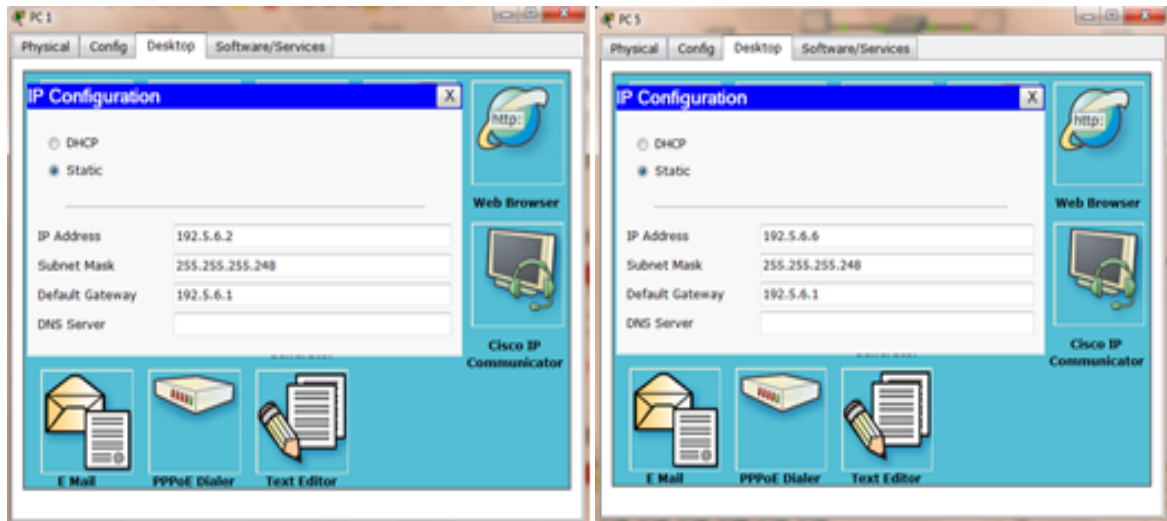


Figura 13 – Conf. Host BOGOTA - ADMINISTRADOR

## **Configuración de los Routers**

Para cada router se va a configurar:

- Nombre del Router (Hostname)
- Direcciones IP de las Interfaces a utilizar, Por cada interface utilizada, hacer uso del comando DESCRIPTION con el fin de indicar la función que cumple cada interface,
- Establecerá una única contraseña para: CON 0, VTY, ENABLE SECRET. La contraseña establecida debe corresponder a las primeras 5 letras del primer nombre del estudiante que presenta el caso de estudio y debe ir minúscula. Ej: luz, alexa, alber, ana, andre, ludy, juan, mauri, isabe, etc.
- El enlace entre Cali - Bogotá, como el de Cali – Neiva, su ancho de banda es de 64 Kbps.
- Cambie los intervalos hello para los enlaces de 64 kbps a 60 segundos.
- No realizar actualizaciones de EIGRP por las interfaces que no son necesarias

### **Configuración del router BOGOTA “Configuración por medio de consola”**

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname BOGOTA
BOGOTA(config)#interface Fa0/0
BOGOTA(config-if)#ip address 192.5.6.1 255.255.255.248
BOGOTA(config-if)#description Conexion con Administrador
BOGOTA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
BOGOTA(config)#interface Se0/3/1
BOGOTA(config-if)#ip address 192.5.7.2 255.255.255.252
BOGOTA(config-if)#description Conexion con CALI
BOGOTA(config-if)#no shutdown
```

%LINK-5-CHANGED: Interface Serial0/3/1, changed state to down

```
BOGOTA(config-if)#exit
BOGOTA(config)#interface Se0/3/0
BOGOTA(config-if)#ip address 192.5.7.5 255.255.255.252
BOGOTA(config-if)#description Conexion con NEIVA
BOGOTA(config-if)#no shutdown
```

%LINK-5-CHANGED: Interface Serial0/3/0, changed state to down

```
BOGOTA(config-if)#exit
BOGOTA(config)#enable secret andre
BOGOTA(config)#line con 0
BOGOTA(config-line)#password andre
BOGOTA(config-line)#login
BOGOTA(config-line)#exit
BOGOTA(config)#line vty 0 4
BOGOTA(config-line)#password andre
BOGOTA(config-line)#login
BOGOTA(config-line)#exit
BOGOTA(config)#
```

```
BOGOTA(config)#router eigrp 1
BOGOTA(config-router)#network 192.5.6.0 0.0.0.7
BOGOTA(config-router)#network 192.5.7.0 0.0.0.3
BOGOTA(config-router)#network 192.5.7.4 0.0.0.3
BOGOTA(config-router)#no auto-summary
BOGOTA(config-router)#passive-interface Fa0/0
BOGOTA(config-router)#exit
BOGOTA(config)#interface Se0/3/1
BOGOTA(config-if)#bandwidth 64
BOGOTA(config-if)#ip hello-interval eigrp 1 60
BOGOTA(config-if)# ip hold-time eigrp 1 180
BOGOTA(config-if)#exit
BOGOTA(config)#exit
```

%SYS-5-CONFIG\_I: Configured from console by console  
BOGOTA#

## Configuración del router CALI “Configuración por medio de consola”

```
Router>en
```

```
Router#config
```

```
Configuring from terminal, memory, or network [terminal]?
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#hostname CALI
```

```
CALI(config)#interface Fa0/0
```

```
CALI(config-if)#ip address 192.5.2.1 255.255.255.128
```

```
CALI(config-if)#description Conexion con Admon
```

```
CALI(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
CALI(config-if)#interface Fa0/1
```

```
CALI(config-if)#ip address 192.5.0.1 255.255.254.0
```

```
CALI(config-if)#description Conexion con Estu
```

```
CALI(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
```

```
CALI(config-if)#interface Se0/2/0
```

```
CALI(config-if)#ip address 192.5.7.1 255.255.255.252
```

```
CALI(config-if)#description Conexion con BOGOTA
```

```
CALI(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/0, changed state to up
```

```
CALI(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/0, changed state to up
```

```
CALI(config-if)#interface Se0/2/1
```

```
CALI(config-if)#ip address 192.5.7.9 255.255.255.252
```

```
CALI(config-if)#description Conexion con NEIVA
```

```
CALI(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to down
```

```
CALI(config-if)#interface Se0/0/0
CALI(config-if)#ip address 192.5.7.13 255.255.255.252
CALI(config-if)#description Conexion con PASTO
CALI(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
```

```
CALI(config-if)#exit
CALI(config)#enable secret andre
CALI(config)#line con 0
CALI(config-line)#password andre
CALI(config-line)#login
CALI(config-line)#exit
CALI(config)#line vty 0 4
CALI(config-line)#password andre
CALI(config-line)#login
CALI(config-line)#exit
CALI(config)#
```

```
CALI(config)#router eigrp 1
CALI(config-router)#network 192.5.2.0 0.0.0.127
CALI(config-router)#network 192.5.0.0 0.0.1.255
CALI(config-router)#network 192.5.7.0 0.0.0.3
CALI(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.2 (Serial0/2/0) is up: new adjacency
```

```
CALI(config-router)#network 192.5.7.8 0.0.0.3
CALI(config-router)#network 192.5.7.12 0.0.0.3
CALI(config-router)#no auto-summary
CALI(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.2 (Serial0/2/0) is up: new adjacency
```

```
CALI(config-router)#passive-interface Fa0/0
CALI(config-router)#passive-interface Fa0/1
CALI(config-router)#exit
CALI(config)#interface Se0/2/0
CALI(config-if)#bandwidth 64
BOGOTA(config-if)#ip hello-interval eigrp 1 60
BOGOTA(config-if)# ip hold-time eigrp 1 180
```

```
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.2 (Serial0/2/0) is down: interface down
```

```
CALI(config-if)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.2 (Serial0/2/0) is up: new adjacency
```

```
CALI(config-if)#interface Se0/2/1
CALI(config-if)#bandwidth 64
BOGOTA(config-if)#ip hello-interval eigrp 1 60
BOGOTA(config-if)# ip hold-time eigrp 1 180
CALI(config-if)#exit
CALI(config)#exit
CALI#
%SYS-5-CONFIG_I: Configured from console by console
```

```
CALI#
```

### **Configuración del router PASTO “Configuración por medio de consola”**

```
Router>en
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname PASTO
PASTO(config)#interface Fa0/0
PASTO(config-if)#ip address 192.5.3.1 255.255.255.128
PASTO(config-if)#description Conexion con Convenio
PASTO(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
PASTO(config-if)#interface Se0/2/1
PASTO(config-if)#ip address 192.5.7.14 255.255.255.252
PASTO(config-if)#description Conexion con CALI
PASTO(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to up
```

```
PASTO(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/1, changed state to up
```

```
PASTO(config-if)#interface Se0/2/0
PASTO(config-if)#ip address 192.5.7.18 255.255.255.252
PASTO(config-if)#description Conexion con NEIVA
PASTO(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/0, changed state to down
```

```
PASTO(config-if)#exit
PASTO(config)#enable secret andre
PASTO(config)#line con 0
PASTO(config-line)#password andre
PASTO(config-line)#login
PASTO(config-line)#exit
PASTO(config)#line vty 0 4
PASTO(config-line)#password andre
PASTO(config-line)#login
PASTO(config-line)#exit
PASTO(config)#
```

```
PASTO(config)#router eigrp 1
PASTO(config-router)#network 192.5.3.1 0.0.0.127
PASTO(config-router)#network 192.5.3.0 0.0.0.127
PASTO(config-router)#network 192.5.7.12 0.0.0.3
PASTO(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.13 (Serial0/2/1) is up:
new adjacency
PASTO(config-router)#network 192.5.7.16 0.0.0.3
PASTO(config-router)#no auto-summary
PASTO(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.13 (Serial0/2/1) is up:
new adjacency
```

```
PASTO(config-router)#passive-interface Fa0/0
PASTO(config-router)#exit
PASTO(config)#exit
PASTO#
%SYS-5-CONFIG_I: Configured from console by console
```

```
PASTO#
```

## Configuración del router NEIVA “Configuración por medio de consola”

```
Router>en
```

```
Router#config
```

```
Configuring from terminal, memory, or network [terminal]?
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#hostname NEIVA
```

```
NEIVA(config)#interface Fa0/0
```

```
NEIVA(config-if)#ip address 192.5.5.1 255.255.255.224
```

```
NEIVA(config-if)#description Conexion con Biblioteca
```

```
NEIVA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
NEIVA(config-if)#interface Fa0/1
```

```
NEIVA(config-if)#ip address 192.5.4.1 255.255.255.192
```

```
NEIVA(config-if)#description Conexion con Coordinacion
```

```
NEIVA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
```

```
NEIVA(config-if)#interface Se0/2/1
```

```
NEIVA(config-if)#ip address 192.5.7.6 255.255.255.252
```

```
NEIVA(config-if)#description Conexion con BOGOTA
```

```
NEIVA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to up
```

```
NEIVA(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/1, changed state to up
```

```
NEIVA(config-if)#interface Se0/0/0
```

```
NEIVA(config-if)#ip address 192.5.7.10 255.255.255.252
```

```
NEIVA(config-if)#description Conexion con CALI
```

```
NEIVA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```



```
NEIVA(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up
NEIVA(config-if)#interface Se0/2/0
NEIVA(config-if)#ip address 192.5.7.17 255.255.255.252
NEIVA(config-if)#description Conexion con PASTO
NEIVA(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/2/0, changed state to up
```

```
NEIVA(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/0, changed state
to up
```

```
NEIVA(config-if)#exit
NEIVA(config)#enable secret andre
NEIVA(config)#line con 0
NEIVA(config-line)#password andre
NEIVA(config-line)#login
NEIVA(config-line)#exit
NEIVA(config)#line vty 0 4
NEIVA(config-line)#password andre
NEIVA(config-line)#login
NEIVA(config-line)#exit
NEIVA(config)#
```

```
NEIVA(config)#router eigrp 1
NEIVA(config-router)#network 192.5.5.0 0.0.0.31
NEIVA(config-router)#network 192.5.4.0 0.0.0.63
NEIVA(config-router)#network 192.5.7.4 0.0.0.3
NEIVA(config-router)#network 192.5.7.8 0.0.0.3
NEIVA(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.9 (Serial0/0/0) is up: new
adjacency
```

```
NEIVA(config-router)#network 192.5.7.16 0.0.0.3
NEIVA(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.18 (Serial0/2/0) is up:
new adjacency
```

```
NEIVA(config-router)#no auto-summary
NEIVA(config-router)#
```

%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.9 (Serial0/0/0) is up: new adjacency

%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.5.7.18 (Serial0/2/0) is up: new adjacency

```
NEIVA(config-router)#passive-interface Fa0/0
NEIVA(config-router)#passive-interface Fa0/1
NEIVA(config-router)#exit
NEIVA(config)#interface Se0/2/1
NEIVA(config-if)#bandwidth 64
BOGOTA(config-if)#ip hello-interval eigrp 1 60
BOGOTA(config-if)# ip hold-time eigrp 1 180
NEIVA(config-if)#exit
NEIVA(config)#exit
NEIVA#
%SYS-5-CONFIG_I: Configured from console by console
```

NEIVA#

## Diagrama en Packet Tracer

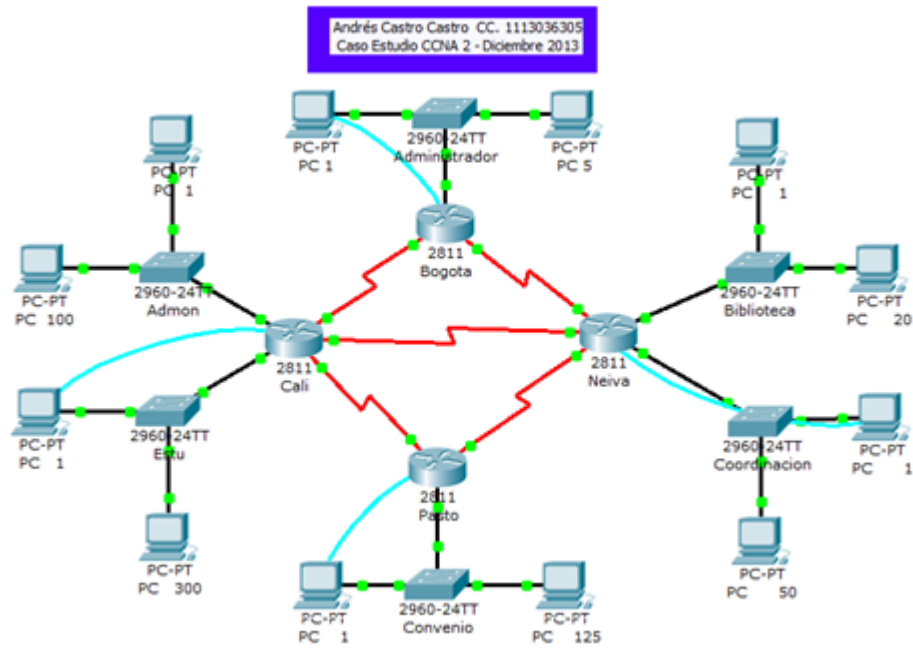


Figura 14 – Empresa UNAD

## Verificación de funcionamiento mediante comando Ping y Tracer

Desde	Hacia	Resultados Ping	Resultados Tracert
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	BOGOTA Administrador or PC5 <b>192.5.6.6/29</b>	<pre> PC&gt;ping 192.5.6.6  Pinging 192.5.6.6 with 32 bytes of data:  Reply from 192.5.6.6: bytes=32 time=94ms TTL=128 Reply from 192.5.6.6: bytes=32 time=62ms TTL=128 Reply from 192.5.6.6: bytes=32 time=47ms TTL=128 Reply from 192.5.6.6: bytes=32 time=47ms TTL=128  Ping statistics for 192.5.6.6:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 47ms, Maximum = 94ms, Average = 62ms                     </pre>	<pre> PC&gt;tracert 192.5.6.6  Tracing route to 192.5.6.6 over a maximum of 30 hops:    0  62 ms  62 ms  33 ms  192.5.6.6  Trace complete.                     </pre>
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	NEIVA Biblioteca PC1 <b>192.5.5.2/27</b>	<pre> PC&gt;ping 192.5.5.2  Pinging 192.5.5.2 with 32 bytes of data:  Reply from 192.5.5.2: bytes=32 time=141ms TTL=126 Reply from 192.5.5.2: bytes=32 time=156ms TTL=126 Reply from 192.5.5.2: bytes=32 time=94ms TTL=126 Reply from 192.5.5.2: bytes=32 time=140ms TTL=126  Ping statistics for 192.5.5.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 94ms, Maximum = 156ms, Average = 132ms                     </pre>	<pre> PC&gt;tracert 192.5.5.2  Tracing route to 192.5.5.2 over a maximum of 30 hops:    0  63 ms  47 ms  63 ms  192.5.6.1   1  94 ms  78 ms  80 ms  192.5.7.6   2 125 ms 140 ms 140 ms 192.5.5.2  Trace complete.                     </pre>
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	NEIVA Biblioteca PC20 <b>192.5.5.21/27</b>	<pre> PC&gt;ping 192.5.5.21  Pinging 192.5.5.21 with 32 bytes of data:  Reply from 192.5.5.21: bytes=32 time=140ms TTL=126 Reply from 192.5.5.21: bytes=32 time=156ms TTL=126 Reply from 192.5.5.21: bytes=32 time=125ms TTL=126 Reply from 192.5.5.21: bytes=32 time=80ms TTL=126  Ping statistics for 192.5.5.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 80ms, Maximum = 156ms, Average = 125ms                     </pre>	<pre> PC&gt;tracert 192.5.5.21  Tracing route to 192.5.5.21 over a maximum of 30 hops:    0  62 ms  47 ms  63 ms  192.5.6.1   1  78 ms  94 ms  93 ms  192.5.7.6   2  93 ms 156 ms 141 ms 192.5.5.21  Trace complete.                     </pre>
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	NEIVA Coordinación PC1 <b>192.5.4.2/26</b>	<pre> PC&gt;ping 192.5.4.2  Pinging 192.5.4.2 with 32 bytes of data:  Reply from 192.5.4.2: bytes=32 time=156ms TTL=126 Reply from 192.5.4.2: bytes=32 time=127ms TTL=126 Reply from 192.5.4.2: bytes=32 time=157ms TTL=126 Reply from 192.5.4.2: bytes=32 time=156ms TTL=126  Ping statistics for 192.5.4.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 127ms, Maximum = 157ms, Average = 149ms                     </pre>	<pre> PC&gt;tracert 192.5.4.2  Tracing route to 192.5.4.2 over a maximum of 30 hops:    0  34 ms  47 ms  63 ms  192.5.6.1   1  94 ms  94 ms  63 ms  192.5.7.6   2 125 ms 141 ms 134 ms 192.5.4.2  Trace complete.                     </pre>
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	NEIVA Coordinación PC50 <b>192.5.4.51/26</b>	<pre> PC&gt;ping 192.5.4.51  Pinging 192.5.4.51 with 32 bytes of data:  Reply from 192.5.4.51: bytes=32 time=127ms TTL=126 Reply from 192.5.4.51: bytes=32 time=126ms TTL=126 Reply from 192.5.4.51: bytes=32 time=152ms TTL=126 Reply from 192.5.4.51: bytes=32 time=109ms TTL=126  Ping statistics for 192.5.4.51:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 109ms, Maximum = 152ms, Average = 128ms                     </pre>	<pre> PC&gt;tracert 192.5.4.51  Tracing route to 192.5.4.51 over a maximum of 30 hops:    0  63 ms  47 ms  63 ms  192.5.6.1   1  78 ms  93 ms  62 ms  192.5.7.6   2 140 ms 140 ms 156 ms 192.5.4.51  Trace complete.                     </pre>
BOGOTA Administrador PC1 <b>192.5.6.2/29</b>	PASTO Convenio PC1 <b>192.5.3.2/25</b>	<pre> PC&gt;ping 192.5.3.2  Pinging 192.5.3.2 with 32 bytes of data:  Reply from 192.5.3.2: bytes=32 time=203ms TTL=125 Reply from 192.5.3.2: bytes=32 time=140ms TTL=125 Reply from 192.5.3.2: bytes=32 time=170ms TTL=125 Reply from 192.5.3.2: bytes=32 time=126ms TTL=125  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 126ms, Maximum = 203ms, Average = 159ms                     </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    0  78 ms  34 ms  62 ms  192.5.6.1   1  94 ms  94 ms  94 ms  192.5.7.6   2 125 ms 111 ms 110 ms 192.5.7.18   3 188 ms 172 ms 141 ms 192.5.3.2  Trace complete.                     </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
BOGOTA Administra dor PC1 192.5.6.2/2 9	PASTO Convenio PC125 192.5.3.126 /25	<pre> PC&gt;ping 192.5.3.126  Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=172ms TTL=126 Reply from 192.5.3.126: bytes=32 time=172ms TTL=126 Reply from 192.5.3.126: bytes=32 time=172ms TTL=126 Reply from 192.5.3.126: bytes=32 time=171ms TTL=126  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 167ms, Maximum = 172ms, Average = 166ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  79 ms  63 ms  47 ms  192.5.6.1   1  93 ms  93 ms  78 ms  192.5.7.6   2  63 ms  97 ms  110 ms  192.5.7.14   3  127 ms  141 ms  167 ms  192.5.3.126  Trace complete. </pre>
BOGOTA Administra dor PC1 192.5.6.2/2 9	CALI Estu PC1 192.5.0.2/2 3	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=174ms TTL=126 Reply from 192.5.0.2: bytes=32 time=163ms TTL=126 Reply from 192.5.0.2: bytes=32 time=172ms TTL=126 Reply from 192.5.0.2: bytes=32 time=197ms TTL=126  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 163ms, Maximum = 197ms, Average = 159ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  65 ms  47 ms  47 ms  192.5.6.1   1  79 ms  78 ms  94 ms  192.5.7.6   2  109 ms  96 ms  94 ms  192.5.7.14   3  93 ms  125 ms  109 ms  192.5.7.1   4  187 ms  172 ms  143 ms  192.5.0.2  Trace complete. </pre>
BOGOTA Administra dor PC1 192.5.6.2/2 9	CALI Estu PC300 192.5.1.47/ 23	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=166ms TTL=126 Reply from 192.5.1.47: bytes=32 time=141ms TTL=126 Reply from 192.5.1.47: bytes=32 time=157ms TTL=126 Reply from 192.5.1.47: bytes=32 time=156ms TTL=126  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 141ms, Maximum = 167ms, Average = 162ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  78 ms  47 ms  49 ms  192.5.6.1   1  93 ms  93 ms  62 ms  192.5.7.6   2  109 ms  96 ms  125 ms  192.5.7.18   3  109 ms  93 ms  94 ms  192.5.7.1   4  141 ms  94 ms  128 ms  192.5.1.47  Trace complete. </pre>
BOGOTA Administra dor PC1 192.5.6.2/2 9	CALI Admon PC1 192.5.2.2/2 5	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=168ms TTL=126 Reply from 192.5.2.2: bytes=32 time=167ms TTL=126 Reply from 192.5.2.2: bytes=32 time=158ms TTL=126 Reply from 192.5.2.2: bytes=32 time=156ms TTL=126  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 156ms, Maximum = 167ms, Average = 164ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  93 ms  62 ms  47 ms  192.5.6.1   1  94 ms  94 ms  78 ms  192.5.7.6   2  95 ms  125 ms  68 ms  192.5.7.14   3  125 ms  94 ms  93 ms  192.5.7.1   4  172 ms  156 ms  171 ms  192.5.2.2  Trace complete. </pre>
BOGOTA Administra dor PC1 192.5.6.2/2 9	CALI Admon PC100 192.5.2.101 /25	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=172ms TTL=126 Reply from 192.5.2.101: bytes=32 time=141ms TTL=126 Reply from 192.5.2.101: bytes=32 time=172ms TTL=126 Reply from 192.5.2.101: bytes=32 time=172ms TTL=126  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 141ms, Maximum = 172ms, Average = 164ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  47 ms  63 ms  33 ms  192.5.6.1   1  78 ms  94 ms  78 ms  192.5.7.6   2  109 ms  109 ms  80 ms  192.5.7.18   3  82 ms  94 ms  110 ms  192.5.7.1   4  125 ms  156 ms  172 ms  192.5.2.101  Trace complete. </pre>
BOGOTA Administra dor PC5 192.5.6.6/2 9	NEIVA Biblioteca PC1 192.5.5.2/2 7	<pre> PC&gt;ping 192.5.5.2  Pinging 192.5.5.2 with 32 bytes of data:  Reply from 192.5.5.2: bytes=32 time=141ms TTL=126 Reply from 192.5.5.2: bytes=32 time=140ms TTL=126 Reply from 192.5.5.2: bytes=32 time=125ms TTL=126 Reply from 192.5.5.2: bytes=32 time=125ms TTL=126  Ping statistics for 192.5.5.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 125ms, Maximum = 141ms, Average = 132ms </pre>	<pre> PC&gt;tracert 192.5.5.2  Tracing route to 192.5.5.2 over a maximum of 30 hops:    0  18 ms  47 ms  43 ms  192.5.6.1   1  94 ms  94 ms  94 ms  192.5.7.6   2  109 ms  110 ms  125 ms  192.5.5.2  Trace complete. </pre>
BOGOTA Administra dor PC5 192.5.6.6/2 9	NEIVA Biblioteca PC20 192.5.5.21/ 27	<pre> PC&gt;ping 192.5.5.21  Pinging 192.5.5.21 with 32 bytes of data:  Reply from 192.5.5.21: bytes=32 time=156ms TTL=126 Reply from 192.5.5.21: bytes=32 time=141ms TTL=126 Reply from 192.5.5.21: bytes=32 time=125ms TTL=126 Reply from 192.5.5.21: bytes=32 time=125ms TTL=126  Ping statistics for 192.5.5.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 125ms, Maximum = 156ms, Average = 136ms </pre>	<pre> PC&gt;tracert 192.5.5.21  Tracing route to 192.5.5.21 over a maximum of 30 hops:    0  49 ms  46 ms  47 ms  192.5.6.1   1  94 ms  94 ms  78 ms  192.5.7.6   2  166 ms  79 ms  166 ms  192.5.5.21  Trace complete. </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	NEIVA Coordinacio n PC1 <b>192.5.4.2/26</b>	<pre> PC&gt;ping 192.5.4.2 Pinging 192.5.4.2 with 32 bytes of data: Reply from 192.5.4.2: bytes=32 time=143ms TTL=126 Reply from 192.5.4.2: bytes=32 time=127ms TTL=126 Reply from 192.5.4.2: bytes=32 time=156ms TTL=126 Reply from 192.5.4.2: bytes=32 time=140ms TTL=126  Ping statistics for 192.5.4.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 127ms, Maximum = 156ms, Average = 141ms </pre>	<pre> PC&gt;tracert 192.5.4.2  Tracing route to 192.5.4.2 over a maximum of 30 hops:    0  47 ms  62 ms  62 ms  192.5.6.1   1  78 ms  63 ms  47 ms  192.5.7.6   2  94 ms  157 ms  109 ms  192.5.4.2  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	NEIVA Coordinacio n PC50 <b>192.5.4.51/26</b>	<pre> PC&gt;ping 192.5.4.51 Pinging 192.5.4.51 with 32 bytes of data: Reply from 192.5.4.51: bytes=32 time=141ms TTL=126 Reply from 192.5.4.51: bytes=32 time=125ms TTL=126 Reply from 192.5.4.51: bytes=32 time=127ms TTL=126 Reply from 192.5.4.51: bytes=32 time=156ms TTL=126  Ping statistics for 192.5.4.51:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 125ms, Maximum = 156ms, Average = 137ms </pre>	<pre> PC&gt;tracert 192.5.4.51  Tracing route to 192.5.4.51 over a maximum of 30 hops:    0  47 ms  63 ms  49 ms  192.5.6.1   1  62 ms  79 ms  78 ms  192.5.7.6   2  125 ms  156 ms  141 ms  192.5.4.51  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	PASTO Convenio PC1 <b>192.5.3.2/25</b>	<pre> PC&gt;ping 192.5.3.2 Pinging 192.5.3.2 with 32 bytes of data: Reply from 192.5.3.2: bytes=32 time=125ms TTL=125 Reply from 192.5.3.2: bytes=32 time=167ms TTL=125 Reply from 192.5.3.2: bytes=32 time=114ms TTL=125 Reply from 192.5.3.2: bytes=32 time=110ms TTL=125  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 110ms, Maximum = 167ms, Average = 126ms </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    0  47 ms  62 ms  47 ms  192.5.6.1   1  80 ms  78 ms  78 ms  192.5.7.6   2  93 ms  111 ms  81 ms  192.5.7.14   3  172 ms  172 ms  141 ms  192.5.3.2  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	PASTO Convenio PC125 <b>192.5.3.126/25</b>	<pre> PC&gt;ping 192.5.3.126 Pinging 192.5.3.126 with 32 bytes of data: Reply from 192.5.3.126: bytes=32 time=141ms TTL=125 Reply from 192.5.3.126: bytes=32 time=141ms TTL=125 Reply from 192.5.3.126: bytes=32 time=142ms TTL=125 Reply from 192.5.3.126: bytes=32 time=166ms TTL=125  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 141ms, Maximum = 166ms, Average = 147ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  63 ms  49 ms  63 ms  192.5.6.1   1  94 ms  47 ms  78 ms  192.5.7.6   2  110 ms  125 ms  125 ms  192.5.7.14   3  140 ms  156 ms  159 ms  192.5.3.126  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	CALI Estu PC1 <b>192.5.0.2/23</b>	<pre> PC&gt;ping 192.5.0.2 Pinging 192.5.0.2 with 32 bytes of data: Reply from 192.5.0.2: bytes=32 time=160ms TTL=126 Reply from 192.5.0.2: bytes=32 time=125ms TTL=126 Reply from 192.5.0.2: bytes=32 time=166ms TTL=126 Reply from 192.5.0.2: bytes=32 time=158ms TTL=126  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 125ms, Maximum = 160ms, Average = 149ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  47 ms  63 ms  31 ms  192.5.6.1   1  78 ms  94 ms  47 ms  192.5.7.6   2  125 ms  94 ms  125 ms  192.5.7.14   3  110 ms  125 ms  95 ms  192.5.7.1   4  172 ms  140 ms  187 ms  192.5.0.2  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	CALI Estu PC300 <b>192.5.1.47/23</b>	<pre> PC&gt;ping 192.5.1.47 Pinging 192.5.1.47 with 32 bytes of data: Reply from 192.5.1.47: bytes=32 time=172ms TTL=126 Reply from 192.5.1.47: bytes=32 time=127ms TTL=126 Reply from 192.5.1.47: bytes=32 time=154ms TTL=126 Reply from 192.5.1.47: bytes=32 time=94ms TTL=126  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 94ms, Maximum = 172ms, Average = 136ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  63 ms  19 ms  18 ms  192.5.6.1   1  94 ms  94 ms  94 ms  192.5.7.6   2  94 ms  79 ms  109 ms  192.5.7.18   3  95 ms  125 ms  110 ms  192.5.7.1   4  141 ms  172 ms  188 ms  192.5.1.47  Trace complete. </pre>
BOGOTA Administra dor PC5 <b>192.5.6.6/29</b>	CALI Admon PC1 <b>192.5.2.2/25</b>	<pre> PC&gt;ping 192.5.2.2 Pinging 192.5.2.2 with 32 bytes of data: Reply from 192.5.2.2: bytes=32 time=156ms TTL=126 Reply from 192.5.2.2: bytes=32 time=153ms TTL=126 Reply from 192.5.2.2: bytes=32 time=167ms TTL=126 Reply from 192.5.2.2: bytes=32 time=173ms TTL=126  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 153ms, Maximum = 173ms, Average = 159ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  63 ms  33 ms  31 ms  192.5.6.1   1  66 ms  94 ms  94 ms  192.5.7.6   2  125 ms  109 ms  78 ms  192.5.7.14   3  96 ms  125 ms  125 ms  192.5.7.1   4  187 ms  187 ms  140 ms  192.5.2.2  Trace complete. </pre>



Desde	Hacia	Resultados Ping	Resultados Tracert
BOGOTA Administrador PC5 192.5.6.6/29	CALI Admon PC100 192.5.2.101/25	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=156ms TTL=126 Reply from 192.5.2.101: bytes=32 time=141ms TTL=126 Reply from 192.5.2.101: bytes=32 time=140ms TTL=126 Reply from 192.5.2.101: bytes=32 time=172ms TTL=126  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 140ms, Maximum = 172ms, Average = 152ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  192.5.6.6  31 ms  31 ms  192.5.6.1   1  192.5.6.6  37 ms  78 ms  192.5.7.6   2  192.5.7.6  125 ms  125 ms  192.5.7.18   3  192.5.7.18  80 ms  94 ms  192.5.7.1   4  192.5.7.1  187 ms  171 ms  156 ms  192.5.2.101  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	NEIVA Biblioteca PC20 192.5.5.21/27	<pre> PC&gt;ping 192.5.5.21  Pinging 192.5.5.21 with 32 bytes of data:  Reply from 192.5.5.21: bytes=32 time=46ms TTL=128 Reply from 192.5.5.21: bytes=32 time=47ms TTL=128 Reply from 192.5.5.21: bytes=32 time=48ms TTL=128 Reply from 192.5.5.21: bytes=32 time=63ms TTL=128  Ping statistics for 192.5.5.21:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 46ms, Maximum = 63ms, Average = 51ms </pre>	<pre> PC&gt;tracert 192.5.5.21  Tracing route to 192.5.5.21 over a maximum of 30 hops:    0  192.5.5.21  62 ms  34 ms  47 ms  192.5.5.21  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	NEIVA Coordinación PC1 192.5.4.2/26	<pre> PC&gt;ping 192.5.4.2  Pinging 192.5.4.2 with 32 bytes of data:  Reply from 192.5.4.2: bytes=32 time=110ms TTL=127 Reply from 192.5.4.2: bytes=32 time=96ms TTL=127 Reply from 192.5.4.2: bytes=32 time=96ms TTL=127 Reply from 192.5.4.2: bytes=32 time=105ms TTL=127  Ping statistics for 192.5.4.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 96ms, Maximum = 110ms, Average = 101ms </pre>	<pre> PC&gt;tracert 192.5.4.2  Tracing route to 192.5.4.2 over a maximum of 30 hops:    0  192.5.4.2  49 ms  63 ms  63 ms  192.5.5.1   1  192.5.5.1  78 ms  63 ms  125 ms  192.5.4.2  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	NEIVA Coordinación PC50 192.5.4.51/26	<pre> PC&gt;ping 192.5.4.51  Pinging 192.5.4.51 with 32 bytes of data:  Reply from 192.5.4.51: bytes=32 time=109ms TTL=127 Reply from 192.5.4.51: bytes=32 time=93ms TTL=127 Reply from 192.5.4.51: bytes=32 time=96ms TTL=127 Reply from 192.5.4.51: bytes=32 time=110ms TTL=127  Ping statistics for 192.5.4.51:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 93ms, Maximum = 110ms, Average = 102ms </pre>	<pre> PC&gt;tracert 192.5.4.51  Tracing route to 192.5.4.51 over a maximum of 30 hops:    0  192.5.4.51  62 ms  47 ms  49 ms  192.5.5.1   1  192.5.5.1  112 ms  94 ms  109 ms  192.5.4.51  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	PASTO Convenio PC1 192.5.3.2/25	<pre> PC&gt;ping 192.5.3.2  Pinging 192.5.3.2 with 32 bytes of data:  Reply from 192.5.3.2: bytes=32 time=156ms TTL=126 Reply from 192.5.3.2: bytes=32 time=93ms TTL=126 Reply from 192.5.3.2: bytes=32 time=125ms TTL=126 Reply from 192.5.3.2: bytes=32 time=156ms TTL=126  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 93ms, Maximum = 156ms, Average = 132ms </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    0  192.5.3.2  63 ms  63 ms  47 ms  192.5.5.1   1  192.5.5.1  79 ms  62 ms  33 ms  192.5.7.18   2  192.5.7.18  113 ms  125 ms  125 ms  192.5.3.2  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	PASTO Convenio PC125 192.5.3.126/25	<pre> PC&gt;ping 192.5.3.126  Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=140ms TTL=126 Reply from 192.5.3.126: bytes=32 time=140ms TTL=126 Reply from 192.5.3.126: bytes=32 time=94ms TTL=126 Reply from 192.5.3.126: bytes=32 time=137ms TTL=126  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 94ms, Maximum = 140ms, Average = 127ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  192.5.3.126  47 ms  63 ms  62 ms  192.5.5.1   1  192.5.5.1  47 ms  78 ms  78 ms  192.5.7.18   2  192.5.7.18  141 ms  186 ms  134 ms  192.5.3.126  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	CALI Estu PC1 192.5.0.2/23	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=141ms TTL=125 Reply from 192.5.0.2: bytes=32 time=188ms TTL=124 Reply from 192.5.0.2: bytes=32 time=188ms TTL=125 Reply from 192.5.0.2: bytes=32 time=125ms TTL=125  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 125ms, Maximum = 188ms, Average = 160ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  192.5.0.2  62 ms  31 ms  63 ms  192.5.5.1   1  192.5.5.1  80 ms  94 ms  94 ms  192.5.7.18   2  192.5.7.18  94 ms  110 ms  109 ms  192.5.7.13  Trace complete. </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
NEIVA Biblioteca PC1 192.5.5.2/27	CALI Estu PC300 192.5.1.47/23	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=18ms TTL=125 Reply from 192.5.1.47: bytes=32 time=14ms TTL=125 Reply from 192.5.1.47: bytes=32 time=14ms TTL=125 Reply from 192.5.1.47: bytes=32 time=15ms TTL=125  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 14ms, Maximum = 18ms, Average = 15ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  78 ms  62 ms  62 ms  192.5.5.1   1  78 ms  80 ms  78 ms  192.5.7.18   2  125 ms  94 ms  125 ms  192.5.7.13   3  156 ms  187 ms  150 ms  192.5.1.47  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	CALI Admon PC1 192.5.2.2/25	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=172ms TTL=125 Reply from 192.5.2.2: bytes=32 time=96ms TTL=125 Reply from 192.5.2.2: bytes=32 time=171ms TTL=125 Reply from 192.5.2.2: bytes=32 time=166ms TTL=125  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 96ms, Maximum = 172ms, Average = 146ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  63 ms  47 ms  63 ms  192.5.5.1   1  94 ms  65 ms  70 ms  192.5.7.18   2  83 ms  125 ms  125 ms  192.5.7.13   3  156 ms  157 ms  125 ms  192.5.2.2  Trace complete. </pre>
NEIVA Biblioteca PC1 192.5.5.2/27	CALI Admon PC100 192.5.2.101/25	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=187ms TTL=125 Reply from 192.5.2.101: bytes=32 time=172ms TTL=125 Reply from 192.5.2.101: bytes=32 time=183ms TTL=125 Reply from 192.5.2.101: bytes=32 time=127ms TTL=125  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 127ms, Maximum = 188ms, Average = 168ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  78 ms  47 ms  49 ms  192.5.5.1   1  94 ms  65 ms  94 ms  192.5.7.18   2  109 ms  109 ms  125 ms  192.5.7.13   3  172 ms  174 ms  172 ms  192.5.2.101  Trace complete. </pre>
NEIVA Biblioteca PC20 192.5.5.21/27	NEIVA Coordinacio n PC1 192.5.4.2/26	<pre> PC&gt;ping 192.5.4.2  Pinging 192.5.4.2 with 32 bytes of data:  Reply from 192.5.4.2: bytes=32 time=127ms TTL=127 Reply from 192.5.4.2: bytes=32 time=139ms TTL=127 Reply from 192.5.4.2: bytes=32 time=82ms TTL=127 Reply from 192.5.4.2: bytes=32 time=109ms TTL=127  Ping statistics for 192.5.4.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 82ms, Maximum = 139ms, Average = 114ms </pre>	<pre> PC&gt;tracert 192.5.4.2  Tracing route to 192.5.4.2 over a maximum of 30 hops:    0  62 ms  49 ms  47 ms  192.5.5.1   1  125 ms  125 ms  112 ms  192.5.4.2  Trace complete. </pre>
NEIVA Biblioteca PC20 192.5.5.21/27	NEIVA Coordinacio n PC50 192.5.4.51/26	<pre> PC&gt;ping 192.5.4.51  Pinging 192.5.4.51 with 32 bytes of data:  Reply from 192.5.4.51: bytes=32 time=96ms TTL=127 Reply from 192.5.4.51: bytes=32 time=125ms TTL=127 Reply from 192.5.4.51: bytes=32 time=93ms TTL=127 Reply from 192.5.4.51: bytes=32 time=94ms TTL=127  Ping statistics for 192.5.4.51:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 93ms, Maximum = 125ms, Average = 102ms </pre>	<pre> PC&gt;tracert 192.5.4.51  Tracing route to 192.5.4.51 over a maximum of 30 hops:    0  63 ms  62 ms  47 ms  192.5.5.1   1  94 ms  110 ms  125 ms  192.5.4.51  Trace complete. </pre>
NEIVA Biblioteca PC20 192.5.5.21/27	PASTO Convenio PC1 192.5.3.2/25	<pre> PC&gt;ping 192.5.3.2  Pinging 192.5.3.2 with 32 bytes of data:  Reply from 192.5.3.2: bytes=32 time=94ms TTL=126 Reply from 192.5.3.2: bytes=32 time=125ms TTL=126 Reply from 192.5.3.2: bytes=32 time=140ms TTL=126 Reply from 192.5.3.2: bytes=32 time=135ms TTL=126  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 94ms, Maximum = 140ms, Average = 121ms </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    0  63 ms  63 ms  47 ms  192.5.5.1   1  63 ms  94 ms  78 ms  192.5.7.18   2  140 ms  125 ms  141 ms  192.5.3.2  Trace complete. </pre>
NEIVA Biblioteca PC20 192.5.5.21/27	PASTO Convenio PC125 192.5.3.126/25	<pre> PC&gt;ping 192.5.3.126  Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=141ms TTL=126 Reply from 192.5.3.126: bytes=32 time=140ms TTL=126 Reply from 192.5.3.126: bytes=32 time=143ms TTL=126 Reply from 192.5.3.126: bytes=32 time=140ms TTL=126  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 140ms, Maximum = 143ms, Average = 141ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  78 ms  47 ms  63 ms  192.5.5.1   1  47 ms  72 ms  78 ms  192.5.7.18   2  156 ms  145 ms  127 ms  192.5.3.126  Trace complete. </pre>



Desde	Hacia	Resultados Ping	Resultados Tracert
NEIVA Biblioteca PC20 <b>192.5.5.21/ 27</b>	CALI Estu PC1 <b>192.5.0.2/ 3</b>	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=141ms TTL=125 Reply from 192.5.0.2: bytes=32 time=137ms TTL=125 Reply from 192.5.0.2: bytes=32 time=188ms TTL=125 Reply from 192.5.0.2: bytes=32 time=172ms TTL=125  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 137ms, Maximum = 188ms, Average = 159ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  63 ms  63 ms  47 ms  192.5.5.1   1  78 ms  63 ms  80 ms  192.5.7.18   2  94 ms  109 ms  112 ms  192.5.7.13   3  156 ms  156 ms  157 ms  192.5.0.2  Trace complete. </pre>
NEIVA Biblioteca PC20 <b>192.5.5.21/ 27</b>	CALI Estu PC300 <b>192.5.1.47/ 23</b>	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=156ms TTL=125 Reply from 192.5.1.47: bytes=32 time=156ms TTL=125 Reply from 192.5.1.47: bytes=32 time=172ms TTL=125 Reply from 192.5.1.47: bytes=32 time=141ms TTL=125  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 141ms, Maximum = 172ms, Average = 156ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  62 ms  63 ms  33 ms  192.5.5.1   1  78 ms  78 ms  80 ms  192.5.7.18   2  94 ms  125 ms  93 ms  192.5.7.13   3  156 ms  118 ms  143 ms  192.5.1.47  Trace complete. </pre>
NEIVA Biblioteca PC20 <b>192.5.5.21/ 27</b>	CALI Admon PC1 <b>192.5.2.2/ 5</b>	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=156ms TTL=125 Reply from 192.5.2.2: bytes=32 time=140ms TTL=125 Reply from 192.5.2.2: bytes=32 time=172ms TTL=125 Reply from 192.5.2.2: bytes=32 time=110ms TTL=125  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 110ms, Maximum = 172ms, Average = 144ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  47 ms  63 ms  63 ms  192.5.5.1   1  94 ms  94 ms  78 ms  192.5.7.18   2  78 ms  125 ms  109 ms  192.5.7.13   3  172 ms  109 ms  157 ms  192.5.2.2  Trace complete. </pre>
NEIVA Biblioteca PC20 <b>192.5.5.21/ 27</b>	CALI Admon PC100 <b>192.5.2.101 /25</b>	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=172ms TTL=125 Reply from 192.5.2.101: bytes=32 time=141ms TTL=125 Reply from 192.5.2.101: bytes=32 time=141ms TTL=125 Reply from 192.5.2.101: bytes=32 time=127ms TTL=125  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 127ms, Maximum = 172ms, Average = 145ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  63 ms  63 ms  31 ms  192.5.5.1   1  93 ms  78 ms  94 ms  192.5.7.18   2  125 ms  98 ms  109 ms  192.5.7.13   3  156 ms  141 ms  110 ms  192.5.2.101  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/ 6</b>	NEIVA Coordinacio n PC50 <b>192.5.4.51/ 26</b>	<pre> PC&gt;ping 192.5.4.51  Pinging 192.5.4.51 with 32 bytes of data:  Reply from 192.5.4.51: bytes=32 time=25ms TTL=128 Reply from 192.5.4.51: bytes=32 time=7ms TTL=128 Reply from 192.5.4.51: bytes=32 time=11ms TTL=128 Reply from 192.5.4.51: bytes=32 time=10ms TTL=128  Ping statistics for 192.5.4.51:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 7ms, Maximum = 25ms, Average = 13ms </pre>	<pre> PC&gt;tracert 192.5.4.51  Tracing route to 192.5.4.51 over a maximum of 30 hops:    0  7 ms  8 ms  7 ms  192.5.4.51  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/ 6</b>	PASTO Convenio PC1 <b>192.5.3.2/ 5</b>	<pre> PC&gt;ping 192.5.3.2  Pinging 192.5.3.2 with 32 bytes of data:  Reply from 192.5.3.2: bytes=32 time=20ms TTL=126 Reply from 192.5.3.2: bytes=32 time=17ms TTL=126 Reply from 192.5.3.2: bytes=32 time=18ms TTL=126 Reply from 192.5.3.2: bytes=32 time=25ms TTL=126  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 17ms, Maximum = 25ms, Average = 20ms </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    0  17 ms  10 ms  9 ms  192.5.4.1   1  11 ms  9 ms  8 ms  192.5.7.18   2  17 ms  18 ms  10 ms  192.5.3.2  Trace complete.  PC&gt; </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
NEIVA Coordinaci on PC1 <b>192.5.4.2/2 6</b>	PASTO Convenio PC125 <b>192.5.3.126 /25</b>	<pre> PC&gt;ping 192.5.3.126  Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=21ms TTL=126 Reply from 192.5.3.126: bytes=32 time=20ms TTL=126 Reply from 192.5.3.126: bytes=32 time=15ms TTL=126 Reply from 192.5.3.126: bytes=32 time=19ms TTL=126  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 15ms, Maximum = 21ms, Average = 18ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    1  10 ms   8 ms   9 ms   192.5.4.1   2   8 ms  11 ms  14 ms   192.5.7.18   3  12 ms  18 ms  22 ms   192.5.3.126  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/2 6</b>	CALI Estu PC1 <b>192.5.0.2/2 3</b>	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=21ms TTL=125 Reply from 192.5.0.2: bytes=32 time=16ms TTL=125 Reply from 192.5.0.2: bytes=32 time=35ms TTL=125 Reply from 192.5.0.2: bytes=32 time=12ms TTL=125  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 12ms, Maximum = 35ms, Average = 21ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    1   9 ms   8 ms   7 ms   192.5.4.1   2   7 ms   7 ms  13 ms   192.5.7.18   3  11 ms  13 ms  13 ms   192.5.7.13   4  14 ms  11 ms  25 ms   192.5.0.2  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/2 6</b>	CALI Estu PC300 <b>192.5.1.47/ 23</b>	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=33ms TTL=125 Reply from 192.5.1.47: bytes=32 time=25ms TTL=125 Reply from 192.5.1.47: bytes=32 time=26ms TTL=125 Reply from 192.5.1.47: bytes=32 time=15ms TTL=125  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 15ms, Maximum = 33ms, Average = 24ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    1  10 ms   8 ms   9 ms   192.5.4.1   2  10 ms   9 ms  10 ms   192.5.7.18   3  14 ms  12 ms  18 ms   192.5.7.13   4  22 ms  14 ms  19 ms   192.5.1.47  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/2 6</b>	CALI Admon PC1 <b>192.5.2.2/2 5</b>	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=28ms TTL=125 Reply from 192.5.2.2: bytes=32 time=21ms TTL=125 Reply from 192.5.2.2: bytes=32 time=27ms TTL=125 Reply from 192.5.2.2: bytes=32 time=25ms TTL=125  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 28ms, Average = 25ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    1   8 ms   4 ms   7 ms   192.5.4.1   2   9 ms  16 ms   8 ms   192.5.7.18   3  14 ms  20 ms  19 ms   192.5.7.13   4  21 ms  19 ms  25 ms   192.5.2.2  Trace complete. </pre>
NEIVA Coordinaci on PC1 <b>192.5.4.2/2 6</b>	CALI Admon PC100 <b>192.5.2.101 /25</b>	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=31ms TTL=125 Reply from 192.5.2.101: bytes=32 time=21ms TTL=125 Reply from 192.5.2.101: bytes=32 time=26ms TTL=125 Reply from 192.5.2.101: bytes=32 time=28ms TTL=125  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 21ms, Maximum = 31ms, Average = 26ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    1   6 ms   6 ms   8 ms   192.5.4.1   2   6 ms  11 ms  14 ms   192.5.7.18   3  16 ms  18 ms  19 ms   192.5.7.13   4  25 ms  26 ms  25 ms   192.5.2.101  Trace complete. </pre>
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	PASTO Convenio PC1 <b>192.5.3.2/2 5</b>	<pre> PC&gt;ping 192.5.3.2  Pinging 192.5.3.2 with 32 bytes of data:  Reply from 192.5.3.2: bytes=32 time=28ms TTL=126 Reply from 192.5.3.2: bytes=32 time=19ms TTL=126 Reply from 192.5.3.2: bytes=32 time=20ms TTL=126 Reply from 192.5.3.2: bytes=32 time=22ms TTL=126  Ping statistics for 192.5.3.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 19ms, Maximum = 28ms, Average = 22ms </pre>	<pre> PC&gt;tracert 192.5.3.2  Tracing route to 192.5.3.2 over a maximum of 30 hops:    1   7 ms   8 ms   7 ms   192.5.4.1   2  10 ms   7 ms   7 ms   192.5.7.18   3  21 ms  12 ms  11 ms   192.5.3.2  Trace complete. </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	PASTO Convenio PC125 <b>192.5.3.126 /25</b>	<pre> PC&gt;ping 192.5.3.126 Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=13ms TTL=126 Reply from 192.5.3.126: bytes=32 time=16ms TTL=126 Reply from 192.5.3.126: bytes=32 time=11ms TTL=126 Reply from 192.5.3.126: bytes=32 time=14ms TTL=126  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 11ms, Maximum = 16ms, Average = 13ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  15 ms  7 ms  9 ms  192.5.4.1   1  13 ms  14 ms  10 ms  192.5.7.18   2  22 ms  10 ms  15 ms  192.5.3.126  Trace complete. </pre>
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	CALI Estu PC1 <b>192.5.0.2/2 3</b>	<pre> PC&gt;ping 192.5.0.2 Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=15ms TTL=125 Reply from 192.5.0.2: bytes=32 time=24ms TTL=125 Reply from 192.5.0.2: bytes=32 time=24ms TTL=125 Reply from 192.5.0.2: bytes=32 time=24ms TTL=125  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 15ms, Maximum = 24ms, Average = 21ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  20 ms  9 ms  10 ms  192.5.4.1   1  14 ms  15 ms  7 ms  192.5.7.18   2  13 ms  16 ms  14 ms  192.5.7.13   3  20 ms  25 ms  15 ms  192.5.0.2  Trace complete. </pre>
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	CALI Estu PC300 <b>192.5.1.47/ 23</b>	<pre> PC&gt;ping 192.5.1.47 Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=20ms TTL=125 Reply from 192.5.1.47: bytes=32 time=19ms TTL=125 Reply from 192.5.1.47: bytes=32 time=23ms TTL=125 Reply from 192.5.1.47: bytes=32 time=16ms TTL=125  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 16ms, Maximum = 23ms, Average = 19ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  7 ms  7 ms  8 ms  192.5.4.1   1  8 ms  8 ms  8 ms  192.5.7.18   2  15 ms  18 ms  10 ms  192.5.7.13   3  13 ms  24 ms  24 ms  192.5.1.47  Trace complete. </pre>
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	CALI Admon PC1 <b>192.5.2.2/2 5</b>	<pre> PC&gt;ping 192.5.2.2 Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=16ms TTL=125 Reply from 192.5.2.2: bytes=32 time=16ms TTL=125 Reply from 192.5.2.2: bytes=32 time=22ms TTL=125 Reply from 192.5.2.2: bytes=32 time=24ms TTL=125  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 16ms, Maximum = 24ms, Average = 19ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  7 ms  4 ms  10 ms  192.5.4.1   1  13 ms  14 ms  10 ms  192.5.7.18   2  14 ms  14 ms  14 ms  192.5.7.13   3  28 ms  23 ms  23 ms  192.5.2.2  Trace complete. </pre>
NEIVA Coordinaci on PC50 <b>192.5.4.51/ 26</b>	CALI Admon PC100 <b>192.5.2.101 /25</b>	<pre> PC&gt;ping 192.5.2.101 Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=29ms TTL=125 Reply from 192.5.2.101: bytes=32 time=23ms TTL=125 Reply from 192.5.2.101: bytes=32 time=24ms TTL=125 Reply from 192.5.2.101: bytes=32 time=28ms TTL=125  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 23ms, Maximum = 29ms, Average = 26ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  8 ms  8 ms  7 ms  192.5.4.1   1  6 ms  11 ms  6 ms  192.5.7.18   2  17 ms  12 ms  19 ms  192.5.7.13   3  22 ms  18 ms  17 ms  192.5.2.101  Trace complete. </pre>
PASTO Convenio PC1 <b>192.5.3.2/2 5</b>	PASTO Convenio PC125 <b>192.5.3.126 /25</b>	<pre> PC&gt;ping 192.5.3.126 Pinging 192.5.3.126 with 32 bytes of data:  Reply from 192.5.3.126: bytes=32 time=24ms TTL=128 Reply from 192.5.3.126: bytes=32 time=8ms TTL=128 Reply from 192.5.3.126: bytes=32 time=6ms TTL=128 Reply from 192.5.3.126: bytes=32 time=10ms TTL=128  Ping statistics for 192.5.3.126:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 6ms, Maximum = 24ms, Average = 11ms </pre>	<pre> PC&gt;tracert 192.5.3.126  Tracing route to 192.5.3.126 over a maximum of 30 hops:    0  24 ms  9 ms  7 ms  192.5.3.126  Trace complete. </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PASTO Convenio PC1 <b>192.5.3.2/2</b> <b>5</b>	CALI Estu PC1 <b>192.5.0.2/2</b> <b>3</b>	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=15ms TTL=126 Reply from 192.5.0.2: bytes=32 time=22ms TTL=126 Reply from 192.5.0.2: bytes=32 time=10ms TTL=126 Reply from 192.5.0.2: bytes=32 time=14ms TTL=126  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 10ms, Maximum = 22ms, Average = 15ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  6 ms   9 ms   10 ms   192.5.3.1   1  11 ms  13 ms  11 ms   192.5.7.13   2  13 ms  14 ms  12 ms   192.5.0.2  Trace complete. </pre>
PASTO Convenio PC1 <b>192.5.3.2/2</b> <b>5</b>	CALI Estu PC300 <b>192.5.1.47/</b> <b>23</b>	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=20ms TTL=126 Reply from 192.5.1.47: bytes=32 time=14ms TTL=126 Reply from 192.5.1.47: bytes=32 time=22ms TTL=126 Reply from 192.5.1.47: bytes=32 time=20ms TTL=126  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 14ms, Maximum = 22ms, Average = 19ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  21 ms   7 ms   7 ms   192.5.3.1   1  10 ms  10 ms   7 ms   192.5.7.13   2  10 ms  12 ms  22 ms   192.5.1.47  Trace complete. </pre>
PASTO Convenio PC1 <b>192.5.3.2/2</b> <b>5</b>	CALI Admon PC1 <b>192.5.2.2/2</b> <b>5</b>	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=12ms TTL=126 Reply from 192.5.2.2: bytes=32 time=18ms TTL=126 Reply from 192.5.2.2: bytes=32 time=21ms TTL=126 Reply from 192.5.2.2: bytes=32 time=25ms TTL=126  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 12ms, Maximum = 25ms, Average = 19ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  6 ms   9 ms   9 ms   192.5.3.1   1  9 ms   6 ms  10 ms   192.5.7.13   2  22 ms  19 ms  13 ms   192.5.2.2  Trace complete. </pre>
PASTO Convenio PC1 <b>192.5.3.2/2</b> <b>5</b>	CALI Admon PC100 <b>192.5.2.101</b> <b>/25</b>	<pre> PC&gt;ping 192.5.2.101  Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=19ms TTL=126 Reply from 192.5.2.101: bytes=32 time=11ms TTL=126 Reply from 192.5.2.101: bytes=32 time=23ms TTL=126 Reply from 192.5.2.101: bytes=32 time=23ms TTL=126  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 11ms, Maximum = 23ms, Average = 19ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  7 ms   6 ms   7 ms   192.5.3.1   1  9 ms  13 ms  16 ms   192.5.7.13   2  11 ms  19 ms  22 ms   192.5.2.101  Trace complete. </pre>
PASTO Convenio PC125 <b>192.5.3.12</b> <b>6/25</b>	CALI Estu PC1 <b>192.5.0.2/2</b> <b>3</b>	<pre> PC&gt;ping 192.5.0.2  Pinging 192.5.0.2 with 32 bytes of data:  Reply from 192.5.0.2: bytes=32 time=31ms TTL=126 Reply from 192.5.0.2: bytes=32 time=12ms TTL=126 Reply from 192.5.0.2: bytes=32 time=23ms TTL=126 Reply from 192.5.0.2: bytes=32 time=18ms TTL=126  Ping statistics for 192.5.0.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 12ms, Maximum = 31ms, Average = 21ms </pre>	<pre> PC&gt;tracert 192.5.0.2  Tracing route to 192.5.0.2 over a maximum of 30 hops:    0  6 ms   9 ms   8 ms   192.5.3.1   1  7 ms   9 ms   8 ms   192.5.7.13   2  10 ms  11 ms  10 ms   192.5.0.2  Trace complete. </pre>
PASTO Convenio PC125 <b>192.5.3.12</b> <b>6/25</b>	CALI Estu PC300 <b>192.5.1.47/</b> <b>23</b>	<pre> PC&gt;ping 192.5.1.47  Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=31ms TTL=126 Reply from 192.5.1.47: bytes=32 time=28ms TTL=126 Reply from 192.5.1.47: bytes=32 time=18ms TTL=126 Reply from 192.5.1.47: bytes=32 time=18ms TTL=126  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 18ms, Maximum = 31ms, Average = 22ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  10 ms   9 ms   9 ms   192.5.3.1   1  9 ms  13 ms  13 ms   192.5.7.13   2  17 ms  14 ms  19 ms   192.5.1.47  Trace complete. </pre>
PASTO Convenio PC125 <b>192.5.3.12</b> <b>6/25</b>	CALI Admon PC1 <b>192.5.2.2/2</b> <b>5</b>	<pre> PC&gt;ping 192.5.2.2  Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=30ms TTL=126 Reply from 192.5.2.2: bytes=32 time=20ms TTL=126 Reply from 192.5.2.2: bytes=32 time=21ms TTL=126 Reply from 192.5.2.2: bytes=32 time=20ms TTL=126  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 20ms, Maximum = 30ms, Average = 22ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  8 ms   2 ms   9 ms   192.5.3.1   1  7 ms  15 ms   9 ms   192.5.7.13   2  21 ms  15 ms  21 ms   192.5.2.2  Trace complete. </pre>

Desde	Hacia	Resultados Ping	Resultados Tracert
PASTO Convenio PC125 <b>192.5.3.12</b> <b>6/25</b>	CALI Admon PC100 <b>192.5.2.101</b> <b>/25</b>	<pre> PC&gt;ping 192.5.2.101 Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=11ms TTL=126 Reply from 192.5.2.101: bytes=32 time=21ms TTL=126 Reply from 192.5.2.101: bytes=32 time=20ms TTL=126 Reply from 192.5.2.101: bytes=32 time=20ms TTL=126  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 11ms, Maximum = 21ms, Average = 18ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  28 ms  9 ms  5 ms  192.5.3.1   1  11 ms  13 ms  9 ms  192.5.7.13   2  11 ms  21 ms  22 ms  192.5.2.101  Trace complete. </pre>
CALI Estu PC1 <b>192.5.0.2/2</b> <b>3</b>	CALI Estu PC300 <b>192.5.1.47/</b> <b>23</b>	<pre> PC&gt;ping 192.5.1.47 Pinging 192.5.1.47 with 32 bytes of data:  Reply from 192.5.1.47: bytes=32 time=19ms TTL=128 Reply from 192.5.1.47: bytes=32 time=7ms TTL=128 Reply from 192.5.1.47: bytes=32 time=10ms TTL=128 Reply from 192.5.1.47: bytes=32 time=9ms TTL=128  Ping statistics for 192.5.1.47:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 7ms, Maximum = 19ms, Average = 11ms </pre>	<pre> PC&gt;tracert 192.5.1.47  Tracing route to 192.5.1.47 over a maximum of 30 hops:    0  7 ms  3 ms  9 ms  192.5.1.47  Trace complete. </pre>
CALI Estu PC1 <b>192.5.0.2/2</b> <b>3</b>	CALI Admon PC1 <b>192.5.2.2/2</b> <b>5</b>	<pre> PC&gt;ping 192.5.2.2 Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=11ms TTL=127 Reply from 192.5.2.2: bytes=32 time=11ms TTL=127 Reply from 192.5.2.2: bytes=32 time=14ms TTL=127 Reply from 192.5.2.2: bytes=32 time=17ms TTL=127  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 11ms, Maximum = 17ms, Average = 13ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  11 ms  5 ms  9 ms  192.5.0.1   1  16 ms  15 ms  17 ms  192.5.2.2  Trace complete. </pre>
CALI Estu PC1 <b>192.5.0.2/2</b> <b>3</b>	CALI Admon PC100 <b>192.5.2.101</b> <b>/25</b>	<pre> PC&gt;ping 192.5.2.101 Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=45ms TTL=127 Reply from 192.5.2.101: bytes=32 time=12ms TTL=127 Reply from 192.5.2.101: bytes=32 time=11ms TTL=127 Reply from 192.5.2.101: bytes=32 time=14ms TTL=127  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 11ms, Maximum = 45ms, Average = 20ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  8 ms  7 ms  8 ms  192.5.0.1   1  13 ms  7 ms  18 ms  192.5.2.101  Trace complete. </pre>
CALI Estu PC300 <b>192.5.1.47/</b> <b>23</b>	CALI Admon PC1 <b>192.5.2.2/2</b> <b>5</b>	<pre> PC&gt;ping 192.5.2.2 Pinging 192.5.2.2 with 32 bytes of data:  Reply from 192.5.2.2: bytes=32 time=8ms TTL=127 Reply from 192.5.2.2: bytes=32 time=16ms TTL=127 Reply from 192.5.2.2: bytes=32 time=16ms TTL=127 Reply from 192.5.2.2: bytes=32 time=8ms TTL=127  Ping statistics for 192.5.2.2:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 8ms, Maximum = 16ms, Average = 12ms </pre>	<pre> PC&gt;tracert 192.5.2.2  Tracing route to 192.5.2.2 over a maximum of 30 hops:    0  8 ms  6 ms  6 ms  192.5.0.1   1  16 ms  18 ms  19 ms  192.5.2.2  Trace complete. </pre>
CALI Estu PC300 <b>192.5.1.47/</b> <b>23</b>	CALI Admon PC100 <b>192.5.2.101</b> <b>/25</b>	<pre> PC&gt;ping 192.5.2.101 Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=10ms TTL=127 Reply from 192.5.2.101: bytes=32 time=20ms TTL=127 Reply from 192.5.2.101: bytes=32 time=16ms TTL=127 Reply from 192.5.2.101: bytes=32 time=16ms TTL=127  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 10ms, Maximum = 20ms, Average = 16ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  10 ms  7 ms  9 ms  192.5.0.1   1  14 ms  16 ms  14 ms  192.5.2.101  Trace complete. </pre>
CALI Admon PC1 <b>192.5.2.2/2</b> <b>5</b>	CALI Admon PC100 <b>192.5.2.101</b> <b>/25</b>	<pre> PC&gt;ping 192.5.2.101 Pinging 192.5.2.101 with 32 bytes of data:  Reply from 192.5.2.101: bytes=32 time=10ms TTL=128 Reply from 192.5.2.101: bytes=32 time=6ms TTL=128 Reply from 192.5.2.101: bytes=32 time=7ms TTL=128 Reply from 192.5.2.101: bytes=32 time=11ms TTL=128  Ping statistics for 192.5.2.101:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 5ms, Maximum = 11ms, Average = 8ms </pre>	<pre> PC&gt;tracert 192.5.2.101  Tracing route to 192.5.2.101 over a maximum of 30 hops:    0  7 ms  8 ms  10 ms  192.5.2.101  Trace complete. </pre>

Tabla 22 – Verificación comandos Ping y Tracert

## CONCLUSIONES

- Se realizó de manera pertinente la transferencia de conocimientos adquiridos durante el curso de profundización CISCO (diseño e implementación de soluciones integradas LAN / WAN) en sus módulos CCNA1 y CCNA2.
- Se implementó en la empresa POLLOSAN una red corporativa para atender los clientes de las ciudades de Bogotá y Bucaramanga, y en la UNAD una red para atender las necesidades de los estudiantes y el personal administrativo.
- Se calcularon y definieron las subredes necesarias utilizadas en la topología según fue el requerimiento y la cantidad de host en cada LAN
- Se presentaron las tablas de direcciones IP indicando por cada subred la dirección de Red, dirección IP de Gateway, dirección IP del Primer PC, dirección IP del Último PC, dirección de Broadcast y la máscara de Subred
- Se configuro cada router por medio del cable de consola, definiendo para cada uno el nombre del router, las direcciones IP de las Interfaces a utilizar, la descripción de cada interface y las contraseñas para CON 0, VTY y ENABLE SECRET.
- Se realizó la configuración de la RED POLLOSAN mediante el uso de Packet Tracer
- Se Probó de manera óptima el funcionamiento de la Red POLLOSAN, mediante el comando ping t tracert

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