Sistemas Operativos y Redes
TP final Redes

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Comisión 3

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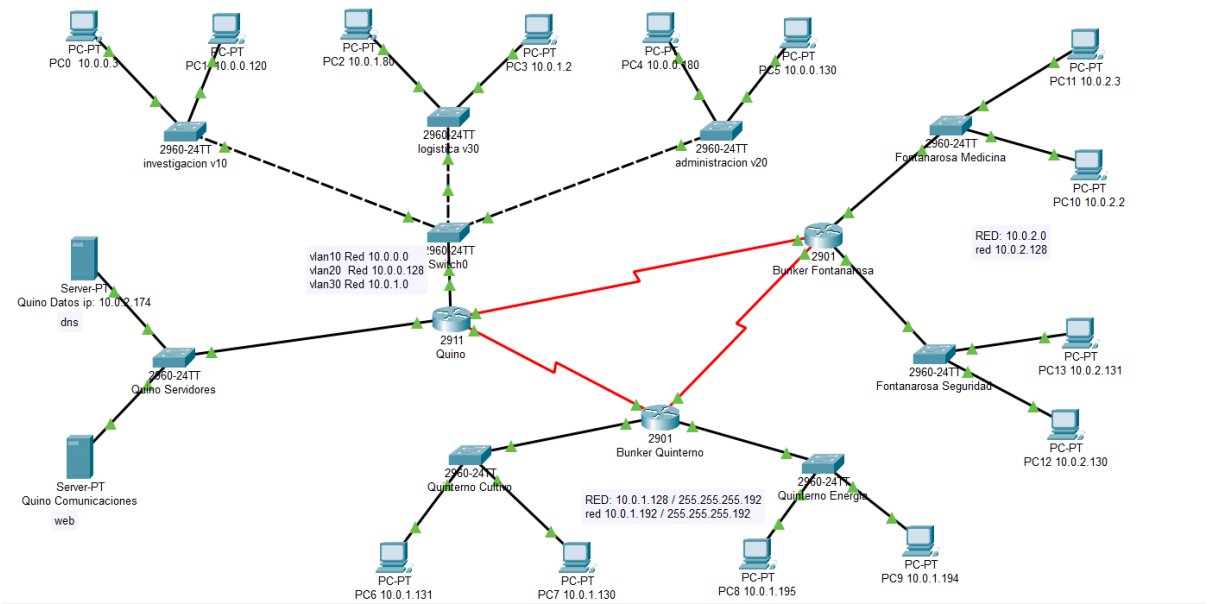
Diseño de la red:



Se solicitó diseñar la red, utilizando la red privada 10.0.0.0 la misma se subneteo por cada uno de los sectores, de cada Bunker, ajustando la cantidad de hosts necesaria para cada uno optimizando el uso de direcciones IP.

tabla de direccionamiento ip:

Bunker Quino(central):

Administración(50 usuarios)

Red 10.0.0.128/26
Submáscara de red: 255.255.255.192
Rango de hosts: 10.0.0.129 – 10.0.0.190
Broadcast: 10.0.0.191
Gateway 10.0.0.129
VLAN 20

Investigación(120 usuarios)

Red 10.0.0.0/25
Submáscara de red: 255.255.255.128
Rango de hosts: 10.0.0.1 – 10.0.0.126
Broadcast:10.0.0.127
Gateway 10.0.0.1
VLAN 10

Logística(80 usuarios)

Red 10.0.1.0/25
Submáscara de red: 255.255.255.128
Rango de hosts: 10.0.1.1 – 10.0.1.126
Broadcast: 10.0.1.127
Gateway 10.0.1.1
VLAN 30

Servidores(web y DNS):
Red: 10.0.2.172/29
Servidor DNS: 10.0.2.174
Servidor WEB:10.0.2.173
Gateway: 10.0.2.172
Broadcast: 10.0.2.179
Submáscara: 255.255.255.248

Bunker Quinterno(remoto 1):
Cultivo(60 usuarios)
Red 10.0.1.128/26
Submáscara de red: 255.255.255.192
Rango de hosts: 10.0.1.129 – 10.0.1.190
Broadcast: 10.0.1.191
Gateway 10.0.1.129

Energía(40 usuarios)
Red 10.0.1.192/26
Submáscara de red: 255.255.255.192
Rango de hosts: 10.0.1.193 – 10.0.1.254
Broadcast:10.0.1.255
Gateway 10.0.1.193

Bunker Fontanarrosa(remoto 2):
Medicina(70 usuarios)
Red 10.0.2.0/25
Submáscara de red: 255.255.255.128
Rango de hosts: 10.0.2.1 – 10.0.2.126
Broadcast: 10.0.2.127
Gateway 10.0.2.1

Seguridad(30 usuarios)
Red 10.0.2.128/27
Submáscara de red: 255.255.255.224
Rango de hosts: 10.0.2.129 – 10.0.2.158
Broadcast: 10.0.2.159
Gateway 10.0.2.129

configuración de dispositivos:
router Quino:
Configuramos la interfaz serial0/3/1 del router Quino.
Ingresando a la pestaña CLI dentro del router:
Enable Configure Terminal (Modo administrador Modo configuración
)
Interface serial0/3/1 Ingresamos a la configuración del
serial0/3/1
Ip address 10.0.2.161/30 asignamos [ip] [dns]
Clock rate 64000 Configuramos el clock en 64.000
No shutdown Cambiamos el estado a UP (lo levantamos)
Exit
Si queremos que los cambios se guarden después de reinicios:
Copy run startup-config
para cada uno de los routers.

para las vlan:

```
interface GigabitEthernet0/0.10
encapsulation dot1Q 10
ip address 10.0.0.1 255.255.255.128
!
interface GigabitEthernet0/0.20
encapsulation dot1Q 20
ip address 10.0.0.129 255.255.255.192
!
interface GigabitEthernet0/0.30
encapsulation dot1Q 30
ip address 10.0.1.1 255.255.255.192
!
interface GigabitEthernet0/1
description conectada a los servidores
ip address 10.0.2.172 255.255.255.248
duplex auto
speed auto
!
interface Serial0/3/0
description conectada a quinterno
ip address 10.0.2.181 255.255.255.252
clock rate 64000
!
interface Serial0/3/1
conectada a fontanarrosa
ip address 10.0.2.161 255.255.255.252
clock rate 64000
!
protocolo rip:
router rip
```

versión 2
network 10.0.0.0
no auto-summary

Switch:
Configuramos todas las interfaces fastEthernet de un switch,(subred vlan10)
Ingresando a la pestaña CLI dentro del switch VLAN 10:
Enable Configure Terminal (Modo administrador Modo configuración)
Interface range fastEthernet 0/1 – 10 Seleccionamos simultáneamente las interfaces de un rango para

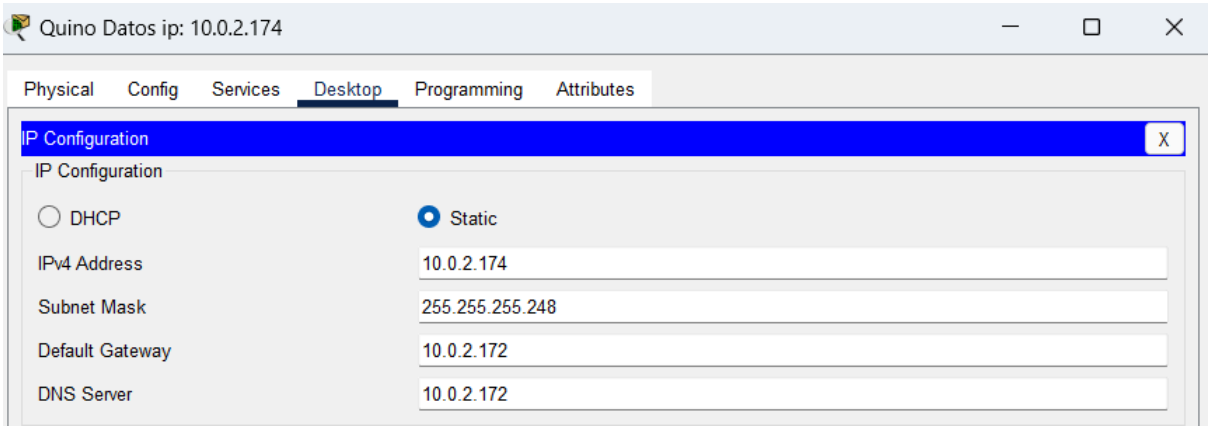
configurarlas en vlan10.

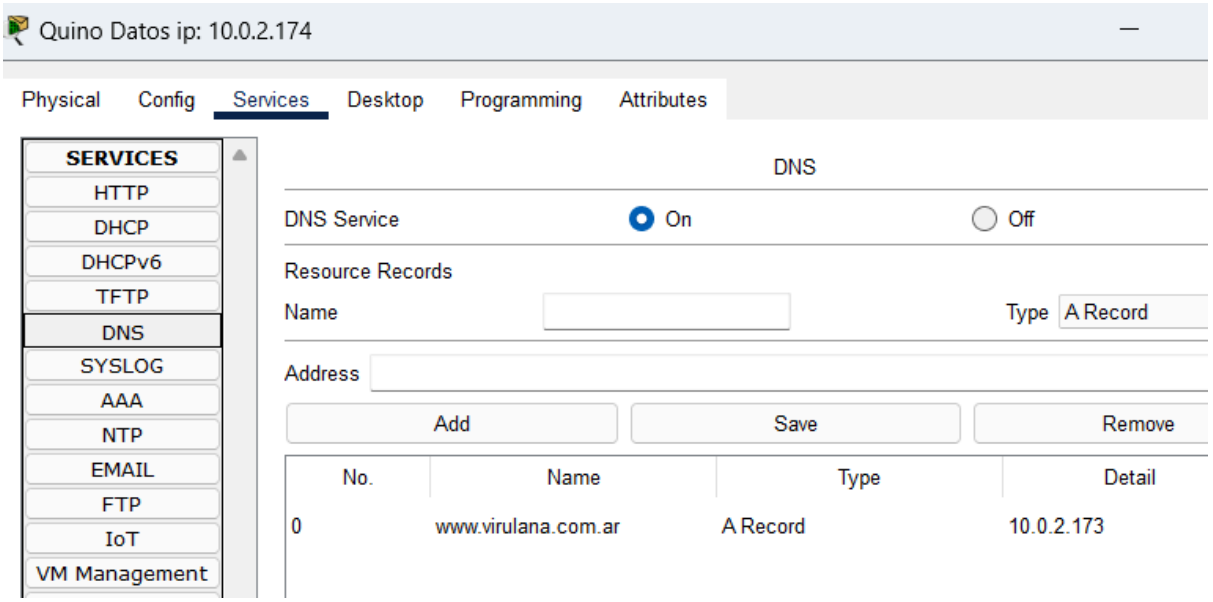
Switchport access vlan 10 Por defecto está en modo access, configuramos la vlan 10 para los puertos
Exit
Si queremos que los cambios se guarden después de reinicios:

hostname SWP
Enable Configure Terminal
interface FastEthernet0/1
switchport access vlan 30
switchport mode access
!
Enable Configure Terminal
interface FastEthernet0/2
switchport access vlan 10
switchport mode access
!
Enable Configure Terminal
interface FastEthernet0/3
switchport access vlan 20
switchport mode access
!
Enable Configure Terminal
interface FastEthernet0/4
switchport mode trunk
no ip address
shutdown
end

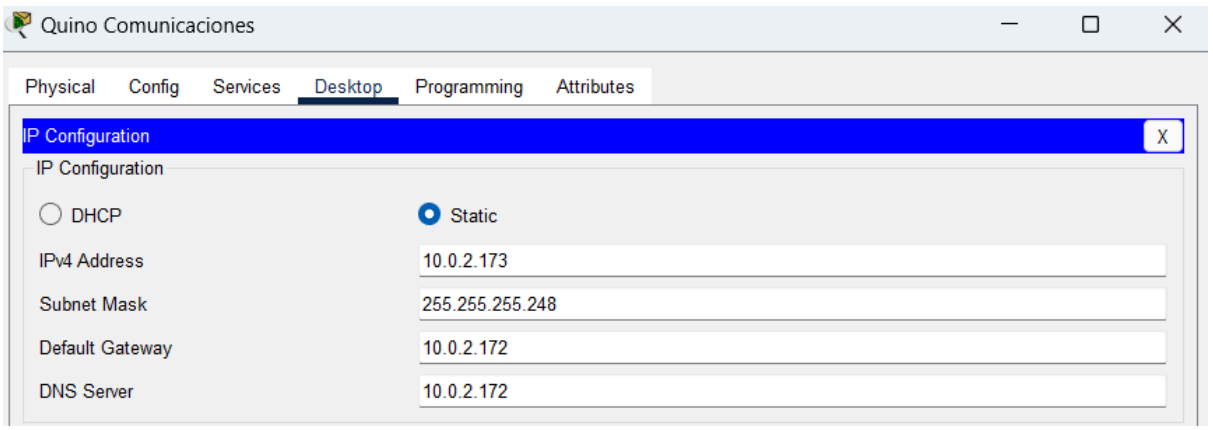
Servidores:

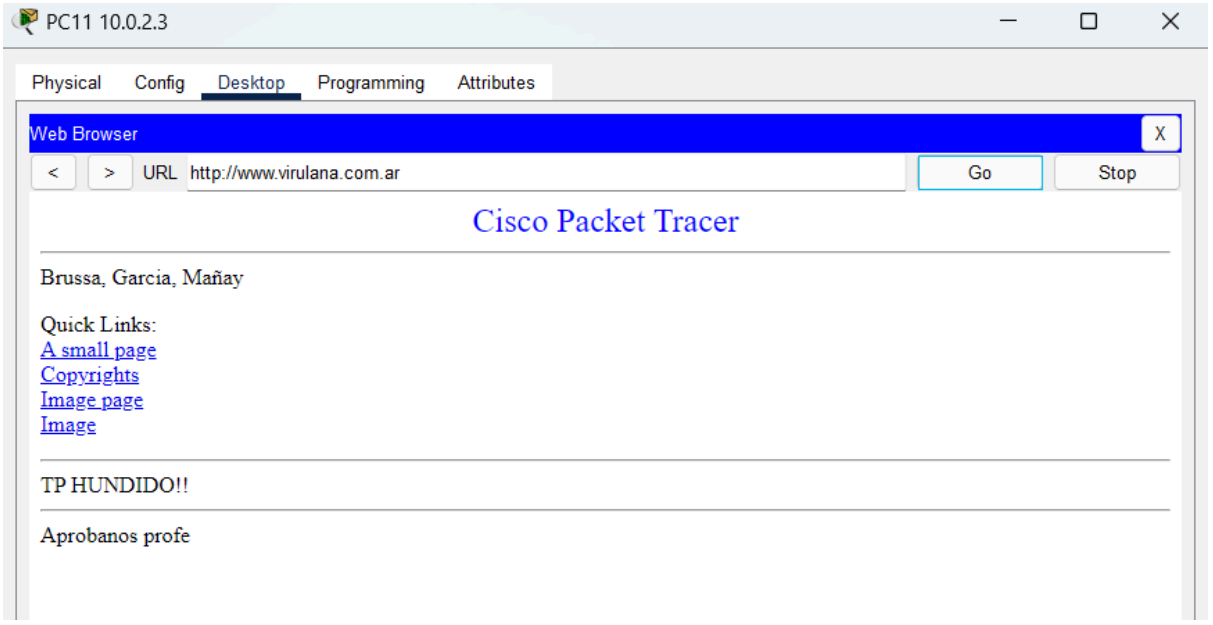
DNS: asiganamos red, ip,máscara ajustada, puerta de enlace y en services le asignamos nombre de dominio "www.virulana.com.ar".



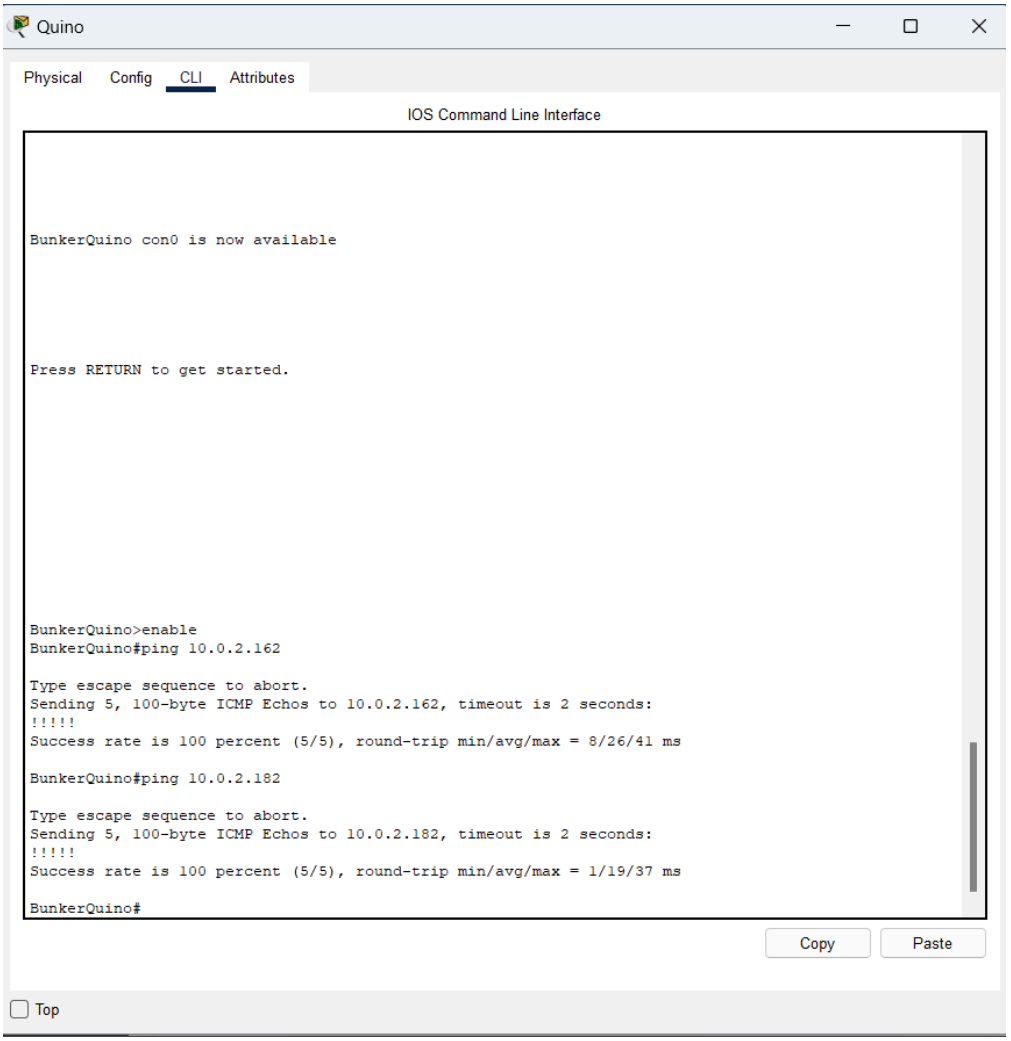


WEB: asignamos red, ip,máscara ajustada, puerta de enlace, DNS. cuando DNS hace la traducción desde el browser de las PCs podemos acceder al dominio configurado.



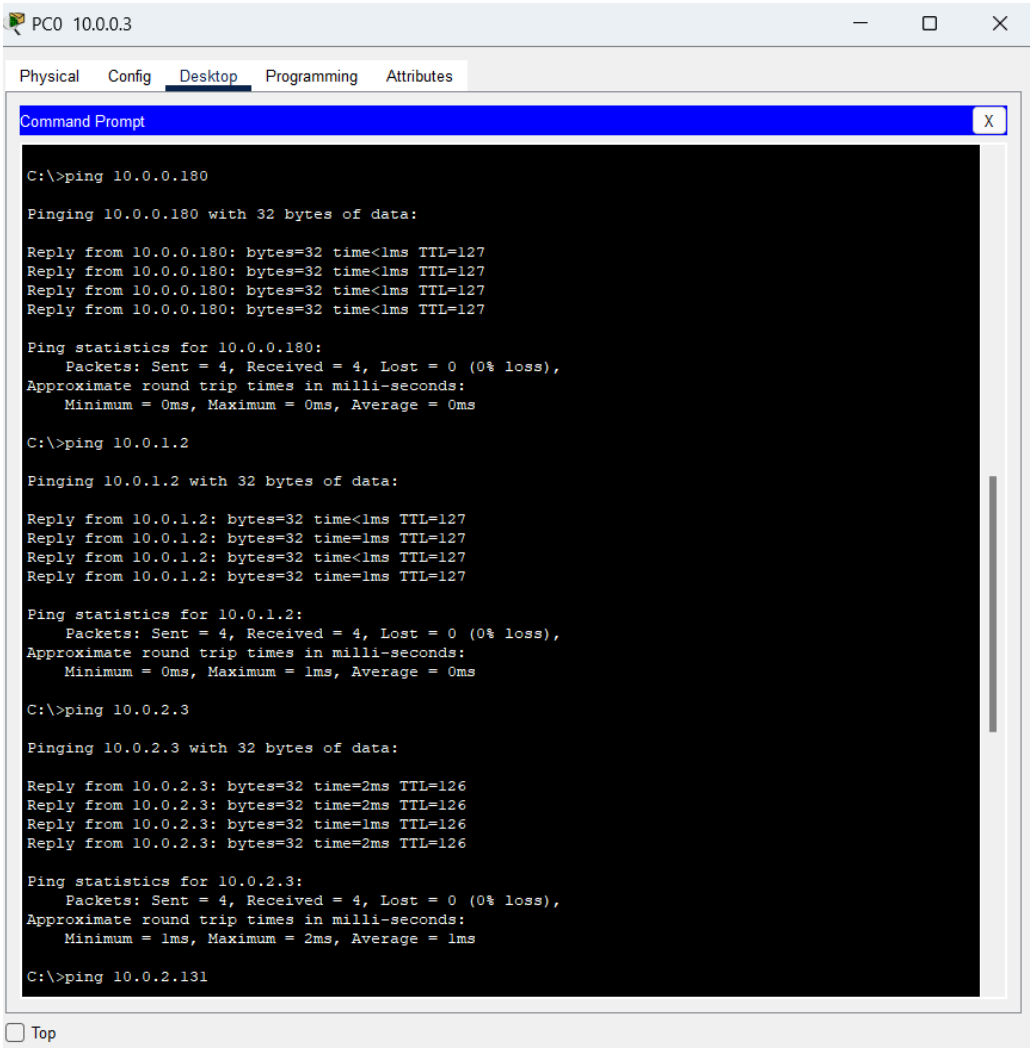


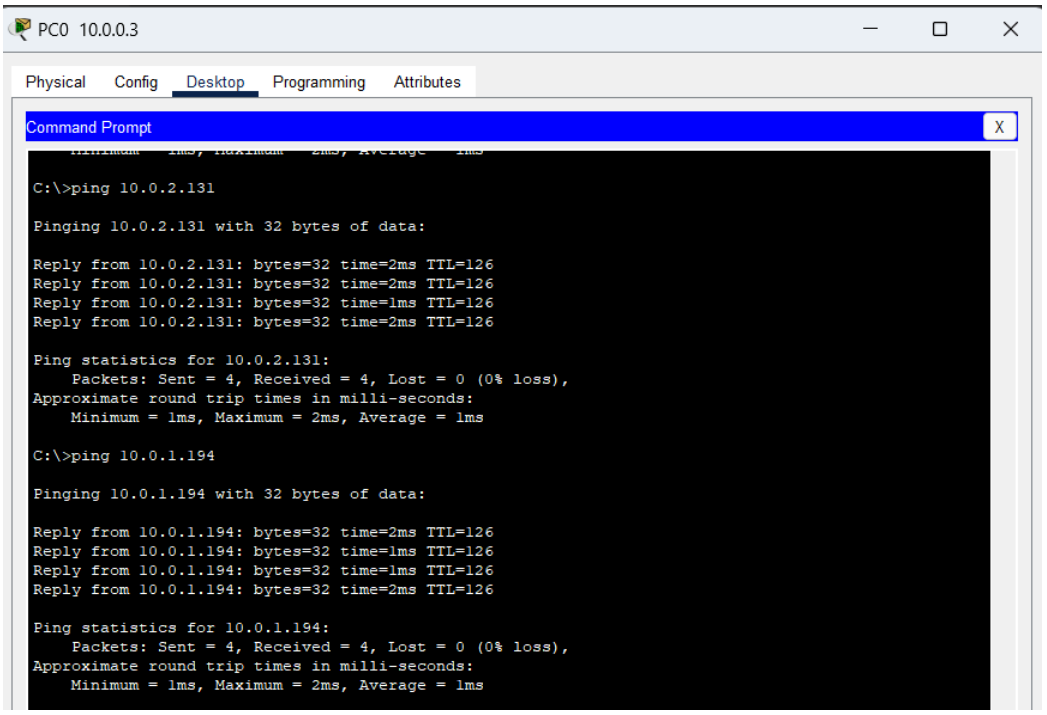
pruebas de conectividad de router a router:



pruebas de conectividad de host a host:

se hace ping desde la primera pc de vlan10 a una pc de cada lan.


PC0 10.0.0.3
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 10.0.0.180
Pinging 10.0.0.180 with 32 bytes of data:
Reply from 10.0.0.180: bytes=32 time<1ms TTL=127
Reply from 10.0.0.180: bytes=32 time<1ms TTL=127
Reply from 10.0.0.180: bytes=32 time<1ms TTL=127
Reply from 10.0.0.180: bytes=32 time<1ms TTL=127
Ping statistics for 10.0.0.180:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.0.1.2
Pinging 10.0.1.2 with 32 bytes of data:
Reply from 10.0.1.2: bytes=32 time<1ms TTL=127
Reply from 10.0.1.2: bytes=32 time=1ms TTL=127
Reply from 10.0.1.2: bytes=32 time<1ms TTL=127
Reply from 10.0.1.2: bytes=32 time=1ms TTL=127
Ping statistics for 10.0.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.0.2.3
Pinging 10.0.2.3 with 32 bytes of data:
Reply from 10.0.2.3: bytes=32 time=2ms TTL=126
Reply from 10.0.2.3: bytes=32 time=2ms TTL=126
Reply from 10.0.2.3: bytes=32 time=1ms TTL=126
Reply from 10.0.2.3: bytes=32 time=2ms TTL=126
Ping statistics for 10.0.2.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 2ms, Average = 1ms
C:\>ping 10.0.2.131
Top


PC0 10.0.0.3
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 10.0.2.131
Pinging 10.0.2.131 with 32 bytes of data:
Reply from 10.0.2.131: bytes=32 time=2ms TTL=126
Reply from 10.0.2.131: bytes=32 time=2ms TTL=126
Reply from 10.0.2.131: bytes=32 time=1ms TTL=126
Reply from 10.0.2.131: bytes=32 time=2ms TTL=126
Ping statistics for 10.0.2.131:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 2ms, Average = 1ms
C:\>ping 10.0.1.194
Pinging 10.0.1.194 with 32 bytes of data:
Reply from 10.0.1.194: bytes=32 time=2ms TTL=126
Reply from 10.0.1.194: bytes=32 time=1ms TTL=126
Reply from 10.0.1.194: bytes=32 time=1ms TTL=126
Reply from 10.0.1.194: bytes=32 time=2ms TTL=126
Ping statistics for 10.0.1.194:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 2ms, Average = 1ms

conclusiones:

El trabajo resultó difícil de realizar ya que las explicaciones en los video no alcanzaban para poder realizar el mismo. Fue un desafío para los tres ya que todos realizamos otros trabajos y cursamos otras materias, a pesar de ello se pudo realizar que es lo más importante. Con más tiempo y más material podría realizarse un poco más limpio.