Evaluación Práctica: Red de Finanzas y Soporte - Soporte IT

En esta práctica evaluativa, el estudiante deberá configurar, diagnosticar y documentar una red compuesta por dos áreas interconectadas (Finanzas y Soporte), aplicando conocimientos clave en soporte técnico de redes.

Ejercicios Prácticos

1. Configuración de direccionamiento IP

• Asigna direcciones IP y máscaras a:

- PC Finanzas

```
Device Name: Finanzas
Device Model: PC-PT

Port            Link   IP Address          IPv6 Address                            MAC Address
FastEthernet0   Up     192.168.37.10/24    <not set>                               0003.E457.BBB6
Bluetooth       Down   <not set>           <not set>                               0001.C984.E71B

Gateway: 192.168.37.1
DNS Server: <not set>
Line Number:  <not set>

Physical Location: Intercity > Home City > Corporate Office > Finanzas
```

- Laptop Soporte

```
Device Name: Soporte
Device Model: Laptop-PT

Port            Link   IP Address          IPv6 Address                            MAC Address
FastEthernet0   Up     192.168.38.10/24    <not set>                               0001.4345.118B
Bluetooth       Down   <not set>           <not set>                               0060.3E71.3DEE

Gateway: 192.168.38.1
DNS Server: <not set>
Line Number:  <not set>

Physical Location: Intercity > Home City > Corporate Office > Soporte
```

- Interfaces de cada router (GigabitEthernet y Serial)

• Verifica conectividad con ping

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.38.10

Pinging 192.168.38.10 with 32 bytes of data:

Reply from 192.168.38.10: bytes=32 time=1ms TTL=126
Reply from 192.168.38.10: bytes=32 time=1ms TTL=126
Reply from 192.168.38.10: bytes=32 time=1ms TTL=126
Reply from 192.168.38.10: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.38.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

Finanzas-Soporte

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.37.10

Pinging 192.168.37.10 with 32 bytes of data:

Reply from 192.168.37.10: bytes=32 time=3ms TTL=126
Reply from 192.168.37.10: bytes=32 time=1ms TTL=126
Reply from 192.168.37.10: bytes=32 time=1ms TTL=126
Reply from 192.168.37.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.37.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms
```

Soporte-Finanzas

- Usa ipconfig y show ip interface brief para validar

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::203:E4FF:FE57:BBB6
   IPv6 Address.....: ::
   IPv4 Address.....: 192.168.37.10
   Subnet Mask.....: 255.255.255.0
   Default Gateway.....: ::
                                 192.168.37.1

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0
```

Finanzas

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::201:43FF:FE45:118B
   IPv6 Address.....: ::
   IPv4 Address.....: 192.168.38.10
   Subnet Mask.....: 255.255.255.0
   Default Gateway.....: ::
                                 192.168.38.1

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0
```

Soporte

2. Configuración de rutas estáticas

• Configura rutas estáticas en ambos routers para llegar a la red opuesta

Finanzas

```
Router#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.37.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  administratively down down
Serial0/1/0            10.0.0.1        YES manual up                    up
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

Soporte

```
Router#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.38.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  administratively down down
Serial0/1/0            10.0.0.2        YES manual up                    up
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

• Verifica conectividad entre dispositivos con ping

Finanzas-Soporte

```
Router#ping 192.168.38.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.38.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/14/48 ms
```

Soporte-Finanzas

```
Router#ping 192.168.37.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.37.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/21/33 ms
```

3. Configuración de seguridad básica

• Cambia el nombre del router

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R.Finanzas
R.Finanzas(config)#
```

```
Router(config)#hostname R.Soporte
R.Soporte(config)#
```

• Establece contraseña en consola y acceso remoto (VTY)

```
R.Finanzas(config)#line console 0
R.Finanzas(config-line)#password cisco
R.Finanzas(config-line)#login
R.Finanzas(config-line)#exit
R.Finanzas(config)#line vty 0 4
R.Finanzas(config-line)#password cisco
R.Finanzas(config-line)#login
R.Finanzas(config-line)#exit
R.Finanzas(config)#
```

```
R.Soporte(config)#line console 0
R.Soporte(config-line)#password cisco
R.Soporte(config-line)#login
R.Soporte(config-line)#exit
R.Soporte(config)#line vty 0 4
R.Soporte(config-line)#password cisco
R.Soporte(config-line)#login
R.Soporte(config-line)#exit
R.Soporte(config)#
```

• Encripta contraseñas

```
R.Finanzas(config)#service password-encryption
R.Finanzas(config)#
```

```
R.Soporte(config)#service password-encryption
R.Soporte(config)#
```

• Configura un mensaje de banner

```
R.Finanzas(config)#banner motd ADVERTENCIA:NO ACCEDAS A ESTE EQUIPO SI NO ERES PARTE DEL
EQUIPO
R.Finanzas(config)#
```

```
R.Soporte(config)#banner motd ADVETENCIA:NO ACCEDAS A ESTE QUIPO SI NO ERES PARTE DEL
EQUIPO
R.Soporte(config)#
```

4. Pruebas de red desde Soporte IT

• Ejecuta desde Laptop Soporte:

- ping

```
Router#ping 192.168.37.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.37.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/21/33 ms
```

- tracert

```
C:\>tracert 192.168.37.10

Tracing route to 192.168.37.10 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.38.1
  2    1 ms      1 ms      0 ms      10.0.0.1
  3    0 ms      0 ms      0 ms      192.168.37.10

Trace complete.
```

- nslookup (si aplica)
- ipconfig /all

```
C:\>ipconfig/all
Invalid Command.
```

No aplica ya que packet usa comandos mas simplificados, en este caso lo correcto seria usar ipconfig

• Desde routers: show cdp neighbors, show running-config, show ip route

```
R.Finanzas#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme    Capability   Platform    Port ID
Switch       Gig 0/0          131            S       2960        Fas 0/2
R.Soporte    Ser 0/1/0        140            R       C1900       Ser 0/1/0
R.Finanzas#

R.Finanzas#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/30 is directly connected, Serial0/1/0
L       10.0.0.1/32 is directly connected, Serial0/1/0
S    192.168.2.0/24 [1/0] via 10.0.0.2
     192.168.37.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.37.0/24 is directly connected, GigabitEthernet0/0
L       192.168.37.1/32 is directly connected, GigabitEthernet0/0
S    192.168.38.0/24 [1/0] via 10.0.0.2
```

```
R.Soporte#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID     Local Intrfce   Holdtme    Capability   Platform     Port ID
Switch        Gig 0/0          142            S       2960         Fas 0/2
R.Finanzas    Ser 0/1/0        142            R       C1900        Ser 0/1/0
R.Soporte#
```

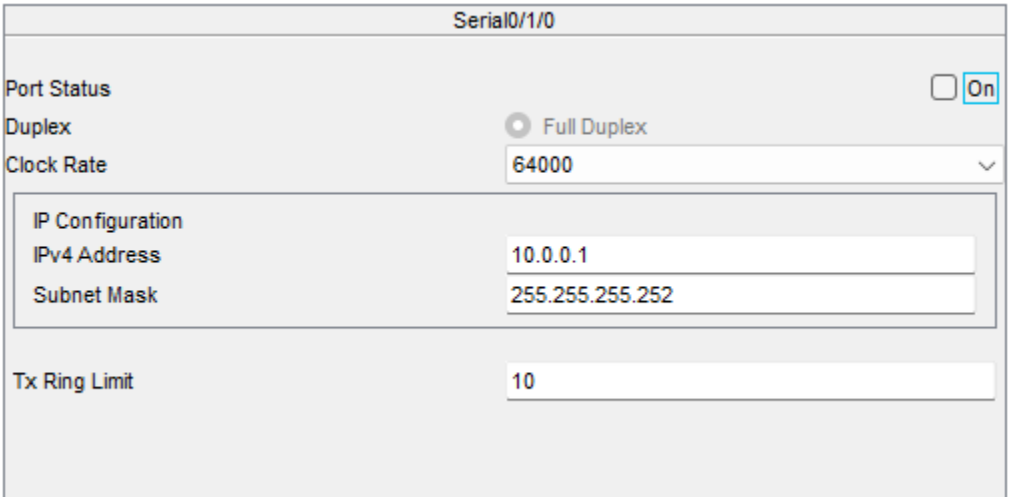
```
R.Soporte#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/30 is directly connected, Serial0/1/0
L       10.0.0.2/32 is directly connected, Serial0/1/0
S    192.168.1.0/24 [1/0] via 10.0.0.1
S    192.168.37.0/24 [1/0] via 10.0.0.1
     192.168.38.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.38.0/24 is directly connected, GigabitEthernet0/0
L       192.168.38.1/32 is directly connected, GigabitEthernet0/0
```

5. Simulación de una falla

• Apaga la interfaz Serial del router Finanzas



• Detecta falla usando ping, tracert, show ip interface brief

```
C:\>tracert 192.168.37.1

Tracing route to 192.168.37.1 over a maximum of 30 hops:

  1    0 ms      1 ms      1 ms      192.168.38.1
  2    0 ms      *         1 ms      192.168.38.1
  3    *         0 ms      *         Request timed out.
  4    1 ms      *         0 ms      192.168.38.1
  5    *         0 ms      *         Request timed out.
  6    1 ms      *         0 ms      192.168.38.1
  7    *         0 ms
Control-C
```

• Rehabilita interfaz y verifica recuperación

```
C:\>tracert 192.168.37.1

Tracing route to 192.168.37.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.38.1
  2    0 ms      1 ms      10 ms     192.168.37.1
```

6. Captura de tráfico (opcional)

• Usa Simulation Mode en Packet Tracer
• Envía un ping y analiza el recorrido del paquete

7. Soporte a usuario final

• Simula que Laptop Soporte no tiene conexión
• Aplica plantilla de diagnóstico paso a paso

8. Reflexión técnica

• Describe lo realizado, herramientas usadas y dificultades
• Redacta conclusiones técnicas

⍰ Rúbrica de Evaluación

Criterio	Excelente (10)	Satisfactorio (7-9)	Insuficiente (<7)
Configuración IP y conectividad	Configuración completa, verificada con pruebas	Faltan pruebas o errores menores	Errores graves o falta de configuración
Ruteo estático	Rutas correctas, conectividad total	Configuración parcial	No hay conectividad
Seguridad de routers	Contraseñas, banner y encriptación bien aplicadas	Faltan 1-2 elementos	No configurado
Pruebas de red	Uso correcto de comandos y análisis	Uso parcial	Sin comandos o mal uso
Diagnóstico de fallas	Detecta y soluciona fallas correctamente	Detecta parcialmente	No logra detectar ni resolver
Documentación y reflexión	Informe claro y completo	Informe con omisiones	No entrega o es confuso