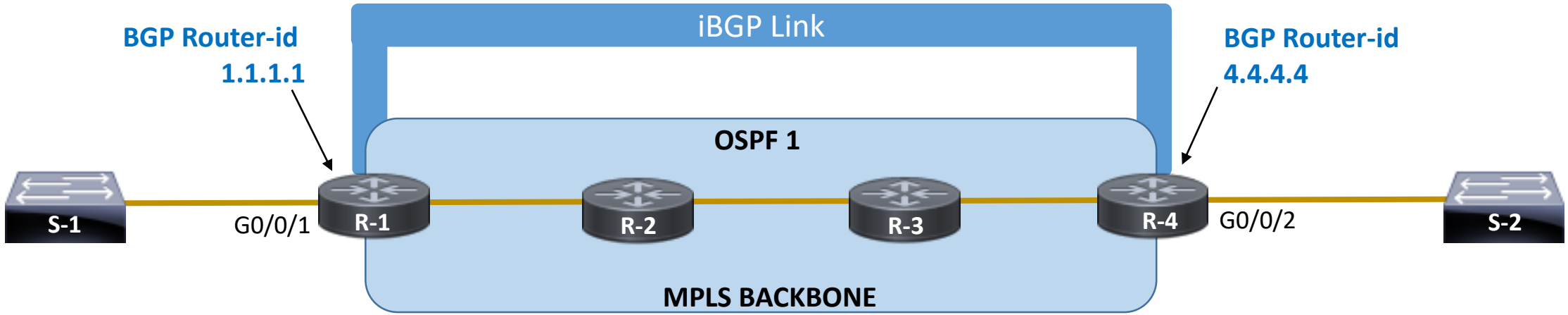
BASIC MPLS PSEUDOWIRE USING iBGP

CW2 DELISI

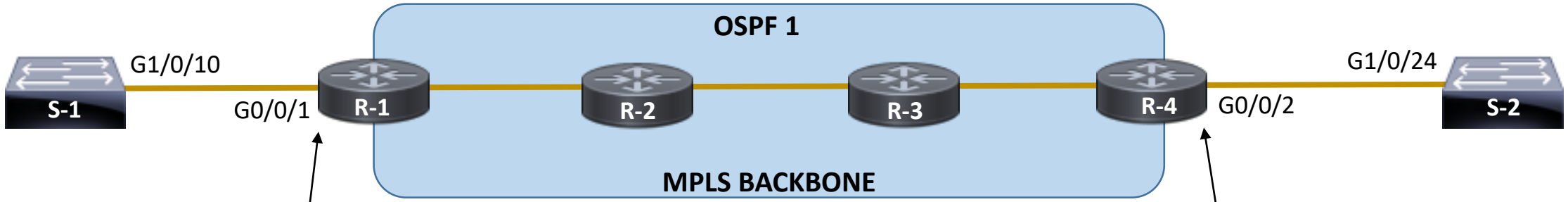
BGP USES TCP TO ESTABLISH ADJACENCIES AND THE NEIGHBORS DO NOT HAVE TO BE LAYER-2 ADJACENT. IN THIS DIAGRAM iBGP IS FORMED BETWEEN R-1 AND R-4 BY USING THE ESTABLISHED OSPF AND MPLS CONNECTIVITY. THIS CREATES WHAT IS KNOWN AS A BGP-FREE CORE.




```
R1#

Ping 4.4.4.4
!!!!!

Trace 4.4.4.4
10.0.0.2 2ms [label 2001]
10.3.3.3 2ms [label 3001]
4.4.4.4  1ms

Int loopback 1
Ip add 1.1.1.1 255.255.255.255
Ip ospf 1 area 0

Router bgp 65000
Bgp router-id 1.1.1.1
Neighbor 4.4.4.4 remote-as 65000
Neighbor 4.4.4.4 update-source lo1
```

```
R4#

Ping 1.1.1.1
!!!!!

Trace 1.1.1.1
10.3.4.3 2ms [label 3006]
10.1.0.2 2ms [label 2004]
1.1.1.1  1ms

Int loopback 1
Ip add 4.4.4.4 255.255.255.255
Ip ospf 1 area 0

Router bgp 65000
Bgp router-id 4.4.4.4
Neighbor 1.1.1.1 remote-as 65000
Neighbor 1.1.1.1 update-source lo1
```

ONCE iBGP HAS BEEN ESTABLISHED, R1 AND R4 CAN CREATE A PSEUDOWIRE LINK BETWEEN THEM. THIS IS BASICALLY A LAYER 2 CONNECTION THAT IS NOT AWARE OF THE LAYER 3 MPLS CORE NETWORK THAT IS ACTUALLY PROVIDING THE TRANSPORT. THE XCONNECT IP ADDRESS IS THE DISTANT END'S BGP ROUTER-ID. THE CIRCUIT NUMBER (100 IN THIS CASE) IS A RANDOM NUMERIC IDENTIFIER AGREED UPON BY THE TWO SIDES



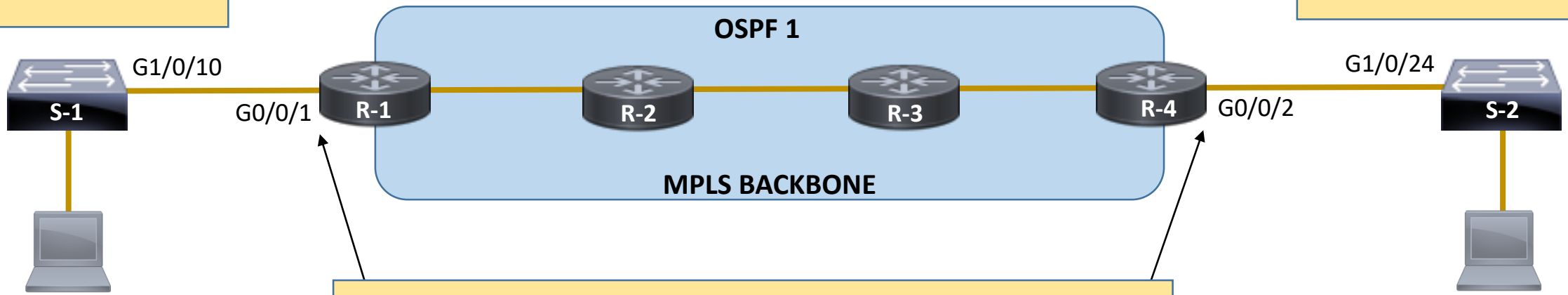

```
R1#
!
Pseudowire-class L2_CKT
Encapsulation mpls
!
Int g0/0/1
No ip address
xconnect 4.4.4.4 100 encapsulation mpls pw-class L2_CKT
```

```
R4#
!
Pseudowire-class L2_CKT
Encapsulation mpls
!
Int g0/0/2
No ip address
xconnect 1.1.1.1 100 encapsulation mpls pw-class L2_CKT
```

THE SWITCHES (S-1, S-2) EACH HAVE A LAYER-2 PORT CONNECTED TO THE R1 AND R4 PSEUDOWIRE PORTS. THE PSEUDOWIRE ALLOWS THE SWITCHES SEE EACHOTHER ON A SINGLE BROADCAST DOMAIN MAKING THE LAYER 3 NETWORK BETWEEN THEM TRANSPARENT. IF THE COMMAND "SHOW CDP NEIGHBOR" WAS RUN ON S-1, THE OUTPUT WOULD SHOW S-2'S G1/0/24 INTERFACE CONNECTED ON G1/0/10

```
S1#

Int g1/0/10
Sw mode access
Sw access vlan 20
```

```
S2#

Int g1/0/24
Sw mode access
Sw access vlan 20
```



PC1 - VLAN 20
192.168.20.6 /24

ESTABLISHED PSEUDOWIRE CIRCUIT PORTS

PC2 - VLAN 20
192.168.20.200 /24

```
PC1>

PING 192.168.20.200
!!!!!

TRACERT 192.168.20.200
1    192.168.20.200 1ms *
```

```
S1#

Show cdp neighbor

Device:              Local Interface:    Remote Interface:
S-2                  G1/0/10             G1/0/24
```