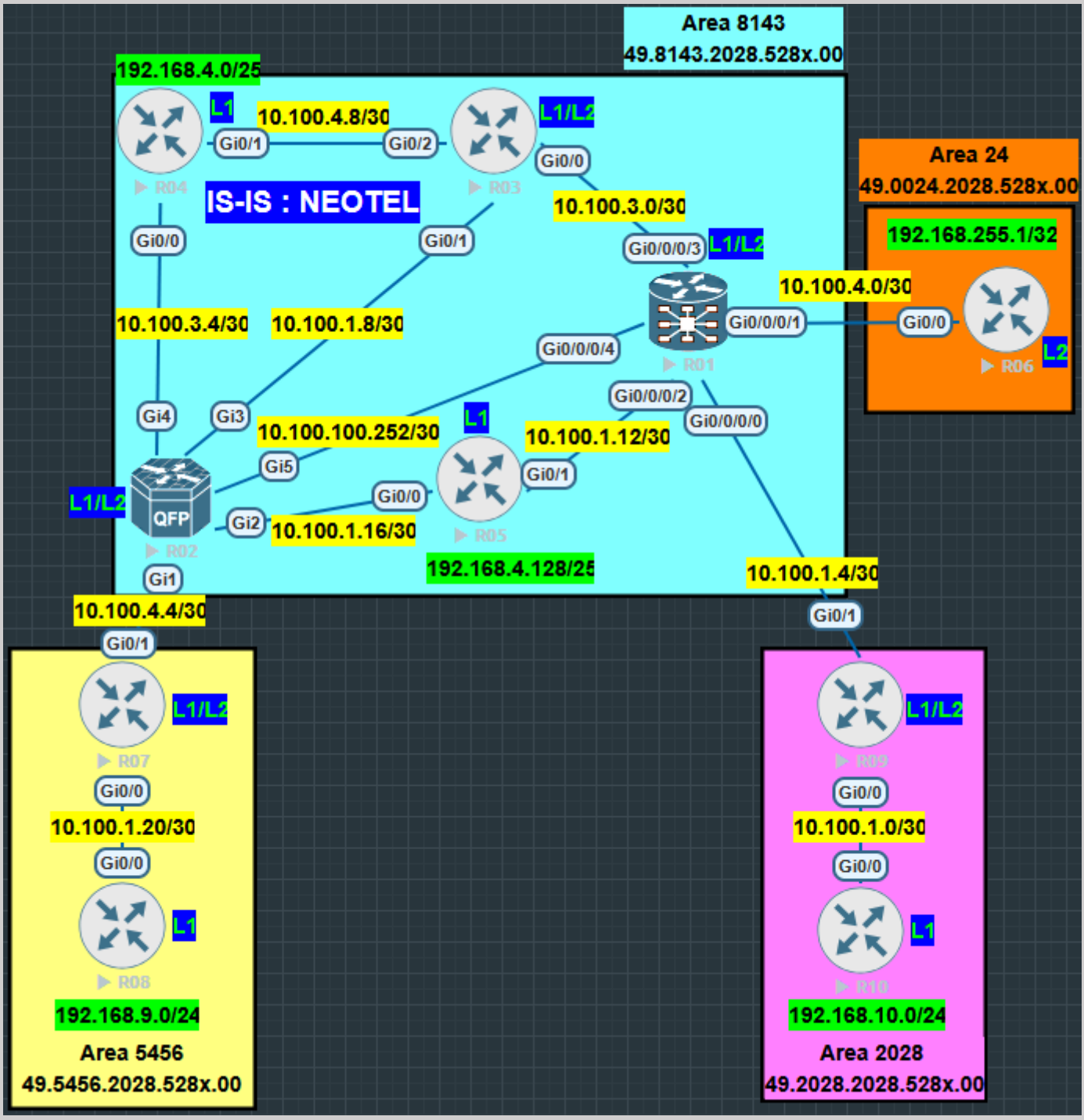
IS–IS Multi–Area & Route–Leaking



Lab Requirements

1. Configure a multi–area IS–IS network consisting of Area 8143, Area 24, Area 2028, and Area 5456.
2. Implement inter–area connectivity through L1/L2 routers and perform route leaking at R01 to provide reachability between non–backbone areas.

IS-IS Configuration

AREA-5456

R08 (Level-1)

```
router isis NEOTEL
 net 49.5456.2028.5288.00
 is-type level-1
 metric-style wide
!
interface Loopback100
 ip router isis NEOTEL
!
interface GigabitEthernet0/0
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
```

R07 (Level-1-2)

```
router isis NEOTEL
 net 49.5456.2028.5287.00
 metric-style wide
 is-type level-1-2
!
interface range gigabitEthernet 0/0-1
ip router isis NEOTEL
```

```
 isis network point-to-point
 isis hello-interval 3
!
```

AREA-2028

R10 (Level-1)

```
router isis NEOTEL
 net 49.2028.2028.5280.00
 is-type level-1
 metric-style wide
!
interface Loopback100
 ip router isis NEOTEL
!
interface GigabitEthernet0/0
 ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
```

R09 (Level-1-2)

```
router isis NEOTEL
 net 49.2028.2028.5289.00
 metric-style wide
 is-type level-1-2
!
```

```
interface range gigabitEthernet 0/0-1
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
```

AREA-8143

R01 (IOS-XR) (Level-1-2)

```
router isis NEOTEL
 net 49.8143.2028.5281.00
 is-type level-1-2
 address-family ipv4 unicast
  metric-style wide
 !
 interface GigabitEthernet0/0/0/0
  point-to-point
  hello-interval 3
  address-family ipv4 unicast
 !
 interface GigabitEthernet0/0/0/1
  point-to-point
  hello-interval 3
  address-family ipv4 unicast
 !
 interface GigabitEthernet0/0/0/2
```

```
 point-to-point
 hello-interval 3
 address-family ipv4 unicast
!
interface GigabitEthernet0/0/0/3
 point-to-point
 hello-interval 3
 address-family ipv4 unicast
!
interface GigabitEthernet0/0/0/4
 point-to-point
 hello-interval 3
 address-family ipv4 unicast
!
```

R02 (IOS-XE) (Level-1-2)

```
router isis NEOTEL
 net 49.8143.2028.5282.00
 metric-style wide
 is-type level-1-2
!
interface range gigabitEthernet 1-5
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
```

```
!
R03  (Level-1-2)
router isis NEOTEL
 net 49.8143.2028.5283.00
 metric-style wide
 is-type level-1-2
!
interface range gigabitEthernet 0/0-2
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
R04  (Level-1)
router isis NEOTEL
 net 49.8143.2028.5284.00
 is-type level-1
 metric-style wide
!
interface range gigabitEthernet 0/0-1
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
interface Loopback100
```

```
 ip router isis NEOTEL
!
```

R05 (Level-1)

```
router isis NEOTEL
 net 49.8143.2028.5285.00
 is-type level-1
 metric-style wide
!
interface range gigabitEthernet 0/0-1
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
interface Loopback100
 ip router isis NEOTEL
!
```

AREA-24

R06 (Level-2)

```
router isis NEOTEL
 net 49.0024.2028.5286.00
 is-type level-2-only
 metric-style wide
!
interface GigabitEthernet0/0
```

```
ip router isis NEOTEL
 isis network point-to-point
 isis hello-interval 3
!
interface Loopback100
 ip router isis NEOTEL
!
```

Route Leaking Level-2 into Level-1 at R01

R01 (Level-1-2)

```
route-policy ISIS-NEO
  if destination in (192.168.255.1/32) then
    pass
  endif
end-policy
!
router isis NEOTEL
 net 49.8143.2028.5281.00
 address-family ipv4 unicast
  metric-style wide
  propagate level 2 into level 1 route-policy ISIS-NEO
!
```

Verifications

*Ping results from **R08** to other remaining host networks.*

```
R08#ping 192.168.4.1 repeat 100 source lo100
Type escape sequence to abort.
Sending 100, 100-byte ICMP Echos to 192.168.4.1, timeout is 2 seconds:
Packet sent with a source address of 192.168.9.1
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 4/21/145 ms
R08#ping 192.168.4.254 repeat 100 source lo100
Type escape sequence to abort.
Sending 100, 100-byte ICMP Echos to 192.168.4.254, timeout is 2 seconds:
Packet sent with a source address of 192.168.9.1
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 4/23/142 ms
R08#ping 192.168.10.1 repeat 100 source lo100
Type escape sequence to abort.
Sending 100, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:
Packet sent with a source address of 192.168.9.1
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 6/22/142 ms
R08#ping 192.168.255.1 repeat 100 source lo100
Type escape sequence to abort.
Sending 100, 100-byte ICMP Echos to 192.168.255.1, timeout is 2 seconds:
Packet sent with a source address of 192.168.9.1
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 5/22/143 ms
```

Leaking Level-2 route into Level-1.

```
R08#sh ip route isis | in i ia
i ia     192.168.255.1 [115/50] via 10.100.1.21, 02:00:25, GigabitEthernet0/0
```

15:30, Sun, Jun 21, 2026, GMT+3 Ko Lwin (Network)