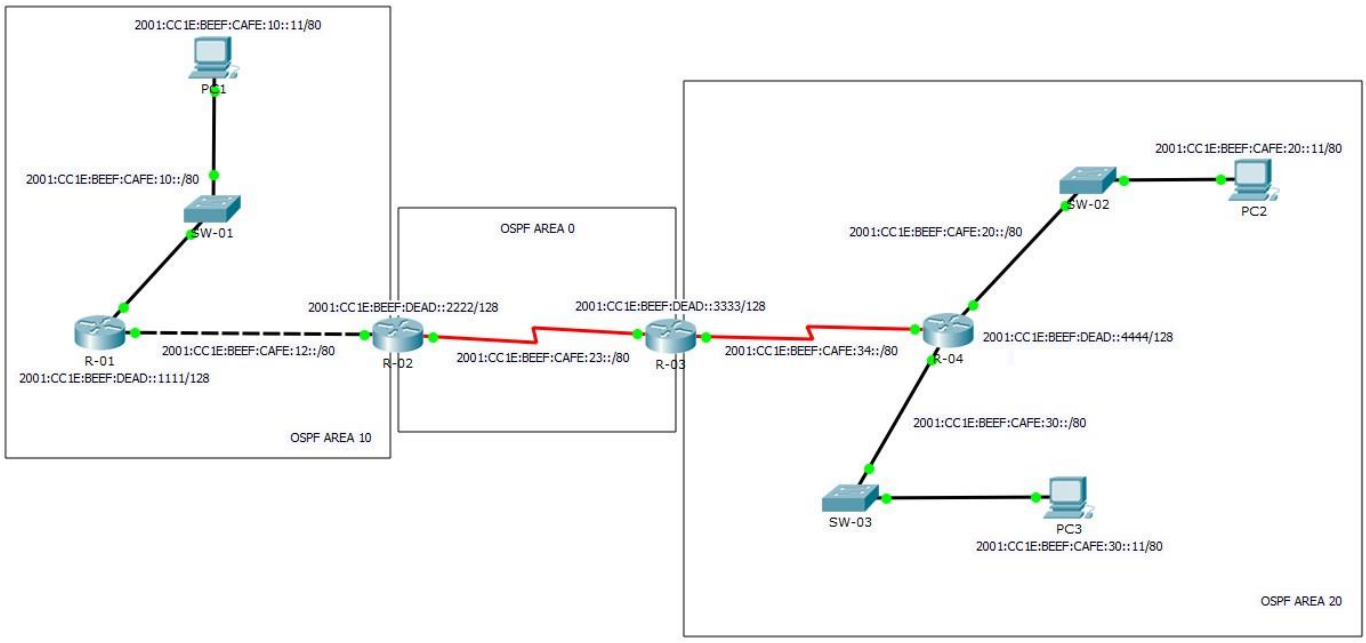
LAB-233



Hedef

Router'larda Multi Area OSPFv3 Ipv6 konfigurasyonu gerçekleştirerek farklı Ipv6 networklerinin haberleşmesini sağlamak.

PC'lerin IP konfigurasyonları

PC1	VLAN 10	2001:CC1E:BEEF:CAFE:10::11/80	Default GateWay 2001:CC1E:BEEF:CAFE:10::1
PC2	VLAN 10	2001:CC1E:BEEF:CAFE:20::11/80	Default GateWay 2001:CC1E:BEEF:CAFE:20::1
PC3	VLAN 10	2001:CC1E:BEEF:CAFE:20::11/80	Default GateWay 2001:CC1E:BEEF:CAFE:30::1

Çalışma-01

Bu çalışmamızda IPv6 taşımacılığı yapmak üzere OSPFv3 konfigurasyonu gerçekleştireceğiz.

OSPFv3 konfigurasyonu yaparken dikkat edeceğimiz hususlar şunlar olacaktır: Cisco router'lar default ayarlarında IPv6 rouiting özelliği kapalı gelir. İlk olarak bu özelliği açacak olan **ipv6 unicast-routing** komutunu aktive edeceğiz. IPv6 routing yapılandırmalarında **network** komutu kullanılmamaktadır. Direk olarak dahil etmek istediğimiz interface'e gidip interface altında gerekli olan komutu girerek, ilgili interface'in OSPFv3'e dahil olmasını sağlıyacağız. Stub networkleri **passive-interface** olarak tanımlayarak bu interfacelerden OSPFv3 *Hello* paketlerinin gitmesini engelleyeceğiz. Bunun hem gereksiz trafiği engellediğini hemde ilgi networklerden yapılabilecek OSPFv3 ataklarına karşı bir güvenlik tedbiri olduğunu belirtmek istercim. OSPFv3 yapılandırmasında bir diğer önemli husus ise mevcut interface'lerde 32 bitlik bir adres olmadığı için, ihtiyaç duyulan **Router-ID** değerini manuel olarak vermemizin bizden bekleniyor olduğudur.

OSPFv3 konfigurasyonu sayesinde routerlar üzerlerindeki ve öğrendikleri IPv6 networklerin bilgilerini, birbirleriyle paylaşacaklardır. Bu paylaşım neticesinde PC'lerin birbirleri ile IPv6 haberleşmesi sağlanmış olacaktır.

```
R-01#configure terminal
R-01(config)#ipv6 unicast-routing
R-01(config)#
R-01(config)#ipv6 router ospf 1
R-01(config-rtr)#router-id 1.1.1.1
R-01(config-rtr)#passive-interface gigabitEthernet 0/0
R-01(config-rtr)#exit
R-01(config)#interface loopback 0
R-01(config-if)#ipv6 ospf 1 area 10
R-01(config-if)#
R-01(config-if)#interface GigabitEthernet0/1
R-01(config-if)#ipv6 ospf 1 area 10
R-01(config-if)#
R-01(config-if)#interface GigabitEthernet0/0
R-01(config-if)#ipv6 ospf 1 area 10
R-01(config-if)#end

R-02#configure terminal
R-02(config)#ipv6 unicast-routing
R-02(config)#
R-02(config)#ipv6 router ospf 1
R-02(config-rtr)#router-id 2.2.2.2
R-02(config-rtr)#exit
R-02(config)#
R-02(config)#interface loopback 0
R-02(config-if)#ipv6 ospf 1 area 0
R-02(config-if)#
R-02(config-if)#interface GigabitEthernet0/1
R-02(config-if)#ipv6 ospf 1 area 10
R-02(config-if)#
R-02(config-if)#interface Serial0/0/0
R-02(config-if)#ipv6 ospf 1 area 0
R-02(config-if)#end
R-02#
```

```
R-03#configure terminal
R-03(config)#ipv6 unicast-routing
R-03(config)#
R-03(config)#ipv6 router ospf 1
R-03(config-rtr)#router-id 3.3.3.3
R-03(config-rtr)#exit
R-03(config)#
R-03(config)#interface loopback 0 R-03(config-if)#ipv6 ospf 1 area 0
R-03(config-if)#
R-03(config-if)#interface Serial0/0/0
R-03(config-if)#ipv6 ospf 1 area 0
R-03(config-if)#
R-03(config-if)#interface Serial0/0/1
R-03(config-if)#ipv6 ospf 1 area 20
R-03(config-if)#end
R-03#

R-04#configure terminal
R-04(config)#ipv6 unicast-routing
R-04(config)#
R-04(config)#ipv6 router ospf 1
R-04(config-rtr)#router-id 4.4.4.4
R-04(config-rtr)#exit
R-04(config)#
R-04(config)#interface loopback 0
R-04(config-if)#ipv6 ospf 1 area 20
R-04(config-if)#
R-04(config-if)#interface GigabitEthernet 0/0
R-04(config-if)#ipv6 ospf 1 area 20
R-04(config-if)#
R-04(config-if)#interface GigabitEthernet 0/1
R-04(config-if)#ipv6 ospf 1 area 20
R-04(config-if)#
R-04(config-if)#interface Serial0/0/0
R-04(config-if)#ipv6 ospf 1 area 20
R-04(config-if)#end
R-04#
```

Router R-01'de IPV6 Routing tablosuna bakalım.

```
R-01#sh ipv6 route

IPv6 Routing Table - 13 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external C
2001:CC1E:BEEF:CAFE:10::/80 [0/0]
     via GigabitEthernet0/0, directly connected
L   2001:CC1E:BEEF:CAFE:10::1/128 [0/0]
via GigabitEthernet0/0, receive C
2001:CC1E:BEEF:CAFE:12::/80 [0/0]
     via GigabitEthernet0/1, directly connected
L   2001:CC1E:BEEF:CAFE:12::1/128 [0/0]
via GigabitEthernet0/1, receive OI
2001:CC1E:BEEF:CAFE:20::/80 [110/130]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1 OI
2001:CC1E:BEEF:CAFE:23::/80 [110/65]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1 OI
2001:CC1E:BEEF:CAFE:30::/80 [110/130]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1 OI
2001:CC1E:BEEF:CAFE:34::/80 [110/129]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1
C   2001:CC1E:BEEF:DEAD::1111/128 [0/0]
via Loopback0, directly connected OI
2001:CC1E:BEEF:DEAD::2222/128 [110/1]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1 OI
2001:CC1E:BEEF:DEAD::3333/128 [110/65]
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1 OI
2001:CC1E:BEEF:DEAD::4444/128 [110/129]
```

```
     via FE80::260:70FF:FEB7:8802, GigabitEthernet0/1
L    FF00::/8 [0/0]      via Null0, receive

R-01#
```

Bu tablo bize bütün loopback IP'lerinin, bütün router'lar arasındaki bağlantı IP'lerinin ve en arkadaki PC networklerinin başarılı bir şekilde routerlar arasında taşındığını göstermektedir. Tabloya göre R-01 2001:CC1E:BEEF:DEAD::4444/128 networküne **129** cost uzaklıktaymış.

```
R-02#show ipv6 ospf interface

Loopback0 is up, line protocol is up
  Link Local Address FE80::260:2FFF:FE73:2784, Interface ID 5
  Area 0, Process ID 1, Instance ID 0, Router ID 2.2.2.2
  Network Type LOOPBACK, Cost: 1
  Loopback interface is treated as a stub Host
Serial0/0/0 is up, line protocol is up
  Link Local Address FE80::260:70FF:FEB7:8801, Interface ID 3
  Area 0, Process ID 1, Instance ID 0, Router ID 2.2.2.2
  Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:03   Index
2/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 3.3.3.3
  Suppress hello for 0 neighbor(s)
GigabitEthernet0/1 is up, line protocol is up
  Link Local Address FE80::260:70FF:FEB7:8802, Interface ID 2
  Area 10, Process ID 1, Instance ID 0, Router ID 2.2.2.2
  Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 2.2.2.2, local address FE80::260:70FF:FEB7:8802
  Backup Designated Router (ID) 1.1.1.1, local address FE80::260:70FF:FEB7:8802
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:03   Index
3/3, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1  (Backup Designated Router)
  Suppress hello for 0 neighbor(s)

R-02#
```

```
R-02#show ipv6 ospf neighbor

Neighbor ID     Pri   State           Dead Time   Interface ID    Interface
3.3.3.3           0   FULL/  -        00:00:34    3               Serial0/0/0
1.1.1.1           1   FULL/BDR        00:00:38    2               GigabitEthernet0/1

R-02#

R-04#show ipv6 ospf neighbor

Neighbor ID     Pri   State           Dead Time   Interface ID    Interface 3.3.3.3
0   FULL/  -        00:00:32    4               Serial0/0/0

R-04#
R-03#show ipv6 ospf

 Routing Process "ospfv3 1" with ID 3.3.3.3
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 LSA group pacing timer 240 secs
 Interface flood pacing timer 33 msecs
 Retransmission pacing timer 66 msecs
 Number of external LSA 0. Checksum Sum 0x000000
 Number of areas in this router is 2. 2 normal 0 stub 0 nssa
 Reference bandwidth unit is 100 mbps

    Area BACKBONE(0)
        Number of interfaces in this area is 2
        SPF algorithm executed 5 times
        Number of LSA 11. Checksum Sum 0x063872
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

    Area 20
        Number of interfaces in this area is 1
        SPF algorithm executed 2 times
        Number of LSA 10. Checksum Sum 0x048b3b
```

```
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

R-03#
```

```
R-01#show ipv6 ospf database

            OSPF Router with ID (1.1.1.1) (Process ID 1)
                Router Link States (Area 10)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
1.1.1.1         509         0x80000002 0            1
2.2.2.2         509         0x80000003 0            1          B

                Net Link States (Area 10)
ADV Router      Age         Seq#       Link ID (DR)   Rtr count
2.2.2.2         509         0x80000001 2              2

                Inter Area Prefix Link States (Area 10)
ADV Router      Age         Seq#       Metric Prefix
2.2.2.2         502         0x80000001 0      2001:CC1E:BEEF:DEAD::2222/128
2.2.2.2         502         0x80000002 64     2001:CC1E:BEEF:CAFE:23::/80
2.2.2.2         502         0x80000003 64     2001:CC1E:BEEF:DEAD::3333/128
2.2.2.2         502         0x80000004 128    2001:CC1E:BEEF:CAFE:34::/80
2.2.2.2         492         0x80000005 128    2001:CC1E:BEEF:DEAD::4444/128
2.2.2.2         492         0x80000006 129    2001:CC1E:BEEF:CAFE:20::/80
2.2.2.2         492         0x80000007 129    2001:CC1E:BEEF:CAFE:30::/80
                Link (Type-8) Link States (Area 10)
ADV Router      Age         Seq#       Link ID    Interface
1.1.1.1         572         0x80000002 1          Gi0/0 1.1.1.1
549         0x80000003 2          Gi0/1
2.2.2.2         542         0x80000002 2          Gi0/1
```

```
                Intra Area Prefix Link States (Area 10)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
1.1.1.1         533         0x80000004 2          0x2001      0
2.2.2.2         509         0x80000002 1          0x2002      2
R-01#
```

```
R-02#show ipv6 ospf database

            OSPF Router with ID (2.2.2.2) (Process ID 1)
                Router Link States (Area 0)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
2.2.2.2         648         0x80000003 0            1          B
3.3.3.3         645         0x80000002 0            1          B

                Inter Area Prefix Link States (Area 0)
ADV Router      Age         Seq#       Metric Prefix
2.2.2.2         663         0x80000001 1      2001:CC1E:BEEF:CAFE:12::/80
3.3.3.3         645         0x80000001 64     2001:CC1E:BEEF:CAFE:34::/80
3.3.3.3         625         0x80000002 64     2001:CC1E:BEEF:DEAD::4444/128
3.3.3.3         625         0x80000003 65     2001:CC1E:BEEF:CAFE:20::/80
3.3.3.3         625         0x80000004 65     2001:CC1E:BEEF:CAFE:30::/80
2.2.2.2         620         0x80000002 1      2001:CC1E:BEEF:DEAD::1111/128
2.2.2.2         620         0x80000003 2      2001:CC1E:BEEF:CAFE:10::/80
                Link (Type-8) Link States (Area 0)
ADV Router      Age         Seq#       Link ID    Interface
2.2.2.2         655         0x80000002 3          Se0/0/0
3.3.3.3         648         0x80000002 3          Se0/0/0
```

```
                Intra Area Prefix Link States (Area 0)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
2.2.2.2         667         0x80000002 2          0x2001      0
3.3.3.3         655         0x80000002 2          0x2001      0

           OSPF Router with ID (2.2.2.2) (Process ID 1)
               Router Link States (Area 10)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
2.2.2.2         628         0x80000003 0            1           B
1.1.1.1         627         0x80000002 0            1

               Net Link States (Area 10)
ADV Router      Age         Seq#       Link ID (DR)   Rtr count
2.2.2.2         628         0x80000001 2              2

               Inter Area Prefix Link States (Area 10)
ADV Router      Age         Seq#       Metric Prefix
2.2.2.2         620         0x80000001 0      2001:CC1E:BEEF:DEAD::2222/128
2.2.2.2         620         0x80000002 64     2001:CC1E:BEEF:CAFE:23::/80
2.2.2.2         620         0x80000003 64     2001:CC1E:BEEF:DEAD::3333/128
2.2.2.2         620         0x80000004 128    2001:CC1E:BEEF:CAFE:34::/80
2.2.2.2         610         0x80000005 128    2001:CC1E:BEEF:DEAD::4444/128
2.2.2.2         610         0x80000006 129    2001:CC1E:BEEF:CAFE:20::/80
2.2.2.2         610         0x80000007 129    2001:CC1E:BEEF:CAFE:30::/80
Link (Type-8) Link States (Area 10)
ADV Router      Age         Seq#       Link ID    Interface
2.2.2.2         661         0x80000002 2          Gi0/1
1.1.1.1         668         0x80000003 2          Gi0/1

               Intra Area Prefix Link States (Area 10)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
2.2.2.2         628         0x80000002 1          0x2002      2
1.1.1.1         652         0x80000004 2          0x2001      0

R-02#
```

```
R-03#show ipv6 ospf database

            OSPF Router with ID (3.3.3.3) (Process ID 1)

                Router Link States (Area 0)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
3.3.3.3         806         0x80000002 0            1          B
2.2.2.2         806         0x80000003 0            1          B

                Inter Area Prefix Link States (Area 0)
ADV Router      Age         Seq#       Metric Prefix
2.2.2.2         821         0x80000001 1      2001:CC1E:BEEF:CAFE:12::/80
```

```
3.3.3.3         804         0x80000001 64     2001:CC1E:BEEF:CAFE:34::/80
3.3.3.3         784         0x80000002 64     2001:CC1E:BEEF:DEAD::4444/128
3.3.3.3         784         0x80000003 65     2001:CC1E:BEEF:CAFE:20::/80
3.3.3.3         784         0x80000004 65     2001:CC1E:BEEF:CAFE:30::/80
2.2.2.2         779         0x80000002 1      2001:CC1E:BEEF:DEAD::1111/128
2.2.2.2         779         0x80000003 2      2001:CC1E:BEEF:CAFE:10::/80
                Link (Type-8) Link States (Area 0)
ADV Router      Age         Seq#       Link ID    Interface
3.3.3.3         806         0x80000002 3          Se0/0/0
2.2.2.2         813         0x80000002 3          Se0/0/0
                Intra Area Prefix Link States (Area 0)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
3.3.3.3         813         0x80000002 2          0x2001      0
2.2.2.2         825         0x80000002 2          0x2001      0

            OSPF Router with ID (3.3.3.3) (Process ID 1)
                Router Link States (Area 20)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
3.3.3.3         794         0x80000002 0            1          B
4.4.4.4         794         0x80000002 0            1

                Inter Area Prefix Link States (Area 20)
ADV Router      Age         Seq#       Metric Prefix
3.3.3.3         809         0x80000001 0      2001:CC1E:BEEF:DEAD::3333/128
3.3.3.3         809         0x80000002 64     2001:CC1E:BEEF:CAFE:23::/80
3.3.3.3         784         0x80000003 64     2001:CC1E:BEEF:DEAD::2222/128
3.3.3.3         784         0x80000004 65     2001:CC1E:BEEF:CAFE:12::/80
3.3.3.3         774         0x80000005 65     2001:CC1E:BEEF:DEAD::1111/128
3.3.3.3         774         0x80000006 66     2001:CC1E:BEEF:CAFE:10::/80
Link (Type-8) Link States (Area 20)
ADV Router      Age         Seq#       Link ID    Interface
3.3.3.3         803         0x80000002 4          Se0/0/1
4.4.4.4         794         0x80000004 3          Se0/0/1
                Intra Area Prefix Link States (Area 20)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
3.3.3.3         813         0x80000001 2          0x2001      0
4.4.4.4         803         0x80000004 2          0x2001      0
R-03#

R-04#show ipv6 ospf database

            OSPF Router with ID (4.4.4.4) (Process ID 1)
                Router Link States (Area 20)

ADV Router      Age         Seq#       Fragment ID  Link count Bits
4.4.4.4         959         0x80000002 0            1
```

```
3.3.3.3         959         0x80000002 0            1          B

                Inter Area Prefix Link States (Area 20)
ADV Router      Age         Seq#       Metric Prefix
3.3.3.3         974         0x80000001 0      2001:CC1E:BEEF:DEAD::3333/128
3.3.3.3         974         0x80000002 64     2001:CC1E:BEEF:CAFE:23::/80
3.3.3.3         949         0x80000003 64     2001:CC1E:BEEF:DEAD::2222/128
3.3.3.3         949         0x80000004 65     2001:CC1E:BEEF:CAFE:12::/80
3.3.3.3         939         0x80000005 65     2001:CC1E:BEEF:DEAD::1111/128
3.3.3.3         939         0x80000006 66     2001:CC1E:BEEF:CAFE:10::/80
                Link (Type-8) Link States (Area 20)
ADV Router      Age         Seq#       Link ID    Interface
4.4.4.4         968         0x80000001 1          Gi0/0
4.4.4.4         968         0x80000002 2          Gi0/1
4.4.4.4         959         0x80000004 3          Se0/0/0
3.3.3.3         968         0x80000002 4          Se0/0/0
                Intra Area Prefix Link States (Area 20)
ADV Router      Age         Seq#       Link ID    Ref-lstype  Ref-LSID
4.4.4.4         968         0x80000004 2          0x2001      0
3.3.3.3         978         0x80000001 2          0x2001      0
R-04#
```

```
R-01#show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
IPv6 Routing Protocol is "ospf 1"
  Interfaces (Area 10)
    GigabitEthernet0/0
    GigabitEthernet0/1
    Loopback0
Redistribution:
    None
R-01#
R-02#show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
```

```
IPv6 Routing Protocol is "ospf 1"
  Interfaces (Area 10)
    GigabitEthernet0/1
  Interfaces (Area 0)
    Serial0/0/0
    Loopback0
  Redistribution:
    None
R-02#
R-03#show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
IPv6 Routing Protocol is "ospf 1"
  Interfaces (Area 0)
    Serial0/0/0
    Loopback0
  Interfaces (Area 20)
    Serial0/0/1
  Redistribution:
    None
R-03#
R-04#show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
IPv6 Routing Protocol is "ospf 1"
  Interfaces (Area 20)
    GigabitEthernet0/0
    GigabitEthernet0/1
    Serial0/0/0
    Loopback0
Redistribution:
    None
R-04#
```

Bu arada PC'lerin haberleşmelerine bir bakalım. PC1'den diğerlerine ping atalım.

```
PC>ping 2001:CC1E:BEEF:CAFE:20::11

Pinging 2001:CC1E:BEEF:CAFE:20::11 with 32 bytes of data:

Reply from 2001:CC1E:BEEF:CAFE:20::11: bytes=32 time=2ms TTL=124
Reply from 2001:CC1E:BEEF:CAFE:20::11: bytes=32 time=11ms TTL=124
Reply from 2001:CC1E:BEEF:CAFE:20::11: bytes=32 time=11ms TTL=124
Reply from 2001:CC1E:BEEF:CAFE:20::11: bytes=32 time=10ms TTL=124
```

```
Ping statistics for 2001:CC1E:BEEF:CAFE:20::11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 11ms, Average = 8ms

PC>ping 2001:CC1E:BEEF:CAFE:30::11

Pinging 2001:CC1E:BEEF:CAFE:30::11 with 32 bytes of data:

Reply from 2001:CC1E:BEEF:CAFE:30::11: bytes=32 time=2ms TTL=124
Reply from 2001:CC1E:BEEF:CAFE:30::11: bytes=32 time=11ms TTL=124
Reply from 2001:CC1E:BEEF:CAFE:30::11: bytes=32 time=2ms TTL=124 Reply
from 2001:CC1E:BEEF:CAFE:30::11: bytes=32 time=12ms TTL=124

Ping statistics for 2001:CC1E:BEEF:CAFE:30::11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 6ms

PC>
```

Router'ların son config`leri

```
R-01#show running-config  Building
configuration...

Current configuration : 1124 bytes
!
version 15.1
no service timestamps log datetime msec no
service timestamps debug datetime msec no
service password-encryption
!
hostname R-01
!
no ip cef ipv6
unicast-routing
!
no ipv6 cef
!
license udi pid CISCO2901/K9 sn FTX1524ALVY
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0
no ip address
 ipv6 address 2001:CC1E:BEEF:DEAD::1111/128
ipv6 ospf 1 area 10
! interface
GigabitEthernet0/0  no ip
address  duplex auto  speed
auto
 ipv6 address 2001:CC1E:BEEF:CAFE:10::1/80
ipv6 ospf 1 area 10
! interface
GigabitEthernet0/1  no ip
address  duplex auto  speed
auto
 ipv6 address 2001:CC1E:BEEF:CAFE:12::1/80
ipv6 ospf 1 area 10
!
```

```
interface Serial0/0/0  no ip address  clock
rate 2000000  shutdown
!
interface Serial0/0/1  no ip address  clock
rate 2000000  shutdown
!
interface Vlan1  no ip address  shutdown
!
ipv6 router ospf 1
 router-id 1.1.1.1
 passive-interface gigabitEthernet 0/0
!
ip classless
!
ip flow-export version 9
!
line con 0  exec-timeout 0 0  logging
synchronous
!
line aux 0
! line vty 0 4  login
! end  R-02#


Current configuration : 1086 bytes
!
version 15.1
no service timestamps log datetime msec no service timestamps
debug datetime msec no service password-encryption
!
hostname R-02
!
no ip cef ipv6 unicast-routing
!
no ipv6 cef
!
license udi pid CISCO2901/K9 sn FTX15240R13
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0  no ip address
 ipv6 address 2001:CC1E:BEEF:DEAD::2222/128  ipv6 ospf 1 area 0
```

```
! interface GigabitEthernet0/0  no ip address
duplex auto  speed auto  shutdown
! interface GigabitEthernet0/1  no ip address
duplex auto  speed auto
 ipv6 address 2001:CC1E:BEEF:CAFE:12::2/80  ipv6 ospf 1 area 10
! interface Serial0/0/0  no ip address
 ipv6 address 2001:CC1E:BEEF:CAFE:23::2/80  ipv6 ospf 1 area 0
clock rate 2000000 !
 clock rate 2000000 shutdown
!
interface Vlan1  no ip address  shutdown
!
ipv6 router ospf 1  router-id 2.2.2.2
  !
ip classless
!
ip flow-export version 9
! line con 0  exec-timeout 0 0  logging
synchronous
! line aux 0
! line vty 0 4  login
! end  R-03#


Current configuration : 1066 bytes
!
version 15.1
no service timestamps log datetime msec no service timestamps
debug datetime msec no service password-encryption
!
hostname R-03
!
no ip cef ipv6 unicast-routing
!
no ipv6 cef
!
license udi pid CISCO2901/K9 sn FTX1524073W
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0  no ip address
 ipv6 address 2001:CC1E:BEEF:DEAD::3333/128  ipv6 ospf 1 area 0
```

```
! interface GigabitEthernet0/0  no ip address
duplex auto  speed auto  shutdown
! interface GigabitEthernet0/1  no ip address
duplex auto  speed auto  shutdown
! interface Serial0/0/0  no ip address
 ipv6 address 2001:CC1E:BEEF:CAFE:23::3/80  ipv6 ospf 1 area 0 !
 ipv6 address 2001:CC1E:BEEF:CAFE:34::3/80 ipv6 ospf 1 area 20
 clock rate 2000000
!
interface Vlan1  no ip address  shutdown
!
ipv6 router ospf 1  router-id 3.3.3.3
!
ip classless
!
ip flow-export version 9
!
line con 0  exec-timeout 0 0  logging
synchronous
!
line aux 0
! line vty 0 4  login
! end  R-04#


Current configuration : 1112 bytes
!
version 15.1
no service timestamps log datetime msec no service timestamps
debug datetime msec no service password-encryption
!
hostname R-04
! ip cef ipv6 unicast-routing
!
no ipv6 cef
!
license udi pid CISCO2901/K9 sn FTX1524UDPU
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0  no ip address
 ipv6 address 2001:CC1E:BEEF:DEAD::4444/128  ipv6 ospf 1 area 20
```

```
! interface GigabitEthernet0/0  no ip address
duplex auto  speed auto
 ipv6 address 2001:CC1E:BEEF:CAFE:20::1/80  ipv6 ospf 1 area 20
! interface GigabitEthernet0/1  no ip address
duplex auto  speed auto
 ipv6 address 2001:CC1E:BEEF:CAFE:30::1/80  ipv6 ospf 1 area 20
! interface Serial0/0/0  no ip address
 ipv6 address 2001:CC1E:BEEF:CAFE:34::4/80  ipv6 ospf 1 area 20
!
 clock rate 2000000 shutdown
!
interface Vlan1  no ip address  shutdown
!
ipv6 router ospf 1  router-id 4.4.4.4
!
ip classless
!
ip flow-export version 9
! line con 0  exec-timeout 0 0  logging
synchronous
! line aux 0
! line vty 0 4  login
! end
```

Umarım faydalı bir LAB çalışması olmuştur.

Soru ve yorumlarınız için,

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