Configuratievoorbeeld MP-EBGP

Inhoud

Inleiding

Dit document geeft informatie over de manier waarop u multiprotocol Extended Border Gateway Protocol (MP-EBGP) in Cisco IOS-routers kunt configureren. MP-BGP is een uitgebreide BGP die BGP toestaat om routing informatie voor meerdere netwerklaagprotocollen IPv6, VPNv4 en anderen te dragen. MP-BGP staat u toe om een unicast te hebben die topologie van een multicast routingtopologie verschilt, die helpt om het netwerk en de middelen te controleren.

Voorwaarden

Vereisten

Er zijn geen specifieke vereisten van toepassing op dit document.

Gebruikte componenten

Dit document is niet beperkt tot specifieke software- en hardware-versies.

De configuraties in dit document zijn gebaseerd op Cisco 3700 Series router die Cisco IOS® softwarerelease 12.4(15)T 13 draait.

Conventies

Raadpleeg Cisco Technical Tips Conventions (Conventies voor technische tips van Cisco) voor meer informatie over documentconventies.

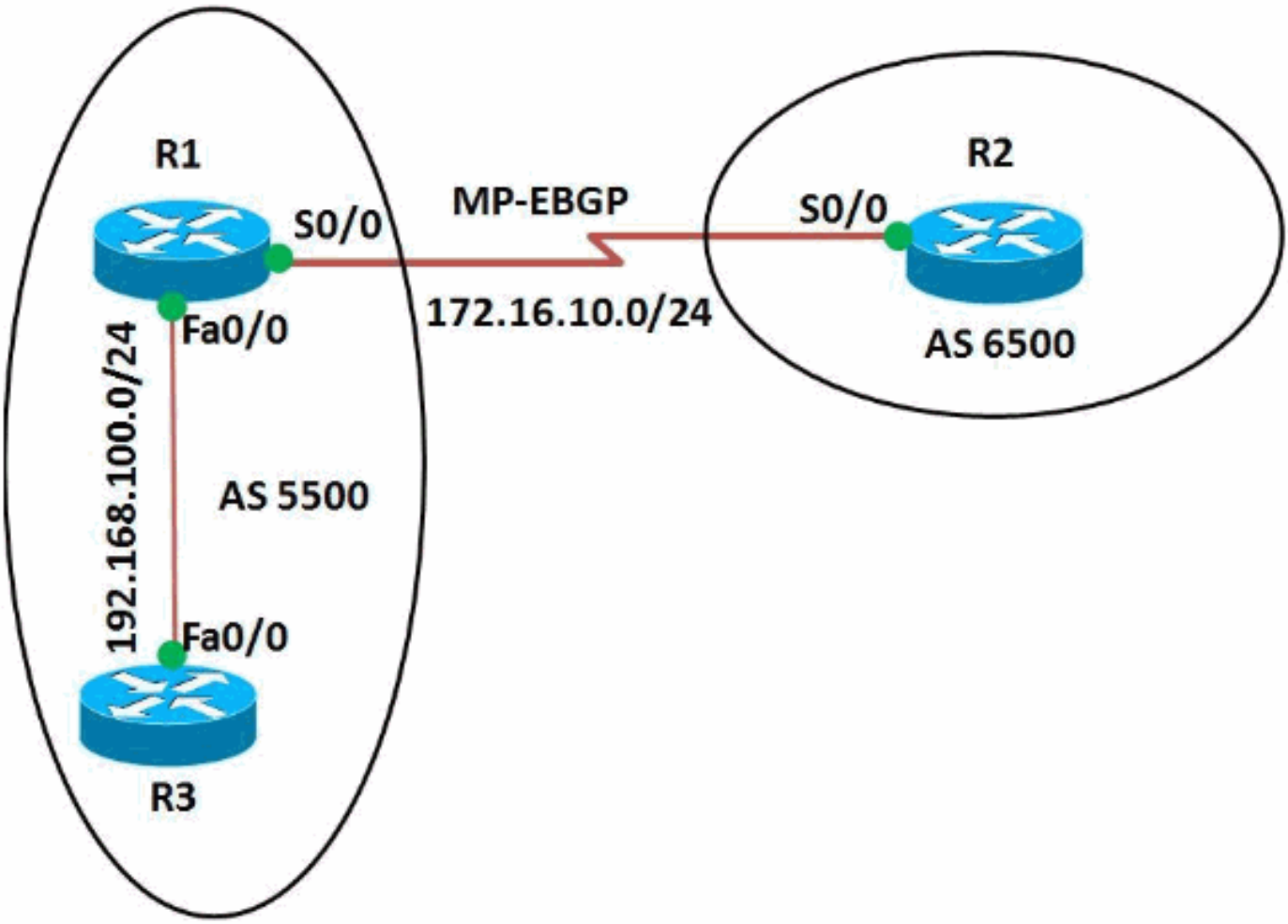
Configureren

In dit voorbeeld worden de R1- en R3-routers geconfigureerd om in AS 5500 te zijn, wat iBGP vormt. De R2 router is ingesteld om in AS 6500 te zijn. De R1- en R2-routers communiceren met elkaar via MP-EBGP. Alle routers worden ingesteld met loopback-adressen.

N.B.: Gebruik het Opdrachtupgereedschap (alleen geregistreerde klanten) om meer informatie te vinden over de opdrachten die in dit document worden gebruikt.

Netwerkdiagram

Het netwerk in dit document is als volgt opgebouwd:



Configuraties

Dit document gebruikt deze configuraties:

- router R1
- router R2
- router R3

Configuratie van router R1
R1#show run Building configuration... ! version 12.4

```
!
hostname R1
!
ip cef
!
!
interface Loopback0
 ip address 10.10.10.10 255.255.255.0
!
interface FastEthernet0/0
 ip address 192.168.100.10 255.255.255.0
 duplex auto
 speed auto
!
interface Serial0/0
 ip address 172.16.10.1 255.255.255.0
 mpls ip
 clock rate 2000000
!
router bgp 5500
 no synchronization
 bgp router-id 10.10.10.10
 bgp log-neighbor-changes
 network 192.168.100.0
 redistribute connected
 neighbor 172.16.10.2 remote-as 6500
 neighbor 172.16.10.2 soft-reconfiguration inbound
 neighbor 192.168.100.11 remote-as 5500
 no auto-summary
 !
 address-family vpnv4
  neighbor 172.16.10.2 activate
  neighbor 172.16.10.2 send-community both
!--- Sends the community attribute to a BGP neighbor.
exit-address-family ! ! end
```

Configuratie van router R2

```
R2#show run
Building configuration...
!
version 12.4
!
hostname R2
!
ip cef
!
ip vrf WAN
 rd 2020:1
 route-target export 2020:1
 route-target import 2020:1
!
!
interface Loopback0
 ip vrf forwarding WAN
!--- Associates a VRF instance with an interface or
subinterface. ip address 20.20.20.20 255.255.255.255 !
interface Serial0/0 ip vrf forwarding WAN ip address
172.16.10.2 255.255.255.0 mpls ip clock rate 2000000 !
router bgp 6500 no synchronization bgp router-id
20.20.20.20 bgp log-neighbor-changes neighbor
172.16.10.1 remote-as 5500 no auto-summary ! ! address-
family vpnv4 neighbor 172.16.10.1 activate neighbor
```

```
172.16.10.1 send-community both exit-address-family !
address-family ipv4 vrf WAN redistribute connected
redistribute static neighbor 172.16.10.1 remote-as 5500
neighbor 172.16.10.1 activate no synchronization exit-
address-family ! ! ! end
```

Configuratie van router R3

```
R3#show run
Building configuration...
!
version 12.4
!
hostname R3
!
ip cef
!
!
!
interface Loopback0
 ip address 11.11.11.11 255.255.255.255
!
interface FastEthernet0/0
 ip address 192.168.100.11 255.255.255.0
 duplex auto
 speed auto
!
router bgp 5500
 no synchronization
 bgp router-id 11.11.11.11
 bgp log-neighbor-changes
 neighbor 192.168.100.10 remote-as 5500
 no auto-summary
!
end
```

Verifiëren

Om ingangen in de (BGP) routingtabel weer te geven, gebruikt u de opdracht **ip bgp tonen**.

ip-bgp tonen

In router R1

```
R1#show ip bgp 172.16.10.2
BGP routing table entry for 172.16.10.2/32, version 14
Paths: (1 available, best #1, table Default-IP-Routing-
Table)
  Advertised to update-groups:
        1    2
  Local
    0.0.0.0 from 0.0.0.0 (10.10.10.10)
      Origin incomplete, metric 0, localpref 100, weight
32768, valid, sourced, best
!--- Displays the routing table entries for the host
172.16.10.2 R1#sh ip bgp 192.168.100.11 BGP routing
table entry for 192.168.100.0/24, version 4 Paths: (1
available, best #1, table Default-IP-Routing-Table)
Advertised to update-groups: 1 2 Local 0.0.0.0 from
0.0.0.0 (10.10.10.10) Origin IGP, metric 0, localpref
100, weight 32768, valid, sourced, local, best !---
Displays the entries for the host 192.168.100.11
```

In router R3

```
R3#sh ip bgp 192.168.100.10
BGP routing table entry for 192.168.100.0/24, version 4
Paths: (1 available, best #1, table Default-IP-Routing-
Table, RIB-failure(17))
  Not advertised to any peer
  Local
    192.168.100.10 from 192.168.100.10 (10.10.10.10)
      Origin IGP, metric 0, localpref 100, valid,
internal, best
!--- Displays the entries for the host 192.168.100.10
```

In router R2, gebruik de **show ip bgp vpnv4 opdracht om** (VPNv4) adresinformatie van de (BGP) tabel weer te geven.

ip bgp vpnv4 tonen

In router R2

```
R2#sh ip bgp vpnv4 vrf WAN
BGP table version is 24, local router ID is 20.20.20.20
Status codes: s suppressed, d damped, h history, *
valid, > best, I - internal,
              r RIB-failure, S Stale
Origin codes: I - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf
Weight Path
Route Distinguisher: 2020:1 (default for vrf WAN)
*> 10.10.10.0/24    172.16.10.1              0
0 5500 ?
*> 20.20.20.20/32   0.0.0.0                  0
32768 ?
*  172.16.10.0/24   172.16.10.1              0
0 5500 ?
*>                  0.0.0.0                  0
32768 ?
r> 172.16.10.2/32   172.16.10.1              0
0 5500 ?
*> 192.168.100.0    172.16.10.1              0
0 5500 I
 !--- Displays prefixes associated with the (VRF)
instance WAN.

R2#show ip bgp vpnv4 vrf WAN 172.16.10.1
BGP routing table entry for 2020:1:172.16.10.0/24,
version 7
Paths: (2 available, best #2, table WAN)
  Advertised to update-groups:
        1
  5500
    172.16.10.1 from 172.16.10.1 (10.10.10.10)
      Origin incomplete, metric 0, localpref 100, valid,
external
      Extended Community: RT:2020:1
      mpls labels in/out 18/nolabel
  Local
    0.0.0.0 from 0.0.0.0 (20.20.20.20)
      Origin incomplete, metric 0, localpref 100, weight
32768, valid, sourced, best
      Extended Community: RT:2020:1
      mpls labels in/out 18/aggregate(WAN)
!--- Displays prefixes associated with neighbor
```

```
172.16.10.1
```

MP-EBGP wordt ingesteld tussen de R1- en R2-routers. Gebruik de **ping** opdracht om de bereikbaarheid van R1 tot R2 te verifiëren en vice versa.

pingelen

In router R1

```
R1#ping 172.16.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.10.2, timeout
is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 12/64/208 ms

R1#ping 192.168.100.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.11,
timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 12/41/96 ms
!--- Router R1 can successfully ping the routers R2 and
R3.
```

In router R2

```
R2#ping vrf WAN 172.16.10.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.10.1, timeout
is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 4/32/96 ms

R2#ping vrf WAN 192.168.100.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.11,
timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 32/73/204 ms

!--- Router R2 can successfully reach router R1 and R3.
```

Gerelateerde informatie

- Border Gateway Protocol (BGP)
- Multiprotocol BGP-uitbreidingen voor IP-multicast opdrachten
- Technische ondersteuning en documentatie – Cisco Systems