了解OSPF路由重分发到BGP

目录

简介

先决条件

- 要求
- 使用的组件

背景信息

网络设置

仅将OSPF内部（区域内和区域间）路由重分发到BGP

仅将OSPF外部（类型1和2）路由重分发到BGP

仅将OSPF外部第1类或第2类路由重分发到BGP

将OSPF内部和外部路由重分发到BGP

将OSPF NSSA外部路由重分发到BGP

修改 OSPF 中的重分配选项

无法将iBGP获知的路由重分发到IGP

- 将 OSPF 默认路由重新分发到 BGP 中

相关信息

简介

本文档介绍思科路由器上开放最短路径优先 (OSPF) 到边界网关协议 (BGP) 的重分发行为。

先决条件

要求

Cisco建议您先了解OSPF路由类型、BGP基础知识和路由重分布，然后再使用本文档。

使用的组件

本文档不限于特定的软件和硬件版本。

注意：本文档中的示例使用Cisco IOS软件命令语法。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

背景信息

本技术说明旨在介绍思科路由器上将 OSPF 重新分发到 BGP 中的行为。RFC 1403记录了OSPF与BGP之间交互的历史性指南。

有几种类型的 OSPF 路由：

- 区域内路由 — 在多区域OSPF网络中，同一区域内的路由器将源自某一区域的路由称为区域内路由。这些路由在show ip route命令输出中标记为O。
- 区域间 — 当路由经过OSPF区域边界路由器(ABR)时，该路由称为OSPF区域间路由。在 show ip route 命令输出中，这些路由标记为 O IA。

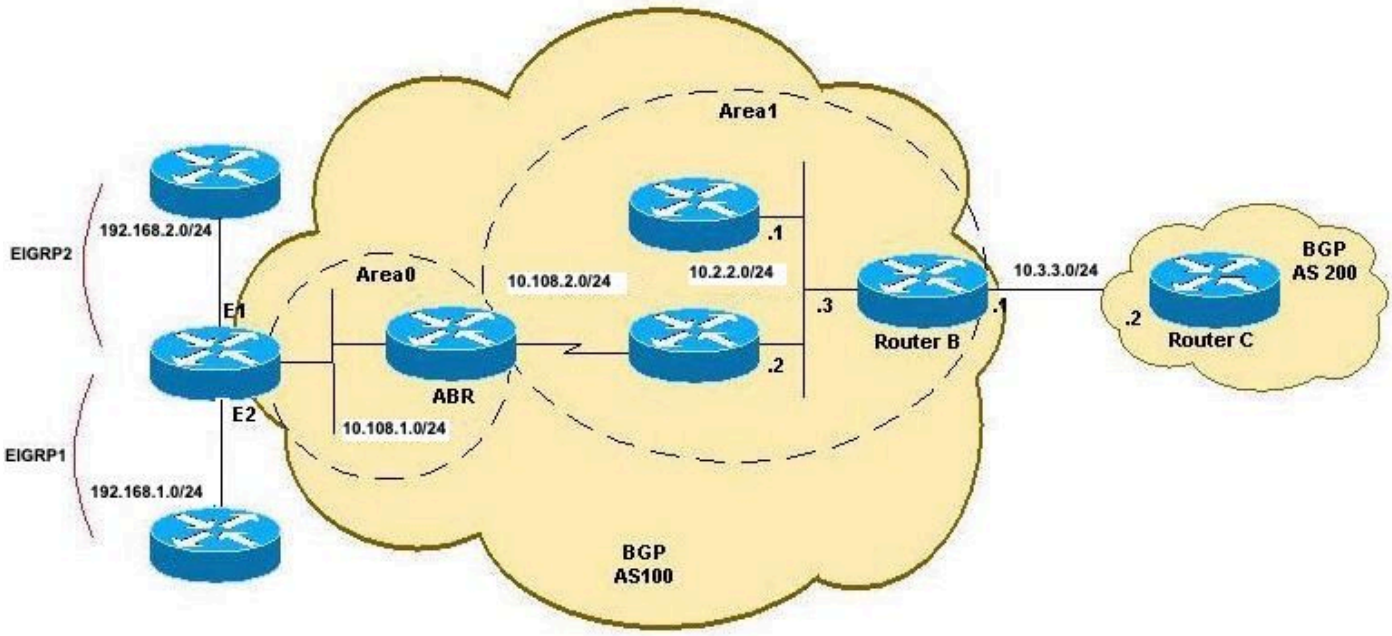
  区域内路由和区域间路由也称为OSPF内部路由，因为它们代表源自OSPF域中的前缀，而不是重分发到OSPF的路由。
- External Type-2或External Type-1 — 重分发到OSPF的路由（例如Connected、Static或其他路由协议）称为External Type-2或External Type-1。在show ip route命令输出中，这些路由标记为O E2或O E1。
- NSSA External Type-2或NSSA External Type 1 — 当某个区域配置为Not-So-Stub Area(NSSA)，并且路由重分发到OSPF时，这些路由称为NSSA External Type-2或NSSA External Type-1。在show ip route命令输出中，这些路由标记为O N2或O N1。

对外部和NSSA类型2或1之间差异的解释不属于本文档的范围；有关详细信息，请参阅OSPF设计指南。

默认行为是不将任何路由从 OSPF 重分配到 BGP 中。必须配置重分配。在OSPF到BGP重分发期间，使用route-map命令过滤路由。要明确选择路由类型，请使用适用的match internal、match external或match nssa-external选项。如果没有匹配选项，则默认情况下redistribute ospf会重分发OSPF内部路由。

网络设置

本文档讨论五个主要的OSPF到BGP重分发案例。拓扑A适用于前四个情况。拓扑B适用于“将OSPF NSSA外部路由重分配到BGP”部分中描述的NSSA外部路由案例。



将 OSPF 重新分发到 BGP 拓扑 A

仅将OSPF内部（区域内和区域间）路由重分发到BGP

如果配置了将 OSPF 重新分发到不带关键字的 BGP 中，则默认情况下，仅 OSPF 区域内和区域间路由会重新分发到 BGP 中。要重分布OSPF Intra-area和Inter-area路由，请在路由器bgp下使用internal关键字和redistribute命令。

此路由器B(RTB)配置将OSPF内部前缀10.2.2.0/24、10.108.1.0/24和10.108.2.0/24重分发到BGP:

RTB

```
<#root>

hostname RTB
!
interface GigabitEthernet0/0
 ip address 10.3.3.1 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
interface GigabitEthernet0/1
 ip address 10.2.2.3 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
router ospf 1
 network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100
redistribute ospf 1
```

```
!-- This redistributes only OSPF intra-area and inter-area routes into BGP.

neighbor 10.3.3.2 remote-as 200
!
end

RTB#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks

C        10.2.2.0/24 is directly connected, GigabitEthernet0/1

L        10.2.2.3/32 is directly connected, GigabitEthernet0/1
C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.1/32 is directly connected, GigabitEthernet0/0

O IA     10.108.1.0/24 [110/3] via 10.2.2.2, 00:08:38, GigabitEthernet0/1
O        10.108.2.0/24 [110/2] via 10.2.2.2, 00:39:13, GigabitEthernet0/1

O E2  192.168.1.0/24 [110/20] via 10.2.2.2, 00:07:39, GigabitEthernet0/1
O E1  192.168.2.0/24 [110/23] via 10.2.2.2, 00:07:38, GigabitEthernet0/1
RTB#
```

路由器 B 只会重分配 OSPF 内部路由：

<#root>

```
RTB#

show ip bgp

BGP table version is 12, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
```

```
 *> 10.2.2.0/24 0.0.0.0 0 32768 ? *> 10.108.1.0/24 10.2.2.2 3 32768 ? *> 10.108.2.0/24 10.2.2.2 2 32768

RTB#
```

路由器 C 从 BGP 获知以下路由：

<#root>

```
RTC#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

B        10.2.2.0/24 [20/0] via 10.3.3.1, 00:07:07

C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.2/32 is directly connected, GigabitEthernet0/0

B        10.108.1.0/24 [20/3] via 10.3.3.1, 00:07:07
B        10.108.2.0/24 [20/2] via 10.3.3.1, 00:07:07

RTC#
RTC#

show ip bgp

BGP table version is 8, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
```

```
 *> 10.2.2.0/24 10.3.3.1 0 0 100 ? *> 10.108.1.0/24 10.3.3.1 3 0 100 ? *> 10.108.2.0/24 10.3.3.1 2 0 100
```

```
RTC#
```

仅将OSPF外部（类型1和2）路由重分发到BGP

要将OSPF外部路由重分布到BGP，请在router bgp下将external关键字与redistribute命令一起使用。使用 external 关键字时有三种选择：

- 重新分发外部 1 类和 2 类（默认）
- 重新分发外部 1 类
- 重新分发外部 2 类

在配置模式下输入命令，如下所示：

<#root>

```
RTB(config)#
```

```
router bgp 100
```

```
RTB(config-router)#
```

```
redistribute ospf 1 match external
```

此路由器B配置仅重分发OSPF外部路由，包括类型1和类型2路由：

RTB
<#root> hostname RTB ! interface GigabitEthernet0/0 ip address 10.3.3.1 255.255.255.0 duplex auto speed auto media-type rj45 ! interface GigabitEthernet0/1

```
 ip address 10.2.2.3 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
router ospf 1
 network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100
 redistribute ospf 1 match external 1 external 2


!--- This redistributes ONLY OSPF External routes, but both type-1 and type-2.

neighbor 10.3.3.2 remote-as 200
!
end
```

注意：配置显示输入的命令是redistribute ospf 1 match external。这是正常现象，因为OSPF会自动在配置中追加external 1 external 2。它同时匹配OSPF外部1和外部2路由，并且将两个路由重新分配到BGP中。

路由器 B 仅重新分发 OSPF 外部路由：

<#root>

```
RTB#

show ip bgp

BGP table version is 25, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>   192.168.1.0      10.2.2.2                 20         32768 ?
 *>   192.168.2.0      10.2.2.2                 23         32768 ?
RTB#
```

路由器 C 从 BGP 了解这两个 OSPF 外部路由：

<#root>

```
RTC#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.2/32 is directly connected, GigabitEthernet0/0

B     192.168.1.0/24 [20/20] via 10.3.3.1, 00:02:16
B     192.168.2.0/24 [20/23] via 10.3.3.1, 00:02:16



RTC#

show ip bgp

BGP table version is 21, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path

 *> 192.168.1.0 10.3.3.1 20 0 100 ? *> 192.168.2.0 10.3.3.1 23 0 100 ?

RTC#
```

仅将OSPF外部第1类或第2类路由重分发到BGP

要仅重分布OSPF外部第1类路由，请在路由器B的router bgp 100下输入以下命令：

<#root>

```
RTB(config)#

router bgp 100


RTB(config-router)#

redistribute ospf 1 match external 1
```

使用之前的配置，路由器B(RTB)BGP表显示路由器B仅将外部类型1路由重分发到BGP，而所有其他OSPF路由未重分发到BGP:

<#root>

```
RTB#

show ip bgp

BGP table version is 28, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>   192.168.2.0      10.2.2.2                 23         32768 ?
RTB#
```

要仅重分布OSPF第2类外部路由，请在路由器B的router bgp 100下输入以下命令：

<#root>

```
RTB(config)#

router bgp 100


RTB(config-router)#

redistribute ospf 1 match external 2
```

将OSPF内部和外部路由重分发到BGP

在这种情况下，OSPF内部路由以及OSPF第1类和第2类外部路由使用内部和外部匹配选项重新分发到BGP，如以下路由器B配置所示：

RTB

<#root>

```
hostname RTB
!
interface GigabitEthernet0/0
 ip address 10.3.3.1 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
interface GigabitEthernet0/1
 ip address 10.2.2.3 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
router ospf 1
network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100

redistribute ospf 1 match internal external 1 external 2



!--- This redistributes OSPF internal and external type 1 & 2 routes into BGP.

neighbor 10.3.3.2 remote-as 200
!
end
```

同样，配置中的 external 替换为 external 1 external 2 。这是正常的，只有您指定希望重新分配到BGP的那些特定外部路由时除外。更改配置后，路由器B重新分发选定的内部和外部路由，而路由器C通过BGP获取这些路由：

<#root>

RTB#

show ip bgp

```
BGP table version is 6, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path

 *> 10.2.2.0/24 0.0.0.0 0 32768 ? *> 10.108.1.0/24 10.2.2.2 3 32768 ? *> 10.108.2.0/24 10.2.2.2 2 32768


RTB# RTC#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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks


B 10.2.2.0/24 [20/0] via 10.3.3.1, 00:03:27


C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.2/32 is directly connected, GigabitEthernet0/0


B 10.108.1.0/24 [20/3] via 10.3.3.1, 00:03:27 B 10.108.2.0/24 [20/2] via 10.3.3.1, 00:03:27 B 192.168.1.


RTC#
```

将OSPF NSSA外部路由重分发到BGP

这是一种特殊情况，只会将 NSSA 路由重新分发到 BGP 中。此情况与仅重分发到BGP的OSPF外部（类型1和2）路由部分中描述的情况非常相似。唯一的区别是，OSPF 现在会匹配 NSSA 外部路由，而不仅仅是外部路由。路由器 B 的路由表显示了这些 OSPF NSSA 外部路由：

<#root>

```
RTB#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

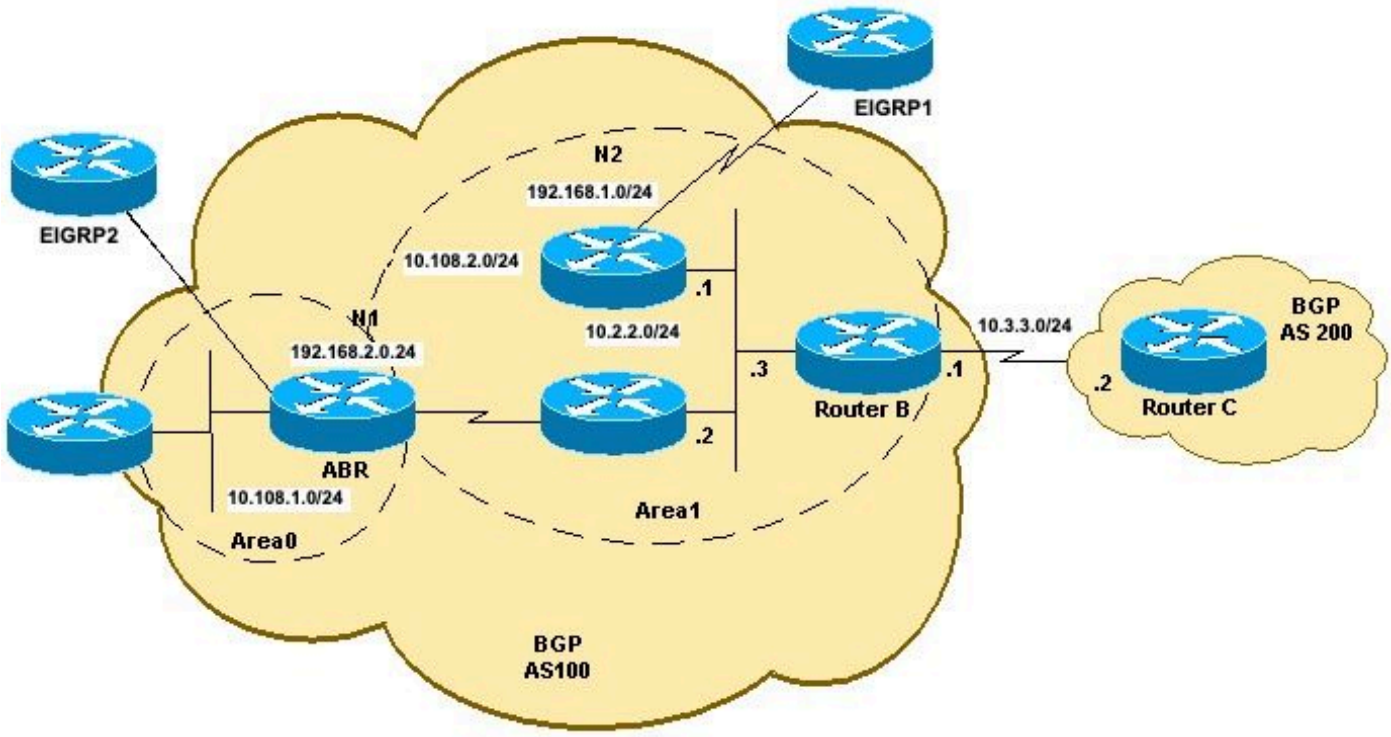
Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C        10.2.2.0/24 is directly connected, GigabitEthernet0/1
L        10.2.2.3/32 is directly connected, GigabitEthernet0/1
C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.1/32 is directly connected, GigabitEthernet0/0

O IA     10.108.1.0/24 [110/3] via 10.2.2.2, 00:05:00, GigabitEthernet0/1
O        10.108.2.0/24 [110/2] via 10.2.2.2, 00:05:00, GigabitEthernet0/1
O N2  192.168.1.0/24 [110/20] via 10.2.2.1, 00:10:14, GigabitEthernet0/1
O N1  192.168.2.0/24 [110/22] via 10.2.2.2, 00:03:43, GigabitEthernet0/1

RTB#
```

此网络图用于此案例：



将 OSPF 重新分发到 BGP 拓扑 B

网络图显示路由器 B 同时接收 OSPF N1 和 N2 路由。只有使用 NSSA 外部关键字，默认行为才会

重新分配 N1 和 N2 路由。此配置允许RTB将OSPF N2(192.168.1.0/24)和OSPF N1(192.168.2.0/24)路由重分发到BGP:

RTB

<#root>

```
hostname RTB
!
interface GigabitEthernet0/0
 ip address 10.3.3.1 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
interface GigabitEthernet0/1
 ip address 10.2.2.3 255.255.255.0
 duplex auto
 speed auto
 media-type rj45
!
router ospf 1
 area 1 nssa network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100


redistribute ospf 1 match nssa-external 1 nssa-external 2


!--- This redistributes only OSPF NSSA-external routes Type-1 and Type-2 into BGP.

neighbor 10.3.3.2 remote-as 200
!
end
```

注意：与OSPF外部配置类似，先前的配置显示match nssa-external 1 nssa-external 2，并且输入的命令为redistribute ospf 1 match nssa-external。这是正常现象，因为OSPF会在配置中自动附加nssa-external 1 nssa-external 2。它匹配OSPF N1和OSPF N2路由，并且把这两个路由重新分配到BGP。

在路由器 B 上进行配置更改后，它会重新分发 OSPF NSSA 外部路由，路由器 C 会从 BGP 获知 OSPF NSSA 外部路由：

<#root>

```
RTB#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C        10.2.2.0/24 is directly connected, GigabitEthernet0/1
L        10.2.2.3/32 is directly connected, GigabitEthernet0/1
C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.1/32 is directly connected, GigabitEthernet0/0
O IA     10.108.1.0/24 [110/3] via 10.2.2.2, 00:09:40, GigabitEthernet0/1
O        10.108.2.0/24 [110/2] via 10.2.2.2, 00:09:40, GigabitEthernet0/1

O N2  192.168.1.0/24 [110/20] via 10.2.2.1, 00:14:54, GigabitEthernet0/1
O N1  192.168.2.0/24 [110/22] via 10.2.2.2, 00:08:23, GigabitEthernet0/1

RTB#
RTB#

show ip bgp

BGP table version is 17, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path

 *> 192.168.1.0 10.2.2.1 20 32768 ? *> 192.168.2.0 10.2.2.2 22 32768 ?

RTB# RTC#

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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
```

```
C        10.3.3.0/24 is directly connected, GigabitEthernet0/0
L        10.3.3.2/32 is directly connected, GigabitEthernet0/0

B 192.168.1.0/24 [20/20] via 10.3.3.1, 00:01:29 B 192.168.2.0/24 [20/22] via 10.3.3.1, 00:01:29

RTC#
RTC#

show ip bgp

BGP table version is 41, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid,

 >

best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path

 *> 192.168.1.0 10.3.3.1 20 0 100 ? *> 192.168.2.0 10.3.3.1 22 0 100 ?

RTC#
```

与 OSPF 外部路由相同，要仅重新分发 OSPF N1 路由，请在路由器 B 上的路由器 BGP 100 下输入以下命令：

<#root>

```
RTB(config)#

router bgp 100


RTB(config-router)#

redistribute ospf 1 match nssa-external 1



!--- This redistributes only OSPF NSSA-external Type-1 routes into BGP.
```

要仅重分布OSPF N2路由，请在路由器B的router bgp 100下输入以下命令：

```
<#root>
RTB(config)#
router bgp 100

RTB(config-router)#
redistribute ospf 1 match nssa-external 2

!--- This redistributes only OSPF NSSA-external Type-2 routes into BGP.
```

注意：路由映射还可用于将OSPF第1类或第2类路由重分发到BGP。

修改 OSPF 中的重分配选项

请务必了解连续的配置更改会给配置带来哪些改变。带有 match 选项的新命令不会覆盖之前的命令，而是会添加到之前的命令中。下一个示例说明配置命令序列如何影响重新分发：

```
<#root>
R4#
configure terminal
R4(config)#
router bgp 100
R4(config-router)#
redistribute ospf 1 match internal
R4(config-router)#
^Z

!--- Initially, you redistribute internal OSPF routes into BGP 100.
R4#
show run | include redistribute ospf
```

```
 redistribute ospf 1 match internal
R4#

configure terminal

R4(config)#

router bgp 100

R4(config-router)#

redistribute ospf 1 match external

R4(config-router)#

^Z


!--- With this second command, you tell BGP to also redistribute external OSPF routes.

R4#

show run | include redistribute ospf

 redistribute ospf 1 match internal external 1 external 2
R4#
R4#

configure terminal

R4(config)#

router bgp 100

R4(config-router)#

no redistribute ospf 1 match external 2

R4(config-router)#

^Z


!--- With this no command, you only disable the redistribution of external type 2 into BGP.
!--- All other types of routes previously configured remain.

R4#

show run | include redistribute ospf

 redistribute ospf 1 match internal external 1
```

```
!--- As you can see, internal and external type 1 remain.

R4#

configure terminal

R4(config)#

router bgp 100

R4(config-router)#

no redistribute ospf 1 match internal external 1

R4(config-router)#

^Z



!--- This no command removes all explicit match options but does not disable redistribution
!--- The remaining redistribute ospf 1 command uses the default behavior and redistributes
!--- internal routes only.

R4#

show run | include redistribute ospf

 redistribute ospf 1
R4#

configure terminal

R4(config)#

router bgp 100

R4(config-router)#

no redistribute ospf 1



!--- Use no redistribute ospf



       command to disable OSPF-to-BGP redistribution completely.
```

```
R4(config-router)#

^Z

R4#

show run | include redistribute ospf

R4#
```

无法将iBGP获知的路由重分发到IGP

路由重分布将通过一种协议获知的路由传播到另一种路由协议。将BGP重分发到IGP中时，默认情况下仅重分发eBGP获知的路由。路由器上已知的iBGP获知的路由不会引入IGP以防止创建路由环路。

默认情况下，已禁用将 iBGP 重新分发到 IGP 中。运行bgp redistribute-internal命令以启用iBGP路由到IGP的重分发。需要采取预防措施以便将使用路由映射的特定路由重新分发到 IGP 中。

将 iBGP 路由重新分发到 OSPF 中的示例配置如下所示：

<#root>

```
Router(config)#

router bgp 65345


Router(config-router)#

bgp redistribute-internal

!
Router(config)#

router ospf 100

Router(config-router)#

redistribute bgp 65345 subnets
```

⚠ 警告：将iBGP获知的路由重分配到IGP中会在自治系统内创建路由环路。仅使用路由映射重新分发明确批准的前缀。

将 OSPF 默认路由重新分发到 BGP 中

要将OSPF获取的默认路由重分发到BGP，请在路由映射中仅允许0.0.0.0/0，将路由映射应用到OSPF重分发，并启用使用default-information originate重分发默认路由：

<#root>

```
!
route-map
```

map_default_only

```
 permit 10
 match ip address acl_default_only
!
ip access-list standard acl_default_only
 permit 0.0.0.0
!
router bgp 64601
 redistribute ospf 1 route-map
```

map_default_only

default-information originate

```
!
!--- Distributes the default route in bgp
```

network 0.0.0.0命令是单独的发起方法，需要在路由表中提供准确的默认路由：

```
!
router bgp 64601
network 0.0.0.0
!
```

配置后，使用show ip bgp 0.0.0.0检验默认路由，并使用show ip bgp neighbors <neighbor-address> advertised-routes检验其通告。

注意：BGP通常不重置会话就通告新路由。要请求即时、无中断的更新交换，请运行clear ip bgp * soft命令。此命令用于保持BGP会话的建立。

相关信息

- OSPF：常见问题解答
- BGP 常见问题解答
- 思科技术支持和下载

关于此翻译
思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

Cisco Systems, Inc. 对于翻译的准确性不承担任何责任，并建议您总是参考英文原始文档（已提供链接）。