在 Cisco IOS 路由器中调整路由选择的管理距离的配置示例

Contents

Introduction

本文档描述了如何更改路由协议的管理距离值来影响思科路由器中的路由选择。

管理距离是在有使用两个不同路由协议的两个或多个不同的路由通往同一目标时，路由器用来选择最佳路径的功能。管理距离定义了路由协议的可靠性。管理距离值越小，协议越可靠。

Note: 当更改默认距离时，可能会在网络中导致路由环路。在考虑好要实现的目标之后，谨慎地更改管理距离。

Prerequisites

Requirements

本文档没有任何特定的前提条件。

Components Used

本文档中的配置是基于装有思科 IOS 软件 12.4(15)T 13 版本的思科 3700 系列路由器。

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

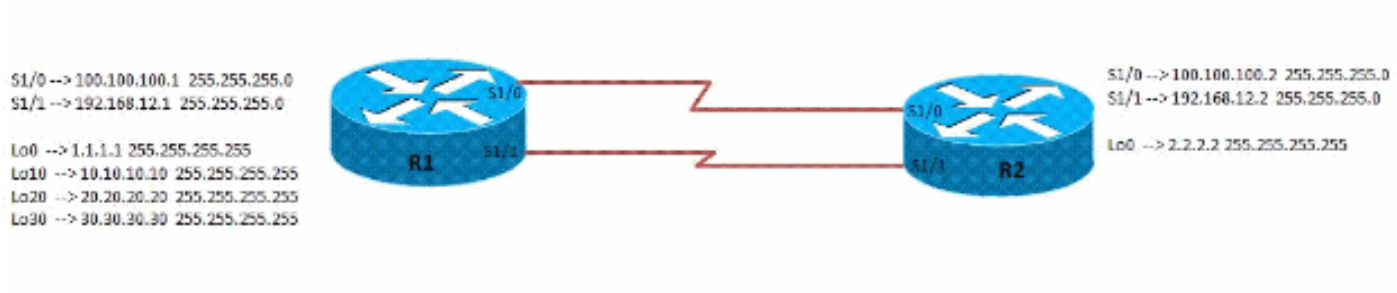
Configure

本部分提供有关如何配置本文档所述功能的信息。

Note: 有关本文档所用命令的详细信息，请使用命令查找工具（仅限注册用户）。

Network Diagram

在这里，路由器 R1 和 R2 是通过并行串联线连接。路由器 R1 和 R2 是使用 BGP 和 OSPF 进行配置。OSPF 的默认管理距离为 110，而 eBGP 的默认管理距离是 20。使用 distance 命令，我们可将 BGP 的 AD 值更改为 190。在此命令之前，路由器 R2 偏好通过 OSPF 的 BGP 路由，因为它们已配置了默认 AD 值。更改 BGP 的 AD 值后，OSPF 路由获得优先权。



配置

本文档使用以下配置

- 路由器 R1 配置
- 路由器 R2 配置

R1 的配置

```
interface Loopback0
 ip address 1.1.1.1 255.255.255.255
 !
!
interface Loopback10
 ip address 10.10.10.10 255.255.255.255
 !
!
interface Loopback20
 ip address 20.20.20.20 255.255.255.255
 !
!
interface Loopback30
 ip address 30.30.30.30 255.255.255.255
 !
!
interface Serial1/0
 ip address 100.100.100.1 255.255.255.0
 serial restart-delay 0
 clock rate 64000
 !
!
interface Serial1/1
 ip address 192.168.12.1 255.255.255.0
```

```
 serial restart-delay 0
 clock rate 64000
 !
!
router ospf 10
 router-id 1.1.1.1
 log-adjacency-changes
 network 1.1.1.1 0.0.0.0 area 0
 network 10.10.10.10 0.0.0.0 area 0
 network 20.20.20.20 0.0.0.0 area 0
 network 100.100.100.1 0.0.0.0 area 0
!
router bgp 123
 no synchronization
 bgp router-id 1.1.1.1
 bgp log-neighbor-changes
 network 10.10.10.10 mask 255.255.255.255
 network 20.20.20.20 mask 255.255.255.255
 network 30.30.30.30 mask 255.255.255.255
 neighbor 2.2.2.2 remote-as 100
 neighbor 2.2.2.2 ebgp-multihop 5
 neighbor 2.2.2.2 update-source Loopback0
 no auto-summary
!
```

R2 配置

```
interface Loopback0
 ip address 2.2.2.2 255.255.255.255
 !
!
interface Serial1/0
 ip address 100.100.100.2 255.255.255.0
 serial restart-delay 0
 clock rate 64000
 !
!
interface Serial1/1
 ip address 192.168.12.2 255.255.255.0
 serial restart-delay 0
 clock rate 64000
 !

!
router ospf 10
 router-id 2.2.2.2
 log-adjacency-changes
 network 2.2.2.2 0.0.0.0 area 0
 network 100.100.100.2 0.0.0.0 area 0
!
router bgp 100
 no synchronization
 bgp router-id 2.2.2.2
 bgp log-neighbor-changes
 neighbor 1.1.1.1 remote-as 123
 neighbor 1.1.1.1 ebgp-multihop 5
 neighbor 1.1.1.1 update-source Loopback0
 distance 190 1.1.1.1 0.0.0.0
Changed the AD value of BGP as 190! no auto-summary !
```

Verify

请使用本部分描述的命令来验证配置。

命令输出解释程序（仅限注册用户）(OIT) 支持某些 **show** 命令。使用 OIT 可查看对 show 命令输出的分析。

在路由器 R2 上

当 distance 命令未应用于路由器 R2 时

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, +
- replicated route

Gateway of last resort is not set

      1.0.0.0/32 is subnetted, 1 subnets
O        1.1.1.1 [110/65] via 100.100.100.1, 00:00:03,
Serial1/0
      2.0.0.0/32 is subnetted, 1 subnets
C        2.2.2.2 is directly connected, Loopback0
      10.0.0.0/32 is subnetted, 1 subnets
B        10.10.10.10 [20/0] via 1.1.1.1, 00:00:03
BGP Router Preffered Over OSPF 20.0.0.0/32 is subnetted,
1 subnets B 20.20.20.20 [20/0] via 1.1.1.1, 00:00:03 BGP
Router Preffered Over OSPF 30.0.0.0/32 is subnetted, 1
subnets B 30.30.30.30 [20/0] via 1.1.1.1, 00:00:03
100.0.0.0/8 is variably subnetted, 2 subnets, 2 masks C
100.100.100.0/24 is directly connected, Serial1/0 L
100.100.100.2/32 is directly connected, Serial1/0
192.168.12.0/24 is variably subnetted, 2 subnets, 2
masks C 192.168.12.0/24 is directly connected, Serial1/1
L 192.168.12.2/32 is directly connected, Serial1/1
```

当 distance 命令应用于路由器 R2 时

Show ip route

```
R2#sh 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, +
- replicated route

Gateway of last resort is not set

      1.0.0.0/32 is subnetted, 1 subnets
O        1.1.1.1 [110/65] via 100.100.100.1, 00:00:03,
Serial1/0
      2.0.0.0/32 is subnetted, 1 subnets
C        2.2.2.2 is directly connected, Loopback0
      10.0.0.0/32 is subnetted, 1 subnets
O        10.10.10.10 [110/65] via 100.100.100.1,
00:00:03, Serial1/0
           By increasing the AD of External BGP, OSPF
takes precedence 20.0.0.0/32 is subnetted, 1 subnets O
20.20.20.20 [110/65] via 100.100.100.1, 00:00:03,
Serial1/0 By increasing the AD of External BGP, OSPF
takes precedence 30.0.0.0/32 is subnetted, 1 subnets B
30.30.30.30 [190/0] via 1.1.1.1, 00:00:03 100.0.0.0/8 is
variably subnetted, 2 subnets, 2 masks C
100.100.100.0/24 is directly connected, Serial1/0 L
100.100.100.2/32 is directly connected, Serial1/0
192.168.12.0/24 is variably subnetted, 2 subnets, 2
masks C 192.168.12.0/24 is directly connected, Serial1/1
L 192.168.12.2/32 is directly connected, Serial1/1
```

Related Information

- Cisco 路由器的路由选择
- OSPF 支持页
- BGP 支持页
- Technical Support & Documentation - Cisco Systems