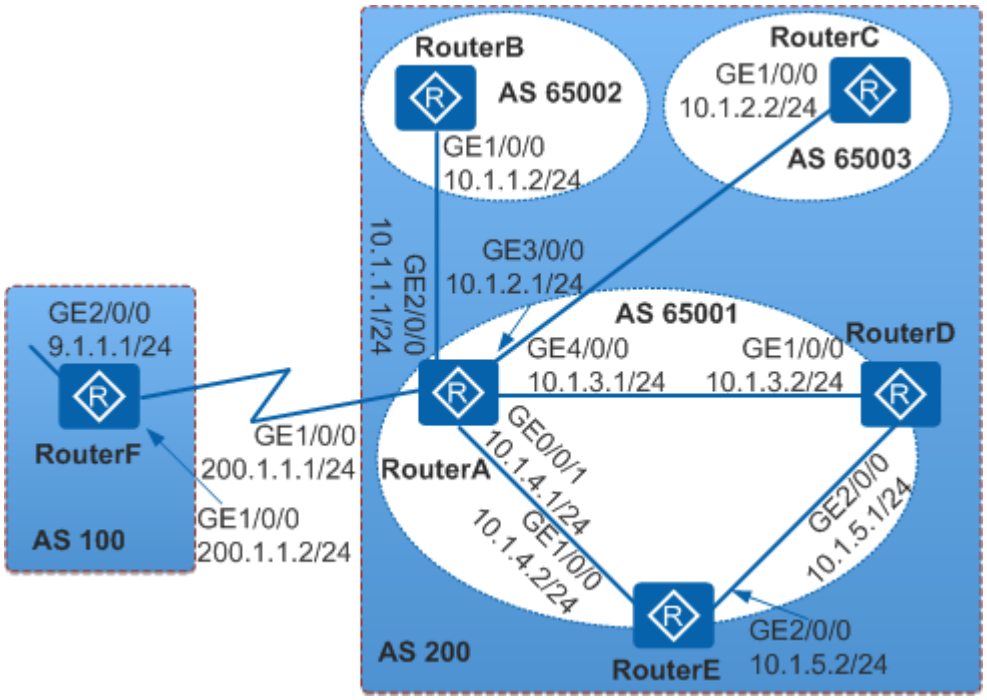
配置 BGP 联盟

组网需求

如图 9-34 所示，AS200 中有多台 BGP 路由器，现需要减少 IBGP 的连接数。

图 9-34 配置联盟组网图



配置思路

采用如下的思路配置 BGP 联盟：

1. 在 AS200 中各路由器上配置 BGP 联盟，现将设备划分为 3 个子自治系统：AS65001、AS65002 和 AS65003。其中 AS65001 内的三台路由器建立 IBGP 全连接，实现减少 IBGP 的连接数的需求。

操作步骤

1. 配置各接口的 IP 地址

配置 RouterA 的各接口的 IP 地址。

```
<Huawei> system-view
[Huawei] sysname RouterA
[RouterA] interface gigabitethernet 0/0/1
[RouterA-GigabitEthernet0/0/1] ip address 10.1.4.1
255.255.255.0
[RouterA-GigabitEthernet0/0/1] quit
[RouterA] interface gigabitethernet 1/0/0
[RouterA-GigabitEthernet1/0/0] ip address 200.1.1.1
255.255.255.0
[RouterA-GigabitEthernet1/0/0] quit
[RouterA] interface gigabitethernet 2/0/0
[RouterA-GigabitEthernet2/0/0] ip address 10.1.1.1
255.255.255.0
[RouterA-GigabitEthernet2/0/0] quit
[RouterA] interface gigabitethernet 3/0/0
[RouterA-GigabitEthernet3/0/0] ip address 10.1.2.1
255.255.255.0
[RouterA-GigabitEthernet3/0/0] quit
[RouterA] interface gigabitethernet 4/0/0
[RouterA-GigabitEthernet4/0/0] ip address 10.1.3.1
255.255.255.0
[RouterA-GigabitEthernet4/0/0] quit
```

RouterB、RouterC、RouterD、RouterE 和 RouterF 的配置同 RouterA 此处

略。

2. 配置 BGP 联盟

配置 RouterA。

```
[RouterA] bgp 65001
[RouterA-bgp] router-id 1.1.1.1
[RouterA-bgp] confederation id 200
[RouterA-bgp] confederation peer-as 65002 65003
[RouterA-bgp] peer 10.1.1.2 as-number 65002
[RouterA-bgp] peer 10.1.2.2 as-number 65003
[RouterA-bgp] ipv4-family unicast
[RouterA-bgp-af-ipv4] peer 10.1.1.2 next-hop-local
[RouterA-bgp-af-ipv4] peer 10.1.2.2 next-hop-local
[RouterA-bgp-af-ipv4] quit
```

配置 RouterB。

```
[RouterB] bgp 65002
[RouterB-bgp] router-id 2.2.2.2
[RouterB-bgp] confederation id 200
[RouterB-bgp] confederation peer-as 65001
[RouterB-bgp] peer 10.1.1.1 as-number 65001
[RouterB-bgp] quit
```

配置 RouterC。

```
[RouterC] bgp 65003
[RouterC-bgp] router-id 3.3.3.3
[RouterC-bgp] confederation id 200
[RouterC-bgp] confederation peer-as 65001
[RouterC-bgp] peer 10.1.2.1 as-number 65001
[RouterC-bgp] quit
```

3. 配置 AS65001 内的 IBGP 连接

配置 RouterA。

```
[RouterA] bgp 65001
[RouterA-bgp] peer 10.1.3.2 as-number 65001
[RouterA-bgp] peer 10.1.4.2 as-number 65001
[RouterA-bgp] ipv4-family unicast
[RouterA-bgp-af-ipv4] peer 10.1.3.2 next-hop-local
[RouterA-bgp-af-ipv4] peer 10.1.4.2 next-hop-local
[RouterA-bgp-af-ipv4] quit
```

配置 RouterD。

```
[RouterD] bgp 65001
[RouterD-bgp] router-id 4.4.4.4
[RouterD-bgp] confederation id 200
[RouterD-bgp] peer 10.1.3.1 as-number 65001
[RouterD-bgp] peer 10.1.5.2 as-number 65001
[RouterD-bgp] quit
```

配置 RouterE。

```
[RouterE] bgp 65001
[RouterE-bgp] router-id 5.5.5.5
[RouterE-bgp] confederation id 200
[RouterE-bgp] peer 10.1.4.1 as-number 65001
[RouterE-bgp] peer 10.1.5.1 as-number 65001
[RouterE-bgp] quit
```

4. 配置 AS100 和 AS200 之间的 EBGP 连接

配置 RouterA。

```
[RouterA] bgp 65001
[RouterA-bgp] peer 200.1.1.2 as-number 100
[RouterA-bgp] quit
```

配置 RouterF。

```
[RouterF] bgp 100
[RouterF-bgp] router-id 6.6.6.6
[RouterF-bgp] peer 200.1.1.1 as-number 200
[RouterF-bgp] ipv4-family unicast
[RouterF-bgp-af-ipv4] network 9.1.1.0 255.255.255.0
[RouterF-bgp-af-ipv4] quit
```

5.验证配置结果

查看 RouterB 的 BGP 路由表。

```
[RouterB] display bgp routing-table
 BGP Local router ID is 2.2.2.2
 Status codes: * - valid, > - best, d - damped,
               h - history,  i - internal, s - suppressed, S - Stale
               Origin : i - IGP, e - EGP, ? - incomplete
 Total Number of Routes: 1
      Network            NextHop        MED        LocPrf    PrefVal Path/Ogn
 *>i  9.1.1.0/24         10.1.1.1        0          100       0      (65001) 100i
[RouterB] display bgp routing-table 9.1.1.0
BGP local router ID : 2.2.2.2
 Local AS number : 65002
 Paths:   1 available, 1 best, 1 select
 BGP routing table entry information of 9.1.1.0/24:
 From: 10.1.1.1 (1.1.1.1)
 Route Duration: 00h12m29s
 Relay IP Nexthop: 0.0.0.0
 Relay IP Out-Interface: GigabitEthernet1/0/0
 Original nexthop: 10.1.1.1
```

```
 Qos information : 0x0

 AS-path (65001) 100, origin igp, MED 0, localpref 100, pref-
val 0, valid, external-confed, best, select, pre 255
 Not advertised to any peer yet
```

查看 RouterD 的 BGP 路由表。

```
[RouterD] display bgp routing-table

 BGP Local router ID is 4.4.4.4

 Status codes: * - valid, > - best, d - damped,

               h - history,  i - internal, s - suppressed, S -
Stale

               Origin : i - IGP, e - EGP, ? - incomplete

 Total Number of Routes: 1

      Network            NextHop        MED        LocPrf
PrefVal Path/Ogn

 *>i  9.1.1.0/24         10.1.3.1        0          100
0       100i

[RouterD] display bgp routing-table 9.1.1.0

BGP local router ID : 4.4.4.4

 Local AS number : 65001

 Paths:   1 available, 1 best, 1 select

 BGP routing table entry information of 9.1.1.0/24:

 From: 10.1.3.1 (1.1.1.1)

 Route Duration: 00h23m57s

 Relay IP Nexthop: 0.0.0.0

 Relay IP Out-Interface: GigabitEthernet1/0/0

 Original nexthop: 10.1.3.1

 Qos information : 0x0

 AS-path 100, origin igp, MED 0, localpref 100, pref-val 0,
valid, internal-confed, best, select, active, pre 255
 Not advertised to any peer yet
```

配置文件

- RouterA 的配置文件

```
#
 sysname RouterA
#
interface GigabitEthernet0/0/1
 ip address 10.1.4.1 255.255.255.0
#
interface GigabitEthernet1/0/0
 ip address 200.1.1.1 255.255.255.0
#
interface GigabitEthernet2/0/0
 ip address 10.1.1.1 255.255.255.0
#
interface GigabitEthernet3/0/0
 ip address 10.1.2.1 255.255.255.0
#
interface GigabitEthernet4/0/0
 ip address 10.1.3.1 255.255.255.0
#
bgp 65001
 router-id 1.1.1.1
 confederation id 200
 confederation peer-as 65002 65003
 peer 200.1.1.2 as-number 100
 peer 10.1.1.2 as-number 65002
 peer 10.1.2.2 as-number 65003
 peer 10.1.3.2 as-number 65001
 peer 10.1.4.2 as-number 65001
 #
```

```
 ipv4-family unicast
  undo synchronization
  peer 200.1.1.2 enable
  peer 10.1.1.2 enable
  peer 10.1.1.2 next-hop-local
  peer 10.1.2.2 enable
  peer 10.1.2.2 next-hop-local
  peer 10.1.3.2 enable
  peer 10.1.3.2 next-hop-local
  peer 10.1.4.2 enable
  peer 10.1.4.2 next-hop-local
#
return
```

- RouterB 的配置文件

```
#
 sysname RouterB
#
interface GigabitEthernet1/0/0
 ip address 10.1.1.2 255.255.255.0
#
bgp 65002
 router-id 2.2.2.2
 confederation id 200
 confederation peer-as 65001
 peer 10.1.1.1 as-number 65001
 #
 ipv4-family unicast
  undo synchronization
  peer 10.1.1.1 enable
```

```
#
return
```

说明：

RouterC 的配置文件与 RouterB 类似，此处省略。

- RouterD 的配置文件

```
#
 sysname RouterD
#
interface GigabitEthernet1/0/0
 ip address 10.1.3.2 255.255.255.0
#
interface GigabitEthernet2/0/0
 ip address 10.1.5.1 255.255.255.0
#
bgp 65001
 router-id 4.4.4.4
 confederation id 200
 peer 10.1.3.1 as-number 65001
 peer 10.1.5.2 as-number 65001
 #
 ipv4-family unicast
  undo synchronization
  peer 10.1.3.1 enable
  peer 10.1.5.2 enable
#
return
```

说明：

RouterE 的配置文件与 RouterD 类似，此处省略。

- RouterF 的配置文件

```
#
 sysname RouterF
#
interface GigabitEthernet1/0/0
 ip address 200.1.1.2 255.255.255.0
#
interface GigabitEthernet2/0/0
 ip address 9.1.1.1 255.255.255.0
#
bgp 100
 router-id 6.6.6.6
 peer 200.1.1.1 as-number 200
 #
 ipv4-family unicast
  undo synchronization
  network 9.1.1.0 255.255.255.0
  peer 200.1.1.1 enable
#
return
```