ASR 1000机箱对机箱NAT高可用性配置示例

目录

简介

本文描述方框对方框NAT高可用性的(B2B NAT HA)配置在Cisco IOS XE设备，有在聚合服务路由器(ASR)1000的重点的家族。

B2B NAT HA是达到应用程序的高可用性的方法例如基于区域的防火墙(ZBFW)，网络地址转换(NAT)， VPN，会话博德控制器(SBC)等等在ASR 1000家族路由器之间。本文描述如何与验证一起配置在思科ASR 1000平台的B2B NAT HA。

先决条件

要求

Cisco 建议您了解以下主题：

- ASR 1000平台体系结构的概述知识
- 在高可用性和NAT技术的基础知识

使用的组件

本文档中的信息根据ASR 1000家族用Cisco IOS版本XE 3.10及以后版本。Cisco IOS XE版本3.5支持B2B NAT HA及以后。

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。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

配置

注意：使用命令查找工具（仅限注册用户）可获取有关本部分所使用命令的详细信息。

B2BHA故障切换触发

某些普通的故障切换触发是：

- 断电/重新加载(这包括失败)在激活。
- 封装安全有效载荷(ESP)重新加载(或者计划或无计划)。
- 冗余组的(RG)控制接口下来被关闭/链路。
- RG的数据接口下来被关闭/链路。
- 被跟踪的对象失败(IP服务成水平协议)。
- 协议keep-alive失败。
- 激活的运行时优先级在配置的那阈值之下去下来。
- 激活的运行时优先级在那待机之下去下来。

最低配置

此部分描述如何与拓扑信息一起配置B2B NAT HA。

B2丁基羟基苯甲醚部署能有这三拓扑：

- 蓝岚
- LAN-WAN
- LAN Mesh

注意：平均的冗余数据包大小是256个字节。

与基本L2/L3连接的网络图

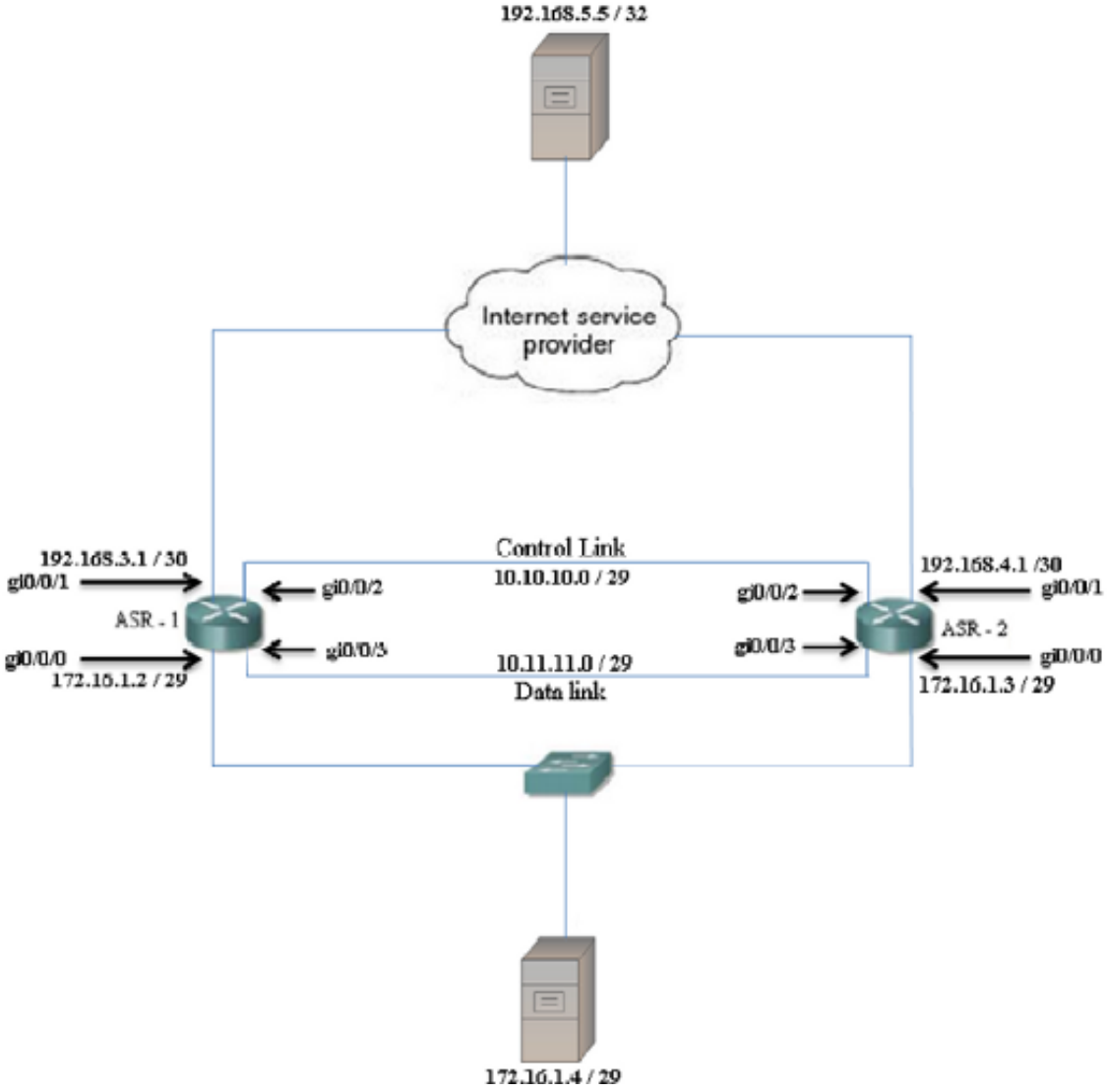
基本L2/L3连接

配置能在两大部分中分开。一部分是启用RG、冗余协议、计时器、控制和数据接口的基本配置。第二部分与实际数据/流量接口和其关联关连有RG的。

此示例设法达到在ASR的B2B NAT HA用从LAN 172.16.1.4的远端的服务器192.168.5.5。这些配置当时准备与静态NAT配置。

```
ip nat pool POOL1 200.200.200.200 200.200.200.200 netmask 255.255.255.252
ip nat inside source list NAT pool POOL1 redundancy 1 mapping-id 252
```

```
Extended IP access list NAT
   10 permit ip host 172.16.1.4 host 192.168.5.5
```



ASR-1

```
redundancy
 mode none
 application redundancy
 group 1
 name TEST
 preempt
 priority 150
 control GigabitEthernet0/0/2

protocol 1
 data GigabitEthernet0/0/3
```

ASR-2

```
redundancy
mode none
application redundancy
group 1
name TEST
preempt
priority 50
control GigabitEthernet0/0/2

protocol 1
data GigabitEthernet0/0/3
```

两ASR应该能到达ISP提供的公网IP地址。

```
ASR-1#ping 200.200.200.200
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 200.200.200.200, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms ASR-2#ping 200.200.200.200
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 200.200.200.200, timeout is 2 seconds:
!!!!!
```

面对接口的LAN连接到分布式交换机，反过来连接到主机。

```
ASR-1#show run int GigabitEthernet0/0/0
interface GigabitEthernet0/0/0
 ip address 172.16.1.2 255.255.255.248
 ip nat inside
 negotiation auto
 cdp enable
 redundancy rii 100
 redundancy group 1 ip 172.16.1.5
exclusive decrement 100
end
```

```
ASR-2#show run int GigabitEthernet0/0/0
interface GigabitEthernet0/0/0
 ip address 172.16.1.3 255.255.255.248
 ip nat inside
 negotiation auto
 cdp enable
 redundancy rii 100
 redundancy group 1 ip 172.16.1.5
exclusive decrement 100
end
```

面对接口的ISP有此配置：

```
ASR-1#show run int gi0/0/1
interface GigabitEthernet0/0/1
 ip address 192.168.3.2 255.255.255.252
 ip nat outside
 negotiation auto
 cdp enable
 redundancy rii 101
 redundancy asymmetric-routing enable
 redundancy group 1 decrement 20
end
```

```
ASR-2#show run int gi0/0/1
interface GigabitEthernet0/0/1
 ip address 192.168.4.2 255.255.255.252
 ip nat outside
 negotiation auto
 cdp enable
 redundancy rii 101
 redundancy asymmetric-routing enable
 redundancy group 1 decrement 20
end
```

如这些部分所显示，数据和控制接口ASR之间配置。

控制接口

```
ASR-1#show run int gi0/0/2
interface GigabitEthernet0/0/2
description CONTROL-INTERFACE
ip address 10.10.10.1 255.255.255.252
negotiation auto
cdp enable
end
```

```
ASR-2#show run int gi0/0/2
interface GigabitEthernet0/0/2
description CONTROL INTERFACE
ip address 10.10.10.2 255.255.255.252
negotiation auto
cdp enable
end
```

数据接口

```
ASR-1#show run int gi0/0/3
interface GigabitEthernet0/0/3
description DATA INTERFACE
encapsulation dot1Q 10
ip address 10.11.11.1 255.255.255.252
end
```

```
ASR-2#show run int gi0/0/3
interface GigabitEthernet0/0/3
description DATA INTERFACE
encapsulation dot1Q 10
ip address 10.11.11.2 255.255.255.252
end
```

注意：
-您不能配置一个冗余接口标识符(RII)在配置作为数据接口或作为控制接口的接口。
-您必须配置RII和不对称路由在活动和暂挂设备。
-您不能启用在有配置的一个虚拟IP地址的接口的不对称路由。

验证

验证命令和预期的输出

命令输出解释程序工具（仅限注册用户）支持某些 **show** 命令。请使用Output Interpreter Tool为了查看show命令输出分析。

```
ASR-1#show redundancy application group
Group ID    Group Name                     State
--------    ----------                     -----
1           TEST                          ACTIVE

ASR-2#show redundancy application group
Group ID    Group Name                     State
--------    ----------                     -----
1           TEST                          STANDBY

ASR-1#show redundancy application group 1
Group ID:1
Group Name:TEST

Administrative State: No Shutdown
Aggregate operational state : Up
My Role: ACTIVE
Peer Role: STANDBY
Peer Presence: Yes
Peer Comm: Yes
Peer Progression Started: Yes

RF Domain: btob-one
    RF state: ACTIVE
    Peer RF state: STANDBY HOT

ASR-2#show redundancy application group 1
Group ID:1
Group Name:TEST

Administrative State: No Shutdown
Aggregate operational state : Up
My Role: STANDBY
Peer Role: ACTIVE
Peer Presence: Yes
Peer Comm: Yes
Peer Progression Started: Yes

RF Domain: btob-one
    RF state: STANDBY HOT
    Peer RF state: ACTIVE

ASR-1#show ip nat translations
Pro  Inside global         Inside local          Outside local         Outside global
---  200.200.200.200       172.16.1.4            ---                   ---
icmp 200.200.200.200:98    172.16.1.4:98         192.168.5.5:98        192.168.5.5:98
Total number of translations: 2

ASR-2#show ip nat translations
Pro  Inside global         Inside local          Outside local         Outside global
---  200.200.200.200       172.16.1.4            ---                   ---
icmp 200.200.200.200:98    172.16.1.4:98         192.168.5.5:98        192.168.5.5:98
Total number of translations: 2

ASR-1#show redundancy application protocol group 1

RG Protocol RG 1
```

```
------------------
   Role: Active
   Negotiation: Enabled
   Priority: 150
   Protocol state: Active
   Ctrl Intf(s) state: Up
   Active Peer: Local
   Standby Peer: address 10.10.10.2, priority 50, intf Gi0/0/2
   Log counters:
       role change to active: 7
       role change to standby: 7
       disable events: rg down state 7, rg shut 0
       ctrl intf events: up 7, down 8, admin_down 7
       reload events: local request 0, peer request 0

RG Media Context for RG 1
--------------------------
   Ctx State: Active
   Protocol ID: 1
   Media type: Default
   Control Interface: GigabitEthernet0/0/2
       Current Hello timer: 3000
   Configured Hello timer: 3000, Hold timer: 9000
   Peer Hello timer: 3000, Peer Hold timer: 9000
   Stats:
       Pkts 386597, Bytes 23969014, HA Seq 0, Seq Number 386597, Pkt Loss 0
       Authentication not configured
       Authentication Failure: 0
       Reload Peer: TX 0, RX 0
       Resign: TX 0, RX 1
   Standby Peer: Present. Hold Timer: 9000
       Pkts 386589, Bytes 13144026, HA Seq 0, Seq Number 1503658, Pkt Loss 0

ASR-2#show redundancy application protocol group 1

RG Protocol RG 1
------------------
   Role: Standby
   Negotiation: Enabled
   Priority: 50
   Protocol state: Standby-hot
   Ctrl Intf(s) state: Up
   Active Peer: address 10.10.10.1, priority 150, intf Gi0/0/2
   Standby Peer: Local
   Log counters:
       role change to active: 8
       role change to standby: 16009
       disable events: rg down state 1, rg shut 0
       ctrl intf events: up 9, down 10, admin_down 1
       reload events: local request 15999, peer request 2

RG Media Context for RG 1
--------------------------
   Ctx State: Standby
   Protocol ID: 1
   Media type: Default
   Control Interface: GigabitEthernet0/0/2
       Current Hello timer: 3000
   Configured Hello timer: 3000, Hold timer: 9000
   Peer Hello timer: 3000, Peer Hold timer: 9000
   Stats:
       Pkts 1503674, Bytes 93227788, HA Seq 0, Seq Number 1503674, Pkt Loss 0
       Authentication not configured
       Authentication Failure: 0
```

```
        Reload Peer: TX 2, RX 2
        Resign: TX 8, RX 7
    Active Peer: Present. Hold Timer: 9000
        Pkts 386603, Bytes 13144502, HA Seq 0, Seq Number 386613, Pkt Loss 0

ASR-1#show platform hardware qfp active system rg 1
Redundancy Group 1
    State:        RG_ACTIVE
    Bulksync:    NO BULKSYNC REQ
    Transport:
        SYNC_B2B    LISTEN
            cp hdl 0x01013e8d dp hdl 0x03010006, platfm hdl 0x0000fa35
        L3_IPV4
            src addr 10.11.11.1    dest addr 10.11.11.2
        L4_UDP_RELIABLE
            src port   19510    dest port   3497

        AR transport not available
    Stats:
        RG Request:
            CREATE        0
            UPDATE        32048
            DELETE        0
        RG State:
            RG_PREINIT        0
            RG_INIT            7
            RG_STANDBY        21
            RG_ACTIVE        32020
        RG Transport Request:
                    NA            0
            OPEN            16014
            CLOSE            0
        RG Transport Status:
            CONN_ESTB        7
            CONN_FAIL        0
            TRANS_DOWN        0
            TRANS_DOWN_GRACEFUL    8
        Bulksync:
            Request            7
            Success            7
            Fail            0

ASR-1#show platform hardware qfp active system rg 1 stats
    trans index:    00000006  Trans Type:    00000001  RG    1
    mf_flags    0x40000000  seq_flags    0x700003ff
    ha_control_state    0x5
    pending ack        00000000
    keepalive_timeout    00000100
    rx_seq_flags        0x8000000
    rx_seq_num    0x2c0d4a44
    tx_seq        0xb4965908
    tx_ack_tail    0xb4965908
    tx_seq_flags    0x700003ff
    tx    0000000000580126
    rx    0000000000580089
    retx    0000000000000000
    rx dropped    0000000000000000
    records dropped    0000000000000000
    tx dropped    0000000000000000
    ack dropped    00000000  oob pkts dropped 00000000
    send dropped 00000000  rx_control_msgs 00580090
    tx control_msgs 00580078   for_us_hits 01160217
    sync_alloc_failures 00000000  status_notifications 00000001
    sync_msgs_received 00580093  sync_msgs_sent 00580133
```

```
for_us_udp_checksum_drops 00000000
acks sent 00580089 rcvd 00580126  nacks sent 00000000 rcvd 00000000
```

有用的命令

- 在激活的RG重新加载与**冗余应用程序重新加载组<rg-number>自己**in命令EXEC模式。
- 在激活的RG关闭与使用这些CLI in命令冗余配置模式：`ISR1(config-red-app)#`**`group 1`**
  `ISR1(config-red-app-grp)#`**`shutdown`**

故障排除

目前没有针对此配置的故障排除信息。