

ASR 1000机箱对机箱NAT高可用性配置示例

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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

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。
- 重新加载嵌入式服务处理器(ESP) (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。

B2B丁基羟基苯甲醚部署能有这三拓扑：

- 蓝岚
- LAN-WAN
- LAN Mesh

Note: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

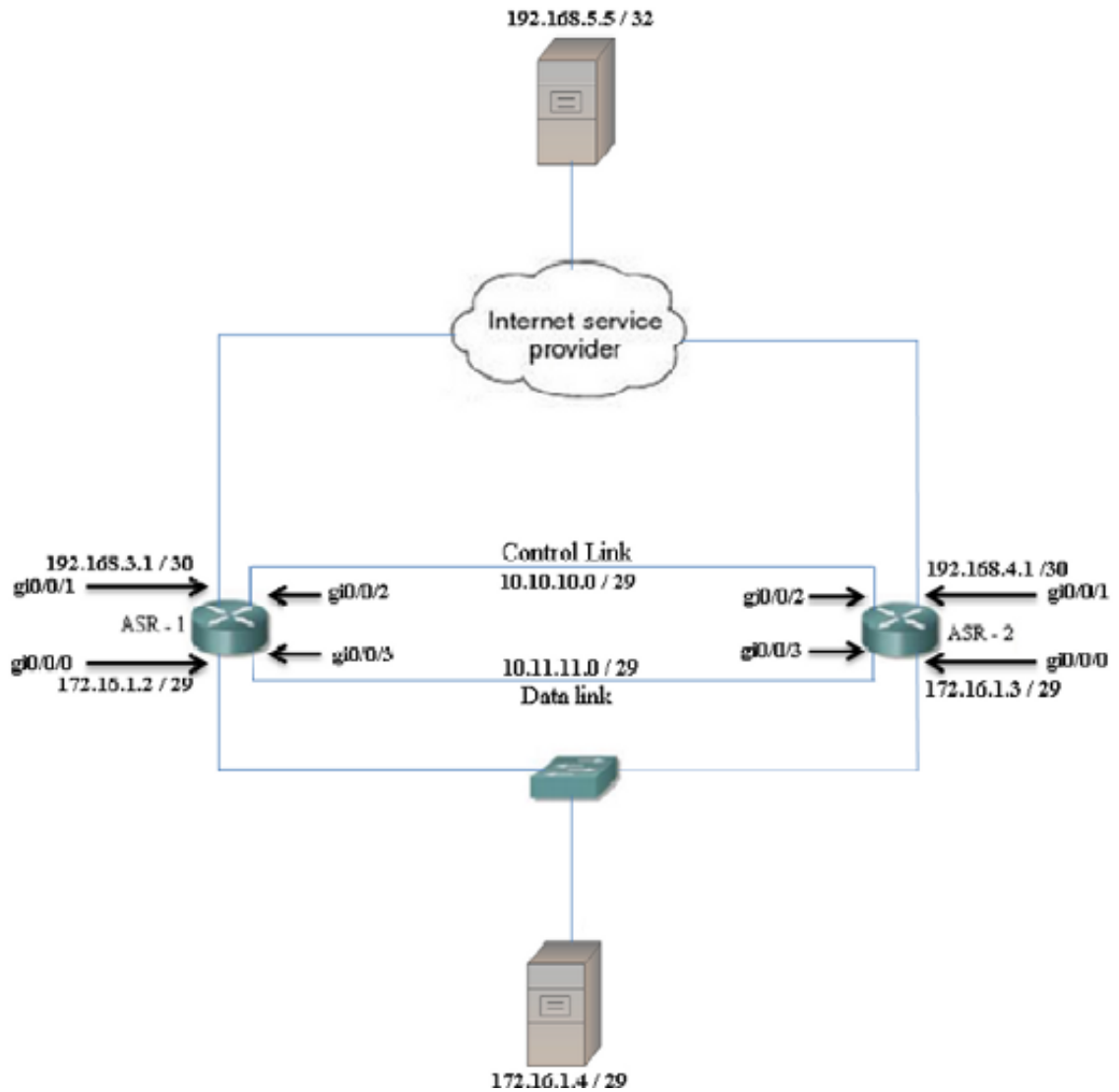
基本L2/L3连接

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
```

Note:

- 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设备和挂设备。
- 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

确定[Cisco CLI分析器\(仅限注册用户\)](#)支持显示命令。请使用Cisco CLI分析器为了查看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 BULKSYSN 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 0x80000000
 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 ocb 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。