F1000-AK系列防火墙常见冗余组网配置举例（上下交换机三层组网）

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组网及说明

1 配置需求及说明

1.1 适用的产品系列

本案例适用于如F1000-AK180、F1000-AK170等F1000-AK系列的防火墙。

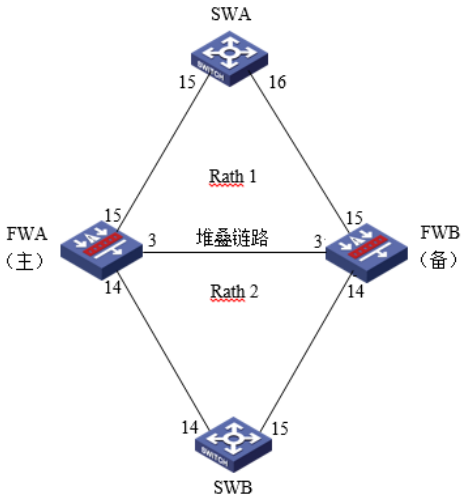
1.2 配置需求及实现的效果

防火墙A与防火墙B堆叠后上联交换机A下联交换机B，应用户业务需求：

1、 防火墙做主备运行

2、 正常情况下业务流量全部负载在FWA，FWA出现故障后流量全部切到FWB运行

2 组网图



配置步骤

3 配置步骤

3.1 SWA配置

3.1.1 配置交换机下联防火墙接口

交换机配置vlan 10将下联防火墙的15和16接口加入vlan10，并创建vlan10接口IP地址为1.1.1.1

system

[H3C]vlan10

[H3C-vlan10]port GigabitEthernet 1/0/15 GigabitEthernet 1/0/16

[H3C]interface Vlan-interface 10

[H3C-Vlan-interface10]ip address 1.1.1.1 24

配置到内网网段的回程路由，下一跳为防火墙Reth1接口地址。

[H3C]ip route-static 2.2.2.0 24 1.1.1.2

注：实际组网中应该将内网网段全部添加进回程路由。

3.2 SWB配置

3.2.1 配置交换机上联防火墙接口

交换机配置vlan 20将下联防火墙的14和15接口加入vlan20，并创建vlan20接口IP地址为2.2.2.1。

system

[H3C]vlan20

[H3C-vlan20]port GigabitEthernet 1/0/14 GigabitEthernet 1/0/15

[H3C]interface Vlan-interface 20

[H3C-Vlan-interface20]ip address 2.2.2.1 24

配置默认路由到防火墙Reth2接口地址。

[H3C]ip route-static 0.0.0.0 0 2.2.2.2

3.3 防火墙配置

3.3.1 FWA与FWB建立堆叠

具体配置可参考防火墙虚拟化配置举例，本章不做介绍。

3.3.2 配置冗余接口关联上下行物理端口

1. 创建Reth1接口

创建Reth1接口配置IP地址为1.1.1.2/24，并配置1/0/15成员优先级为255，2/0/15成员优先级为50。

system-view

[H3C] interface reth 1

[H3C-Reth1] ip address 1.1.1.2 24

[H3C-Reth1] member interface gigabitethernet 1/0/15 priority 255

[H3C-Reth1] member interface gigabitethernet 2/0/15 priority 50
[H3C-Reth1] quit

2. 创建Reth2接口

创建Reth2接口配置IP地址为2.2.2.2/24，并配置1/0/14成员优先级为255，2/0/14成员优先级为50。

system-view
[H3C] interface reth 1
[H3C-Reth1] ip address 2.2.2.2 24
[H3C-Reth1] member interface gigabitethernet 1/0/14 priority 255
[H3C-Reth1] member interface gigabitethernet 2/0/14 priority 50
[H3C-Reth1] quit

3.3.3 配置冗余接口关联上下行物理端口

配置track检测上下行端口的物理状态

[H3C] track 1 interface gigabitethernet 1/0/15 physical
[H3C-track-1] quit
[H3C] track 2 interface gigabitethernet 1/0/14 physical
[H3C-track-2] quit
[H3C] track 3 interface gigabitethernet 2/0/15 physical
[H3C-track-3] quit
[H3C] track 4 interface gigabitethernet 2/0/14 physical
[H3C-track-4] quit

3.3.4 配置冗余组关联冗余接口

1. 创建节点1与防火墙A所有接口绑定

[H3C] redundancy group aaa
[H3C-redundancy-group-aaa] node 1
[H3C-redundancy-group-aaa-node1] bind slot 1
[H3C-redundancy-group-aaa-node1] priority 100
[H3C-redundancy-group-aaa-node1] track 1 interface gigabitethernet 1/0/15
[H3C-redundancy-group-aaa-node1] track 2 interface gigabitethernet 1/0/14
[H3C-redundancy-group-aaa-node1] quit

2. 创建节点2与防火墙B所有接口绑定

[H3C-redundancy-group-aaa] node 2
[H3C-redundancy-group-aaa-node2] bind slot 2
[H3C-redundancy-group-aaa-node2] priority 50
[H3C-redundancy-group-aaa-node2] track 3 interface gigabitethernet 1/0/15
[H3C-redundancy-group-aaa-node2] track 4 interface gigabitethernet 1/0/14
[H3C-redundancy-group-aaa-node2] quit

3.3.5 将冗余接口加入冗余组

[H3C-redundancy-group-aaa] member interface reth 1
[H3C-redundancy-group-aaa] member interface reth 2
[H3C-redundancy-group-aaa] quit

3.3.6 开启会话热备

[H3C] session synchronization enable

3.3.7 安全策略配置

1. 将Reth1加入安全域

将Reth加入Untrust区域

[H3C]security-zone name Untrust
[H3C-security-zone-Untrust]import interface Reth1

将Reth2加入trust区域

[H3C]security-zone name trust
[H3C-security-zone-trust]import interface Reth2
[H3C-security-zone-trust]quit

防火墙目前版本存在两套安全策略，请在放通安全策略前确认设备运行那种类型的安全策略？以下配置任选其一。

2. 通过命令“display cu | in security-policy”如果查到命令行存在“security-policy disable”或者没有查到任何信息，则使用下面策略配置。

[H3C]display cu | in security-policy
 security-policy disable

#创建对象策略pass。

[H3C]object-policy ip pass
[H3C-object-policy-ip-pass] rule 0 pass
[H3C-object-policy-ip-pass]quit

#创建Trust到Untrust域的域间策略调用pass策略。

[H3C]zone-pair security source Trust destination local
[H3C-zone-pair-security-Trust- local]object-policy apply ip pass

[H3C-zone-pair-security-Trust- local]quit
[H3C]zone-pair security source local destination Trust
[H3C-zone-pair-security-local -trust]object-policy apply ip pass
[H3C-zone-pair-security-local -trust]quit
[H3C]zone-pair security source Untrust destination local
[H3C-zone-pair-security-Untrust- local]object-policy apply ip pass
[H3C-zone-pair-security-Untrust- local]quit
[H3C]zone-pair security source local destination Untrust
[H3C-zone-pair-security-local -Untrust]object-policy apply ip pass
[H3C-zone-pair-security-local -Untrust]quit
[H3C]zone-pair security source Trust destination Untrust
[H3C-zone-pair-security-Trust -Untrust]object-policy apply ip pass
[H3C-zone-pair-security-Trust -Untrust]quit

3. 通过命令“display cu | in security-policy”如果查到命令行存在“security-policy ip”并且没有查到“security-policy disable”，则使用下面策略配置。

[H3C]display cu | in security-policy
security-policy ip
创建安全策略并放通local到trust和trust到local的安全策略。
[H3C]security-policy ip
[H3C-security-policy-ip]rule 10 name test
[H3C-security-policy-ip-10-test]action pass
[H3C-security-policy-ip-10-test]source-zone local
[H3C-security-policy-ip-10-test]source-zone Trust
[H3C-security-policy-ip-10-test]source-zone Untrust
[H3C-security-policy-ip-10-test]destination-zone local
[H3C-security-policy-ip-10-test]destination-zone Trust
[H3C-security-policy-ip-10-test]destination-zone Untrust
[H3C-security-policy-ip-10-test]quit

4 检验配置结果

4.1.1 正常时查看冗余组状态

查看冗余组状态，可以看到节点1为主节点。

```
[F1060]dis redundancy group bin
Redundancy group bin (ID 1):
  Node ID      Slot          Priority   Status         Track weight
  1            Slot1         100        Primary        255
  2            Slot2         50         Secondary      255

Preempt delay time remained     : 0    min
Preempt delay timer setting     : 1    min
Remaining hold-down time        : 0    sec
Hold-down timer setting         : 1    sec
Manual switchover request       : No

Member interfaces:
    Reth1                Reth2

Node 1:
  Track info:
    Track    Status       Reduced weight     Interface
    1        Positive     255                GE1/0/15
    2        Positive     255                GE1/0/14
Node 2:
  Track info:
    Track    Status       Reduced weight     Interface
    3        Positive     255                GE2/0/15
    4        Positive     255                GE2/0/14
```

显示Reth信息。可以看到Reth1和Reth2中优先级高的成员接口处于激活状态。

```
[F1060]dis reth interface Reth 1
Reth1 :
  Redundancy group  : bin
  Member           Physical status         Forwarding status   Presence status
  GE1/0/15         UP                      Active              Normal
  GE2/0/15         UP                      Inactive            Normal
[F1060]dis reth interface Reth 2
Reth2 :
  Redundancy group  : bin
  Member           Physical status         Forwarding status   Presence status
  GE1/0/14         UP                      Active              Normal
  GE2/0/14         UP                      Inactive            Normal
[F1060]
```

4.1.2 当FWA宕机后时查看冗余组状态

查看冗余组状态，可以看到节点2为主节点。（将1/0/14接口关闭）

```
[F1060]dis redundancy group bin
Redundancy group bin (ID 1):
  Node ID      Slot          Priority   Status         Track weight
  1            Slot1         100        Secondary      0
  2            Slot2         50         Primary        255

Preempt delay time remained     : 1    min
Preempt delay timer setting     : 1    min
Remaining hold-down time        : 0    sec
Hold-down timer setting         : 1    sec
Manual switchover request       : No

Member interfaces:
    Reth1                 Reth2

Node 1:
  Track info:
    Track     Status       Reduced weight     Interface
    1         Positive     255                GE1/0/15
    2         Negative     255                GE1/0/14
Node 2:
  Track info:
    Track     Status       Reduced weight     Interface
    3         Positive     255                GE2/0/15
    4         Positive     255                GE2/0/14
```

显示Reth信息。节点2成员接口处于激活状态。

```
[F1060]dis reth interface Reth 1
Reth1 :
  Redundancy group  : bin
  Member           Physical status         Forwarding status   Presence status
  GE1/0/15         DOWN(redundancy down)   Inactive            Normal
  GE2/0/15         UP                      Active              Normal
[F1060]
[F1060]
[F1060]
[F1060]
[F1060]dis reth interface Reth 2
Reth2 :
  Redundancy group  : bin
  Member           Physical status         Forwarding status   Presence status
  GE1/0/14         DOWN                    Inactive            Normal
  GE2/0/14         UP                      Active              Normal
```

重新打开1/0/14接口后，冗余组主动切回。

```
[F1060-GigabitEthernet1/0/14]undo shutdown
[F1060-GigabitEthernet1/0/14]%Oct 31 12:34:44:183 2017 F1060 IFNET/3/PHY_UPDOWN: -Cont
ext=1; Physical state on the interface GigabitEthernet1/0/14 changed to up.
%Oct 31 12:34:44:183 2017 F1060 IFNET/5/LINK_UPDOWN: -Context=1; Line protocol state o
n the interface GigabitEthernet1/0/14 changed to up.

[F1060-GigabitEthernet1/0/14]
[F1060-GigabitEthernet1/0/14]%Oct 31 12:34:47:217 2017 F1060 IFNET/3/PHY_UPDOWN: -Cont
ext=1; Physical state on the interface GigabitEthernet1/0/15 changed to up.
%Oct 31 12:34:47:218 2017 F1060 IFNET/5/LINK_UPDOWN: -Context=1; Line protocol state o
n the interface GigabitEthernet1/0/15 changed to up.

[F1060-GigabitEthernet1/0/14]
[F1060-GigabitEthernet1/0/14]
[F1060-GigabitEthernet1/0/14]
[F1060-GigabitEthernet1/0/14]%Oct 31 12:35:44:903 2017 F1060 RDDC/5/RDDC_ACTIVENODE_CH
ANGE: -Context=1; Redundancy group bin active node changed to node 1 (slot 1), because
 of node's weight changed.
```

配置关键点

4.1.3 注意事项

1、配置冗余组后需要加入冗余接口的物理口全部连接，否则会造成冗余组异常。