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V7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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1 配置需求及说明

1.1 适用的产品系列

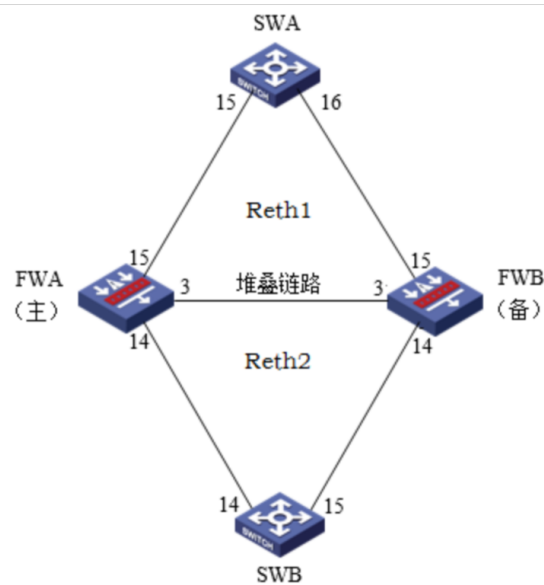
本案例适用于软件平台为Comware V7系列防火墙：F100-X-G2、F1000-X-G2、F100-X-WiNet、F1000-AK、F10X0等。

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换到FWB运行

2 组网图



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

```
<H3C>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将上联防火墙的14和15接口加入vlan20，并创建vlan20接口IP地址为2.2.2.1。

```
<H3C>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。

```
<H3C> 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。

```
<H3C> system-view
[H3C] interface reth 2
[H3C-Reth2] ip address 2.2.2.2 24
[H3C-Reth2] member interface gigabitethernet 1/0/14 priority
255
[H3C-Reth2] member interface gigabitethernet 2/0/14 priority 50
[H3C-Reth2] 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 2/0/15  
[H3C-redundancy-group-aaa-node2] track 4 interface  
gigabitethernet 2/0/14  
[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Solt1为主节点。


```
[F1060]dis redundancy group
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。（测试方法将1/0/14接口关闭）

```
[F1060]dis redundancy group
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: -Context=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 on 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: -Context=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 on 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_CHANGE: -Context=1; Redundancy group bin active node changed to node 1 (slot 1), because of node's weight changed.
```

4.1.3 注意事项

配置冗余组后，所有加入冗余组的物理接口状态必须处于UP状态，否则会造成冗余组主备切换异常。