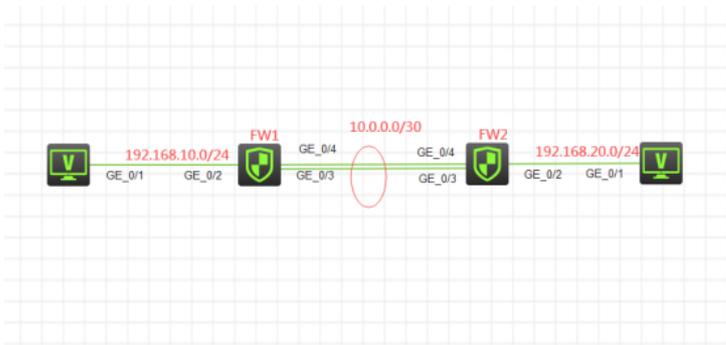


知 F1060三层链路聚合典型组网配置案例

链路聚合 H3C模拟器 韦家宁 2020-03-05 发表

组网及说明



组网说明:

本案例采用H3C HCL模拟器的F1060来模拟器F1060防火墙三层链路聚合典型组网配置。FW1与FW2采用双物理链路互联，并通过三层链路聚合实现链路捆绑，最终实现PC之间能相互PING通。FW1与FW2之间运行OSPF路由协议。

配置步骤

- 1、按照网络拓扑图正确配置IP地址
- 2、FW1与FW2之间运行OSPF路由协议
- 3、FW1与FW2之间采用三层链路聚合实现物理链路的捆绑

配置关键点

FW1 :

```
<H3C>sys
```

```
System View: return to User View with Ctrl+Z.
```

```
[H3C]sysname FW1
```

```
[FW1]acl basic 2001
```

```
[FW1-acl-ipv4-basic-2001]rule 0 permit source any
```

```
[FW1-acl-ipv4-basic-2001]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source trust destination untrust
```

```
[FW1-zone-pair-security-Trust-Untrust]packet-filter 2001
```

```
[FW1-zone-pair-security-Trust-Untrust]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source untrust destination trust
```

```
[FW1-zone-pair-security-Untrust-Trust]packet-filter 2001
```

```
[FW1-zone-pair-security-Untrust-Trust]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source trust destination local
```

```
[FW1-zone-pair-security-Trust-Local]packet-filter 2001
```

```
[FW1-zone-pair-security-Trust-Local]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source local destination trust
```

```
[FW1-zone-pair-security-Local-Trust]packet-filter 2001
```

```
[FW1-zone-pair-security-Local-Trust]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source untrust destination local
```

```
[FW1-zone-pair-security-Untrust-Local]packet-filter 2001
```

```
[FW1-zone-pair-security-Untrust-Local]quit
```

```
[FW1]
```

```
[FW1]zone-pair security source local destination untrust
```

```
[FW1-zone-pair-security-Local-Untrust]packet-filter 2001
```

```
[FW1-zone-pair-security-Local-Untrust]quit
```

FW1三层链路聚合关键配置点:

```
[FW1]int loopback 0
[FW1-LoopBack0]ip address 1.1.1.1 32
[FW1-LoopBack0]quit
[FW1]int gi 1/0/2
[FW1-GigabitEthernet1/0/2]ip address 192.168.10.1 24
[FW1-GigabitEthernet1/0/2]quit
[FW1]int Route-Aggregation 1
[FW1-Route-Aggregation1]des <connect to FW2>
[FW1-Route-Aggregation1]quit
[FW1]int range gi 1/0/3 to gi 1/0/4
[FW1-if-range]port link-aggregation group 1
[FW1-if-range]quit
[FW1]int Route-Aggregation 1
[FW1-Route-Aggregation1]ip address 10.0.0.1 30
[FW1-Route-Aggregation1]quit
[FW1]security-zone name Trust
[FW1-security-zone-Trust]import interface GigabitEthernet 1/0/2
[FW1-security-zone-Trust]quit
[FW1]security-zone name Untrust
[FW1-security-zone-Untrust]import interface LoopBack 0
[FW1-security-zone-Untrust]import interface GigabitEthernet 1/0/3
[FW1-security-zone-Untrust]import interface GigabitEthernet 1/0/4
[FW1-security-zone-Untrust]import interface Route-Aggregation 1
[FW1-security-zone-Untrust]quit
[FW1]ospf 1 router-id 1.1.1.1
[FW1-ospf-1]area 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]network 10.0.0.1 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]network 1.1.1.1 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]network 192.168.10.0 0.0.0.255
[FW1-ospf-1-area-0.0.0.0]quit
[FW1-ospf-1]quit
```

FW2:

```
<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW2
[FW2]acl basic 2001
[FW2-acl-ipv4-basic-2001]rule 0 permit source any
[FW2-acl-ipv4-basic-2001]quit
[FW2]
[FW2]zone-pair security source trust destination untrust
[FW2-zone-pair-security-Trust-Untrust]packet-filter 2001
[FW2-zone-pair-security-Trust-Untrust]quit
[FW2]
[FW2]zone-pair security source untrust destination trust
[FW2-zone-pair-security-Untrust-Trust]packet-filter 2001
[FW2-zone-pair-security-Untrust-Trust]quit
[FW2]
[FW2]zone-pair security source trust destination local
[FW2-zone-pair-security-Trust-Local]packet-filter 2001
[FW2-zone-pair-security-Trust-Local]quit
[FW2]
[FW2]zone-pair security source local destination trust
[FW2-zone-pair-security-Local-Trust]packet-filter 2001
[FW2-zone-pair-security-Local-Trust]quit
[FW2]
[FW2]zone-pair security source untrust destination local
[FW2-zone-pair-security-Untrust-Local]packet-filter 2001
[FW2-zone-pair-security-Untrust-Local]quit
[FW2]
[FW2]zone-pair security source local destination untrust
[FW2-zone-pair-security-Local-Untrust]packet-filter 2001
[FW2-zone-pair-security-Local-Untrust]quit
```

FW2 三层链路聚合关键配置点：

```
[FW2]int loopback 0
[FW2-LoopBack0]ip address 2.2.2.2 32
[FW2-LoopBack0]quit
[FW2]int gi 1/0/2
[FW2-GigabitEthernet1/0/2]ip address 192.168.20.1 24
[FW2-GigabitEthernet1/0/2]quit
[FW2]int Route-Aggregation 1
[FW2-Route-Aggregation1]des <connect to FW1>
[FW2-Route-Aggregation1]quit
[FW2]int range gi 1/0/3 to gi 1/0/4
[FW2-if-range]port link-aggregation group 1
[FW2-if-range]quit
[FW2]int Route-Aggregation 1
[FW2-Route-Aggregation1]ip address 10.0.0.2 30
[FW2-Route-Aggregation1]quit
[FW2]security-zone name Trust
[FW2-security-zone-Trust]import interface GigabitEthernet 1/0/2
[FW2-security-zone-Trust]quit
[FW2]security-zone name Untrust
[FW2-security-zone-Untrust]import interface LoopBack 0
[FW2-security-zone-Untrust]import interface GigabitEthernet 1/0/3
[FW2-security-zone-Untrust]import interface GigabitEthernet 1/0/4
[FW2-security-zone-Untrust]import interface Route-Aggregation 1
[FW2-security-zone-Untrust]quit
[FW2]ospf 1 router-id 2.2.2.2
[FW2-ospf-1]area 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]network 192.168.20.0 0.0.0.255
[FW2-ospf-1-area-0.0.0.0]network 2.2.2.2 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]network 10.0.0.2 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]qu
[FW2-ospf-1]qu
```

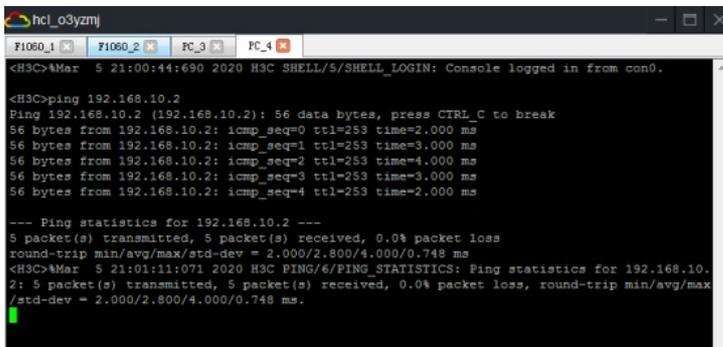
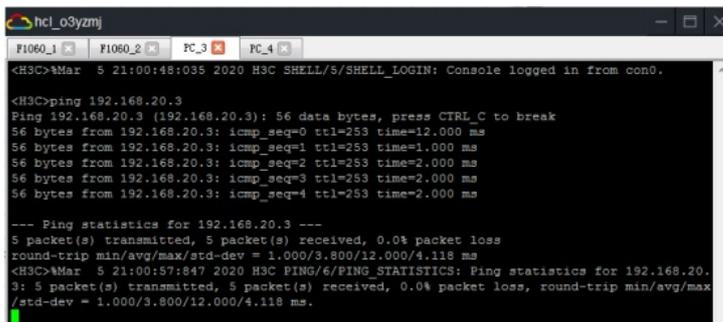
测试：

所有PC都填写IP地址：

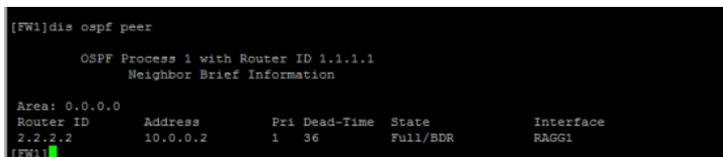




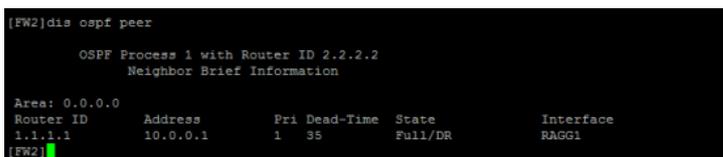
PC之间能相互PING通:



查看FW1的OSPF邻居信息:



查看FW2的OSPF邻居信息:



查看FW1的链路聚合显示信息:

```
[FW1]dis link-aggregation verbose
Loadsharing Type: Shar -- Loadsharing, NonS -- Non-Loadsharing
Port Status: S -- Selected, U -- Unselected, I -- Individual
Flags: A -- LACP_Activity, B -- LACP_Timeout, C -- Aggregation,
      D -- Synchronization, E -- Collecting, F -- Distributing,
      G -- Defaulted, H -- Expired

Aggregate Interface: Route-Aggregation1
Aggregation Mode: Static
Loadsharing Type: Shar
-----
Port          Status  Priority Oper-Key
-----
GE1/0/3       S       32768   1
GE1/0/4       S       32768   1
[FW1]
```

```
[FW1]dis int brief
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface      Link Protocol Primary IP      Description
-----
GE1/0/0        DOWN DOWN        --
GE1/0/1        DOWN DOWN        192.168.0.1
GE1/0/2        UP  UP          192.168.10.1
GE1/0/3        UP  UP          --
GE1/0/4        UP  UP          --
GE1/0/5        DOWN DOWN        --
GE1/0/6        DOWN DOWN        --
GE1/0/7        DOWN DOWN        --
GE1/0/8        DOWN DOWN        --
GE1/0/9        DOWN DOWN        --
GE1/0/10       DOWN DOWN        --
GE1/0/11       DOWN DOWN        --
GE1/0/12       DOWN DOWN        --
GE1/0/13       DOWN DOWN        --
GE1/0/14       DOWN DOWN        --
GE1/0/15       DOWN DOWN        --
GE1/0/16       DOWN DOWN        --
GE1/0/17       DOWN DOWN        --
GE1/0/18       DOWN DOWN        --
GE1/0/19       DOWN DOWN        --
GE1/0/20       DOWN DOWN        --
GE1/0/21       DOWN DOWN        --
GE1/0/22       DOWN DOWN        --
GE1/0/23       DOWN DOWN        --
InLoop0       UP  UP(s)       --
Loop0         UP  UP(s)       1.1.1.1
NULL0         UP  UP(s)       --
REG0         UP  --          --
RAGG1         UP  UP          10.0.0.1      <connect to FW2>
[FW1]
```

查看FW2的链路聚合显示信息:

```
[FW2]dis link-aggregation verbose
Loadsharing Type: Shar -- Loadsharing, NonS -- Non-Loadsharing
Port Status: S -- Selected, U -- Unselected, I -- Individual
Flags: A -- LACP_Activity, B -- LACP_Timeout, C -- Aggregation,
      D -- Synchronization, E -- Collecting, F -- Distributing,
      G -- Defaulted, H -- Expired

Aggregate Interface: Route-Aggregation1
Aggregation Mode: Static
Loadsharing Type: Shar
-----
Port          Status  Priority Oper-Key
-----
GE1/0/3       S       32768   1
GE1/0/4       S       32768   1
[FW2]
```

```
[FW2]dis int brief
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface      Link Protocol Primary IP      Description
-----
GE1/0/0        DOWN DOWN        --
GE1/0/1        DOWN DOWN        192.168.0.1
GE1/0/2        UP  UP          192.168.20.1
GE1/0/3        UP  UP          --
GE1/0/4        UP  UP          --
GE1/0/5        DOWN DOWN        --
GE1/0/6        DOWN DOWN        --
GE1/0/7        DOWN DOWN        --
GE1/0/8        DOWN DOWN        --
GE1/0/9        DOWN DOWN        --
GE1/0/10       DOWN DOWN        --
GE1/0/11       DOWN DOWN        --
GE1/0/12       DOWN DOWN        --
GE1/0/13       DOWN DOWN        --
GE1/0/14       DOWN DOWN        --
GE1/0/15       DOWN DOWN        --
GE1/0/16       DOWN DOWN        --
GE1/0/17       DOWN DOWN        --
GE1/0/18       DOWN DOWN        --
GE1/0/19       DOWN DOWN        --
GE1/0/20       DOWN DOWN        --
GE1/0/21       DOWN DOWN        --
GE1/0/22       DOWN DOWN        --
GE1/0/23       DOWN DOWN        --
InLoop0       UP  UP(s)       --
Loop0         UP  UP(s)       2.2.2.2
NULL0         UP  UP(s)       --
REG0         UP  --          --
RAGG1         UP  UP          10.0.0.2      <connect to FW1>
[FW2]
```

至此，F1060三层链路聚合典型组网配置案例已完成！