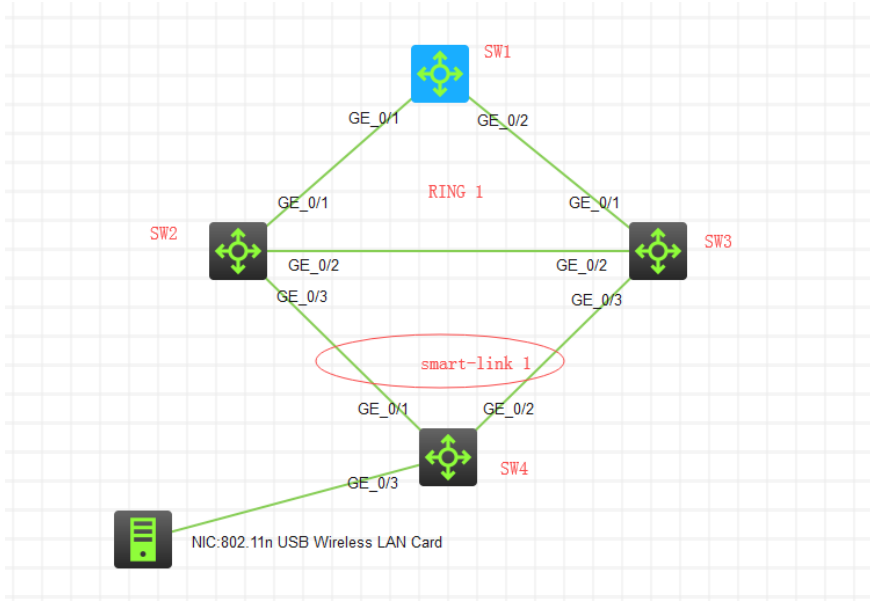


# 知 RRPP与smart-link & monitor-link联动组网解决方案

二层转发 RRPP Smart Link Monitor Link 家宁 2019-10-24 发表

## 组网及说明



## 问题描述

实现RRPP与smart-link & monitor-link共存，解决网络二层环路、链路冗余。

## 过程分析

SW1、SW2、SW3交换机构成一个RRPP环，SW1为环的主节点（GI 1/0/1为主端口、GI 1/0/2为副端口）。SW2为环的传输节点（GI 1/0/1为主端口、GI 1/0/2为副端口），SW3为环的传输节点（GI 1/0/1为主端口、GI 1/0/2为副端口）。

为了实现二层链路冗余，在SW4交换机配置smart-link组1（GI 1/0/1为主端口，GI 1/0/2为副端口）。同时为了实现链路故障时能快速切换，分别在SW2、SW3交换机上配置monitor-link组（GI 1/0/1为上行端口，GI 1/0/3为下行端口）。

## 解决方法

配置脚本：

SW1：

1、基础配置脚本如下：

```
sysname SW1
router id 1.1.1.1
vlan 10
quit
interface LoopBack0
ip address 1.1.1.1 255.255.255.255
quit
interface Vlan-interface10
ip address 192.168.10.254 255.255.255.0
quit
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
port trunk permit vlan all
combo enable fiber
undo stp enable
quit
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
port trunk permit vlan all
```

```
combo enable fiber
undo stp enable
quit
```

2、关键配置脚本如下:

```
rrpp domain 1
control-vlan 4092
protected-vlan reference-instance 0 to 32
ring 1 node-mode master primary-port GigabitEthernet1/0/1 secondary-port GigabitEthernet1/0/2 level 0
ring 1 enable
quit
rrpp enable
```

3、状态查看:

```
[SW1]dis rrpp verbose domain 1
Domain ID : 1
Control VLAN : Primary 4092, Secondary 4093
Protected VLAN: Reference instance 0 to 32
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID : 1
Ring level : 0
Node mode : Master
Ring state : Complete
Enable status : Yes, Active status: Yes
Primary port : GE1/0/1 Port status: UP
Secondary port: GE1/0/2 Port status: BLOCKED
```

```
[SW1]
[SW1]dis rrpp brief
Flags for node mode: M -- Master, T -- Transit, E -- Edge, A -- Assistant-edge
```

RRPP protocol status: Enabled

```
Domain ID : 1
Control VLAN : Primary 4092, Secondary 4093
Protected VLAN: Reference instance 0 to 32
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
Ring ID Ring level Node mode Primary/Common port Secondary/Edge port status Enable
-----
1 0 M GE1/0/1 GE1/0/2 Yes
```

```
[SW1]
[SW1]dis rrpp statistics domain 1
Ring ID : 1
Ring level : 0
Node mode : Master
Active status : Yes
Primary port : GE1/0/1
Fast-Hello packets: 0 Sent, 0 Received
Fast-Edge-Hello packets: 0 Sent, 0 Received
Direct Hello Link Common Complete Edge Major Total
down flush FDB flush FDB hello fault
-----
Out 1330 0 1 2 0 0 1333
In 0 0 0 0 0 0 0
Secondary port: GE1/0/2
Fast-Hello packets: 0 Sent, 0 Received
```

Fast-Edge-Hello packets: 0 Sent, 0 Received

	Direct Hello	Link down	Common flush FDB	Complete flush FDB	Edge hello	Major fault	Total
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Out	0	0	2	0	0	0	2
In	881	1	0	2	0	0	884

[SW1]

1、基础配置脚本如下:

SW2:

```
sysname SW2
vlan 10
quit
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
port trunk permit vlan all
combo enable fiber
undo stp enable
smart-link flush enable control-vlan 4092
port monitor-link group 1 uplink
quit
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
port trunk permit vlan all
combo enable fiber
undo stp enable
smart-link flush enable control-vlan 4092
quit
interface GigabitEthernet1/0/3
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 2 to 4094
combo enable fiber
undo stp enable
smart-link flush enable control-vlan 4092
port monitor-link group 1 downlink
quit
```

2、关键配置脚本如下:

```
rrpp domain 1
control-vlan 4092
protected-vlan reference-instance 0 to 32
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port GigabitEthernet1/0/2
level 0
ring 1 enable
quit
rrpp enable
```

3、状态查看:

```
[SW2-GigabitEthernet1/0/1]dis rrpp verbose domain 1
Domain ID : 1
Control VLAN : Primary 4092, Secondary 4093
Protected VLAN: Reference instance 0 to 32
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID : 1
Ring level : 0
Node mode : Transit
Ring state :-
Enable status : Yes, Active status: Yes
```

Primary port : GE1/0/1           Port status: UP  
Secondary port: GE1/0/2           Port status: UP

[SW2-GigabitEthernet1/0/1]

[SW2-GigabitEthernet1/0/1]dis monitor-link group 1

Monitor link group 1 information:

Group status    : UP  
Downlink up-delay: 0(s)  
Last-up-time    : 07:26:33 2019/09/01  
Last-down-time  : 07:25:58 2019/09/01

Member	Role	Status
-----		
GE1/0/1	UPLINK	UP
GE1/0/3	DOWNLINK	UP

[SW2-GigabitEthernet1/0/1]

SW3:

```
sysname SW3
vlan 10
quit
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
port trunk permit vlan all
combo enable fiber
undo stp enable
smart-link flush enable control-vlan 4092
port monitor-link group 1 uplink
quit
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
port trunk permit vlan all
combo enable fiber
undo stp enable
smart-link flush enable control-vlan 4092
quit
interface GigabitEthernet1/0/3
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 2 to 4094
combo enable fiber
smart-link flush enable control-vlan 4092
port monitor-link group 1 downlink
quit
```

2、关键配置脚本如下:

```
rrpp domain 1
control-vlan 4092
protected-vlan reference-instance 0 to 32
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port GigabitEthernet1/0/2
level 0
ring 1 enable
quit
rrpp enable
```

3、状态查看:

<SW3>dis monitor-link group 1

Monitor link group 1 information:

Group status    : UP  
Downlink up-delay: 0(s)  
Last-up-time    : 07:46:29 2019/09/01

Last-down-time : -

Member	Role	Status
GE1/0/1	UPLINK	UP
GE1/0/3	DOWNLINK	UP

<SW3>

SW4:

1、基础配置脚本如下:

```
sysname SW4
```

```
vlan 10
```

```
quit
```

2、关键配置脚本如下:

```
smart-link group 1
```

```
flush enable control-vlan 4092
```

```
protected-vlan reference-instance 0 to 32
```

```
quit
```

```
interface GigabitEthernet1/0/1
```

```
port link-mode bridge
```

```
port link-type trunk
```

```
undo port trunk permit vlan 1
```

```
port trunk permit vlan 2 to 4094
```

```
combo enable fiber
```

```
undo stp enable
```

```
port smart-link group 1 primary
```

```
quit
```

```
interface GigabitEthernet1/0/2
```

```
port link-mode bridge
```

```
port link-type trunk
```

```
undo port trunk permit vlan 1
```

```
port trunk permit vlan 2 to 4094
```

```
combo enable fiber
```

```
undo stp enable
```

```
port smart-link group 1 secondary
```

```
quit
```

```
interface GigabitEthernet1/0/3
```

```
port link-mode bridge
```

```
port access vlan 10
```

```
combo enable fiber
```

```
quit
```

3、状态查看:

```
[SW4]dis smart-link group 1
```

```
Smart link group 1 information:
```

```
Device ID : 0870-4922-0400
```

```
Preemption mode : None
```

```
Preemption delay: 1(s)
```

```
Control VLAN : 4092
```

```
Protected VLAN : Reference Instance 0 to 32
```

Member	Role	State	Flush-count	Last-flush-time
GE1/0/1	PRIMARY	ACTIVE	0	NA
GE1/0/2	SECONDARY	STANDBY	0	NA

[SW4]

详细的设备配置文件见附件。

附件下载: RRPP与SMART-LINK & MONITOR-LINK.doc