HUAWEI Switch CLI contrast with CISCO

www.huawei.com

Objectives

- Upon completion of this course, you will be able to:
  - Understand the characteristic of Huawei CLI
  - Be familiar with some common Huawei commands
  - Configure some basic Huawei Switch features

Agenda

1 Abstract

2 Huawei and Cisco command-view contrast

3 Switch Features configuration contrast

Abstract

- The overall mechanism of Huawei and Cisco CLI are similar.
- The styles of Huawei and Cisco CLI are identical.
- Huawei CLI has corresponding relationship with Cisco's in particular command.
- After learning these sameness and differences between Huawei and Cisco CLI, you can skillfully practice Huawei CLI in short time if you learnt well the Cisco CLI.

Agenda

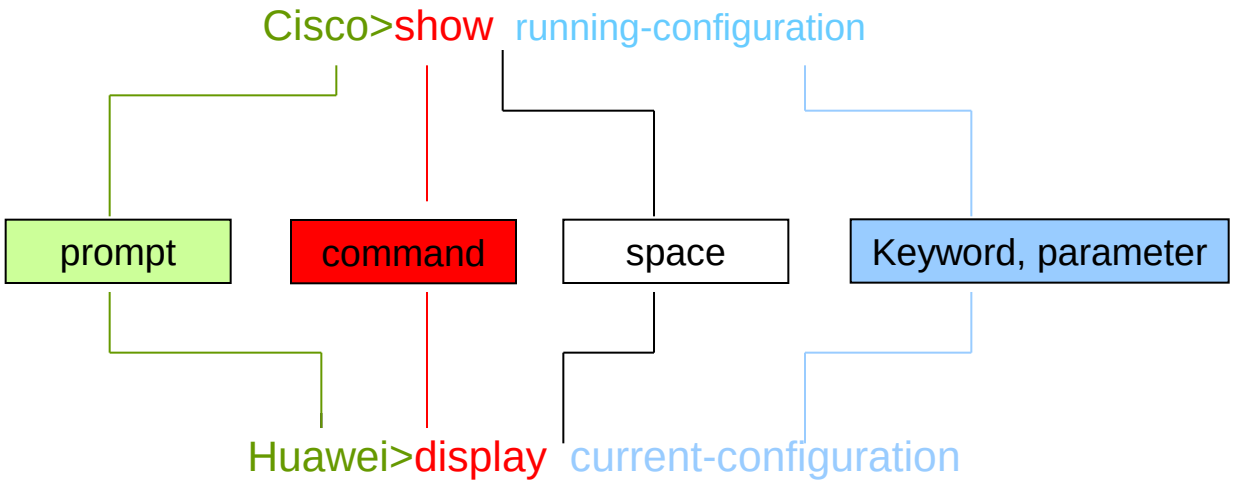
HUAWEI

Command style contrast

- Huawei configuration views and Cisco configuration modes contrast
  - Huawei configuration views and Cisco configuration modes are quite similar
  - Cisco:
    - User mode, use “>” as prompt, e.g. Cisco>
    - Privileged mode, use “#” as prompt, e.g. Cisco#
    - Configuration mode, use “#” as prompt, e.g. Cisco(config)#
    - Other configuration mode, use “#” as prompt, e.g. Cisco(config-XX)#
  - Huawei:
    - User view, use “< >” as prompt，e.g. <Huawei>
    - System view, use “[ ]” as prompt, e.g. [Huawei]
    - Other configuration view, use “[ ]” as prompt, e.g. [Huawei-XX]
  - You can see that Huawei never have the single configuration mode like Cisco，the system view of Huawei is equivalent to privileged mode plus configuration mode of Cisco.

Command style contrast

- Command structure contrast
  - Huawei and Cisco have similar command structure



Command style contrast

- Common shortcut keys contrast
  - The same to use up cursor key “↑” and down cursor key “↓” to show the history commands
  - The same to use “?” to help to find the following command/parameter
  - The same to use Tab key to full fill the command
  - The same to use Backspace key to Deletes a character before the cursor
  - Huawei supports to defining hotkeys, and you can use the command “display hotkey” to show the hotkeys in use

Agenda

1 Abstract

2 Huawei and Cisco command-view contrast

- 1 Command style contrast
- 2 Common commands contrast

3 Switch Features configuration contrast

HUAWEI

Common command contrast

- Command keywords contrast
  - Most part of Huawei command keywords has the fixed contrast to Cisco, know about these will help you to learn Huawei command quickly if you have a good skill on Cisco.
  - Common command keywords contrast:
    - show <- -> display
    - no <- -> undo
    - exit <- -> quit
    - clear <- -> reset
    - debug <- -> debugging
    - neighbor <- -> peer
    - detail <- -> verbose
    - delete <- -> delete
    - match <- ->if-match

Common command contrast

- Common command contrast
  - Configure host name
    - Cisco(config)# hostname <hostname>
    - [huawei] sysname <sysname>
  - Display information about version
    - Cisco# show version
    - [huawei] display version
  - Display information about configuration
    - Cisco# show running-configuration
    - [huawei] display current-configuration
  - Display information about configuration
    - Cisco# show interface [*interface-type* [*interface-number*]]
    - [huawei] display interface [*interface-type* [*interface-number*]]
  - Huawei command “display this“ is a convenient command to show the configuration in the current view

Common command contrast

Huawei command	Cisco command
Press Enter key into the user view	Enter the privileged mode
<Quidway>	Cisco> enable Cisco#
Enter the system view	Enter configuration mode
<Quidway> system-view [Quidway]	Cisco# configure terminal Cisco (config)#
Enter interface view	Enter interface-configuration mode
[Quidway] interface *interface-mode* [Quidway-interface-mode]	Cisco (config)# interface *interface-mode* Cisco (config-if)#
Enter router view	Enter router-configuration mode
[Quidway] *ospf 1* [Quidway-ospf-1]	Cisco (config)# router *ospf 1* Cisco (config-router)#
Enter AAA view	Enter AAA-configuration mode
[Quidway] aaa [Quidway-aaa]	Cisco (config)# aaa *new-model*

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   1. Basic Configuration
   2. Ethernet Configuration
   3. Reliability
   4. QoS
   5. Security
   6. Device Management
   7. Network Management

Configuring the local user

Huawei command

Enter the system view

```
<Quidway> system-view
```

Enter the AAA view

```
[Quidway] aaa
```

Create a local user and set the password

```
[Quidway-aaa] local-user Huawei password simple 123456
```

Specify the local user's level

```
[Quidway-aaa] local-user Huawei level 3
```

Specify the local user's service-type

```
[Quidway-aaa] local-user Huawei service-type telnet
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Create a local user and set the password

```
Cisco (config)# username Huawei password 123456
```

Specify the local user's level

```
Cisco (config)# username Huawei privilege 3
```

Login by console

- When login through console port ,please use the following parameter

Parameter	Value
Bit per second (Baud rate)	9600
Data bits	8
Parity check	None
Stop bits	1
Flow control	None

Login by Telnet

Huawei command	Cisco command
Enter the system view	**Enter the configuration mode**
<Quidway> system-view	**Cisco# configure terminal**
Configure VTY user interfaces	**Configure VTY user interfaces**
[Quidway] user-interface vty *0 4*	**Cisco (config)# line** *0 4*
Set the authentication mode	**Set the authentication mode**
[Quidway-ui-vty0-4] authentication-mode {*none* | *password* | *aaa* }	**Cisco (config-line)# no login | login** { *<cr>* | *local* | *tacacs* }
If you use the authentication-mode as password, you need to set the password	**If you use the authentication-mode as login, you need to set the password**
[Quidway-ui-vty0-4] set authentication password { *cipher* | *simple* } *password*	**Cisco (config-line)# password** *password*
Set the VTY user level	**Set the VTY user level**
[Quidway-ui-vty0-4] user privilege level *3*	**Cisco (config-line)# privilege level** *3*

Login by SSH

Pre-conditions:

SSH client login the SSH server with the password mode

IP routing is normal between SSH client and SSH Server

Huawei command

Configure the SSH user and the password of the user

```
<Quidway> system-view
[Quidway] aaa
[Quidway-aaa] local-user Huawei password simple 123456
[Quidway-aaa] local-user Huawei service-type ssh
[Quidway-aaa] local-user Huawei level 3
[Quidway-aaa] quit
```

Cisco command

Configure the local user and the password of the user

```
Cisco# configure terminal
Cisco (config)# username Huawei password 123456
Cisco (config)# username Huawei privilege 3
```

Login by SSH

Generate a local key pair on the server

[Quidway] rsa local-key-pair create
The key name will be: Quidway_Host The range of public key size is (512 ~ 2048).
NOTES: If the key modulus is greater than 512, I
t will take a few minutes.
Input the bits in the modulus [default = 512]: **1024**
Generating
keys.....++++++++++++.....++++++++++++.....
..++++++++.....++++++++

Enable the STelnet service on the SSH server

[Quidway] stelnet server enable
[Quidway] ssh user *Huawei* **authentication-type** *password*

Configure authentication-mode of the VTY as SSH

[Quidway] user-interface vty *0 4*
[Quidway-ui-vty0-4] authentication-mode *aaa*
[Quidway-ui-vty0-4] protocol inbound *ssh*

Generate a local key pair on the server

Cisco(config)# ip domain-name *test*
Cisco(config)# crypto key generate rsa
The name for the keys will be: Cisco.test
Choose the size of the key modulus in the range of 360 to 2048 for your General Purpose Keys. Choosing a key modulus greater than 512 may take a few minutes.
How many bits in the modulus [512]: **1024**
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

Configure authentication-mode of the VTY as SSH

Cisco (config)# line *0 4*
Cisco (config-line)# login *local*
Cisco (config-line)# transport input *ssh*

Software Upgrade by FTP

Huawei command

Login the FTP Server, then enter the username and the password on the FTP Server

<Quidway> ftp 192.168.161.141
Trying ftp 192.168.161.141
Press CTRL+K to abort
Connected to ftp 192.168.161.141
220 FTP service ready.
*User (192.168.161.141:(none)):***huawei**
331 Password required for huawei
Password: **8031**

Get the new system software from the FTP Server

[ftp] get S9999.cc S9300.cc

Configure the new system software as the next startup

<Quidway> startup system-software *S9300.cc*

Reboot the device

<Quidway> reboot

Cisco command

Login the FTP Server and get the new system software from the FTP Server

Cisco# copy ftp://*huawei:8031@192.168.161.141/S9999.bin* **Bootflash:**S9300.bin

Configure the new system software as the next startup

Cisco(config)# boot system flash:*S9300.bin*
Cisco(config)# end

Reboot the device

Cisco# reload

Software Upgrade by TFTP

Huawei command

Login the TFTP Server and get the new system software from the TFTP Server

```
<Quidway> tftp 192.168.161.141 get S9300.cc
```

Configure the new system software as the next startup

```
<Quidway> startup system-software S9300.cc
```

Reboot the device

```
<Quidway> reboot
```

Cisco command

Login the TFTP Server and get the new system software from the TFTP Server

```
Cisco# copy tftp://192.168.161.141/S9300.bin bootflash:
```

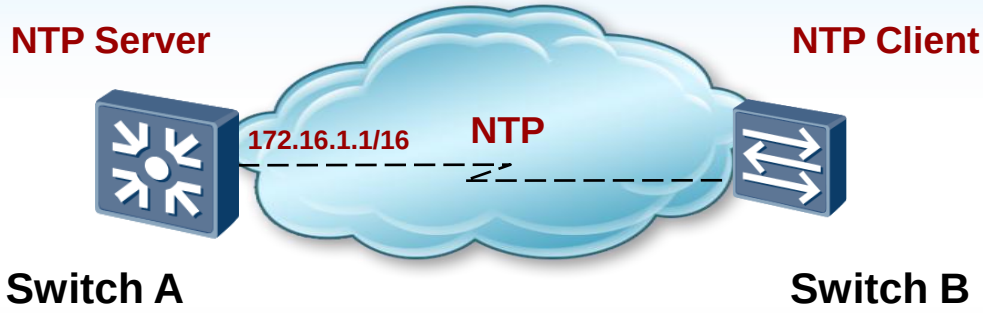
Configure the new system software as the next startup

```
Cisco(config)# boot system flash:S9300.bin
Cisco(config)# end
```

Reboot the device

```
Cisco# reload
```

NTP Function



Pre-conditions:

The operating mode of NTP is client/server mode

IP routing between Switch A and Switch B is normal

NTP Function

Switch A (Server):

Huawei command	Cisco command
Configure Switch A as the NTP Server and Specify the stratum of the NTP master clock	**Configure Switch A as the NTP Server and Specify the stratum of the NTP master clock**
<Quidway_A> system-view **[Quidway_A] ntp-service refclock-master** *2*	**Cisco_A# configure terminal** **Cisco_A(config)# ntp master** *2*

Switch B (Client):

Specify the IP address of the remote NTP server	**Specify the IP address of the remote NTP server**
<Quidway_B> system-view **[Quidway_B] ntp-service unicast-server** *172.16.1.1*	**Cisco_B# configure terminal** **Cisco_B(config)# ntp server** *172.16.1.1*

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Auto-negotiation of the Interfaces

Huawei command	Cisco command
Enter the system view	**Enter the configuration mode**
<Quidway> system-view	**Cisco# configure terminal**
Configure the port as the auto negotiation mode, by default, an interface works in auto negotiation mode	**Configure the port as the auto negotiation mode, by default, an interface works in auto negotiation mode**
[Quidway] interface *GigabitEthernet1/0/1* **[Quidway-GigabitEthernet1/0/1] negotiation auto**	**Cisco(config)# interface** *Gigabitethernet1/0/1* **Cisco(config-if)# no speed**
You can set the speed on an electrical interface work in auto-negotiation mode	**You can set the speed on an electrical interface work in auto-negotiation mode**
[Quidway-GigabitEthernet1/0/1] auto speed *{ 10 | 100 | 1000 }**	**Cisco(config-if)# speed auto** *{ 10 | 100 | 1000 }**
You can set the duplex mode on an electrical interface worked in auto negotiation mode	**You can set the duplex mode on an electrical interface worked in auto negotiation mode**
[Quidway-GigabitEthernet1/0/1] auto duplex *{ full | half }* ****	**Cisco(config-if)# duplex auto**

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Forcible Setting the Rate and Duplex Mode

Huawei command

Enter the system view

```
<Quidway> system-view
```

Set the interface to work in non-automatic negotiation mode

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] undo negotiation auto
```

You can set the speed on an electrical interface worked in non-automatic negotiation mode

```
[Quidway-GigabitEthernet1/0/1] speed { 10 | 100 | 1000 }
```

You can set the duplex mode on an electrical interface worked in non-automatic negotiation mode

```
[Quidway-GigabitEthernet1/0/1] duplex { full | half }
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Set the interface to work in non-automatic negotiation mode

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# speed nonegotiate
```

You can set the speed on an electrical interface

```
Cisco(config-if)# speed { 10 | 100 | 1000 }
```

You can set the duplex on an electrical interface worked in non-automatic negotiation mode

```
Cisco(config-if)# duplex { full | half }
```

Jumbo frame function

Huawei command

Enter the system view

```
<Quidway> system-view
```

Under the port view, set the maximum length of the frames that can pass through the interface

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] jumbo enable value
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Set the maximum length of the frames that can pass through the interface

```
Cisco(config)# system mtu  jumbo value
```

Power over Ethernet function

Huawei command

Enable the POE function on the interface, by default, the POE function is auto-enable on the interface

```
<Quidway> system-view
[Quidway] interface Ethernet0/0/1
[Quidway-Ethernet0/0/1] poe enable
```

(Optional) Configure the maximum output power of the interface

```
[Quidway-Ethernet0/0/1] poe max-power power_values
[Quidway-Ethernet0/0/1] quit
```

(Optional) Configure the POE mode as manual and supply the power over the interface by manual

```
[Quidway] poe power-management manual
[Quidway] poe power-on interface Ethernet0/0/1
```

Cisco command

Enable the POE function on the interface, by default, the POE function is auto-enable on the interface

```
Cisco# configure terminal
Cisco(config)# interface fastEthernet0/0/1
Cisco(config-if)# power inline auto
```

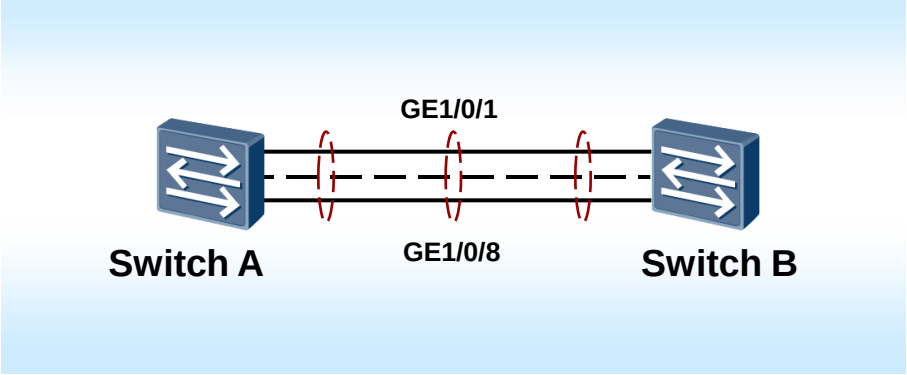
(Optional) Configure the maximum output power of the interface

```
Cisco(config-if)# power inline [auto | static] max power_values
```

(Optional) Configure the POE mode as manual

```
Cisco(config-if)# power inline static
```

Static LACP Link Aggregation Group



Huawei command

Enter the system view

```
<Quidway> system-view
```

Create a channel group

```
[Quidway] interface Eth-Trunk 1
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Create a channel group

```
Cisco(config)# interface port-channel 1
Cisco(config-if)# switchport
Cisco(config-if)# exit
```

Static LACP Link Aggregation Group

Configuring the Channel group Load Balancing

[Quidway-Eth-Trunk1] load-balance *method*

Specify the channel group mode as LACP

[Quidway-Eth-Trunk1] mode lacp-static
[Quidway-Eth-Trunk1] bpdu enable
[Quidway-Eth-Trunk1] quit

Assign the port to the channel group

[Quidway] interface *GigabitEthernet1/0/1*
[Quidway-GigabitEthernet1/0/1] eth-trunk *1*

Specify the LACP port priority

[Quidway-GigabitEthernet1/0/1] lacp port-priority *priority-value*
[Quidway-GigabitEthernet1/0/1] quit

Configure the LACP System priority

[Quidway] lacp port-priority *priority-value*

Configuring the Channel group Load Balancing

Cisco(config)# port-channel load-balance *method*

Assign the port to the channel group, and specify the port as LACP mode

Cisco(config)# interface *GigabitEthernet1/0/1*
Cisco(config-if)# channel-group *1* **mode active**
Cisco(config-if)# channel-protocol lacp

Specify the LACP port priority

Cisco(config-if)# lacp port-priority *priority-value*
Cisco(config-if)# exit

Configure the LACP System priority

Cisco(config)# lacp system-priority *priority-value*

VLAN Configuration Based on Port

Huawei command

Vlan can be Created singly or batch:

```
[Quidway] vlan  2
[Quidway] vlan  bacth 2 to 10
```

Configure the VLAN on the access port

```
[Quidway] vlan 2
[Quidway-vlan2] port GigabitEthernet1/0/1 to GigabitEthernet1/0/2
```

OR

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] port link-type access
[Quidway-GigabitEthernet1/0/1] port default vlan 2
```

Configure the VLAN on the trunk Port

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] port link-type trunk
[Quidway-GigabitEthernet1/0/1] port trunk allow vlan 2 to 10
```

Cisco command

Vlan can be Created singly or batch:

```
Cisco(config)# vlan 2
Cisco(config)# vlan 2-10
```

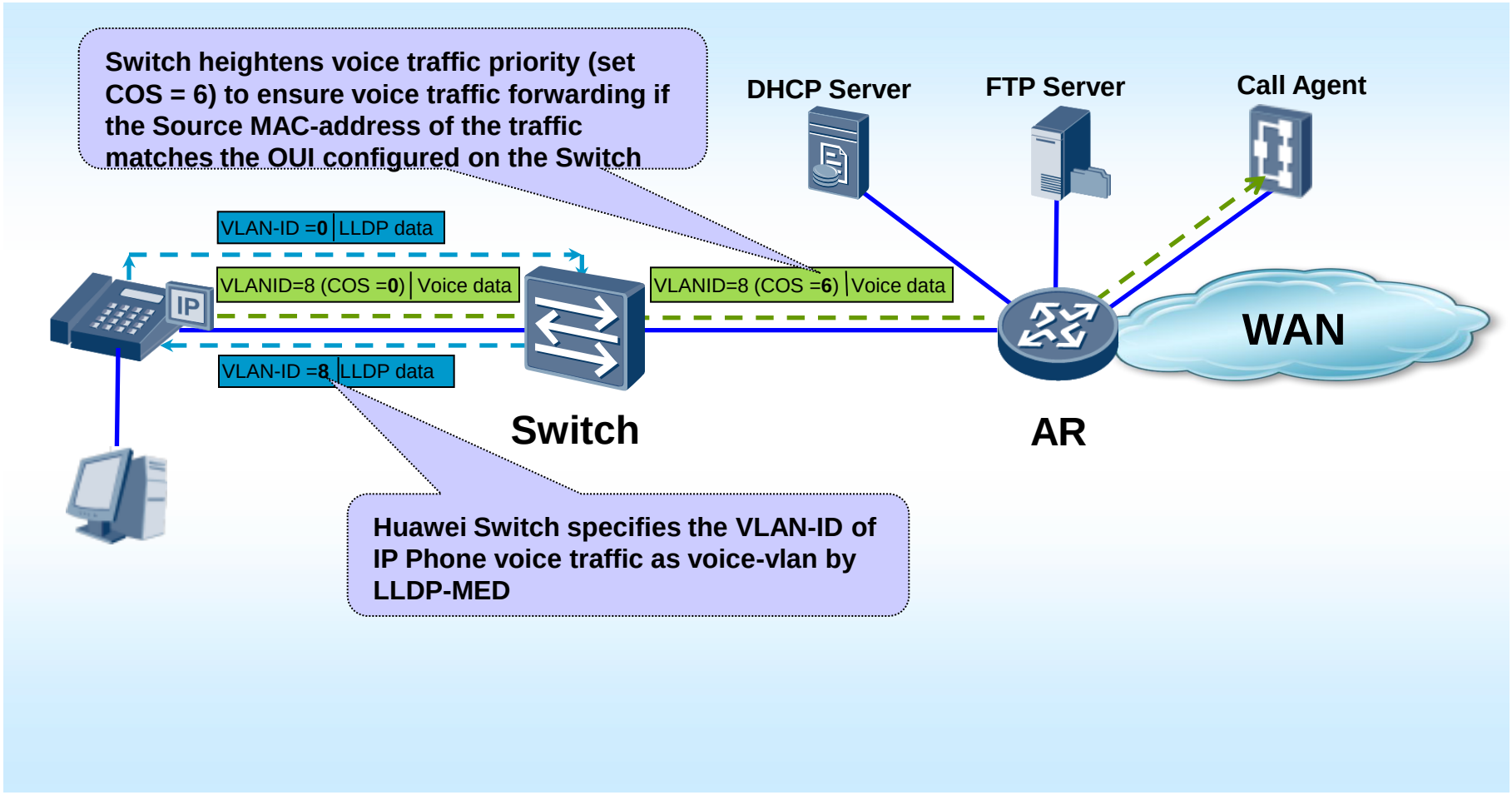
Configure the VLAN on the access port

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# switchport mode access
Cisco(config-if)# switchport access vlan 2
```

Configure the VLAN on the trunk Port

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# switchport trunk encapsulation dot1q
Cisco(config-if)# switchport mode trunk
Cisco(config-if)# switchport trunk allowed vlan 2-10
```

Voice VLAN with LLDP-MED



Voice VLAN with LLDP-MED

Step1: configure voice-vlan

Huawei command

Create a VLAN as voice VLAN on the system view

```
<Quidway> system-view
[Quidway] vlan 8
[Quidway-vlan-8] quit
```

Set the OUI of the voice VLAN

```
[Quidway] voice-vlan mac-address mac-address mask oui-mask
[description text]
```

Enable voice VLAN and trust COS on the interface connected to IP phone

```
[Quidway] interface Ethernet1/0/1
[Quidway-Ethernet1/0/1] voice-vlan 8 enable
[Quidway-Ethernet1/0/1] trust 8021p
[Quidway-Ethernet1/0/1] quit
```

Cisco command

Create a VLAN as voice-vlan on the configuration mode

```
Cisco# configure terminal
Cisco(config)# vlan 8
Cisco(config-vlan)# exit
```

Enable QoS for the entire switch

```
Cisco(config)# mls qos
```

Enable voice VLAN and trust COS on the interface connected to IP phone

```
Cisco(config)# interface fastEthernet1/0/1
Cisco(config-if)# switchport voice vlan 8
Cisco(config-if)# mls qos trust cos
Cisco(config-if)# exit
```

Voice VLAN with LLDP-MED

Step2: configure LLDP-MED

Globally enable LLDP on the system view

```
[Quidway] lldp enable
```

Enable BPDU on the interface connected IP phone

```
[Quidway] interface Ethernet1/0/1
[Quidway-Ethernet1/0/1] bpdu enable
```

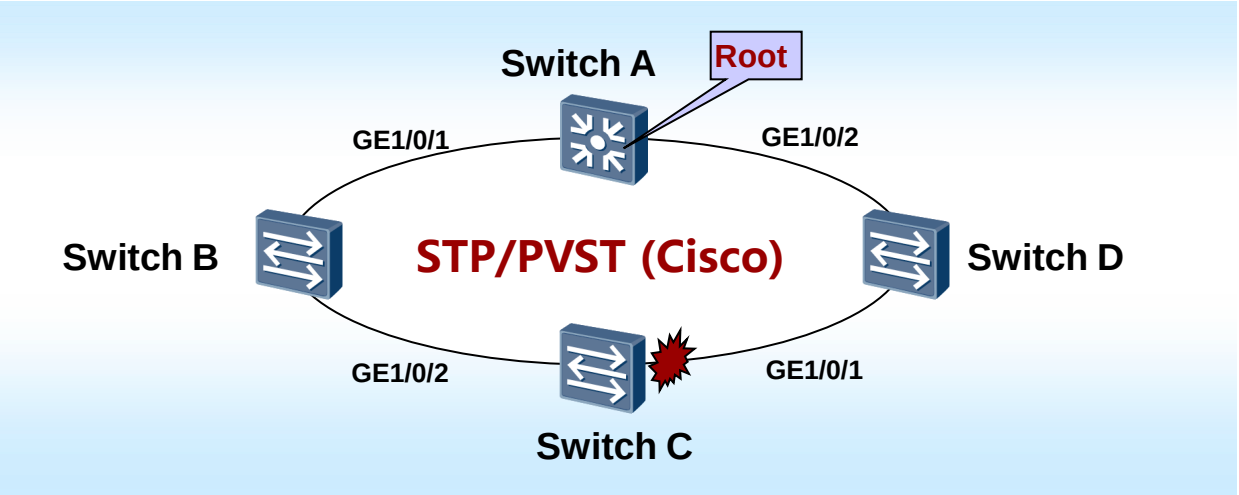
Globally enable LLDP on the configuration mode

```
Cisco(config)# lldp run
```

Enable LLD-MED on the interface connected IP phone

```
Cisco(config)# interface fastEthernet1/0/1
Cisco(config-if)# lldp receive
Cisco(config-if)# lldp transmit
Cisco(config-if)# lldp med-tlv-select network-policy
```

Basic function of STP



All switches:

Huawei command

Configure the spanning tree mode as STP and enable stp on the system view

```
<Quidway> system-view
[Quidway] stp mode stp
[Quidway] stp enable
```

Cisco command

Configure the spanning tree mode as PVST on the configuration mode

```
Cisco# configure terminal
Cisco(config)# spanning-tree mode pvst
```

Basic function of STP

All switches:

Enable BPDU on the interfaces on the ring

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] bpdu enable
[Quidway-GigabitEthernet1/0/1] quit
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] bpdu enable
```

Configure the spanning-tree link-type as point-to-point on the interfaces on the ring

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# spanning-tree link-type point-to-point
Cisco(config-if)# exit
Cisco(config)# interface GigabitEthernet1/0/2
Cisco(config-if)# spanning-tree link-type point-to-point
```

Switch A (root):

Configure Switch A as the root of the ring

```
[Quidway] stp root primary
```

OR

```
[Quidway] stp priority 0
```

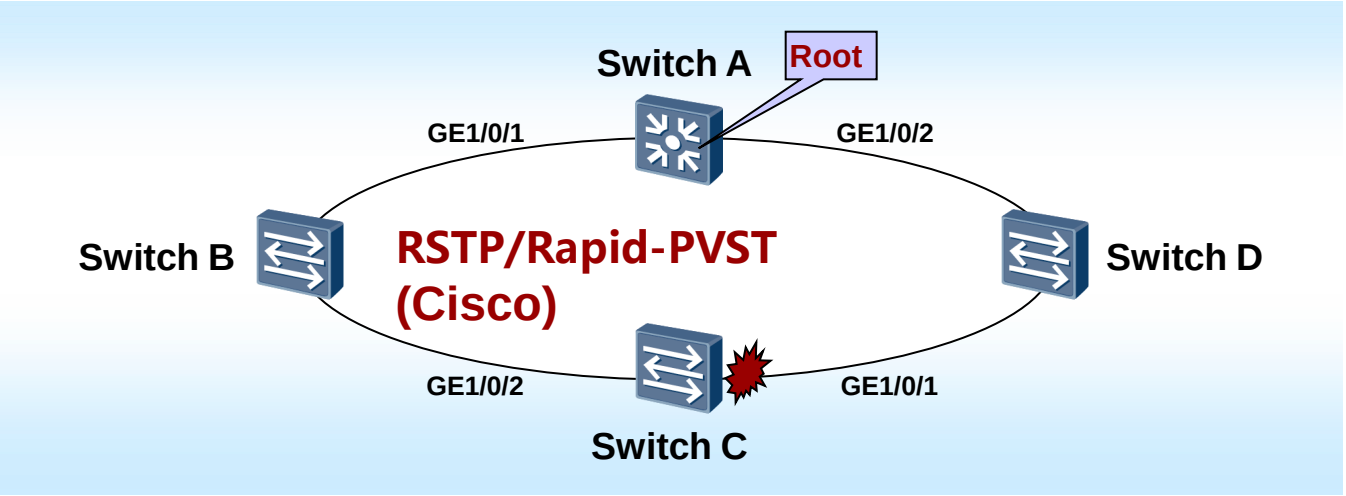
Configure Switch A as the root of the ring

```
Cisco(config)# spanning-tree vlan vlan-id root primary
```

OR

```
Cisco(config)# spanning-tree vlan vlan-id priority 0
```

Basic function of RSTP



All switches:

Huawei command

Configure the spanning tree mode as RSTP and enable stp on the system view

```
<Quidway> system-view
[Quidway] stp mode rstp
[Quidway] stp enable
```

Cisco command

Configure the spanning tree mode as Rapid-PVST on the configuration mode

```
Cisco# configure terminal
Cisco(config)# spanning-tree mode rapid-pvst
```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Basic function of RSTP

All switches:

Enable BPDU on the interfaces on the ring

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] bpdu enable
[Quidway-GigabitEthernet1/0/1] quit
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] bpdu enable
```

Configure the spanning-tree link-type as point-to-point on the interfaces on the ring

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# spanning-tree link-type point-to-point
Cisco(config-if)# exit
Cisco(config)# interface GigabitEthernet1/0/2
Cisco(config-if)# spanning-tree link-type point-to-point
```

Switch A (root):

Configure Switch A as the root of the ring

```
[Quidway_A] stp root primary
```

OR

```
[Quidway_A] stp priority 0
```

Configure Switch A as the root of the ring

```
Cisco_A(config)# spanning-tree vlan vlan-id root primary
```

OR

```
Cisco_A(config)# spanning-tree vlan vlan-id priority 0
```


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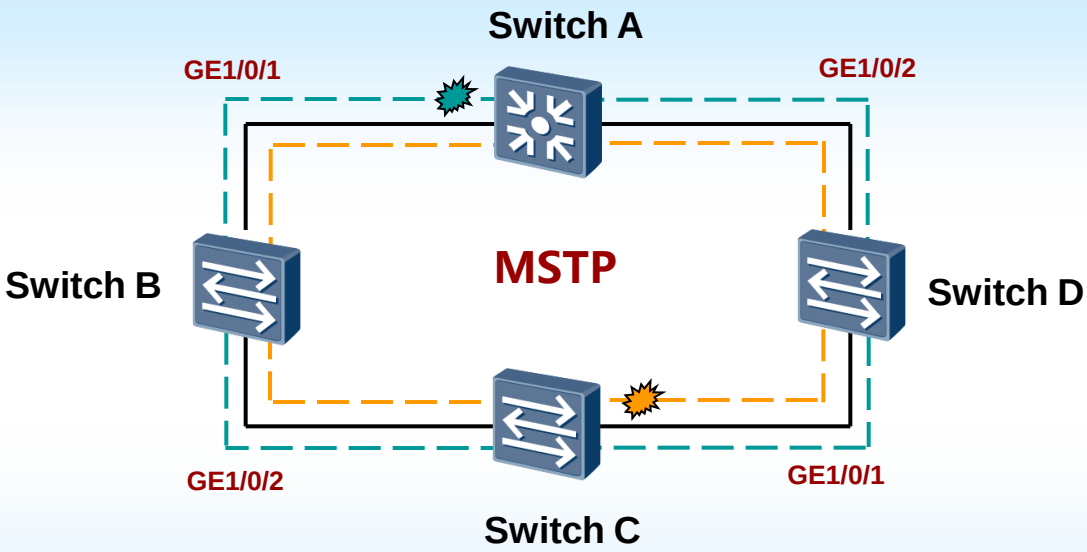
Basic function of MSTP



Basic function of MSTP

All switches:

Huawei command

Configure the spanning tree mode as MSTP and enable STP on the system view

```
<Quidway> system-view
[Quidway] stp mode mstp
[Quidway] stp enable
```

Configure the MST region

```
[Quidway] stp region-configuration
[Quidway--mst-region] region-name Huawei
[Quidway--mst-region] instance 1 vlan 1 to 10
[Quidway--mst-region] instance 2 vlan 11 to 20
[Quidway--mst-region] active region-configuration
```

Enable BPDU on the interfaces on the ring

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] bpdu enable
[Quidway-GigabitEthernet1/0/1] quit
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] bpdu enable
```

Cisco command

Configure the spanning tree mode as MSTP on the configuration mode

```
Cisco# configure terminal
Cisco(config)# spanning-tree mode mst
```

Configure the MST region

```
Cisco(config)#spanning-tree mst configuration
Cisco(config-mst)#name Huawei
Cisco(config-mst)#instance 1 vlan 1-10
Cisco(config-mst)#instance 2 vlan 11-20
```

Basic function of MSTP

Switch A (root of instance 1):

Configure Switch A as the root of the instance 1

```
[Quidway_A] stp instance 1 root primary
```

OR

```
[Quidway_A] stp instance 1 priority 0
```

Configure Switch A as the root of the instance 1

```
Cisco_A(config)# spanning-tree mst 1 root primary
```

OR

```
Cisco_A(config)# spanning-tree mst 1 priority 0
```

Switch C (root of instance 2):

Configure Switch C as the root of the instance 2

```
[Quidway_C] stp instance 2 root primary
```

OR

```
[Quidway_C] stp instance 2 priority 0
```

Configure Switch C as the root of the instance 2

```
Cisco_C(config)# spanning-tree mst 2 root primary
```

OR

```
Cisco_C(config)# spanning-tree mst 2 priority 0
```

BPDU Guard

Huawei command

Enter the system view

```
<Quidway> system-view
```

Globally enable STP and BPDU guard

```
[Quidway] stp bpdu-protection
```

Configure the interface as the edge interface and enable BPDU on the interface

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] stp edged-port enable
[Quidway-GigabitEthernet1/0/1] bpdu enable
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Globally enable BPDU guard

```
Cisco(config)# spanning-tree portfast bpduguard default
```

Enable the Port Fast feature

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# spanning-tree portfast
```

OR

```
Cisco# configure terminal
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# spanning-tree bpduguard enable
```

Agenda

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3 Switch Features configuration contrast

- 1 Basic Configuration
- 2 Ethernet Configuration
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- 4 QoS
- 5 Security
- 6 Device Management
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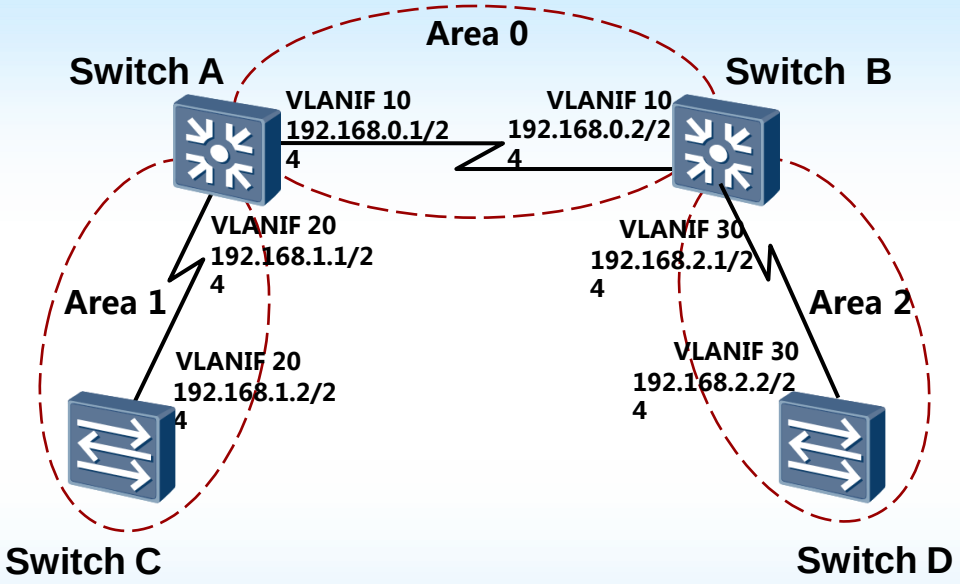
HUAWEI

DLDP/UDLD function

Huawei command	Cisco command
Enter the system view	**Enter the configuration mode**
<Quidway> system-view	**Cisco# configure terminal**
Enable DLDP on the system view	**Enable UDLD on the configuration mode**
[Quidway] dldp enable	**Cisco(config)# udld enable**
Enable DLDP on the interface	**Enable UDLD on the interface**
[Quidway] interface *GigabitEthernet1/0/1* **[Quidway-GigabitEthernet1/0/1] dldp enable**	**Cisco(config)# interface** *Gigabitethernet1/0/1* **Cisco(config-if)# udld port**

Basic OSPFv2 Function



Pre-conditions:

OSPF runs on the all Switches, including 3 areas in the AS

Switch A and Switch B as the ABR

Basic OSPFv2 Function

Huawei command

On the all Switches, configure IP addresses on the virtual layer 3 interfaces (e.g. with Switch A)

```
<Quidway_A>system-view
[Quidway_A] interface vlanif 10
[Quidway_A-Vlanif10] ip address 192.168.0.1 255.255.255.0
[Quidway_A-Vlanif10] quit
[Quidway_A] interface vlanif 20
[Quidway_A-Vlanif20] ip address 192.168.1.1 255.255.255.0
[Quidway_A-Vlanif20] quit
```

Configure OSPF (e.g. with Switch A)

```
[Quidway_A] ospf 100
[Quidway_A-ospf-100] area 0.0.0.0
[Quidway_A-ospf-100-area-0.0.0.0] network 192.168.0.0 0.0.0.255
[Quidway_A-ospf-100-area-0.0.0.0] quit
[Quidway_A-ospf-100] area 0.0.0.1
[Quidway_A-ospf-100-area-0.0.0.1] network 192.168.1.0 0.0.0.255
```

Cisco command

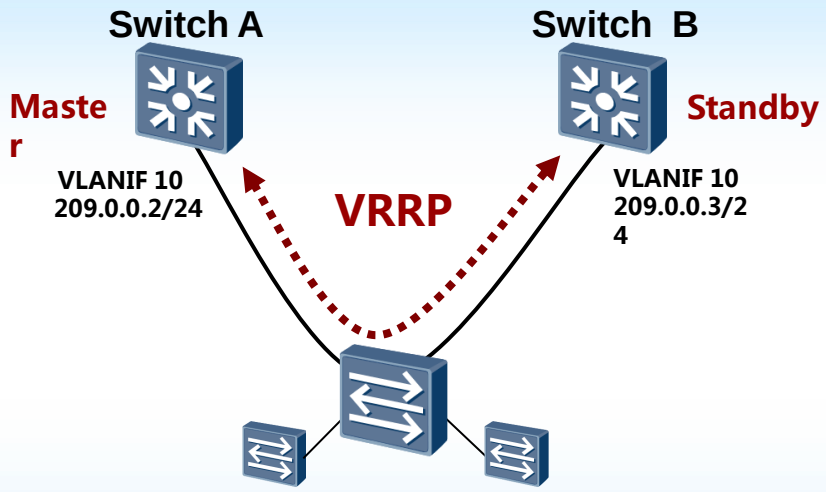
On the all Switches, configure IP addresses on the virtual layer 3 interfaces (e.g. with Switch A)

```
Cisco_A # configure terminal
Cisco_A(config)# interface vlan 10
Cisco_A(config-if)# ip address 192.168.0.1 255.255.255.0
Cisco_A(config-if)# exit
Cisco_A(config)# interface vlan 20
Cisco_A(config-if)# ip address 192.168.1.1 255.255.255.0
Cisco_A(config-if)# exit
```

Configure OSPF (e.g. with Switch A)

```
Cisco_A(config)# router ospf 100
Cisco_A(config-router)# network 192.168.0.0 0.0.0.255 area 0.0.0.0
Cisco_A(config-router)# network 192.168.1.0 0.0.0.255 area 0.0.0.1
```

Basic VRRP Function



Master (Switch A): priority of the VRRP group is 200

Standby (Switch B): priority of the VRRP group is 150

Basic VRRP Function

Switch A (master):

Huawei command	Cisco command
Configure a virtual layer 3 interface and assign a IP address to the virtual layer 3 interface	**Configure a virtual layer 3 interface and assign a IP address to the virtual layer 3 interface**
<Quidway_A>system-view **[Quidway_A] interface Vlanif** *10* **[Quidway_A-Vlanif10] ip address** *209.0.0.2 255.255.255.0*	**Cisco_A# configure terminal** **Cisco_A(config)# interface vlan** *10* **Cisco_A(config-if)# ip address** *209.0.0.2 255.255.255.0*
Create a VRPP group and assign a virtual IP address to the VRRP group	**Create a VRPP group and assign a virtual IP address to the VRRP group**
[Quidway_A-Vlanif10] vrrp vrid *1* **virtual-ip** *209.0.0.10*	**Cisco_A(config-if)# vrrp 1 ip** *209.0.0.10*
Assign the VRRP group priority, and assign the priority of the master of VRRP backup group is higher than the standby one	**Assign the VRRP group priority, and assign the priority of the master of VRRP backup group is higher than the standby one**
[Quidway_A-Vlanif10] vrrp vrid 1 priority *200*	**Cisco_A(config-if)# vrrp 1 priority** *200*

Basic VRRP Function

Switch B (Standby):

Configure a virtual layer 3 interface and assign another IP address to virtual layer 3 interface

```
<Quidway_B> system-view
[Quidway_B] interface Vlanif 10
[Quidway_B-Vlanif10] ip address 209.0.0.3 255.255.255.0
```

Create the same VRPP group and assign the same virtual IP address to the VRRP group which configured on the Switch A

```
[Quidway_B-Vlanif10] vrrp vrid 1 virtual-ip 209.0.0.10
```

Assign the VRRP group priority, and assign the priority of the standby of VRRP backup group is lower than the master one

```
[Quidway_B-Vlanif10] vrrp vrid 1 priority 150
```

Configure a virtual layer 3 interface and assign another IP address to the virtual layer 3 interface

```
Cisco_B# configure terminal
Cisco_B(config)# interface vlan 10
Cisco_B(config-if)# ip address 209.0.0.3 255.255.255.0
```

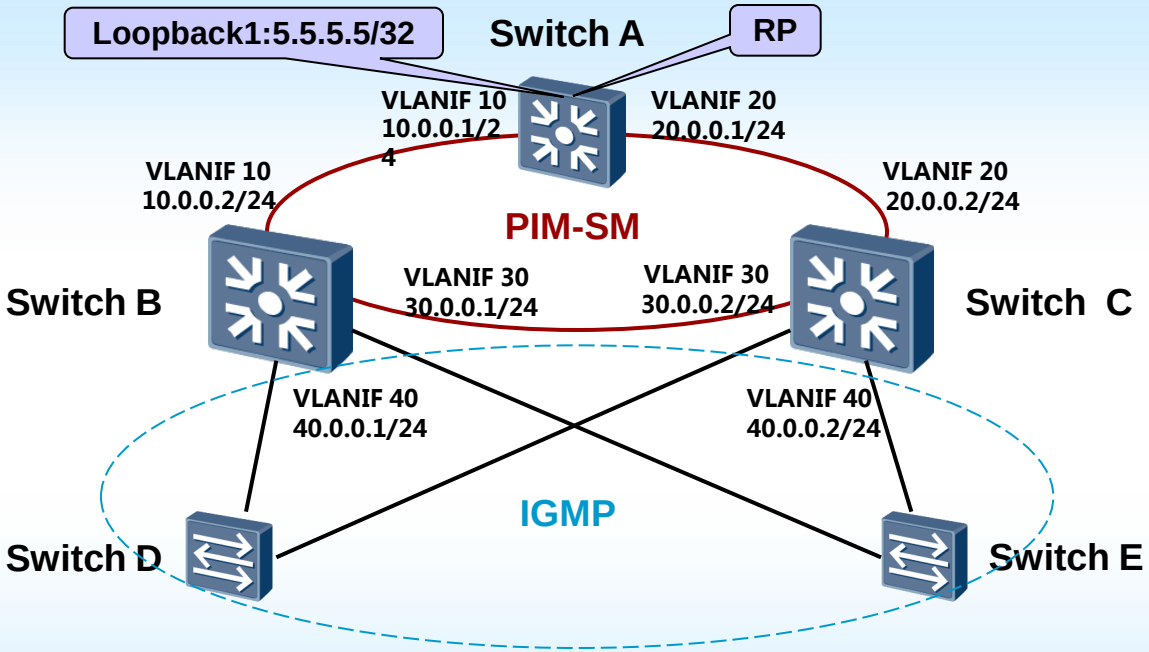
Create the same VRPP group and assign the same virtual IP address to the VRRP group which configured on the Switch A

```
Cisco_B(config-if)# vrrp 1 ip 209.0.0.10
```

Assign the VRRP group priority, and assign the priority of the standby of VRRP backup group is lower than the master one

```
Cisco_B(config-if)# vrrp 1 priority 150
```

Multicast (PIM SM +IGMP Snooping)



Pre-conditions:

IP routing between Switches and Multicast Server is normal

Switch A as RP

Multicast-PIM SM

Switch A to C:

Huawei command

Globally enable multicast routing function (e.g. with Switch B)

```
<Quidway_B> system-view
[Quidway_B] multicast routing-enable
```

Enable the PIM-SM function on the virtual layer 3 interface (e.g. with Switch B)

```
[Quidway_B] interface vlanif 10
[Quidway_B-Vlanif20] pim sm
[Quidway_B-Vlanif20] quit
[Quidway_B] interface vlanif 30
[Quidway_B-Vlanif30] pim sm
[Quidway_B] interface vlanif 40
[Quidway_B-Vlanif30] pim sm
```

Cisco command

Globally enable multicast routing function (e.g. with Switch B)

```
Cisco_B# configure terminal
Cisco_B(config)# ip multicast-routing
```

Enable the PIM-SM function on the virtual layer 3 interface (e.g. with Switch B)

```
Cisco_B(config)# interface vlanif 10
Cisco_B(config-if)# ip pim sparse-mode
Cisco_B(config-if)# exit
Cisco_B(config)# interface vlanif 30
Cisco_B(config-if)# ip pim sparse-mode
Cisco_B(config)# interface vlanif 40
Cisco_B(config-if)# ip pim sparse-mode
```


HUAWEI

Multicast-PIM SM

Switch A (RP):

Globally Switch A as RP

```
[Quidway_A] interface loopback 1
[Quidway_A-loopback1] ip addresss 5.5.5.5 255.255.255.255
[Quidway_A-loopback1] pim sm
[Quidway_A-loopback1] quit
[Quidway_A] pim
[Quidway_A-pim] c-rp loopback1
[Quidway_A-pim] c-bsr loopback1
```

Globally Switch A as RP

```
Cisco_A(config)# interface loopback 1
Cisco_A(config-if)# ip address 5.5.5.5 255.255.255.255
Cisco_A(config-if)# ip pim sparse-mode
Cisco_A(config-if)# exit
Cisco_A(config)# ip pim rp-candidate loopback 1
Cisco_A(config)# ip pim bsr-candidate loopback 1
```

Switch B to C:

Enable IGMP on the on the virtual layer 3 interface connected to the layer 2 multicast device (e.g. with Switch B)

```
[Quidway_B] interface vlanif 40
[Quidway_B-vlanif-40] igmp enable
```

Multicast-IGMP Snooping

Switch D to E:

Enter the system view

```
<Quidway> system-view
```

Globally enable IGMP snooping function

```
[Quidway] igmp-snooping enable
```

Enable IGMP snooping on the VLAN

```
[Quidway] vlan 40
[Quidway-vlan40] igmp-snooping enable
```

(Optional) Specify the IGMP version, by default, the version is 2

```
[Quidway-vlan40] igmp-snooping version <1-3>
```

Enter the configuration view

```
Cisco# configure terminal
```

Globally enable IGMP snooping function

```
Cisco(config)# ip igmp snooping
```

Enable IGMP snooping on the VLAN

```
Cisco(config)# ip igmp snooping vlan 40
```

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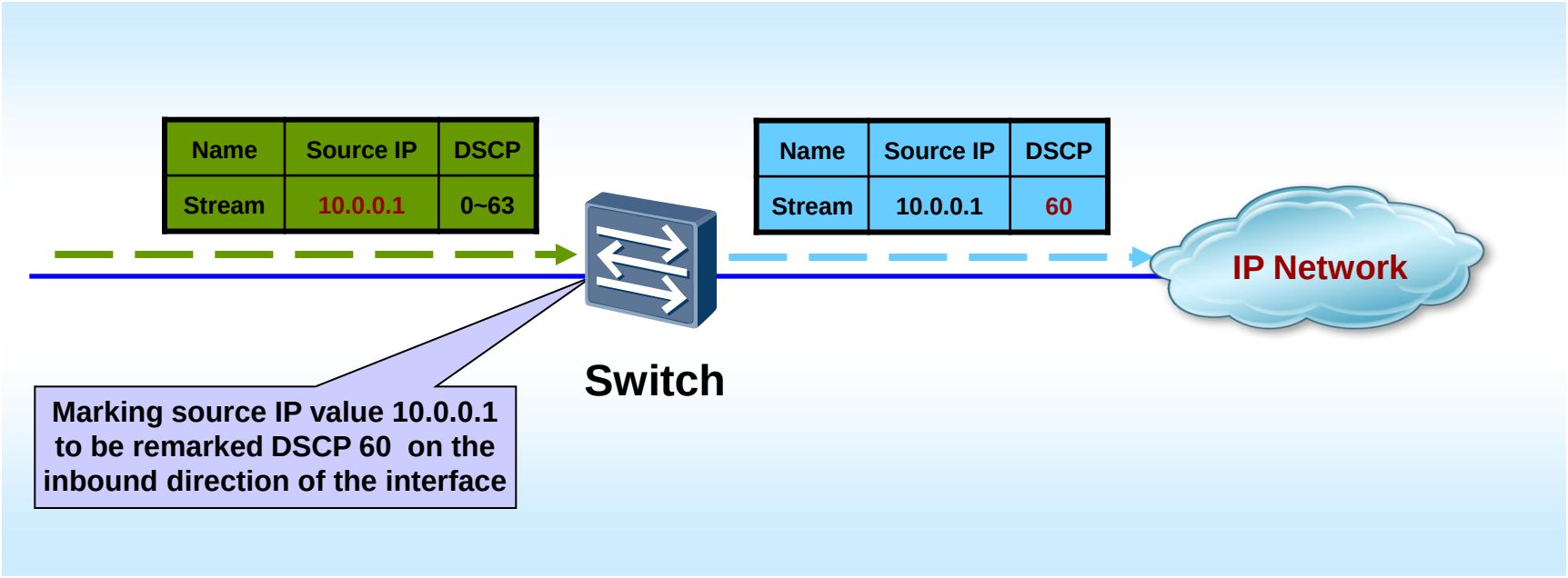
   7. Network Management

QoS marking and remarking



QoS marking and remarking

Huawei command

Configure an access list (e.g. IP standard access list)

```
<Quidway>system-view
[Quidway] acl 2000
[Quidway -acl-basic-2000] rule permit source 10.0.0.1 0.0.0.0
[Quidway -acl-basic-2000] quit
```

Create a traffic classifier to match the access list

```
[Quidway] traffic classifier c1
[Quidway-classifier-c1] if-match acl 2000
[Quidway-classifier-c1] quit
```

Create a traffic behavior as remark DSCP

```
[Quidway] traffic behavior b1
[Quidway -behavior-b1] remark dscp 60
[Quidway -behavior-b1] quit
```

Cisco command

Configure an access list (e.g. IP standard access list)

```
Cisco# configure terminal
Cisco(config)# access-list 1 permit 10.0.0.1 0.0.0.0
```

Create a traffic classifier to match the access list

```
Cisco(config)# class-map match-any c1
Cisco(config-cmap)#  access-group 1
Cisco(config-cmap)#  exit
```

Configure a traffic policy, create a traffic behavior as remark DSCP, and then bind the traffic behavior to the classifier

```
Cisco(config)# policy-map p1
Cisco(config-pmap)# class c1
Cisco(config-pmap-c)# set dscp 60
Cisco(config-pmap-c)# end
```

QoS marking and remarking

Create a traffic policy, and bind the traffic behavior to the traffic classifier under the policy

```
[Quidway] traffic policy p1
[Quidway-trafficpolicy-p1] classifier c1 behavior b1
[Quidway-trafficpolicy-p1] quit
```

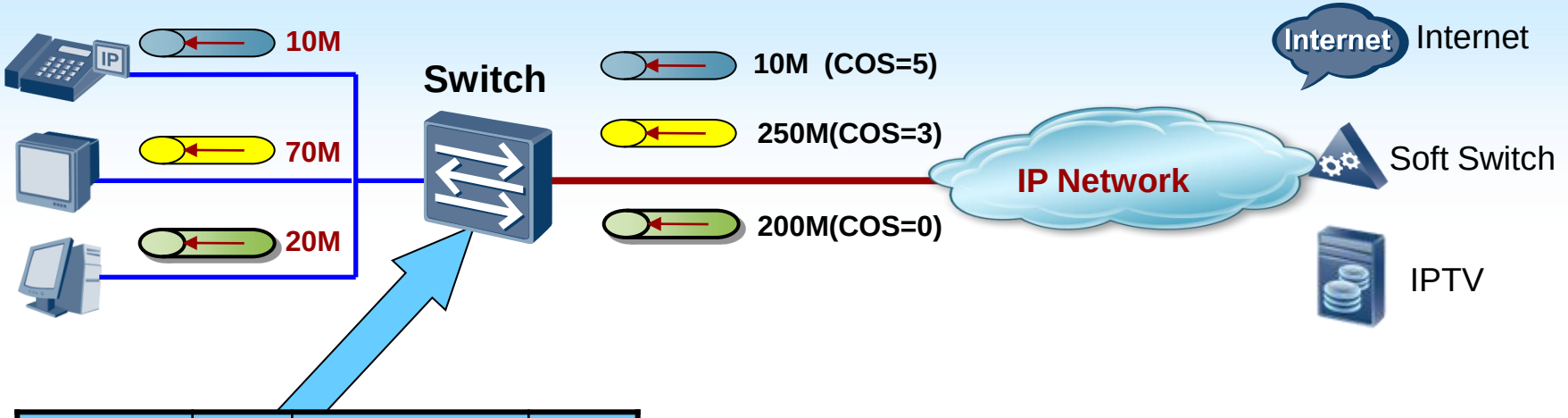
Apply the traffic Policy to the inbound direction of the interface

```
[Quidway] interface Ethernet0/0/1
[Quidway-Ethernet0/0/1] traffic-policy p1 inbound
[Quidway-Ethernet0/0/1] quit
```

Apply the traffic Policy to the inbound direction of the interface

```
Cisco# configure terminal
Cisco(config)# interface fastEthernet0/0/1
Cisco(config-if)# service-policy input p1
```

PQ+DRR Scheduling



Name	queue	Scheduling		Weight
		Huawei	Cisco	
VOIP_FLOW	5	PQ	PQ	------
IPTV_FLOW	3	DRR	WFQ	70
HSI_FLOW	1	DRR	WFQ	20

PQ+DRR Scheduling

Huawei command

Enter the system view

```
<Quidway> system-view
```

Configure the Up-link and Down-link interfaces to trust COS of the packets

```
[Quidway] interface Gigabitethernet0/0/1
[Quidway-GigabitEthernet0/0/1] trust 8021p outer
[Quidway-GigabitEthernet0/0/1] exit
[Quidway] interface Ethernet1/0/1
[Quidway-Ethernet1/0/1] trust 8021p outer
```

Configure queue 5 of the Down-link Ethernet interface as strict priority scheduling, queue 3 and queue 0 as DRR scheduling

```
[Quidway-Ethernet1/0/1]qos pq 5 drr 3 0
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Configure the Up-link and Down-link interfaces to trust COS of the packets

```
Cisco(config)# mls qos
Cisco(config)# interface Gigabitethernet0/0/1
Cisco(config-if)# mls qos trust cos
Cisco(config-if)# exit
Cisco(config)# interface fastEthernet1/0/1
Cisco(config-if)# mls qos trust cos
Cisco(config-if)# exit
```

Configure a traffic classifier to match COS value 5

```
Cisco(config)# class-map match-any cisco-queue-5
Cisco(config-cmap)#  match cos  5
Cisco(config-cmap)#  exit
```

PQ+DRR Scheduling

Configure the queue 3 of the fast Ethernet interface as DRR scheduling, and set the weights of queue 3 to 70

```
[Quidway-Ethernet1/0/1]qos queue 3 drr weight 70
```

Configure the queue 0 of the Ethernet interface as DRR scheduling, and set the weights of queue 0 to 20

```
[Quidway-Ethernet1/0/1]qos queue 0 drr weight 20
```

Configure a traffic classifier to match COS value 3

```
Cisco(config)# class-map match-any cisco-queue-3
Cisco(config-cmap)#  match cos  3
Cisco(config-cmap)#  exit
```

Configure a traffic classifier to match COS value 0

```
Cisco(config)# class-map match-any cisco-queue-0
Cisco(config-cmap)#  match cos  0
Cisco(config-cmap)#  exit
```

Configure a traffic Policy, bind a traffic behavior to the classifier match the COS value 5, and transmit the match flow by Strict priority Scheduling

```
Cisco(config)# policy-map Cisco
Cisco(config-pmap)# class cisco-queue-5
Cisco(config-pmap-c)# priority level 1
Cisco(config-pmap-c)# police cir 100000000 bc 3125000
Cisco(config-pmap-c-police)# conform-action transmit
Cisco(config-pmap-c-police)# exceed-action drop
Cisco(config-pmap-c-police)# exit
Cisco(config-pmap-c)# exit
Cisco(config-pmap)# exit
```

PQ+DRR Scheduling

Cisco command

Bind traffic behaviors to the traffic classifiers match the COS value 3 and 0, and transmit the match flow by WFQ Scheduling

```
Cisco(config-pmap)# class cisco-queue-3
Cisco(config-pmap-c)# bandwidth percent 70
Cisco(config-pmap-c)# exit
Cisco(config-pmap)# class cisco-queue-0
Cisco(config-pmap-c)# bandwidth percent 20
Cisco(config-pmap-c)# end
```

Apply the traffic Policy to the outbound direction of the Down-link interface

```
Cisco# configure terminal
Cisco(config)# interface fastEthernet1/0/1
Cisco(config-if)# service-policy output Cisco
```

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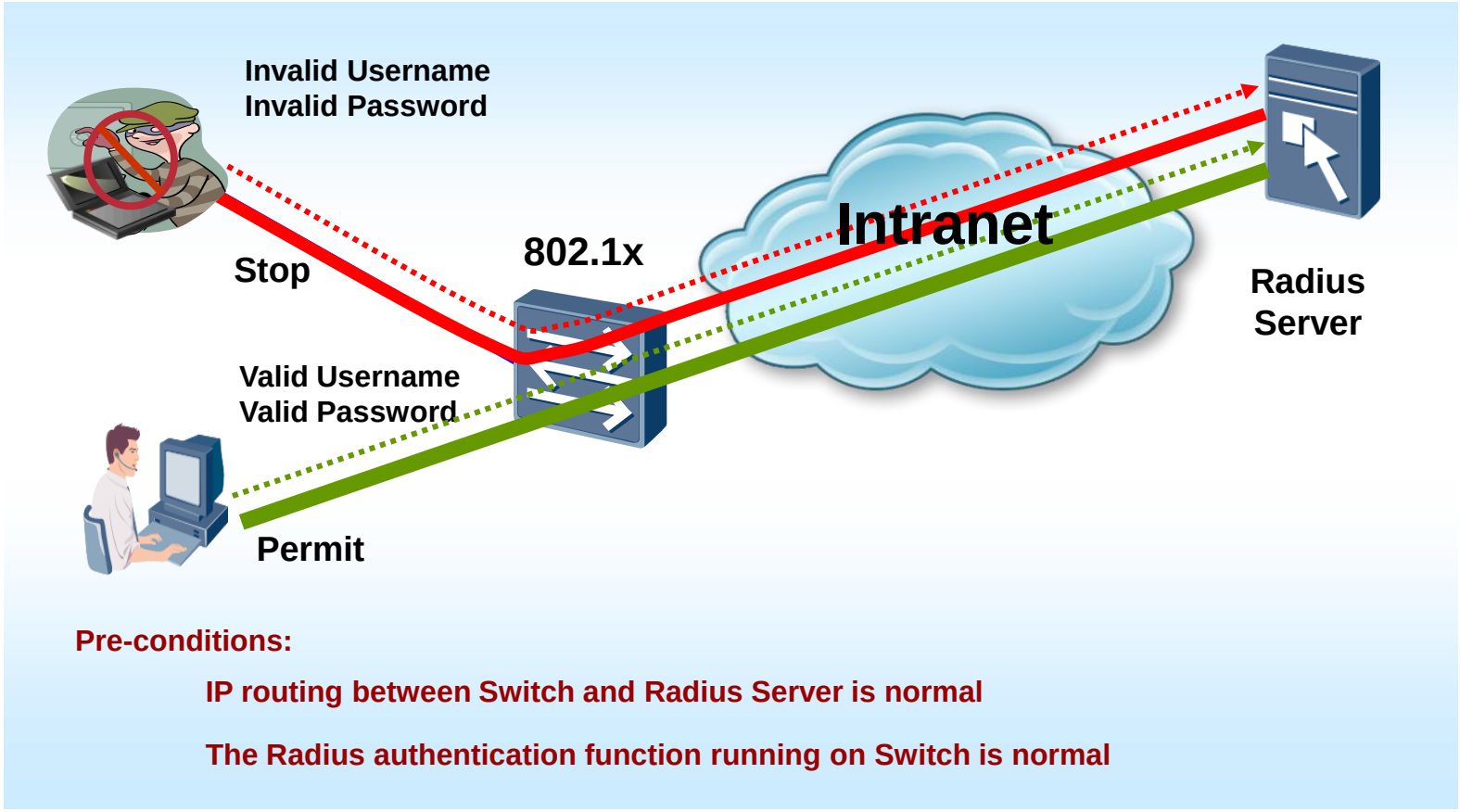
HUAWEI

Layer 2 Suppression function

Huawei command	Cisco command
Enter the system view	**Enter the configuration mode**
<Quidway> system-view	**Cisco# configure terminal**
Perform storm control on the interface	**Perform storm control on the interface**
[Quidway] interface *GigabitEthernet1/0/1* **[Quidway-GigabitEthernet1/0/1] storm-control** { **broadcast** | **multicast** | **unicast** } **min-rate** *value1* **max-rate** *value2*	**Cisco(config)# interface** *Gigabitethernet1/0/1* **Cisco(config-if)# storm-control** { **broadcast** | **multicast** | **unicast** } **pps** *value2* [*value1*]
Specify the action when a storm is detected	**Specify the action when a storm is detected**
[Quidway-GigabitEthernet1/0/1] storm-control action *shutdown*	**Cisco(config-if)# storm-control action** *shutdown*
If you want to generate an SNMP trap when a storm is detected	**If you want to generate an SNMP trap when a storm is detected**
[Quidway-GigabitEthernet1/0/1] storm-control enable *trap*	**Cisco(config-if)# storm-control action** *trap*

802.1x authentication function



Pre-conditions:

IP routing between Switch and Radius Server is normal

The Radius authentication function running on Switch is normal

802.1x authentication function

Huawei command	Cisco command
Globally enable 802.1x authentication function	**Globally enable 802.1x authentication function**
<Quidway>system-view **[Quidway] dot1x**	**Cisco# configure terminal** **Cisco(config)# dot1x system-auth-control**
Specify the port connected to the client that is to be enabled for 802.1x authentication	**Specify the port connected to the client that is to be enabled for 802.1x authentication**
[Quidway] interface *GigabitEthernet1/0/1* **[Quidway-GigabitEthernet1/0/1] port link-type access** **[Quidway-GigabitEthernet1/0/1] dot1x** **[Quidway-GigabitEthernet1/0/1] quit**	**Cisco(config)# interface** *GigabitEthernet1/0/1* **Cisco(config-if)# switchport mode access** **Cisco(config-if)# dot1x port-control auto** **Cisco(config-if)# exit**
Configure 802.1x authentication method as radius (commonly the domain default used to authenticate the access user)	**Configure 802.1x authentication method as radius (commonly the domain default used to authenticate the access user)**
[Quidway-aaa] authentication-scheme default **[Quidway-aaa-authen-default] authentication-mode** *radius* **[Quidway-aaa-authen-default] quit** **[Quidway-aaa] accounting-scheme default** **[Quidway-aaa-accounting-default] accounting-mode** *radius*	**Cisco(config)# aaa new-model** **Cisco(config)# aaa authentication dot1x default group** *radius-group-name*

HUAWEI

Access Control Lists

Huawei command

Configure an access list

<Quidway>system-view
[Quidway] acl {*access-list-number | name}*
[Quidway-acl-number] rule *rule-number* {**deny | permit**} *access-condition*
[Quidway-acl-number] quit

Create a traffic classifier to match the access list

[Quidway] traffic classifier *classifier-name*
[Quidway-classifier-name] if-match acl *{access-list-number | name}*
[Quidway-classifier-name] quit

Create a traffic behavior

[Quidway] traffic behavior *behavior-name*
[Quidway- behavior-name] {**deny | permit**}
[Quidway- behavior-name] quit

Cisco command

Configure an access list

Cisco# configure terminal
Cisco(config)# access-list *access-list-number* {**deny | permit**} *access-condition*

OR (configure an IP access list)

Cisco(config)# ip access-list {*standard | extended*} *name*
Cisco(config-{*std|ext*}**-nacl)#** {**deny | permit**} *access-condition*

OR (configure a Mac access list)

Cisco(config)# mac access-list extended *name*
Cisco(config-ext-macl)# {**deny | permit**} *access-condition*

Apply an IP ACL to the interface

Cisco(config)# interface *GigabitEthernet1/0/1*
Cisco(config-if)# ip access-group {*access-list-number | name*} {**in | out**}
Cisco(config-if)# exit

Access Control Lists

Create a traffic policy, and bind the traffic behavior to the traffic classifier under the policy

[Quidway] ***traffic policy*** *policy-name*
[Quidway-*policy-name***] classifier** *classifier-name* **behavior** *behavior-name*
[Quidway-*policy-name***] quit**

Apply an ACL to the interface

[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] traffic-policy *policy-name* **{ inbound | outbound }**
[Quidway-GigabitEthernet1/0/1] quit

Apply an ACL to VLAN

[Quidway] vlan *vlan-id*
[Quidway-vlan-id] traffic-policy *policy-name* **{ inbound | outbound }**

Apply a Mac ACL to interface

Cisco(config)# interface *GigabitEthernet1/0/1*
Cisco(config-if)# mac access-group {*name*} {**in**}
Cisco(config-if)# exit

Create a vlan access-map

Cisco(config)# vlan access-map *name* [*number*]
Cisco(config-access-map)# action {**drop** | **forward**}
Cisco(config-access-map)# match {**ip** | **mac**} **address** *access-list-number*
Cisco(config-access-map)# exit

Apply an ACL to VLAN

Cisco# configure terminal
Cisco(config)# vlan filter *access-map-name* **vlan-list** *vlan-id*

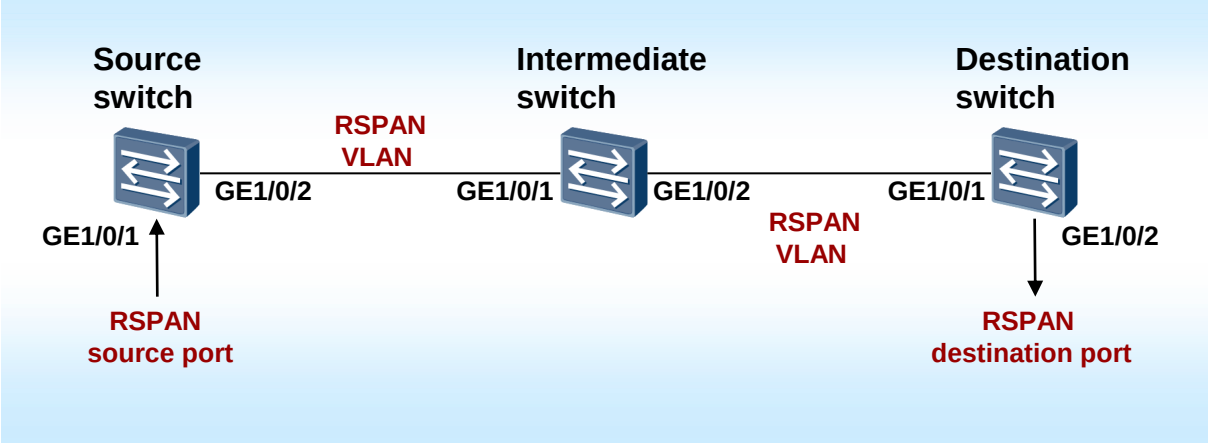
Agenda

HUAWEI

Local port-mirroring function

Huawei command	Cisco command
Enter the system view	**Enter the configuration mode**
< Quidway > system-view	**Cisco# configure terminal**
Specify the observe-port on which you can observe the packets from the mirrored interface	**Specify the observe-port on which you can observe the packets from the mirrored interface**
[Quidway] observe-port *1* **interface** *GigabitEthernet1/0/1*	**Cisco(config)# monitor session** *1* **destination interface** *GigabitEthernet1/0/1*
Specify the mirrored interface the direction you want to mirror on the interface	**Specify the mirrored interface and the direction you want to mirror on the interface**
[Quidway] interface *GigabitEthernet1/0/2* **[Quidway-GigabitEthernet1/0/2] port-mirroring to observe-port** *1* **{ both | inbound | outbound }**	**Cisco(config)# monitor session** *1* **source interface** *GigabitEthernet1/0/2* **{ both | rx | tx }**

Remote port-mirroring function



Source switch:

Huawei command

Create RSPAN VLAN on the system view

```
<Quidway> system-view
[Quidway] vlan 900
```

Cisco command

Configure RSPAN VLAN on the configuration mode

```
Cisco# configure terminal
Cisco(config)# vlan 900
Cisco(config-vlan)# remote span
```


HUAWEI

Remote port-mirroring function

Source switch:

Configure the RSPAN VLAN on the Up-link Port

```
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] port link-type trunk
[Quidway-GigabitEthernet1/0/2] port trunk allow vlan 900
```

Specify the RSPAN session and the destination RSPAN VLAN

```
[Quidway] observe-port 1 interface GigabitEthernet1/0/2 VLAN 900
```

Specify the RSPAN source port and the direction you want to mirror on the port

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] port-mirroring to observe-port 1
{ both | inbound | outbound }
```

Configure the RSPAN VLAN on the Up-link Port

```
Cisco(config)# interface GigabitEthernet1/0/2
Cisco(config-if)# switchport trunk encapsulation dot1q
Cisco(config-if)# switchport mode trunk
Cisco(config-if)# switchport trunk allowed vlan 900
```

Specify the RSPAN session and the destination RSPAN VLAN

```
Cisco(config)# monitor session 1 destination remote vlan 900
```

Specify the RSPAN source port and the direction you want to mirror on the port

```
Cisco(config)# monitor session 1 source interface
GigabitEthernet1/0/1 { both | rx | tx }
```


HUAWEI

Remote port-mirroring function

Intermediate switch:

Create RSPAN VLAN on the system view

```
<Quidway> system-view
[Quidway] vlan 900
[Quidway-vlan900] quit
```

Add the ports to the RSPAN VLAN in trunk mode

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/2] port link-type trunk
[Quidway-GigabitEthernet1/0/2] port trunk allow vlan 900
[Quidway-GigabitEthernet1/0/2] quit
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] port link-type trunk
[Quidway-GigabitEthernet1/0/2] port trunk allow vlan 900
```

Configure RSPAN VLAN on the configuration view

```
Cisco# configure terminal
Cisco(config)# vlan 900
Cisco(config-vlan)# remote span
Cisco(config-vlan)# exit
```

Add the ports to the RSPAN VLAN in trunk mode

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# switchport trunk encapsulation dot1q
Cisco(config-if)# switchport mode trunk
Cisco(config-if)# switchport trunk allowed vlan 900
Cisco(config-if)# exit
Cisco(config)# interface GigabitEthernet1/0/2
Cisco(config-if)# switchport trunk encapsulation dot1q
Cisco(config-if)# switchport mode trunk
Cisco(config-if)# switchport trunk allowed vlan 900
```

Remote port-mirroring function

Destination switch :

Create RSPAN VLAN on the system view

```
<Quidway> system-view
[Quidway] vlan 900
```

Add the port connected with the Intermediate switch to the RSPAN VLAN in trunk mode, and add the RSPAN destination port to the RSPAN VLAN in access mode

```
[Quidway] interface GigabitEthernet1/0/1
[Quidway-GigabitEthernet1/0/1] port link-type trunk
[Quidway-GigabitEthernet1/0/1] port trunk allow vlan 900
[Quidway-GigabitEthernet1/0/1] quit
[Quidway] interface GigabitEthernet1/0/2
[Quidway-GigabitEthernet1/0/2] port link-type access
[Quidway-GigabitEthernet1/0/2] port default vlan 900
```

Configure RSPAN VLAN on the configuration mode

```
Cisco# configure terminal
Cisco(config)# vlan 900
Cisco(config-vlan)# remote span
Cisco(config-vlan)# exit
```

Add the port connected with the Intermediate switch to the RSPAN VLAN in trunk mode

```
Cisco(config)# interface GigabitEthernet1/0/1
Cisco(config-if)# switchport trunk encapsulation dot1q
Cisco(config-if)# switchport mode trunk
Cisco(config-if)# switchport trunk allowed vlan 900
Cisco(config-if)# exit
```

Specify the RSPAN session and the RSPAN destination port

```
Cisco(config)# monitor session 1 destination interface
GigabitEthernet1/0/2
```

Specify the RSPAN session and the source RSPAN VLAN

```
Cisco(config)# monitor session 1 source remote vlan 900
```

Agenda

1. Abstract
2. Huawei and Cisco command-view contrast
3. Switch Features configuration contrast
   1. Basic Configuration
   2. Ethernet Configuration
   3. Reliability
   4. QoS
   5. Security
   6. Device Management
   7. Network Management

Radius function

Huawei command

Enter the system view

```
<Quidway>system-view
```

Configure a Radius template, set the Authentication key and Identify the radius Server

```
[Quidway] radius-server template Huawei
[Quidway-radius-Huawei] radius-server shared-key 123456
[Quidway-radius-Huawei] radius-server authentication 200.0.0.1
[Quidway-radius-Huawei] radius-server accounting 200.0.0.1
```

Enter AAA view

```
[Quidway] aaa
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Set the Authentication key

```
Cisco(config)# radius-server host 200.0.0.1 key 123456
```

Enter AAA-configuration mode

```
Cisco(config)# aaa new-model
```

Configure the radius Servers group

```
Cisco(config)# aaa group server radius Huawei
Cisco(config-sg-radius)# server 200.0.0.1
Cisco(config-sg-radius)# exit
```

Radius function

Configure authentication and accounting schemes, then Identify authentication and accounting mode as radius to the schemes

```
[Quidway-aaa] authentication-scheme Huawei
[Quidway-aaa-authen-Huawei] authentication-mode radius
[Quidway-aaa-authen-Huawei] quit
[Quidway-aaa] accounting-scheme Huawei
[Quidway-aaa-accounting-Huawei] accounting-mode radius
[Quidway-aaa-accounting-Huawei] quit
```

Configure a domain, Identify the authentication and accounting mode of the domain as radius, and specify the server template

```
[Quidway-aaa] domain Huawei
[Quidway-aaa-domain-Huawei] authentication-scheme Huawei
[Quidway-aaa-domain-Huawei] accounting-scheme Huawei
[Quidway-aaa-domain-Huawei] radius-server Huawei
```

Configure authentication-mode of the VTY as AAA

```
[Quidway] user-interface vty 0 4
[Quidway-ui-vty0-4] authentication-mode aaa
```

Identify the authentication, authorization and accounting mode as radius to the radius Server group

```
Cisco(config)# aaa authentication login default group Huawei
Cisco(config)# aaa authorization network default group Huawei
Cisco(config)# aaa authorization exec default group Huawei
Cisco(config)# aaa accounting exec default start-stop group
Huawei
Cisco(config)# aaa accounting network default start-stop group
Huawei
```

Configure authentication-mode of the VTY as AAA

```
Cisco(config)# line vty 0 4
Cisco(config-line)# login authentication default
```

HWTACACS function

Huawei command

Enter the system view

```
<Quidway>system-view
```

Configure a TACACS template, set the authentication key and Identify the HWTACACS Server

```
[Quidway] hwtacacs-server template Huawei
[Quidway-hwtacacs-Huawei] hwtacacs-server shared-key 123456
[Quidway-hwtacacs-Huawei] hwtacacs-server authentication
10.0.0.1
[Quidway-hwtacacs-Huawei] hwtacacs-server authorization
10.0.0.1
[Quidway-hwtacacs-Huawei] hwtacacs-server accounting
10.0.0.1
```

Enter AAA view

```
[Quidway] aaa
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Identify the TACACS Server and set the authentication key

```
Cisco(config)# tacacs-server host 10.0.0.1 key 123456
```

Enter AAA-configuration mode

```
Cisco(config)# aaa new-model
```

configure the TACACS Server group

```
Cisco(config)# aaa group server tacacs+ Huawei
Cisco(config-sg-tacacs+) # server 10.0.0.1
Cisco(config-sg-tacacs+) # exit
```

HWTACACS function

Configure authentication, authorization and accounting schemes, then Identify authentication, authorization and accounting mode as HWTACAS to the schemes

```
[Quidway-aaa] authentication-scheme Huawei
[Quidway-aaa-authen-Huawei] authentication-mode hwtacacs
[Quidway-aaa-authen-Huawei] quit
[Quidway-aaa] authorization-scheme Huawei
[Quidway-aaa-author-Huawei] authorization-mode hwtacacs
[Quidway-aaa-author-Huawei] quit
[Quidway-aaa] accounting-scheme Huawei
[Quidway-aaa-accounting-Huawei] accounting-mode hwtacacs
[Quidway-aaa-accounting-Huawei] quit
```

Configure a domain, Identify the authentication, authorization and accounting mode of the domain as HWTACACS, and specify the server template

```
[Quidway-aaa] domain Huawei
[Quidway-aaa-domain-Huawei] authentication-scheme Huawei
[Quidway-aaa-domain-Huawei] authorization-scheme Huawei
[Quidway-aaa-domain-Huawei] accounting-scheme Huawei
[Quidway-aaa-domain-Huawei] hwtacacs-server Huawei
```

Configure authentication-mode of the VTY as AAA

```
[Quidway] user-interface vty 0 4
[Quidway-ui-vty0-4] authentication-mode aaa
```

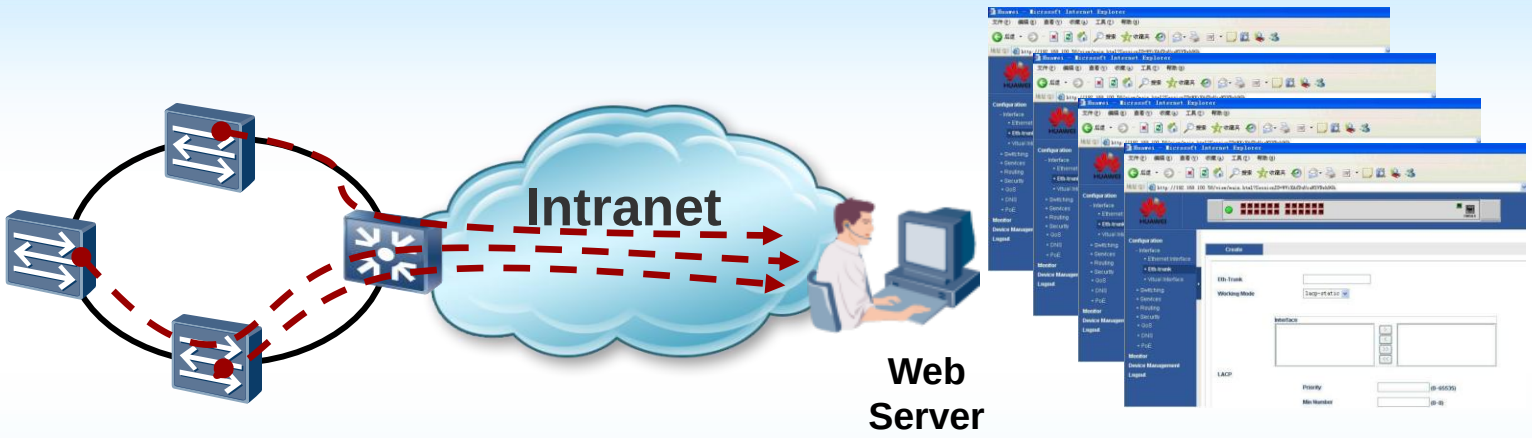
Configure the authentication, authorization and accounting mode as TACACS to the TACACS Server

```
Cisco(config)# aaa authentication login default group Huawei
Cisco(config)# aaa authorization network default group Huawei
Cisco(config)# aaa authorization exec default group Huawei
Cisco(config)# aaa accounting exec default start-stop group
Huawei
Cisco(config)# aaa accounting network default start-stop group
Huawei
```

Configure authentication-mode of the VTY as AAA

```
Cisco(config)# line vty 0 4
Cisco(config-line)# login authentication default
```

Web management



Pre-conditions:

IP routing between Switch and Web management Server is normal

Web management

Huawei command

Globally enable HTTP Server function

```
<Quidway>system-view
[Quidway] http server enable
```

Configure the HTTP user and the password of the user

```
<Quidway> system-view
[Quidway] aaa
[Quidway-aaa] local-user Huawei password simple 123456
[Quidway-aaa] local-user Huawei service-type http
[Quidway-aaa] local-user Huawei level 3
[Quidway-aaa] quit
```

Cisco command

Globally enable HTTP Server function

```
Cisco# configure terminal
Cisco (config)# ip http server
```

Configure the local user and the password of the user

```
Cisco# configure terminal
Cisco (config)# username Huawei password 123456
Cisco (config)# username Huawei privilege 3
```

Log in device by local through HTTP

```
Cisco (config)# ip http authentication local
```

SNMP v1/v2c function

Huawei command

Enable SNMP agent function

```
<Quidway>system-view
[Quidway] snmp-agent
```

Set version of SNMP as v1 or v2c, by default, the version is all

```
[Quidway] undo snmp-agent sys-info version all
[Quidway] snmp-agent sys-info version v1/v2c
```

Set the SNMP community name

```
[Quidway] snmp-agent community  read public
[Quidway] snmp-agent community  write private
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Set version of SNMP as v1 or v2c, by default, the version is v1

```
Cisco(config)# no snmp-server
```

Set the SNMP community name

```
Cisco(config)# snmp-server community public ro
Cisco(config)# snmp-server community private rw
```

SNMP v3 function

Huawei command

Enable SNMP agent function on the system view

```
<Quidway>system-view
[Quidway] snmp-agent
```

Set version of SNMP as v3, the default version is all

```
[Quidway] undo snmp-agent sys-info version all
[Quidway] snmp-agent sys-info version v3
```

Configuring an SNMPv3 User Group

```
[Quidway] snmp-agent group v3 Huawei [authentication]
```

Add an user into the SNMPv3 user group and need to authenticate (e.g. with MD5)

```
[Quidway] snmp-agent usm-user v3 8031 Huawei  authentication-mode md5 123456
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Set the version of SNMP as 3, the default version is v1

```
Cisco(config)# no snmp-server
```

Add users into the SNMPv3 user group

```
Cisco(config)# snmp-server group Huawei v3 {auth | noauth }
```

Add an user into the SNMPv3 user group and need to authenticate (e.g. with MD5)

```
Cisco(config)# snmp-server user 8031 Huawei V3 auth md5 123456
```

SNMP Trap

Huawei command

Enable the system view

```
<Quidway>system-view
```

Specify hosts to receive SNMP notifications

```
[Quidway] snmp-agent target-host trap address udp-domain 192.180.1.27 params securityname public v2c
```

Enable the switch to send traps or specify the type of notifications to be sent

```
[Quidway] snmp-agent trap enable [ trap-type ]
```

Cisco command

Enter the configuration mode

```
Cisco# configure terminal
```

Specify hosts to receive SNMP notifications

```
Cisco(config)# snmp-server host 192.180.1.27 version 2c public
```

Enable the switch to send traps or specify the type of notifications to be sent

```
Cisco(config)# snmp-server enable traps [ trap-type ]
```

Thank you

www.huawei.com