

# Box Switches (S67S57S37S27) iStack Features and Configuration

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# Foreword

- Box Switches = cost-effective, but don't support HA
- Chassis devices = HA, but high initial investment
- iStack (Intelligent Stack) combines the advantages of both.
- This course introduces the iStack features and configuration of Huawei Box Switches.



# Objectives

- Upon completion of this course, you will be able to:
  - Describe the iStack principles
  - Describe the iStack features on Huawei box switches
  - Configure the iStack features on Huawei box switches

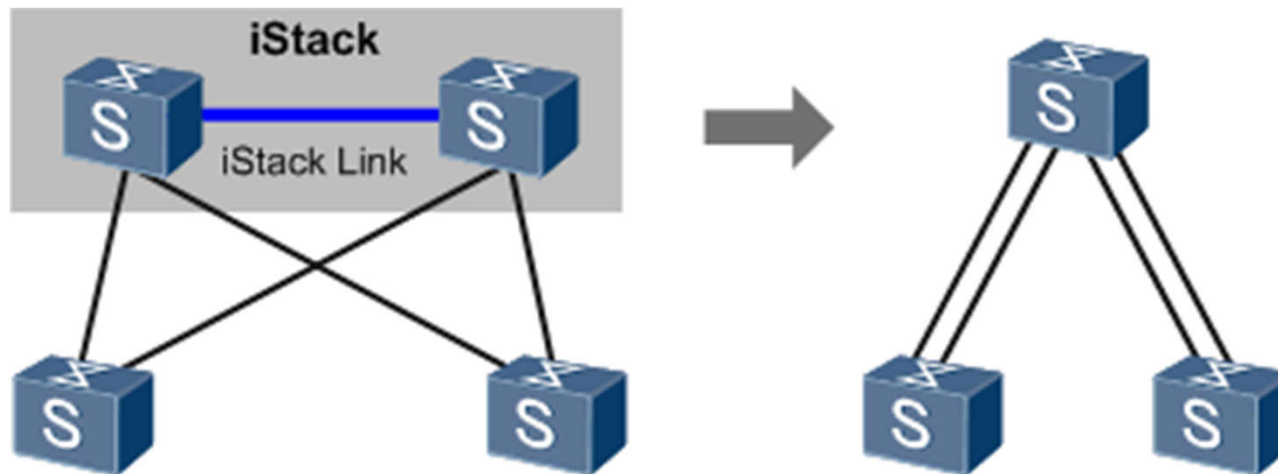


# Contents

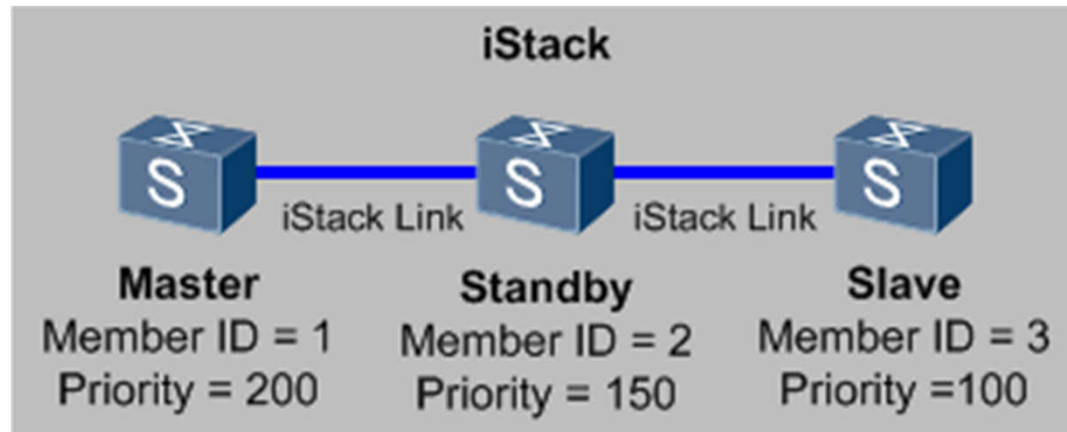
- iStack Principles
- iStack Features on Huawei Box Switches
- iStack Configuration
- iStack Application Scenarios

# iStack Overview

- iStack (Intelligent Stack) allows multiple stacking-capable switches to function as a single logical switch.



# iStack Main Concepts



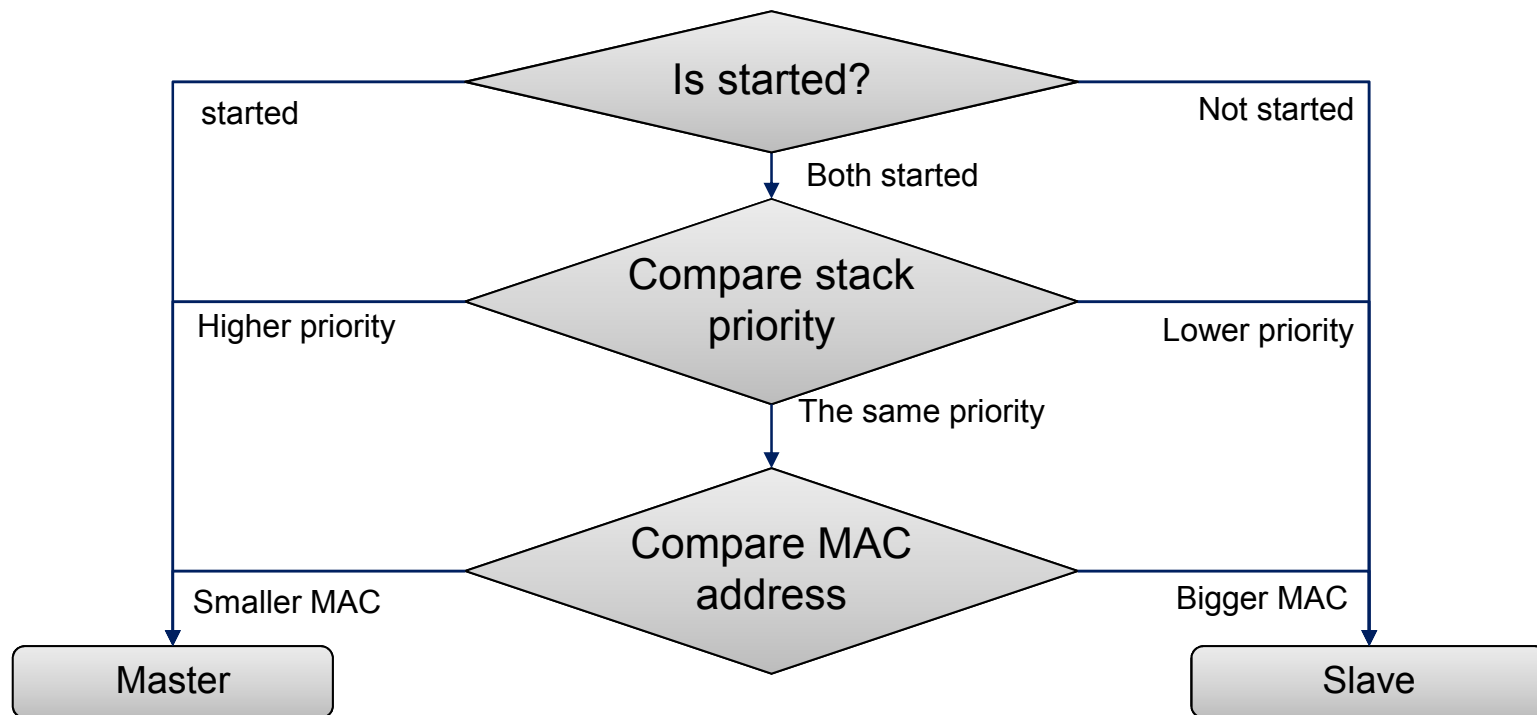
Physical member interface



Stack interface

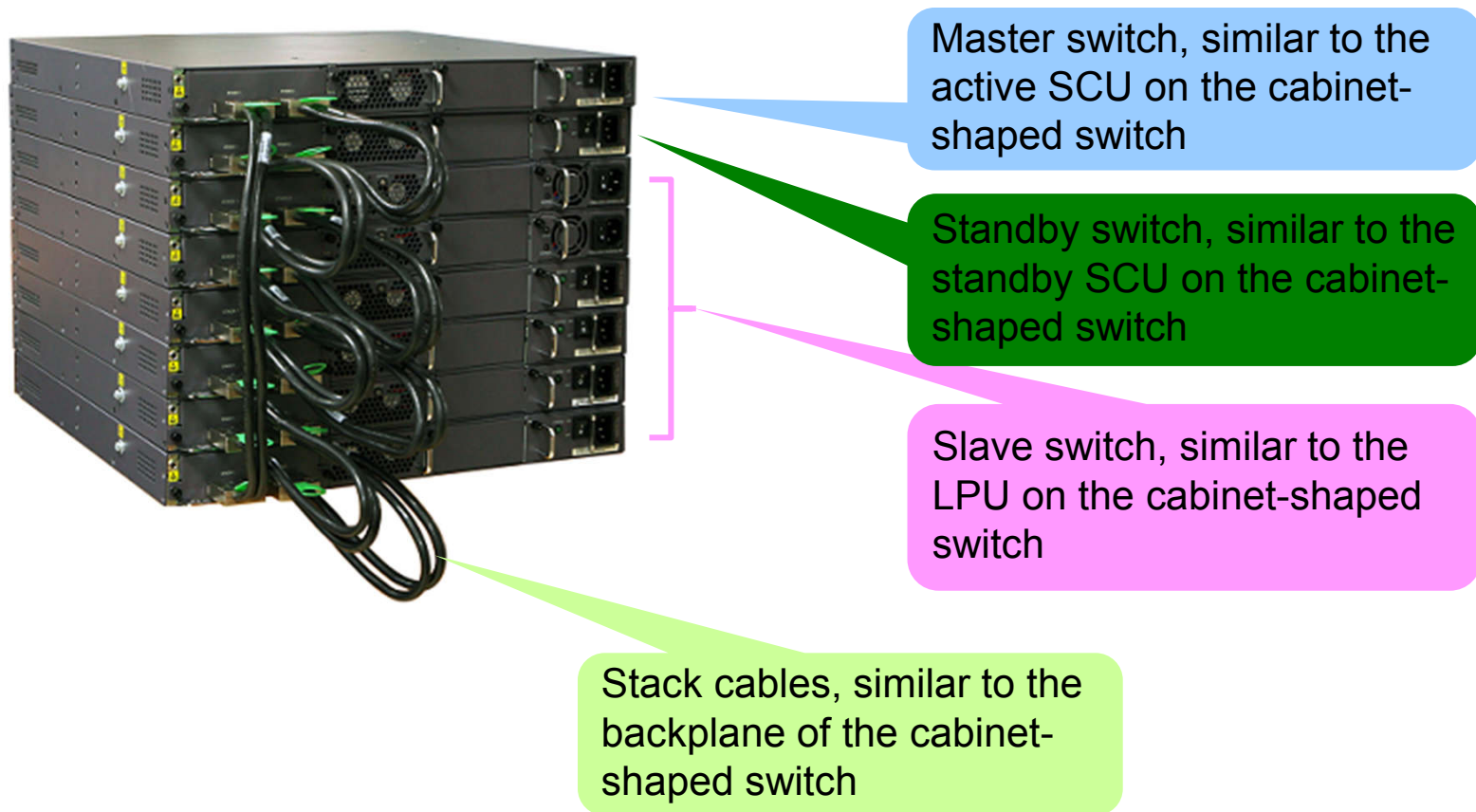
```
[SwitchA] interface stack-port 0/1
[SwitchA-stack-port0/1] port member-group
interface gigabitethernet 0/0/27
[SwitchA-stack-port0/1] quit
[SwitchA] interface stack-port 0/2
[SwitchA-stack-port0/2] port member-group
interface gigabitethernet 0/0/28
[SwitchA-stack-port0/2] quit
```

# Setting Up a Stack



- After the master is elected, the standby will be elected from the slaves:
  - The election rule is similar

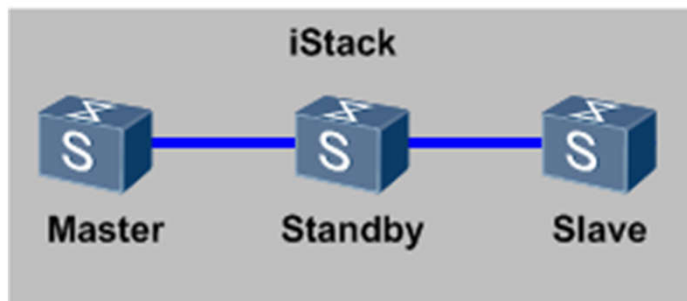
# A Stack vs. a Chassis Switch



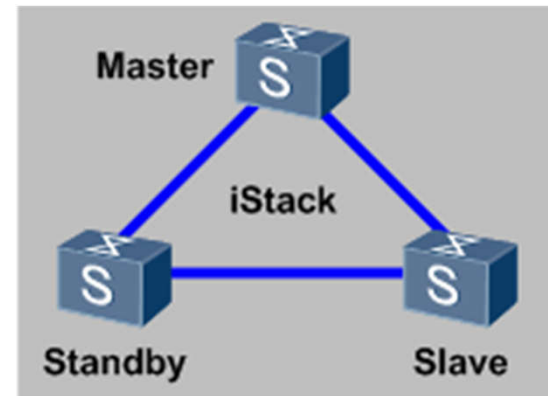


# Stack Connection Topology

- A stack has two connection topologies: chain topology and ring topology



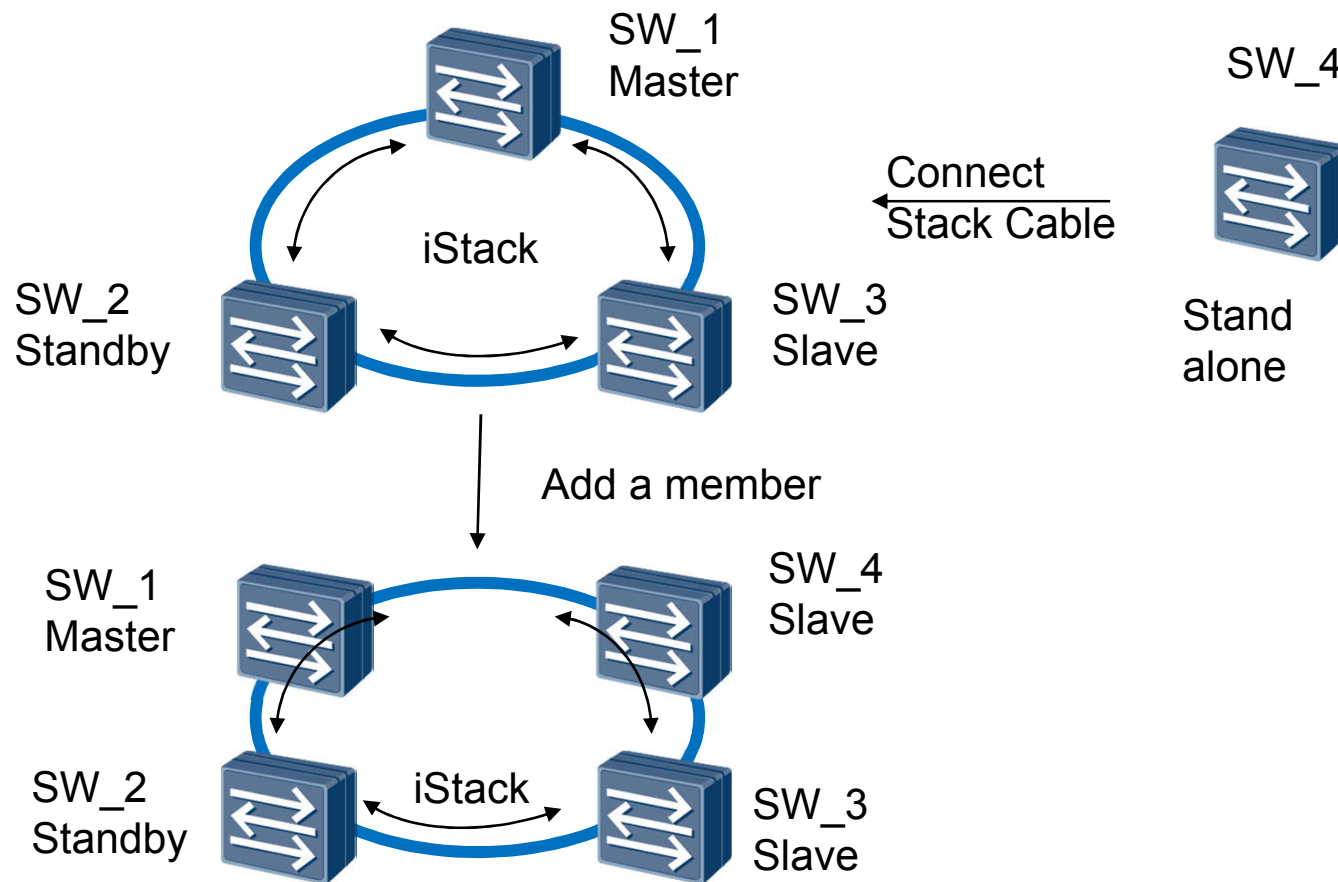
Chain topology



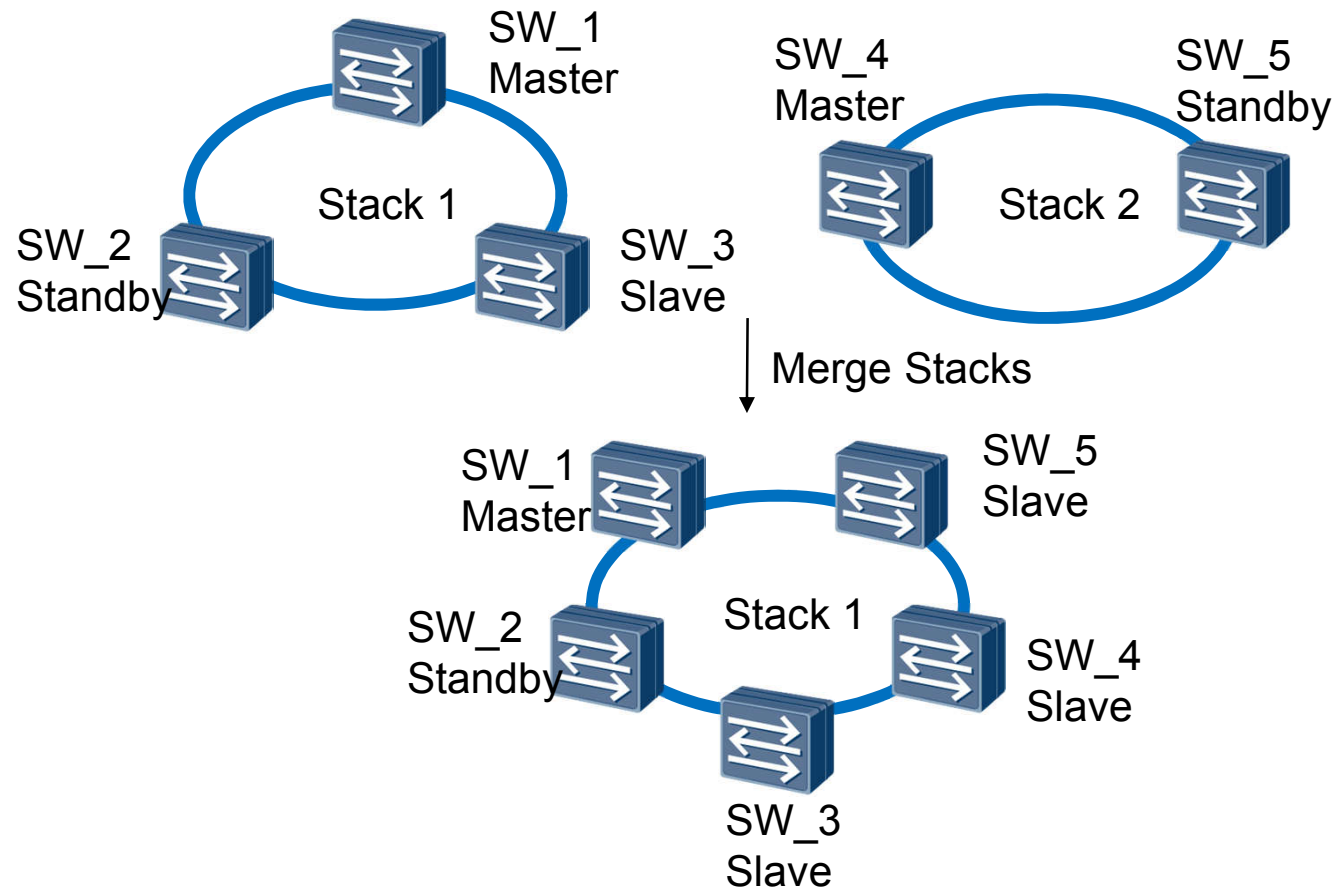
Ring topology

A ring topology is more reliable than a chain topology.

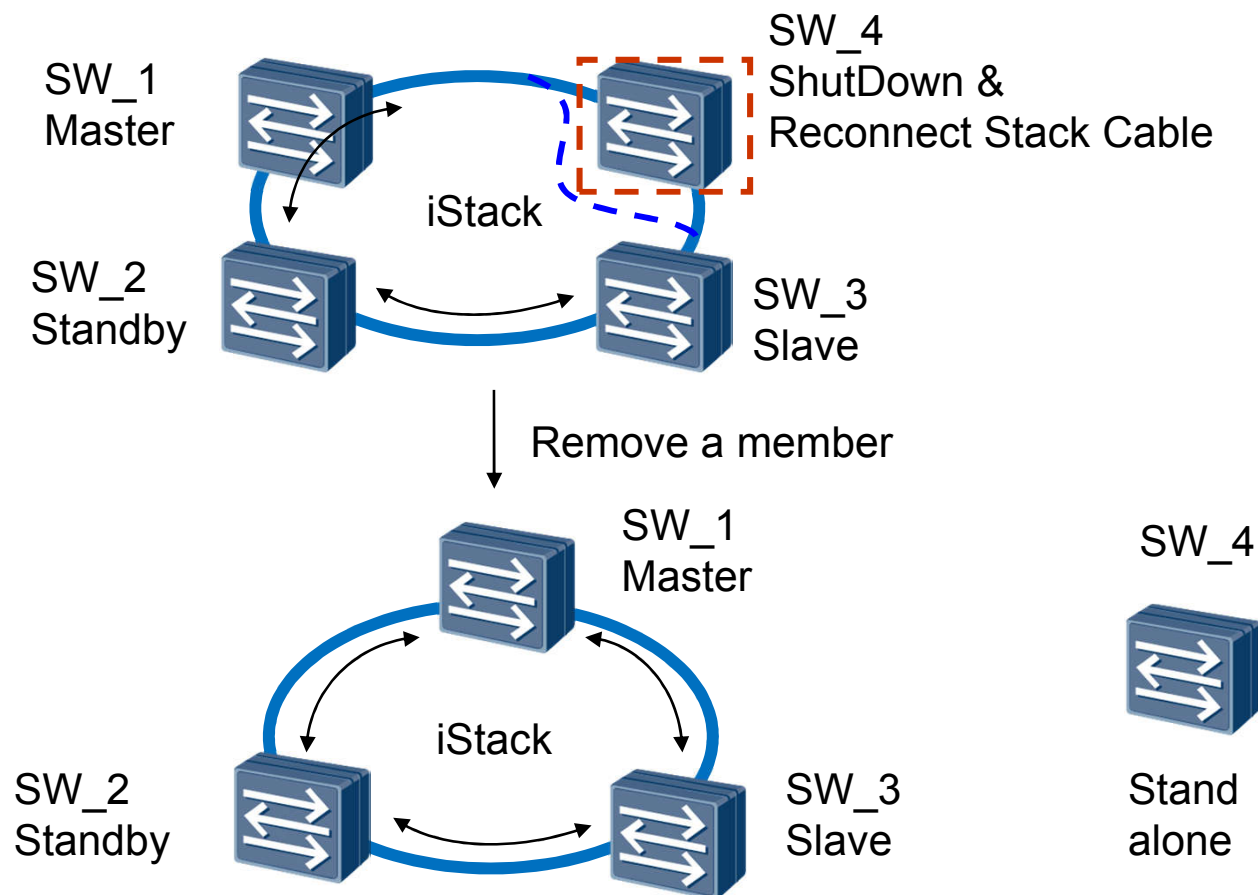
# Adding a Member Switch to a Stack



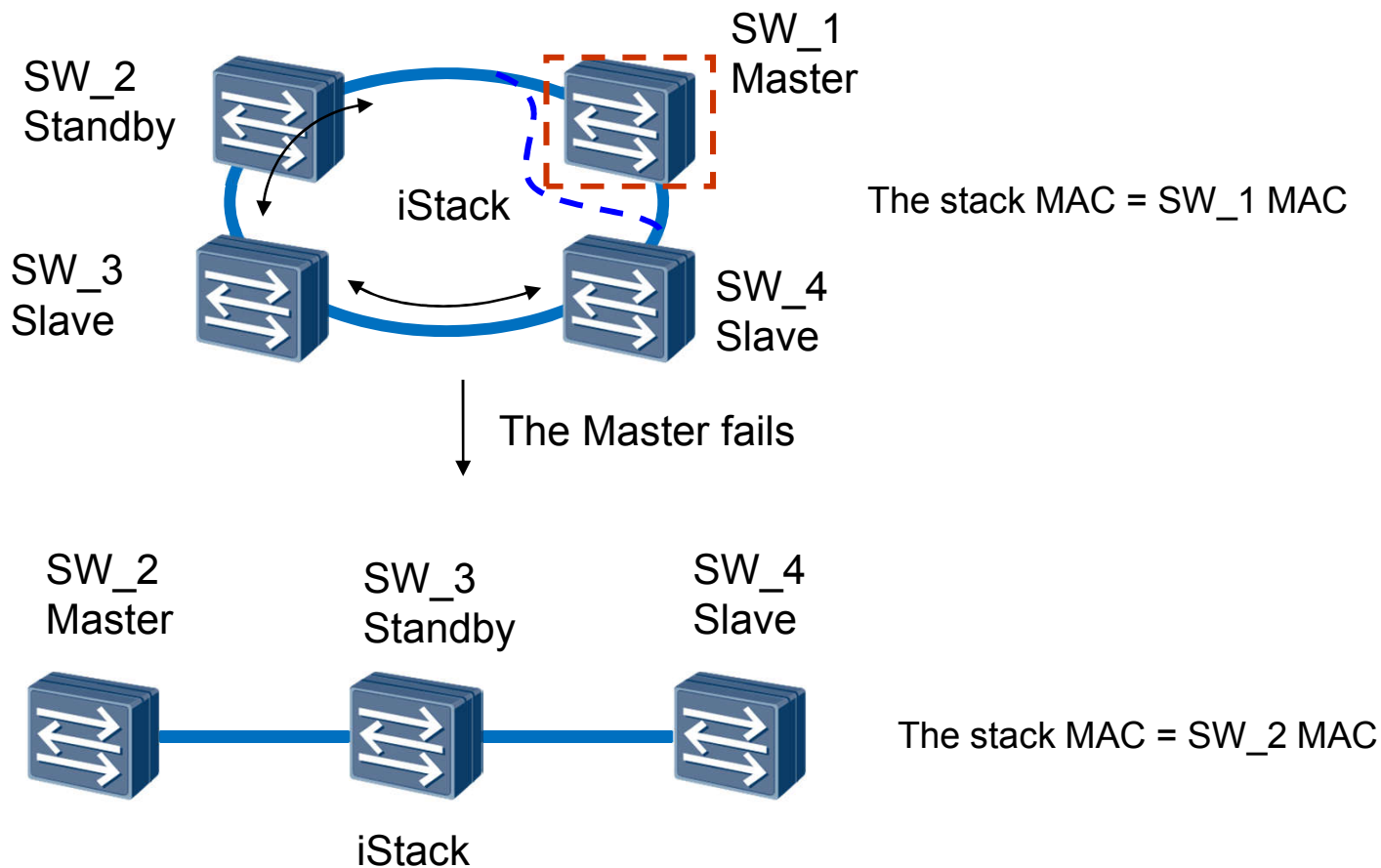
# Stack Merging



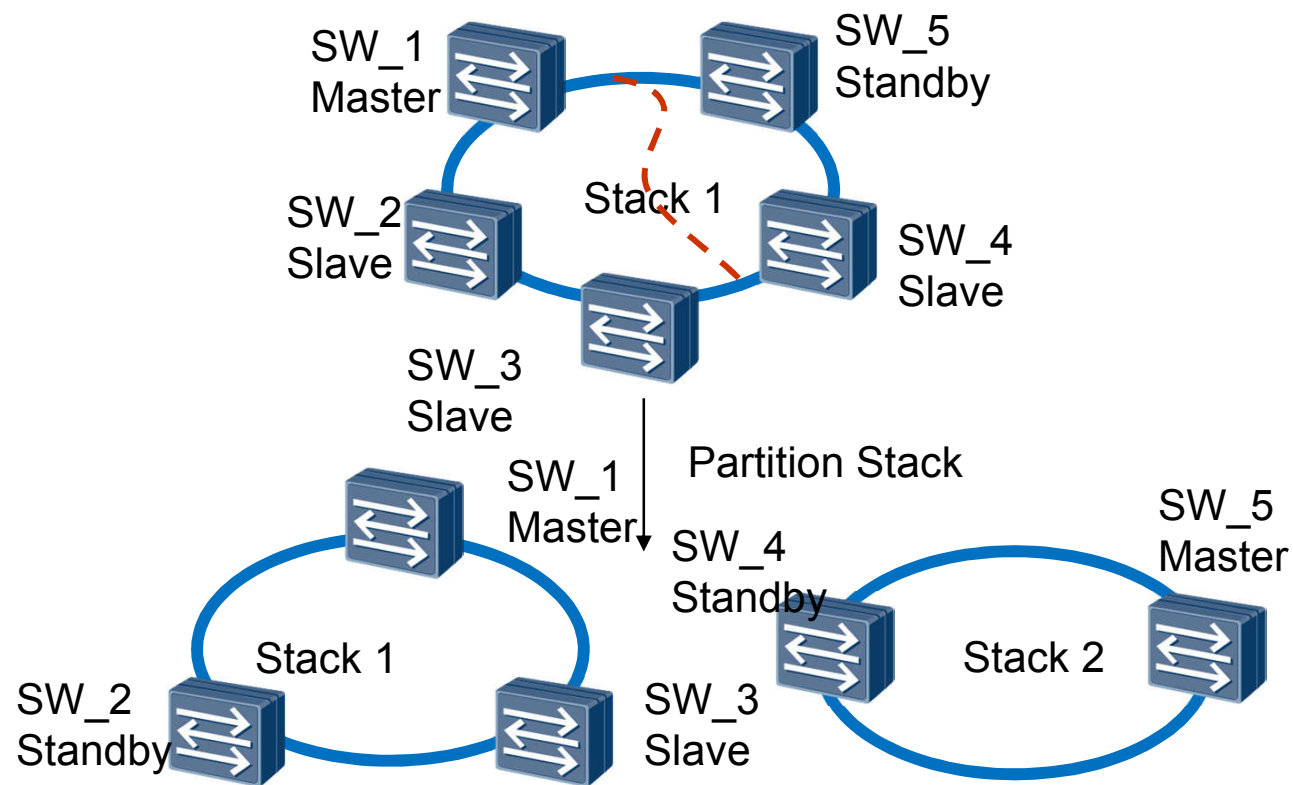
# Removing a Member Switch from a Stack



# Master/Standby Switchover in a Stack



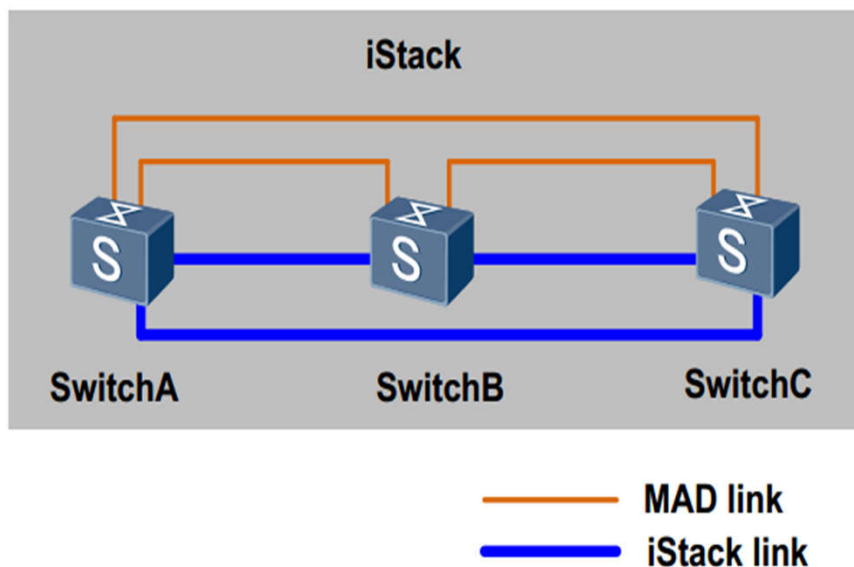
# Stack Split



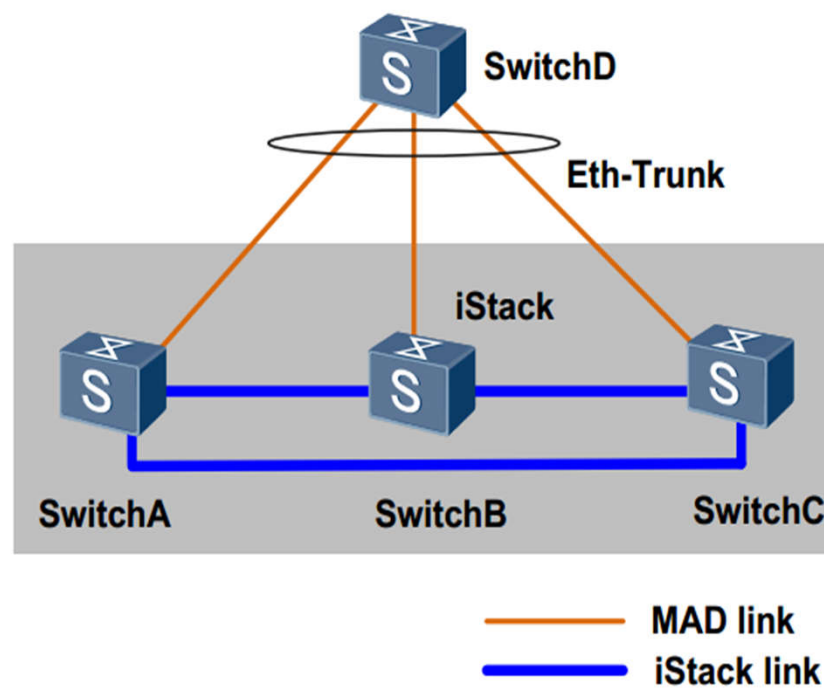
# Multi-active Detection

- MAD has two modes:

MAD in direct mode



MAD in relay mode



# Contents

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# Stack Connection Mode

- Connection using stack cards
  - Member switches connect to each other using dedicated stack cards ETPC and stack cables
  - High speed
  - Does not occupy service interfaces
- Connection using service interfaces
  - Member switches connect to each other using physical member interfaces bound to stack interfaces
  - Still requires special interfaces and cables

# Stack Card and Cables



S5700 Stack Card

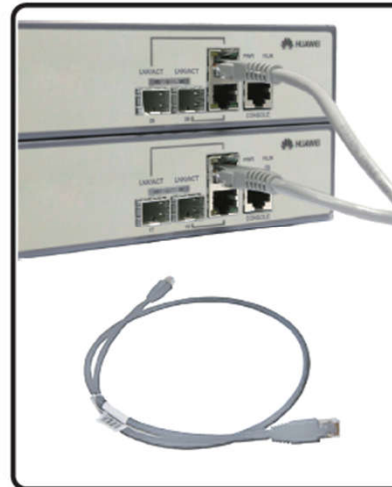
S5700



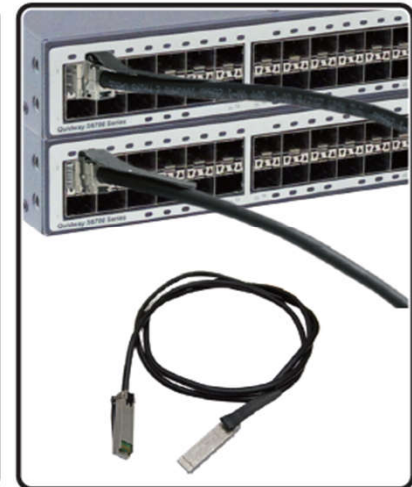
S3700



S2700



S6700



# iStack Realization on S Series Box Switches

- Only the same models can form a stack
  - E.g. S5700-EI and S5700-SI can not form a stack
- Different models use different means to form a stack
  - S5700EI and S5700SI use stack card
  - S5700LI, S5710EI and S6700 use service interfaces
  - S2700 support only software stack (HGMP)
- Some models do not support stack
  - E.g. S3700-HI

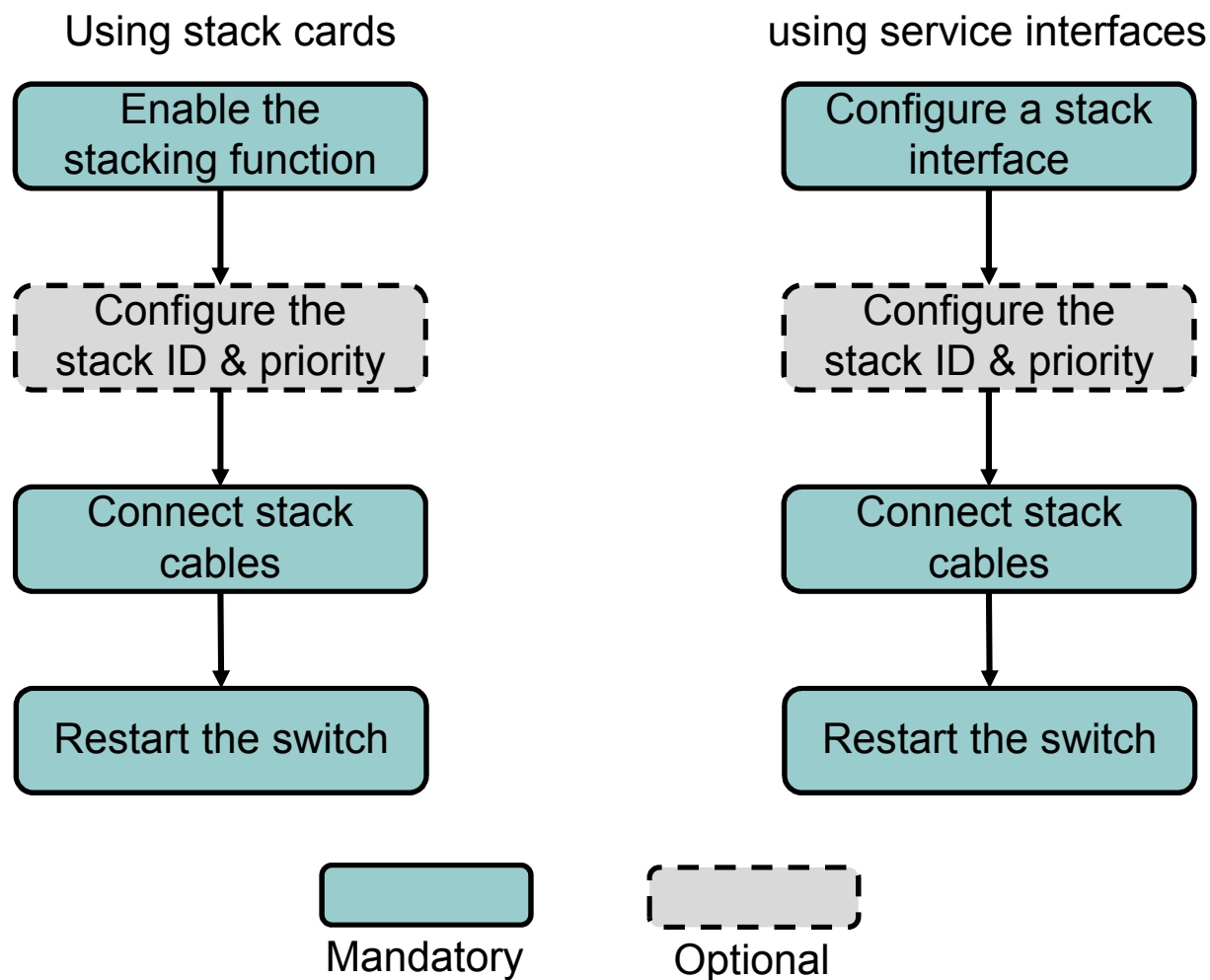
# Stack Features of S2700

- S2700 does not support the real stack
  - The stack principle of S2700 is not that we discussed previously
  - S2700 uses HGMP (Huawei Group Management Protocol) to cluster the switches
  - Only chain topology is supported
  - And the configuration is different from others

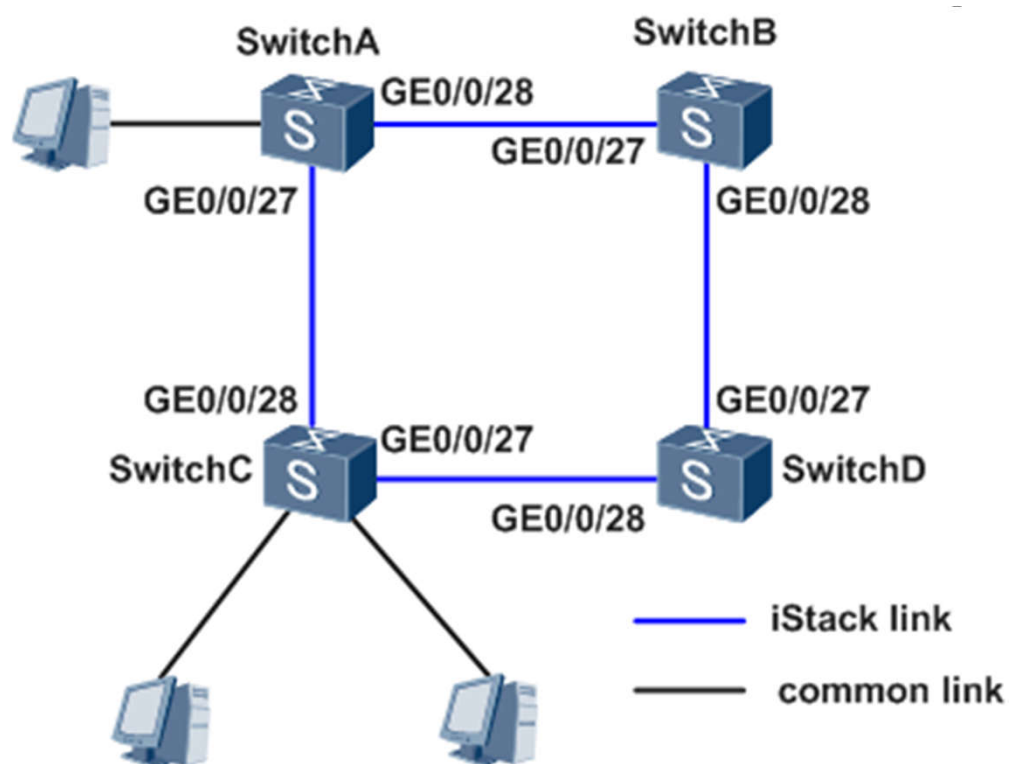
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# Stack Configuration Procedure



# Configuring a ring stack



- As shown in the figure, SwitchA, SwitchB, SwitchC, and SwitchD form a ring stack.

# Configuring stack interfaces

```
# Configure service interfaces GigabitEthernet0/0/27 and GigabitEthernet0/0/28
on SwitchA as physical member interfaces and add them to a stack interface.
<HUAWEI> system-view
[HUAWEI] sysname SwitchA
[SwitchA] stack port interface gigabitethernet 0/0/27 enable
[SwitchA] stack port interface gigabitethernet 0/0/28 enable
[SwitchA] interface stack-port 0/1
[SwitchA-stack-port0/1] port member-group interface gigabitethernet 0/0/27
[SwitchA-stack-port0/1] quit
[SwitchA] interface stack-port 0/2
[SwitchA-stack-port0/2] port member-group interface gigabitethernet 0/0/28
[SwitchA-stack-port0/2] quit
```

The other 3 switches are configured similarly.



# Configuring stack IDs and stack priorities

```
# Set the stack priority of SwitchA to 200.  
[SwitchA] stack slot 0 priority 200  
# Set the stack ID of SwitchB to 1.  
[SwitchB] stack slot 0 renumber 1  
# Set the stack ID of SwitchC to 2.  
[SwitchC] stack slot 0 renumber 2  
# Set the stack ID of SwitchD to 3.  
[SwitchD] stack slot 0 renumber 3
```

The configuration will take effect after the device is restarted

# Verifying the configuration

# Check stack information.

<SwitchA> **display stack**

Stack topology type : Ring

Stack system MAC: 0018-82d2-2e85

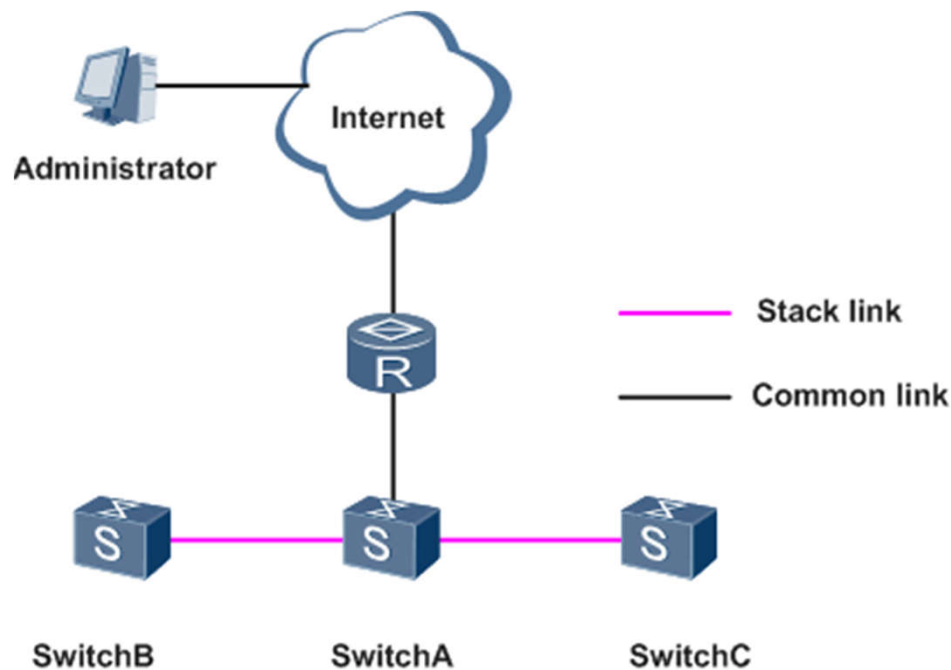
MAC switch delay time: 10 min

Stack reserve vlanid : 4093

slot#	role	Mac address	Priority	Device type
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<b>0</b>	<b>Master</b>	<b>0018-82d2-2e85</b>	<b>200</b>	<b>S5700-28P-LI-AC</b>
1	Slave	0018-82c6-1f44	100	S5700-28P-LI-AC
2	Standby	0018-82c6-1f4c	100	S5700-28P-LI-AC
3	Slave	0018-82b1-6eb8	100	S5700-28P-LI-AC

# Configuring S2700 Stacking



- SwitchA, SwitchB, and SwitchC form a stack system. SwitchA functions as the master switch, whereas SwitchB and SwitchC function as slave switches.

# Pre-configuration Tasks

- Before creating a stack system, complete the following tasks:
  - Ensuring that all the switches support the stacking function
  - Connecting all the switches through uplink GE interfaces
  - Connecting GE interfaces through twisted pair cables or optical fibers
  - Adding the interconnecting interfaces to the management VLAN and creating the VLANIF interface corresponding to the management VLAN on the member switches
  - Ensuring that all the switches are running normally

# Configuring Stacking on S2700

```
# Configure an IP address pool for a stack system on SwitchA.
<SwitchA> system-view
[SwitchA] stacking ip-pool 20.20.20.20 16
# Create VLAN 10, change the management VLAN of the SwitchA
to VLAN 10.
<SwitchA> system-view
[SwitchA] vlan batch 10
[SwitchA] interface vlanif 10
[SwitchA-vlanif10] quit
[SwitchA] cluster
[SwitchA-cluster] mngvlanid 10
[SwitchA-cluster] quit
# Enable the stacking function on SwitchA.
<SwitchA> system-view
[SwitchA] stacking enable
[SwitchA] quit
```

# Verifying the configuration

# Check information about a stack on SwitchA.

<stack\_0.SwitchA> **display stacking**

Main device for stack.

Total members:3

management vlan id : 10

<stack\_0.SwitchA> **display stacking members**

Member number:0

Name:stack\_0.SwitchA

DeviceType:S2700

MAC Address:0018-82b8-5611

**Member status:Admin**

**IP: 20.20.20.20/16**

# the stack ID of SwitchB is 1 and the stack ID of SwitchC is 2.

**Member number:1**

**Name:stack\_1.SwitchB**

DeviceType:

MAC Address:0200-0000-ab00

**Member status:Up**

**IP: 20.20.20.21/16**

**Member number:2**

**Name:stack\_1.SwitchC**

DeviceType:

MAC Address:0200-82b8-ab00

**Member status:Up**

**IP: 20.20.20.22/16**

# Managing the stack

# Log in to slave switch 1 from the master switch.

<stack\_0.SwitchA> **stacking 1**

Trying 20.20.20.21 ...

Press CTRL+T to abort

Connected to 20.20.20.21 ...

Note: The max number of VTY users is 5, and the current number of VTY users on line is 1.

# Run the quit command to return to the master switch, and then log in to slave switch 2 from the master switch.

<stack\_1.SwitchB> quit

<stack\_0.SwitchA> **stacking 2**

Trying 20.20.20.22 ...

Press CTRL+T to abort

Connected to 20.20.20.22 ...

Note: The max number of VTY users is 5, and the current number of VTY users on line is 1.

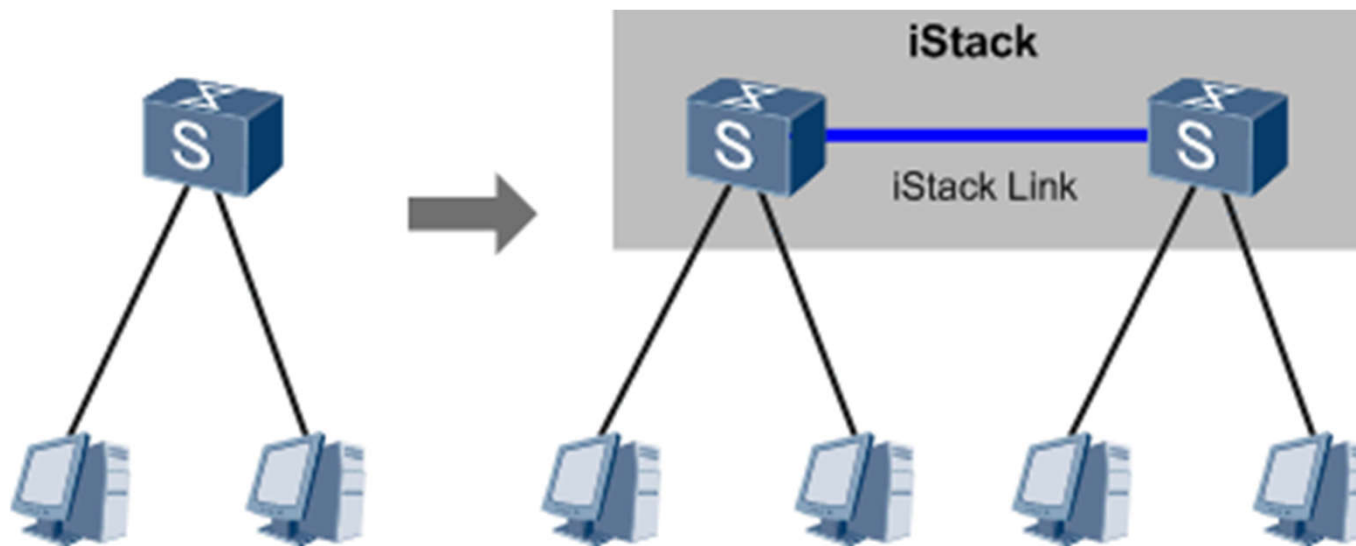


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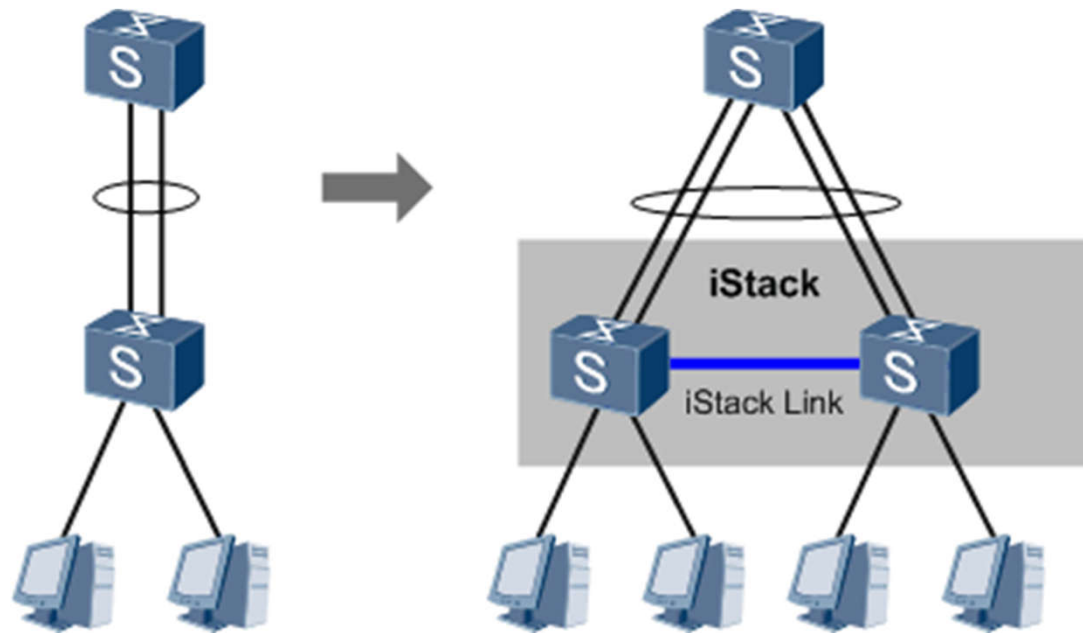


# Increasing Ports



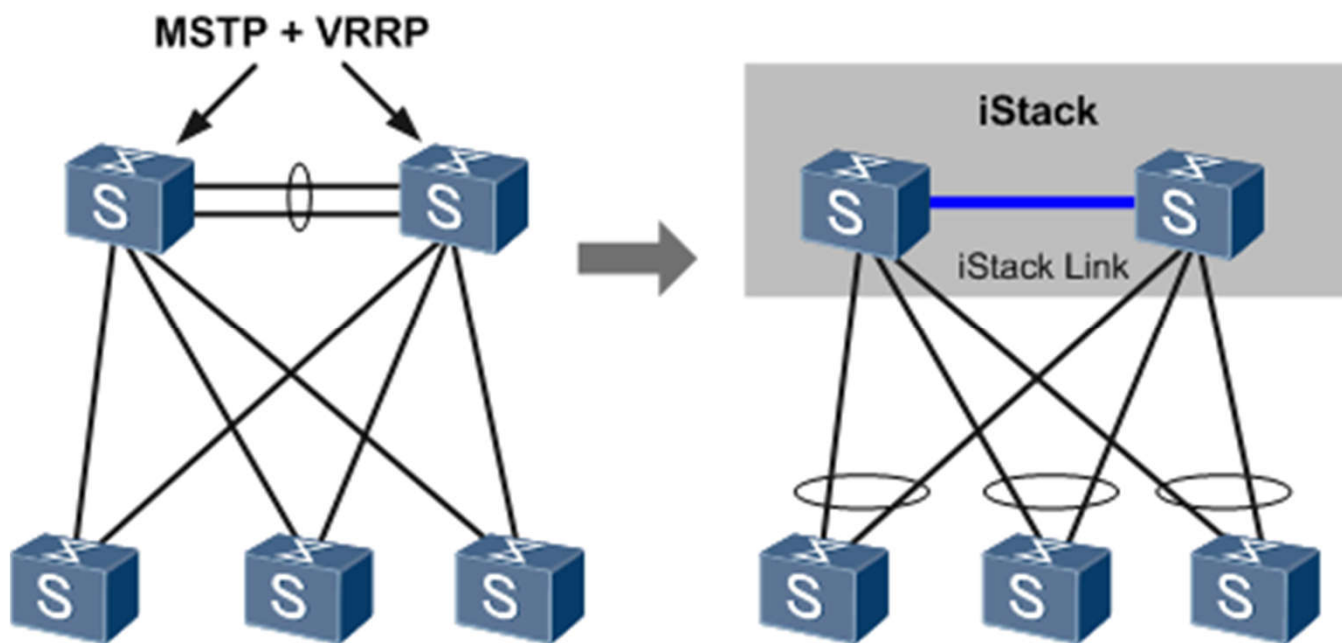
When the port density of a stack is insufficient for increasing number of users, you can add new member switches to the stack to increase ports.

# Increasing Bandwidth



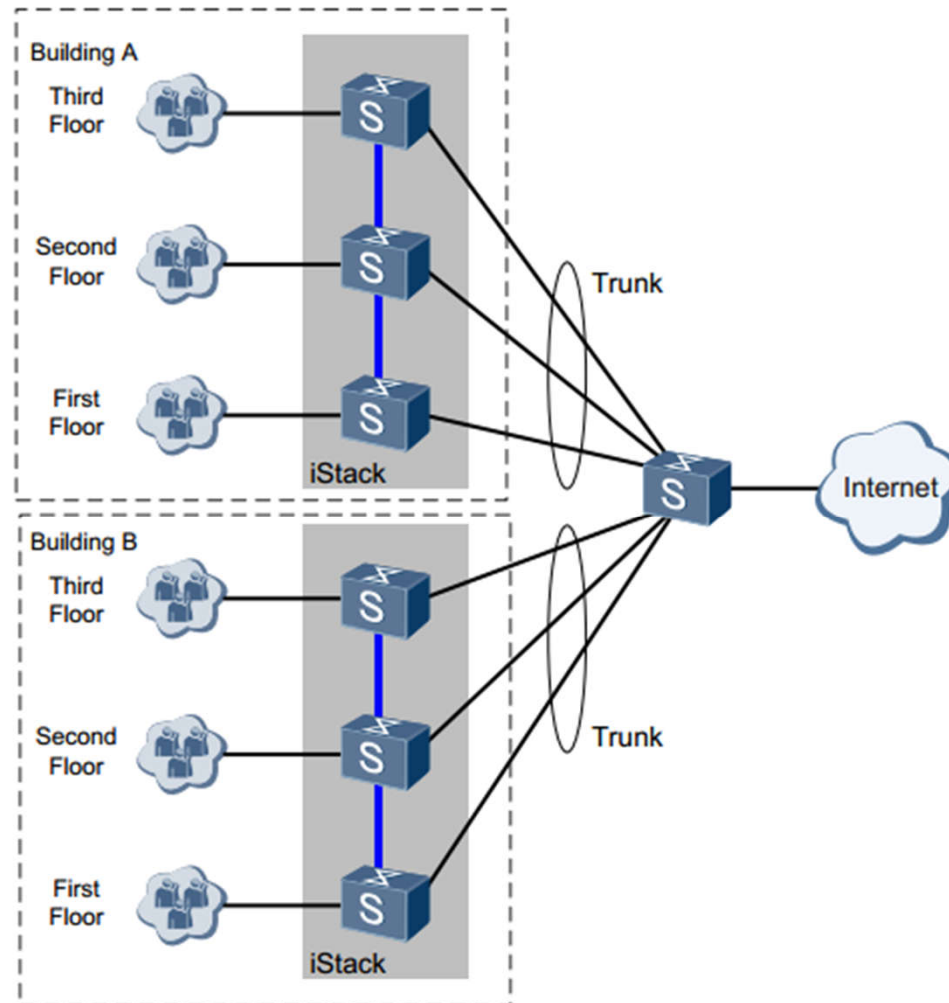
When the uplink bandwidth of a switch increases, you can enable this switch to work with another switch to form a stack, and configure multiple physical links of the two member switches into a link aggregation group to increase the uplink bandwidth of the switch.

# Simplifying Networking

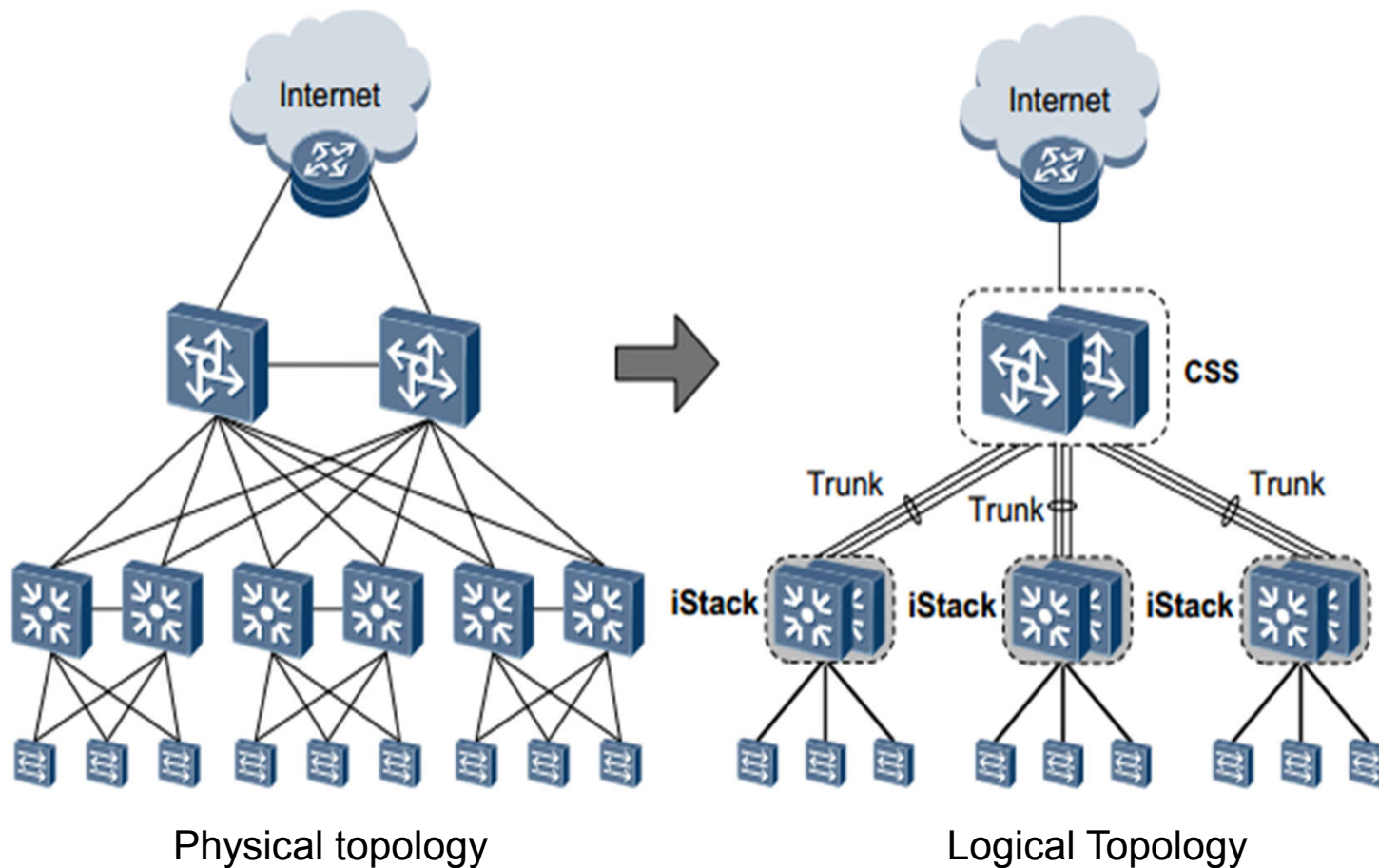


Multiple devices on the network form a stack and are virtualized into a single logical device. The simplified networking does not require MSTP or VRRP, simplifying the network configuration. In addition, inter-chassis link aggregation implements fast convergence and improves network reliability.

# Using iStack to connect devices in different places



# Network horizontal virtualization





# Summary

- iStack Principles
  - The election rules of master
  - Stack split, DAD
- iStack features on Huawei Box Switches
  - Connection mode
  - Stacking on S2700
- iStack Configuration
- iStack Application Scenarios