

HSRP

CyberQuince

FHRP — First Hop Redundancy Protocol

A ***First Hop Redundancy Protocol*** (FHRP) is a networking protocol designed to provide redundancy of the default gateway used on a network, by allowing two or more routers to assume the same default gateway IP address

- In the event of failure of an active gateway, backup gateway will take over the address
- FHRPs are not the same as VSS/VPC!

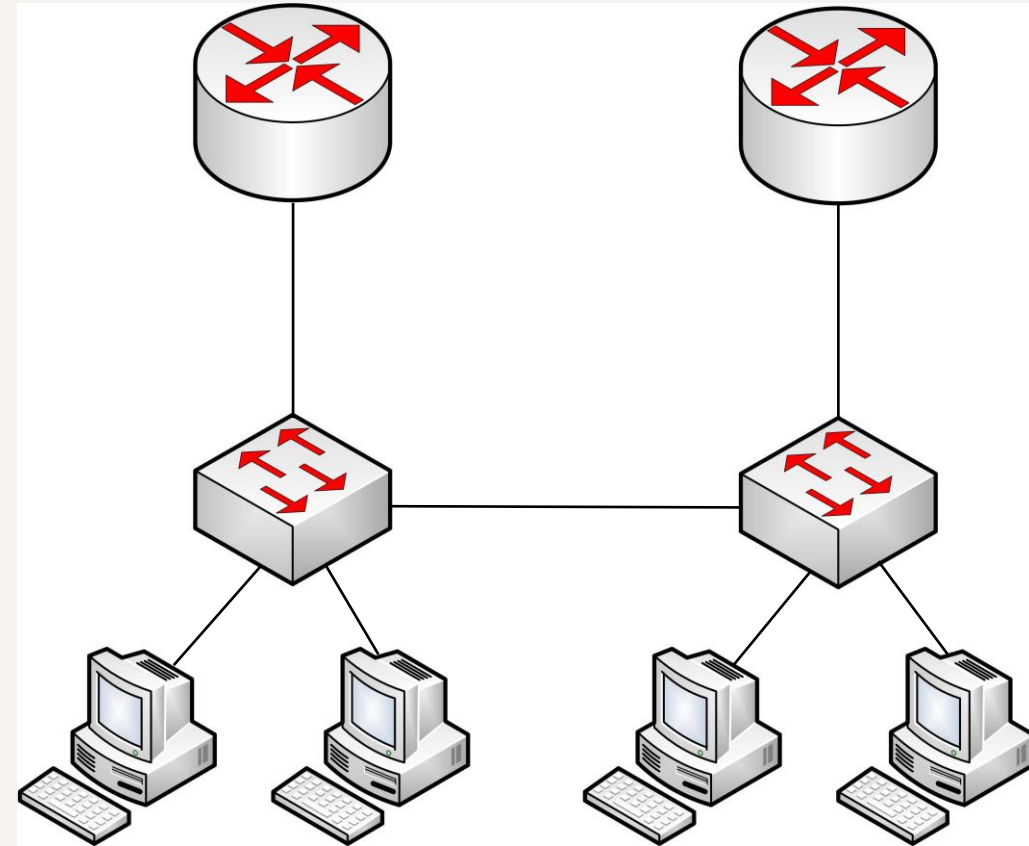
FHRPs

There are several First Hop Redundancy Protocols:

1. HSRP (*Hot Standby Router Protocol*) – Cisco proprietary
2. VRRP (*Virtual Router Redundancy Protocol*) – open standard
3. GLBP (*Gateway Load Balancing Protocol*) – also Cisco proprietary, enables load balancing + redundancy

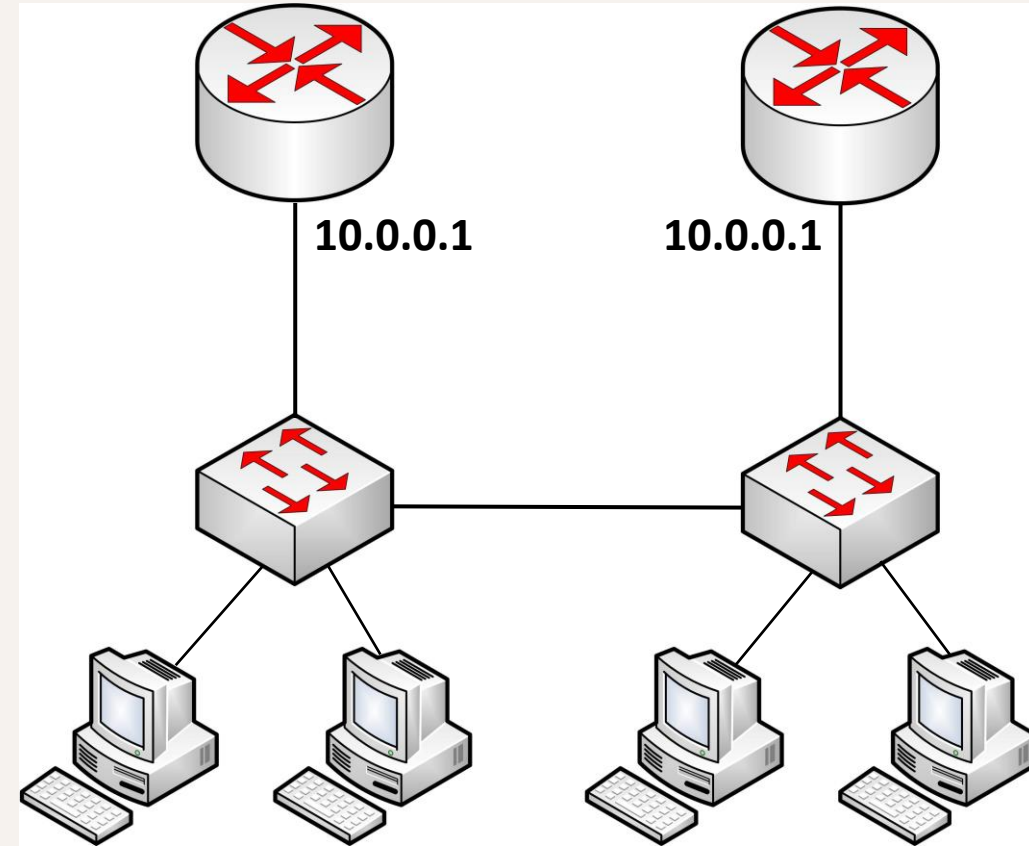
HSRP — Hot Standby Router Protocol

- Proprietary Cisco protocol
- Since a router can only use one IP address for Default Gateway, HSRP routers can assume a *single virtual IP address* that is assigned to endpoint hosts
- Once a link, or the gateway router itself fails, the other (standby) router becomes the active gateway and takes the *virtual gateway IP*. Endpoint hosts never change their default gateway address



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Configuring HSRP

HSRP is configured in the *interface config. mode*, on the interface facing the internal network, where that interface is the default gateway.

Default HSRP Configuration

Feature	Default Setting
HSRP version	Version 1
HSRP groups	None configured
Standby group number	0
Standby MAC address	System assigned as: 0000.0c07.acXX, where XX is the HSRP group number
Standby priority	100
Standby delay	0 (no delay)
Standby track interface priority	10
Standby hello time	3 seconds
Standby holdtime	10 seconds

Configuring HSRP

Virtual IP address is used by the active gateway:

```
R1 (config-if) #standby 1 ip 192.168.1.1
```



HSRP instance number

Configuring HSRP

Priority is by default **100**, and *a higher number means higher priority*. In other words, router with higher priority will become the active gateway, whereas the router with lower priority will be a standby gateway.

```
R1 (config-if) #standby 1 priority 105
```

A blue arrow points from the word 'interface' in the paragraph below to the 'if' in the command. A red arrow points from the word 'this' in the paragraph below to the number '105' in the command.

In case the **interface** we're configuring HSRP on fails, or another interface that is being **tracked** fails, **this** number will be reduced by 10, therefore making this router a lower priority one.

Configuring HSRP

The goal of HSRP is to detect failures on an active gateway, so that a standby gateway can take over automatically. In order to achieve this, we should “tell” HSRP what to monitor.

```
R1 (config-if) #standby 1 track GigabitEthernet 0/0
```

Configuring HSRP

Preempt enables a router to take over active role as soon as its priority surpasses active router's priority.

This will also happen if a new, higher-priority router is added to the network.

```
R1 (config-if) #standby 1 preempt
```

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