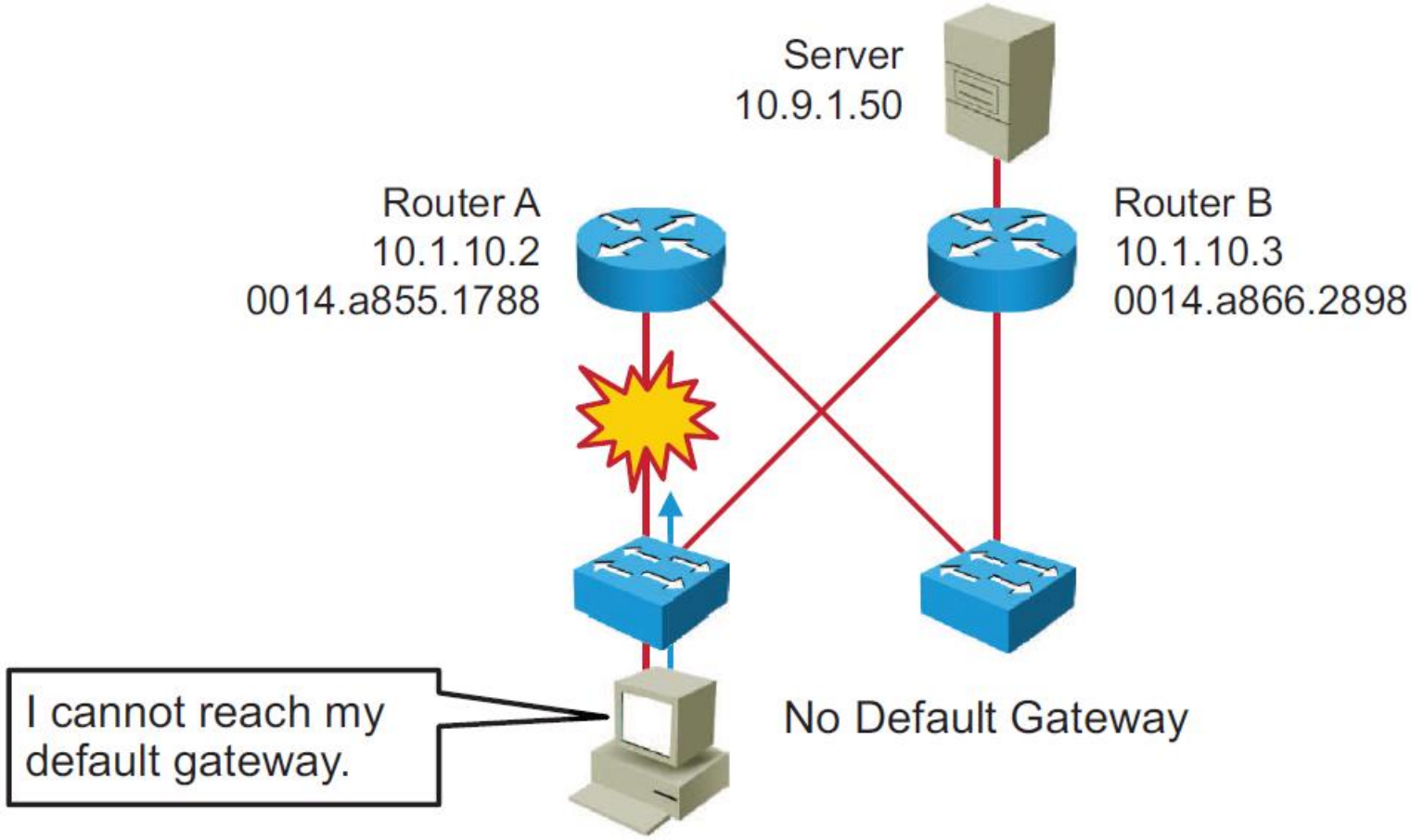
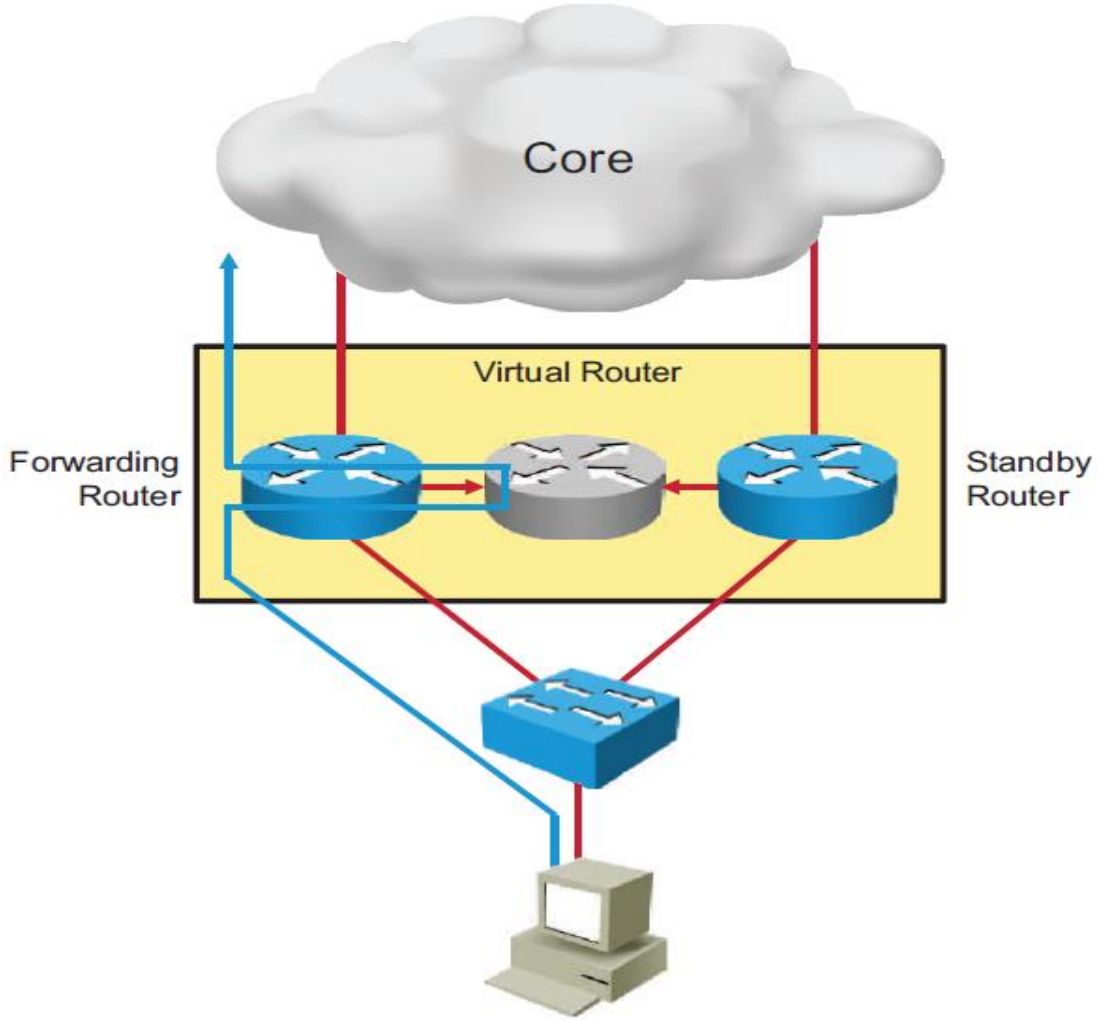
Understanding Layer 3 Redundancy

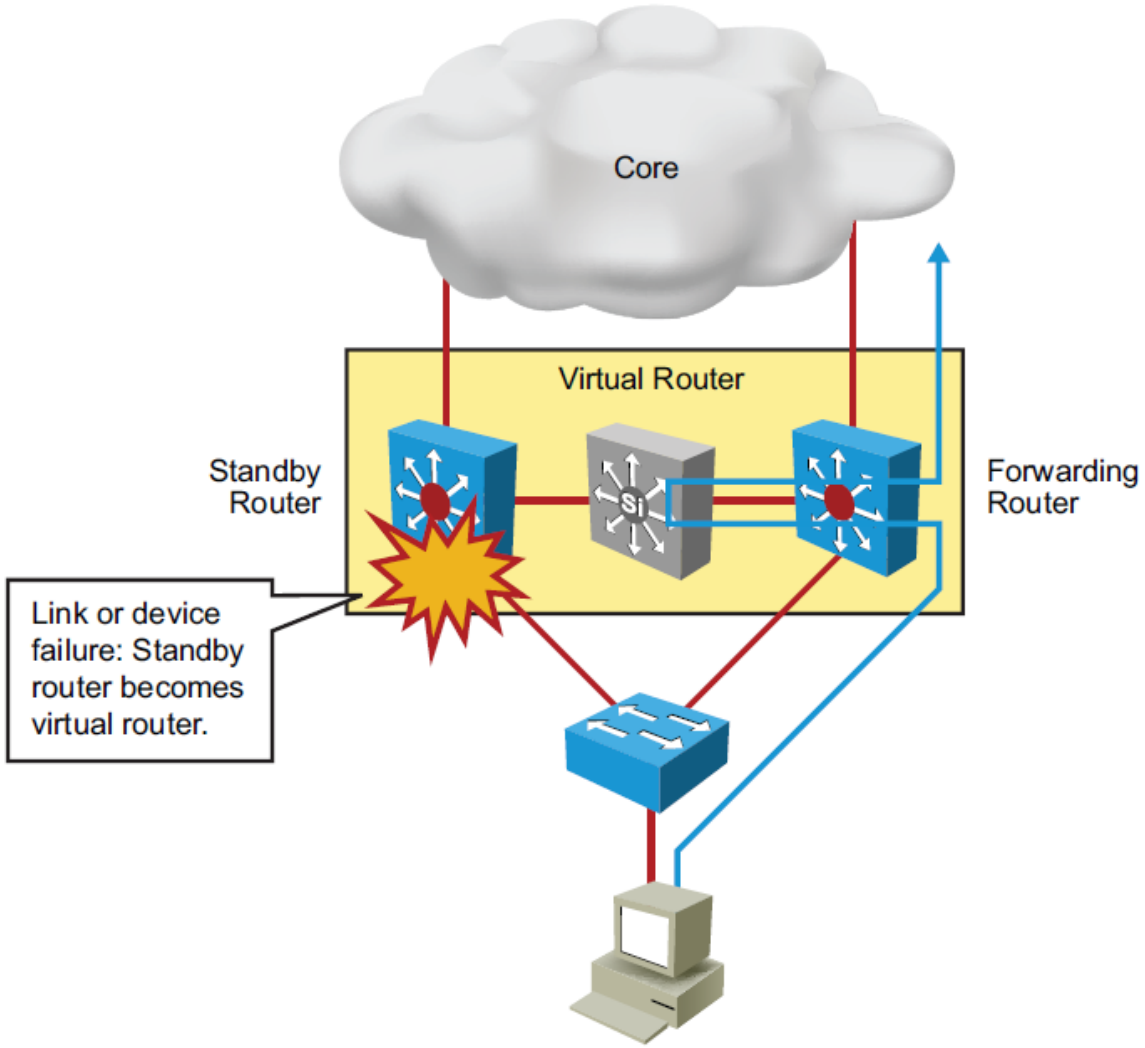
The Need for Default Gateway Redundancy



Default Gateway Redundancy



Default Gateway Redundancy (Cont.)



HSRP

- **HSRP defines a group of routers -- one active and one standby.**
- **Virtual IP and MAC addresses are shared between the two routers.**
- **To verify HSRP state, use the show standby command.**
- **HSRP is Cisco proprietary, and VRRP is a standard protocol.**

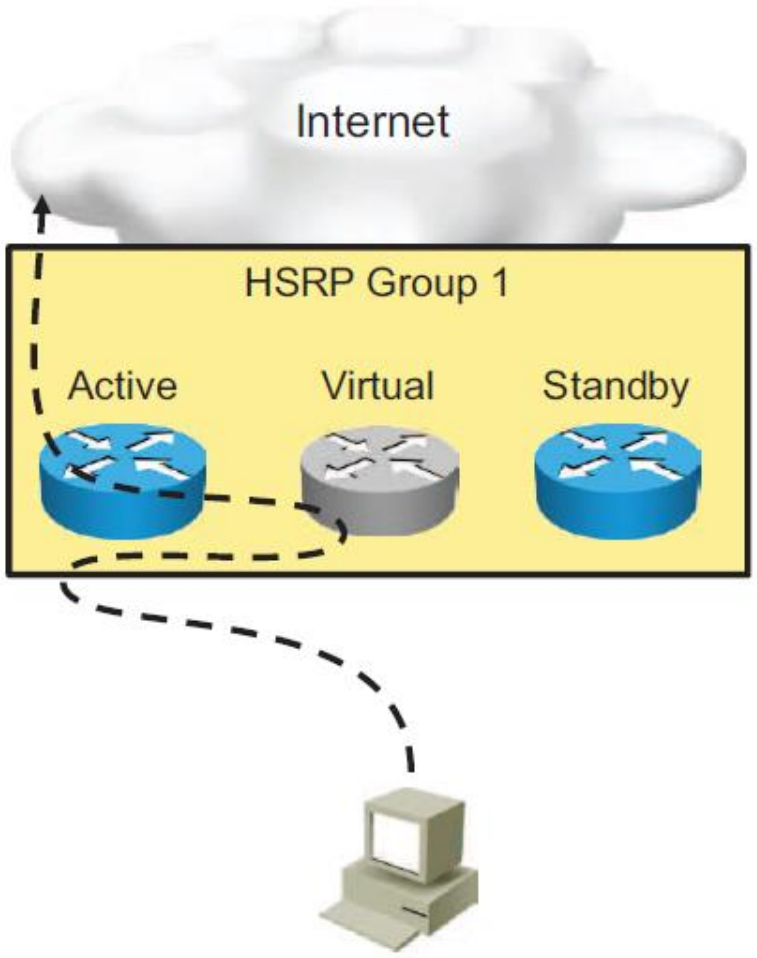
HSRP (Cont.)

Active router:

- **Responds to default gateway ARP requests with the virtual router MAC address**
- **Assumes active forwarding of packets for the virtual router**
- **Sends hello messages**
- **Knows the virtual router IP address**

Standby Router

- **Listens for periodic hello messages**
- **Assumes active forwarding of packets if it does not hear from active router**



Configuring HSRP

- Routers A and B are configured with priorities of 110 and 90, respectively. The configuration of Router A is displayed. A similar configuration is required on Router B.
- The **`preempt`** keyword ensures that Router A will be the HSRP active router as long its interface is active and sending hellos.


```
RouterA(config)# interface GigabitEthernet0/0
RouterA(config-if)# ip address 10.1.10.2 255.255.255.0
RouterA(config-if)# standby 1 ip 10.1.10.1
RouterA(config-if)# standby 1 priority 110
RouterA(config-if)# standby 1 preempt
```

HSRP Verification

Use the `show standby` command to verify the HSRP state.

```
RouterA# show standby
GigabitEthernet0/0 - Group 1 (version 2)
  State is Active
    2 state changes, last state change 00:00:18
  Virtual IP address is 10.1.10.1
  Active virtual MAC address is 0000.0C9F.F001
    Local virtual MAC address is 0000.0C9F.F001 (v2 default)
  Hello time 3 sec, hold time 10 sec
    Next hello sent in 2.278 secs
  Preemption enabled
  Active router is local
  Standby router is 10.1.10.3, priority 90 (expires in 9 sec)
  Priority 110 (configured 110)
  Group name is hsrp-Gig0/0-1 (default)
```

HSRP Verification (Cont.)

The `show standby brief` command displays a summary of the HSRP configurations.

```
RouterA# show standby brief
                     P indicates configured to preempt.
                     |
Interface   Grp  Pri P State    Active          Standby         Virtual IP
Gig0/0      1    110 P Active   local           10.1.10.3       10.1.10.1
```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