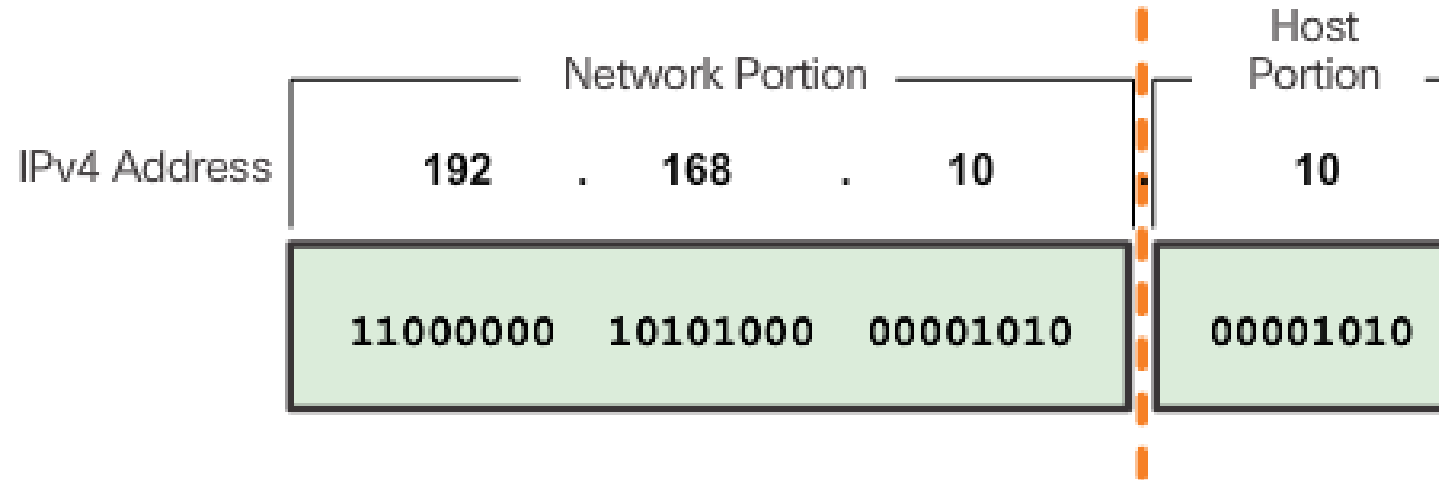# Network and Host Portions

One portion of the 32 bit IPv4 address identifies the network, and another portion identifies the host.

The Subnet Mask

IP Configuration on a Host

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address:	192 . 168 . 10 . 10
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 10 . 1

○ Obtain DNS server address automatically

● Use the following DNS server addresses

Preferred DNS server:	. . .
Alternate DNS server:	. . .

☐ Validate settings upon exit

Advanced...

OK   Cancel

The Subnet Mask (cont.)

- Comparing the IP Address and the Subnet Mask
- The 1s in the subnet mask identify the network portion while the 0s identify the host portion.

	Network Portion	Host Portion
IPv4 Address	192 . 168 . 10	10
	11000000 10101000 00001010	00001010
Subnet Mask	255 . 255 . 255	0
	11111111 11111111 11111111	00000000

ANDing

- Logical AND is the comparison of two bits.
- ANDing between the IP address and the subnet mask yields the network address.

1 AND 1 = 1
0 AND 1 = 0
0 AND 0 = 0
1 AND 0 = 0

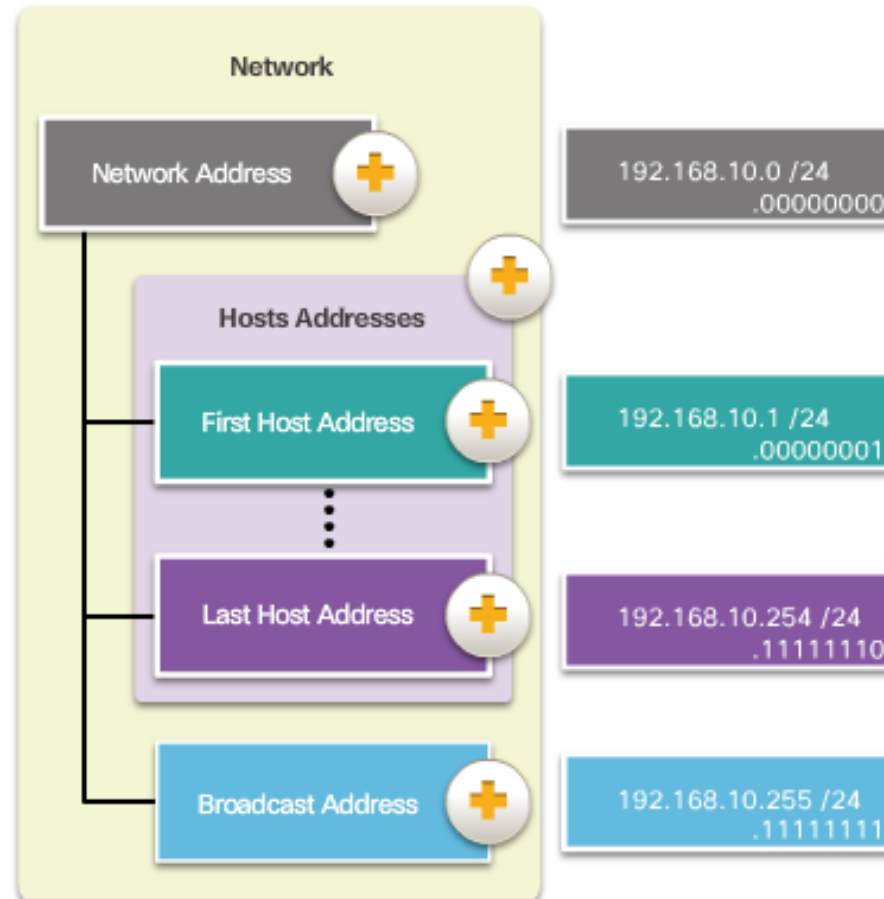|				
IP address	192	168	10	10
Binary	11000000	10101000	00001010	00001010
Subnet mask	255	255	255	0
	11111111	11111111	11111111	00000000
AND Results	11000000	10101000	00001010	00000000
Network Address	192	168	10	0

The Prefix Length

- Shorthand method of identifying a subnet mask.
- It is the number of bits set to 1 in the subnet mask.
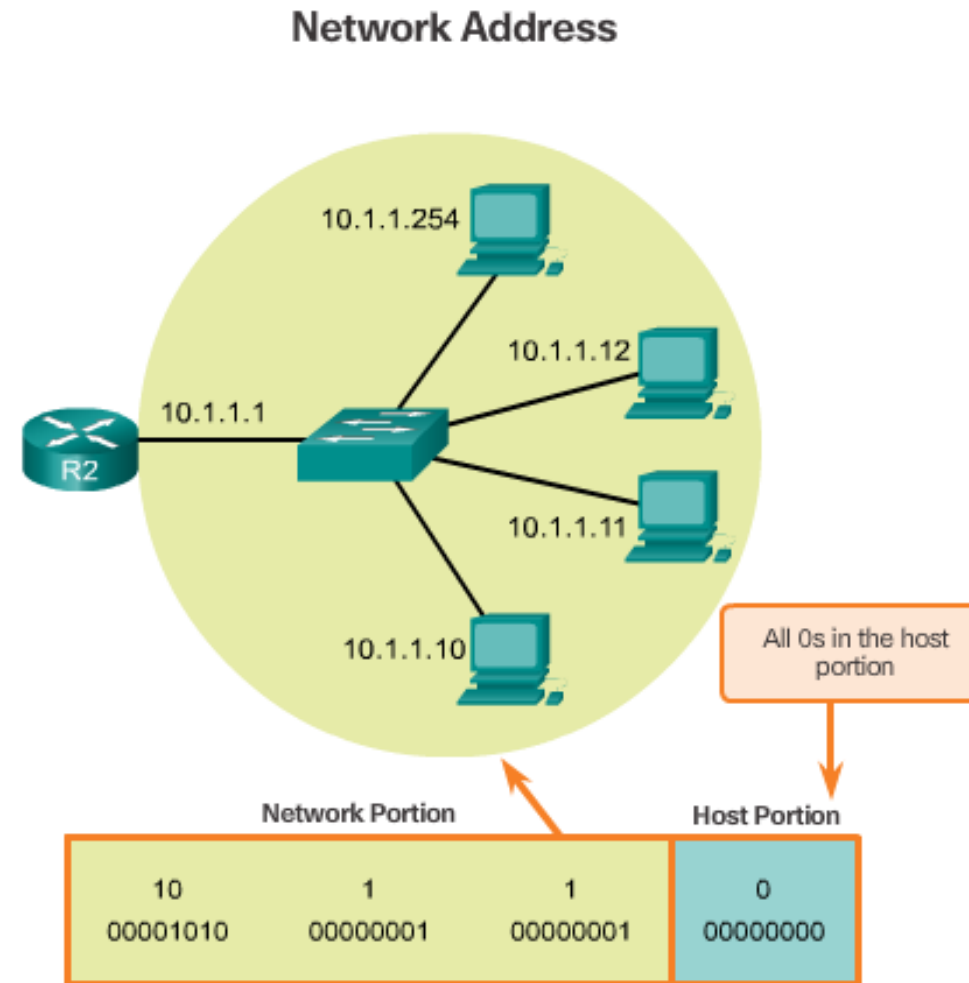- Written in "slash notation", a "/" followed by the number of bits set to 1.

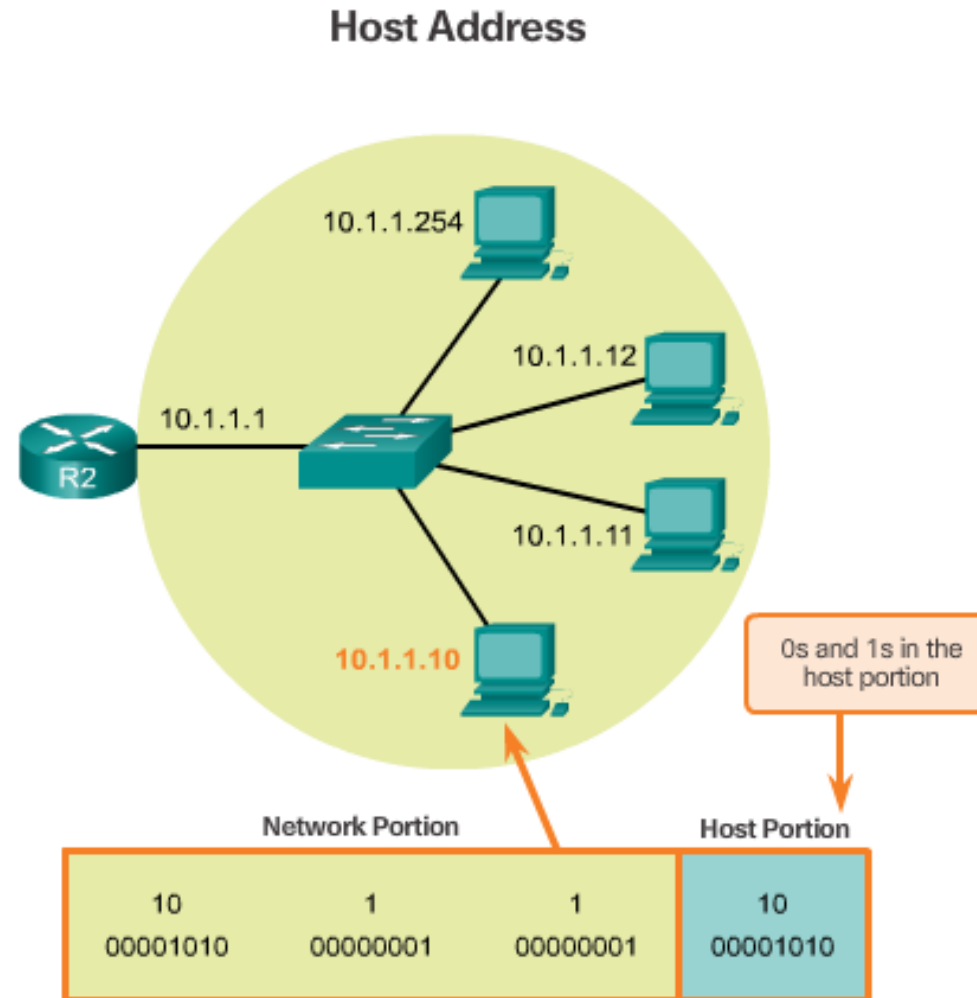| Subnet Mask	32-bit Address	Prefix Length
255.0.0.0	11111111.00000000.00000000.00000000	/8
255.255.0.0	11111111.11111111.00000000.00000000	/16
255.255.255.0	11111111.11111111.11111111.00000000	/24
255.255.255.128	11111111.11111111.11111111.10000000	/25
255.255.255.192	11111111.11111111.11111111.11000000	/26
255.255.255.224	11111111.11111111.11111111.11100000	/27
255.255.255.240	11111111.11111111.11111111.11110000	/28
255.255.255.248	11111111.11111111.11111111.11111000	/29
255.255.255.252	11111111.11111111.11111111.11111100	/30

Network, Host, and Broadcast Addresses

Types of Addresses in Network 192.168.10.0 /24
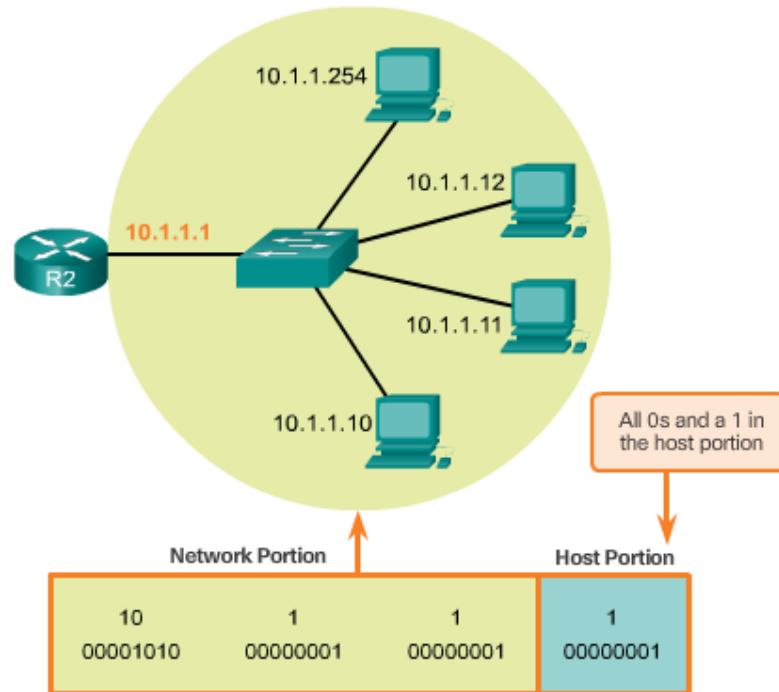
Network, Host, and Broadcast Addresses (cont.)
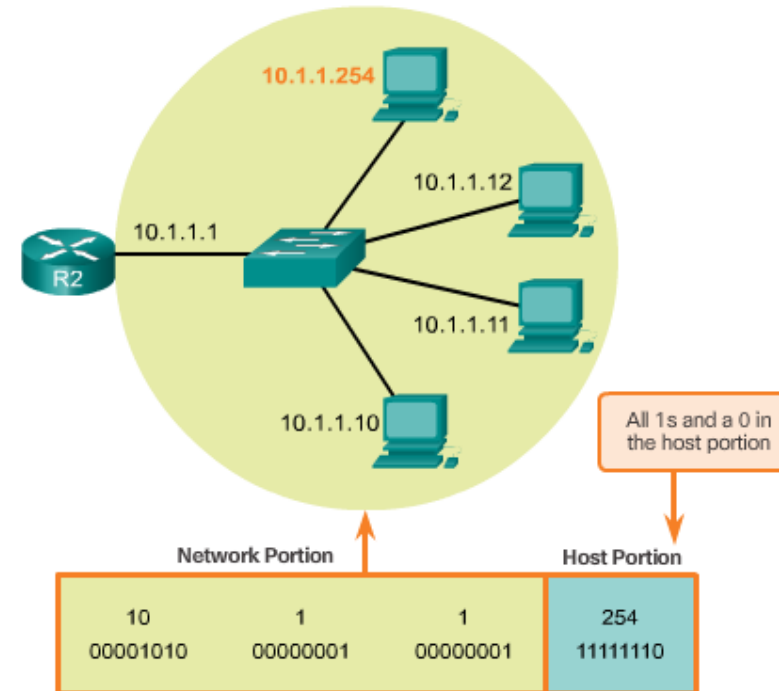
Network, Host, and Broadcast Addresses (cont.)
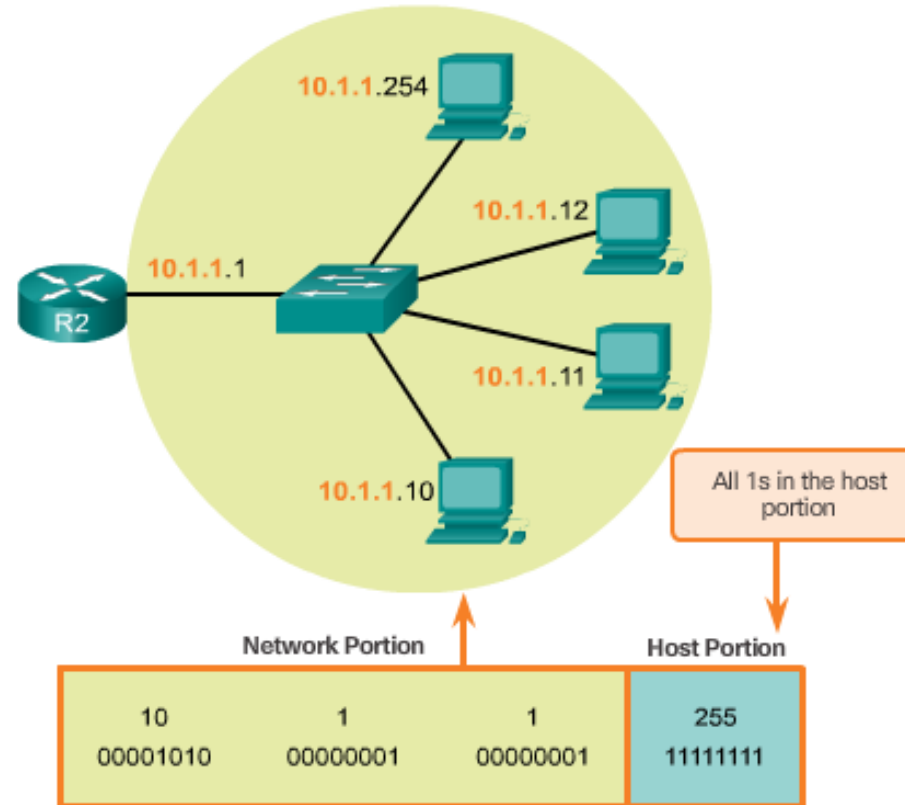
Network, Host, and Broadcast Addresses (cont.)

Network, Host, and Broadcast Addresses (cont.)

See VIDEO DEMONSTRATION