

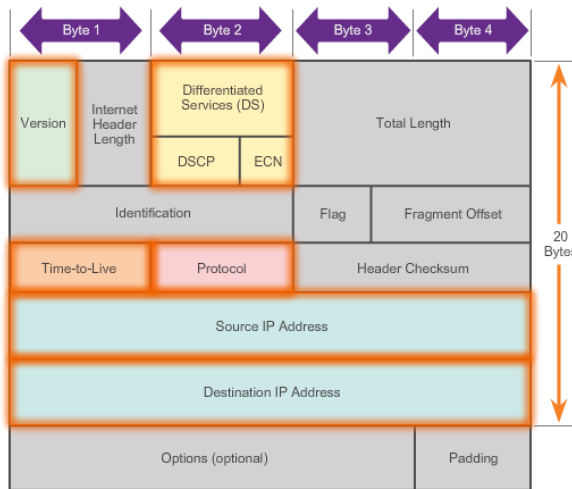
CHAPTER 6

Number Name	Scientific Notation	Number of Zeros
1 Thousand	10 ³	1,000
1 Million	10 ⁶	1,000,000
1 Billion	10 ⁹	1,000,000,000
1 Trillion	10 ¹²	1,000,000,000,000
1 Quadrillion	10 ¹⁵	1,000,000,000,000,000
1 Quintillion	10 ¹⁸	1,000,000,000,000,000,000
1 Sextillion	10 ²¹	1,000,000,000,000,000,000,000
1 Septillion	10 ²⁴	1,000,000,000,000,000,000,000,000
1 Octillion	10 ²⁷	1,000,000,000,000,000,000,000,000,000
1 Nonillion	10 ³⁰	1,000,000,000,000,000,000,000,000,000,000
1 Decillion	10 ³³	1,000,000,000,000,000,000,000,000,000,000,000
1 Undecillion	10 ³⁶	1,000,000,000,000,000,000,000,000,000,000,000,000

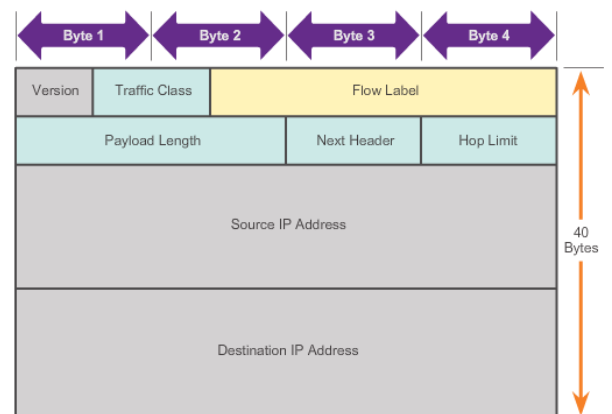
Legend

- There are 4 billion IPv4 addresses
- There are 340 undecillion IPv6 addresses

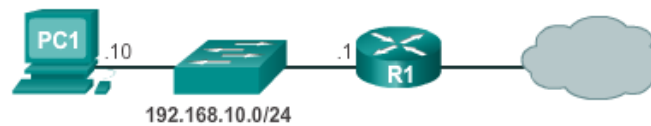
IP v.4 packet



IP v.6 packet



Routing



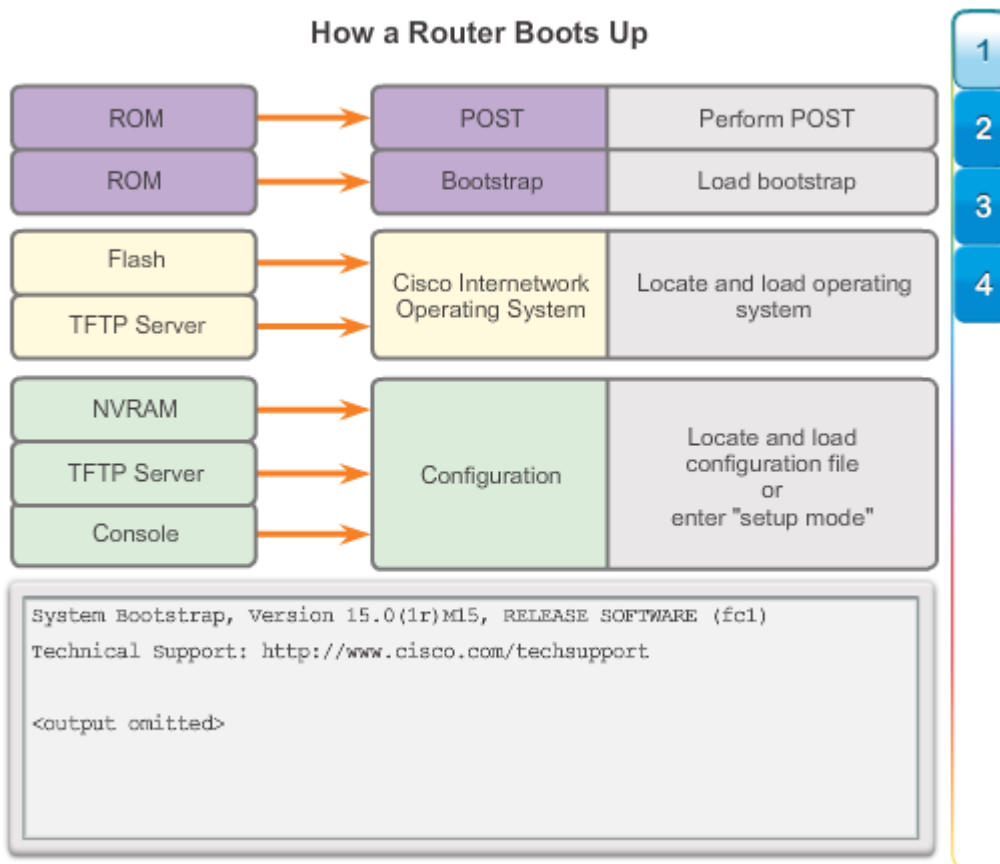
```

C:\Users\PC1> netstat -r

<Output omitted>

IPv4 Route Table
-----
Active Routes:
Network  Destination      Netmask          Gateway           Interface        Metric
-----  -
0.0.0.0  0.0.0.0          0.0.0.0         192.168.10.1    192.168.10.10    25
127.0.0.0  127.0.0.0        255.0.0.0       On-link         127.0.0.1        306
127.0.0.1  127.0.0.1        255.255.255.255 On-link         127.0.0.1        306
127.255.255.255  127.255.255.255 255.255.255.255 On-link         127.0.0.1        306
192.168.10.0  192.168.10.0    255.255.255.0   On-link         192.168.10.10    281
192.168.10.10  192.168.10.10  255.255.255.255 On-link         192.168.10.10    281
192.168.10.255  192.168.10.255 255.255.255.255 On-link         192.168.10.10    281
224.0.0.0  224.0.0.0        240.0.0.0       On-link         127.0.0.1        306
224.0.0.0  224.0.0.0        240.0.0.0       On-link         192.168.10.10    281
255.255.255.255  255.255.255.255 255.255.255.255 On-link         127.0.0.1        306
255.255.255.255  255.255.255.255 255.255.255.255 On-link         192.168.10.10    281
  
```

How a Router Boots Up



Show Router Information (model, RAM, Flash, NVRAM)

```
Router#show version
Cisco IOS Software, C1900 Software (C1900-UNIVERSALK9-M),
Version 15.2(4)M1, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thu 26-Jul-12 19:34 by prod_rel_team

ROM: System Bootstrap, Version 15.0(1r)M15,
RELEASE SOFTWARE (fc1)

Router uptime is 10 hours, 9 minutes
System returned to ROM by power-on
System image file is
"flash0:c1900-universalk9-mz.SPA.152-4.M1.bin"
Last reload type: Normal Reload
Last reload reason: power-on

<Output omitted>

Cisco CISC01941/K9 (revision 1.0)
with 446464K/77824K bytes of memory.
Processor board ID: FV14368482
```