

# Too Many Devices

Running Out Of IP Addresses

# IPv4

192.0.0.7

- Four octets separated by dots
- 4.3 billion possibilities
- All gone by 2011
  
- Private IP addresses allow for more

# IPv6

2a34:0000:0000:451d:07bc:e55f:0000:904f

2a34::451d:7bc:e55f:0:904f

- Eight hextets of four hexadecimal numbers separated by colons
- Can be shortened
- 340,282,366,920,938,463,463,374,607,431,768,211,456 possibilities
  - $3.4 \cdot 10^{38}$

# IPv6

- ISP determines whether devices use IPv4 or IPv6
- Not compatible with each other
- Ways to transition
  - Flag Day
  - Dual Stack
  - Tunneling

- IPv4 is like the postal service
- IPv6 is like if the postal service delivered to the entire universe

