mobile CSP

IP Addresses & Domain Names

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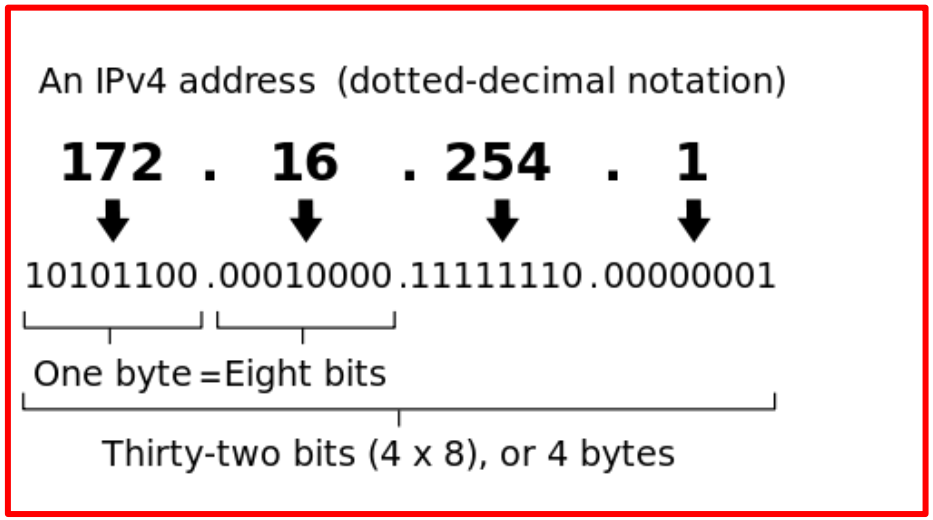

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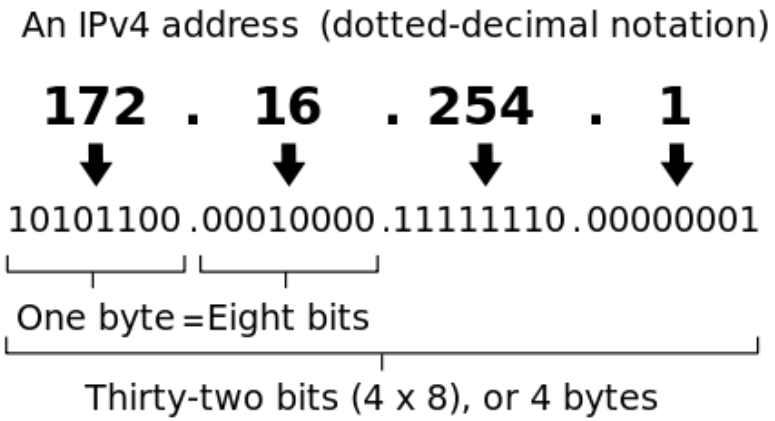
- That gives 2^{128} possible addresses -- 3.403×10^{38} hosts



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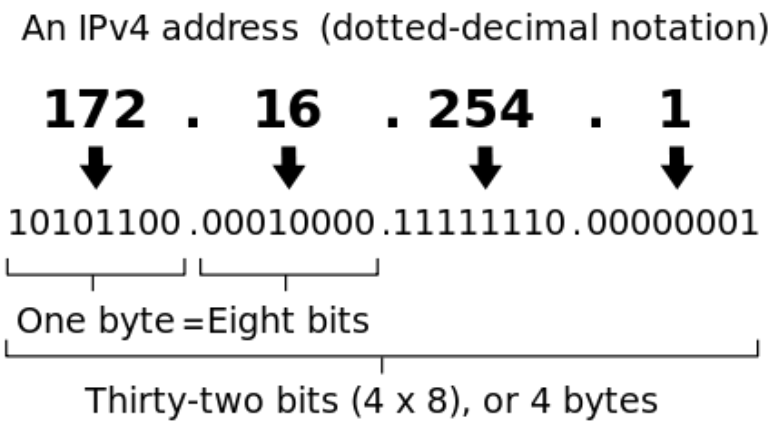
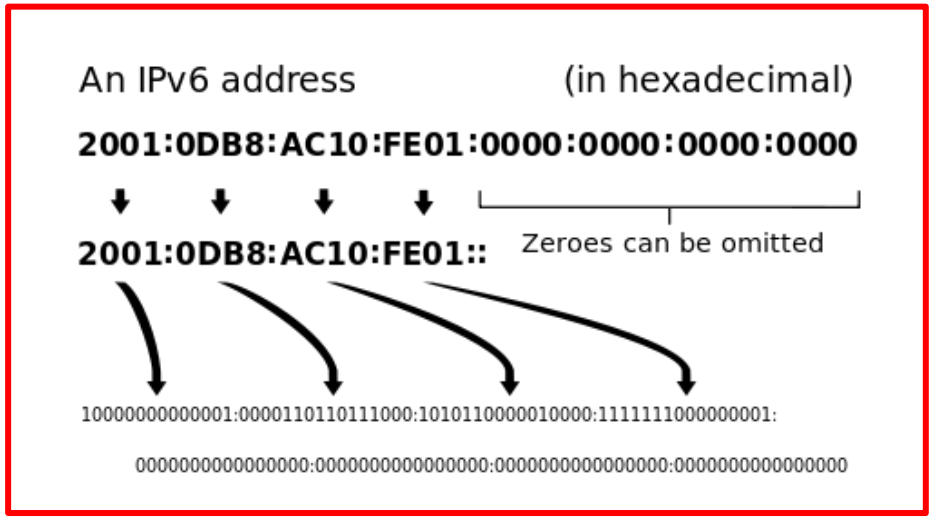
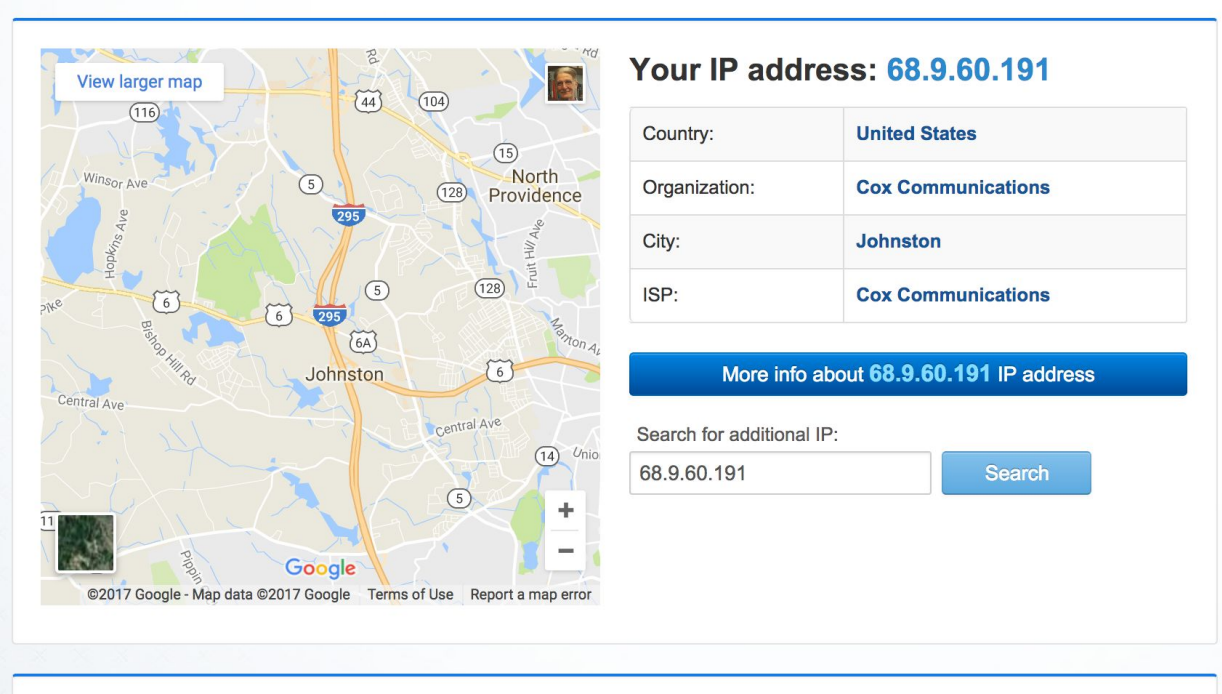




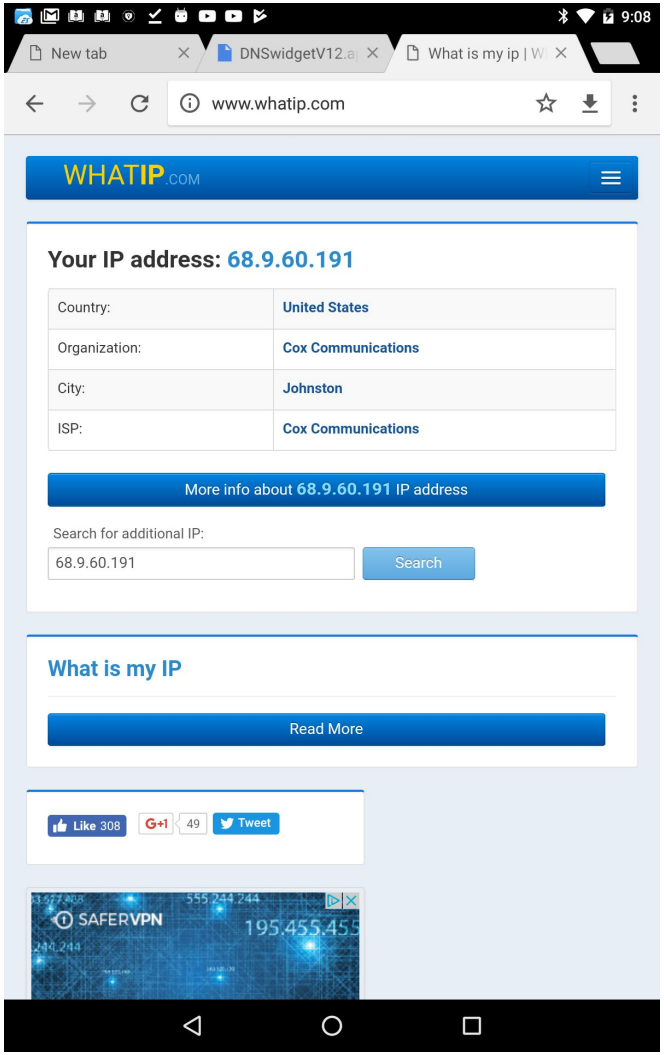
Find Your IP Address

- Every device (laptop, smartphone, tablet, etc.) is assigned an IP address **by the service provider** when it connects to the Internet
- Visit www.whatip.com which will provide your IP address and show the location of the service provider that assigns you that IP address.



Find Your IP Address

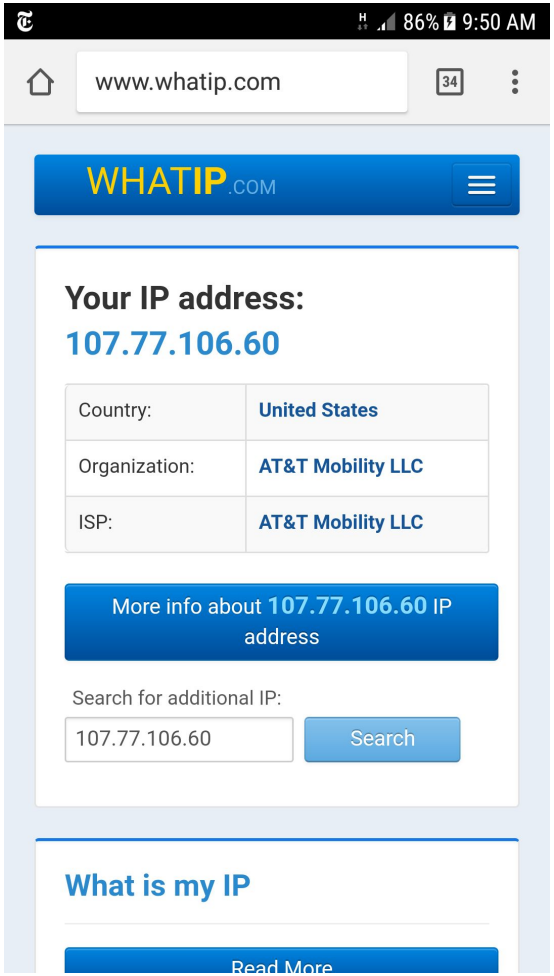
- **Whatip.com** will also work on your mobile device.
- Note again that your device's IP address is assigned by your service provider.
- In this case the provider is still Cox communications because my device is connected to my home's WiFi.



Find Your IP Address

- **Whatip.com** will also work on your mobile device when it is not on Wifi.

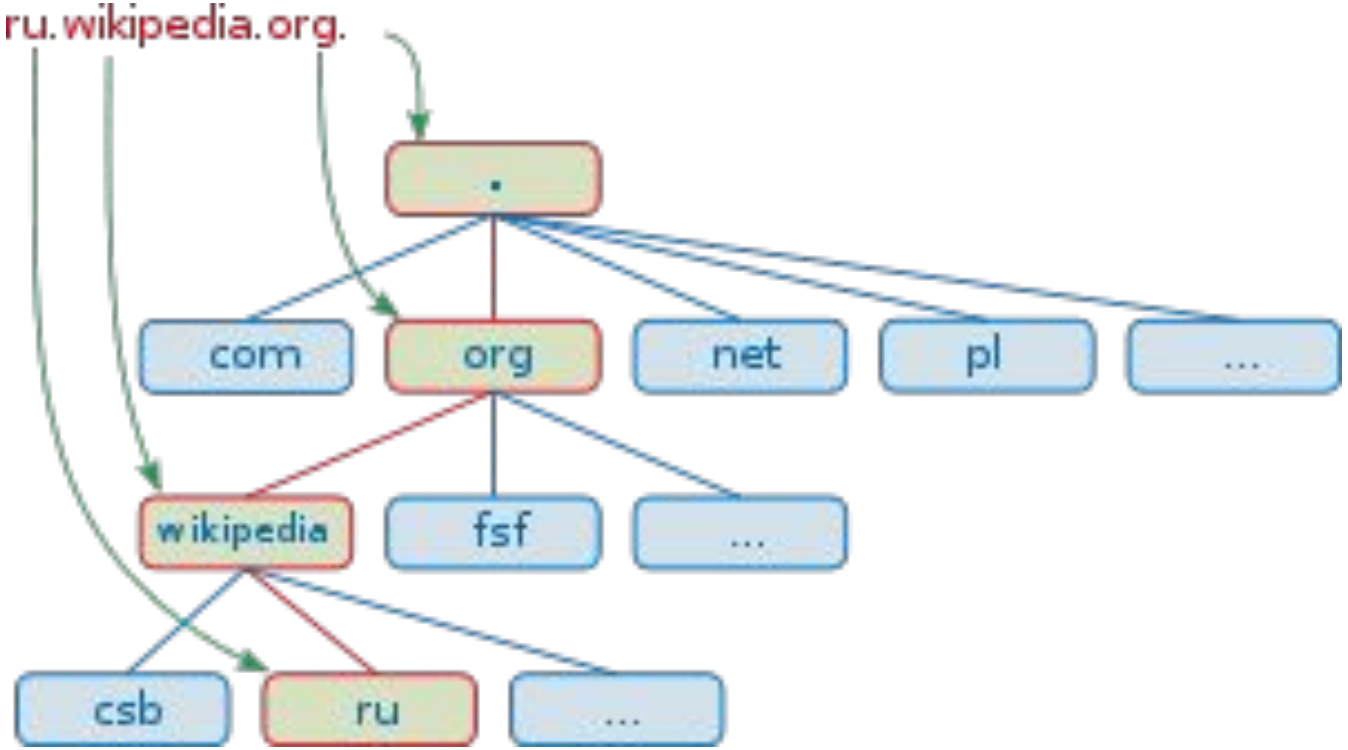
- In this case the IP address is assigned by my mobile provider, AT&T.



The Domain Name System

Domain Names

An Internet *domain name* is organized into a hierarchy, as shown, for *ru.wikipedia.org*



Domain Name Service (DNS)

- A domain name takes the following hierarchical form:

[4th level domain] . [3rd level domain] . [2nd level domain] . [top-level domain]

turing . cs . trincoll . edu

- Top-level domain names (edu, com) are not hostnames. They do not have IP addresses.

- A *hostname* is a domain name that is associated with an IP address. For example, these may be ***legitimate hostnames*** -- if they have an assigned IP address:
  - trincoll.edu
  - www.trincoll.edu
  - turing.cs.trincoll.edu

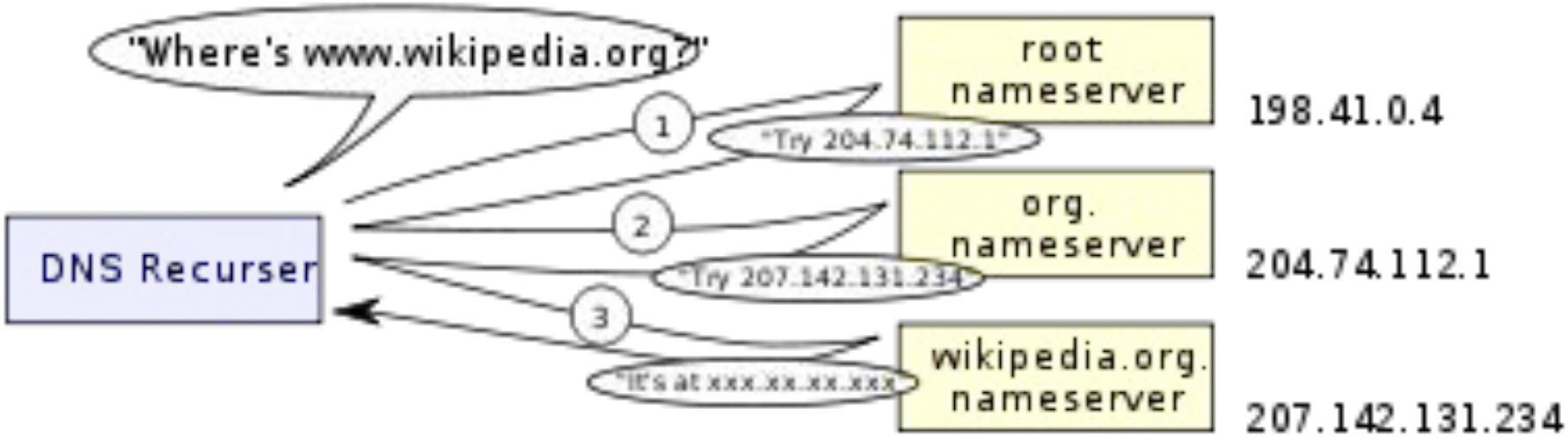
Domain Name Service (DNS)

- Domain names are mapped into IP addresses by the Domain Name System, a network of servers that maintain ***routing tables*** that associate domain names with IP addresses:

DNS Routing Table	
Domain Name	**IP Address**
trincoll.edu	157.252.10.123
mit.edu	104.109.101.98
css.edu	143.110.1.200

Domain Name Service (DNS)

- The algorithm for looking up an IP address repeatedly requests the IP address from a list of DNS servers until the IP address is found.
- In this example, 3 look-ups are needed before the IP address is resolved.



DNS Simulator

- Now that we understand how the DNS system works, we are going to have some fun doing simulation experiments using the Mobile CSP DNS app.