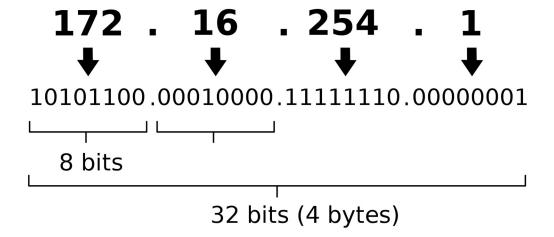
Internet Addressing

Internet Addressing

- Use addressing systems to assign a unique identifier to each computer in the network.
- Uses IP (internet protocol) addresses unique identifiers.
- Used a 32-bit address pattern (IP version 4 or IPv4)
 - Uniquely identifies all of the internet components until we ran out of unique identifiers.
- Today we use 128-bit address (IP version 6 or IPv6) in addition to legacy IPv4 addresses.
- Are traditionally written in dotted decimal notation, with the bytes of the address separated by periods.
- An alternative system accesses machines using mnemonic names (wgu.edu)

IPv4 address in dotted-decimal notation



Top Level Domains

- Top-Level domains include:
 - Com Commercial Institutions
 - Gov Government Agencies
 - Org Nonprofit Organization
 - TV television stations

Internet Key Words

- **DNS (domain name system):** DNS is a hierarchical and decentralized system that translates human-readable domain names into numerical IP (internet protocol) addresses—which computers use to identify one another on a network.
- **Domain names:** These are the familiar, easy-to-read names that are used to navigate the internet, such as "www.google.com." These names are easier for humans to remember than IP addresses.
- Hierarchy: The DNS system is organized hierarchically. At the top of the
 hierarchy are the root DNS servers, which direct requests to the appropriate toplevel domain (TLD) servers. TLDs include extensions like ".com," ".org," ".net,"
 and country-code TLDs, such as ".uk" and ".de."
- DNS resolution: This is the process of translating a domain name into an IP address.
- ICANN (Internet Corporation for Assigned Names and Numbers): a nonprofit
 organization that coordinates the internet's operations, awards blocks of
 consecutively numbered IP addresses to ISPs. ISPs then assign a unique IP
 address to each machine within their region of authority.

<u>Acronyms</u>

- DARPA (Defense Advanced Research Projects Agency)
- Internet service providers (ISPs)
- IP (internet protocol)
- ICANN (Internet Corporation for Assigned Names and Numbers)
- Top-Level Domain (TLD)