

What are Protocols?

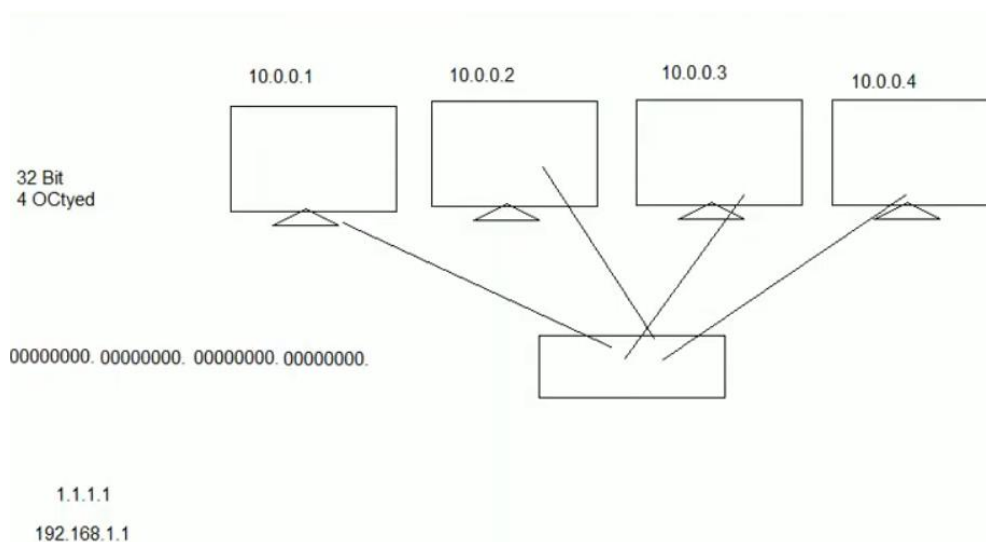
- Protocols are sets of rules that define how computers and components interact with one another. They are developed either by a single entity or by an organization made up of a group of entities.
- The International Organization for Standardization (ISO), located in Geneva, Switzerland, is responsible for developing and publishing standards. This group designed a standard that is used as a model for network communication, the Open Systems Interconnection (OSI) reference model.

What are Internet Protocols?

- A machine may be connected by millions of other machines across the internet, and there is no single cable connecting all those computers; but there is a logical connection in the sense that you can use a program like telnet to connect from a computer in California to another in Germany.
- But how do the packets be sent get from one place by another? How can the local network in California be prevented from being overloaded with packets sent from multiple machines in Germany and, at the same time, ensure that these telnet packets get through? The answer is provided by the Internet Protocol (IP)

IP Address

- A unique identifier
- A way to identify machines on network.
- Used to connect to another computer.
- Allow transfers of files and e-mails.



IP Structure

- Consist of 32 bits
- For example:
- 11001000 00001010 00010100 00011110
- IP Address consists of four sections.
- Each section is 8 bits long.
- Each section can range from 0 to 256.

IP Structure

- Converted to decimal equivalent.
- For example:
- 11001000 00001010 00010100 00011110
- 200.10.20.30
- Four sections are called octets.
- Doted decimal notations.

Types

1. **Assignment:** i. Static ii. Dynamic
2. **Classes:** i. Classless ii. Classful
3. **Public , Private**
4. **Version:** i. IP V4 ii. IP V6

Assignment

- Static:
- Static IP addresses are manually assigned to a computer by a network administrator.
- Dynamic:
- Assigned either by computer interface or host software itself.
- configuration mode
- APIPA

APIPA

Automatic Private IP Address

169.245.x.x

IP Address

IANA

- Internet Assigned Numbers Authority
- IANA oversees globe IP Address allocation. Autonomous system number allocation
- Root zone management in the domain name system
- Other internet - protocol related symbols and numbers
- IANA is a department operated by ICANN

ICANN

- The Internet corporation for assigned name and numbers
- Nonprofit private organization
- Headquartered in California, US
- Create on September 18-1998, and incorporated on September 30-1998
- To oversee several internet related tasks on behalf of the US government
- •IANA is operated by ICANN