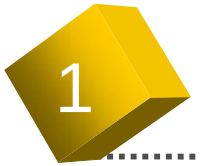
Brickcom

IP Networking Basics

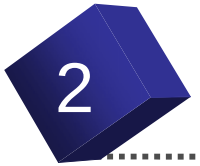
FAE Team

2011.8

Agenda



IP Networking



Type of Ethernet network

Network Protocol

IP Networking

Network Concept

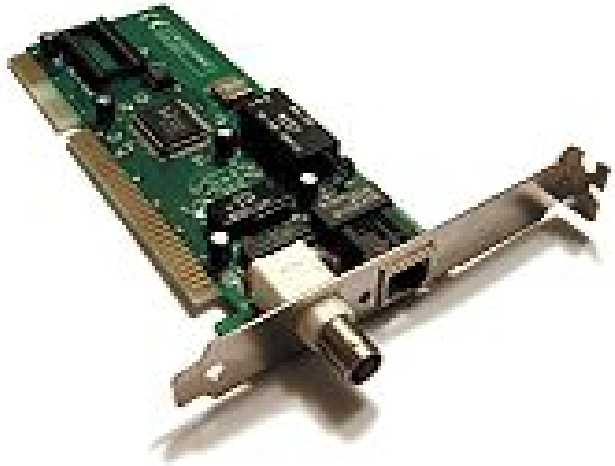
- LAN
- Ethernet
- Ethernet Cable
- IP Address

Internet Protocol

Network Concept

Ethernet

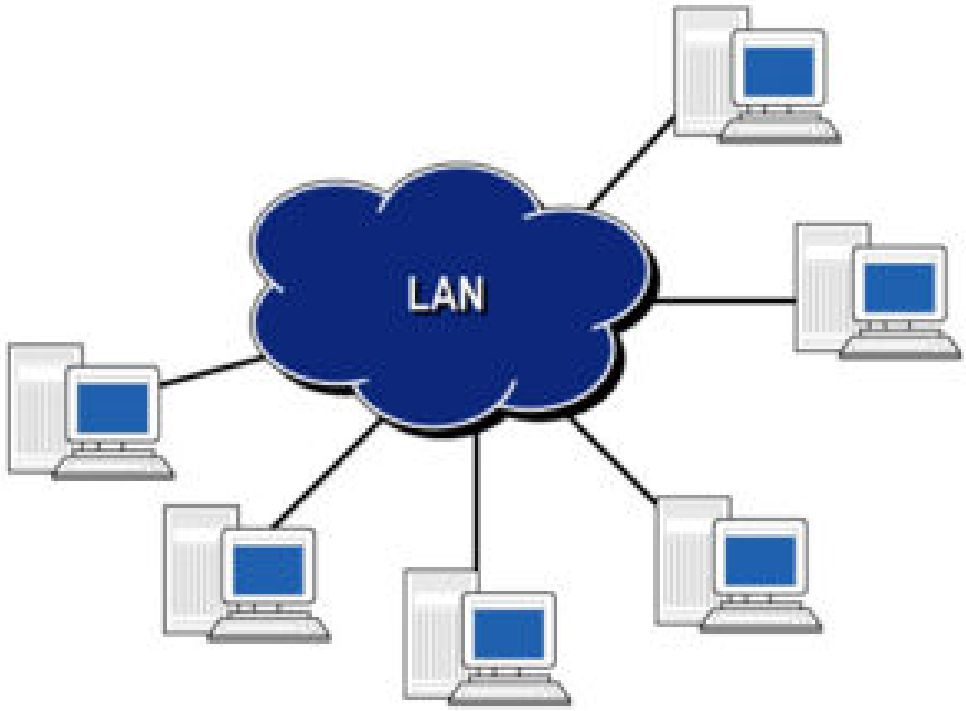
- Data is sent in the form of packets and regulate the transmission of the packets, different technologies can be used. The most widely used LAN technology is called Ethernet, it is specified in a standard called IEEE 802.3



Network Concept

LAN

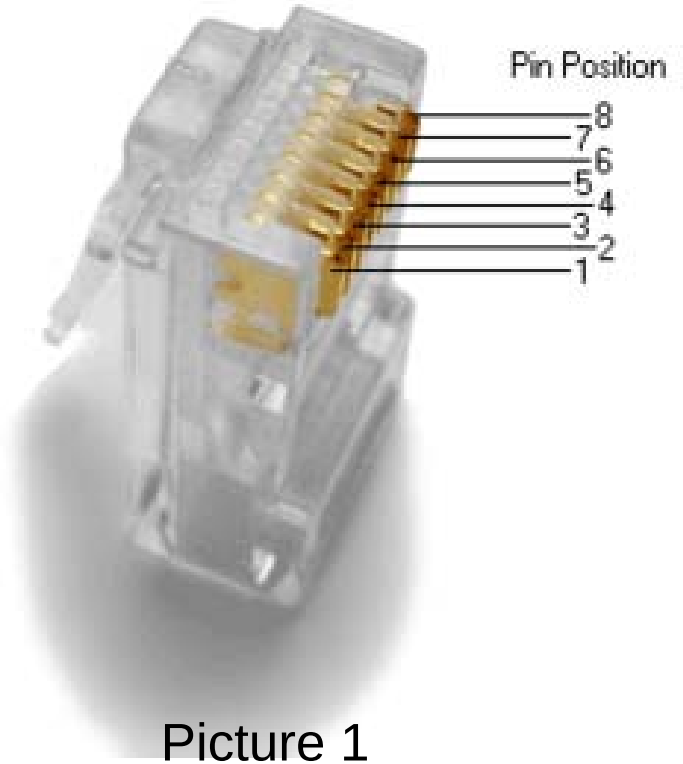
- local network area, is a group of computers that are connected together in a localized area to communicate with each other and share resources.



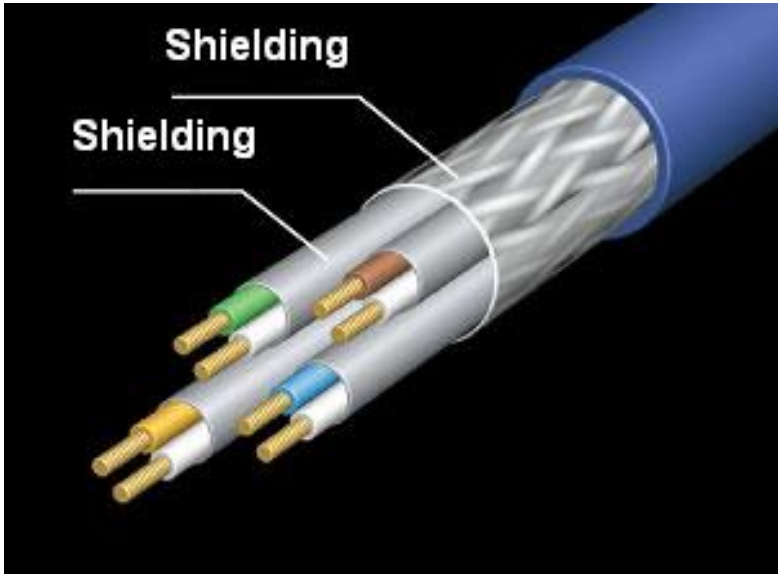
Network Concept

Ethernet Cable

- Picture 1 for the twisted pair cable
- Picture 2 for the UTP and STP



Picture 1



Picture 2

Network Concept

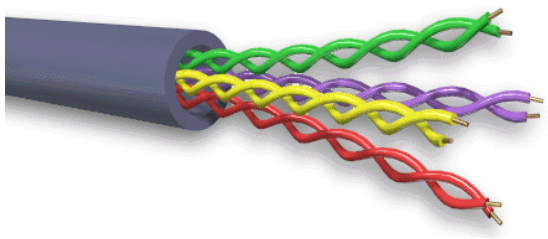
IP Address

- IP address contains 4 group of 3 digits separated by a dot. Each digit is in the rang 0~255.
  - For example, 192.168.100.100
- IP address is used to identify the sending and receiving device. There are two IP version now, IPv4 and IPv6.
- The main difference between IPv4 and IPv6 is the length. The length of IPv4 is 32bits and IPv6 is 128bits.

Type of Ethernet network

Fast Ethernet

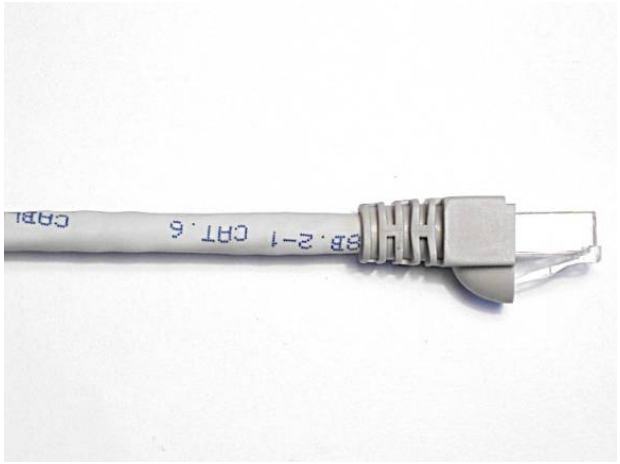
- Transfer data at a rate of 100 Mbps
- Based on both twisted pair and fiber optical cable
- Cat-5 twisted pair cable



Type of Ethernet network

Gigabit Ethernet

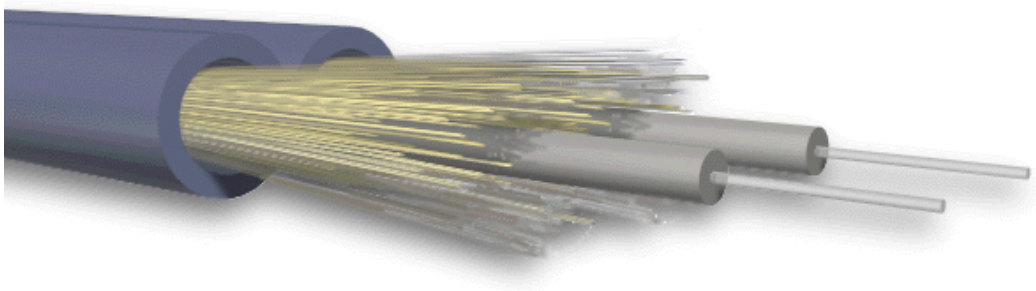
- Transfer data at a rate of 1Gbps
- Based on both twisted pair and fiber optical cable
- Cat-5e or Cat-6 twisted pair cable



Type of Ethernet network

10-Gigabit Ethernet

- Transfer data at a rate of 10Gbps
- Based on both twisted pair and fiber optical cable
- Cat-6e or Cat-7 tw fiber isted pair cable

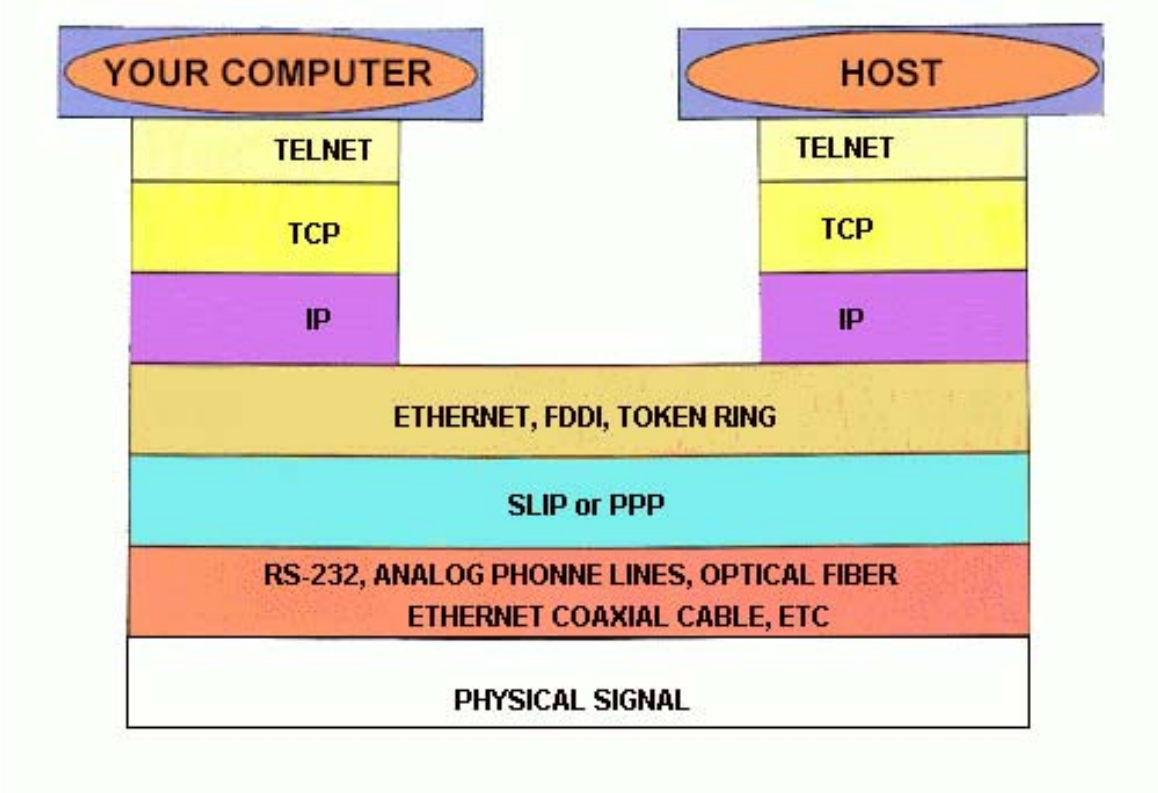


fiber

Network Protocol

Network protocol

- Transportation Protocol
- Session Protocol
- TCP & UDP



Network Protocol

- There are variable protocol in the IP network. The two protocols below are mostly confronted, transportation protocol and session protocol.

- The network packet is carried by the transportation protocol. It simply transports data between clients. For example, TCP and UDP.

- Each session protocol provides different function. It based on the transportation protocol. For example, HTTP, FTP and SMTP.

Network Protocol

- The transmission control protocol and user datagram protocol are the IP-based protocol used for sending data.

- These transport protocols act carrier for many other protocols. For example, HTTP is carried by TCP.

Network Protocol

- TCP, provide the reliable, connection-based transmission, the sender will confirm if the receiver successfully receive the network packet, if not., the sender will re-send.

- UDP, unreliable, connectionless protocol, the sender will NOT confirm if the receiver successfully receive the network packet.

Network Protocol

Session Protocol

Session Protocol	Transport Protocol	Application
HTTP	TCP	This is used to web page
FTP	TCP	This is used to send or receive data
SMTP	TCP	This is used to email
RTP/RTSP	UDP	This is used to video streaming

Contact Us

Brickcom Corporation Headquarters	
Address	No.1 Jen Ai Rd, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, R.O.C. 303
Tel	+886-3-5982022
Fax	+886-3-5982023
Website	http://www.brickcom.com
Sales & Marketing	info@brickcom.com
Support	support@brickcom.com

Brickcom