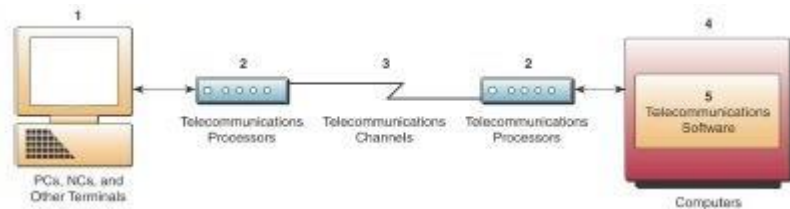


# Introduction

TLC Network Model: 5 components



## Types of tlc networks

WAN, MAN, LAN

**PAN: Personal Area Network:** Wireless LAN, Bluetooth, Infrared.

**VPN:** secure network, relies on firewalls and other sec features.

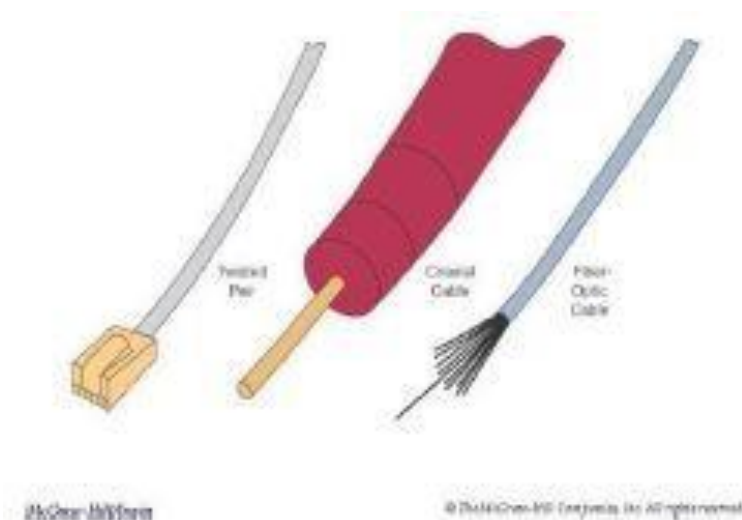
**IPSec (SVPN):** IP-Packet encryption, add headers and encapsulate packets in new ones.

## TLCs Media

**Twisted-pair** wire

**Coaxial cable:** less interf. and distortion, **high-speed**

**Fiber optics:** conducts pulses of light, **smaller faster**



## Wireless Technologies

LINE A  
VISTA

- **Terrestrial Microwave:** Line-of-sight between relay stations (40 km apart).
- Communications satellites: serve as relay signals from earth. stations for communications
- **Cellular Systems:** each cell for several square miles, low-power transmitter or radio antenna; processors coordinate and control transmission inter-cells.

## TLCProcessors

- **Modems:** analogic to digital and viceversa, modulation/demodulation
- **Multiplexers:** single comm. channel to carry transmission of many terminals
- **Switches:** makes connections between telecomm. circuits
- **Router:** Interconnects networks Hub: Port switcher
- **Gateway:** interconnect heterogeneous networks E.g.: firewalls

## TLC Software

Variety of communication support services including connecting & disconnecting links & parameters.

Network management:

Traffic management

Security

Network monitoring

Capacity planning

## Network Topologies

Star: least reliable; rely on a central computer; easy deployment for new users (used in periferic parts)

Ring: more reliable; uses of tokens; failure not stop the network (used in fiber optic)

Bus: shared bus;

Mesh: every end-user is interconnected to all the others, more expensive (redundancy), very robust, can support multiple failures (used in the core).

# **Network Architectures**

Goal is to promote an open, simple, flexible, efficient tics environments

## **Network Protocols**

Standard set of rules & procedures for the control; standards for the physical characteristics of cables and connectors