

# Network Communications

## Chapter 10

Fast Ethernet (100Mb/s) Networking  
Technology

# Fast Ethernet Protocol Stack

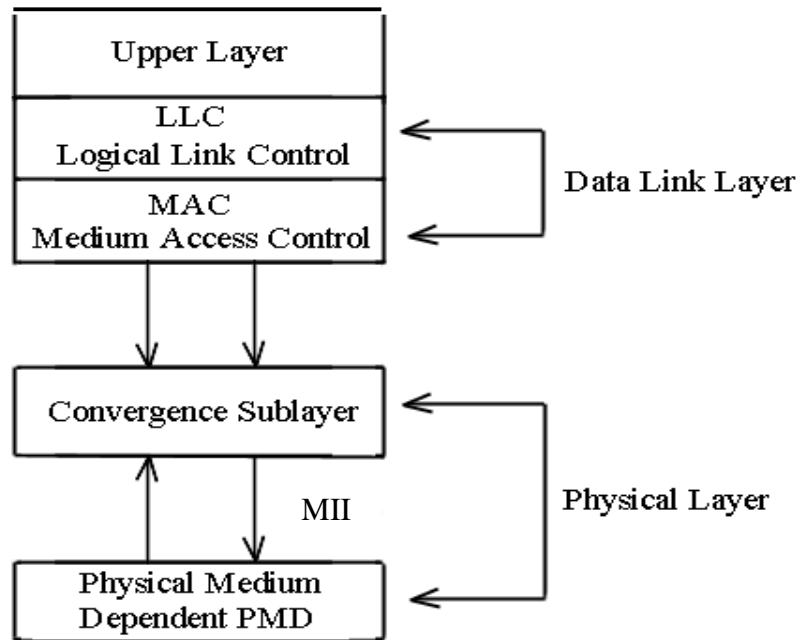


Figure 10.1

# 100BaseT4

- 100 – Speed
- Base – baseband
- T – twisted pair
- 4 – pairs

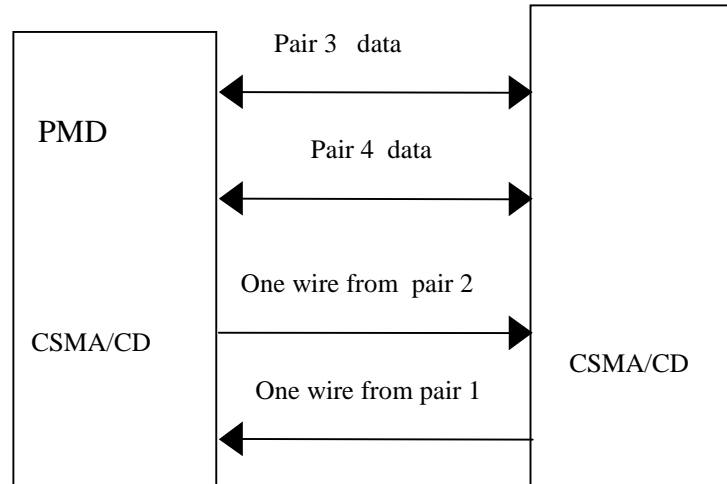


Figure 10.2

# 100BaseTX

- X - 2 pair (or 1- rare)
- UDP CAT5
- MLT-3
- 4B/5B

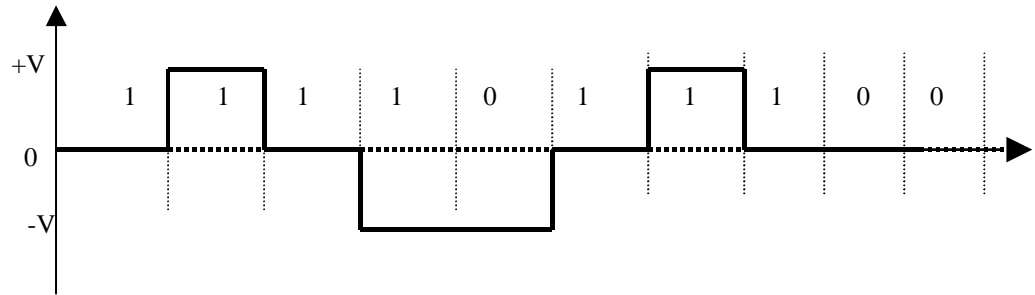


Figure 10.3: example MLT-3 Signal

(0 0 0 1 1 1 0)



(1 1 1 1 0 1 1 1 0 0)

# 100BaseFX

- F - Fiber
- Separate send & receive fibers

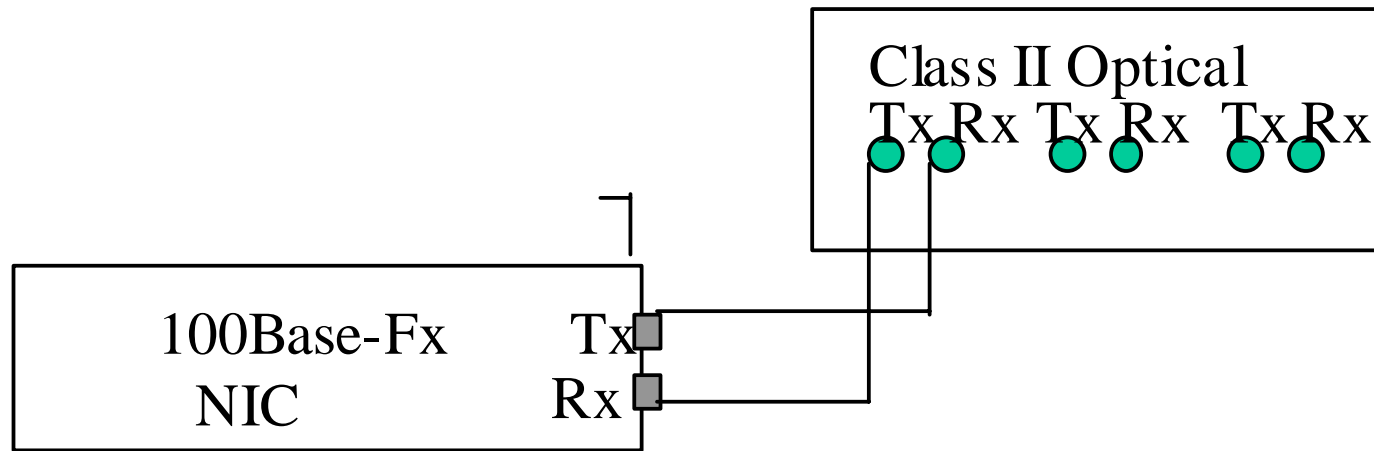


Figure 10.4: Repeater (Hub) Connection

# Repeater (or Hub)

- Class 1
  - Larger internal delay
  - One per Fast Ethernet Segment
  - Interfaces 100BaseFX  $\Leftrightarrow$  100BaseTX
- Class 2
  - Two allowed per segment
  - All nodes of the same type

# Network Diameter

- Maximum distance (UDP) between repeaters – 5 meters
- No cable exceeds 100 meters (check Hub specifications)
- Maximum distance between switches – 2000 meters (using fiber)

# Expanding Network Diameter: Using An Ethernet Switch

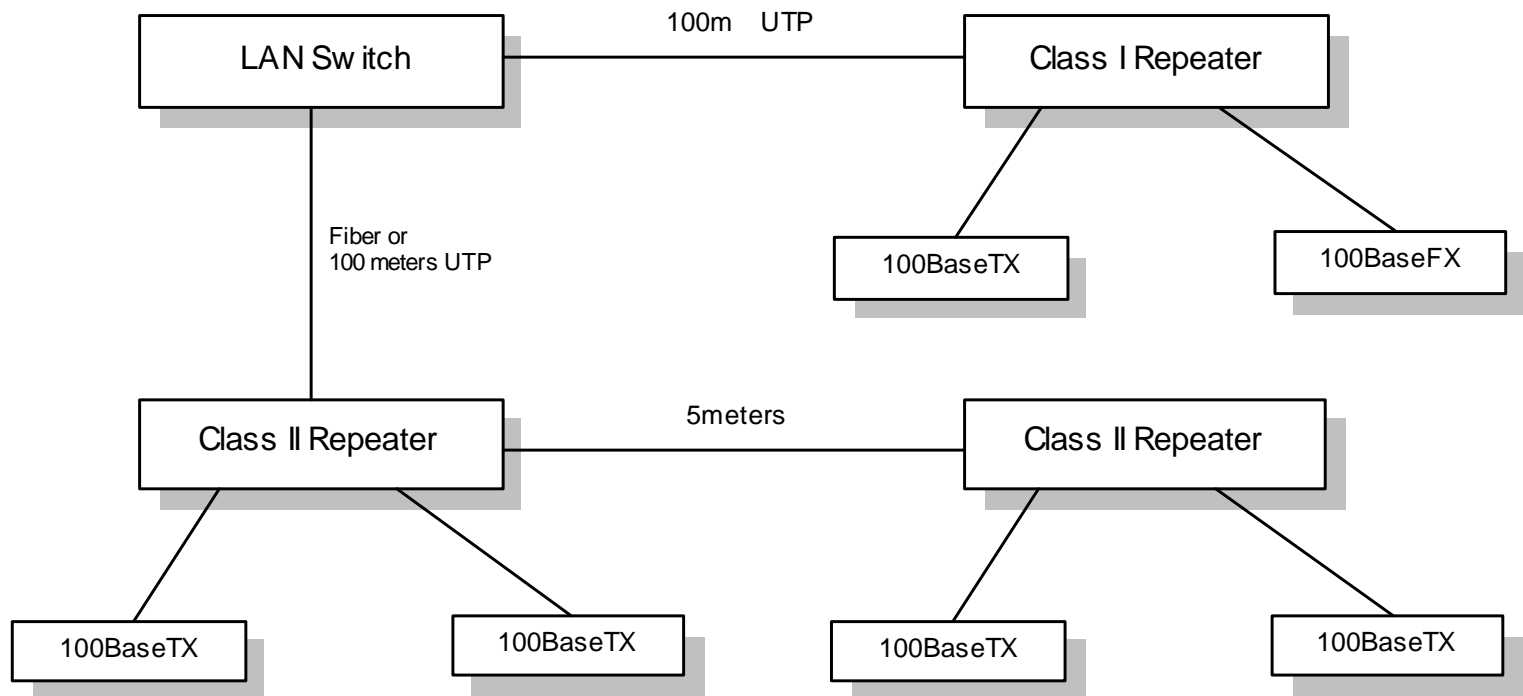


Figure 10.9