



Computer Networks

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Client/Server

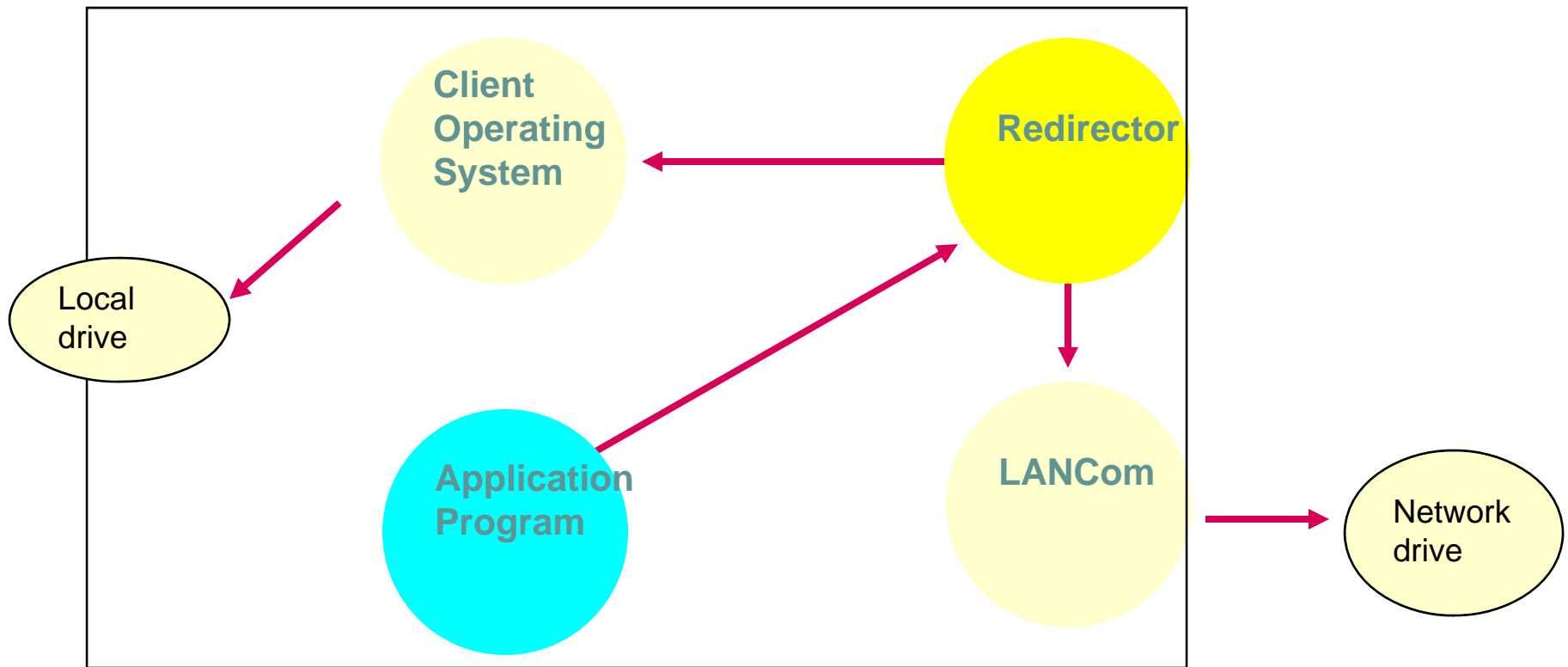
- Centralized processing
 - Distributed processing
 - Client/server computing
 - Peer-to-Peer Network
-
- Definition
 - Advantages
 - Disadvantages



Three-tiered Architecture

- Presentation or Application Logic
- Business Logic
- Database Logic

Client in Network Client/Server



Client/Server Communication

- Remote-procedure call
- Message system – network:node:process
- Obtain an address
 - The client can broadcast a message soliciting the address of a server.
 - The server can broadcast a message advertising its services.
 - The server's address and service type can be maintained in a network directory.
 - The server's address can be hard-coded in the client.



Windows Network Protocols

- NetBEUI – small networks; unrouted
- IPX/SPX – Novell networks; routed
- TCP/IP – large networks; routed



Primary Network Services

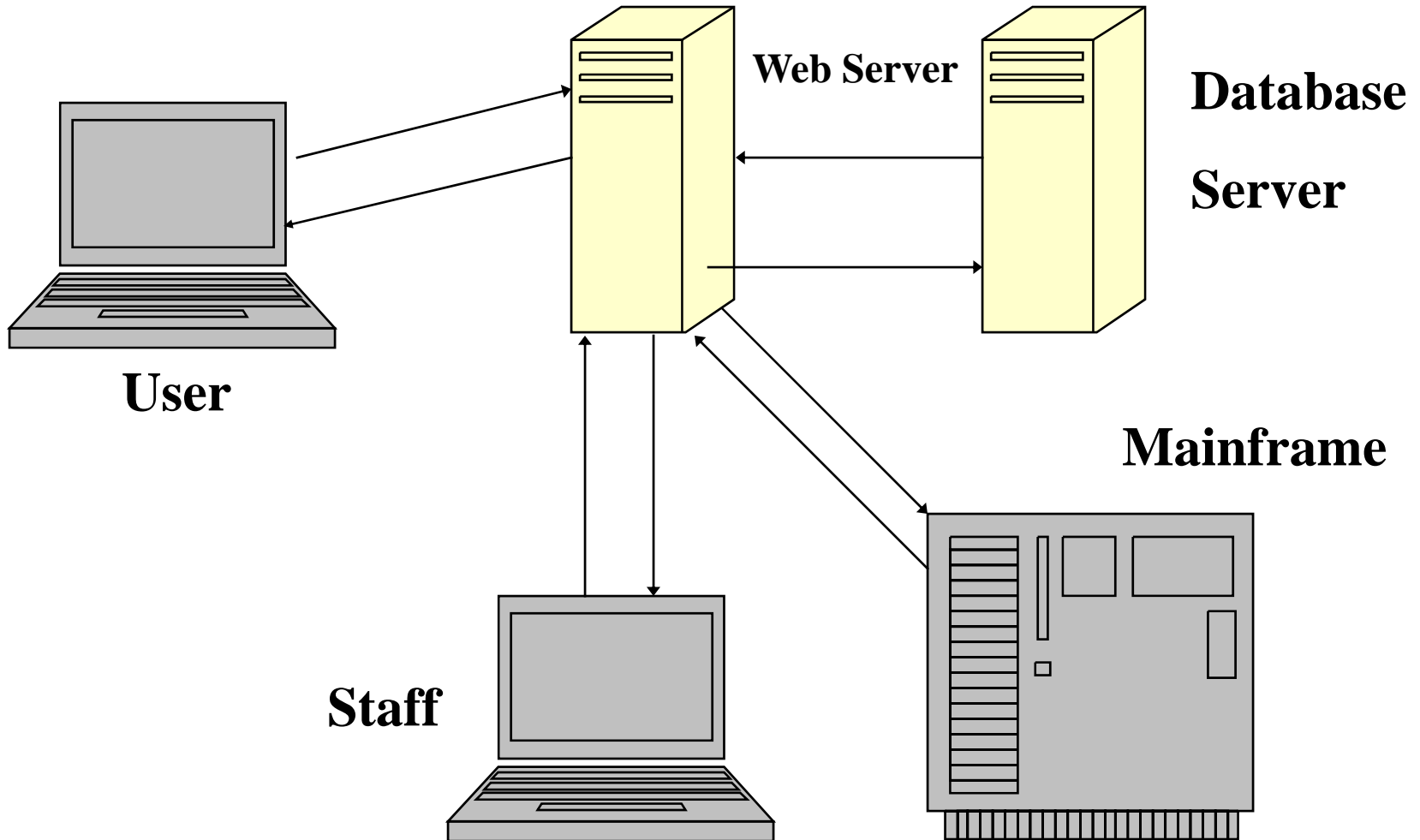
- Client for Microsoft Networks – enables Windows 2000 clients to initiate connections
- File and Printer Sharing for Microsoft Networks – enables Windows 2000 computers to share resources and accept requests

Thin vs. Thick Client

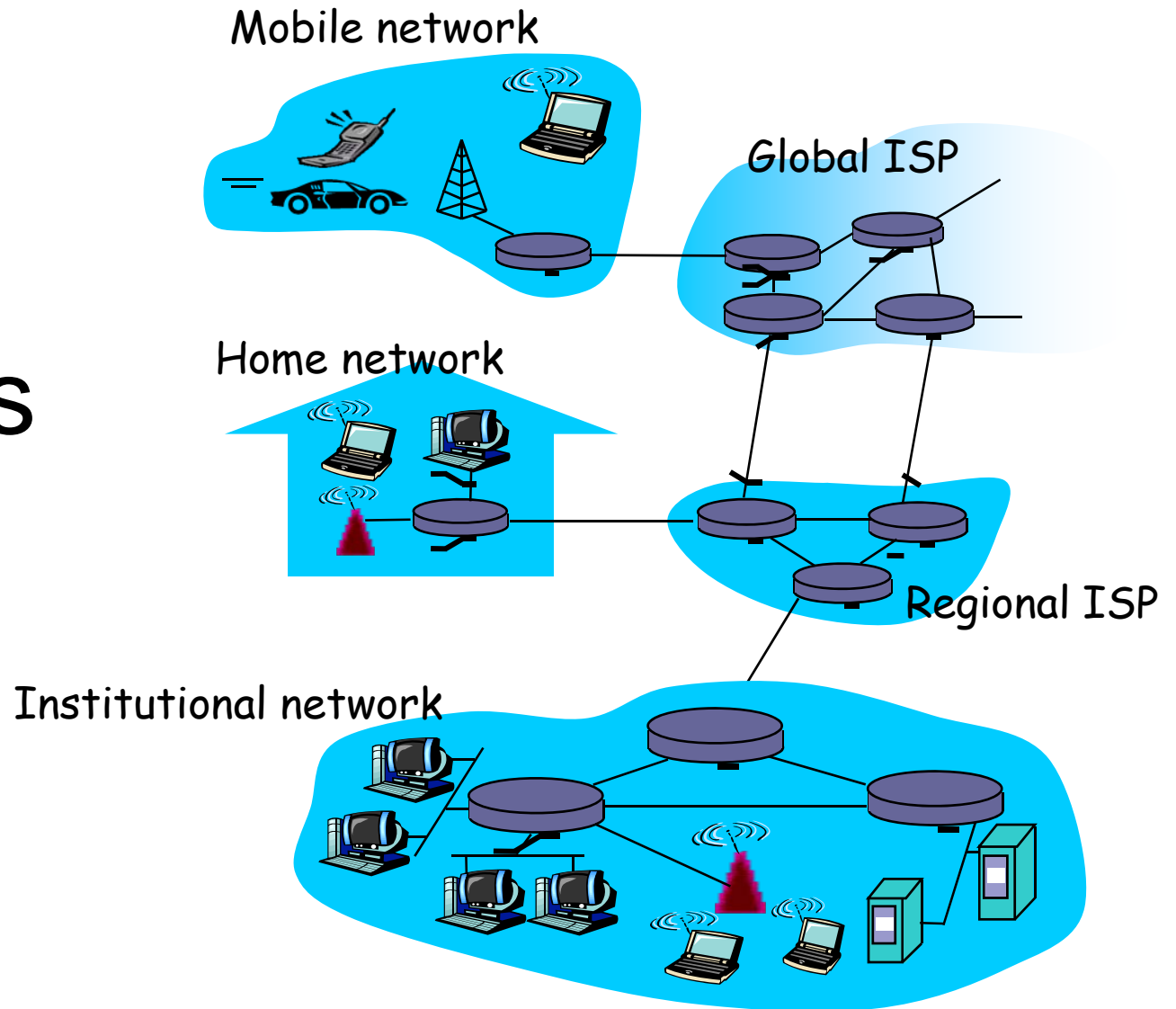
- Thin client – stripped down PC
- Thick client – high-powered PC
- Advantages
- Disadvantages

Client/Server Model in Action

OSOS System Overview



Access Networks



Home Communications - DSL

- Residential Access Network
 - Narrowband
 - Broadband
- Digital Subscriber Lines (DSL)
 - Asymmetric
 - Uses FDM

Home Communications - HFC

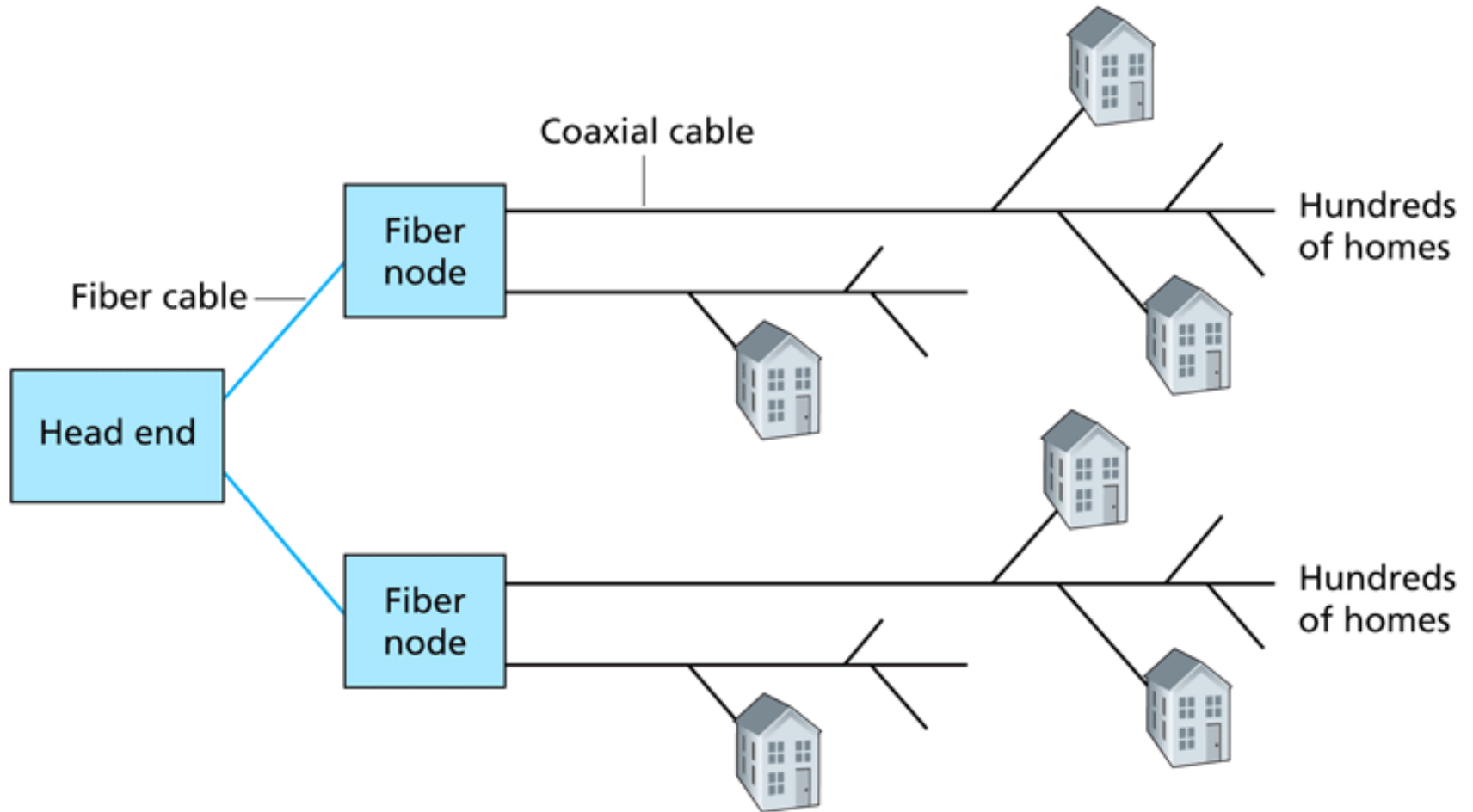
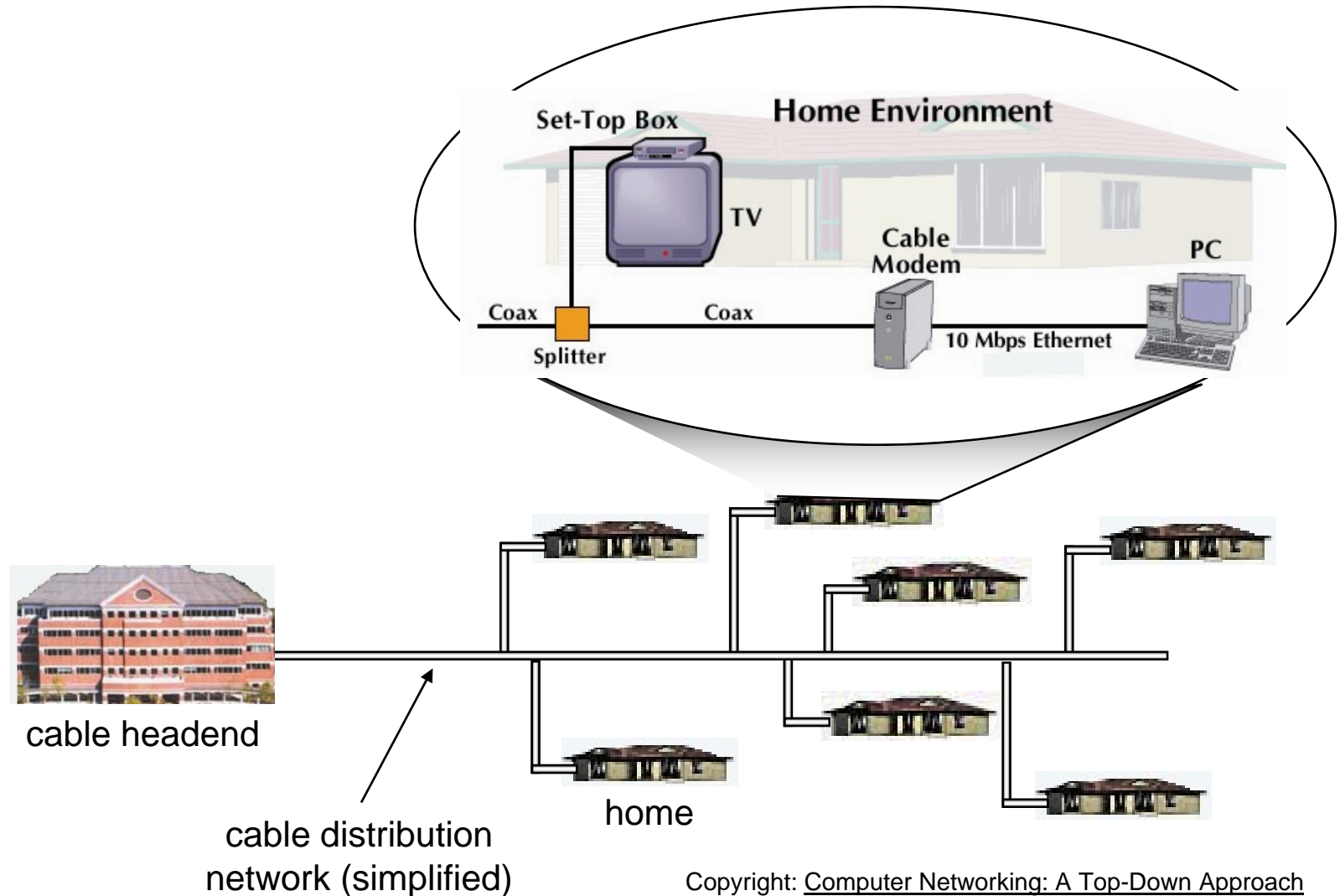


Figure 1.5 ♦ A hybrid fiber-coaxial access network

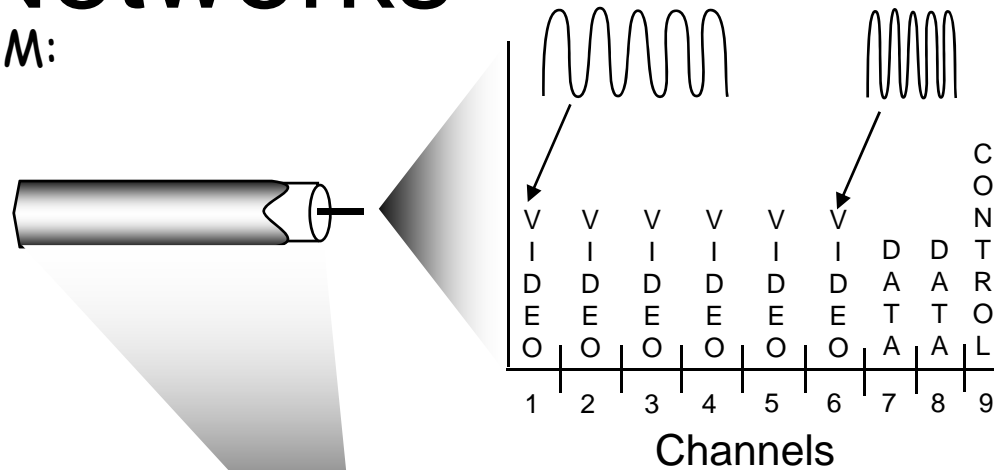
Cable Network



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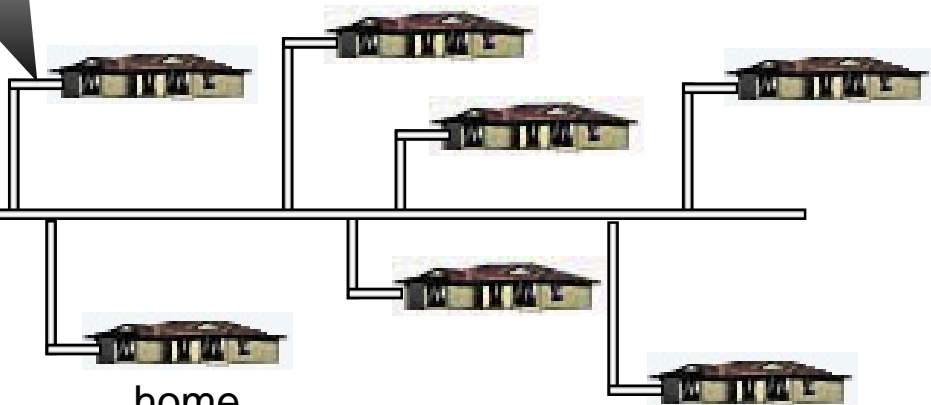
Cable Networks

FDM:



cable headend

cable distribution network



home

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Fiber-To-The-Home (FTTH)

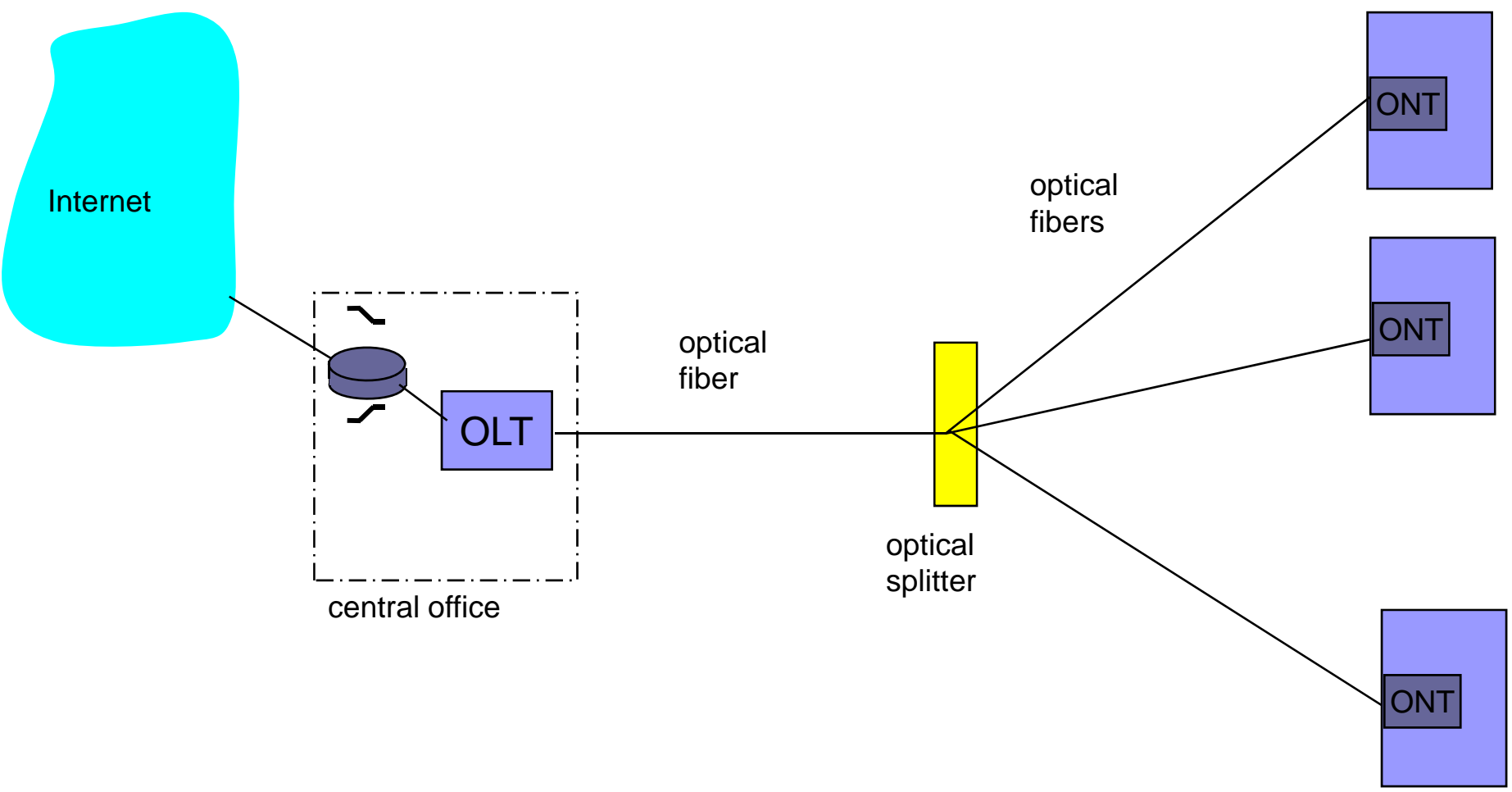
- Examples

- Technologies

- Direct fiber


- Active optical networks (AONs)

- Passive optical networks (PONs)



- Are collisions possible in a downstream HFC channel?
 - Yes – true
 - No - false



- 
- Which residential technology is better?
 1. DSL
 2. HFC





Wireless Access Networks

- Wireless LANs
- Wide-area Wireless Access Networks
- Third Generation Wireless (3G)
- WiMAX

How is your home network designed???

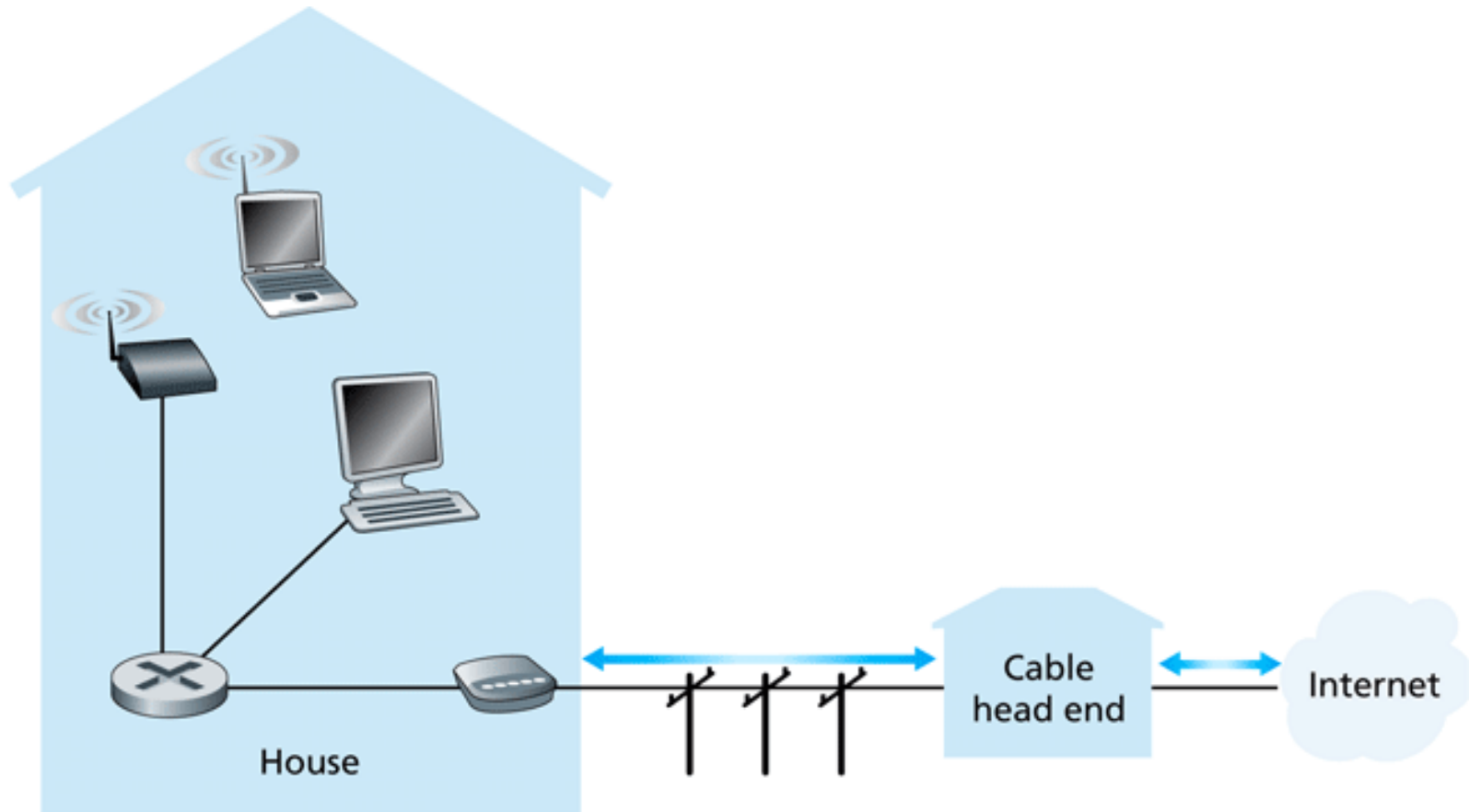


Figure 1.6 ♦ A schematic of a typical home network

Internet Hierarchy

