

Network Communications

Chapter 6

Multiplexers and Switching Concepts

Multiplexer Application

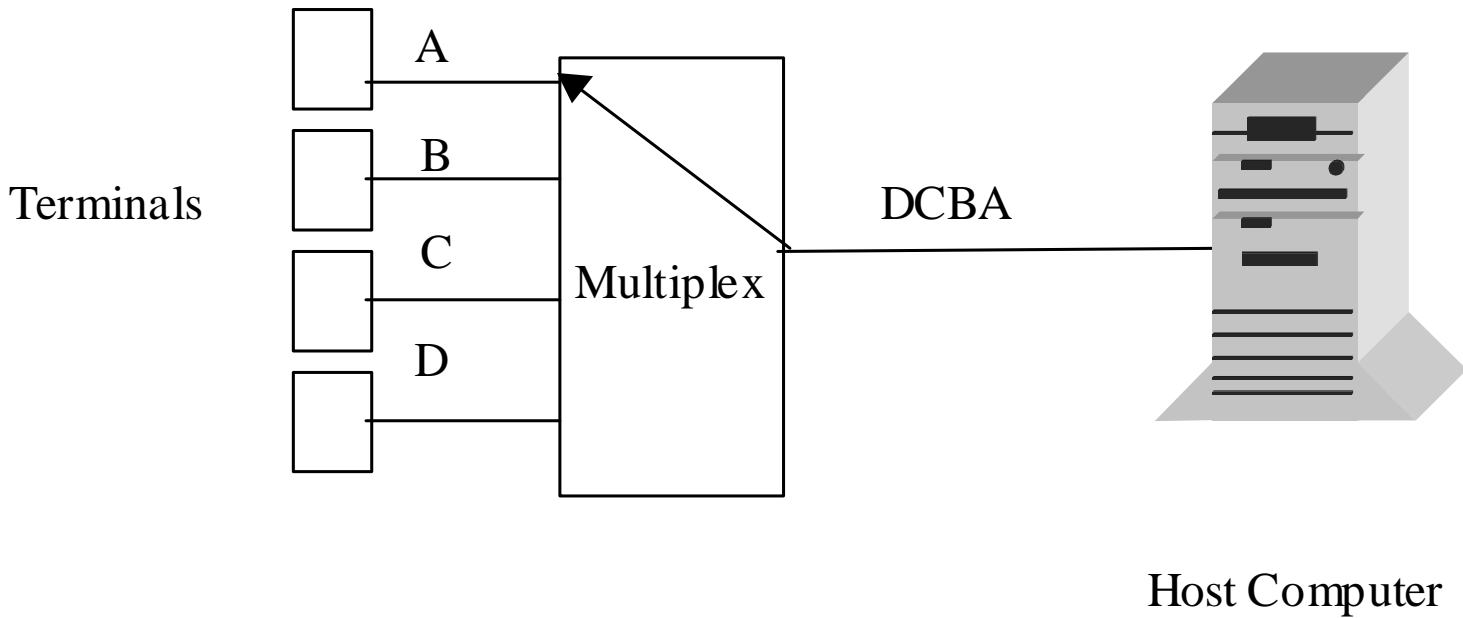


Figure 6.1

4 to 1 Mux / DeMux

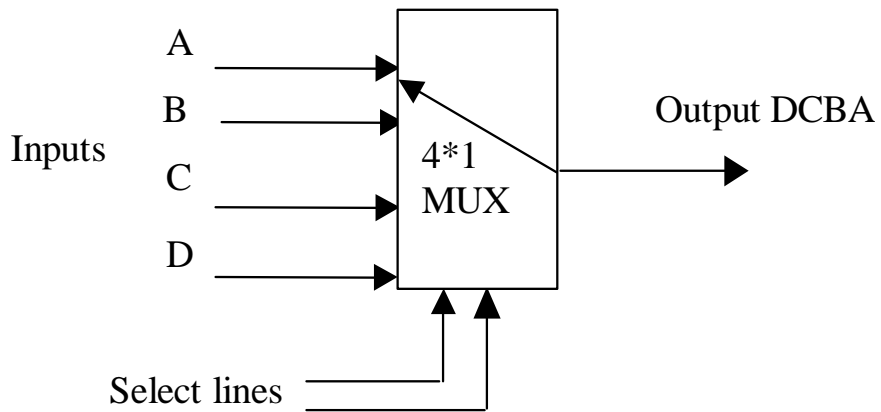


Figure 6.2
Multiplexer

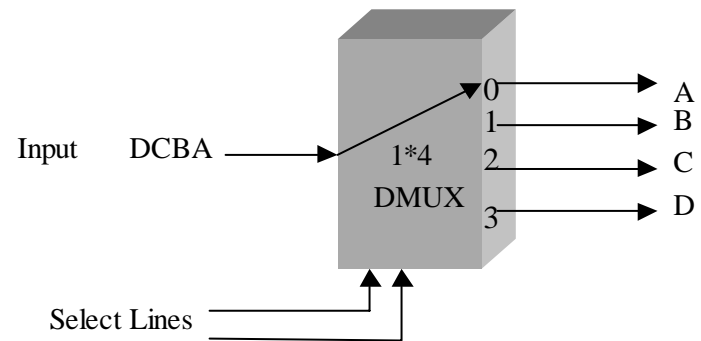


Figure 6.3
Demultiplexer

TDM Multiplexer

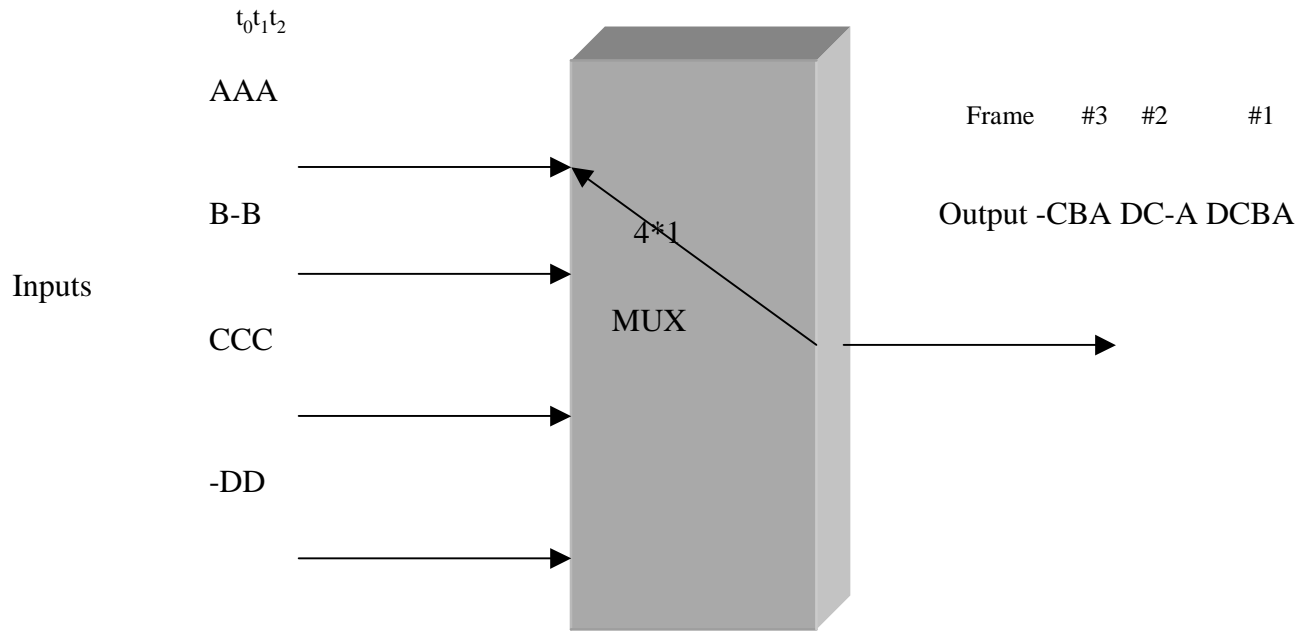


Figure 6.4

FDM (Broadcast Analog TV)

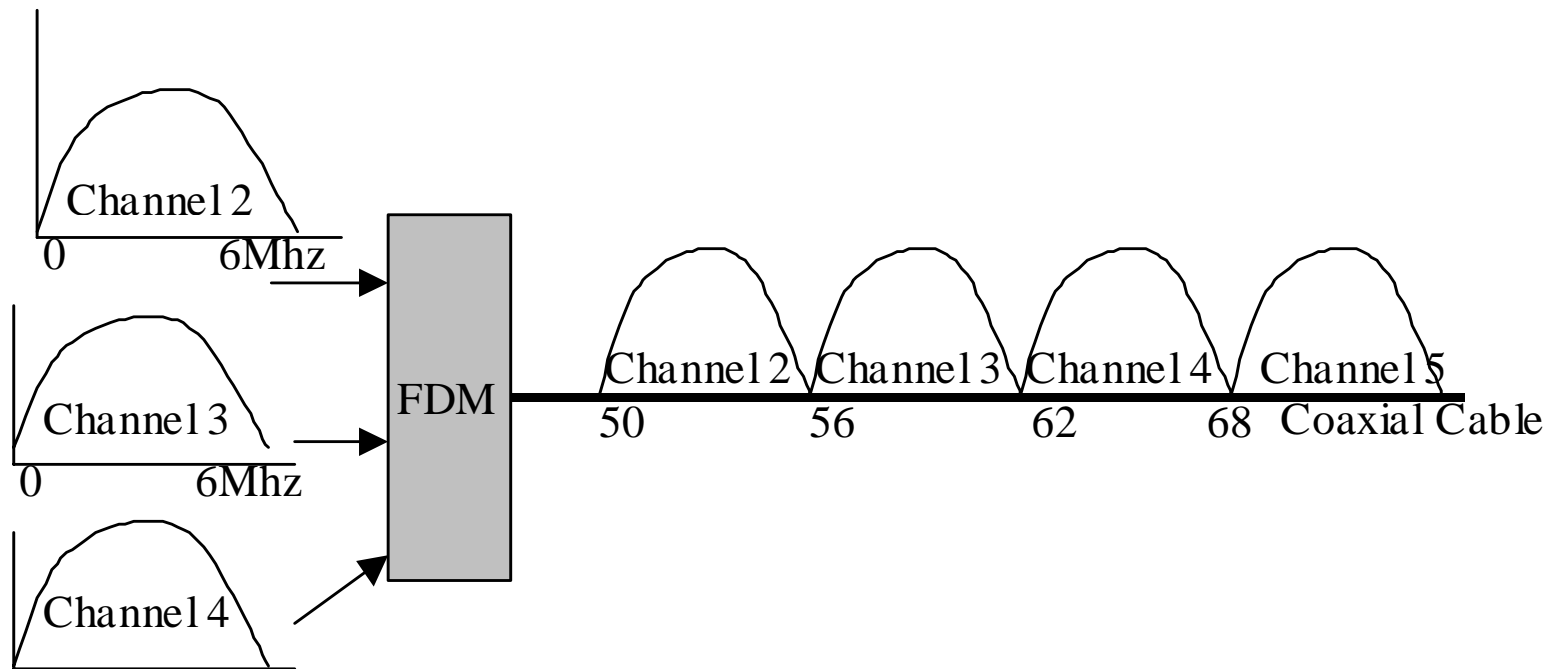


Figure 6.5

Statistical Multiplexer (Packets)

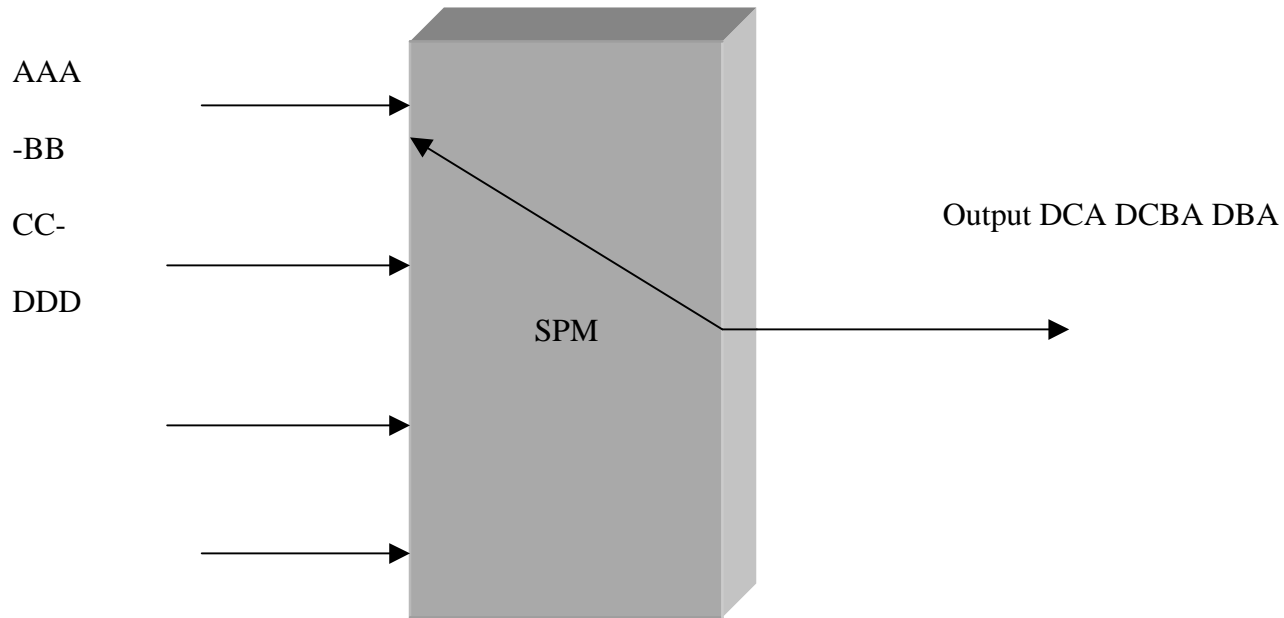


Figure 6.6

Digital Telephone System

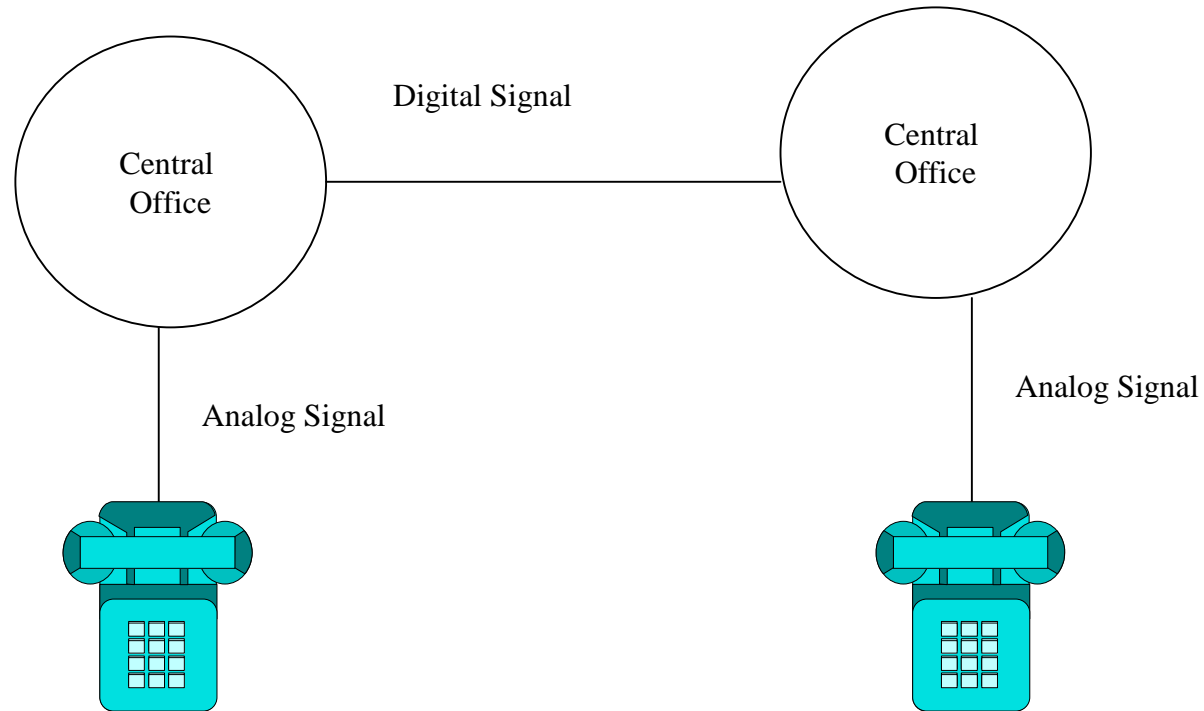


Figure 6.7

Sampling - PAM

Pulse Amplitude Modulation

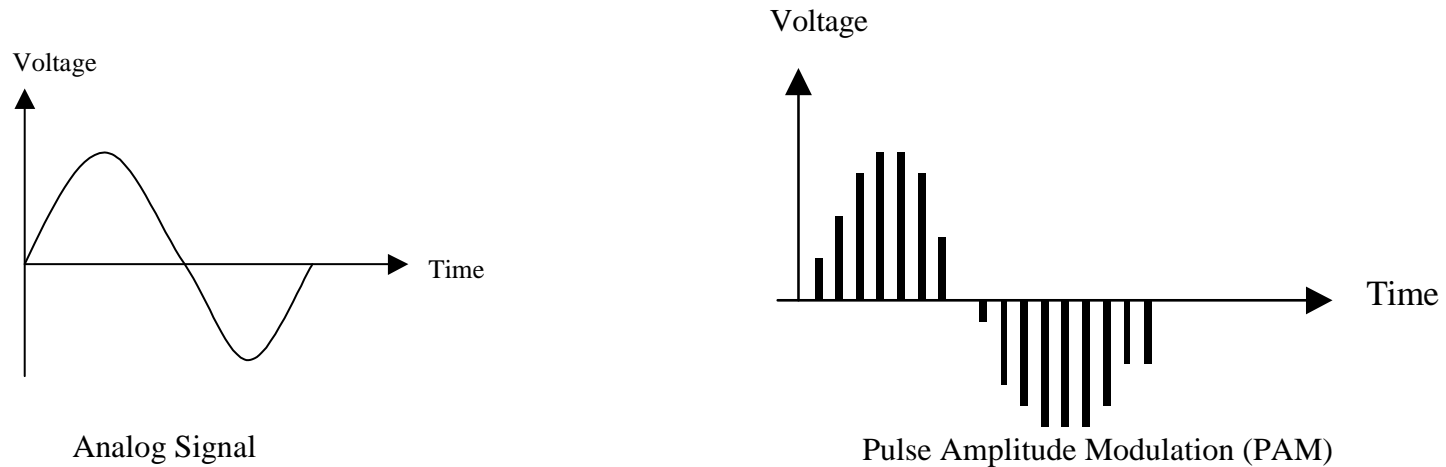


Figure 6.8

Analog / Digital Conversion

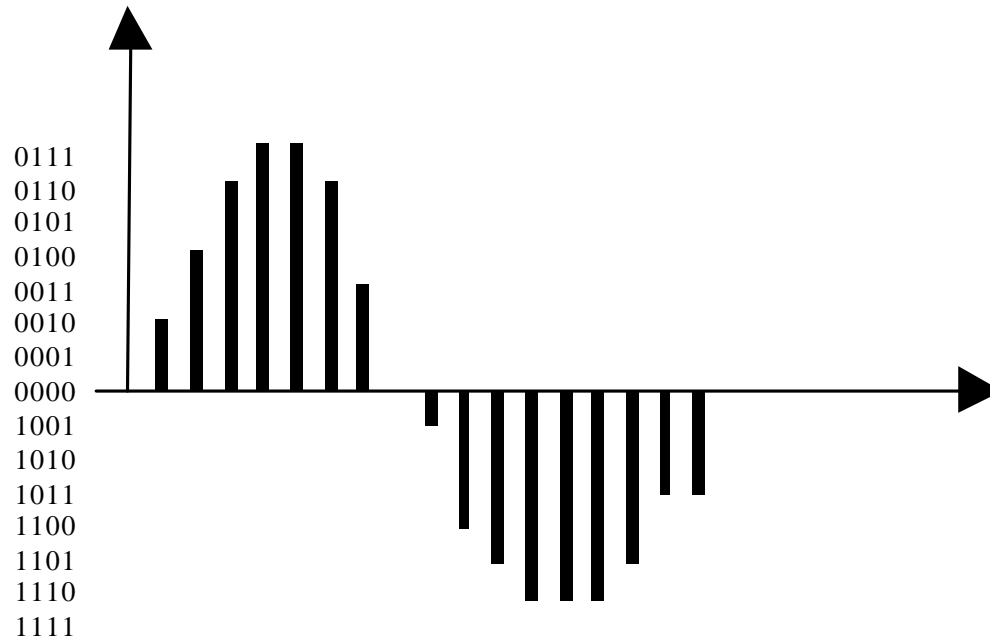


Figure 6.9

T1 (DS1)

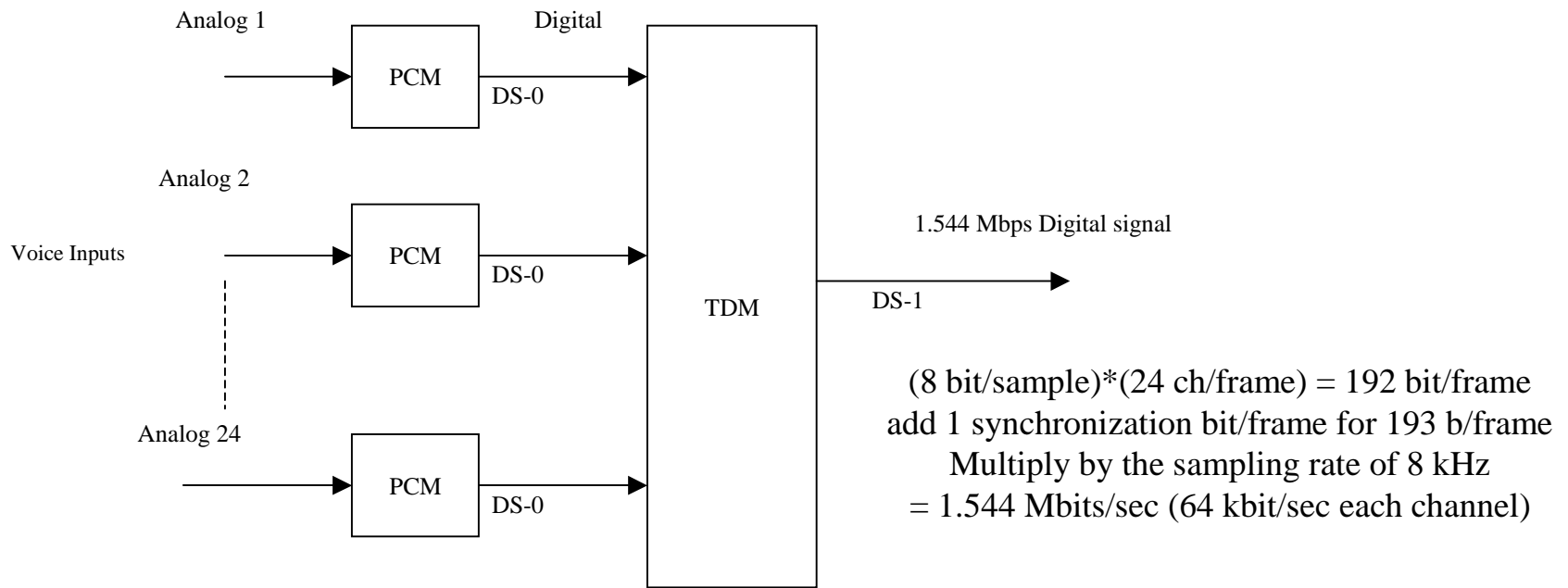


Figure 6.10

Digital Telephone Transmission

Frame Format	Line	Voice Channels	Data Rate (Mb/sec)
DS-1	T1	24	1.544
DS-1c	T1c	48	3.152
DS-2	T2	96	6.312
DS-3	T3	672	44.736
DS-4	T4	4032	274.176

Table 6.1: US TDM Standards



Figure 6.11: DS-1 Frame Format

A Fully Connected Network

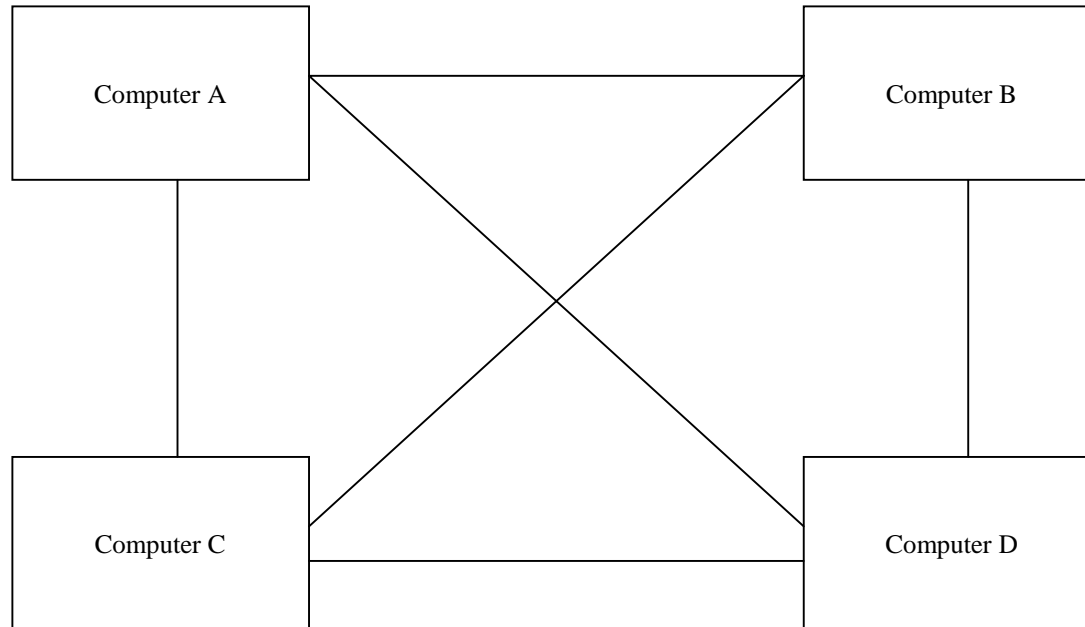


Figure 6.12

Connecting Stations Through Switches

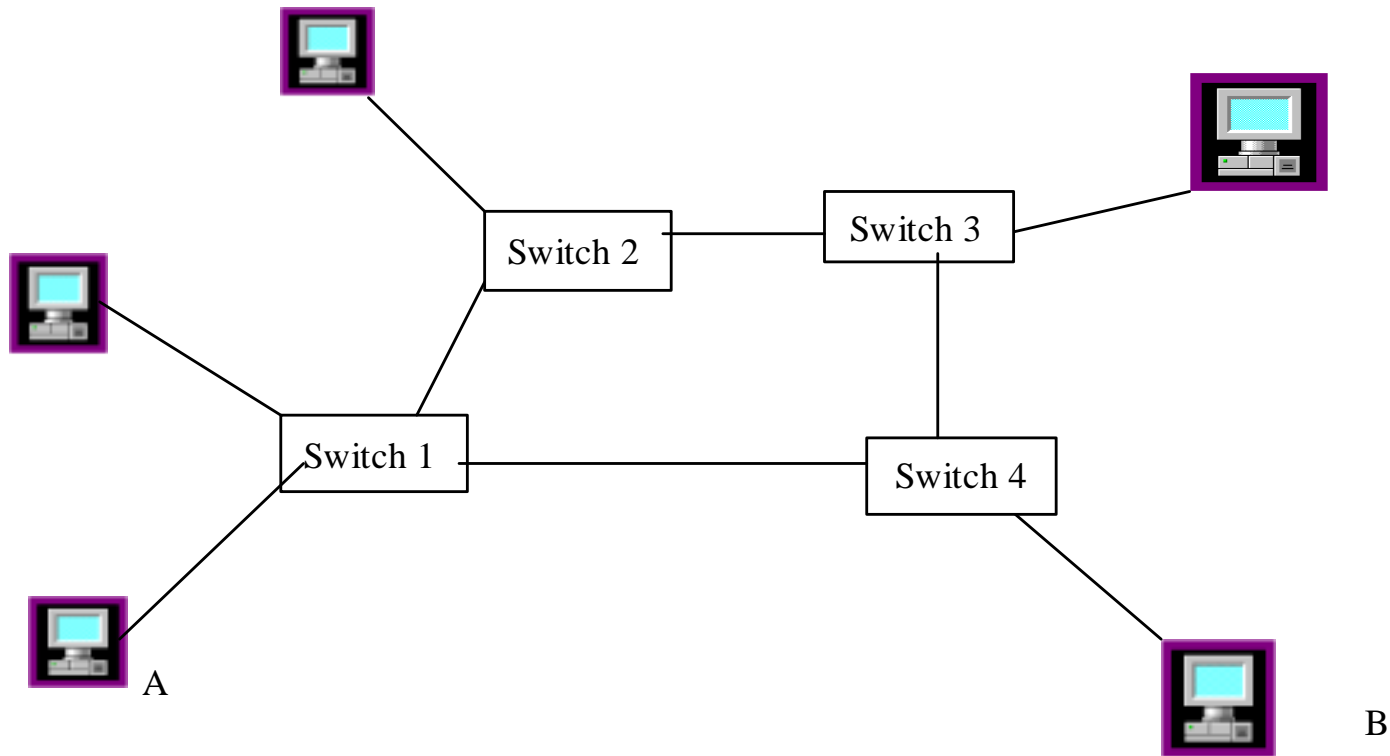


Figure 6.13

Circuit Switching

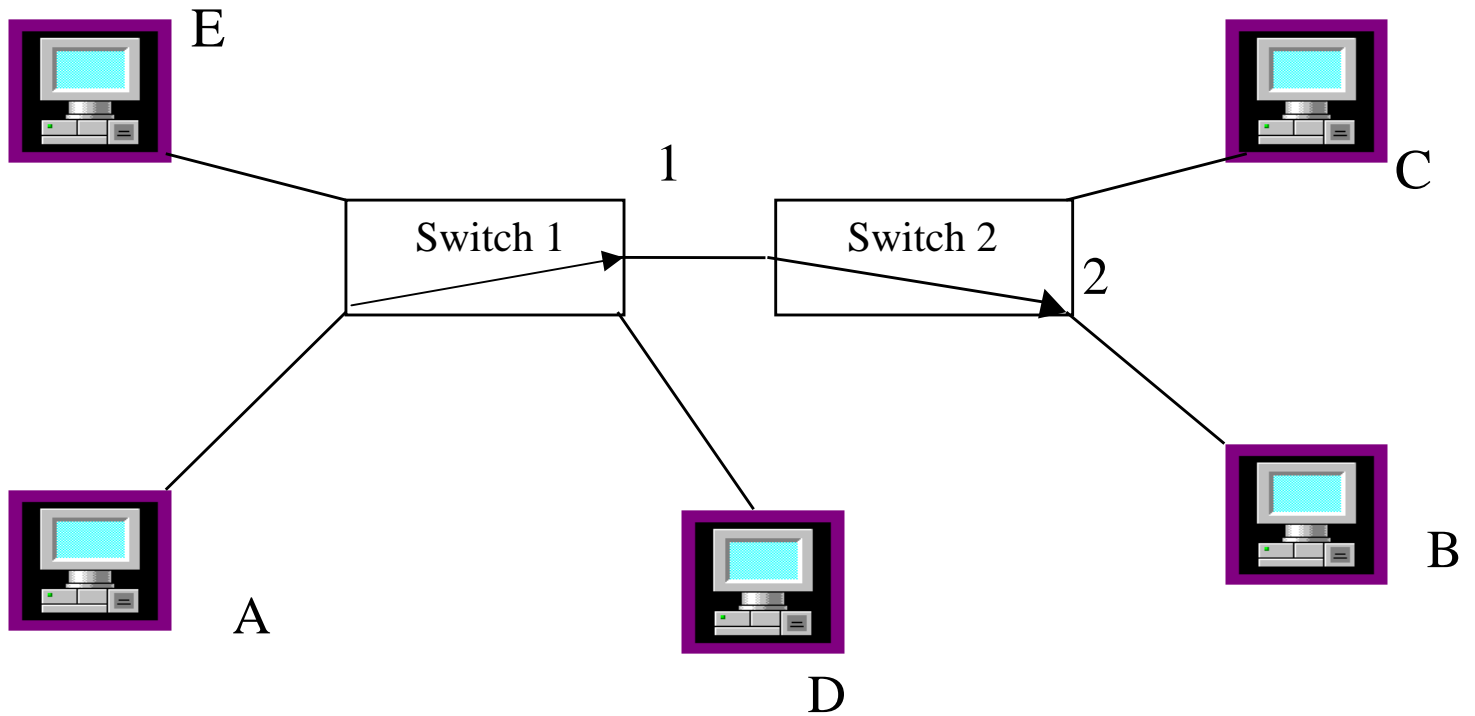


Figure 6.14

Packet Switching (A Virtual Circuit)

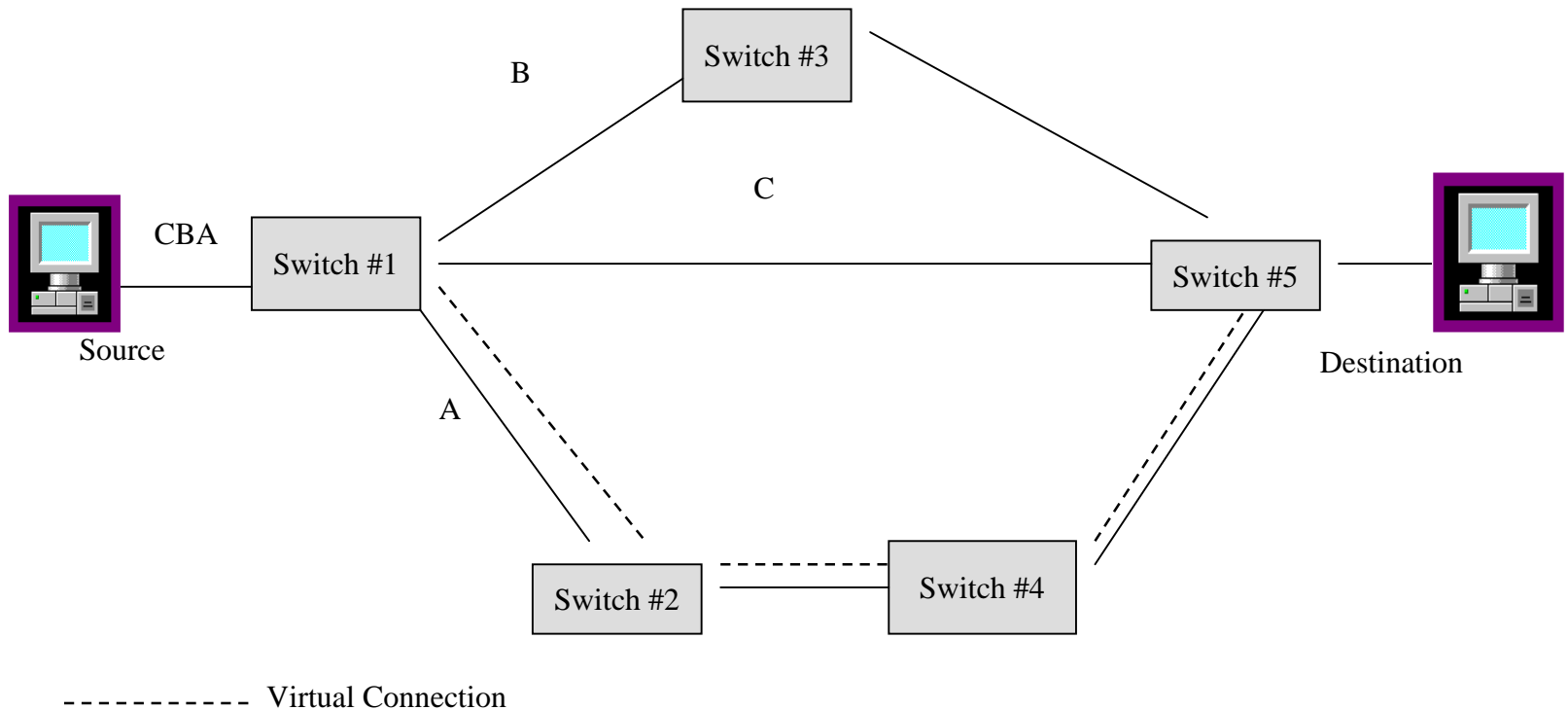


Figure 6.15