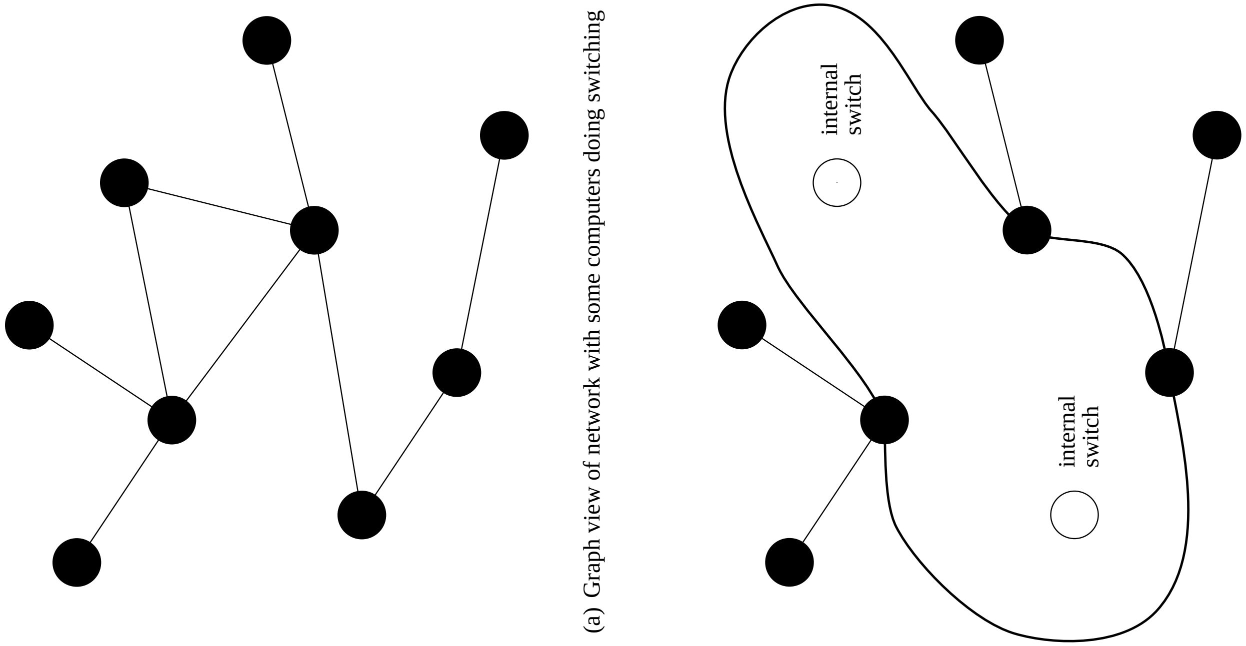
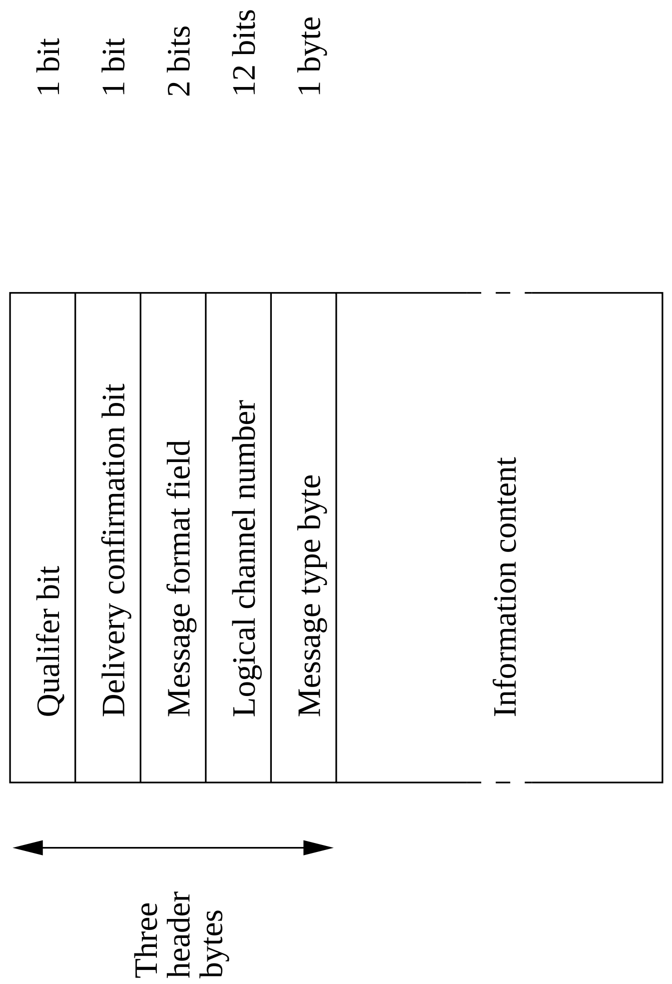
Two ways of viewing a network



(a) Graph view of network with some computers doing switching

(b) Black box view of network shown in (a)



Format of X.25 message

Header byte 1	1 byte
Header byte 2	1 byte
Information content	
Cyclic redundancy code (using CRC-CCITT)	2 bytes

Format of frame relay message

Bit	7	6	5	4	3	2	1	0
	Logical channel identifier						Comm/ resp	**0**
					FECN	BECN	DE	**1**

(a) Two-byte header - Bit 0 is the extended address bit

Bit	7	6	5	4	3	2	1	0
	Logical channel identifier						Comm/ resp	**0**
					FECN	BECN	DE	**0**
								0
								1

(b) Four-byte header - Bit 0 is the extended address bit

Examples of frame relay header format

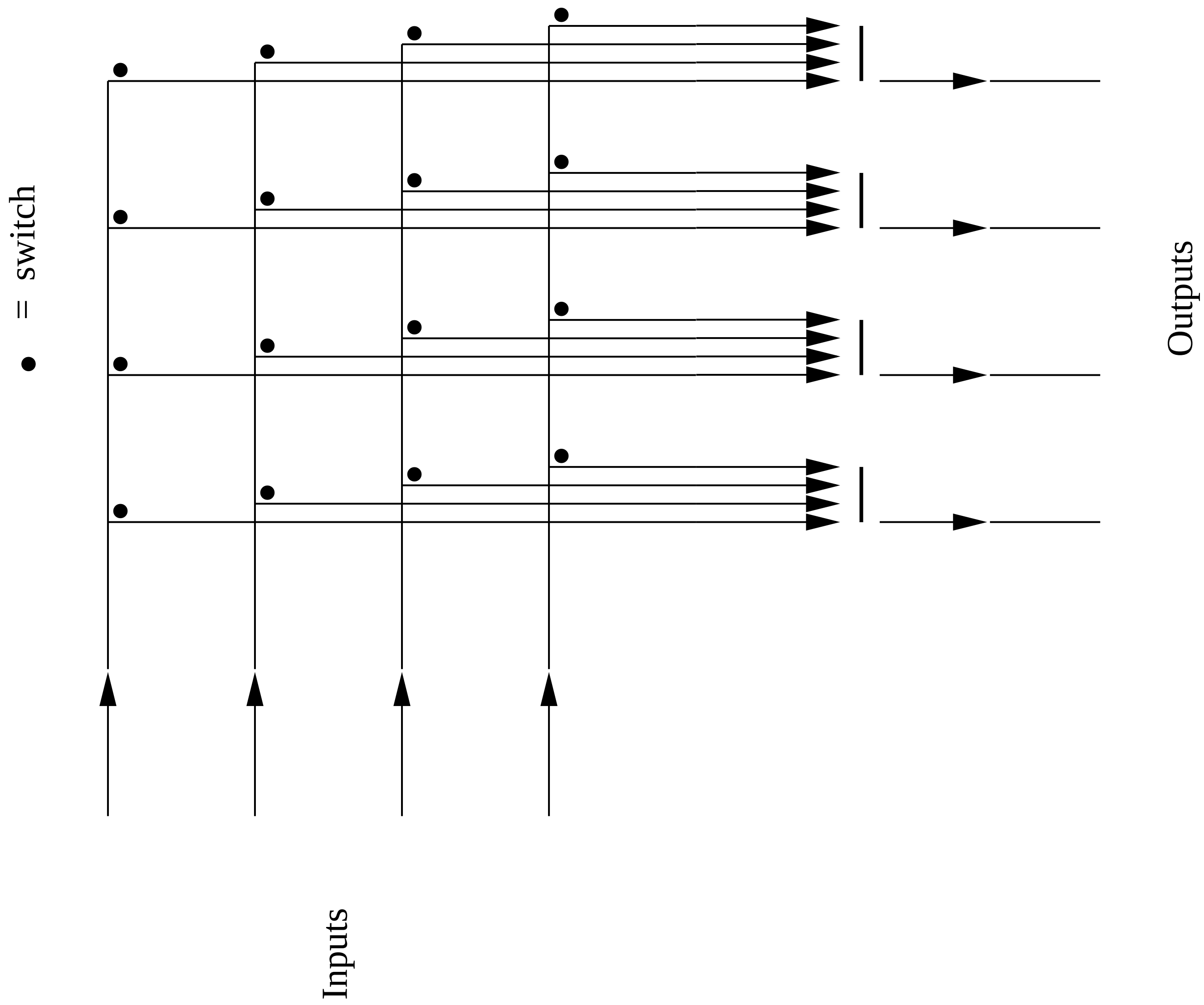
Virtual path identifier (VPI)	12 bits
Virtual channel identifier (VCI)	16 bits
Payload type	3 bits
Cell loss priority	1 bit
Cyclic redundancy code (using CRC-8 generator)	1 byte
Information content	48 bytes

(a) Format of ATM message used between switches

Generic flow control	4 bits
Virtual path identifier (VPI)	8 bits
Virtual channel identifier (VCI)	16 bits
Payload type	3 bits
Cell loss priority	1 bit
Cyclic redundancy code (using CRC-8 generator)	1 byte
Information content	48 bytes

(b) Format of ATM message used between computers and switches

Formats of ATM messages



Example of crossbar switch