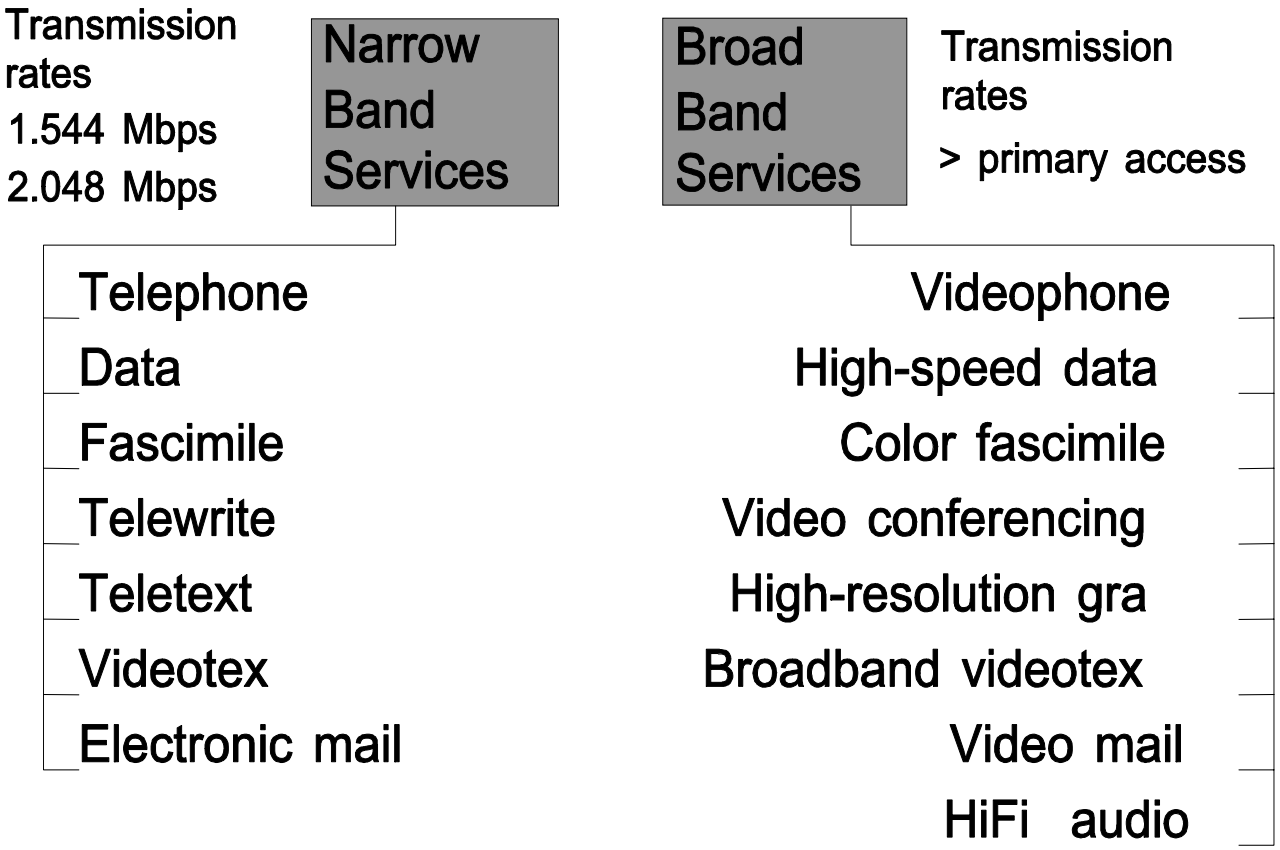
RECENT TRENDS IN TELECOMMUNICATIONS
Necessity for B-ISDN

a) *Broadband telecommunications*
   High transmission rates
b) *Multimedia telecommunications*
   Multimedia
   Integration of interfaces – A unified interface
   (terminal portability – higher utilization)
c) *Economical implementation of diversity of services*
   Traffic prediction problem
   Integration of services for economical reasons.

Today's Services



Transmission Rates

a) **"Basic Rate (Access) Interface – BRI" (2B+D)**

Total bandwidth: 160 Kbps,

2 B + 1 D channels: 2* (64 Kbps) + (16 Kbps) = 144 Kbps (available bandwidth to users)

144 Kbps + 16 Kbps (for network OAM) = 160 Kbps total bandwidth

2-wire cable

b) **"Primary Rate (Access) Interface – PRI" (23B+D) or (30B+D)**

Total bandwidth: 1544 Kbps (1,544 Mbps) bandwidth T1 (USA), or
2048 Kbps (2,048 Mbps) bandwidth E1 (Europe)

23*64 Kbps + 64 Kbps = 1536 Kbps (available bandwidth to USA users)

23B+1D signaling+1D synchronization : 23*64 Kbps +64 Kbps +8 Kbps = 1544 Kbps

30 * Kbps = 1920 Kbps (available bandwidth to European users)

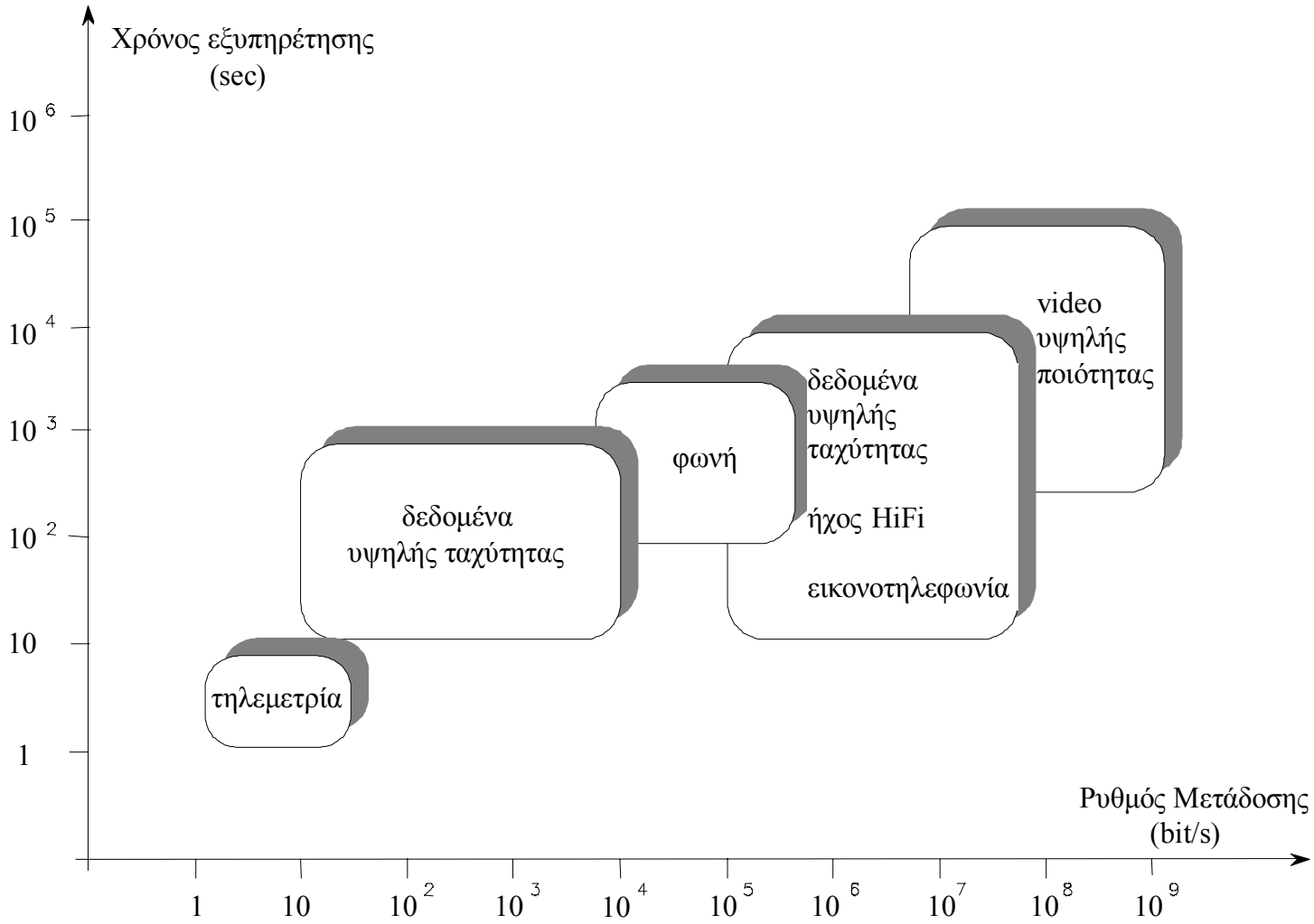
30B+1D signaling+1D synchronization: 30*64 Kbps+64 Kbps+64Kbps = 2048 Kbps

4-wire cable

Services (by ITU-T)

1) **Conversational** Service (interactive)
2) **Retrieval** Services (interactive)
3) **Messaging** Services (interactive)
4) **Distribution** Services:
   α) without user-individual presentation control (non interactive)
   β) with user-individual presentation control) (interactive).

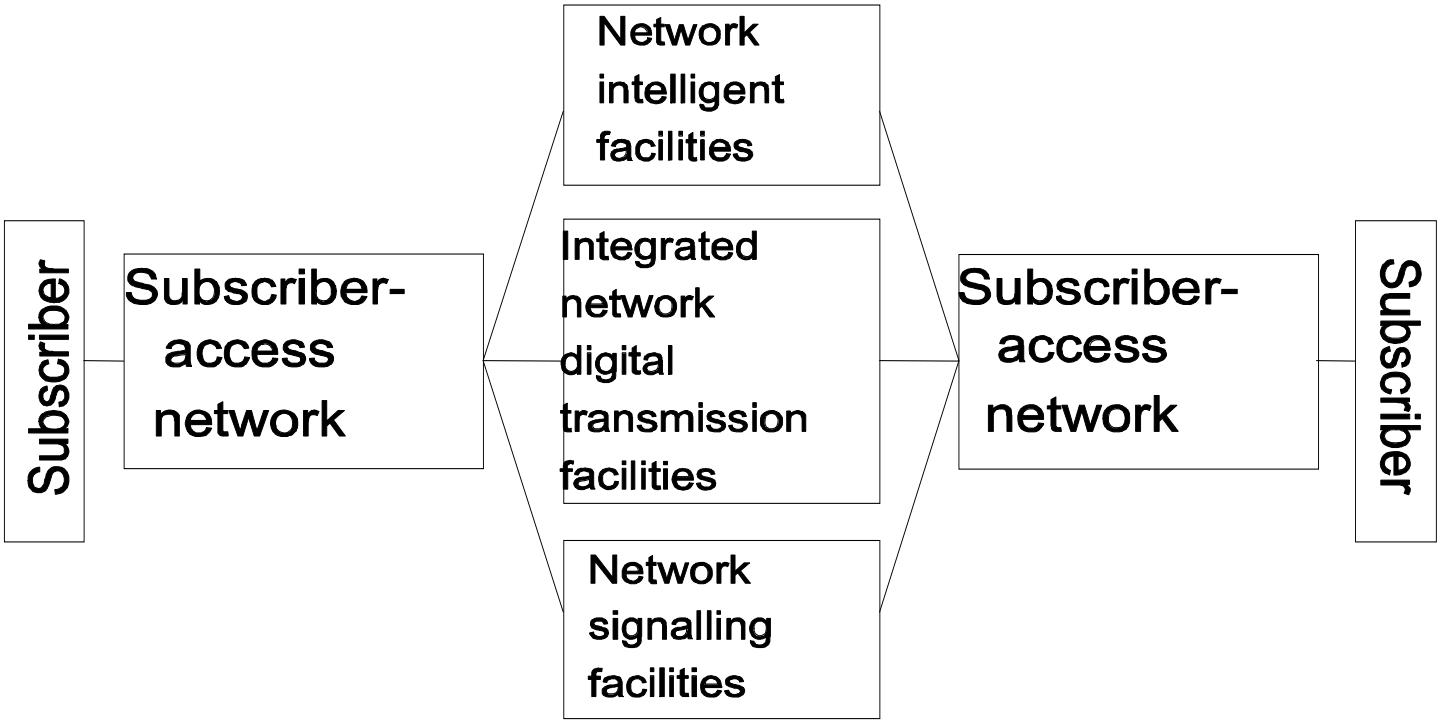
Diversity of service-classes



Examples of B-ISDN Services

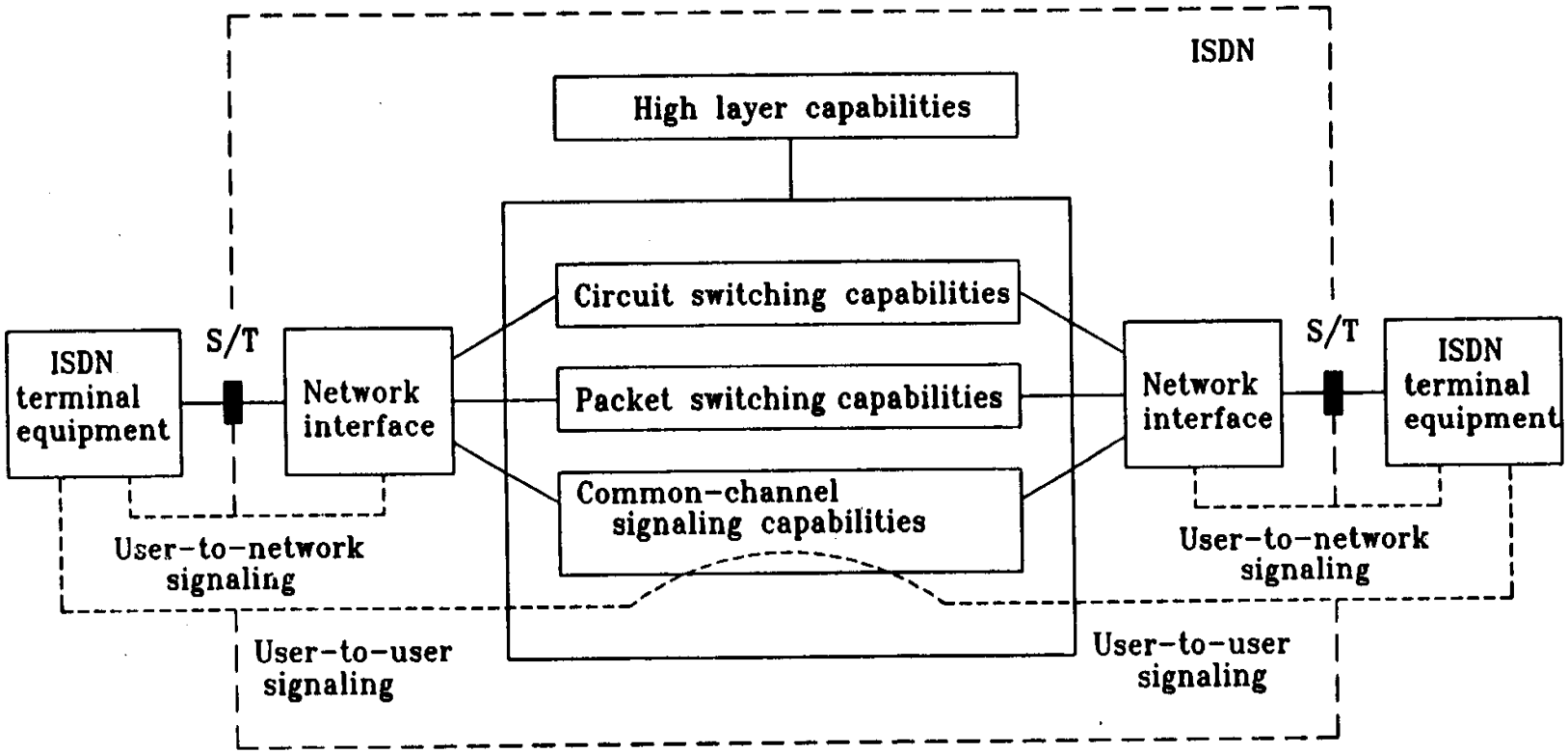
Type of information	*Examples of broadband services*
Conversational	
Moving pictures and sound	Broadband video telephony
	Broadband video conference
	Video surveillance services
	Video/audio information transmission services
Sound	Multiple-sound program signals
Data	High-speed digital information transmission
	High-volume file transfer services
	High-speed teleaction
Document	High-speed telefax
	High-resolution image communication services
	Document communication services
Messaging	
Moving pictures (video) and sound	Video mail service
Document	Document mail service
Retrieval	
Text, data, graphics, sound, still images, and moving pictures	Broadband videotex
	Video retrieval services
	High resolution image retrieval services
	Date retrieval services
	Document retrieval services
Distribution without user-individual presentation control	
Moving pictures and sound	Video information distribution services
Text, graphics, and still images	Document distribution services
Data	High-speed information distribution services
	Existing-quality TV distribution services
Video	Pay TV
	Extended-quality TV distribution services
	High-definition TV distribution services
Distribution services with user-individual presentation control	
Text, graphics, sound, and still images	Full-channel broadcast videography

ISDN CONCEPT



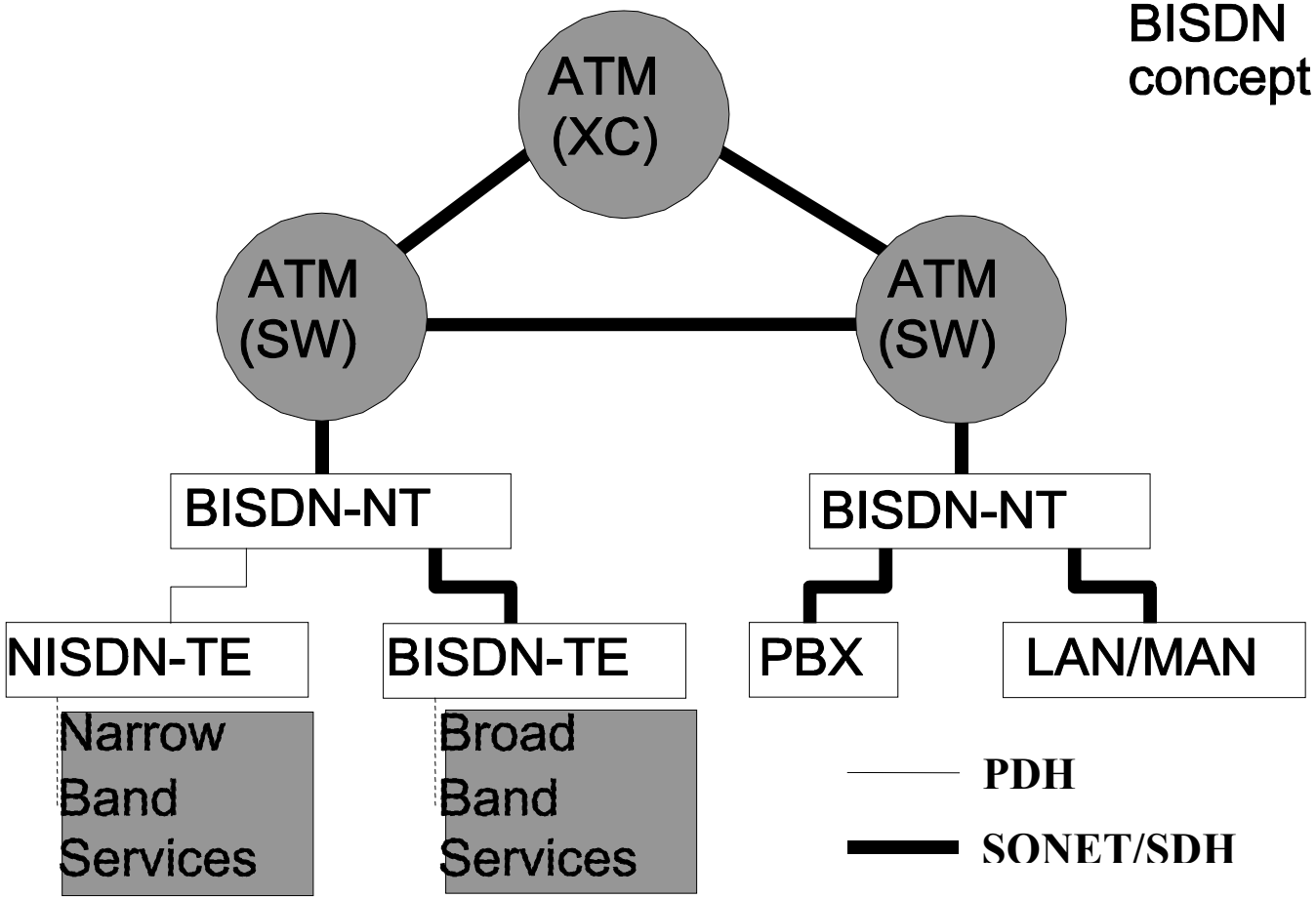
ISDN concept

ISDN ARCHITECTURAL MODEL

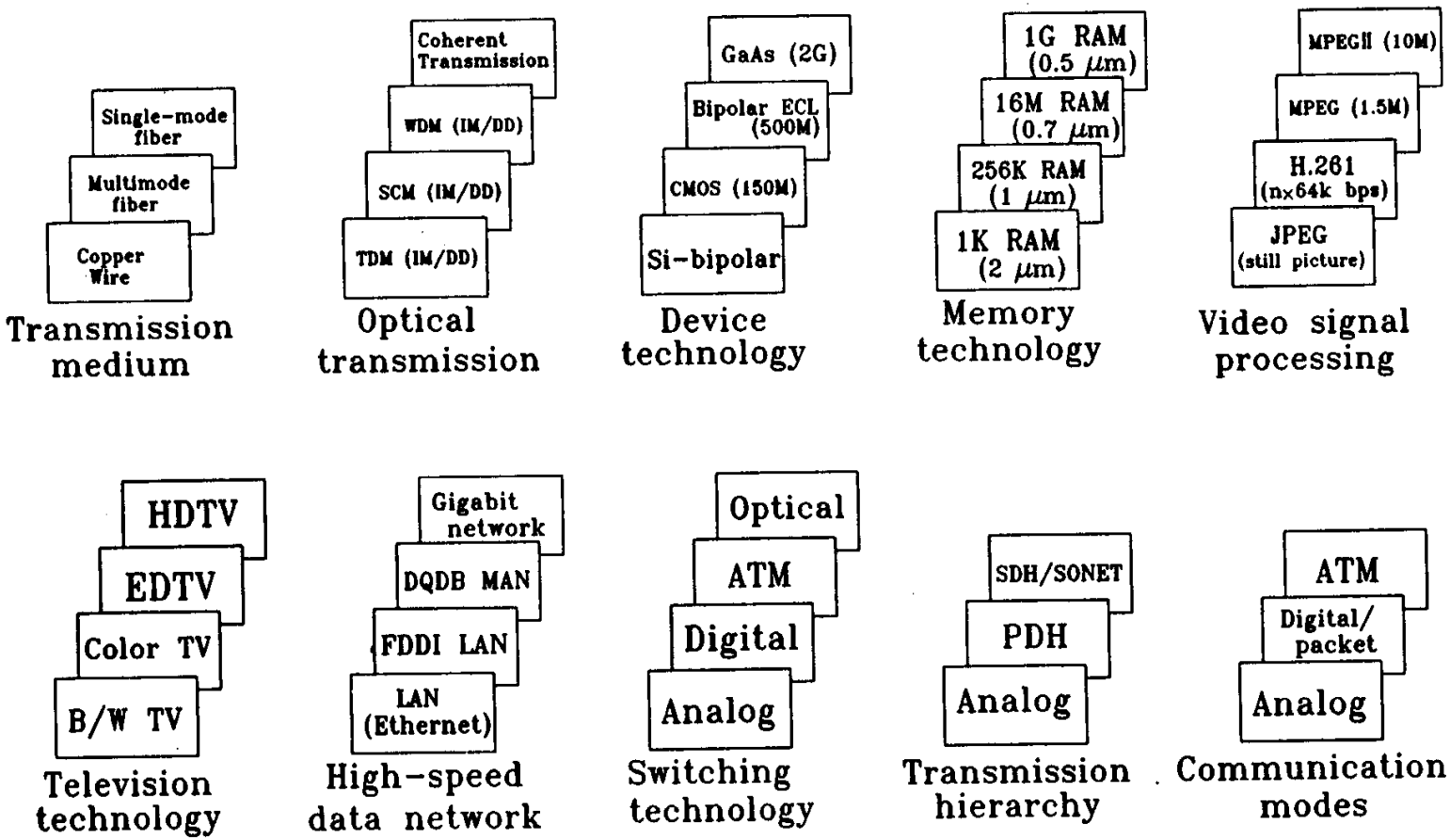


Basic architectural model of an ISDN.

B-ISDN CONCEPT

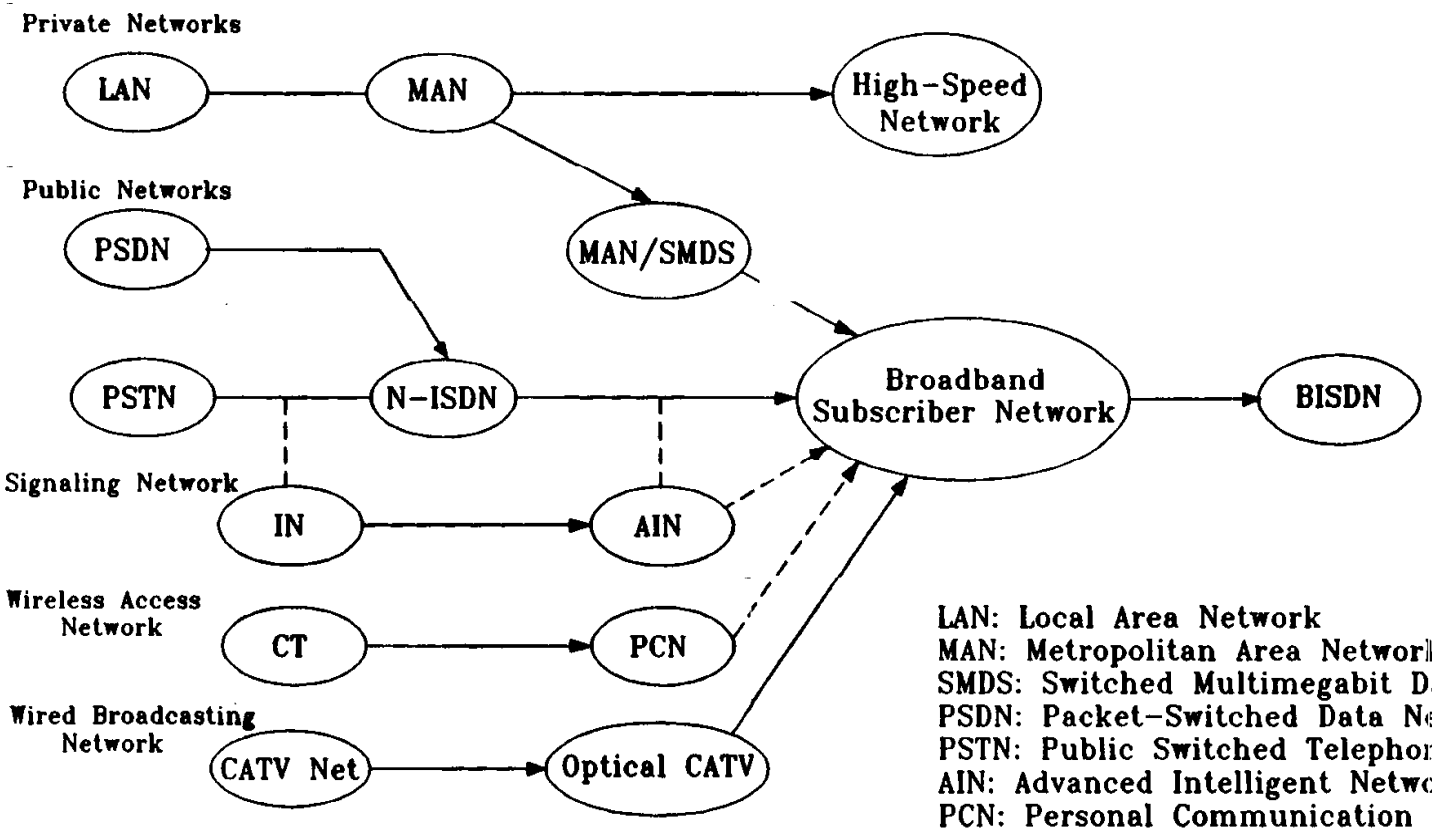


TECHNOLOGIES FOR B-ISDN



Technologies for broadband telecommunications.

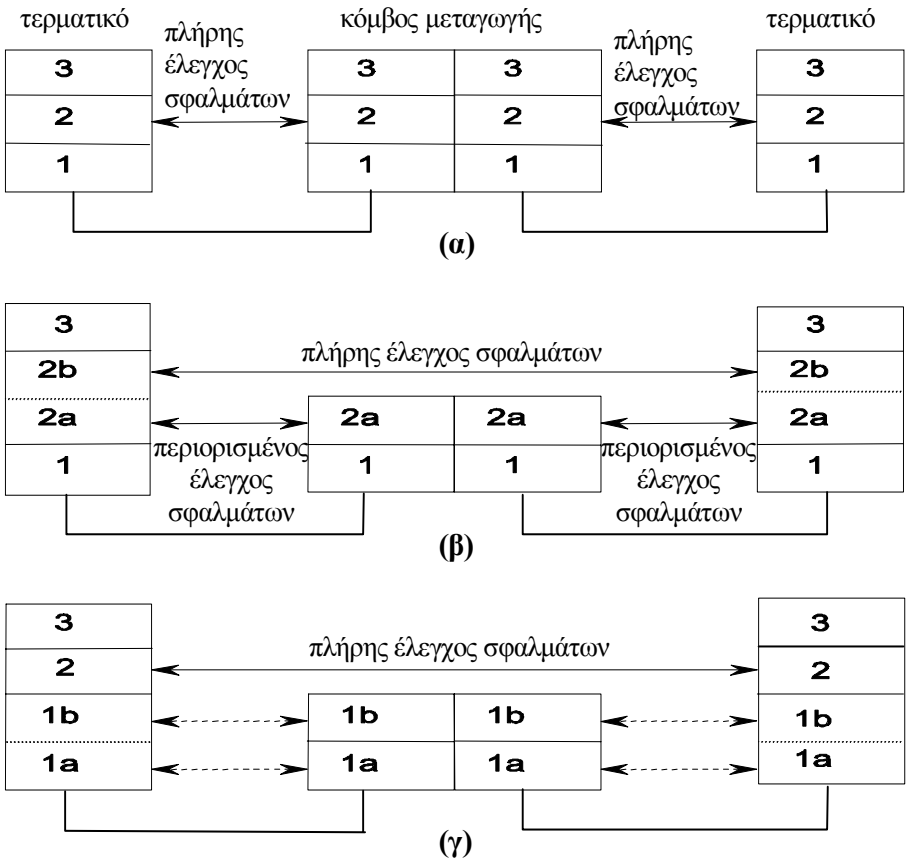
NETWORK EVOLUTION



LAN: Local Area Network
MAN: Metropolitan Area Network
SMDS: Switched Multimegabit Data Service
PSDN: Packet-Switched Data Network
PSTN: Public Switched Telephone Network
AIN: Advanced Intelligent Network
PCN: Personal Communication Network

Evolution of telecommunication networks

EVOLUTION OF THE NETWORK FUNCTIONS



	PS	FR	ATM
Επαναμετάδοση πακέτων	x	-	-
Καθορισμός πλαισίου	x	x	-
Έλεγχος σφαλμάτων	x	x	-