

Copper cables	
Coaxial cables	metal shield to protect data, EMI resistance RG-59, RG-6.
connectors	F-connector, BNC
Twinaxial	2 inner connectors
Serial	DB-9 or DB-25 with serial connector 9 or 25-pin D-subminiature, used for asynchronous serial communication
Twisted Pair	4 pairs twisted for EMI reduction, used for LAN, CAT5-CAT8
UTP vs STP	Unshielded vs Shielded Twisted Pair
Connectors	RJ11 -6pin (phone), RJ45 -8pin (Data)
Bandwith	theoretical data flow
Throughput	measured data flow
Straight-Through Patch cables	T-568B / DTE>DTE, DCE>DCE
Crossover cables	T-568B & T-568A / DTE>DCE, DCE/DTE
MDIX	electronic method on switches to simulate a crossover cable
Plenum cable	fire-retardant coating on UTP/STP cables for non visible locations

Cables CAT			
CAT	Base	Bandwith	Max distance
CAT3	10BASE-T	10Mbps	100m
CAT5	100BASE-TX	100Mbps	100m
CAT5e	1000BASE-T	1000Mbps	100m
CAT6	1000BASE-T	1000Mbps	100m
	10GBASE-T	10Gbps	55m
CAT6a	10GBASE-T	10Gbps	100m
CAT7	idem CAT6a with TERA connectors		
CAT8	40GBASE-T	40Gbps	30m

Fiber Media	
Fiber Optic Cables	uses light, immune to EMI, greater range, data-carrying capacity
SMF	Single-Mode Fiber long distance, 8.3-10µ Ø
MMF	MultiMode Fiber short distance (2km-), 50-100µ Ø
Connectors	SC (Stick and Click) - <i>APC: angled connector</i> <i>mnemot-ehcnics</i> ST (Stick and Turn) LC (Love Connectors) MTRJ (Mechanical Transfer-RJ) - <i>UPC: straight connector</i>
WDM	Wavelength Division Multiplexing combines multiple signals into one signal on different wave lengths

Transceivers	
Fiber pros	bandwith+, distance+, EMI protection, security+
Copper pros	cost-, easy to install, tools inexpensive
Media Converters	L1 device, convert electricity<->light
Transceivers	bidi (token), duplex (full/half)
ex (+Gbps) :	GBIC, SFP(4.2), SFP+(16), QSFP(40), QSFP28-(100), QSFP56(200)
Cable distribution	
MDF	Main Distribution Frame (root)
IDF	Intermediate Distribution Frame
Patch pannels	simplifies cable management with switches (front has RJ-45 blocks)

