

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 <b>asynchronous</b> 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), <b>RJ45</b> -8pin (Data)
Bandwidth	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

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

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

Cables CAT			
CAT	Base	Bandwidth	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



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Published 6th March, 2023.  
Last updated 28th March, 2023.  
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