

Network Components	
Client	end-user access
Server	provides resources to network
Hub	connects devices - rebroadcast data
Switch	idem but uses selective addressing (IP/MAC)
Wireless Access Point	(WAP) - wireless hub
Media	connecting media (cables, waves, electricity, ...)
WAN Link	DSL, Cable, leased lines, satellite, cellular, MW, ...

Wired Network Topologies	
can be	<i>physical</i> (cabling) or <i>logical</i> (traffic flow)
Bus	backbone cable, old, single collision domain
Ring	circular loop, singular direction <i>token ring</i> = devices wait their turn <i>FDDI</i> (fiber) = 2-counter rotating, redundancy
Star	connected to central device, SPOF!
Hub & Spoke	Star topology with WAN i.o. LAN (hubs)
Full-Mesh	redundant, everyone is connected, efficient, very expensive
Partial-Mesh	hybrid of Full-Mesh and Hub&Spoke

Wireless Network Topologies	
Infrastructure Mode	most common, centralized mgmt, uses wireless security control
Ad Hoc	P2P connections, no routers
Wireless Mesh Topology	Different type of nodes or devices, client-routers-gateways

Network Resources		
Client/Server	Def	uses servers to provide access to files, printers, etc
	+	centralized, easier mgmt, scalable
	-	high cost, dedicated resources, network operating system
Peer-to-Peer	Def	Peers share resources directly to others
	+	lower cost, no dedicated resource, no specialized system
	-	decentralized mgmt, inefficient for large NW, poor scalability

Network Geography		
PAN	Personal	bluetooth, cellphone, usb drive, watch
LAN	Local	limited distance, ethernet (802.3), WIFI (802.11),
CAN	Campus	connects several buildings, camps, MIL bases, schools
MAN	Metropolitan	up to 25-mile radius like city departments, community over a region
WAN	Wide	across country, world, using leased lines or VPN

Internet of Things (IoT)	
802.11 WIFI	operates infrastructure or ad-hoc
Bluetooth	low energy, mesh network, pairing sys
RFID	electromagnetic fields, ie badge reader
NFC	RFID but 4cm range, more precise
IR Infrared	in line-of-sight
Z-wave	short range, low-latency data transfer for home automation
Ant+	sensor data for remote control systems