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20 computer terms every Mac user should know


Wired and wireless networking

Magic is the word some people use to describe the ability to connect your computer and mobile devices wirelessly to the Internet. But other—and more specific—means and protocols include the following.

Ethernet: This wired standard is used in local computer networking (that is, in networked devices that are located in the same physical space and share a common router address). An ethernet connector looks like a large telephone plug; and like a telephone plug, it snaps into its host receptacle. The most common forms of ethernet

are 10Base-T, 100Base-T, and 1000Base-T (also known as *gigabit ethernet*). These forms differ considerably in speed. 10Base-T operates at a limit of 10 megabits per second (mbps), 100Base-T bumps that limit up to 100 mbps, and 1000Base-T offers a limit of 1000 mbps (or one gigabit per second).
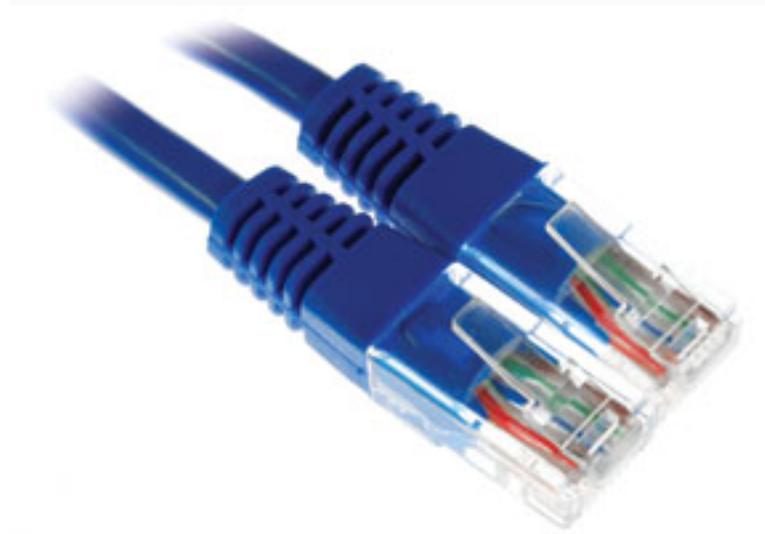
Ethernet connections are handled through Cat-5 and Cat-6 cables like this.

Ethernet can be faster than a Wi-Fi connection, depending on the devices you're using. If, for example, your Mac supports gigabit ethernet but a device it's connected to supports only 100Base-T, your Mac must move data between it and that device at the slower speed. The other advantage ethernet offers is range. You can string a very long ethernet cable that allows you access to a network where a Wi-Fi signal would have long since

petered out.

Wi-Fi: Wi-Fi encompasses any wireless local network that conforms to the IEEE 802.11 standard. And that means what, exactly? It means that if your computer or printer or iOS device and a wireless access point (sometimes referred to as a *hotspot*) support the standard, they can connect and exchange data. In some instances the interaction may entail moving data between one device and another on the same local network; in others, it may involve connecting to the Internet wirelessly.

The 802.11 standard has appeared in numerous variant forms, including 802.11a, 802.11b, 802.11g, and 802.11n. As the standard's last-letter designations move farther along the alphabet, speeds increase (as does range, in some cases). Wi-Fi can be less secure than an ethernet connection. With ethernet, someone needs to tap physically into a network to intercept data; but with Wi-Fi, the interloper only has to be in the vicinity (and have the means of intercepting and decrypting data, of course).

AirPort: This is Apple's name for its Wi-Fi

technology. When people talk about "turning AirPort off," they mean that they're turning off their Mac's Wi-Fi.

Bluetooth: Another wireless data transfer standard, Bluetooth has a shorter range (about 30 feet) than Wi-Fi. Bluetooth is commonly used to connect peripherals such as keyboards, mice, trackpads, headphones, speakers, other nearby computers, and some portable devices to a Mac.

Bonjour: Bonjour is Apple's name for its zero-configuration networking scheme. It consists of a complicated series of technologies that are designed to remove the complication from local networking. If you've ever set up a wireless printer, fired up your Mac, and had your computer offer to connect itself to that printer without your having to run through a bunch of complicated steps, you've benefited from Bonjour.

3G and 4G: 3G and 4G (the G stands for *generation*) are a wireless scheme that cellular networks—the networks that your mobile phone carrier relies on—use to move information around. 4G is supposed to be faster than 3G, but it

isn't always.

In the first place, there are several different flavors of 4G—including HSPA+, WiMax, and LTE. And just because a network is termed *4G* doesn't mean that it will be speedier than a fast 3G network. For example, Apple issued an iOS update that caused certain iPhone models to display '4G' in the menu bar when, just hours before, the menu bar read '3G'. The network was no faster, but AT&T had defined its HSPA+ network (versus plain-old HSPA) as 4G, even though that designation promised no speed increase.

Network hardware

Sufficient as it may usually be to refer to the thing that makes your wireless network work as "that blinking box over there," a time will probably come—when you're on the phone talking to a member of your ISP's support team, for instance—when you'll need to know what that box is called and what it seems to be doing. Let's name names.

Broadband modem: A broadband modem is the box that should be connected to the cable that runs through your wall. If you have a DSL

connection, it will be a phone line. If you have a cable connection, it will be…well, a cable. And if you have a fiber-based setup, it will be another cable. The box communicates with your Internet Service Provider. If it's switched off, no Internet for you (unless you're leeching it from your neighbor's Wi-Fi network). If a support person tells you to "reset your modem" by unplugging it, this is the box to unplug.

A broadband modem generally has several lights—some of which will blink. They include a power light, a status light, and a LAN (local area network) light. Get to know what these lights look like when your connection is working properly. If a green light suddenly turns red, you have a problem.

Router: A router is your local network's traffic cop. If you have a Mac, iPhone, iPad, Apple TV, and smart TV connected to your network, the router ensures that the right data gets sent to and from the right device. In most cases it handles this task by assigning individual addresses to each device. Routers can be wireless or wired. An AirPort Base Station, for example, is a wireless

router.

Apple's new AirPort Extreme Base Station is both a router and a switch.

"But wait!" you interject. "I don't have two boxes, I have just one. And my network works perfectly well!"

Correct. And it does so because you have a modem that additionally includes a router. Not all of them do.

Network switch: Suppose that your cable company has supplied you with a modem/router combo box. This box has a single ethernet output port, which you can use to connect your Mac to the network. But wait—you also have an Apple TV and a smart TV that you'd like to use with that ethernet connection. What do you do?

You purchase a network switch (in this case, an *ethernet switch*). The switch also functions as a traffic cop: If the router sends information to a particular address—the address of your Apple TV, say—that information goes only to the Apple TV and not to the rest of your gear. (An *ethernet hub*, a device rarely seen these days, does something similar; however, it doesn't perform any traffic-routing duties. All data sent to the hub's input gets transmitted to everything attached to the hub. This makes for slower communication, along with the occasional data collision.)

Switches come in various configurations—from four to umpteen ports—and speeds. Most of today's switches support 10/100/1000-mbps connection speeds. Apple's AirPort Extreme Base Station includes a built-in switch that handles the three LAN ports.

Ethernet switches offer a lot of wired connectivity.

I mentioned earlier that the wired network speeds you can achieve are only as fast as the two devices that are communicating—two Macs on your network, for example. Another benefit of a switch is that it allows devices to operate at their optimal speed when talking to each other. For example, if you want to transfer data between two late-model Macs that have ethernet ports, you'll get gigabit ethernet speeds as these computers support this standard. The switch won't demand that they slow down simply because a 100Base-T device is also attached to the network.

And there are more

Geeks don't have a lot going for them other than brains, good looks, and a fervent love of acronyms. That love has created enough technical terms to fill a large and weighty tome. Fascinating though it may be to drop such terms in casual conversation, they're generally not helpful in day-to-day discourse. What I've defined should help make some common geek gobbledegook clearer.