



## INTERNET FOR BUSINESS: WHAT'S YOUR TYPE?

**Business Internet is no longer a one-size-fits-all consideration. Here's a quick guide to finding your match.**

Every business needs an Internet connection that works. In fact, for most of us, it's the essential lifeline to success: Everything from ordering supplies to billing customers to checking the bank account balance happens over a fast data network.

But choosing the right business Internet option can be...complicated. Or at least trickier than you might think. These days, there's more than one flavor of high-speed Internet available to business owners. That's a good thing – competition and choice makes everybody better. But an informed, look-before-you-leap approach is probably a smart way to go. After all, nobody wants to start all over again a few months after discovering your Internet connection doesn't have the muscle for what you need.

With that caveat in mind, here's a way to think about business Internet services. We're arranging things from bottom to top, with newer, higher-performance options listed toward the end. Ready? Let's dive in.



## T1 lines

If you're younger than, say, 40, congratulations. You've probably never had to wrangle a T1 connection.

These were once the gold standard for what was called "wide-area networking," or the business of connecting to the outside world to send and receive data. Don't get us wrong: T1s once had their place. They were fast for their day, clocking in at just under 1.5 megabits-per-second. Compared with baud-speed predecessors, they were the cat's meow. But they were also expensive to maintain, often costing thousands of dollars per month. And their fixed-rate speed has since been leapfrogged many times over by newer, fleeter options (read on). Bottom line: Probably no longer a viable solution. Even though a bunch of these lines are still out there chugging away, we've since figured out much better ways to go online. If you're still using a T-1, it's likely time to move on.

\$\$\$\$\$  
Expensive to  
maintain

& **1.5 MB**  
**PER SECOND**



## DSL

It stands for "digital subscriber line," and for a while in the early 2000s, it was all the rage as telephone companies stormed the high-speed Internet market.

DSL is still offered across much of the U.S. business community, but it's a buyer-beware situation. Some DSL connections can zip their way to you at estimable data rates. But that's usually the case only for businesses located near a point of distribution called a Central Office. That's the place where signals hop onto the legacy "twisted-pair" phone network for the final ride to your address. ("Twisted pair" may sound like a description for troublemaking twins, but it's actually an old-school reference to those thin copper wires that connect to telephones). The problem here is two-fold. First, the further away you are, the more the signal degrades. Second, you probably have no idea where your nearest telephone Central Office is in the first place. That's why DSL is all over the place, speed-wise. It's also why we're seeing DSL lines frequently displaced by other technologies. If you're considering DSL, make sure to conduct a speed test at your locations beforehand. That way you'll know exactly what you're getting into.

**OVER THE  
PLACE,  
SPEED-WISE**



Conduct  
a speed  
test before  
purchasing



## Satellite Internet

Space-age technology that works... with some severe limitations.

Satellite broadband is generally suited for more rural business locations where wired networks don't reach. In that regard, it's an essential, vital option for keeping remote locations connected. Data rates can be decent, too, with premium plans delivering downstream speeds of up to 50 Mbps in some instances. The catch – and it's a big one – has to do with how much data you can use. In order to distribute limited capacity across thousands of user sites, providers resort to imposing monthly allocations of less than 100 gigabytes per month, even for so-called "unlimited" plans. Use more than your allotment, and you may have to pay a premium or see your performance degrade. In almost all cases, satellite is a last-resort option when higher-performance Internet services aren't around.

Monthly allocations of  
less than 100 gigabytes  
per month

**50MB**  
**PER SECOND**



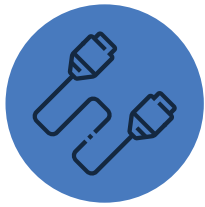
## Fixed Wireless

The new kid on the block brings some impressive attributes in terms of data speeds and affordability.

Fixed wireless uses FCC-allocated airwaves as a sort of virtual data highway, meaning the only wires involved are the cables snaking around your own office or business location. The record so far is spotty, however, with some fixed wireless networks able to muster only single-digit megabit-per-second speeds, and others boasting much higher rates. For businesses that have a clear line-of-sight connection to a transmitter, the picture brightens considerably, making fixed wireless a nice alternative in some settings. Still, it's important to make sure you see a real-life demonstration at your specified location before committing to this relatively new solution.

For businesses that  
have a clear line-of-  
sight connection to a  
transmitter

**AFFORDABILITY**  
**=**  
**&**  
**IMPRESSIVE**  
**DATA SPEEDS**



## Cable

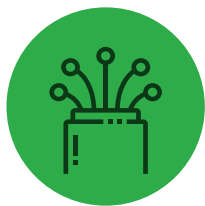
The name is a holdover from an earlier era, but it has stuck.

In reality, “cable” telecommunications networks involve only a limited span of high-capacity coaxial cables. The rest of the network is infused with fiber optic lines delivering massive amounts of data. That’s why cable has emerged as a mainstay solution for small and medium-sized businesses today. Cable networks perform well for two reasons: First, they’re wicked fast. Providers typically deliver data rates that are measured in the hundreds of megabits per second (take that, T1 lines!) and unlike DSL, the signal doesn’t degrade because of physical distance. The second attraction is future-proofing. Cable companies have perfected techniques for retrofitting their networks into ever-shrinking “nodes,” or localized points of signal distribution. If demand reaches a peak in a certain neighborhood or business district, providers dispatch technicians to divide the traffic into ever-smaller territories for their final run to your business over a radio frequency (RF) cable network. This so-called “node-splitting” handiwork is what keeps raising the bar, performance-wise, and it’s a key enabler of the new “Gig” network – capable of hurtling data down the pipe at up to 1 gigabit per second. For millions of small businesses, cable’s the way to go, now and into the future.



Signal doesn't  
degrade because of  
physical distance

& **1GIG**  
PER SECOND



## Fiber-optics

If you're ready to step up to the Internet big-time, here are your friends.

Fiber is pretty much what the name suggests. An optical fiber strand conveys information at nearly the speed of light, and it lands at or somewhere near your business doorstep. Here, two flavors prevail.

- ✓ **Dedicated Internet Access (DIA).** Your bandwidth is yours, and yours alone. Providers literally rope off slices of dedicated spectrum – lanes on the electronic highway – that only your data gets to travel. That translates to newfound flexibility, because you can add bandwidth as you need. Another bonus that's growing in importance: You have access to "symmetrical" bandwidth, meaning your traffic flows just as fast upstream – from your business to the cloud and other locations – as it flows downstream, to your own servers, PCs and devices. For businesses that traffic in large data streams (think video, multimedia, radio-imaging files and cloud computing), having symmetrical capability is big. DIA circuits aren't available everywhere just yet, but where they are, they're hard to beat.
- ✓ **Passive Optical Network.** A sort of best-of-both worlds solution that's increasingly popular among small and mid-sized businesses. Like DIA, PON uses fiber to distribute signals deep into the network. But instead of connecting a single end user directly to a dedicated line, an optical signal splitter (the "passive" part of a PON network) divides the fiber bandwidth among several business locations. The resulting economies of scale are hard to match, as PON networks often end up rendering some of the most attractive cost-per-bit calculations anywhere.

These two options, Dedicated Internet Access and Passive Optical Networks, render data rates that enable you to download huge data files in seconds, conduct live video conferences with astonishing visual resolution, and run tons of bandwidth-hungry applications at the same time. But speed is just one attribute. Another differentiator has to do with consistency. You've probably noticed that network speeds at home or at your business can vary depending on what time of day it is, or how much contention is happening on the RF part of the network. Fiber-powered circuits, in contrast, leverage the enormous carrying capacity of optical networks all the way to the end point. So whether your fiber line extends straight to your doorstep (DIA) or is dispersed to serve several nearby locations (PON), you're reaping the benefits of the world's most powerful data communications infrastructure. For the most part, fiber networks historically have been optimized for large enterprises that conduct huge amounts of remote, in-the-cloud computing, around the clock. But steady price declines and newer technologies are increasingly making fiber an accessible choice for smaller businesses, too. And as more businesses start to run more computing applications from the cloud, fiber looks better than ever to connect instantly to remote data centers.

✓ Run multiple high bandwidth applications

✓ Live video conferences

✓ Download huge data files





## WHAT TO DO NEXT

If you ask around about business Internet options, these are some of the labels you're likely to hear. To figure out where you fit on the continuum, it helps to consider what data applications you tend to use most often. Sending email messages, maintaining your business website and conducting online banking won't demand as much bandwidth oomph as downloading large multimedia files, presenting a high-resolution video conference, or transferring massive databases to and from the cloud. Asking your provider for guidance is the way to go. An experienced representative can recommend a proper alignment between what your business does, where the network fits in, and what the future might look like. The good news is that thanks to intensifying competition, technological advancement and a rising market, there's more choice than ever in how business gets done – and where connectivity can take you.

Type of service	Widely available	Unaffected by distance	Double-digit Mbps speeds	Gigabit-per-second capability	Dedicated/private bandwidth	Symmetrical data	Guaranteed data rates	Backed by SLA performance guarantees
T-1 Lines	✓	✓						
DSL	✓		✓					
Satellite broadband	✓		✓					
Fixed wireless			✓					
Cable	✓	✓	✓	✓				
Dedicated Internet Access		✓	✓	✓	✓	✓	✓	✓
Passive Optical Network		✓	✓	✓		✓		