Business Internet Connections: Finding the Right Fit

Two decades ago, businesses had only one choice for an Internet connection: dial-up. They couldn't be on the phone and on the Internet at the same time unless they purchased two separate phone lines; they primarily used the Internet for email and browsing the "World Wide Web;" and they purchased software for critical business applications and installed it on employees' computers.

It almost seems **unbelievable, right?**

Fast forward to today's business environment, which is heavily dependent on Internet connections. You're using the Internet for nearly every aspect of your operations: advertising, updating your corporate website, communicating and collaborating using email and Voice over Internet Protocol (VoIP) and/or unified communications solutions, paying bills, delivering customer service and using your web-based, mission-critical business applications.

The **stakes are high**, too: without a secure, reliable network, your business operations can come to a screeching halt for the average of the one to five hours that it takes most businesses to find and resolve a connectivity issue once it's reported.[1] That's lost productivity for employees, who you're still paying, lost sales and, overall, a bullet to your bottom line.

But, with all the different types of Internet connections available, it's hard to decide which your business needs. Add on the extra stress of figuring out how much bandwidth you'll need based on your business activities, and it seems even more of a herculean task to find the best fit.

Read on to learn more about the types of Internet services, how to determine your business bandwidth needs, and other factors to keep in mind as you begin your search.

Your Guide to Business Internet Services

Cable

Cable Internet delivers high-speed Internet access through cable television lines. This type of connection uses a cable modem and a coaxial cable to transmit data into your business.

- Average download speed: Up to 300 Mbps, Average upload speed: Up to 10 Mbps

- Ideal capacity: 1-35 users

- Pros: Fast speeds at affordable prices, Performance isn't reliant on distance from the provider

- Cons: Limited availability, Susceptible to electromagnetic interference, Shared connection will negatively affect speeds particularly during peak usage times, Speed limitations due to dated technology

DSL

Short for digital subscriber line, DSL allows for high-speed Internet through use of copper telephone wires. Unlike dial-up, DSL uses a frequency that lets phone and Internet data transmit simultaneously without interference.

- Average download speed: Up to 100 Mbps, Average upload speed: Up to 8-10 Mbps

- Ideal capacity: 1-20 users

- Pros: Widely available, Affordable prices, Less prone to speed variations due to individual lines connecting each business

- Cons: Sensitivity to distance from provider, Susceptible to electromagnetic interference, Speed limitations due to dated technology

Fiber

Fiber Internet uses light passing through glass tubing, called fiber-optic cables, to transmit data. These connections use fiber cables all the way to your business location, enabling the fastest speeds on the latest technology.

- Average download/upload speed: Up to 1 Gbps (1,000 Mbps) with the opportunity for faster speeds in the future

- Pros: Fastest download and upload speeds option, Most reliable, Resistant to electromagnetic interference

- Cons: Limited availability, Possibly longer installation time, Potentially higher one-time costs for installation

Dedicated Internet

Dedicated Internet can be delivered through a variety of circuits, such as fiber, ethernet over copper, fixed wireless and so on. The biggest difference between dedicated Internet and other types is that it provides a private connection, making it more common in businesses that must meet compliance requirements.

- Average download/upload speed: Up to 1 Gbps

- Pros: Private connection gives you more security, Guaranteed bandwidth, Symmetrical upload and download speeds, SLAs

- Cons: Costlier than shared connections

Satellite

Similar to television, satellite Internet uses a dish or antenna to send and receive data from an orbiting satellite.

- Average download speed: Up to 25 Mbps, Average upload speed: Up to 3 Mbps

- Pros: Sometimes the only Internet option for rural areas

- Cons: Often too slow for business use, Unreliable and susceptible to outside elements, More expensive

Fixed wireless

Fixed wireless Internet uses a dish or antenna to send and receive radio signals from a nearby transmission tower.

- Average download speed: Up to 100 Mbps, Average upload speed: Up to 5 Mbps

- Pros: Sometimes the best option for rural areas, Can provide equal to or faster speeds than traditional broadband, which has limited availability in rural areas

- Cons: Limited availability, Needs clear line of sight to transmission tower for best results

Mobile hotspot

Mobile hotspots give you an Internet connection through use of a cellular data plan. It creates a Wi-Fi hotspot — either built into a smart device or through a free-standing device — that allows any Wi-Fi enabled device within a certain distance to connect.

- Average download speed: Up to 3 Mbps, Average upload speed: less than 1 Mbps

- Pros: Allows for mobility

- Cons: Expensive, Data caps that you can typically go over if you're doing anything more than browsing or using your email

Dial-up

Dial-up provides an Internet connection through copper telephone wires. Unlike DSL, dial-up does not allow for voice and Internet data to be transferred simultaneously.

- Average download speed: Up to 56 Kbps (or 0.056 Mbps), Average upload speed: Up to 6 Kbps (or 0.006 Mbps)

- Pros: Most affordable

- Cons: Far too slow for a business Internet connection, Obsolete, Doesn't allow for simultaneous phone and Internet use

Now that you're aware of all the available Internet services and their download and upload speeds, it's time to turn your attention to your business needs, namely your bandwidth. Used interchangeably with Internet speed, bandwidth refers to the measurement of how fast data can be sent over a wired or wireless connection.

Calculating your bandwidth needs can also help guide you to what type of connection you might need. After all, you don't want to pay for more than what you actually need, and, on the other hand, you don't want a slow connection that will cut into employee productivity, sales and your bottom line.

You likely already know that your bandwidth will depend on the size and nature of your business. But where do you even begin trying to tally up all those activities your employees will be carrying out online?

Take a look at the chart below to get a better understanding of where some of your business activities would fall. Note that the bandwidth consumption numbers are generalizations for an office up to 10 employees.

Light Usage (5-10 Mbps)

☑ Basic Email Operations   ☑ Basic Web Browsing

Moderate Usage (25 Mbps+)

☑ Email   ☑ Web Browsing
☑ VoIP Services   ☑ Video and/or Web Conferencing

Heavy Usage (50 Mbps+)

☑ Email   ☑ Web Browsing
☑ VoIP Services   ☑ Video and/or Web Conferencing
☑ Online Backup Solutions   ☑ Cloud-based Business Software
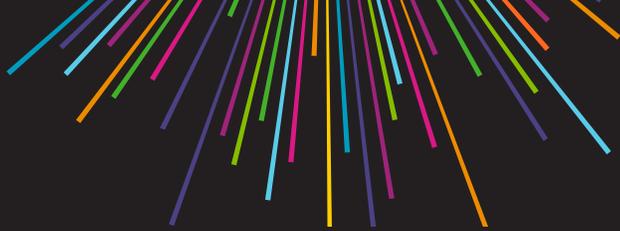
You'll also want to factor in which activities will be running simultaneously, along with the number of connected devices attached to your business Internet connection. Note that nearly two-thirds of employees are now using two or more devices at work.[2]

When You Need to Consider Networking Solutions

There are two instances when you'll want to consider networking solutions:

- ⌃ if you have more than one business location or

- ⌃ if you have remote employees.

If your business is heavily dependent on web-based software, or cloud applications, and will need to connect multiple business locations, then SD-WAN would best complement your business Internet service. As NetworkWorld noted, "As the cloud enables businesses to move faster, an SD-WAN architecture based on business intent is key to ensure success." With an SD-WAN solution, IT leaders can set routing policies based on your mission-critical applications, ensuring the utmost performance of those cloud-based applications; automatically set up end-to-end encryption for secure connectivity; and monitor app performance and reroute traffic in real time, giving you visibility and control through centralized network management.

Alternative solutions to connect all your business locations are a Multiprotocol Label Switching (MPLS) network using Virtual Private Networks (VPN) or a hybrid of SD-WAN and MPLS. Before we go through each, let's talk a little bit about Internet routing and how that works.

Think of Internet routing as though you're mailing and tracking a package. When an Internet router receives a piece of data (an IP packet), the router only knows the end destination. There aren't directions on how to get it there, so each router has to decide where to send the data next, using routing tables, until it reaches the destination. Each of the stops along the way can lead to a slower connection and poor performance, particularly for certain real-time applications that require quality of service (QoS), like VoIP or video conferencing.

Now, let's see how each of these three networking solutions can help mitigate those issues for all of your business locations:

MPLS with VPN: An MPLS solution provides a private and secure connection that moves data more efficiently by using shorter and simpler routing and by labeling the IP packets with priorities, like QoS, reducing latency and improving performance of voice and video communications.

MPLS Label added to IP Packet

MPLS packet switched across network

MPLS Label removed at destination

IP Packet

Switch Point
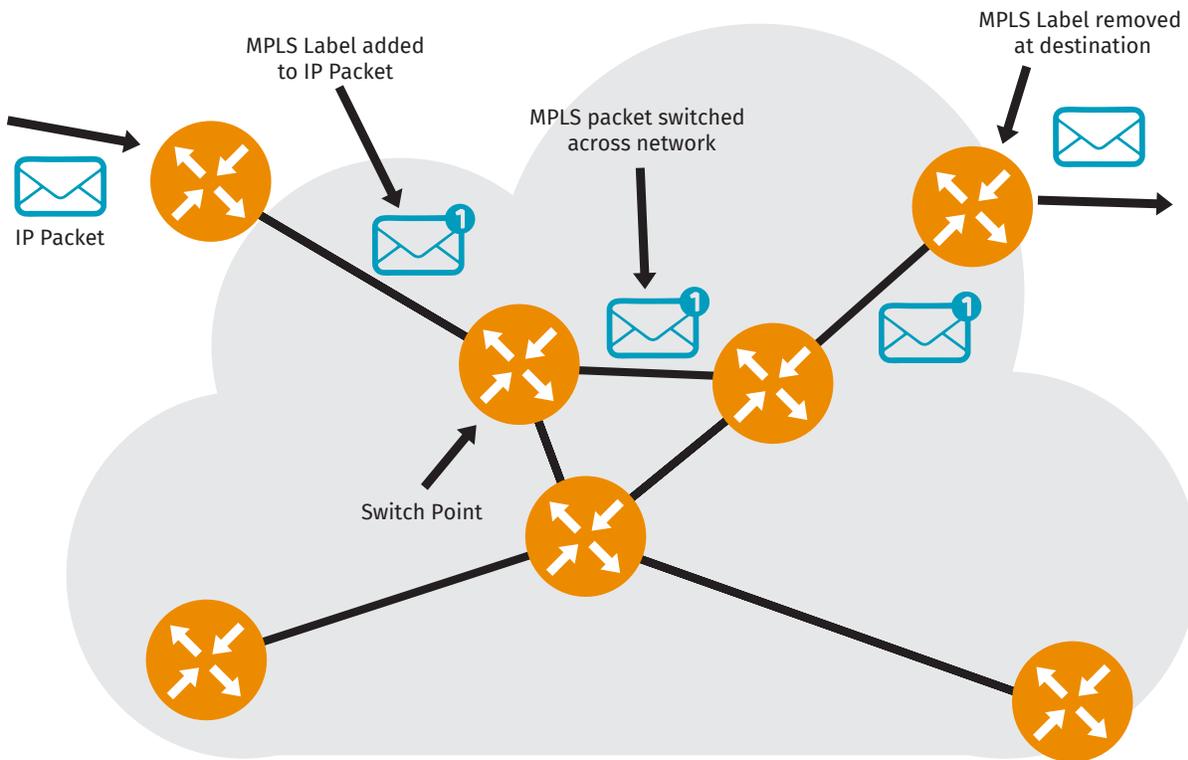
SD-WAN: SD-WAN allows a business to connect multiple locations securely using less expensive broadband and cellular connections. This solution then intelligently routes network traffic through the best possible path based on the priorities and rules you have set. It also includes built-in security measures by creating a VPN on top of your broadband connections, delivering end-to-end encryption for all data crossing the network. Added bonuses include maximizing your bandwidth so you get the most out of every connection and providing deep visibility into every application on your network, optimizing the performance of your online business programs.

SD-WAN Centralized Management

Business Location

HQ or Data Center

SD-WAN Router

DSL
Fiber
4G

Internet

DSL
Fiber

SD-WAN Router
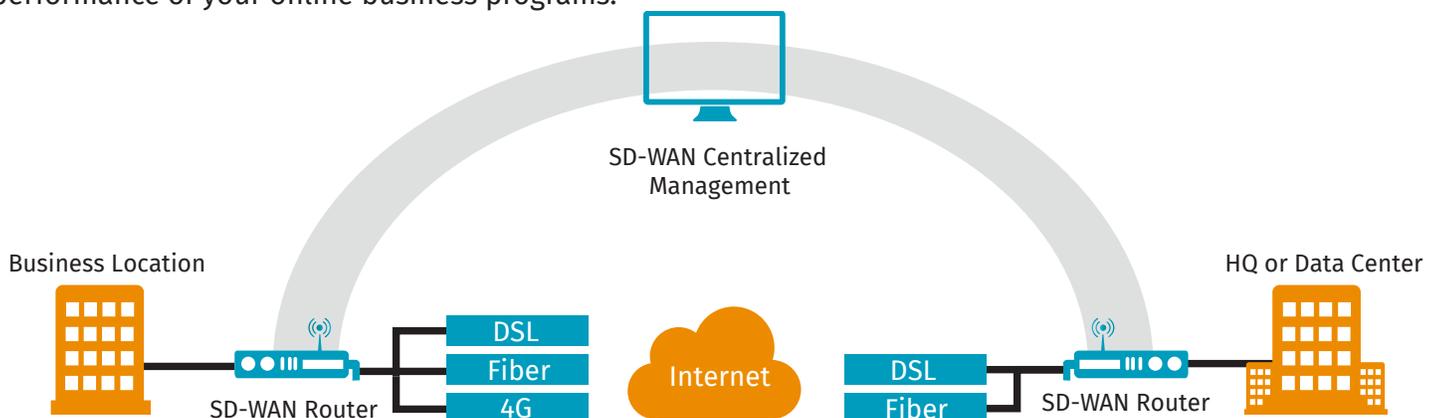
Hybrid: A hybrid WAN solution augments an existing MPLS network with SD-WAN using affordable broadband connections. This allows you to customize connectivity by location and need and gives you a cost-effective way to easily add more bandwidth without sacrificing security. This type of solution also enables your business to keep up with rapidly increasing bandwidth demands without having to rip and replace your existing WAN infrastructure.

Data Center

HQ

Internet

SD-WAN

MPLS

Location 1

Location 2
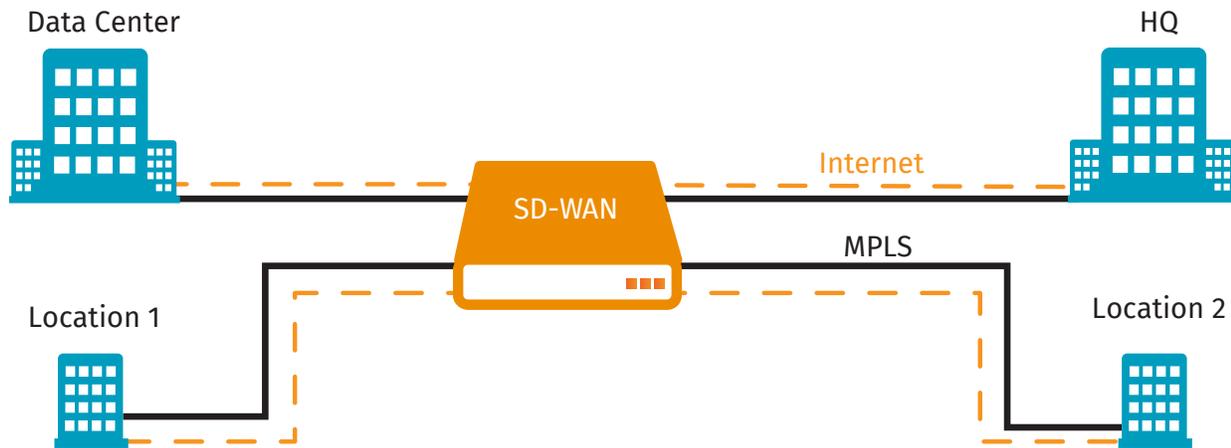
Looking Ahead

When factoring the bandwidth needs of your business, it's always important to look ahead. If you're planning for growth, don't let your business network fall behind. Know that bandwidth needs typically double every year, especially as you migrate to more web-based programs. Consider, some of the following questions:

- ⌃ Will your business begin using the Internet of Things (IoT), such as smart locks, Wi-Fi enabled security cameras, smart thermostats and more? Or, if you're already there, do you anticipate adding more IoT devices?
- ⌃ Are you looking for a new phone system, particularly a cloud-based one?
- ⌃ How much growth have you planned for your business? How many employees would that add? How many extra devices would that add? How many new locations would that add?
- ⌃ Are you thinking of using more conferencing services?

Starting the Search

By now, you should have a clearer picture of what's out there and what you might need now and in the not-so-distant future. You are ready to get the Internet solution that will start your business's digital transformation, but quickly realize that shouldering this task isn't exactly the easiest.

Where to begin? We're here to help streamline the process for you with these simple steps to finding the best fit for your business.

Step One: Learn About Your Options

If you recall from earlier, not all Internet options — like fiber or fixed wireless — are widely available. So the very first thing you'll want to do is to see what providers service your area and what Internet options they offer. Skip the web search for individual company names or even "Internet providers near me," and use resources like broadbandnow.com, where you can enter your zip code, check a box to see business results only and quickly find Internet service providers in your area and the connection types they offer.

Step Two: Calculate the Speed You Need

Figuring out the speed you need is easily the most onerous step of the process. Take into account all of your daily online business activities, and see where they fit into the above bandwidth consumption recommendations.

And, again, factor in how many users — including those for any guest Wi-Fi — and how many connected devices, including personal ones, that will be on your business network.

Step Three: Consider Additional Services

In choosing your provider, look for any extra services they might offer that your business might need, like failover/backup solutions, security, data storage, unified communications, conferencing, TV programming, etc. Having one provider for all your communication needs can not only simplify installation, management and billing, it often also saves you money.

Step Four: Read the Fine Print

We've already mentioned some things to ask providers about, but those weren't all. Know that not all providers are the same, so some may include perks or restrictions that others don't. Use the checklist below to help you sort through the contenders:

- ⌃ **Data caps:** For some businesses, data caps may break off the deal completely. Find out if your potential Internet service provider imposes data caps, what they are and what overage fees there are. Keep in mind, too, that a provider may only have data caps on certain types of connections, like DSL and cable, but not fiber. If an ISP includes data caps, learn if those are in place monthly or at peak hours each day.

- ⌃ **SLA (Service Level Agreement):** These are agreements between ISPs and the customer, laying out the level of service included. Many times, this includes a certain percentage of promised network uptime, along with what would happen if that percentage isn't met. Just like instituting data caps, ISPs will differ on which types of Internet connections include an SLA. For example, SLAs typically accompany dedicated Internet services and sometimes backup/failover connections.

- **Equipment costs:** Depending on your Internet upgrade, you might need some new equipment. Internet service providers most often supply routers with a monthly fee.

- **Installation fees:** Installation fees are another upfront cost you'll want to pay attention to. These fees won't be the same across the board, so if you're comparing two packages from two different companies, you will want to keep an eye out for installation fees that may actually make the price of one skyrocket comparatively.

- **Installation timeline:** Do you have a certain deployment timeline? Know that some Internet solutions, like fiber and dedicated circuits, will come with longer installation times, particularly if the service provider is laying out new lines to your area. Work with your service provider to ensure that your business has network uptime during the transition when you will need it most.

- **Activation fees:** Another upfront cost, these fees are typically charged by the ISP when a new account is created. These are typically separate from installation fees and are usually a one-time expense.

- **Contracts and/or cancellation fees:** Some providers require you to sign a contract to get the best deals on their Internet services. If so, consider the length of the contract, and read up on cancellation or early termination fees. You'll know what your business may be liable for should you want to change services before the contract ends.

- **Dedicated business support:** Will the ISP give your business dedicated support, or will you be constantly waiting behind thousands of residential customers? Will you get one or two points of contact for any service support?

Step Five: Evaluate the Provider

At this point, you've likely started to narrow down the providers and the type of Internet connection you need. To complete your search, do your homework on each of the providers. Read customer reviews and testimonials, and contact the provider to answer any lingering questions. In all, you'll want a secure and reliable network and that starts with the provider you choose.

kinetic business
by windstream.

[1]https://www.networkworld.com/article/3142838/infrastructure/top-reasons-for-network-downtime.html

[2]https://techcrunch.com/2012/10/10/forrester-66-of-employees-use-2-or-more-devices-at-work-12-use-tablets/