FirstLight®

The First Choice for Network, Internet, Data Center, Cloud & Voice Solutions

When a GIG isn't a GIG

WHY FIBER-BASED, DEDICATED, SYMMETRICAL INTERNET IS THE WAY TO GO

According to Deloitte Global's 2016 predictions[1], the number of Gigabit per second (Gbps) Internet connections will surge to 10 million by year-end – a tenfold increase. The rising demand for Gigabit Internet, the next-generation of broadband Internet service, is likely to be fueled by increased availability. Deloitte reports that in 2015, the number of service tariffs that include Gigabit rate service almost doubled in just three quarters, from over 80 to more than 150, and the firm further noted a corresponding decline in prices for Gigabit rate service.

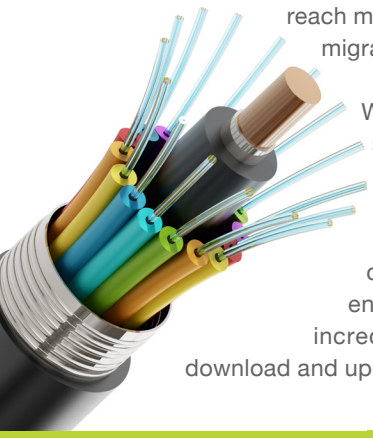
True Gigabit Internet connections offer speeds that are over 50 times faster than today's average broadband connection. Even if your broadband is running at 50 megabits per second (Mbps), which is extremely generous given that the average broadband download speed in the U.S. is 18.2 Mbps, according to the Washington Post[2]. Downloading large files, an HD video or transmitting a hundred images is up to 20 times faster over a true Gigabit Internet connection.

With the increased marketing of 'Gigabit Internet', it's important to understand the details around the various service offerings and why fiber-based, dedicated, symmetrical Gigabit Internet service is the way to go.

FIBER-BASED SERVICES FUTURE-PROOF YOUR NETWORK

Having your services delivered over a dedicated fiber optic connection provides the advantage of future proofing your network. The reason for this is due to the fact that 100% fiber to the premise (FTTP) networks have virtually no bandwidth limitation.

What this means is that as your needs change, you have the opportunity to quickly increase your bandwidth and, as a result, will hopefully never find yourself in a situation where you reach maximum capacity and end up having to migrate to a different type of technology.



With fiber-based Gigabit Internet service, businesses can enjoy an improved online experience for simultaneous users; the ability to seamlessly stream high-definition (HD) video content; offer supreme video conferencing capabilities to users; experience incredible speeds for data transfer; easily download and upload files to the cloud and more.

ASYMMETRICAL VERSUS SYMMETRICAL BANDWIDTH – WHAT'S RIGHT FOR YOUR BUSINESS?

Let's start with some definitions. Asymmetrical bandwidth is a connection that has different upload and download speeds. This method worked well for legacy cable networks, which were built primarily to transmit broadcast TV signals. Because this methodology was in place, many cable companies chose to use this same asymmetrical solution to support Internet service. But what if your traffic pattern doesn't fit with an asymmetrical solution?

Conversely, symmetrical bandwidth has the same speeds to push and pull data and is better aligned with how many businesses operate today. As we migrate more applications to the cloud, such as file sharing, off-site backups and Office365™, companies will likely push as much traffic to the Internet as it pulls and, therefore, will require higher speed, symmetrical bandwidth connections to ensure optimal network performance.

GIGABIT CONNECTIONS VERSUS BANDWIDTH

When sourcing Internet, another consideration is the difference between the interface and the bandwidth. Many service providers will provide a Gigabit interface into the subscriber's main location, and then only deliver a fraction of the bandwidth the interface is capable of supporting. This is like having a trickle of water coming out of your faucet.

While it is true that the connection may be able to scale to a full Gigabit connection, the business only has access to a portion of the maximum capacity today (a mere trickle), and will likely have to pay more to add additional bandwidth to reach maximum capacity. Don't get fooled by your service provider, make sure you get what it has promised you by asking for clarification on exactly how much bandwidth you are getting over the connection it provides.

SHARED VERSUS DEDICATED BANDWIDTH

Another consideration is whether or not your business will have consistent access to your Internet bandwidth. Sometimes you hear the term 'best effort'. What that means is if the bandwidth is available, you can use it up to the maximum amount you subscribe to. This is your clue that your Internet service is being provided over a shared network. The downside of this is that during peak traffic times, you may not have the bandwidth you need to support your networking needs.

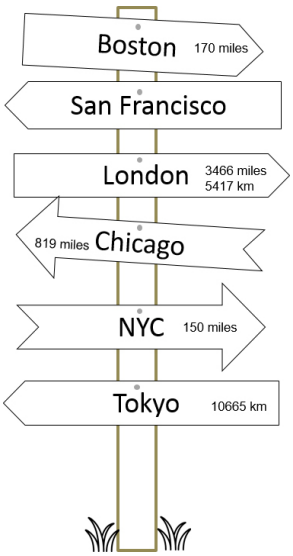
If you have ever noticed your network slows to a crawl at certain times of day, you are likely on a shared network and could be victim to the 'gamers' seeking their next Pokémon™ GO capture, which leaves you in a bandwidth 'tug of war' with your neighbors. Legacy cable networks and even some of the new fiber networks being deployed by large telephone and Internet companies are typically shared networks and, as such, would be susceptible to bandwidth contention.

On a dedicated network, you are guaranteed to have consistent access to your bandwidth 7x24x365. This bandwidth is not shared; it is not a 'best effort' service and, therefore, you are not impacted by other subscribers' usage patterns - ensuring that your business has consistent access to the bandwidth it needs to run efficiently.

HOW IS THE SERVICE PROVIDER'S NETWORK ARCHITECTED?

Other factors that affect your network's performance is how your service provider architects its network and what type of routing protocols it chooses to use. Older Internet networks were designed to interconnect at a few peering points, which are often located in major 'NFL' cities such as New York, Boston, Miami, and Chicago. So all traffic, regardless of its ultimate destination, is routed to these major meet points so that the carrier can exchange traffic with its peers. The problem for you is that your data may be traveling long distances only to be returned back to the original market. This type of architecture can add latency, which degrades network performance. This is particularly evident on latency sensitive applications such as Voice over IP (VoIP), video conferencing and cloud services such as Office365™.

Peering at a single location also creates reliability issues should there be a localized issue that occurs in that major city - potentially impacting all of the providers' networks that interconnect there.



Another factor that can impact network performance is the routing protocol your network provider uses. Many service provider networks use a routing protocol called Least Cost Routing where it will choose to have your Internet traffic follow the cheapest path available to that provider. The cheapest path isn't always the best path and can cause your traffic to needlessly hop around the globe, which adds latency, negatively impacting your users' experience.

CONCLUSION

Although most service providers today are touting their 'superfast' Internet speeds, not all Internet services are created equal. When sourcing an Internet connection for your business, don't just focus on the bandwidth; consider all of the factors that will impact your network performance. Remember that the cheapest solution can end up being very costly for your organization in terms of lost productivity. Make sure you select the Internet service, bandwidth and provider that is right for you.

By delivering services over its own advanced fiber optic network, FirstLight Fiber's services provide businesses dedicated, symmetrical bandwidth, higher speeds, and greater reliability than copper, coax or wireless communication networks.

[1] http://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/tmt-pred16-telecomm-dawn-of-the-gigabit-internet-age.html

[2] https://www.washingtonpost.com/blogs/govbeat/wp/2014/01/09/the-fastest-and-slowest-internet-speeds-in-america/

[3] Pokémon is a registered trademark of Nintendo Co., Ltd.

[4] Office365 is a registered trademark of Microsoft Corporation.

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