# How a fibre connectivity solution can improve your company's performance

Introduction

- While fibre optic connectivity has been around since the 1970s, up until the last few years only the military and large corporations could afford the technology. Developing the infrastructure was difficult and time-consuming, and fibre-optic communication systems were complex and expensive to install and operate.

- Today fibre is widely used. The technology has come down in price and is now an affordable option for small- and medium-sized businesses.

- Fibre has thousands of times the bandwidth of copper wire and can carry signals hundreds of times further with no loss of data. This means that the technology can dramatically increase the speeds used to access the Internet or private data networks. Scalable bandwidth will become increasingly important as the number of connected devices increase and converge, and use of cloud applications become part of the business routine. For businesses with sophisticated and growing apps, data and Internet needs, fibre connectivity can help improve employee efficiency, customer service—and ultimately—the bottom line.

The technology behind fibre
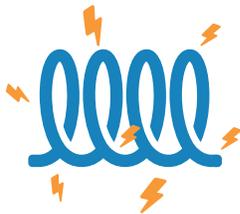
Traditionally, data was sent by electrical pulses or signals over copper wire. The challenge with this method of delivery is that it's highly susceptible to electromagnetic interference which renders it less effective over long distances and limits the amount of available bandwidth.
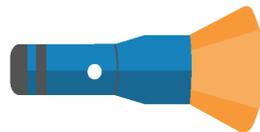
Today, fibre optic technology transmits information from one place to another by sending a beam of light over a fibre-glass pipe. Nothing can penetrate that beam of light, so it is not susceptible to the outside interference that's found in copper for cable systems. Because the signal is light rather than electricity, it has less loss, higher bandwidth and is immune to electromagnetic interference.

What it means for your business is clearer phone conversations, improved video quality and faster, more fluid data transmission. The fibre network can transport a significantly increased bandwidth over further distances offering enterprise-class telecommunications products and services to businesses of all sizes.

Why is fibre important?

"The old notions around the network being plumbing is outdated and completely wrong. For us it's not just about building bigger pipes or opening up more bandwidth," says Peter-Mark Bennett, Enterprise Segment Manager, Shaw Business.

"Bandwidth is one of the two most important elements determining user experience, the other is how our customer's devices perform on the network."

Bennett says that in the not too distant future, smart devices and apps will have built-in intelligence that can talk to the network. For instance, he says, video and voice apps will be able to ask the network for priority routing over less important apps such as email.

"A deterministic engineering application can sense interruptions or faults and then request network 'real time' routing to remediate urgent changes to a power grid or gas pipeline," says Bennett. "Software will not only ask for traffic prioritization, but also increased bandwidth depending on the requirement—in other words, bandwidth on demand."

Businesses are consuming more content and applications than ever seen before, and many of these applications that are part of day-to-day business such as Office365, Skype and Salesforce.com are interactive, which means they consume large amounts of bandwidth and require high capacity connections.

Bennett predicts that the growth for B2B bandwidth will come from moving large quantities of data (big data), virtual data centres, cloud applications (particularly Software-as-a-Service), social networking (Google, Twitter), mobile and remote workforce, and converged telecom services such as voice, data, video and Internet.

B2B or business only network traffic accounts for an estimated 41% of all wired and wireless network traffic in Canada. This traffic is bucketed as 30% Internet, 41% data and 29% voice.

IDC 2012 Telecom Canada Report

What are the benefits of fibre for my company?

Speed and Scalability

As more and more businesses move into cloud-based services, fibre helps with the speed of access and provides symmetrical connections (equal upload and download speeds). In other words, unlike broadband ADSL, you can download information just as quickly as you can upload. Slow download speeds not only affect the performance of cloud applications such as real-time inventory control, staff scheduling or accessing large documents from a shared server, but they also affect customers who are connecting to WiFi networks, viewing pictures or streaming content from your website.

Reliability

Reliability with fibre is literally guaranteed. Most service providers will include a service level agreement (SLA) as part of the contract. Essentially, an SLA is a legal commitment given by the service provider that notes if the service fails to meet availability expectations, then the provider will incur financial penalties payable to the customer in the form of financial remuneration. SLA's address key service provider and network performance attributes such as network availability, time to repair, latency and jitter.

Dedicated network

Where copper and cable services are shared by a number of different businesses in the geographical area, fibre is dedicated to your premises. Dedicated networks have huge advantages for companies with multiple offices and those with mission-critical, time-sensitive applications.

How do I know if my business needs fibre?

Who would have thought even ten years ago, that the average business would be using smartphones, tablets and wireless workstations, working from remote locations, and holding regular video or audio conference calls? Connecting through apps and users streaming content are growing and putting new demands on networks. A simple driver for an HP scanner today, for instance, creates a pipe-clogging 500MB file.

Given that business wired and wireless bandwidth needs have grown 5 – 10 fold in the past 10 years, it's likely the network will be clogged by a number of existing and new services.

Should you be thinking about fibre?

Ask yourself if your company:

Has more than 20 employees who work on multiple devices

Is experiencing slow Internet connections, delays in uploading large files, spotty video or choppy voice

Has multiple offices needing a secure, reliable and private connection

Needs a hosted/managed PBX or PRI or other form of sophisticated voice service

Is already using or plans to use SaaS or other cloud services

Is experiencing an increasing demand for bandwidth

So what about cable?

For some companies, cable is still a worthy alternative to fibre. Cable providers are now offering faster broadband speeds of up to 100 Mbps—about 10 times faster than the Telco's DSL speed. While upload speed is still slower than download, some cable providers can offer upload speeds of up to 15 Mbps. This is constantly increasing with new emerging technologies.

Comparing Fibre and Cable:

	Fibre	Cable
Reliability	Fibre optic cable is built on a sophisticated architectural standard, making it more reliable. Fibre-based products often have a service level agreement associated with them so providers back metrics of reliability with money guarantees.	Cable is a robust, commonly deployed technology that meets the needs of most small – medium businesses.
Bandwidth	Fibre optic connections have the ability to support bandwidths up to 400Gbps on a single wavelength. All Global backbone network connections rely on the bandwidth capabilities of fibre optic connections. Fibre-based services offer symmetrical connections with minimal latency.	Cable offers high bandwidth, and typically offers asymmetrical connections that surpass many other broadband capabilities such as ADSL.
Compatibility	Shaw Business delivers fibre-based services without a customer requiring any special electronics or fibre optic adapters.	Cable networks are also compatible with the most common interface standards used in the world, namely Ethernet.

➔ What's next?

If you're growing your business to the next level or you are already a medium- to large-sized business with employees working on multiple devices, then a fibre connectivity solution could be the answer to keeping your company running efficiently. There is no other form of delivery service on the market today that offers the security, scalability and reliability of fibre. With enterprise-class fibre network connectivity, you'll have have more freedom to focus on the performance of your business.distances offering enterprise-class telecommunications products and services to businesses of all sizes.

Shaw Business owns and operates a 625,000 kilometre fibre route network that connects North American businesses from coast to coast. We provide data networking, video, voice and Internet services to companies of all sizes. We are continually investing in our infrastructure and advancing our technology to an industry leading experience that scales to meet your business needs today, as well as in the future.

For more information see business.shaw.ca