BCE Global
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Fast and flexible connectivity for data centers

Wavelength service from BCE Global

What's inside

As more organizations shift their information and applications offsite or into the cloud, data centers have to be increasingly interconnected to deliver seamless, virtualized services. Wavelength connectivity has the capacity, speed and performance to meet wholesale requirements for data center interconnection. This paper looks at how Wavelength service from BCE Global, a Bell Canada company, meets the full set of data center requirements, providing a flexible backplane for data center connectivity that can evolve as organizations' needs change.

What data centers need from their connectivity

With the advent of cloud services, Big Data and IT virtualization, organizations have become deeply dependent on data centers to get business done – creating uncompromising expectations around data center connectivity. Access to information, applications and computing power needs to be instant, seamless and always on.

Most enterprises' bandwidth requirements are on the rise, especially those in verticals such as finance and healthcare that need to handle and exchange huge volumes of sensitive data. Similarly, cloud and content providers are among those most pressed for high-capacity, high-performance, low-latency connectivity.

To support the growing diversity of enterprise information requirements, data centers need to be interconnected – exchanging massive amounts of data for distribution, storage, additional processing, backups and business continuity. Yet the demands associated with connecting data centers are vastly different from those required inside the data centers themselves. Extremely high bandwidth and low latency are needed to ensure:

> **Global IP traffic will grow at a Compound Annual Growth Rate (CAGR) of 26% from 2017 to 2022, reaching an annual run rate of 4.8 ZB per year by 2022.**[1]

- Lossless data delivery for mission-critical applications

- Massive, rapid scalability when capacity is needed

- Multi-protocol transport to support the full variety of applications

- Reliable connectivity among multiple data centers in metro and wide area networks

How these goals are pursued – and which of them take priority – varies by provider profile. Canadian carriers, for example, may focus on extending their cross-country reach or accessing the U.S. market, while American carriers may seek access to the Canadian market. International carriers, meanwhile, are looking for affordable access to the North American market.

For Internet service providers, the main concerns are building network infrastructure and connecting to core IP routing sites. Content providers, on the other hand, are preoccupied with speed: having the options to scale and suit high-bandwidth media traffic in particular. Finally, mobile network operators contending with the growth of mobile broadband need to build networks with core connectivity ports that scale to 100 Gbps and beyond.
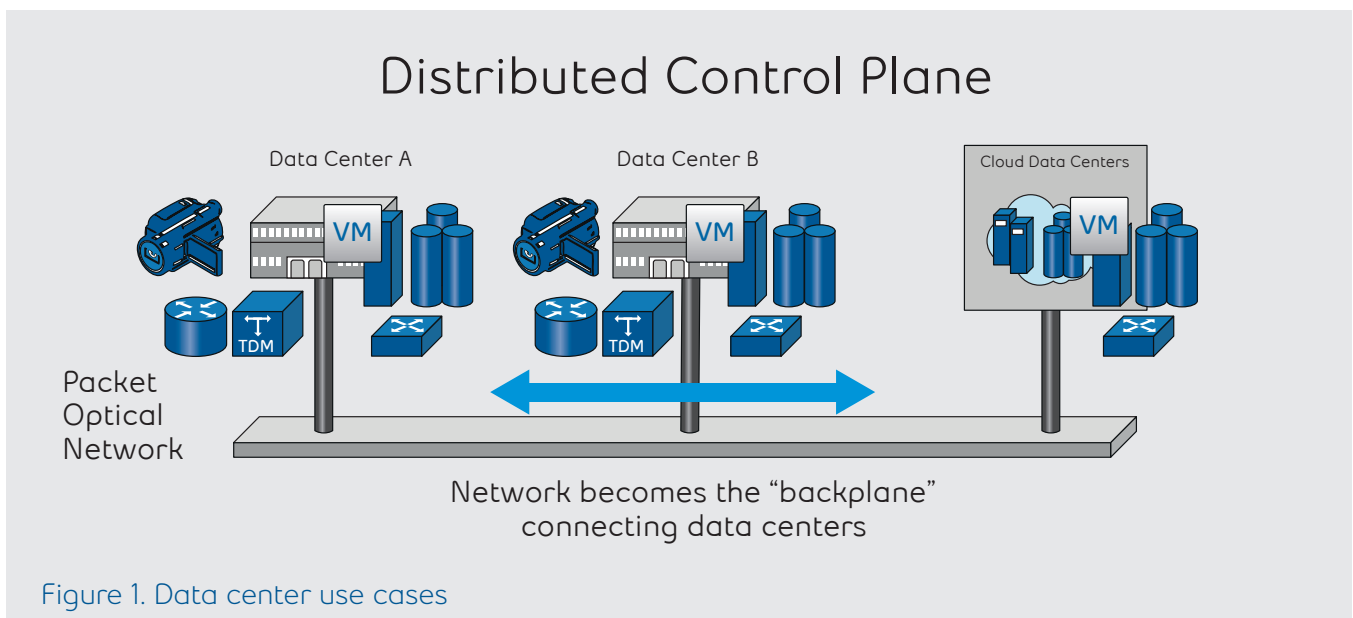
Another important consideration for a variety of Service providers - in particular those supporting customers in highly regulated and globally competitive sectors like oil and gas, pharmaceuticals, healthcare and defence - is the ability to house data within an approved jurisdiction, or data sovereignty.

Key applications for data center connectivity

Wavelength technology can connect multiple data centers' client device interfaces to consolidate network transport to meet key data center requirements such as:

- **Recovery** – connecting two data centers for redundant operation of servers, storage, network and other infrastructure in case of failure at the primary facility.

- **Availability** – transferring data to secondary facilities for backups, archives and other purposes to ensure rapid recovery times and multiple recovery points if needed.

- **Virtual Machine (VM) migration** – transporting entire VMs and associated storage between data centers to balance workloads and support infrastructure virtualization.

- **Cloud synchronization** – connecting private data centers to service provider or third-party cloud provider facilities to access virtual infrastructure services that augment the data-processing capabilities of the primary data center.

Figure 1. Data center use cases

Wavelength technology has the potential to serve as a backplane between data centers, enabling the high-speed, low-latency transport of data, media and applications – interconnecting servers and storage and enabling enriched service monitoring.

Wavelength service from BCE Global

Wavelength service from BCE Global is a high-bandwidth, low-latency fiber optic transport service that allows organizations to develop an overall connectivity strategy, enabling the creation of a powerful, flexible network between data centers that can supports traffic growth and service diversification. BCE Global works proactively with our customers, including hyper-scale data center operators to ensure BCE Global connectivity is available on day one when launching a new data center.

In addition to multiple speed options of up to 100 Gbps, Wavelength service from BCE Global has the transparency for full-rate transmission of services such as 10 Gigabit Ethernet. It can support multiple protocols on a single wavelength as well as a range of networking standards, including Ethernet, storage area network (SAN), optical transport network (OTN) and synchronous optical networking (SONET).

Delivered over an extensive and reliable network, Wavelength service from BCE Global is backed by strong service-level commitments for latency and availability and a four-hour mean time to repair (MTTR). It offers two protection options for re-routing traffic in the event of a network failure. Circuits can be provisioned at each end with the following management configurations:

- Managed to managed
- Managed to unmanaged
- Unmanaged to unmanaged

When a managed service may be right for you

A managed service provides access to the network expertise of an experienced third party, minimizes downtime through to guaranteed service levels, and can deliver capital and operational savings through the reduced need for facility and network management. The managed option may be ideal for organizations looking to:

- Interconnect storage applications between remote data centers
- Network mainframes between long-distance locations and data centers
- Establish low-latency routes for financial trading exchanges
- Transport uncompressed video in realtime
- Add capacity to transport native fiber channel traffic in a SAN
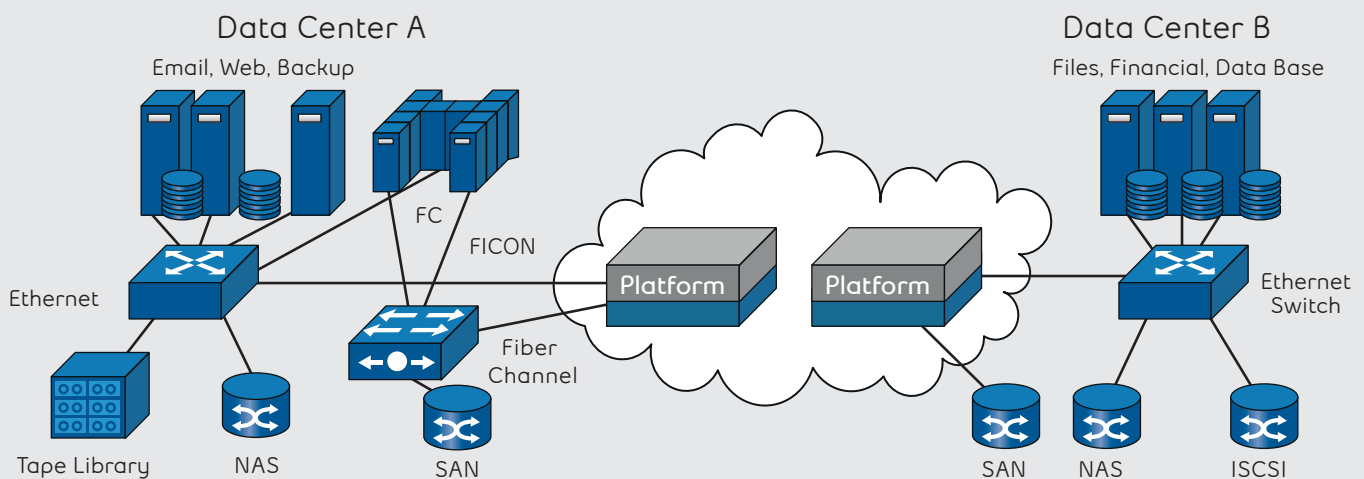

Figure 2. Interconnecting storage applications between remote data centers

The BCE Global network

With on-net presence in major data centers across the country and diverse entrance, central offices and core paths, BCE Global offers a fully redundant solution.

- three diverse routes from coast to coast
- **100%** data sovereignty within Canada
- **270,000 km** of fiber cables around the country (which would circle the globe nearly seven times)
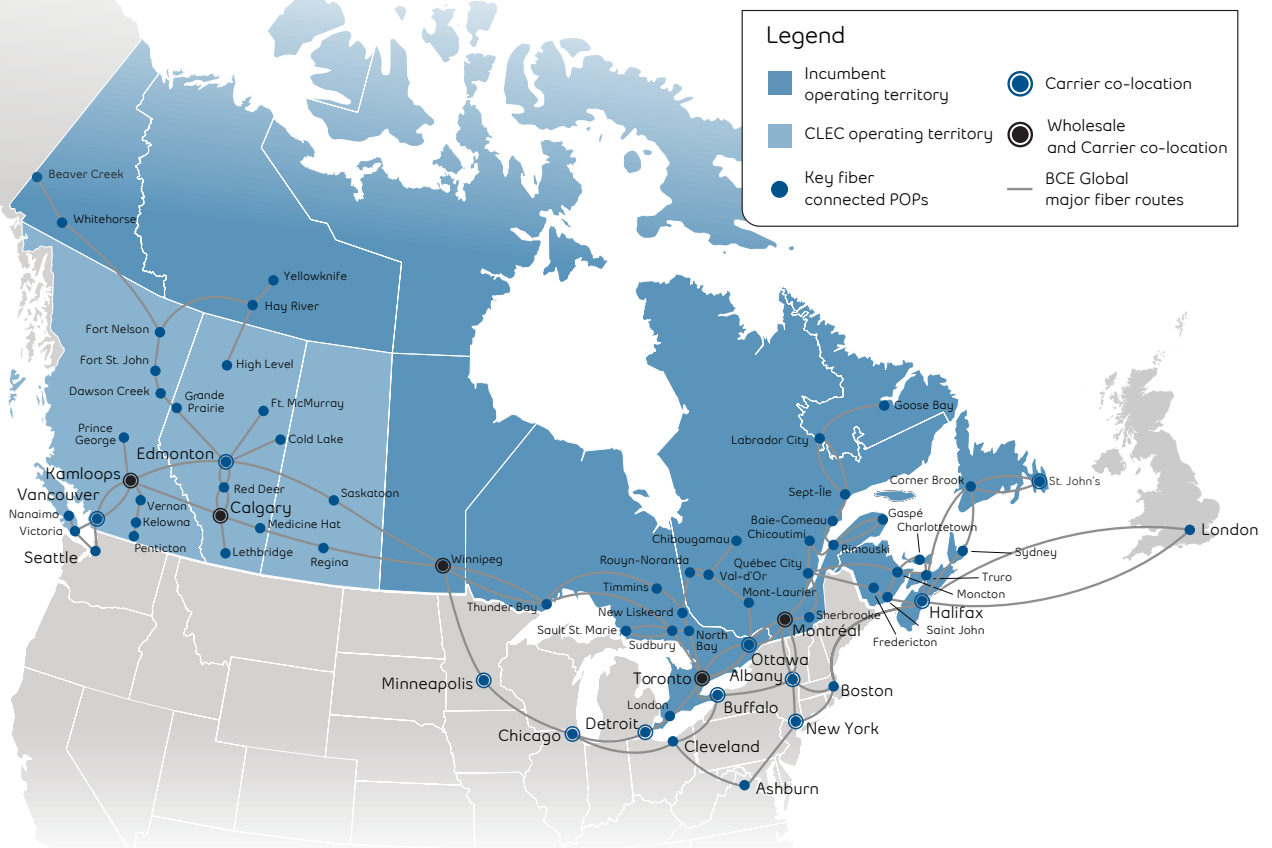- interconnection points globally
- **161** Points of Presence nationwide
- **24/7** help desk support
- service availability across Canada, the U.S. and Europe

Legend

- Incumbent operating territory
- CLEC operating territory
- Key fiber connected POPs
- Carrier co-location
- Wholesale and Carrier co-location
- BCE Global major fiber routes

Wavelength service from BCE Global provides wholesale data center customers with the capacity, protocols, resiliency options and manageability to transport all types of voice, video, data and business traffic. It is designed to meet the demanding requirements of cloud infrastructure and data center interconnection, and is built on technology that has been tested and qualified by leading data center equipment providers.

About BCE Global

BCE Global provides industry-leading broadband, IP and voice wholesale products and services across Canada and at key points in the U.S. and Europe – helping you grow your businesses and meet the needs of your customers.

As part of Canada's largest communications company, Bell Canada, we have access to more than 270,000 kilometers of fiber and 161 Points of Presence (PoP) across the country, the most in Canada. Our convenient "meet me" points in the U.S. and Europe provide seamless access to the largest network in Canada.

With an extensive team of professional services experts and 24/7 help desk availability, BCE Global provides high-quality support to interexchange carriers, local exchange carriers, wireless service providers, resellers, Internet service providers, over-the-top providers, system integrators, telcos and cablecos.

For more information, visit **bceglobal.net**

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