



Bell

Fast and flexible connectivity for data centres

Wavelength service
from Bell Wholesale





What's inside

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

- What data centres need from their connectivity1
- Key applications for data centre connectivity2
- Wavelength service from Bell Wholesale3
- From Canada, coast-to-coast...to the world4
- The Toronto-Montréal-New York corridor5
- About Bell Wholesale6

What data centres need from their connectivity

With the advent of cloud services, big data and IT virtualization, organizations have become deeply dependent on data centres to get business done – creating uncompromising expectations around data centre 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 centres 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 centres are vastly different from those required inside the data centres themselves.

Extremely high bandwidth and low latency are needed to ensure:

- 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 centres 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, may be looking for affordable access to the North American market.

For Internet service providers, the main concerns could be building network infrastructure and connecting to core IP routing sites. Content providers, on the other hand, may be 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 could need to build networks with core connectivity ports that scale to 400 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, finance, healthcare and defense – is the ability to house data within an approved jurisdiction, or data sovereignty.

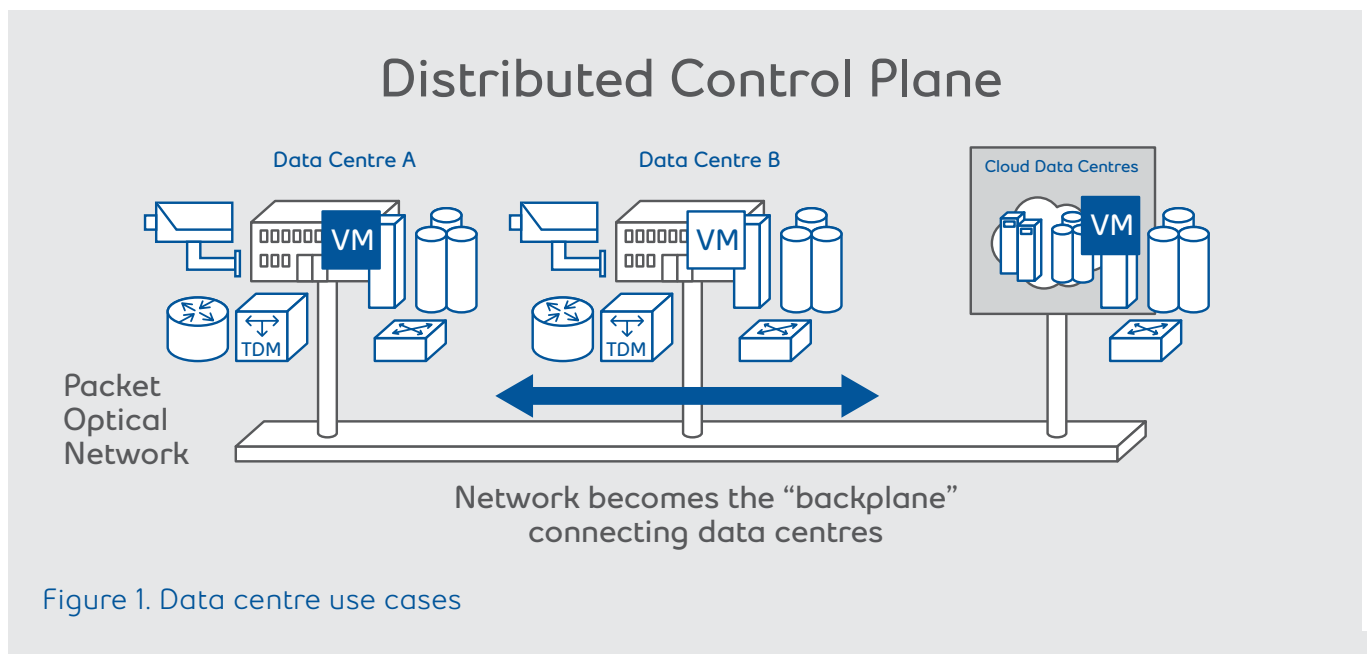
Global network traffic is projected to grow at a Compound Annual Growth Rate (CAGR) of 21.7%, reaching 2.4 exabytes per month by 2030¹.

[1] Nokia Global Network Traffic 2030 report

Key applications for data centre connectivity

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

- Recovery – connecting two data centres 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 centres to balance workloads and support infrastructure virtualization.
- Cloud synchronization – connecting private data centres to service provider or third-party cloud provider facilities to access virtual infrastructure services that augment the data-processing capabilities of the primary data centre.



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

Wavelength service from Bell Wholesale

Wavelength service from Bell Wholesale is a high-bandwidth, low-latency fibre optic transport service that allows organizations to develop an overall connectivity strategy, enabling the creation of a powerful, flexible network between data centres that can support traffic growth and service diversification. Bell Wholesale works proactively with our customers, including hyper-scale data centre operators to ensure Bell Wholesale's connectivity is available on day one when launching a new data centre.

In addition to multiple speed options of up to 400 Gbps, Wavelength service from Bell Wholesale 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 Bell Wholesale 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 centres
- Network mainframes between long-distance locations and data centres
- Establish low-latency routes
- Transport uncompressed video in real time
- Add capacity to transport native fibre channel traffic in a SAN

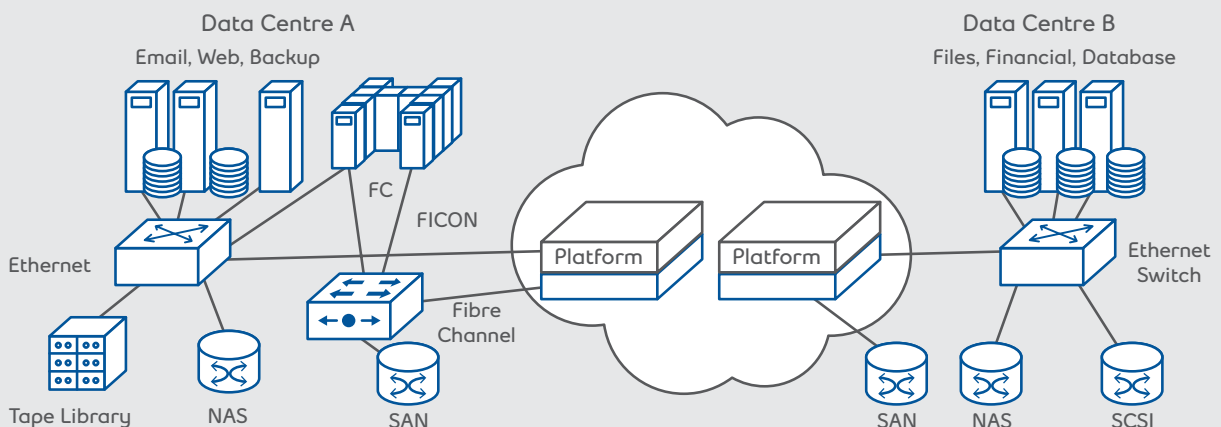


Figure 2. Interconnecting storage application between remote data centres

From Canada, coast-to-coast...to the world

With on-net presence in major data centres across the country and diverse entrance, central offices and core paths, Bell Wholesale offers a highly resilient solution.



329,000 km
of fibre across the country



166 PoPs
Points of Presence and Data Centres



100%
data sovereignty within Canada



3
diverse routes from coast-to-coast



4 hours
mean time to repair (MTTR)



Service availability
across Canada, the U.S. and Europe

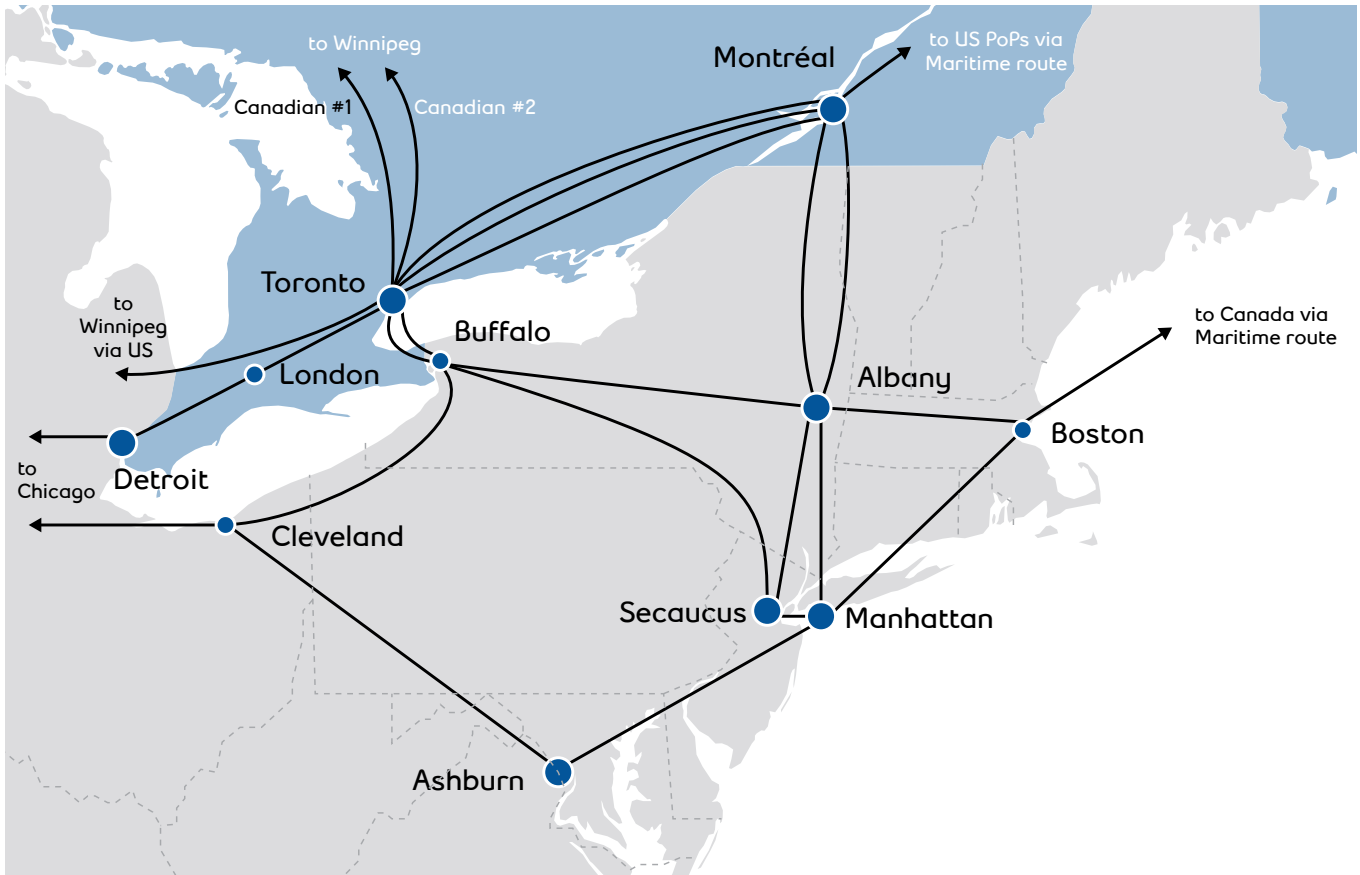


Wavelength service from Bell Wholesale provides wholesale data centre customers with the bandwidth capacity, networking protocols, resiliency options and manageability to transport all types of voice, video, data and business traffic. It is designed to meet the demanding requirements of cloud infrastructure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

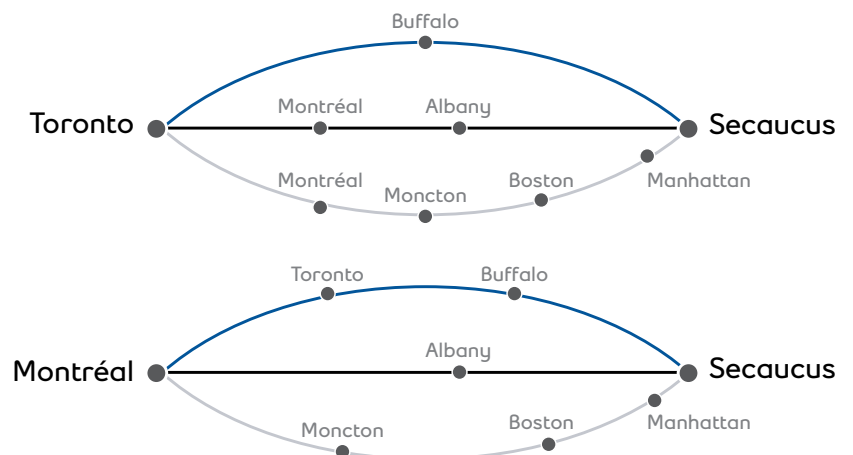
The Toronto-Montréal-New York corridor

Major commercial hubs have multiple points of presence that provide more options for access and route diversity. New York City is served by PoPs in lower Manhattan and Secaucus, with both sites supporting triversity – also known as triple redundancy. With diverse routes into both Manhattan and Secaucus data centres, there are now more ways to maintain business continuity.

All routes support wavelength services up to 400G.



Launched in 2024, Secaucus is the newest addition to the network. Three standard routes into Secaucus are available from Toronto or Montréal.

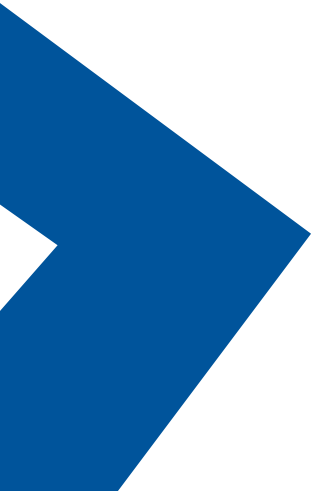


About Bell Wholesale

Bell Wholesale provides world-class 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 Wholesale boasts the largest fibre network in Canada spanning more than 329,000 km of fibre and 166 Points of Presence (PoP) and Data Centres across the country. With convenient “meet me” points in the U.S. and Europe we can provide seamless access to the largest network in Canada.

With an extensive team of professional services experts and 24/7 help desk availability, Bell Wholesale 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.

The Bell logo, consisting of the word "Bell" in a bold, blue, sans-serif font.A large, blue, stylized arrow graphic pointing to the right, located in the bottom left corner of the page.

For more information, visit wholesale.bell.ca