



Shared Services Canada

Network Modernization



Shared Services
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Services partagés
Canada

Canada

The Government of Canada Enterprise Network — the Foundation of Digital Government

A high-performing and resilient network is the very foundation of [Digital Government](#) and the basis for all government services.

As Canadians use more digital programs and services, they expect to access them from anywhere—at any time. To achieve this, the Government of Canada depends on

connectivity delivered by fast, appropriately secured and reliable networks.

Shared Services Canada provides network infrastructure and connectivity services to more than 400,000 users across government departments and agencies to effectively deliver services to Canadians.



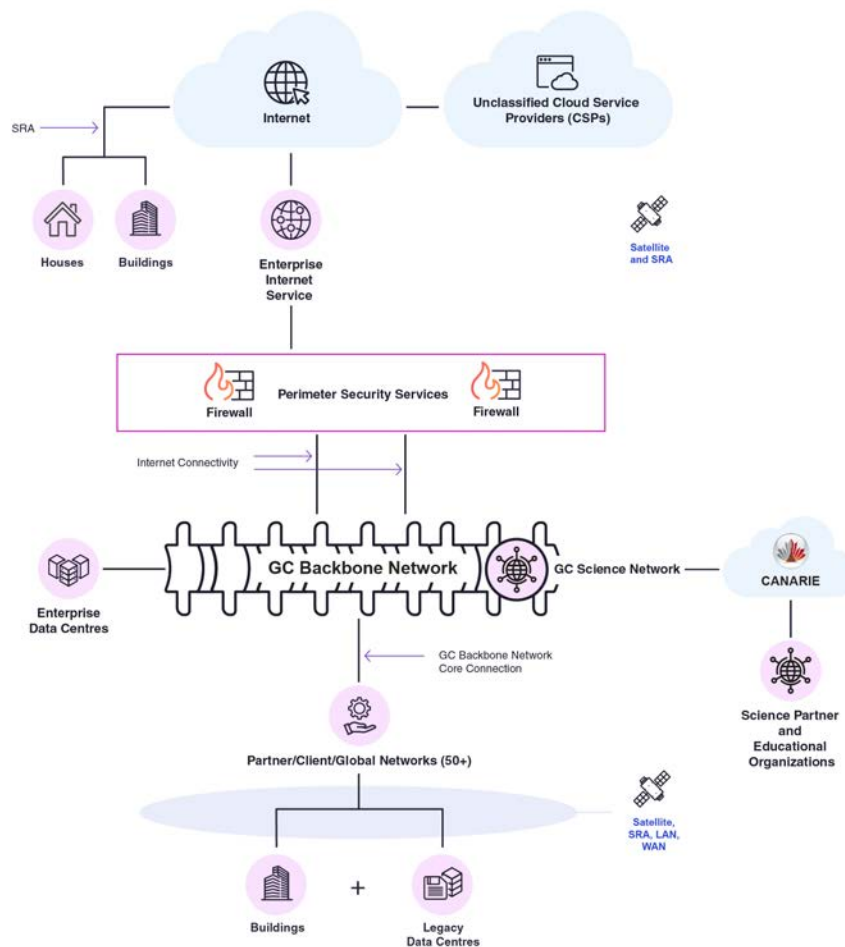
Shared Services Canada — providing enterprise network equipment, services and connectivity since 2011

At its creation in 2011, Shared Services Canada (SSC):

- received a big mandate to modernize and consolidate the Government of Canada’s (GC) information technology infrastructure.
- inherited complex and aging network infrastructure from multiple organizations. This infrastructure was costly to maintain and did not support modern cloud, video and voice services.

Since then, SSC has consolidated and modernized network IT infrastructure through standardized technology and contracts. It has also simplified administrative requirements with an aim of achieving stability and reliability. In fiscal year 2022-23, the number of critical incidents in network services was reduced to 105 from 113 in the previous year.

Former GC Network Configuration



Today, SSC provides the GC with the following networking equipment and connectivity services:



In-Building Networks

Connectivity services for government buildings and other places of work for GC users. These services include all local area networks (LAN), whether wired or wireless.



WAN (wide area network)

Connectivity services to connect government buildings with data centres, the cloud and the Internet. SSC analyzes departmental needs to determine how to best provide WAN—through the GC WAN managed services contracts, directly to the GC Backbone, LIAS (Local Internet Access Service), satellite connectivity or cellular connectivity.



Secure Remote Access

Infrastructure and services that enable GC users to securely connect to government networks from outside a government location (such as working from home).



GC Backbone

The core of the GC WAN connectivity service. This SSC-owned and managed high speed network connects in-building networks, departmental networks, Government of Canada data centres, the cloud and the Internet.



Enterprise Internet Connectivity

SSC-dedicated high-speed connections between the GC Backbone and the Internet. Enterprise Perimeter Security firewalls protect the data that flows to and from the Internet.



GC Science Network (GCSN)

Dedicated network within the GC Backbone that federal science departments and agencies use to connect to CANARIE, the backbone network for Canada's national research and education organizations.



Cloud Connectivity

Highly secure and closely monitored connections between the GC Backbone and the cloud providers.

Network Modernization — The Future is Now

SSC continuously assesses technology trends and developments to ensure it builds and adjusts a GC network that is responsive to current and future needs.

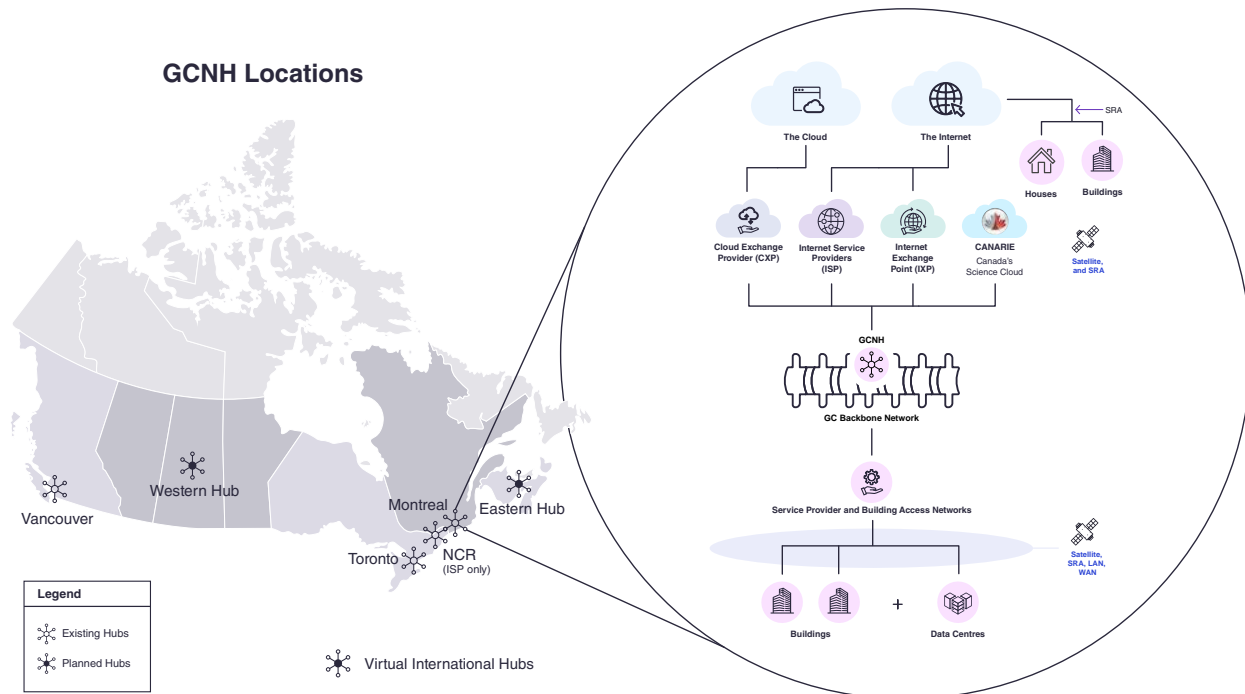
For example, software-defined networking and improved wireless technology have changed how SSC connects, delivers and secures its network services. In 2023, SSC supported the government's shift to a hybrid work model where employees work from home part time, and in offices part time.

SSC is modernizing GC network infrastructure and connectivity services by:

- converging, consolidating and standardizing complex and aging wide area networks to a common, shared, enterprise network infrastructure
- increasing the use of common standards, operational support processes and security systems
- enhancing connectivity infrastructure for government locations across Canada to provide faster and more reliable, flexible and secure network services
- establishing government-wide procurement vehicles for network infrastructure and connectivity services to:
 - help minimize outages through standardized technical support
 - give federal organizations more capacity to meet increasing user demands
 - decrease duplication of infrastructure and the associated incident response time and operating costs



Improving Delivery — The Current Government of Canada Networks Hub Model



SSC is taking a new approach to providing connectivity services and equipment. **The GC networks hub (GCNH) approach** leverages software-defined network infrastructure and artificial intelligence (AI) to automate traffic flow and maintenance. This improves connectivity manageability and performance to enable the [Government of Canada's Cloud Adoption Strategy](#).

So, while most network components are essentially the same, how they interconnect is changing.

In regions across Canada, network connectivity service providers link GC buildings and legacy data centres to the GC Backbone at a GCNH. Each GCNH also provides the external network connectivity between the GC Backbone and the cloud, Internet and Internet exchanges.

SSC has already installed GCNHs in Toronto, Montreal and Vancouver, and is upgrading and expanding 2 more in the National Capital Region (NCR) that currently provide Internet access only. There will likely be others in the Prairies and the Maritimes in the future.

SSC is also looking at establishing virtual international hubs to support the Government of Canada's work around the globe.

There are several benefits to moving to this approach:

- It improves the speed and quality of connections because data won't have to travel as far. This means better user experience across the country, particularly in areas farther away from the NCR.

- It improves network efficiency by reducing the amount of data travelling through the core network in the NCR.
- It creates connectivity redundancy so that, if needed, we can reroute traffic through another GC networks hub to reduce downtime for users.

Connectivity as a Utility

In the digital age, connectivity is as essential as other utilities we depend on such as electricity and heat. SSC's priority is to build a reliable connectivity "utility" that is always on, available anywhere, and provides users with access to a government-wide network that:

- uses the latest security measures
- connects seamlessly to cloud and enterprise data centres
- moves at high speed

To help achieve this, SSC is expanding the use of software-defined networking. This will enable us to prioritize network traffic flow remotely (i.e., without manual changes to the network) over the most cost-effective path. Optimizing use of available bandwidth this way will give users higher network capacity and better availability.

SSC is also looking to offer standardized sets of connectivity solutions we can purchase and manage with less overhead than it takes

to customize solutions to each department's needs. This will help us create a stable and reliable connectivity service that:

- improves value for money by taking advantage of economies of scale, bulk purchasing and standardization
- reduces time we spend resolving incidents by meeting the majority of needs with a minimum of solutions using common platforms that are easy to maintain

Managing the network as a utility and supplying it as a commodity simplifies how SSC provides enterprise solutions to meet federal organizations' needs. Through standard offerings and automated processes, SSC is simplifying how it takes in and manages requests.



Connectivity Security

All of the work SSC is undertaking to modernize the enterprise network improves the security of the network as a whole, as well as the data that flows through it.

Designing the network to be appropriately secured from the ground up minimizes the number and types of flaws that could compromise security. Converging, consolidating and standardizing to a common, shared, enterprise network improves reliability

and stability, thereby reducing the time and effort we spend on troubleshooting problems. It also makes maintenance much simpler.

Moving to software-defined networks improves continuous network and application performance monitoring. Using a single window to manage network traffic, regardless of the number of vendors and products in the infrastructure, allows greater visibility of critical business traffic performance.

Conclusion

An updated network uses the latest security measures that

- better protect personal information
- connect seamlessly to cloud and enterprise data centres
- move at a speed and scale that gives users the connectivity they need to do their work

While there is no single “one-size-fits-all” approach for GC digital services, Shared Services Canada works with its

federal partners and clients to modernize their connectivity experience through consolidating and standardizing the options available to them. This results in more secure, stable and reliable connections, economies of scale, faster turnarounds, enhanced collaboration and reduced risk.

All of this makes the Government of Canada more responsive to Canadians’ demands for services they can connect to anytime, anywhere—ultimately, better serving Canadians.



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