Private 5G networks are a *huge opportunity* for Canadian telcos

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New solutions will drive the transition from telcos to techcos

Private 5G networks represent great potential to deliver enhanced mobility across a wide range of use cases, including secured connectivity, automated guided vehicles (AGVs), worker safety, drones, smart cities, and more. According to Grandview Research, the Canadian private wireless market generated approximately $96 million of revenue in 2025, and is expected to grow at an impressive 54 percent CAGR to $2.8 billion by 2033. This extraordinary growth velocity, combined with the potential lifetime value and vendor lock-in effect of multi-year service contracts, elevates private networks as a critical battleground for Canadian operators to reinforce their role as value-added infrastructure and ecosystem players. This evolution enables operators to deliver advanced technology solutions in cybersecurity, IoT automation, AI, and managed services – supporting their transformation from traditional telcos to techcos.

Current challenges in adoption

The outlook for the next five to seven years is promising for private networks in Canada, but this follows four years of slow adoption. Many enterprise clients have yet to develop strong innovation roadmaps or execute advanced solutions that fully leverage the speed and capacity of private networks, hindering returns on capital investment. While many customers highlight the potential of private networks to automate key processes, they have primarily viewed the technology as a means to address connectivity gaps rather than as a foundation for broader innovation.

Telcos have also faced challenges in positioning themselves as end-to-end technology providers for enterprise clients, partly because the high cost of spectrum in Canada has constrained solution strategies, often forcing them into complex and expensive infrastructure designs.

To accelerate the adoption of private networks, the market must first overcome several key hurdles.

Adopt mission-critical use cases: Many enterprises still view private networks through a narrow lens of enhanced connectivity for basic devices, such as tablets and phones. The unique value proposition of private 5G networks lies in enabling mission-critical use cases, such as autonomous vehicles, digital twins, and drones, which remain underdeveloped in current business roadmaps. When combined with advanced AI, these capabilities can drive proactive process automation, accelerate business value, and enhance customer experience.

Spectrum availability and licensing: Securing radio spectrum is complex and costly. Operators paid premiums during auctions, and hence costs are passed on to end customers. In addition, spectrum availability is difficult as allocation of dedicated bands is challenging due to public demands for reliable connectivity.

Integration with existing infrastructure: Many enterprises still rely on legacy wired systems. Transitioning to wireless requires costly upgrades and vendor support, slowing the adoption process. In addition, new connectivity strategies need to be contemplated across their network stacks, considering the use cases of mission-critical vs. non mission-critical services to optimize utilization of connectivity assets.

High costs of infrastructure and deployment: Infrastructure, equipment, licensing, and expertise demand significant upfront investment. Enterprises often compare private 5G against alternatives like LoRaWAN, NBIoT, and Wi-Fi, questioning whether private networks can justify their expense and whether they provide superior benefits from alternative connectivity solutions.

Security concerns: While dedicated private networks enhance security, they also expand the attack surface due to wide coverage areas and vulnerable IoT devices. Enterprises must implement robust protocols and continuous monitoring.

Interference and coverage: Higher-frequency 5G bands are prone to interference from physical obstacles, requiring additional radio infrastructure to ensure reliable coverage. Many telco network engineers will cite this as a challenge to non-licensed spectrum, and necessitate the use of public spectrum to ensure reliability, but this can result in higher yearly cost impacting any investment return for the enterprise.

A shifting ecosystem and signs of acceleration

On May 14, 2025, ISED introduced Non-Competitive Licensing (NCL), granting enterprises access to up to 20 MHz of spectrum per license area; this was increased to 80 MHz late in 2025. This policy can reduce reliance on operators, enabling enterprises to manage and control their own private networks while lowering spectrum fees and operational costs. This is an important change as it helps to address many of the critical issues stated above, including:

- **Spectrum access.** Enterprises now have dedicated spectrum access, avoiding the complexity and cost of public spectrum access from operators.
- **Infrastructure management.** NCL also allows enterprise IT teams to support and self-manage private networks, not subject to the CRTC implementation of public spectrum. This allows IT end-to-end management and control of its connectivity network, ensuring quality of service to stakeholders
- **Cost.** Cost of NCL spectrum ranges from $0.01 to $1.80 annual base rate (per MHz per km²). This makes the relative cost of spectrum very palatable in the overall investment for private networks and a significant differentiator from public network cost.

This event mirrors the US, when it launched 150 MHz of the 3.5 GHz band in 2019 (CBRS spectrum); this has seen explosive growth to over 400,000 sites deployed since 2021. NCL could similarly become a game changer for Canadian private network adoption by eliminating these barriers.

Lower-cost hardware: Fit for enterprise

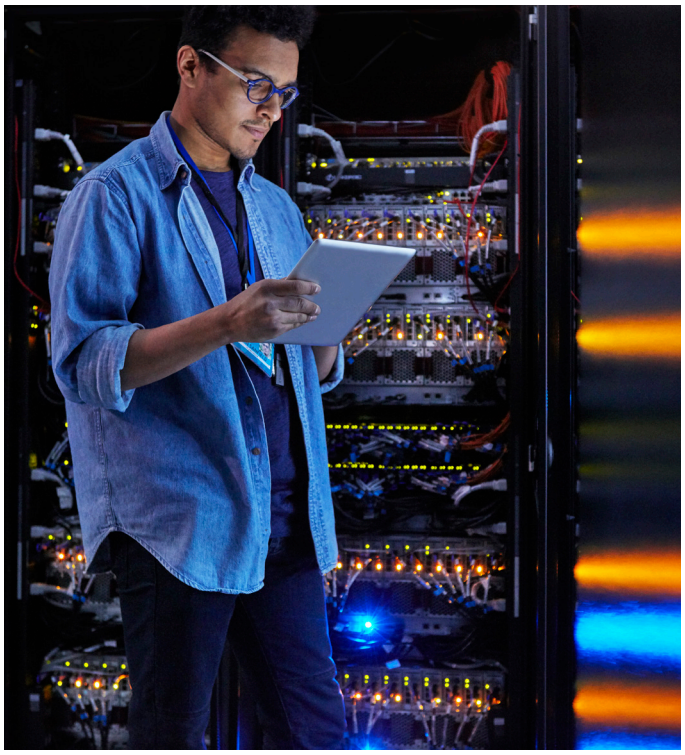
Another driver of adoption is the rise of enterprise-focused OEMs such as Celona and Expeto. These vendors simplify deployment with plug-and-play, interoperable models, reducing implementation and management complexity. Combined with NCL, private wireless networks are becoming a cost-competitive alternative to Wi-Fi or other connectivity solutions, especially in enterprise environments that can support mission-critical applications and exist in a hybrid infrastructure scenario.

Automation and AI: Unlocking new value

Perhaps the most transformative opportunity lies in AI-driven automation. Private networks enable richer data collection from sensors and devices, powering digital twins, predictive analytics, and autonomous operations.

For example, Telefónica's deployment at the Carajás Mine achieved 15 percent productivity gains through autonomous vehicles, remote monitoring, and advanced analytics.

As the cost and implementation barriers start to dissipate, industries such as mining, manufacturing, and logistics stand to benefit significantly from similar applications and use cases.



How can telcos address these challenges?

With market dynamics in Canada shifting rapidly, the availability of NCL spectrum will require Canadian telcos to rethink their go-to-market and product strategies to incorporate both licensed and unlicensed spectrum availability. This will be essential to support the accelerating growth of private networks and evolving customer demands across key industry sectors.

In the Canadian market, across its core industry segments and business sizes, NCL can offer a compelling solution to support the increasing number of connected devices and mission-critical applications in an operational environment. With superior network capacity, data speeds, and reliability, combined with cost-competitive infrastructure as compared to current connectivity technologies such as Wi-Fi, NCL can deliver the value and well-timed return on investments expected by the business.

In addition, as enterprise clients gain the ability to apply for NCL licenses directly from ISED, the number of competitive third-party service providers offering private network equipment is expected to grow. These smaller, more agile players are likely to encroach on traditional telco territory by carving out specialized niches in targeted markets. In lower-complexity environments such as campuses and manufacturing facilities, private networks may also emerge as cost-effective alternatives to Wi-Fi, further intensifying competitive pressure on Canadian telcos.

As these market and competitive dynamics continue to take shape, telcos will need to extend their transformation efforts beyond simply leveraging network technology assets. They must evolve their sales operating models, workforce strategies, and ecosystem partnerships to fully capture the monetization potential of private networks.

In my previous paper, *Journey from telco to techco – The path to monetization*, we explored the opportunities available to telcos in mastering the B2B space. Delivering on these opportunities will require strategic partnerships across vendors, system integrators, advisory firms, and hyperscalers to accelerate monetization. Success will depend on building end-to-end solutions – not only across connectivity through private networks, but also by helping clients innovate and enable critical use cases that deliver meaningful returns on investment.

These are fundamental paradigm shifts that impact the core operational design of telcos, transforming the organization into an agile and digital mindset that will be critical to addressing the shifting market dynamics and becoming a leader to accelerate new connectivity and automation technologies in Canada.

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