



Direct-to-Device (D2D) and Non-Terrestrial Networks (NTN)



“Our expertise across satellite communications, network integration and operational systems helps clients move from D2D demonstrations to secure and scalable operational services.”

CGI helps satellite operators, mobile network operators and government organisations deliver resilient communications through Direct-to-Device (D2D) and Non-Terrestrial Network (NTN) services.

At CGI, we combine space systems expertise with terrestrial network integration to help our clients extend connectivity, improve operational resilience and support future communication services.

With decades of experience supporting space and communications programmes, we enable clients to deploy satellite connectivity as secure, scalable operational services ready for real-world use.

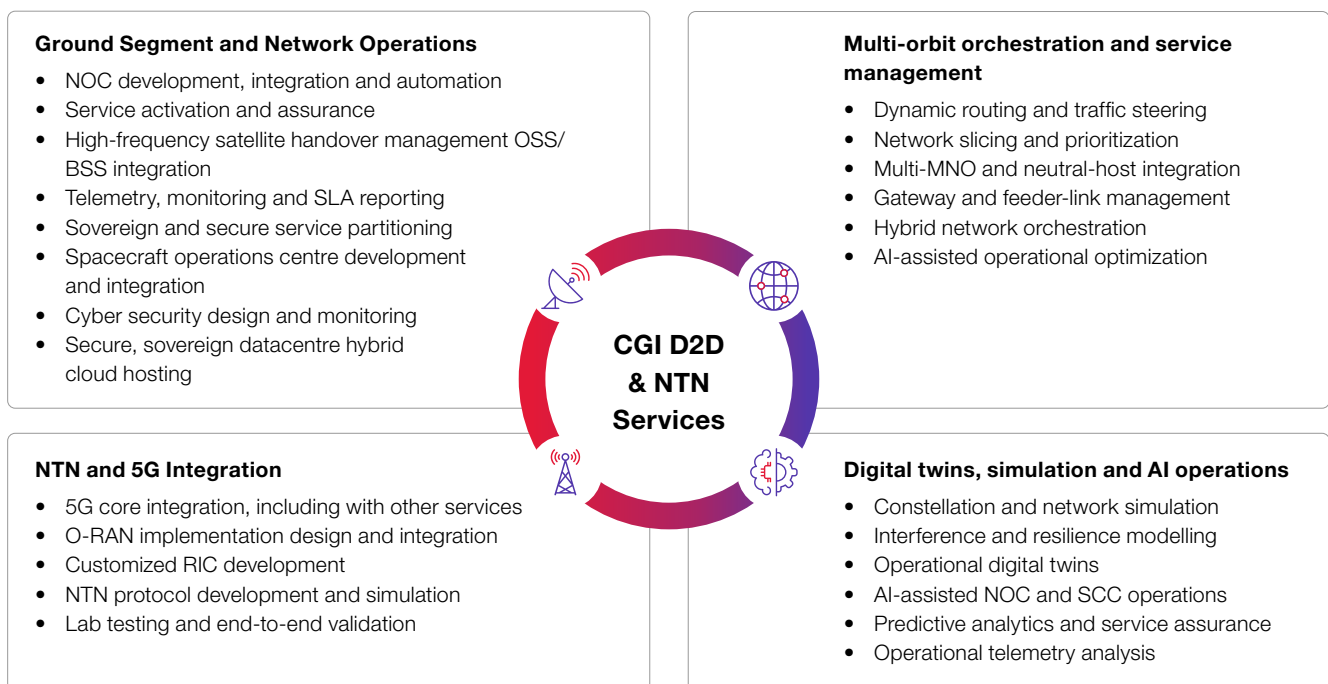
We help our clients to:

- ✔ Design and integrate D2D and NTN architectures that support future network evolution
- ✔ Build service and radio orchestration software across terrestrial, LEO, MEO and GEO networks
- ✔ Integrate 5G Core, RAN and satellite products and systems to support seamless connectivity
- ✔ Reduce operational costs and improve service quality through automation, monitoring and operational analytics
- ✔ Validate product and network performance through simulation, digital twins and our Future Networks Lab
- ✔ Enhance resilience through our cyber-security and service management capabilities.

Moving from connectivity to operational services

D2D is emerging as a key opportunity for satellite operators to deliver operational communications infrastructure and services. As operators explore proof-of-concept deployments and begin to move towards operational systems, the challenge is no longer connecting the handset to a satellite, but operating reliable, secure and scalable services which can be integrated into terrestrial networks.

We support the operational layer where satellite systems, terrestrial networks and service management converge. Our expertise spans network operations, service orchestration, automation and integration across hybrid communications environments.



Supporting the future of hybrid communications

The future of D2D will be defined not only by satellites in orbit, but by the operational platforms, orchestration, automation and network integration required to deliver secure, resilient and scalable services on the ground.

CGI is helping clients explore and operationalise next-generation communications through programmes including:

- **SkyPhi D2D Demonstrator:** engineering and integration of 5G NTN ground segment, RAN integration, orchestration and operational validation.
- **A leading LEO operator:** designing and integrating the ground RAN for an operational service.
- **OneWeb GNOC:** CGI designed and built the world's first network operations centre for a global LEO constellation.
- **ESA ECSAT 5G/6G Hub:** hybrid GEO/LEO and terrestrial 5G integration supporting NTN experimentation and orchestration.
- **Sunrise Phase 3:** multi-orbit 4G/5G backhaul programme developing and demonstrating neutral-host architectures, slicing and multi-orbit LEO/GEO orchestration.
- **Future Networks Lab:** CGI's hybrid satellite and terrestrial integration environment supporting end-to-end NTN testing, interoperability and operational experimentation.
- **CGI RuralConnect360:** hybrid terrestrial and non-terrestrial connectivity solutions enabling resilient communications in underserved regions.

Why operators choose CGI



Delivering NTN and D2D capabilities today

We support the development of NTN and D2D capabilities through programmes including SkyPhi, the ESA 5G/6G Hub, Sunrise Phase 3 and the Future Networks Lab which covers ground segment integration, RAN technologies, orchestration, simulation and operational validation.



Delivering mission-critical programmes

Our experience spans ground segment systems, network operations centres, service orchestration, 5G integration and secure operational platforms, helping operators transform satellite capability into resilient, scalable and commercially viable services for commercial and public sector clients.



Building the operational layer

We design and deliver network operations, service management, planning and operational control systems supporting commercial and sovereign satellite communications networks, including global LEO constellations and mission-critical communications programmes.



Bridging SatCom and telecoms

We integrate satellite systems with terrestrial networks, 5G architectures, OSS/BSS platforms and operational support systems, combining expertise across satellite communications, telecoms and large-scale IT systems.



Supporting operator ownership and control

We deliver operator-owned platforms that reduce vendor lock-in, support service differentiation and provide a foundation for future network evolution across multiple vendors and technologies.



Reducing risk before deployment

We develop simulation environments, digital twins, integration laboratories and test platforms used to validate architectures, operational concepts and network performance before deployment.

About CGI

Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are an IT systems integrator working to advise, build and operate bespoke, technically complex, mission-critical information systems. Bringing innovation to our clients using proven and emerging technologies, agile delivery processes and our expertise across space, defence, intelligence, aerospace and maritime, all underpinned by our end-to-end cyber capability.

For more information

Visit cgi.com/uk/space

Email us at enquiry.uk@cgi.com