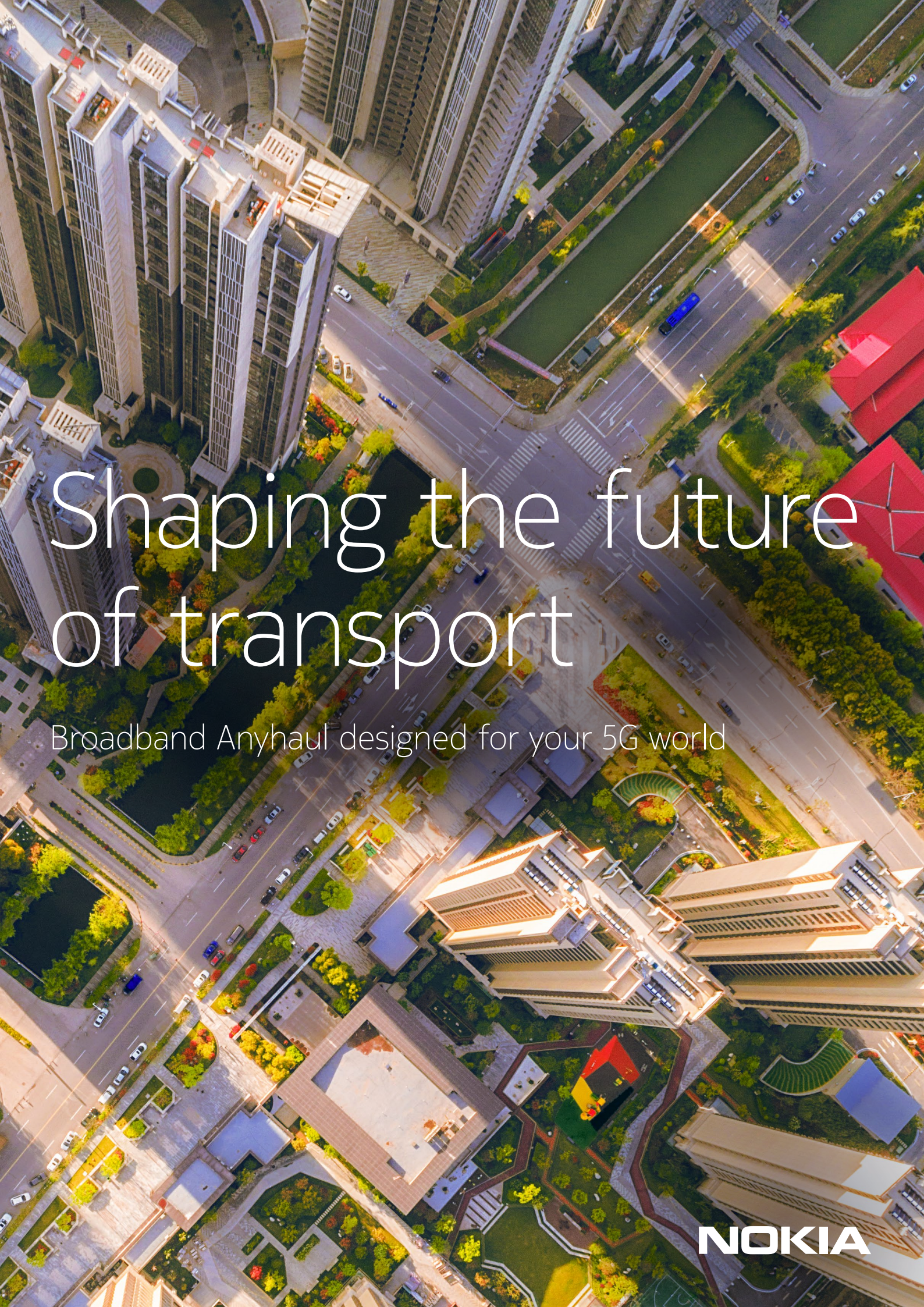
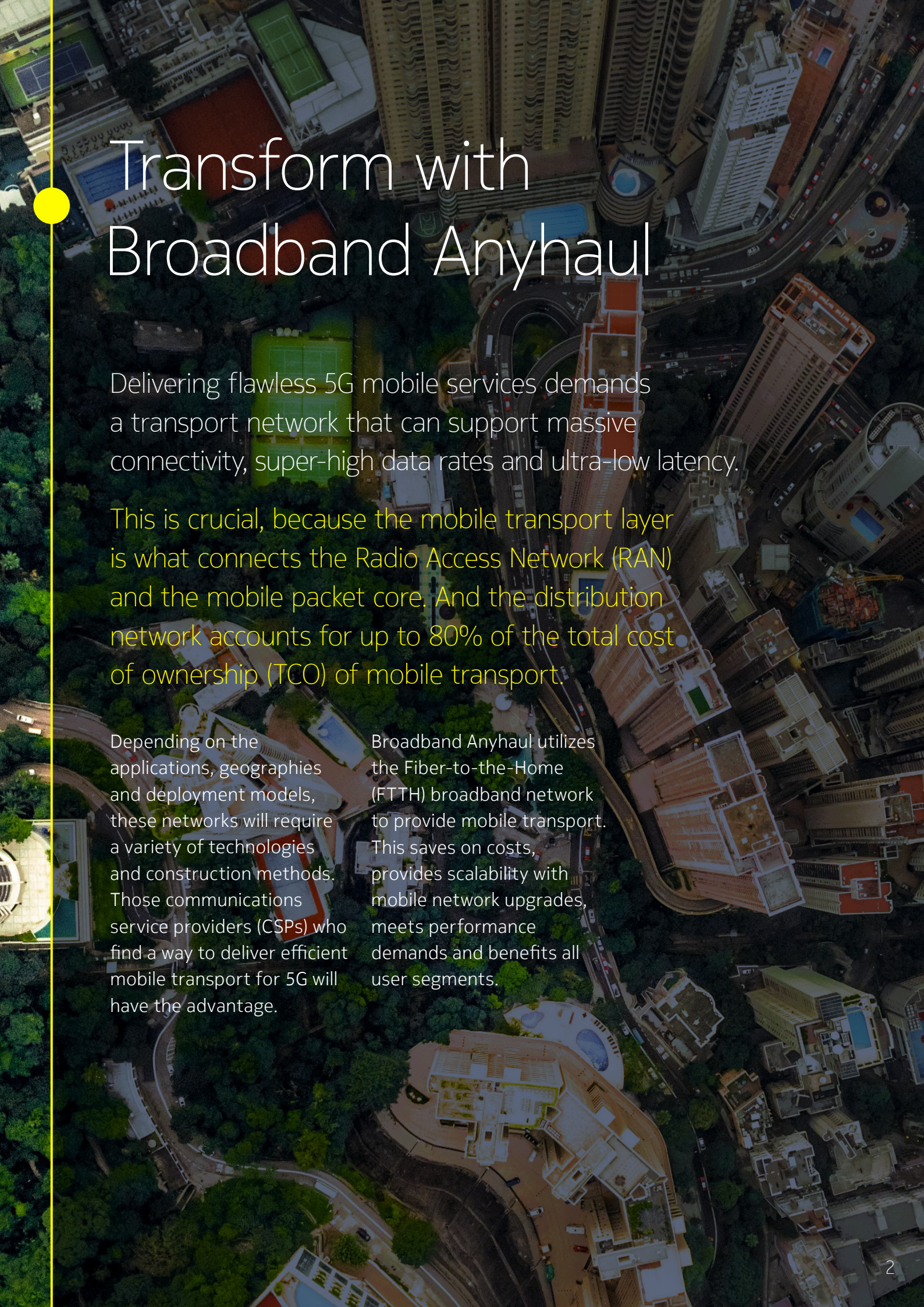


Shaping the future of transport

Broadband Anyhaul designed for your 5G world

NOKIA



Transform with Broadband Anyhaul

Delivering flawless 5G mobile services demands a transport network that can support massive connectivity, super-high data rates and ultra-low latency.

This is crucial, because the mobile transport layer is what connects the Radio Access Network (RAN) and the mobile packet core. And the distribution network accounts for up to 80% of the total cost of ownership (TCO) of mobile transport.

Depending on the applications, geographies and deployment models, these networks will require a variety of technologies and construction methods. Those communications service providers (CSPs) who find a way to deliver efficient mobile transport for 5G will have the advantage.

Broadband Anyhaul utilizes the Fiber-to-the-Home (FTTH) broadband network to provide mobile transport. This saves on costs, provides scalability with mobile network upgrades, meets performance demands and benefits all user segments.

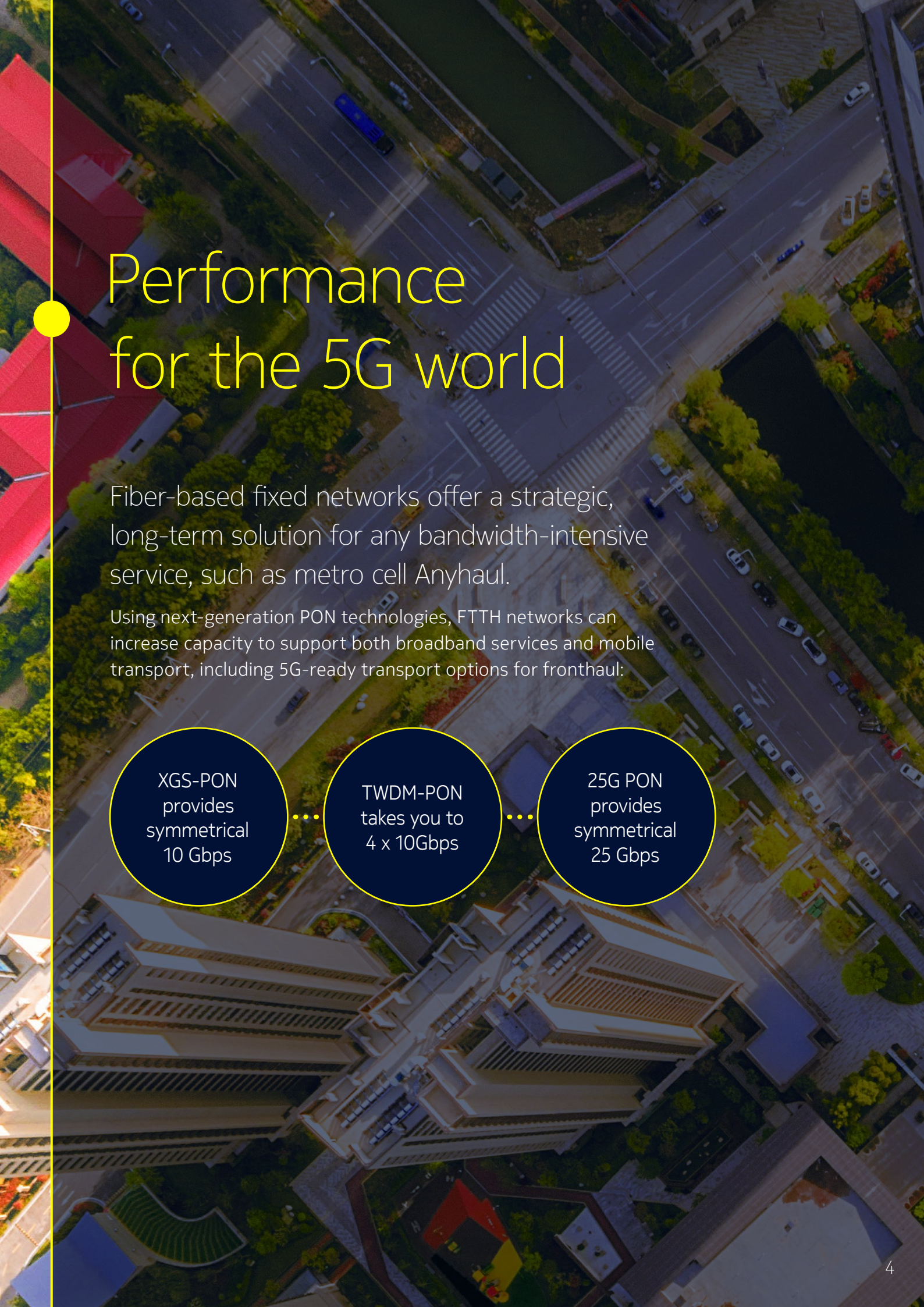
Efficient scalability

To deliver low latency and high throughput, 5G access networks will become increasingly densified.

With its massive throughput and cell-densification strategy, Broadband Anyhaul is perfect for use on existing FTTH deployments. This is clear when mapping footprints of residential PON networks with those of businesses and mobile small cell sites.

- Fiber-to-the-premises (business services)
- Fiber-to-the-home (triple-play services)
- Fiber-to-the-cell (mobile transport)

FTTH networks are, by design, ten times denser than the number of radio cells in 5G mmWave deployments. As a result, CSPs can efficiently cover new cell sites as the mobile network grows.



Performance for the 5G world

Fiber-based fixed networks offer a strategic, long-term solution for any bandwidth-intensive service, such as metro cell Anyhaul.

Using next-generation PON technologies, FTTH networks can increase capacity to support both broadband services and mobile transport, including 5G-ready transport options for fronthaul:

XGS-PON provides symmetrical 10 Gbps

TWDM-PON takes you to 4 x 10Gbps

25G PON provides symmetrical 25 Gbps

Performance highlights

Throughput

Boost FTTH network capacity, make it future-proof and converge residential, business and Anyhaul services with our next-generation portfolio.

Quality of Service

Flexible traffic scheduling and shaping – combined with enhanced QoS traffic management – ensure mobile traffic is prioritized.

Resilience

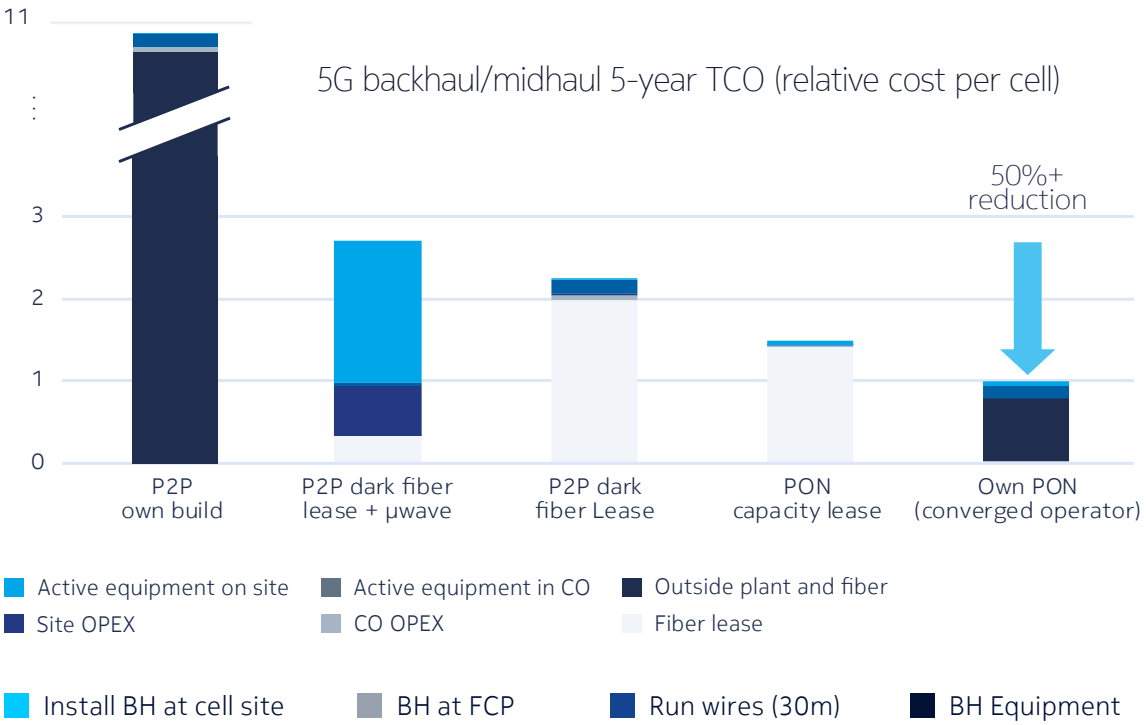
Advanced mechanisms ensure the protection, availability and resilience of mission-critical Anyhaul services.

Fast time-to-market and network monetization

By utilizing existing FTTH networks, you can reduce the time and costs of enabling your Anyhaul network to keep up with demand. As it requires no overlay network, the TCO is at least 50% less than other transport technologies.

Mobile transport at lowest TCO with fixed networks

Source: Bell Labs Consulting



FTTH networks are designed for massive deployments and easy provisioning, making Anyhaul quick to roll out. Plus, you can also benefit from faster fiber network monetization, by generating revenues from residential, business and mobile Anyhaul on a single converged network.

Synergies in the cloud

With fixed and wireless network layers both becoming cloudified, synergies between them are increasing. This enables operators to get network assets up and running, and monetize them – crucial factors to the 5G business case.

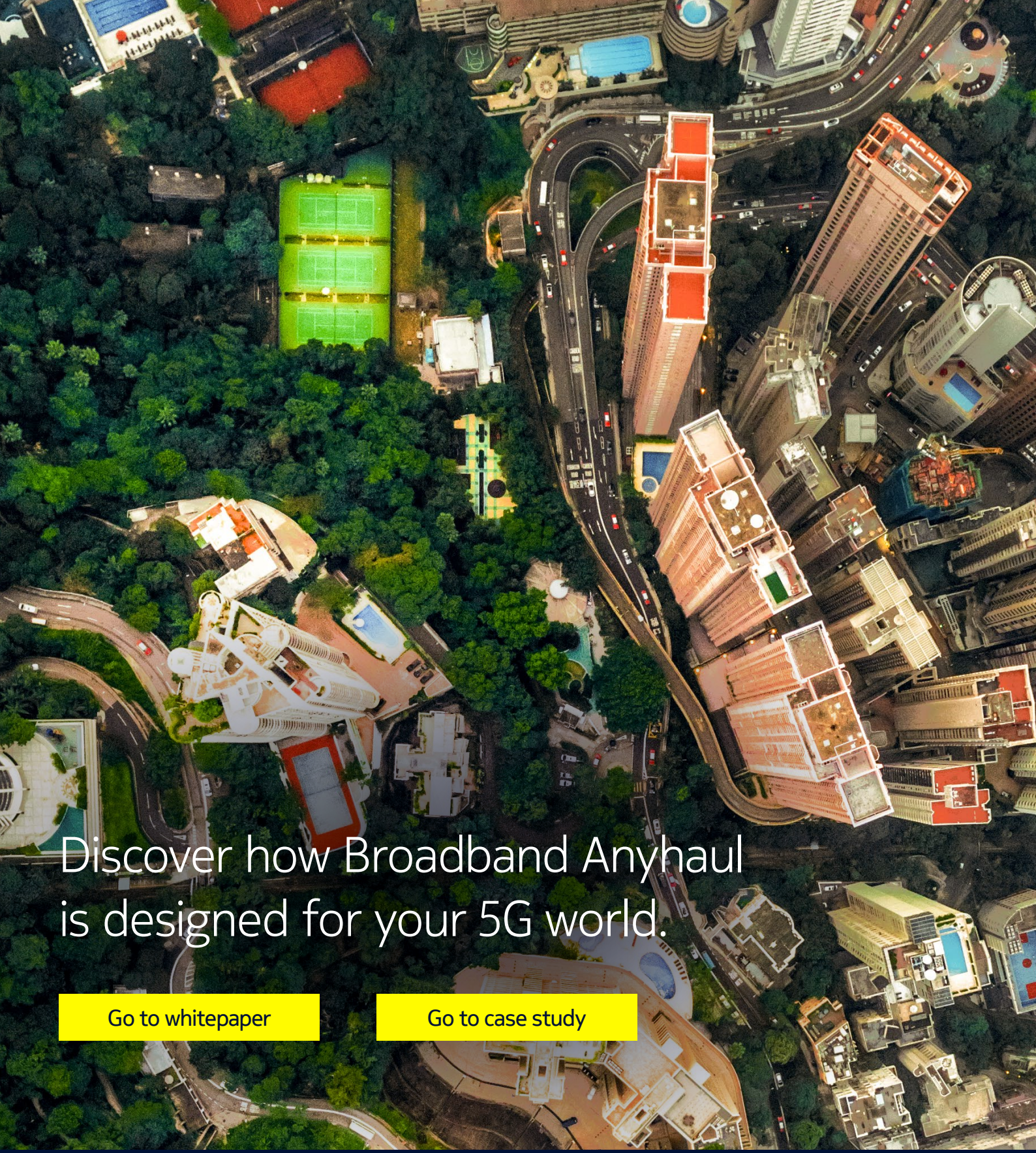
Cloud-based software defined access networks (SDANs) increase efficiency. Their programmable interfaces and centralized intelligence enable fixed access network to coordinate with mobile network elements, and be provisioned and optimized for mobile transport.

Virtualization technology lets operators slice the fixed network infrastructure, and separate different services or traffic types. Each of these virtual slices can have a different set of characteristics. This allows 5G traffic to be managed independently and served with ultra-low latency and high throughput.

Summary

Broadband Anyhaul makes the most of existing fiber infrastructure, extending it to provide a cost-effective, fast time-to-market, high-performance transport technology. It's ready to scale up the density, capacity and capabilities that the 5G era will require.

To cope with future demands and capitalize on the opportunities ahead, fiber broadband networks excel at helping CSPs deliver the performance for residential, business and mobile customers. And they can do this at some of the most dense, usage-heavy and bandwidth-hungry locations – reliably, cost-effectively and flexibly.



About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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