Build the right IP foundation for 5G success
The 5G race is on

5G is unleashing extraordinary new possibilities. It’s ushering in a new digital era of programmable, cloud-native service architectures with zero-touch automation, enabling you to deliver the on-demand experience your customers want, with the economics you need.

Imagine supercharged new radio technology that combines the untethered freedom of wireless with the performance of fiber. From connecting humans and machines at a massive scale to delivering extraordinary new service experiences for consumers, digital enterprises, smart cities and Industry 4.0, 5G promises the world so much.
Tomorrow’s success demands the right focus today

The truth is that investing in 5G radio alone won’t be enough; you’ll simply create a 5G network with 4G performance. To truly deliver on the promises of 5G you need an IP infrastructure that’s capable of shifting your network up into 5th gear.

The Internet Protocol is the common bearer for all 5G services, making your IP network the critical, load-bearing foundation for your future 5G success. But 5G demands new IP transport capabilities that go well beyond those needed for 4G/LTE. There are many other moving parts that must also come together to build a 5G network that fits your needs today and is ready for whatever tomorrow brings.

First and foremost is a massively scalable RAN architecture with many deployment options for splitting and distributing network functions. You’ll also need Multi-access Edge Computing (MEC) to host compute and storage-intensive functions as well as user applications that demand ultra-reliable, low latency delivery. All this needs to be built around a highly disaggregated, cloud-native 5G service core containing network functions that may be distributed over hundreds of central offices and data centers.

Your IP network plays a pivotal role in this evolution. Is yours ready for 5G? Is it purpose-built to let all traffic flow reliably, securely and freely without congestion from your data centers and the many edge clouds where services live to the radio access network where users connect? If not, Nokia can help deliver the network evolution you need to get there ahead of your competitors.

5G will be extraordinary - for every industry, every business and every experience. Preparing your IP network is a critical step.
First to 5G: The early mover advantage

Your most valuable 4G customers today will be your first 5G opportunities tomorrow. 5G enables you to offer them enhanced mobile broadband services with faster speeds at a lower cost, and to serve busy traffic hubs such as business parks, shopping malls, airports, railway stations and sports stadia.

Getting an early mover advantage demands agility and speed. You’ll need tools and capabilities that help you enable the zero-touch commissioning of thousands of cell site routers and the dynamic provisioning of high-capacity IP backhaul transport to interconnect 5G macro cells and hot spots. You can rapidly build initial coverage by using the non-standalone mode to interwork 5G radio access with your existing 4G/LTE core infrastructure.

But the 5G race is not a sprint, it is a marathon. You are in it for the long run. The 5G technology cycle will easily last a decade, so to avoid false starts and setbacks, your IP network must have the capacity, agility and stamina to carry you through the entire 5G evolution cycle without forklift upgrades.

By making the right investments in your IP network now, your 5G network can take off faster, scale better and go the distance.
Mass market momentum

As more devices, frequencies and applications become available, being able to quickly expand 5G coverage wherever market demand leads will help you steal a lead as the 5G mass market takes off.

Your 5G RAN will then need to scale out using smaller cells and higher frequency bands to provide coverage and capacity for dense urban metros and high traffic areas. You may even consider deploying 5G fixed-wireless access as an alternative for wireline broadband in underserved areas with last mile bandwidth restrictions.

You’ll need a combination of distributed and centralized RAN architectures to optimally cover different demographics and cell densities. Your IP network must be extended with high-capacity/low latency fronthaul and midhaul transport to interconnect 5G remote radio units with distributed and centralized units containing time-sensitive synchronization, processing and control functions.

Be unstoppable on your path to 5G with Nokia IP Anyhaul®. Scalable mobile transport for any generation, any topology and any service deployment.

The Nokia IP Anyhaul® transport solution lets you flexibly distribute lower and higher layer RAN functions to achieve your operational performance and cost goals. You can also converge fixed wireline and wireless access in a multi-access edge, empowering you to deliver a seamless 5G service experience anywhere, with optimized economics so vital for success.
Stepping up to win the final push

As 3GPP Release 16 standards are completed and implemented you are ready to step up your 5G network and take it to the next level.

By introducing a 5G Core and transitioning the 5G RAN to the standalone mode, you can achieve even higher access speeds and support ultra-reliable, low latency communication for industry 4.0, massive machine type and mission-critical applications. Again, your IP network plays a critical role in helping you realize the full revenue potential of the 5G digital service evolution.

How?
By interconnecting a plethora of physical and virtualized network functions in the distributed edge and core cloud and providing the transport resources that are needed to meet their specific SLAs.

Orchestrating these 5G services requires a perfect union of webscale IT and carrier-grade IP network technology. However, in practice there will be lots of operational and administrative boundaries that prevent interworking and get in the way of process automation.

Unleash the 5G service opportunity with Nokia Cloud Interconnect. Seamless interworking of distributed edge and core cloud infrastructure across the Wide Area Network.

You’re able to create a smart IP transport fabric that frees you to dynamically place 5G user and control plane functions anywhere in the 5G service cloud, optimizing cost and performance. As you instantiate and move dynamic workloads, Nokia Cloud Interconnect automatically provisions the necessary transport services in the appropriate network slices and assures deterministic latency and throughput. Orchestration: optimized!
Your formula for success

Ultimately your 5G success rides on a fast, reliable and future-proof IP network that can go the distance without pitstops or wheels coming off. It must be purpose-built to help you protect your 5G infrastructure, your valuable data, your customers and your reputation for service excellence.
Deploy an IP network you can trust

As with any innovation, 5G introduces significant new security risks that must be addressed, end-to-end. Open interfaces, open-source software, the use of commonly available IT solution components and the addition of billions of unverified devices dramatically increases the attack surface for volumetric DDoS attacks and other security threats.

Nokia Service Routers are equipped with ground-breaking FP4 routing silicon. This gives you built-in security capabilities and a hardened operating system which makes your IP network a part of the solution, instead of a source of more problems.

Go the distance
5G has great potential for disruptive change. To stay the course, you need a future-proof IP network with real stamina: the scalable capacity to keep growing, the adaptability to keep innovating and the longevity to outlast your competitors.

Nokia helps you navigate changes and protect your network investments. Our programmable routing silicon, modular equipment practices and open, extensible platforms and management solutions are designed to expect the unexpected, helping you build a future-proof network that can evolve with your needs. Equipped with insight-driven automation, your IP network will let you deliver services faster, run your network more efficiently and ensure that your customers get the quality and security they expect.
Build that winning team

Of course, it will take great teamwork to make your 5G dream work. Even the greatest athlete needs an experienced coach, the best gear and a strong support team to succeed. The expert network architects and solutions specialists at Nokia are with you for the journey, doing what it takes to get you to 5G faster and help you go further. We understand that each network is unique, and so is each destination. Partner with us and you’ll be teaming up with the only global vendor offering complete, proven and in-house developed solution sets in all 5G domains: 5G RAN, IP Anyhaul, Multi-access Edge, 5G Core and Cloud Interconnect.

Our industry-leading technologies and comprehensive choice of best-in-class platforms can help you get the most out of your 5G investments.
Connect 5G with Nokia IP Anyhaul

Get a running start and keep going with a versatile, cost-optimized and fit-for-purpose transport connecting massive-scale 5G access and edge clouds.

- Optimize coverage and cost with the flexibility to connect 5G New Radio in any topology and all deployment options
- Be backwards compatible with 3G and 4G/LTE for a seamless experience and smooth 5G transition
- Enable fixed and wireless access convergence in a multi-access edge and universal 5G core
- Use model-driven APIs and instrumentation for machine-assisted and fully autonomous operations
- Select from a flexible choice of physical and virtualized platforms under a common operating system
- All powered by the latest IP routing silicon, Ethernet aggregation and optical transport innovations

Nokia IP Anyhaul® has been designed from the ground up to deliver high capacity, ultra-reliable, low latency fronthaul, midhaul and backhaul transport services for 5G. It also integrates with your existing 3G and 4G/LTE radio infrastructure.
Unleash 5G with Nokia Cloud Interconnect

Go digital and deliver the extraordinary 5G experiences your customers expect with the economics you need. Nokia Cloud Interconnect helps you to seamlessly interwork distributed edge and core cloud datacenters. It equips you with a smart, insight-driven IP network fabric to automatically engineer and optimize transport connectivity for your 5G service infrastructure.

• Automatically engineer 5G transport services to deliver digital 5G services with deterministic SLAs
• Leverage open standards and proven technologies to minimize your deployment costs, time and risk
• Convert 5G service intents into IP networking policies with a multi-vendor, cross-domain SDN platform
• Turn petabytes of telemetry data into actionable network insights with cloud-based data analytics
Be a frontrunner in the race to 5G

Why not get on the fast-track to delivering extraordinary 5G service experiences powered by insight-driven performance? Now’s the time to start evolving your IP networking to meet demand today and unleash what’s possible with 5G.

Contact our expert team and let’s talk.

Discover more about IP for 5G