
Your next-generation telecoms network

Gain early competitive advantage



Trusted partner for your Digital Journey

Atos

Shaping the future of telecoms

The telecoms sector is at the heart of major technological advances and convergence, heralding a new era for operators and their customers.

From autonomous cars, to connected healthcare, to mobility-as-a-service, new hyperconnectivity is transforming how people live and work. 5G will help revolutionize the experiences and services that telecoms companies (telcos) can offer. The future for telecoms networks lies in the cloud, with all the agility and efficiency it brings them and their customers. And enabled by 5G, edge technologies are evolving fast, vastly increasing the power and potential of networks and connected devices.

For telcos to get ahead in this new world, investment in next-generation telecoms networks is on the critical path. They must rapidly adapt their networks to changing business needs and accelerate time-to-market for innovative services to win and retain market share.

Atos is working with our Next-Generation Telecoms Network partner ecosystem and leading telcos all over the world to deliver next-generation telecoms networks that help

meet the challenges of hyperconnectivity, changing customer expectations, and cost and revenue demands. Through **Atos OneCloud**, our global cloud service, we are enabling telcos to be cloud-forward. As a systems integrator and trusted partner with 20 years' experience in the telecoms sector, we combine extensive digital transformation and systems integration capabilities with deep domain expertise. We are committed to helping telecoms operators to play a pivotal role in ushering in a new 5G-enabled era.

Telecoms technologies and megatrends

The convergence of new technologies creates major new opportunities for telcos to meet the challenges of today's fiercely competitive markets, intense pressures on costs, and rising expectations of customers.

Strategic challenge	Key opportunity for telcos
Demand for new services to attract and retain customers	Harness new technologies and DevOps to launch new services exponentially faster than even a few years ago
Drive to turn data into value through data-driven operations and monetization	Capture and analyze metrics of network performance to automatically configure it in real time, optimizing price-per-bit running costs.
Requirement for agility, cost-efficiency and flexibility with intense cost pressures and the need to adapt fast	Virtualize, automate and move to the cloud for more flexible, cost-efficient and future-proofed hosting and operations
Need for new business models and revenue streams with imperatives to diversify and compete	Introduce and scale services fast and integrate with third parties using application programming interfaces (APIs) to launch innovative and value-add services
Rising customer expectations for personalized services and richer digital experiences	Leverage AI and analytics to understand customer behaviors and needs across multiple connection channels to shape and enhance services

5G is a vital enabler, both to deliver new technical and commercial services through enhanced broadband and low latency communications, and to optimize agile and cost-efficient telecoms networks, with lower cost per bit, greater power efficiency and more flexibility.



5G network slicing
enables telcos to build virtual networks that are tailored to the applications requirements of specific markets (communication, entertainment, manufacturing, automotive, healthcare, and so on).



Edge
technologies massively increase computing power of devices and out into networks, transforming telcos' ability to offer new real-time services and applications in all sectors.



Software defined networks
bring unprecedented agility and dramatically faster times to market, and more sustainable long-term investment, with less need to replace hardware.



Machine learning, AI, analytics and automation
help to build closed-loop, self-optimizing networks.



DevOps
dramatically reduce time to market for new customer services and experiences.



Virtualization and cloud
Network functions can be efficiently and flexibly hosted in hybrid public or private cloud environments, in core data centers, at the edge, or any combination of those.

Your journey to 5G on beyond: becoming a Next-Generation Telco

The challenge for telcos is how to transform existing networks and be ready to introduce revolutionary new services and solutions to customers across sectors.

As a vendor-independent systems integrator, Atos is uniquely placed to support and accelerate your transformation journey to 5G and beyond. We help telcos to transform their existing 4G networks and introduce 5G services and solutions and, as an agnostic partner, we will integrate the blend of best-of-breed technologies that are right for you. Yet this is not only a technological revolution: it is a transformation of organization, processes and culture to become a Next-Generation Telco.

Virtualizing your infrastructure at the core

Virtualization will enable you to set ambitious targets to reduce the time and cost of bringing new services to markets and the costs of network operations while lowering complexity and risk.

Revolutionizing services for your customers

Reputations and future revenues depend on telcos' ability to differentiate on quality of service whilst rapidly introducing new services across all sectors, from healthcare to automotive to manufacturing to consumer.

Maintaining end-to-end cybersecurity

With partial industry deregulation (including license allowance, price set up) come new regulations around data control and privacy. Cybersecurity must be built in by design to ensure regulatory compliance and foster the trust of your customers.

Building your capabilities at the edge

Edge technology enhances the performance of applications that leverage 4G LTE (Long Term Evolution) and 5G networks; it is especially important for those that require low latency (such as IoT, analytics services, video and augmented reality).

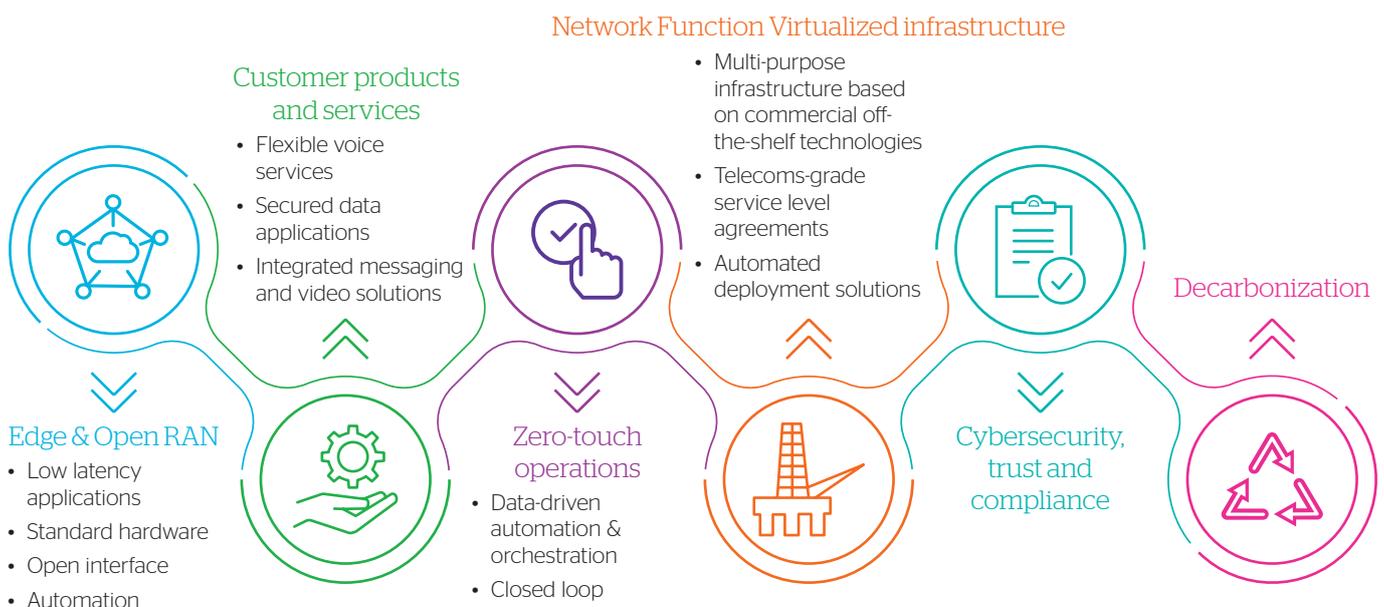
Transforming your network operating model

By maximizing your use of automation, AI and analytics, you become more efficient, more agile, more predictive, more competitive - and deliver excellent experiences to your customers.

Accelerating your decarbonization journey

Next-Generation Telecoms Networks bring major new opportunities for carbon reduction and energy-efficiency.

A next-generation telcoms network



Virtualizing your infrastructure at the core

A vital step on the journey to cloud is network function virtualization and containerization.



Benefits of network function virtualization and containerization

By decoupling telecoms functions from their underlying infrastructure, network function virtualization will give you the agility and flexibility you need to simplify the deployment and scaling of new and existing services to customers.

Building on this, containerization accelerates provisioning and management of network functions, further simplifying the deployment and scaling of services and migration of services between different hosting models. Containerization will also reduce your infrastructure overheads, with the same hardware used to serve more users, provide more bandwidth and enable richer services.



How we can help: bringing you efficiency, agility and control

With very high demands for performance, scale, availability and security, network function virtualization for telcos is more complex than for other domains. We'll help you to navigate this complexity by identifying your requirements, then selecting and seamlessly integrating the optimal virtualized core infrastructure to meet your needs.

As the single point of responsibility for your virtualized infrastructure, we will leverage our partner ecosystem of market-leading vendors, integrating best-of-breed components to create end-to-end turnkey solutions that:

- Provide a common infrastructure to co-host network functions from multiple vendors
- Support the high throughput you need for network applications
- Meet SLAs adapted to network needs, with 99,999% of availability.

Atos also delivers Container-as-a-Service infrastructure, simplifying and accelerating deployment of containers to bring you the benefits of:

- More efficient use of hardware
- Flexibility to use your own hardware, hybrid public and private cloud or any combination
- Scalability and agility to adapt to your changing business needs.

Building your capabilities at the edge

Given the rapid convergence of 5G, IoT, cloud and edge computing, the most significant infrastructure investments by telcos will be at the edge.



Advantage with edge and Open RAN

Edge architectures can be complex, comprising layers of hardware, container management, applications, security and service assurance. The ability to orchestrate edge applications end to end will be increasingly essential for flexibility, efficiency and seamless customer experiences. Virtualization at the edge of your network will give you even more flexibility and cost-efficiency for deploying new customer services and applications.

In addition to applications at the edge, Radio Access Networks (RAN) will be virtualized. While remote radio units will remain on masts, baseband processing units will be virtualized and hosted at the edge. Open-RAN replaces vendor-proprietary interfaces with open standards, providing greater flexibility to select best-of-breed components.



How we can help: powerful orchestration at the edge

We recognize that you need the flexibility to grow and adapt your edge network, applications and capabilities in line with your customer and operational demands, not with technology release cycles. That's why we will ensure that you avoid lock-in to specific vendors. As systems integrator, we can deploy and orchestrate edge applications, networks and hardware, seamlessly integrating best-of-breed technologies based on your needs.

Applications at the edge

Working with application vendors, we can provide edge applications for your customers that maximize the value and potential of new low latency technology; for example, we deliver video analytics applications with functionalities such as real-time detection of persons, gaming applications and virtual reality experiences.

Hardware at the edge

Atos' edge servers, with wide temperature ranges and low power consumption, are designed to operate in edge environments outside data centers. They include, for example, GPU cards for innovative video and image processing applications that use IoT devices with a built-in camera.

RAN and Open RAN

Working with our partner ecosystem, we provide end-to-end RAN solutions for a range of applications and services, from indoor small cells to rural networks and private networks.

Revolutionizing services for your customers

Thanks to virtualization and amazing data transfer speeds, a vast set of new 5G-enabled real-time applications will help make life easier, safer and healthier.



Delivering and securing a wide range of services

Using a Services Delivery Platform, telcos can achieve a common horizontal execution environment to deliver all customer products and services using an IP Multimedia Subsystem (IMS) as well as current mobile/fixed networks and terminals. Designed for today's and tomorrow's mobile/IMS networks and phones, a Services Delivery Platform can provide a wide catalog of off-the-shelf services to telco customers across the enterprise and residential markets.

Data applications are required to carry user traffic for any kind of network technology 2G/3G/4G/5G and integrate security controls and content filtering to protect the flow of data and safeguard the network.



How we can help: enabling standout customer experiences

Atos can help you to upscale existing services and launch new voice, messaging and data services in your virtualized environment.

We have developed a catalog of cloud-native applications that have been deployed in over 20 telcos worldwide (including a Services Delivery Platform, IMS solution, Messaging, Data Core packet, and Video Analytics).

To deploy these services, we reuse and adapt from our catalog, reducing your costs and time to market by up to five times. We guarantee the high scalability, performance and availability you require. These applications can be integrated into an orchestration and automation platform (see below) to ensure scalability and flexibility.

Transforming your network operating model

Digital transformation of network operations and maintenance maximizes network efficiency, speed and agility with the power of automation, orchestration, and real-time data and analytics.



Automation and orchestration for zero-touch operations

By transforming then automating manual processes, telcos can dramatically increase speed and efficiency. In addition, service orchestration is the execution of the operational and functional processes involved in designing, creating, and delivering an end-to-end service. By implementing an orchestration platform, zero-touch network operations become a reality, lowering operating costs, simplifying the configuration of services, and bringing the benefits of agile, flexible virtualized network operation and maintenance.

Continuously adaptive automation increases the speed of changes to or maintenance of the network, therefore improving quality of service to end customers. Services can be easily configured to suit customer preferences and requirements.

Closed-loop, real-time AI and analytics integrated with automation and orchestration improves network reliability and ensures that operation and maintenance staff can work more efficiently, creating a truly data-driven, self-optimizing network.



How we can help: accelerating your digital transformation

Atos has supported leading telcos on their digital transformation journey to become data-driven organizations. Through this, we have developed our proven Digital Transformation Framework, applied across all industries and with governments:

Transforming the operating model

We will work with you to transform and optimize processes and ways of working to implement industry best practice.

Implementing automation and orchestration solutions

Working with our partner ecosystem, we will select and integrate the technology platform best suited to our customer's needs. This can be an open source orchestration solution or a vendor-specific orchestration platform, depending on your requirements.

Embedding actionable data

We develop, deploy and integrate machine learning, AI and data analytics solutions into intelligent automation and staff decision-making to improve performance, productivity, efficiency and customer service.

Maintaining end-to-end cybersecurity

Telcos, their stakeholders and governments require that, in the age of 5G, networks and data are secure and user privacy is maintained.



A complex cybersecurity and compliance landscape

In an evolving regulatory environment, trust and compliance must be robust, resilient and have the confidence of customers, partners, staff and regulators.

To deliver and maintain an effective, end-to-end network security strategy, threat analyses and security assessments must be ongoing and adapted to an evolving threat landscape and as security technologies and services advance.

With new hyperconnectivity, advanced security controls must be in place. Securing systems and networks requires visibility end to end, from service to network. By automating infrastructure configuration, security can be in-built by design, with instant patching in the event of a breach. Effective Identity and Access Management is essential, with full protection and encryption of data at rest and data in transit. Public key and secret key management is also essential, delivered by approved and secure solutions.

Advances in technology, including machine learning, AI, analytics and automation, can significantly improve an organization's responses to risks and attacks.



How we can help: securing your trusted network

As Europe's leading cybersecurity provider and one of the top three in the world, Atos leverages world-leading talent and technological resources across our global network.

Atos provides a comprehensive suite of cyber security products, services and expertise to secure Next-Generation Telecoms Networks. These include: Trustway solutions to protect data; hardware security modules to safeguard and manage digital keys, perform encryption and decryption functions for digital signatures, with strong authentication and other cryptographic functions; Identity and Access Management to manage user access; and Public Key infrastructure to create, manage, distribute, use, store and revoke digital certificates and manage public-key encryption.

Once security is implemented in the design, we leverage our Security Operations Centers not only to respond effectively to security events, but also to pre-empt threats and attacks. We deliver Security Orchestration, Automation and Response using AI analytics and automation to predict and automate responses to neutralize known threats while harnessing machine learning and human expertise to identify and protect against new threats.

Accelerating your decarbonization journey

By design, Next-Generation Telecoms Networks will contribute to reducing carbon emissions and increasing energy efficiency of mobile networks.



Lower carbon and higher energy-efficiency

Core networks are expected to see improvements in the energy efficiency through advances in technology combined with changes in underlying architecture.

Rapidly increasing improvements in optical transmission, higher performance chipsets used in network equipment, and virtualized and containerized infrastructures will each continue to deliver more gigabytes per kilowatt-hour.

The main benefits of 5G for the access network will result in significant savings in the energy consumption of the network per bit of data transmitted. The energy load (the average amount of energy required to transmit data of a 5G cell site) is only 8-15% that of a comparable 4G cell site.

Data center operations can be optimized by assessing and optimizing cooling energy consumption, continuous improvement through permanent monitoring and analytical trend detection, benchmarking, and preventive maintenance.



How we can help: achieving your decarbonization ambitions

Atos can accelerate the digital transformation of your core network to benefit from the most efficient core network solutions and latest radio generation.

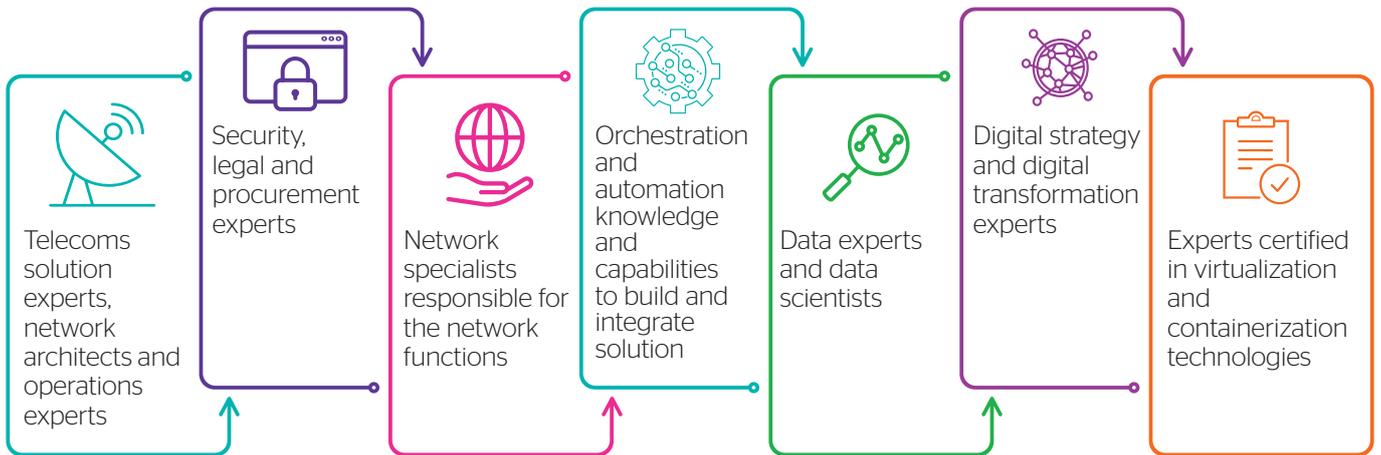
Atos' Cognitive Datacenter technology can be applied across the whole range of environments, from large data centers down to the 'micro-data centers' of cell towers. This is an autonomous and intelligent data center that analyzes events in real time to improve application and infrastructure availability and performance.

We can also build new low-energy data centers with optimized liquid cooling and very low power usage efficiency.

Why Atos?

Atos' global footprint and end-to-end service combines ready access to a worldwide network of expertise and resources, with local knowledge and capabilities.

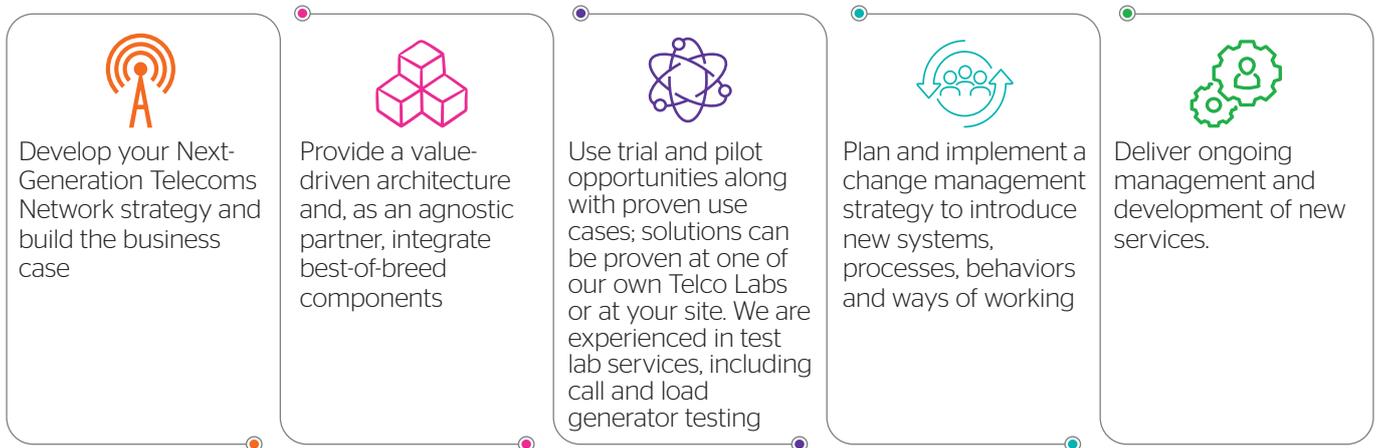
Our highly experienced team includes:



Our Next-Generation Telecoms Network partner ecosystem comprises world-class providers of solutions and specialist expertise including: hardware; virtualization platforms; virtualized network function (VNF) and cloud-native network function (CNF); voice and data services; edge and virtualized RAN (vRAN); orchestration and automation; and security.

To accelerate and secure your journey to cloud, Atos OneCloud blends cloud advisory consulting, application transformation expertise, prebuilt cloud accelerators, and innovative talents in an end-to-end set of services. Atos OneCloud modernizes enterprise applications to be agile, mobile, and rooted in analytics, across public, private, and hybrid cloud environments.

To support and guide your journey, we can work with you to:



What next?

Whether you have already made your first move in Next-Generation Telecoms or are yet to start the journey, partnership through the Atos Next-Generation Telecoms Network ecosystem can help you to achieve your ambitions. Let's start the dialogue.

About Atos

Atos is a global leader in digital transformation with 110,000 employees and annual revenue of € 12 billion. European number one in cybersecurity, cloud and high performance computing, the group provides tailored end-to-end solutions for all industries in 73 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos operates under the brands Atos and Atos|Syntel. Atos is a SE (Societas Europaea), listed on the CAC40 Paris stock index.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

Find out more about us

atos.net

atos.net/career

Let's start a discussion together



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