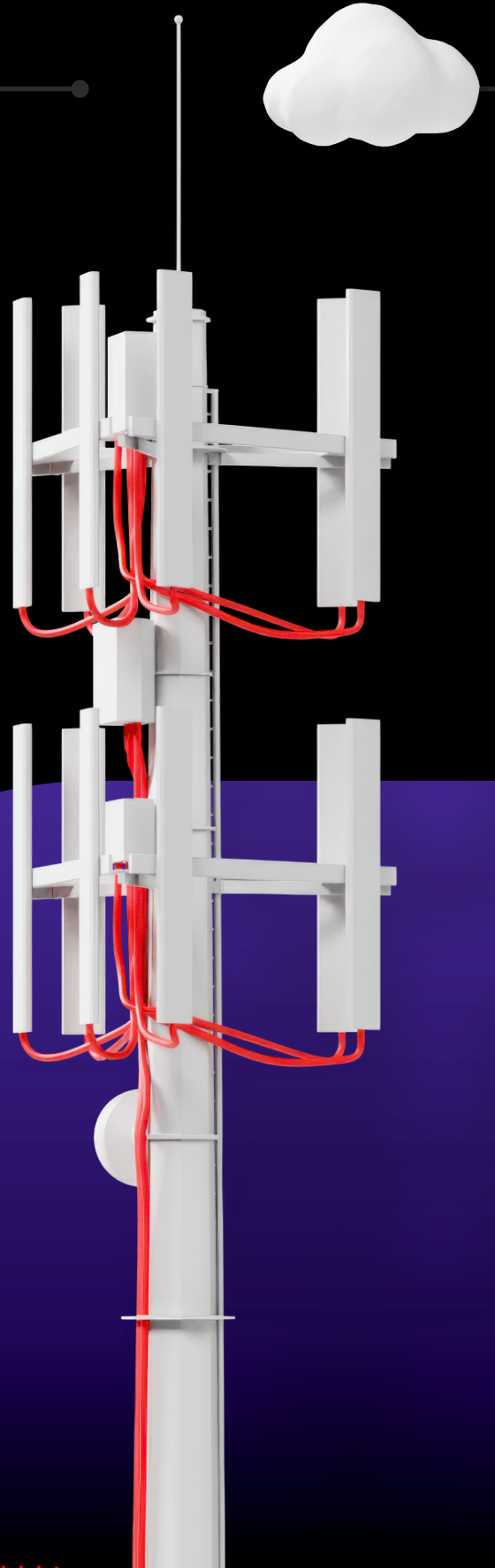




# Connected, intelligent, **open telco**

How cloud-native platforms,  
automation, and AI are reshaping  
5G and future networks



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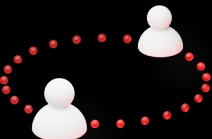
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# The business imperative for modern telecommunications service providers



## The telecommunications industry is at an inflection point.

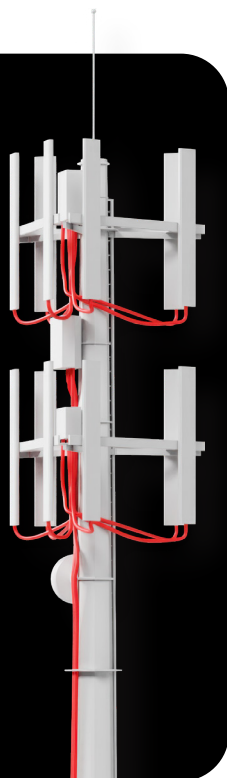
Connectivity-focused business models can no longer keep pace with rising customer expectations, intensifying competition, and the demand for more personalized, data-powered services.<sup>1</sup> Revenues are growing below inflation rates and operational costs are spiraling.

In response to this changing landscape, many service providers are pursuing digital transformation strategies to redefine their position. This shift, commonly referred to as the move from “telco” to “techco,” reflects a broader industry realization that future success depends on becoming a technology-focused company that needs a very different mindset.

Emerging technologies are being used to build the network and infrastructure foundation necessary for more agile, flexible, and efficient operations. The aim is to offer a better customer experience with new compelling services and the capabilities to adapt quickly to constantly changing needs and demands.

### What is a techco?

Telecommunications service providers calling themselves “techcos” fundamentally reorient operations, services, and culture around technology-based innovation. Rather than simply delivering connectivity, techcos build their core value on software-powered platforms, digital services and ecosystems, and agile, cloud-based operations.



## The techco mindset

Embracing a techco approach requires an investment in emerging technologies. It also requires investment in a shift in mindset—taking a more agile, collaborative approach to leadership, organizational culture, and operational models.

This mindset change involves applying new methodologies to maximize the use of emerging technologies such as cloud-native AI, automation, and data analytics at the core of the business. While the potential of this transformation is enormous, so is the increase in complexity. Dealing with complexity can be managed through close collaboration with industry leaders to allow the correct implementation of new methodologies and technologies.

<sup>1</sup> Travasoni, Andrea, et al. [“The future of telcos: Mapping the routes to renewed success.”](#) McKinsey & Company. 18 Dec. 2024.

## Three main business objectives that define the path forward

Focusing on tangible business outcomes guides the selection of the right choices for a service provider's business. Service providers frequently cite these 3 main business and operational objectives:



### 1 **Innovate to grow revenue**

Service providers must create new growth through innovative 5G services and customer experiences. Using AI makes services more compelling with increased network performance and improved customer experience, and will unlock new enterprise and industry use cases at the network edge.

In addressing the telco-to-techco challenge, it's important to view digital transformation as a strategic move that supports accelerated service delivery, greater agility, and better alignment between IT and business goals.



### 2 **Maximize efficiency to reduce cost**

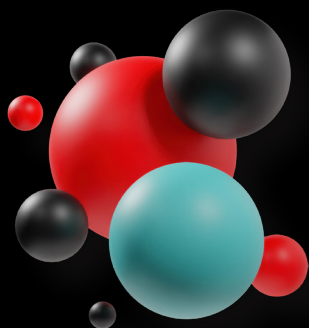
Reducing cost not only helps the bottom line, but also frees up money to invest in improving the business. This investment allows service providers to adopt cloud-native technologies and methodologies to build networks that are more efficient, and highly automated. Using AI will simplify operational processes, which will lower costs.



### 3 **Inherent security mitigates risk**

As networks grow in complexity and scale, risk management becomes critical. This is why it's important to design a network with inherent security posture, compliance, and reliability capabilities that boost resilience across highly distributed architectures.

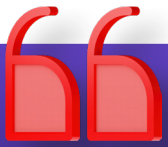
From safeguarding sensitive customer data to maintaining software supply chain integrity, a security focus must be embedded from the start.



This e-book explores how service providers are using the latest innovations—such as open platforms, automation, AI, and ecosystem partnerships—to modernize networks, unlock new revenue, control costs, and operate with confidence. Each of these innovations helps deliver tangible business outcomes that will set service providers apart now and in the future.

# Investing in technology to build a foundation for change

Aging technologies and networks hinder innovation, and lack the flexibility to support adaptable business models.



Many service providers are exploring alternatives to legacy solutions—not solely for cost reasons, but for the broader opportunities these changes bring.”<sup>2</sup>

**Chris Wright**

Chief Technology Officer and Senior Vice President,  
Global Engineering at Red Hat



These aren’t abstract, futuristic ideas—they’re here now and already reshaping how networks are built, managed, and monetized. To address complexity and thrive in this new landscape, service providers are investing in key technology areas, which include:



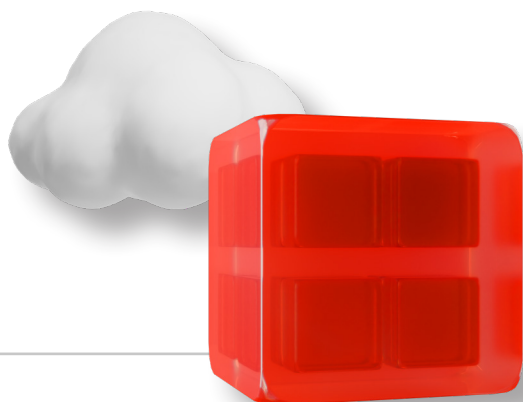
## 1 **Modernizing networks and IT while protecting existing investments**

Aging infrastructure continues to slow innovation for service providers, increasing costs and limiting agility. Piecemeal updates may be necessary in isolated situations, but do not contribute to network modernization.

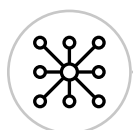
The world is shifting from large monolithic applications to smaller and modular applications. Networks have evolved from proprietary hardware to cloud-based solutions. Underpinning this trend is the adoption of cloud-native technologies and methodologies that foster rapid application development and deployment, and accelerated lifecycle management.

Using a cloud-native platform—designed to run applications in scalable, containerized environments—service providers can reduce complexity, accelerate automation, and improve service delivery.

<sup>2</sup> Wright, Chris. “[A year of telco transformation: reflections on 2024 and looking ahead to 2025.](#)” Red Hat Blog, 5 Dec. 2025.



With a myriad of choices when selecting infrastructure for network modernization, it's important to consider a platform that supports hybrid and multicloud deployments, cloud-native network functions (CNFs), virtual network functions (VNFs), and emerging workloads such as AI and edge applications. It's not just about finding new technology—it's about selecting technology that delivers tangible business outcomes.



## 2 Operationalizing AI at scale

AI is on track to be a transformative force across industries, including telecommunications, proving its value in use cases ranging from network optimization and predictive maintenance to fraud detection and customer services.

Both predictive and generative AI (gen AI) are set to offer major gains in efficiency and value creation. They will be fundamental in enhancing automation and operational intelligence, and providing increased network performance for improved customer experiences.

Implementing scalable AI deployments across both network and business domains is a challenge due to its complexity. It involves navigating rapidly emerging and evolving technologies, integrating an array of data sources, deploying new models of data management, assessing infrastructure readiness, and navigating regulatory concerns.

Service providers must decide whether to build their own models from scratch, fine-tune publicly available foundational models with proprietary data, or rely on ecosystem partners. Each of these decisions carries different trade-offs in terms of speed, cost, security, and customization, and the selected path should align closely with a service provider's strategic goals.

Successful operation amid this complexity depends on selecting a platform that provides flexibility and choice for AI. A cloud-native application platform that has the necessary AI tooling, frameworks, and runtimes solves the problem of being bound to a particular provider, and offers the flexibility to adapt when needed.



## 3 Diversifying the RAN with a clear ROI

The RAN is among the most capital-intensive and difficult parts of the network to evolve. While many service providers have made significant progress in modernizing their core network, the RAN remains a major concern.

Diversifying the RAN by moving to a virtualized or [open RAN architecture](#) introduces greater flexibility and cost savings. Integration of disaggregated components, orchestration across multiple vendors, and new performance considerations have been a concern, but the technology is now proven and ready for deployment at scale.

Beyond cost savings, virtualized and open RANs offer strategic advantages that include vendor diversification, enhanced flexibility and agility, and long-term cost optimization that lead to a positive return on investment (ROI). With the telecommunications landscape moving swiftly through various multigenerations of technology, the need for scalable, adaptable, and modular networks will only become more prominent.

These technology investment areas are among the most pressing—and compelling—across the telecommunications industry today. Each presents a strategic opportunity. In all 3 areas, the right platform and innovative partner ecosystem can help build networks that are more adaptable, resulting in tangible business outcomes.

Red Hat is helping service providers around the world make this transition more effectively and more confidently.

# Red Hat's vision for telco transformation



Every modernization journey relies on a solid foundation.

Red Hat supports this journey with a platform that helps service providers modernize at their own pace, using cloud-native practices to support new and existing workloads side by side.

A cloud-native platform provides a clear evolution path for innovative services, lower operational expenditure, and greater flexibility and security focus. Anchored by [Red Hat® OpenShift®](#) and [Red Hat Ansible® Automation Platform](#), Red Hat provides the foundation needed to transition toward cloud-native networks.



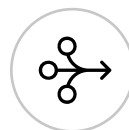
## A cloud-native application platform helps service providers:



**Integrate IT systems**, including operations support systems (OSS) and standards for business support systems (BSS), into a modern, cloud-native architecture.



**Accelerate the adoption of 5G** advanced capabilities, in collaboration with Red Hat's diverse partner ecosystem.



**Streamline modernization efforts** with automation and orchestration tools.

With this foundation, service providers gain the ability to run application workloads in an open hybrid cloud exactly where they're needed—across core datacenters, private cloud, public cloud providers, and distributed edge sites. Open hybrid cloud acts as a springboard for innovation, positioning service providers to respond to market opportunities with speed and versatility, unburdened by the constraints of traditional IT infrastructure.

# Build and run AI solutions that work the way your business does

Operationalizing AI at scale is about transforming how service providers use insights generated by data to realize tangible business outcomes. As the need to scale AI across departments and environments grows, service providers must navigate increasing complexity, data integration, workload flexibility, and infrastructure compatibility.

Red Hat provides a consistent, trusted, and comprehensive platform that helps solve AI challenges with data-powered insights, and streamlines the deployment of AI applications wherever needed.

[Red Hat AI](#), which includes [Red Hat Enterprise Linux® AI](#) and [Red Hat OpenShift AI](#), offers a scalable platform to support predictive and gen AI use cases across hybrid, multicloud, and edge environments.

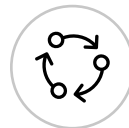


**Red Hat OpenShift AI** is a flexible, scalable AI and machine learning (ML) platform that helps service providers create and deliver AI-powered applications at scale across hybrid and multicloud environments.

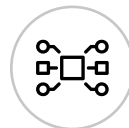
**Red Hat Enterprise Linux AI** is a foundation model platform that helps service provider teams effectively develop, test, and run large language models (LLMs) for applications.

**Red Hat AI Inference Server** optimizes model inference across hybrid cloud and edge environments, creating faster and more cost-effective model deployments. It allows customers to run any gen AI model on any hardware accelerator (NVIDIA, Intel, Advanced Micro Devices [AMD]) and in any environment (datacenter, cloud, or edge). It is included with Red Hat Enterprise Linux AI and Red Hat OpenShift AI.

## Red Hat helps service providers operationalize AI by:



**Providing full AI lifecycle management** from data collection and model training to inference and monitoring.



**Supporting both predictive and gen AI** use cases to address customer care, fraud detection, network optimization, and more.



**Allowing workload flexibility** so service provider teams can train and deploy AI models wherever they are needed.

Adopting a platform-based approach to AI also allows service providers to lay the foundation for AI-native capabilities in the future, while unlocking immediate opportunities for automation, operational efficiency, and innovation.

## Diversify the RAN

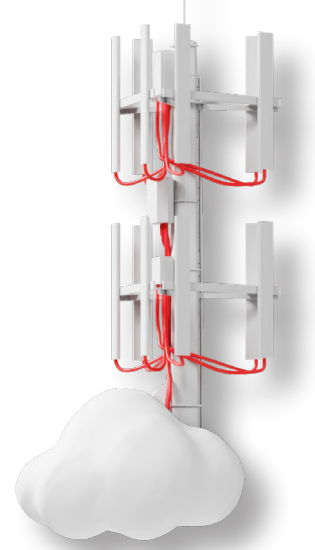
As demand for agile, intelligent, and cost-effective services continues to rise, diversifying the RAN is becoming a critical strategy. Moving beyond traditional, purpose-built infrastructure, service providers are exploring virtualized RAN (vRAN), cloud RAN, and open RAN approaches to provide innovation and efficiency from the core to the edge.

**vRAN** decouples RAN software from dedicated hardware—allowing service providers to run network functions on cloud-based solutions.

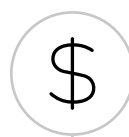
**Cloud RAN** takes vRAN a step further by deploying RAN functions as microservices in a cloud-native environment—improving scalability and automation.

**Open RAN** is a broader industry initiative that promotes interoperability between hardware and software components from different vendors—helping service providers select their vendor of choice.

**O-RAN** refers specifically to the open interface and architectural standards defined by the [O-RAN Alliance](#) to make the RAN modular and programmable.



### Diversifying the RAN offers numerous benefits:



Lower operational expenses (OpEx).



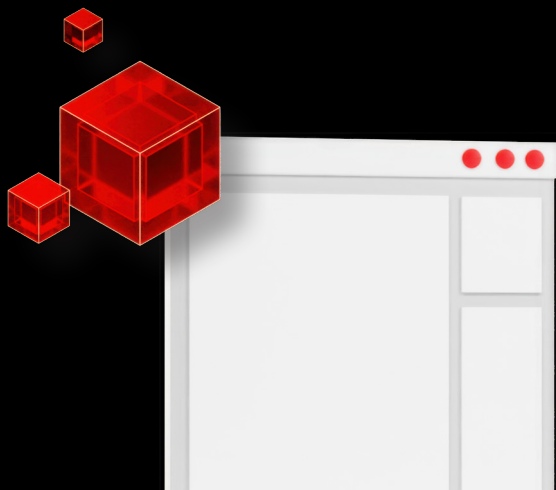
Greater deployment flexibility.



Vendor diversity.

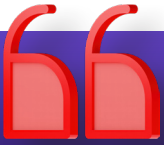


The ability to monetize edge services through new enterprise use cases.



Previous industry challenges of interoperability, integration, and performance tuning have been solved, and progress across the ecosystem is accelerating adoption. Red Hat's cloud-native, carrier-grade platform—Red Hat OpenShift—paired with automation tools such as Ansible Automation Platform and [zero-touch provisioning \(ZTP\)](#) are fundamental to the deployment and operation of a diversified RAN.

By offering pre-integrated reference architectures and working closely with hardware and ecosystem partners, Red Hat supports scalable, security-focused, and high-performing RAN networks.



Red Hat OpenShift offers an open, highly scalable cloud-native platform to deliver critical flexibility and integration for RAN—enabling service providers to meet rising network demands with greater ease and efficiency.”<sup>3</sup>

**Masaki Taniguchi**

Head of Mobile System Business Unit, Fujitsu Limited

Beyond cost and vendor flexibility, the real promise of open RAN lies in its ability to unlock innovation at the network edge. Red Hat supports edge AI workloads, dynamic resource orchestration, and observability, all of which are essential for deploying and managing compelling services across distributed environments.

By fostering a more open and flexible RAN ecosystem, service providers can expand coverage, offer new services, and gain the vendor choice and agility needed to thrive in a competitive market.

A platform approach to automation addresses all of these, and allows for increased operational consistency with [GitOps](#), [DevSecOps](#), and [Infrastructure as Code](#) (IaC) practices, providing methodologies that are security-focused, repeatable, and automated.

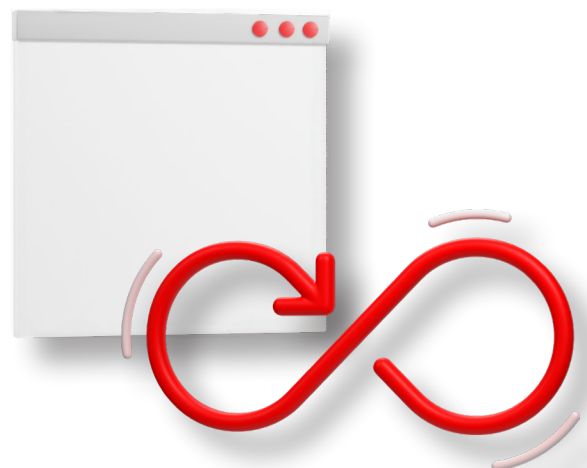
Red Hat offers solutions that help service providers achieve advanced automation, including: Ansible Automation Platform, [Event-Driven Ansible](#) (an event-driven automation tool included with Ansible Automation Platform); and management tools such as [Red Hat Advanced Cluster Management for Kubernetes](#), [Red Hat Advanced Cluster Security for Kubernetes](#), and [Red Hat OpenShift operators](#).

### Automation for efficiency, scale, and reliability

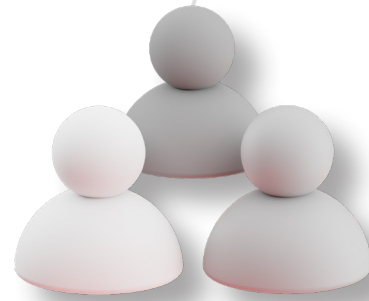
Keeping up with the speed of demand and changing market conditions, and coping with massive distributed networks, requires thoughtful and holistic automation.

Individual or task-based automation initiatives are not enough. Advanced automation is necessary to manage:

- Business-critical networks with new and growing network functions and distributed endpoints.
- Ongoing needs for validated, consistent, and compliant deployments.
- Lifecycle updates and changes.



# Innovation through collaboration



**Red Hat's powerful open ecosystem of partners contributes specialized strengths to create real-world, service provider-focused solutions.**

These partnerships provide the flexibility and stability that service providers need to transform and innovate throughout their organizations.

Red Hat's ecosystem approach is founded in openness, technical collaboration, and long-standing relationships. This allows Red Hat to provide curated, purpose-built solutions that give service providers more flexibility, resilience, and choice.

With **400+** Red Hat engineers dedicated to partner and customer success, Red Hat doesn't just support service provider transformation, but also engineered solutions that are tested and validated so service providers can innovate with confidence.

Working side by side, Red Hat and partner engineers cover a wide range of areas, including:

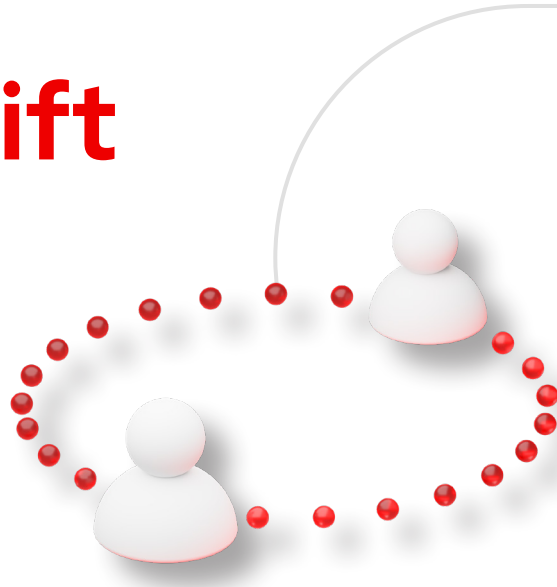
- Platform engineering
- Reference design specifications
- Architecture-level testing
- Partner engineering tracks
- Community participation
- Investment in joint testing
- Validated and certified joint designs
- Solution labs

This deep level of cooperation makes solutions more reliable, less complex, and easier to manage, which helps service providers:

- Accelerate solution development using pre-integrated reference architectures that align with service provider blueprints.
- Lower costs and timelines by avoiding single-instance integrations.
- Build resilient systems with multivendor flexibility and open standards.

Whether service providers are rolling out 5G, enhancing RAN capabilities, operationalizing AI, or transforming OSS/BSS or IT, Red Hat's partner ecosystem helps build and operate on a trusted foundation.

# An essential shift in mindset and methodology



To make sure that service providers' technology investments reach maximum potential and ROI, a shift in culture and mindset is essential.

Red Hat's approach to transformation focuses on supporting service providers to adopt and scale new technologies that bring agility, automation, and intelligence to their business and operations.

**This shift in mindset is multifaceted, but can be broken down into 4 key areas:**



**1**

**From disconnected to collaborative.**

Eliminating barriers between service provider teams fosters more effective problem-solving and creates better alignment between goals. This is particularly important in AI operations and edge deployments where cross-functional collaboration is essential.



**2**

**From projects to platforms.**

Instead of approaching AI, modernization, or RAN diversification as isolated initiatives, service providers are increasingly adopting long-term common platform strategies. Having access to a scalable, flexible, and common platform that can integrate with existing systems reduces network complexity.



**3**

**From reactive to proactive.**

Cloud-native methodologies such as DevSecOps, continuous integration/continuous delivery (CI/CD), and trusted software supply chains help service providers to deliver services with greater speed and control. Proactive risk mitigation—through predictive analytics, security by design, and automated compliance—is now a baseline requirement, not a competitive differentiator.



**4**

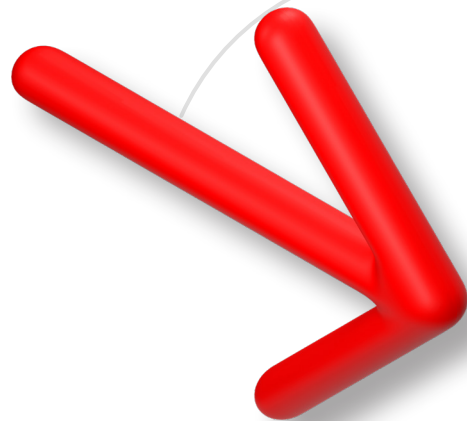
**From closed to open.**

Open source methodologies accelerate innovation by providing access to community-powered enhancements, broader partner ecosystems, and shorter integration cycles.

By adopting an open, collaborative, and platform-based approach, service providers can meet today's demands and also lay the foundation for long-term innovation and growth.

Learn more

# Take the next step in your modernization journey



No matter where you are in your journey, Red Hat can help.

We understand and have experience working with service providers to manage the complexity and operational demands unique to the telecommunications industry. With proven, open source solutions, [expert consulting](#), and [comprehensive training](#), we can support you every step of the way.

We understand that modernization doesn't happen overnight. Whether your next move is to reduce technical debt, operationalize AI, or modernize your infrastructure, we can work with you to build a strategy that balances ambition with reality.

See what's next in telecommunications and how you can shape your future with Red Hat. Visit the [Red Hat telecommunications page](#).

