

CLouDERA

EBOOK

Cloudera Predicts: Telecommunications Trends 2026

The year of intelligent, autonomous
operations and sovereign cloud

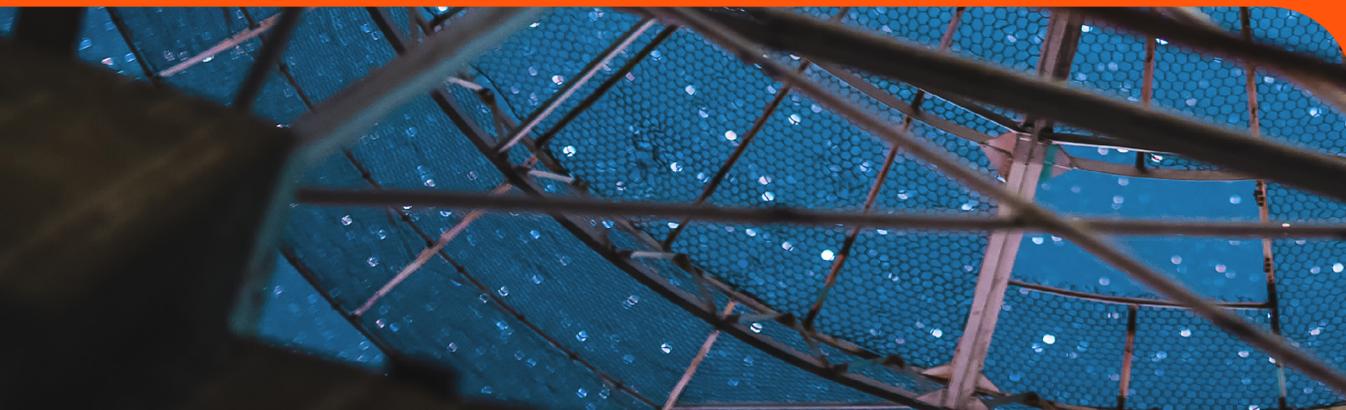


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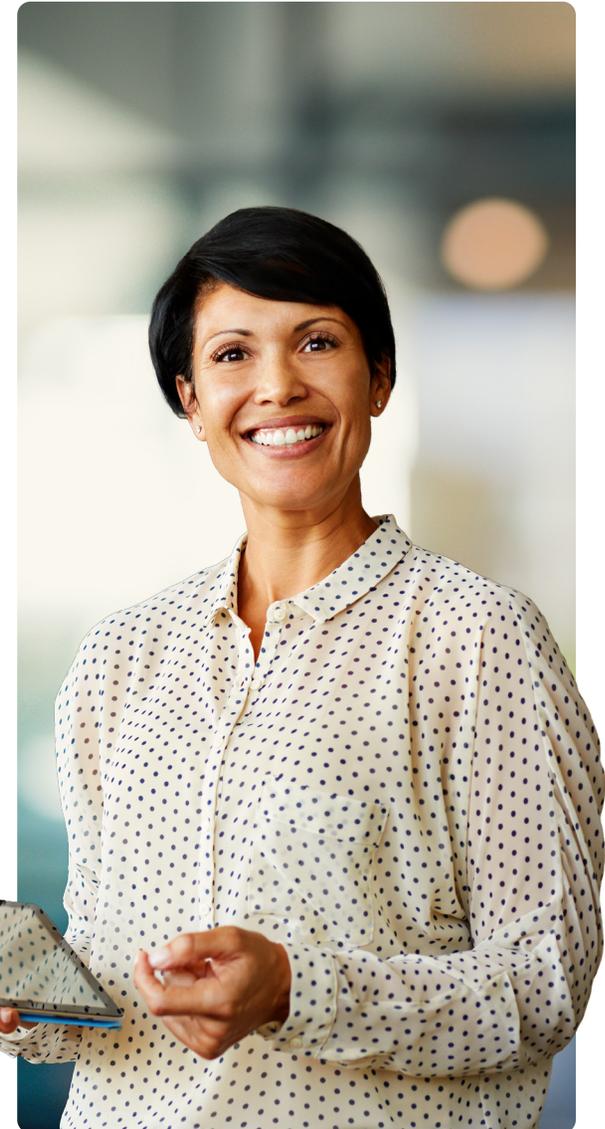
Executive Summary

The telecommunications industry is facing a complex new reality defined by shifting business macro trends. The global cost-of-living crisis is putting more pressure on top-line growth, demands for greater margins are leading to restructuring, and many markets are experiencing significant consolidation. To counter these headwinds and drive shareholder value, telcos are changing how they operate. They're pressuring vendors and partners, focusing on core process optimization, and placing more emphasis on automation.

As the most significant operational expenditure within a telco, the network represents the biggest opportunity for cost optimization. By harnessing AI-driven automation, operators can transform the network from a cost center into a service differentiator—unlocking new efficiencies and uncovering revenue through data monetization.

The time for exploratory pilots is over, and 2026 will be the year the industry takes a giant leap forward with generative AI (GenAI). Telcos must now leverage the immense volumes of customer and operational data they've collected over the years to build an intelligent, autonomous network.

What follows is a series of 2026 predictions for the telecommunications sector, with guidance for how operators can make progress toward realizing value from these initiatives. As a core component of the data and AI architecture for more than 80% of telcos around the world, and as a leader within the AI-RAN Alliance, Cloudera is excited to be a partner in this transformation journey.



1. Agentic AI Transforms the Customer Experience

Prediction

In 2026, customer service will evolve from passive GenAI chatbots to goal-oriented agentic AI capable of resolving issues, managing subscriptions, and orchestrating personalized offers.

Background

Over the past two years, telcos have focused largely on GenAI copilots designed to summarize transcripts, draft responses for customer support employees, and power basic chatbots. While these initial use cases have value, they're also passive. They can answer questions, but they can't do anything with that knowledge. They require a human to execute the actual resolution.



In 2026, telcos will deploy agentic AI pilots that can autonomously navigate BSS and OSS technologies to solve problems. These agents will be goal-oriented, acting on specific business triggers like churn risk or a billing dispute, to determine the best solution.

They will also be collaborative, using multi-agent orchestration frameworks to hand off certain tasks between specialized agents. While the human in the loop will be necessary for quality assurance, the speed and accuracy of these agents will rapidly push operators toward fully autonomous customer workflows.

Guidance

01 Build a unified customer context for reasoning

An agent is only as accurate as the context provided by the underlying data. A unified data fabric that connects agents to data across customer resource management (CRM) platforms, billing systems, and network performance systems is critical. Without a 360-degree customer view, agents will lack the grounding required to make accurate decisions autonomously.

02 Leverage a consistent governance framework

Giving AI agents write access to customer accounts requires strict guardrails. Unified governance is necessary to ensure agents operate within regulatory boundaries and to provide lineage and audit trails for model explainability.

03 Architect for low-latency inference.

When an agent is interacting with a customer in real time, delays are unacceptable. Choose an architecture that enables deployment of agentic frameworks close to the data to ensure the responsiveness that customers demand.

2. AI Accelerates Network Automation



Prediction

Telcos will move beyond basic scripts and static rules, using AI agents and edge inference to dynamically manage network resources, optimize spectral efficiency, and automate fault resolution.

Background

The rollout of 5G has put significant strain on network operations. The explosion of network telemetry and internet of things (IoT) data, the proliferation of network infrastructure, and the speed of 5G service all require a shift from reactive to proactive network monitoring and greater levels of automation.

In 2026, we'll see a shift to AI-powered network automation, using predictive models to optimize spectrum efficiency, manage interference, and automate beamforming in real time.

AI agents operating on the network will monitor telemetry for anomalies, predicting faults before they occur and automatically dispatching fixes. This will also extend to energy efficiency. AI agents will dynamically power down unused capacity during low-traffic periods and manage surging uplink traffic caused by the proliferation of AI applications.



The primary challenge will be scaling the data infrastructure to meet the growth of network data, and providing the context necessary for AI to act autonomously.

Guidance

01 Leverage edge data filtering and aggregation to reduce costs

Backhauling massive volumes of telemetry data to a central cloud is expensive and slow. Using tools like Apache NiFi and MiNiFi to filter and process data at a cell site enables operators to prioritize anomaly alerts, discard routine noise, and reduce transport costs.

02 Bring AI to the network edge

Network automation requires decisive action with ultra-low latency. Migrating operational datasets to a public cloud to run inference is often not feasible for real-time network decisions. Operators should deploy AI models directly at the edge or on premises where the data resides to ensure performance and data privacy.

03 Adopt hybrid operations

While inference at the edge is critical, the public cloud is efficient for compute-intensive and intermittent tasks like model training. Operators should adopt a hybrid data and AI architecture that enables them to train models in the cloud and push them to the network edge for execution.

3. Sovereign Cloud and the Modern Data Mesh

Prediction

In 2026, the geopolitical and regulatory environment around data and data privacy will necessitate the abandonment of data centralization initiatives and the subsequent adoption of sovereign cloud architectures in telecommunications.

Background

For the past decade, enterprise organizations have been pursuing a centralization strategy where all enterprise data eventually resides in a single data lake, often hosted by a US-based hyperscaler. However, regulations such as the European Union's (EU) Digital Operational Resilience Act (DORA) and the EU Data Act mandate that financial and infrastructure data must be resilient and reside within specific jurisdictions to ensure business continuity in the event of a global outage or geopolitical conflict. Additionally, national and regional sovereign AI initiatives seek to ensure citizen data is not used to train foreign models while promoting domestic AI capabilities. Finally, egress costs associated with moving network telemetry data to the public cloud are becoming increasingly unsustainable.

As a result of these trends, telcos will pursue a hybrid data mesh architecture that decentralizes data ownership to specific domains. This architecture enables data to remain where it is generated to satisfy sovereignty and latency requirements while making it accessible for analytics and AI.

Many vendors in the telco ecosystem are explicitly designing future architectures around data mesh principles to handle the complexity of multi-vendor, multi-national networks.



Guidance

01 Build a hybrid data architecture

Telcos will have data ingestion, storage, processing, and analytics and AI requirements across infrastructures based on data sovereignty, regulatory, latency, and cost requirements. Their data architecture should support hybrid deployments, with consistent management capabilities across environments.

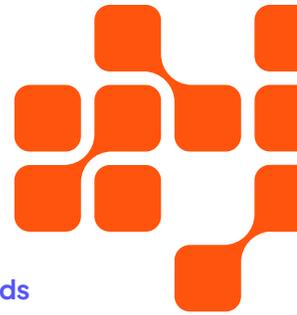
02 Federate governance

A hybrid data mesh requires a federated governance layer that supports consistent security, governance, discovery, and access to data regardless of where it resides. It ensures that data products created in one jurisdiction adhere to local laws while still being discoverable and accessible to authorized users globally. It ensures that data remains secure regardless of whether it is in a public cloud or on premises.

03 Ensure data portability.

As the regulatory and business environment around data and AI continues to evolve, data movement or repatriation may become a necessity. Leveraging infrastructure-agnostic tools ensures that data and workloads can migrate seamlessly if necessary.

4. The Acceleration of the Telco-to-TechCo Transformation



Prediction

In 2026, leading operators will finally cross the chasm from traditional telecommunications providers to software-centric TechCos, prioritizing open standards, disaggregated architectures, and internal engineering capabilities to break vendor lock-in and reduce TCO.

Background

For years, the telco-to-TechCo transition was more of a buzzword than a true strategic imperative. In 2026, driven by the pressure to protect margins, that transition is more important than ever. The traditional model of relying on proprietary appliances from legacy network equipment providers (NEPs) is economically unsustainable in a market that requires rapid innovation and strict cost controls.

Operators are aggressively moving toward software-defined networks and cloud-native network functions. By decoupling software from hardware, telcos can run their networks on standard commercial off-the-shelf servers, reducing capital expenditures.



However, being a TechCo is about more than just technology: it's a cultural shift.

Telcos must shift to a developer- and- DevOps- focused approach to software development and service delivery. They must adopt open standards, technologies, and processes. And they must focus on agility and rapid innovation to respond to market demands in weeks instead of years.

Guidance

01 Prioritize open standards
To truly lower costs, operators must avoid replacing legacy, monolithic technologies with proprietary hardware and software. They must lean heavily on open-source technologies and open APIs. This shift prevents lock-in and ensures that the technology stack remains flexible, interoperable, and cost efficient.

02 Treat network configuration as code
Adopt GitOps and DevOps practices for network operations. Managing network configurations through version-controlled code repositories instead of manual CLI entries reduces human error and enables massive scale through automation.

03 Build an internal engineering core
Telcos cannot be TechCos without tech talent. Reduce reliance on external systems integrators for core competencies. Invest in upskilling teams on cloud-native technologies, data engineering, and software development to build distinct and differentiated intellectual property.

Conclusion

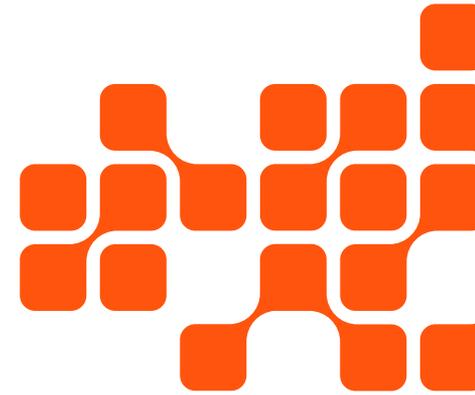
Moving forward, telecommunications operators will be defined by their ability to make significant progress in integrating AI into the fabric of the network. The opportunities AI presents to fundamentally transform operations, and enhance the customer experience are tremendous.

So, too, is the complexity AI introduces. Data management is more critical than ever. The networks of 2026 will generate more data in a single day than the networks of 2020 generated in a year. Collecting, processing, governing, securing, and leveraging that data for AI will be the industry's defining challenge.

As the only hybrid platform for data and AI, Cloudera is uniquely equipped to support telcos grappling with these complexities. Cloudera supports data management and processing at massive scale, with data services addressing every phase of the data and AI lifecycle. Cloudera offers the only unified security and governance solution across any infrastructure, so telcos can leverage all of their data and bring AI anywhere it's needed—in the cloud, on premises, and at the edge.

For more information on how Cloudera works with the telecommunications industry, visit <https://www.cloudera.com/solutions/telecommunications.html>

For more information on how Cloudera works with the telecommunications industry, click [here](#).



About Cloudera

Cloudera is the only data and AI platform company that large organizations trust to bring AI to their data anywhere it lives. Unlike other providers, Cloudera delivers a consistent cloud experience that converges public clouds, data centers, and the edge, leveraging a proven open-source foundation. As the pioneer in big data, Cloudera empowers businesses to apply AI and assert control over 100% of their data, in all forms, delivering unified security, governance, and real-time predictive insights. The world's largest organizations across all industries rely on Cloudera to transform decision-making and ultimately boost bottom lines, safeguard against threats, and save lives.

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