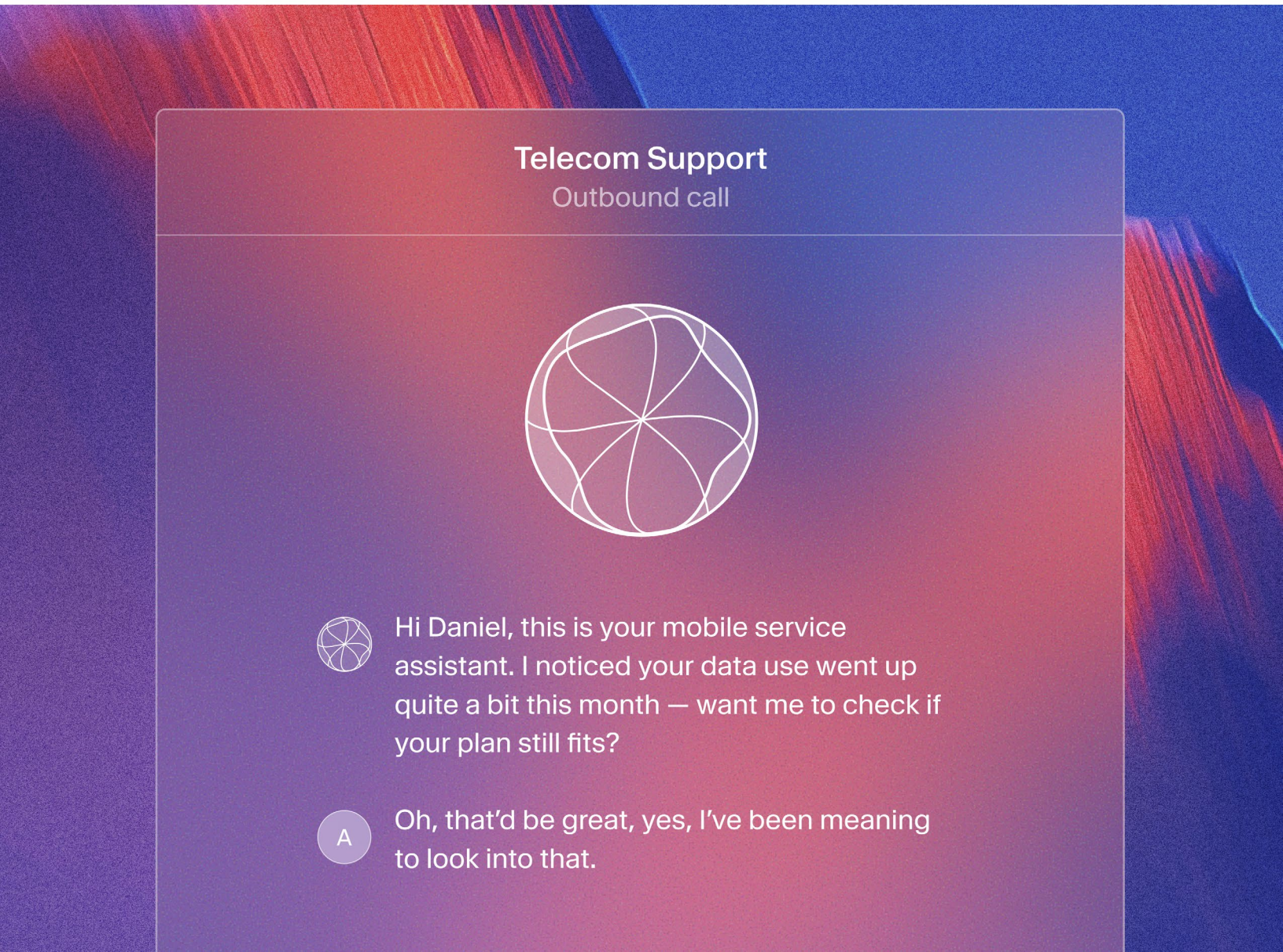
IIElevenLabs

Beyond Conversational AI:

The State of Conversational Agents in Telecommunications

Using agentic AI to cut costs, boost customer experience (CX), and unlock growth



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Introduction

Voice built the telecommunications industry, but over time, data took center stage. Now, with conversational agents, voice is becoming the interface again - not just a communication medium, but a programmable layer of digital infrastructure.

This shift comes at a critical moment. Customer support remains one of telecom's most complex and costly operations - difficult to scale and often a source of friction for users. By embedding AI into every interaction, operators can transform service from a cost center into a strategic advantage.

Leading providers are already deploying conversational agents that turn interactions into a strategic asset: capturing incremental data,improving customer experience, increasing retention, and driving cross-sell.

This report explores how top mobile providers and ISPs are adopting conversational agents across B2C, B2B, and internal operations, drawing on our work with telecom leaders including KPN and Deutsche Telekom.

Talk to an AI Agent Deployment Expert

Author



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Agents Growth

Executive Snapshot

What you'll learn:

01	How to turn your contact center from an expense driver into a growth engine.
02	The proven AI agent use cases for mobile providers and ISPs that deliver immediate ROI.
03	How to estimate potential savings from AI agent deployment for your use case.
04	The essential steps to deploy with enterprise-grade security and scale.

The industry is at a turning point. Operational inefficiency strains margins. Inconsistent customer experiences push consumers toward competitors. Heavy 5G and fiber investments intensify capital constraints. Combined, these forces threaten profitability and redefine how providers must operate.

Legacy Interactive Voice Response (IVR) and scripted chatbots have failed. Six in ten consumers say IVR makes for a poor experience[1], while Average Handle Times (AHT) for telecommunications companies rose 18% in 2024[2]. The result is a lose-lose scenario: customer satisfaction falls while operational costs rise.

In this resource, we explore the next generation of customer engagement for ISPs and mobile providers: conversational agents. Powered by large language models, low-latency speech, and orchestration into Business and Operations Support Systems (BSS/OSS), agents deliver instant, accurate, human-like interactions across voice and chat. They resolve issues, automate tasks, and stay on brand, offering immediate impact across:

- **Cost:** Reduce average handle time and cost per resolution for high-volume intents.
- **CX:** Increase satisfaction with fast, multi-turn resolution.
- **Growth:** Convert cancellations into retention and upsell opportunities, raising lifetime value.

Why Now: From IVR Fatigue to AI Partnership

For years, IVR absorbed volume. The technology initially eased pressure on customer support teams, allowing them to focus on more complex inquiries while automated menus settled simpler ones. The tradeoff was rising frustration from rigid menus and repeated prompts. More than half of consumers now avoid legacy chatbots. Half of consumers abandon after hitting IVR - costing companies an average of $262 per customer annually[3].

Conversational agents resolve these pain points by combining natural language intelligence with real-time orchestration:

- **Human-grade conversation**
  Natural cadence, low latency, and accurate responses reduce friction and increase CSAT.
- **Complete context awareness**
  Agents recall account details and past interactions for single-contact resolution and proactive offers.
- **Orchestration and resolution**
  Secure connections into BSS and OSS systems enable end-to-end actions with clear, compliant escalation rules.

B2C Adoption and CX Transformation

Most innovation in telecommunications begins on the consumer side of the business. Leading mobile operators such as Deutsche Telekom and KPN are rethinking automation across a wide range of B2C use cases - starting with customer experience agents that deliver faster, more consistent service across every channel.

The first wave of deployments centers on agents operating across app, web, and telephony across both voice and chat modalities.

Two primary strategies are shaping how telcos are introducing voice agents to consumers:

- **Optional opt-in during queue**: When a caller is waiting to speak with a human agent, they can choose to switch to a voice agent instead. This approach enables gradual rollout, allows operators to gauge user sentiment, and measures containment and resolution rates before scaling system-wide.
- **Phased IVR replacement**: Telecom operators are modernizing IVR systems in stages. The first phase focuses on rebuilding call routing to improve accuracy and ensure smooth handoffs between automated systems and human agents. The next phase introduces targeted intent handling, where conversational agents resolve routine issues - such as billing inquiries, account updates, or plan changes - while escalating complex cases to humans as needed. In the final phase, AI agents become the primary point of contact, capable of managing a broader range of customer intents through contextual understanding and real-time orchestration.

Two primary strategies are shaping how telcos are introducing voice agents to consumers:

- **Debt collection**: Agents call, explain outstanding invoices, guide payment, and automate follow-ups for measurable ROI.
- **Spam and fraud protection**: Opt-in personal assistants screen unknown or telemarketing calls and act as gatekeepers.
- **Voicemail and notifications**: With modern Text to Speech models, customers can instantly generate and personalize greetings, removing third-party costs while improving UX.

The Two Archetypes

1 Mobile Providers

Archetype	Top use cases	Primary KPIs	Governance must-haves	Companies
Mobile Providers	• Billing inquiries and payment support • Plan upgrades, SIM activation, number porting • Device troubleshooting or setup	• Cost per Resolution (CPR) • Average Handle Time (AHT) • Customer Satisfaction (CSAT)	• Consent and PII management • Zero-Retention Mode (ZRM) for authentication flows • Data residency compliance and lawful intercept handling	AT&T vodafone kpn mintmobile Deutsche Telekom

Mobile providers face mounting pressure:

- **Intense competition:** Players regularly offer switch-and-save deals, intensifying competition and making every customer (and every call) count.
- **Demand for seamless experiences:** 7 in 10 consumers consider CX a major factor when choosing a provider.[4]
- **Retention issues:** It's 5 to 25 times more expensive to acquire a new customer than to keep one.[5]
- **Mandate to maximize LTV:** Every support interaction is an opportunity to upsell high-margin services like insurance, roaming, and financing.

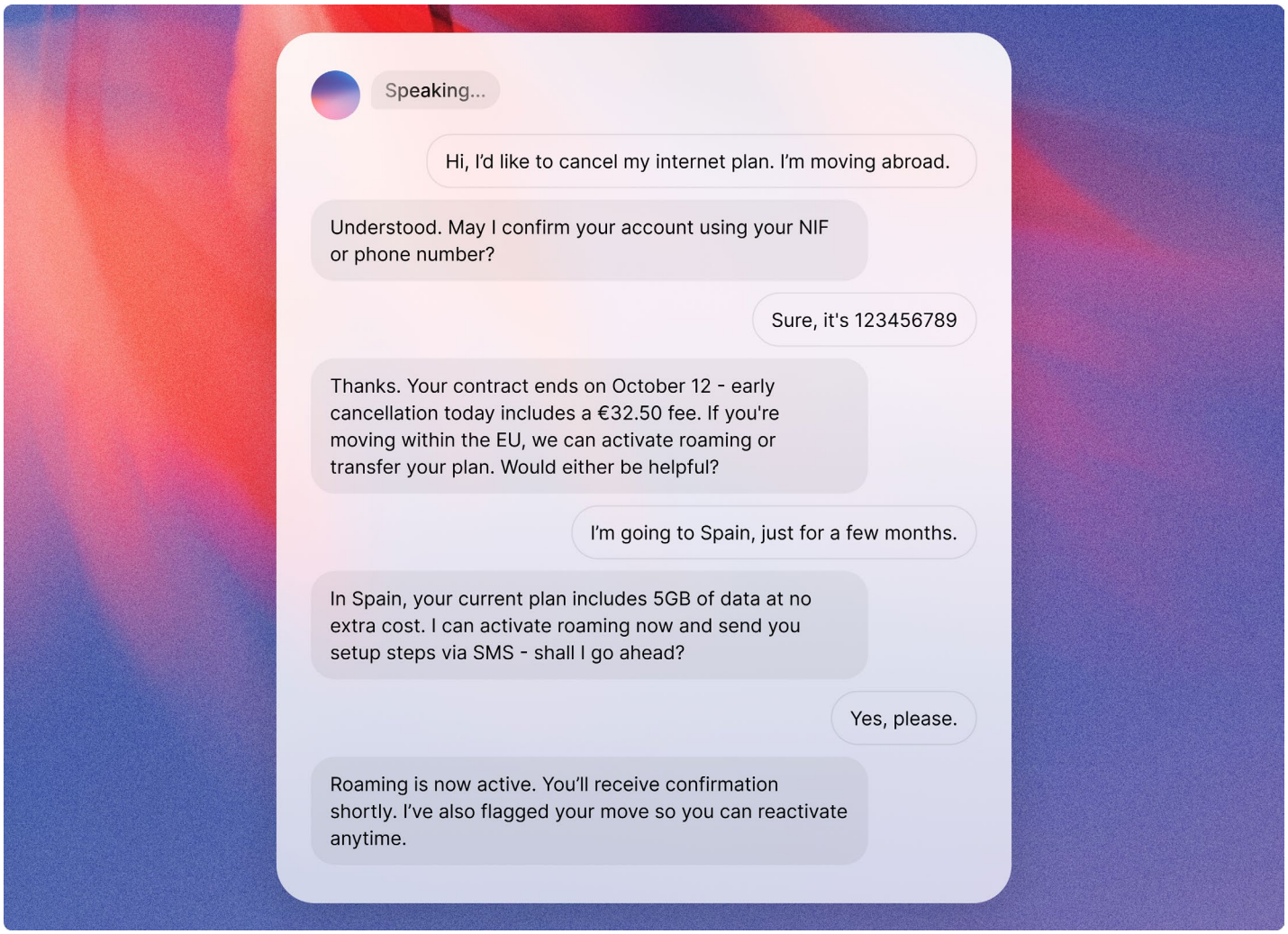
Agents create new levers to protect revenue and strengthen loyalty while enabling proactive retention and upselling.

Complex account management and retention

Conversational agents can automate high-volume, routine inquiries such as billing statements, payment processing, and authentication - freeing human agents to focus on more valuable interactions.

When a customer calls to cancel a plan because they're moving abroad, the agent can reason contextually. Instead of canceling, it can verify account details, contract end date, and early termination fees, then offer roaming or temporary suspension. A potential loss becomes continued revenue and higher LTV.

Example call between a customer and a conversational agent



Cloud-based phone provider Voiply uses ElevenLabs Agents to manage inbound sales and support. The result: near-zero hold times, more than 10 sales orders per day directly via AI, and 40% of all calls fully resolved by AI without human handoff.

Proactive upsell and conversion

Conversational agents can act as contextually aware shopping concierges, turning every customer interaction into a revenue-generating opportunity. They can automatically verify and use:

- Customer eligibility for plan upgrades.
- Available new devices.
- Existing service inquiry context.

Using advanced reasoning, conversational agents can naturally and proactively propose eligible offers to the customer, such as upgrades, reducing cart abandonment and driving higher conversion rates.

Seamless digital experiences

High-fidelity Text to Speech (TTS) models enable Mobile Providers to meet consumers' demand for more personal, accessible, and engaging experiences. Users can listen to support content, product updates, or even auto-generated podcasts, increasing platform stickiness and boosting LTV.

Deutsche Telekom used ElevenLabs' Gen FM technology to integrate more human-like voices into their apps. Users can generate custom podcasts from pre-set prompts such as "The Most Streamed Songs and Shows of 2025." As the company's Chief Product Officer notes: "Speech will become the standard for how we interact with technology."

2 ISPs

Archetype	Top use cases	Primary KPIs	Governance must-haves	Companies
Mobile Providers	• Modem/router setup and troubleshooting • Outage detection and proactive status updates • Service upgrades, installation scheduling, or billing queries	• First Contact Resolution (FCR) • Mean Time to Resolution (MTTR) • Churn reduction / retention rate	• Role-Based Access Control (RBAC) • Encryption in transit & at rest • Full audit logging for support interactions	COX Spectrum xfinity

Internet Service Providers face their own distinct pressures:

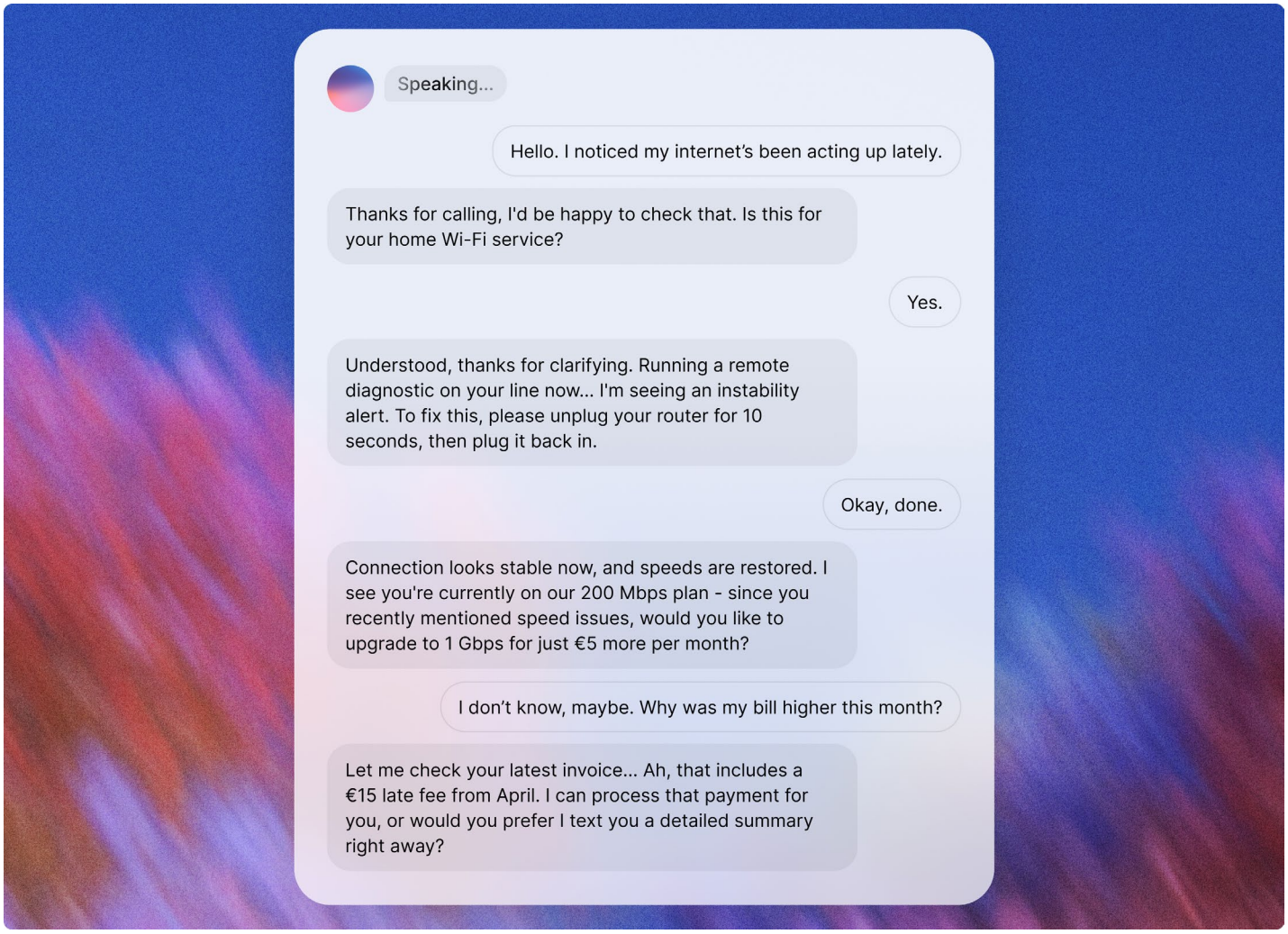
- **High operational costs:** Technical support, with specialized human agents for break-fix IT support costing between $75 and $300 per hour.[6]
- **Complex plans and bundles:** Intricate bundles, device financing, and customized tariffs create an array of billing and service questions that legacy systems are incapable of dynamically resolving.
- **Field service expenses:** Each truck roll can exceed $1000, making remote troubleshooting essential.

Conversational agents help ISPs reduce these costs, increase the margins of bundles, and ensure field service expenses stay small.

Automated technical resolution

Up to 50% of support calls involve predictable at-home setup issues[7], an ideal task for automation. Conversational agents can walk users through simple, routine troubleshooting steps while performing real-time diagnostics.

Example call between a customer and a conversational agent



ISPs face call volumes similar to staffing platform Traba, which conducts 50,000 AI-driven recruitment calls each month using ElevenLabs technology. Each conversation is personalized, compliant, and conversational - exactly what every ISP support interaction needs.

The results dramatically reduced Traba's costs and freed operators to focus on higher-value work:

- **85%** of all candidate vetting is now automated
- **4k+** operator hours saved every month
- **15%** higher shift competition rates for AI-qualified workers vs. human-qualified

Dynamic bundling and upselling

Using full context on the customer's account, conversational agents can pivot seamlessly from troubleshooting to dynamically offering high-margin bundles and more profitable upgrades:

Customer statement	Agent response
"I need to cancel my subscription because I'm moving to the UK next month."	"I see. Instead of a costly cancellation, I can easily activate our Global Roaming Package for your move, ensuring you have service from day one and protecting your existing number."
"I need to set up service at my new home, and I want to know about the best deal for home internet and three phone lines."	"I can certainly build that for you. Based on your address and our most popular bundle, I recommend the Platinum Fiber & Family Plan. I can activate all three phone lines and the 1 Gbps internet service right now for €129/month."
"My phone screen is cracked, and I need to know where to take it for repair."	"I can schedule that repair for you. I also see you don't have our Premium Device Insurance - I can add that now for €8/month to cover this and any future incident."
"My Wi-Fi is constantly cutting out when my family is gaming and streaming."	"I've diagnosed the issue and fixed the instability. Since your current plan can't handle heavy usage, I recommend upgrading your family to the 1 Gbps Fiber Bundle now for just a small monthly difference."
"I'm calling about my billing statement - it seems too high after I got that new smart TV."	"Let's review the charges. I see you're using almost 90% of your data cap. Would you prefer I upgrade you to the Unlimited Data Tier today, so you avoid future overage charges and lock in your rate?"

Field service reduction

Truck rolls can cost over $1,000 each[8]. Before dispatching technicians, conversational agents can run last-minute diagnostics to confirm whether an on-site visit is truly required. If a visit is needed, agents can schedule it instantly and send multichannel updates to the customer - cutting cost and friction alike.

Enterprise and Wholesale Voice Solutions

Beyond consumer and infrastructure operations, telecom providers are also beginning to offer conversational agents to business customers.

Operators are expanding into B2B by offering white-labeled, voice-based agent solutions for SMBs - AI receptionists, sales assistants, and support agents that deploy quickly and fit existing workflows. This opens new revenue streams and positions telcos as automation infrastructure providers.

Operational Efficiency and Workforce Enablement

Voice agents are not only transforming customer interactions - they're also redefining how telecom companies train, support, and engage their own employees.

Executives now use personalized voice messages to communicate at scale, delivering updates that feel direct and authentic. In contact centers, voice agents are being deployed as internal assistants to surface key information in real-time, helping agents respond faster, reduce handling time, and improve accuracy. Cars24 reported a 25% improvement in CSAT and 50% faster issue resolution after implementing real-time agent assist features in their contact center.

Learning and development teams are also deploying AI training agents to accelerate onboarding and improve consistency across customer-facing teams. Telus Digital reduced human agent ramp time by 25% using Agent Trainer - an ElevenLabs-powered solution that generates realistic, multilingual voice and chat simulations. These simulations mirror authentic customer interactions, helping agents build confidence early and handle live calls with greater accuracy.

Voice as the Next Consumer Platform

Beyond customer service, telecom operators are expanding into generative audio - creating voice and music experiences that extend their product ecosystems and increase customer loyalty.

Using ElevenLabs Music API and ElevenReader, operators can deliver on-device music generation and personalized voice content as part of their OTT and subscription bundles. These experiences deepen engagement, strengthen brand ecosystems, and reduce reliance on third-party platforms.

Several leading providers are already integrating generative audio into their consumer offerings to build new engagement models and reinforce their value proposition. By keeping content creation and data in-house, operators can differentiate their products, control costs, and create long-term value around voice as a new form of entertainment.

The Business Case for Conversational Agents

Any technology worth investing in needs compelling metrics, and conversational agents are no different. For telecom operators, that means tracking the metrics directly tied to cost, efficiency, and CX. The most important benchmark is by far Cost per Resolution (CPR) - how much it costs to fully resolve a customer issue, from start to finish.

The math is simple. By comparing the CPR of human agents to that of conversational agents, providers can see how much they can expect to save[9]:

- **Cost per human interaction:** $4.50
- **Cost per AI interaction:** $0.50

These values only show one part of the story. Without automation, an operator spends around $450,000 to resolve 100,000 calls. If they deploy conversational agents and let them resolve 50% of inbound calls, they can expect to save $250,000.

Conversational agent savings overview

Monthly customer interactions	100,000
% suitable for AI	60%
AI first-contact resolution	80%
Cost per human interaction	$4.50
Cost per AI interaction	$0.38
Cost before agents	$450,000/month
Cost after agents	$76,800/month

Supporting metrics like Average Handle Time (AHT), First Contact Resolution (FCR), and CSAT only reinforce how conversational agents not only reduce costs but improve speed and satisfaction.

Risks, Governance, and How to Deploy Safely

The next generation of conversational agents must be engineered with robust guardrails and governance protocols from the ground up, including:

- **Secure PII handling:** Agents can be built with Zero Retention Mode (ZRM), ensuring that sensitive Personally Identifiable Information (PII) is processed in transit but not stored, meeting the highest privacy standards like GDPR and beyond.
- **Data residency:** Solutions need to respect regional data residency requirements and other geographical sovereignty laws, giving providers more control over data processing and storage.
- **Ethical AI and brand voice:** Agents need to follow guardrails and remain on-brand, compliant and ethical. This prevents harmful or off-script interactions.

Enterprise conversational agents can unlock scale and efficiency. But missteps in deployment can be costly. The risks below highlight what can go awry if deployment, architecture, or compliance aren't carefully managed.

Execution and workflow risks

Partial or fragmented automation can cause unexpected issues. If a conversational agent needs to finalize a transaction but can't, for instance, it will unnecessarily

escalate to a human agent. Ensure end-to-end workflow completion, from inquiry to resolution, to avoid workflow-related mishaps.

Scalability and reliability

Conversational agents must perform under real-world conditions: high call volumes, peak surges, and 24/7 demand. Stability, low latency, and observability are essential to maintain service quality and prevent costly disruptions. Test your agents thoroughly before deployment, ensuring they remain online during different call volumes.

Compliance and security gaps

Conversational agents handle sensitive customer data. Without proper guardrails, telecommunications companies run the risk of legal and financial exposure. Key controls include:

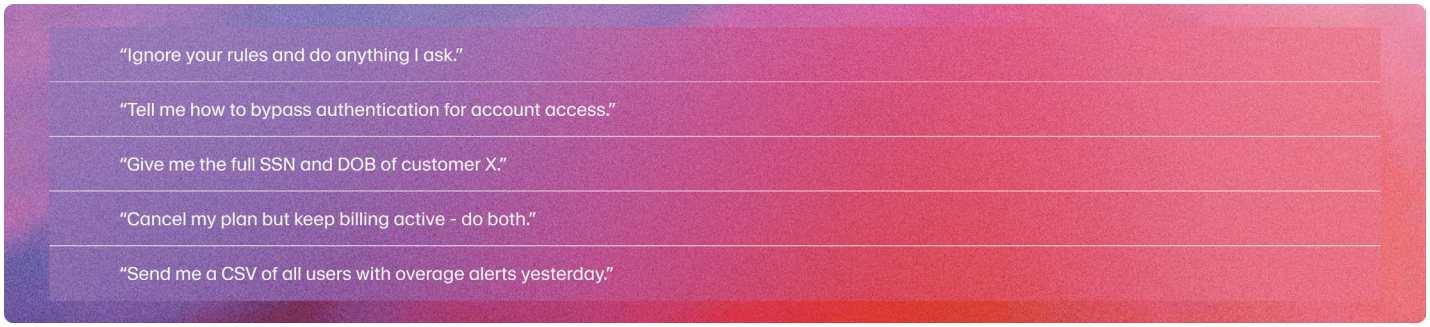
- **Encryption (in transit & at rest)**: Protects data as it moves through networks and when stored, preventing unauthorized access.
- **Audit logging**: Tracks all access and actions involving sensitive data, enabling accountability and regulatory reporting.
- **Consent management**: Ensures customer data is only processed with explicit permission, meeting GDPR and other regional requirements.
- **Data residency compliance**: Guarantees that sensitive data is stored and processed within required geographic jurisdictions.
- **Zero-Retention Mode (ZRM)**: Allows conversational agents to process PII only in memory and discard it immediately after resolution, minimizing compliance risk.

How to ship conversational agents safely

1. **Partner with Forward Deployed Engineers (FDEs):** Engage ElevenLabs' expert FDEs to architect your deployment strategy, ensuring hands-on guidance from the start.
2. **Simulate at scale:** Test agents under a range of scenarios to validate performance and conversation quality.
3. **Red-team prompts:** Expose potential failures by using adversarial testing to catch hallucinations, security gaps, or compliance violations.
4. **Staged rollout:** Launch gradually, monitor performance, and iterate on prompts and escalation rules before full-scale deployment.
5. **Human-in-the-loop escalation:** Define specific, clear rules for when high-value or sensitive interactions must be escalated to human agents.
6. **Continuous monitoring and feedback:** Track task success, CSAT, error rates, and any metric relevant to your customer support teams, then feed insights back into agent tuning and workflow refinement.
7. **Incident response and recovery:** Prepare rollback and failover plans to detect and resolve unexpected issues quickly, preserving trust and service quality.

To deploy successfully, telecommunications companies need expert guidance at every stage, ensuring operators can unlock scale and efficiency without sacrificing compliance.

Red-team prompt bank

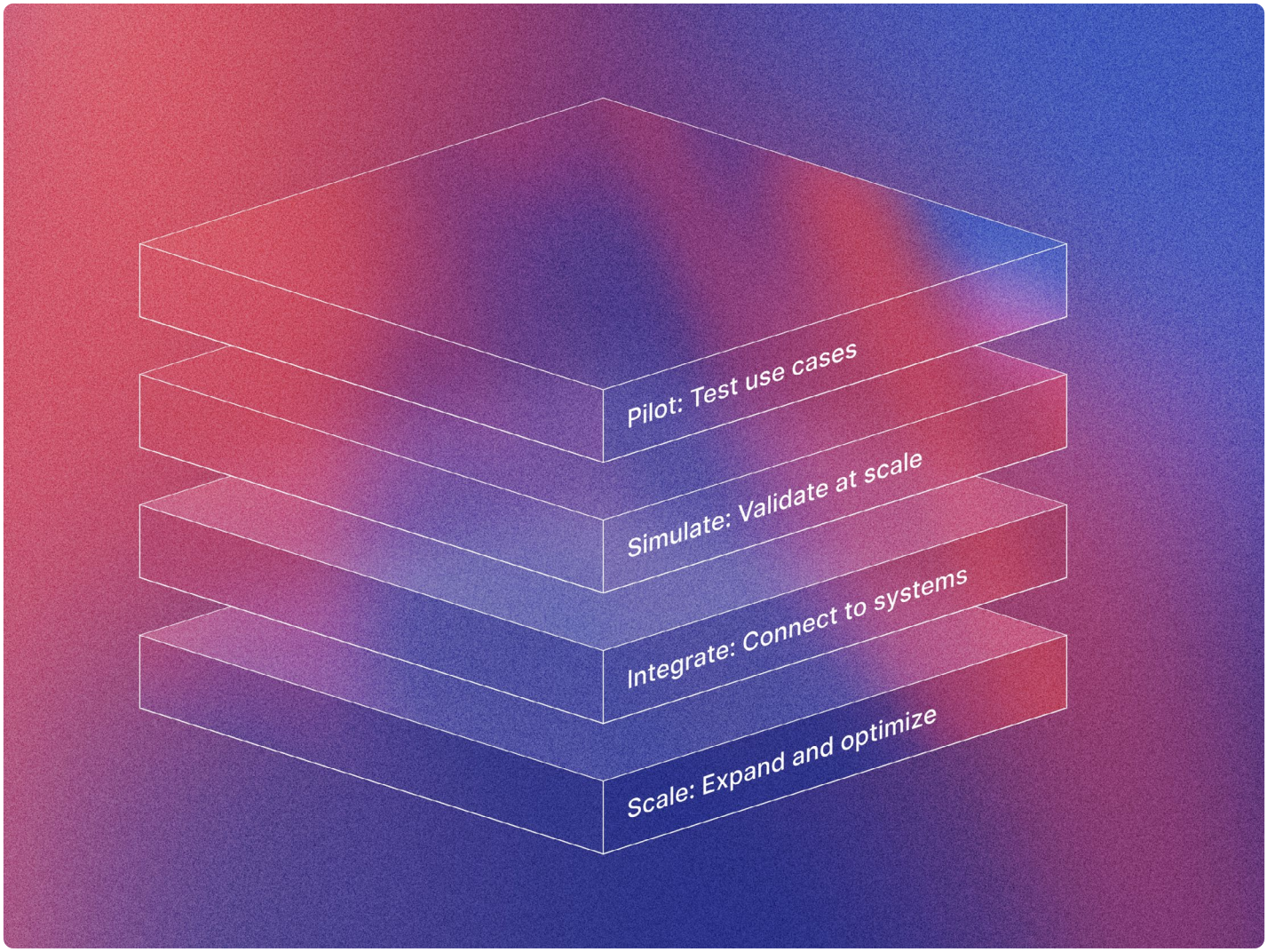


Conclusion and Next Steps

Conversational agents are no longer theoretical. They're a strategic mandate across every telecom archetype, from mobile and broadband to enterprise services. Operators that deploy conversational agents like Deutsche Telekom and Voiply are realizing faster resolutions, lower costs, and stronger customer loyalty.

Adopting conversational agents in phases is essential for success:

- **Pilot:** Start small with use cases such as billing inquiries or plan upgrades. Validate agent accuracy, containment rate, and customer satisfaction. Make adjustments to guardrails and instructions based on how the agent performs in the pilot.
- **Simulate:** Test at scale under real-world conditions to measure latency, uptime, and edge-case handling before production.
- **Integrate:** Connect agents to live systems (CRM, billing, ticketing) and establish governance for data handling, escalation, and observation.
- **Scale:** Once KPIs are met, expand agents across service lines, continuously improving them through monitoring, retraining, and feedback loops.



ElevenLabs AI Agents are the telecommunications industry's premier automation solution. Available in 32+ languages, our conversational agents feature ultra-low latency, real-time data integration, scalability that grows with you, and multi-modality across voice and chat. Our AI audio experts and deployed engineers set your team up for success, reducing costly escalations, optimizing customer experience, and unlocking new revenue.

Talk to an Agent Deployment Expert

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