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AI's Missing Link: How Cloud Voice Infrastructure Enables AI for CX

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When customers speak with an AI voice agent, they are inherently comparing it to their conversations with other humans. They hear how quickly it responds, how natural it sounds, and whether the call remains clear from beginning to end. Delivering that experience globally means coordinating AI applications, carrier networks, contact center platforms, and, in many enterprises, a mix of cloud and legacy systems. As AI moves from pilot programs into production, cloud voice can provide the orchestration layer needed to connect those environments and scale customer interactions reliably.



Voice remains essential when a customer's issue is urgent, complicated, or personal. A [2026 ServiceNow study](#) of more than 27,000 customers found that 87 percent still want to pick up the phone when an issue becomes complicated. Yet global voice is difficult to manage. Multiple regional and local carriers, inconsistent call quality, lengthy provisioning, limited performance visibility, and disconnected infrastructure have become familiar sources of cost and complexity.

Companies are responding by moving their contact center and communications environments to the cloud, creating a foundation for centralized management, performance data, software, and automation. The [2025 State of International Voice for the Contact Center report](#) found that 54 percent of contact center calls were handled in the cloud, with respondents expecting that share to reach 56 percent by 2028.

This transition also gives enterprises an opportunity to reconsider how voice supports the wider customer experience. AI applications, contact center platforms, routing logic, and performance data must work together to support sophisticated interactions in real time.

Voice AI Raises the Infrastructure Standard

Metrigy's latest [CX Optimization study](#) found nearly 85 percent of consumers would rather speak with

a human than an AI agent. Enterprises are still investing heavily in conversational AI, automated agents, and real-time agent assistance. That apparent tension reflects how organizations expect AI to work over time: handling routine needs, helping human agents respond effectively, and making service available to more customers. They are betting that AI will be a significant net-positive for customers and their own business operations.

AI is already widely adopted across the contact center. The State of International Voice report found that 81 percent of organizations have enabled their voice environments with AI. Use cases already include automated Tier 1 support, improved IVR, caller authentication, conversation summaries and real-time agent assistance. As these applications expand, they can increase call activity and place greater demands on integration, performance and operational management. Emerging uses such as proactive AI agents, voice biometrics and multimodal experiences will extend those demands further.

Regional regulations, languages, carrier requirements and customer expectations add another layer of complexity for global enterprises. A voice AI application may perform well in a controlled pilot, yet scaling it across countries requires consistent connectivity, performance, and compliance. CIOs and contact center leaders must account for the complete path between the AI application and the customer.

What AI-Ready Cloud Voice Requires

Cloud voice has emerged as a critical control layer for AI, CX, CCaaS, UCaaS, and the broader enterprise technology stack. Many existing telephony environments, however, remain fragmented across providers, networks, and regions. They were not designed to support real-time AI conversations at global scale. Those conversations still travel across carrier networks, requiring voice infrastructure to connect AI applications with the telephone numbers, routing systems, networks, and contact center platforms needed to reach customers.

Latency is especially important. Customers notice awkward pauses, dead air, and audio disruptions. Even a short delay can make an AI conversation feel unnatural, lead customers to interrupt the agent, and weaken confidence in the experience. Optimizing how a call traverses the global network can reduce telephony-induced latency by 50 to 100 percent, which can make or break a customer's perception of the call. Delivering natural conversations therefore requires close attention to the entire call path.

Enterprises also need flexible integrations between voice infrastructure and their chosen AI, CCaaS, and CX applications, which are expanding and evolving more than ever before. Vendor-agnostic connections allow organizations to adapt as models, applications and business requirements change, without rebuilding the underlying voice environment.

Other requirements include routing based on customer context, geography, availability and business rules; automated provisioning that supports expansion; and centralized administration of providers, numbers and networks.

Performance data must also be available across the technology stack so teams can understand how voice quality affects AI outputs, agent performance, and customer outcomes. With a human agent out-of-the-loop and unable to manually notice call quality issues or phone numbers out of service, analytics for automated diagnostics become mission-critical to ensure smooth operations.

Although 81 percent of enterprises in the State of International Cloud Voice survey report using AI in the voice channel, many remain concerned about the quality of its output. Poor audio, latency, packet loss, or an unstable connection can prevent AI from interpreting a customer accurately and undermine transcription, sentiment analysis, and real-time agent recommendations. Evaluating AI

performance therefore requires visibility into the voice infrastructure supporting each interaction.

Managing Voice as a Strategic Application

The State of International Voice report found that 79 percent of organizations expect their voice environments to change within the next one to two years. For 40 percent, those changing needs will result in a shift to a new preferred provider, while 34 percent plan to select a specialty global voice provider. Greater control and the ability to better leverage AI are among the primary reasons for that shift. Enterprises increasingly view voice as a strategic business application requiring centralized ownership, operational control, and continuous performance management.

Consolidating providers creates a consistent way to connect voice services with contact center and AI applications across markets. It also gives IT teams greater visibility into provisioning, routing, call quality, and phone number usage and spend, while reducing the effort required to coordinate numerous providers.

Visibility becomes critical when an interaction fails. The cause may be a carrier, routing decision, local connection, contact center platform, or AI application. Without end-to-end performance data, teams can spend valuable time determining where the problem occurred. Proactive diagnostics help identify reachability, stability, and call quality problems before customers report them. Monitoring AI- and human-handled calls through the same environment also allows teams to identify patterns across applications, providers and markets.

Effective management requires close collaboration between IT and contact center teams. IT oversees infrastructure, architecture, security and vendor strategy. Contact center leaders understand customer journeys, agent workflows and service outcomes. Together, they must define shared standards for performance, escalation and accountability.

Security and Trust Must Be Built into the Voice Channel

AI increases the potential scale and sophistication of voice-based threats into the contact center. Enterprises must protect the infrastructure and their agents, the identity and data behind each interaction — all while keeping the customer experience accessible. Inbound and outbound calls present different challenges. With inbound calls, companies need to verify the caller and detect attempts to obtain information fraudulently. With outbound calls, the first challenge is getting the customer to answer. Robocalls, spam, and number spoofing have made consumers increasingly reluctant to trust unfamiliar calls.

AI agents may allow an enterprise to initiate a greater number of calls, but volume will accomplish little if customers refuse to answer. Organizations need to manage the numbers and branding displayed, monitor how carriers and devices categorize calls, protect their numbers from misuse, and maintain a consistent identity across markets. These capabilities make trust an operational requirement. Caller identity, number reputation, authentication, and transparency must be managed across the enterprise's inbound and outbound communications strategy.

A Practical Path to AI-Ready Voice

While consolidating and streamlining providers can seem daunting, enterprises can move forward in stages, beginning with a clear view of the current voice environment. Leaders should understand which providers support each country and application, how calls are routed, where performance data

resides, and who is responsible when an interaction fails.

Understanding that assessment provides the basis for several practical actions, such as moving remaining legacy voice services into a cloud environment that can connect with the broader enterprise technology stack, and consolidating providers where it improves consistency, control and visibility. It also becomes easier to find the right integration points for voice infrastructure with AI, CCaaS and CX applications through open, vendor-agnostic connections.

Having a clear picture of voice infrastructure enables appropriate setting of performance standards for latency, call quality, uptime and reachability across AI and human interactions. Proactive testing and monitoring to identify problems before they affect customers becomes achievable. And a shared ownership between IT and contact center teams optimize the voice environment for performance, security, trust and customer outcomes.

Cloud voice infrastructure is the missing link between AI capability and customer experience. Centralized voice orchestration, flexible integrations, performance visibility and proactive monitoring give enterprises control over how AI-powered calls connect, sound and scale. With that foundation in place, multinational organizations can improve customer experience, simplify global operations, and bring AI into the voice channel without compromising the reliability and trust customers expect.

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