



The impact of AI in enterprise communications and networks

Entering the next era



Artificial Intelligence (AI) has become increasingly popular and available to most individuals with services such as ChatGPT and Canva. However, AI also promises to be a game changer in the enterprise communications and networks space with concrete applications for any sector. As with any major change, AI introduces both threats and opportunities that need to be anticipated and assessed in order to effectively leverage its potential.

A game changer

AI can be considered third major technology breakthrough in communications, after the adoption of IP as a technology standard in the late 90s, then of the introduction of cloud models and architectures starting in the early 2000s and progressing at double-digit or more rates every year since then.

At the same time, expectations for AI networking have reached their peak. According to the Gartner¹ Hype Cycle for Enterprise Networking, AI networking drives operational management savings of up to 25% by reducing the number of support calls, enabling a quicker incident response, improving network availability and optimizing the end-user experience.

According to analyst firm IDC, the Enterprise sector will be at the forefront of this revolution. Organizations will have multiple ways of harvesting significant returns on investment in the coming years, from customer experience and supply chain operations to infrastructure optimization and Large Language Model (LLM) services.

¹ - [Gartner](#)

AI in the Enterprise

Customer relations

As mentioned above, customer experience is the key area where companies and governmental institutions are expecting AI's positive impacts. Enterprises are heavily investing in Generative AI (GenAI) and other AI solutions to enhance customer service through automation and personalization for improved response times and satisfaction. GenAI tools, such as virtual assistants and chatbots, are widely deployed to handle initial customer queries, freeing up human representatives to focus on more complex tasks. This shift has been particularly strong in banking, retail and software services, where AI-enabled customer service functions are already creating new revenue streams and reducing costs.

Employee productivity

GenAI-based productivity tools are transforming the workplace, especially through automated workflows and data insights that reduce repetitive tasks and help the decision-making process based on rich-data models. IDC³ reports that companies in the EMEA region allocate over 20% of their IT budgets to emerging technologies, including GenAI. Approximately 42% of organizations reported significant improvements in productivity and operational efficiency after deploying AI-enabled collaborative tools.

Companies in the EMEA region expect to see continued gains in productivity as GenAI is deployed in departments like Human Resources, where it automates recruitment, enhances employee engagement and optimizes resource allocation.

IT/OT operations

In IT operations, 36% of companies report the use of GenAI to optimize server performance and reduce system downtime. AI models can help anticipate trends as well as detect security threats and support fraud detection, maximizing the use of IT and human resources. AI is also applied to help automate tasks and enrich core business processes while streamlining support efforts.

ALE and AI

Alcatel-Lucent Enterprise is dedicated to offering cutting-edge AI-enabled services that provide tangible value to our customers by addressing their specific needs with accuracy and care. Our approach is underpinned by a steadfast commitment to environmental responsibility, cybersecurity risk management, ethical considerations, cost efficiency and control, the protection of data privacy and compliance with AI and cyber regulations.

Our strategy is grounded in a dual foundation of internal technological expertise and a robust network of partnerships with academic institutions and DeepTech enterprises across Europe. This ecosystem enables us to harness the latest advancements in AI and integrate them seamlessly into our solutions.

Our expertise spans a wide array of AI domains, including GenAI, computer vision or Natural Language Processing (NLP), and a focus on voice treatments, based on our vast experience in real-time voice communications. We select and make available the right AI service to meet the specific needs and constraints of each customer.



AI use cases in communications

ALE is applying AI in several of its communications solutions through our own research and development and through technology partnerships with third parties. Our expertise spans a wide array of AI domains, including GenAI, computer vision or Natural Language Processing (NLP) and voice treatments (based on our vast experience in real-time voice communications). We choose and provide the right AI service to meet the specific needs and constraints of each customer.

Customer relations

Sentiment analysis in Contact Centers	Allows off-line transcript and summarization of recorded conversations for sentiment post-analysis. The conversation sum-up is based on abstractive summarization generated by LLMs.
Anonymization of call/conference recording	Recognizes of a named entity in a conference recording transcript. A use case is in banking for instance where we want to remove the bank account number in the recording.
Chatbot integration in Contact Centers	Uses a bot to answer questions before escalating a customer request to an agent. Uses Retrieval Augmented Generation (RAG) models with LLM to search for answers in an FAQ database and existing documentation.
Voicebot integration in Contact Centers	Generates a vocal answer in natural language to the customer, providing a first level of response and reducing the need for a human agent.

Employee productivity

Live transcription during audio and video conferences	Transcribes the voice of each speaker in real-time and adds it as a caption in the conferencing services. Can be translated in different languages on the fly.
Noise reduction of audio in Unified Communications as a Service (UCaaS)	Integrates robust noise reduction libraries such as RN Noise within desk phones and Rainbow™ by Alcatel-Lucent Enterprise. Improves the audio experience of the remote correspondent by lowering or even removing any background noise at the speaker side. AI, applied along with audio filtering, can remove specific noise such as a dog barking, a child yelling or the sound of drilling, making desk phones usable in any kind of environment.
Embedded voice commands	Enables running open source Natural Language Processing (NLP) models, it becomes possible to run these models on desk phone hardware to perform and automate specific tasks with voice commands.

Application note

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IT/OT operations

Automatic software vulnerability detection and mitigation

Automates a pipeline to examine and learn the code, then compare the ticket with previous fixes to assess the source of the issue. Uses LLM to propose a fix. In addition, uses this bug detection feature to assess the vulnerability of the code.

Anonymization of prompts of Cloud Gen AI Chatbots

Ensures the confidentiality of in-house data when using chatbots in requests to cloud GenAI engines such as ChatGPT. It consists in a Chrome plugin that can extract named entities from a ChatGPT prompt and replace them with a general description retrieved with LLM requests.

Script generation for Alcatel-Lucent OmniPCX Enterprise automatic configuration

Converts unstructured data such as a configuration request into natural language. For example, "Configure a new user, John Doe, with phone number 421. He will get an ALE-500 phone."

Intention detection

NLP system detects intentions in an audio stream collected from the ALE desk phone and performs associated tasks. For example, a desk phone in a hospital room can listen to the environment and forward the audio collected in the room to an NLP system that can detect intents and schedule associated tasks. A game changer for healthcare providers who can now get more than a generic warning signal without context.

Fall detection

Couples AI-based fall detection analysis and a notification workflow of alarms for a closed collaboration and coordination loop between caregivers or first responders.

Application note

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AI use cases in networks

Except common enterprise areas of AI application, like customer support, the ongoing AI revolution is transforming enterprise networking in two ways:

- Applying AI for optimizing network operations (AIOps)
- Developing the hardware and software needed to prepare networking equipment for AI-related loads in data centers

AIOps

AIOps (Artificial Intelligence for Operations) leverages AI technologies such as machine learning and GenAI to enhance network management by automating tasks, improving operational efficiency and enabling proactive issue resolution. Some key applications of AIOps in networks are:

Anomaly detection	AIOps excels in identifying anomalies in network data. This capability allows for timely detection of issues, analyzes root causes and recommends corrective actions.
Performance trend analysis	AI algorithms analyze historical performance data to forecast potential outages and recommend infrastructure changes for optimal performance. This ensures that networks can adapt to changing demands and scale appropriately as business needs evolve.
Proactive issue resolution	This functionality utilizes data analytics and machine learning to forecast potential failures. Generated data is continuously analyzed to identify patterns that historically occur before the issues so the system can take corrective action in advance.
End-to-end service quality	By monitoring statistics generated by ALE networking equipment and the Rainbow™ by Alcatel-Lucent Enterprise collaboration solution, the end-to-end call quality service correlates identified problems related to establishing a call or audio/video quality with data generated by the network or communications infrastructure to provide insights for improving the situation.
Automation of management tasks	GenAI translates network metrics and logs into a natural language description of the network state as well as producing visual charts. Then, using free-form user intents, it generates formal config artefacts, which are applied to the network. This approach significantly optimizes the learning curve of a network management system. It allows administrators to concentrate on business aligned tasks by delegating low-level technical details to the GenAI engine.

Network enhancements for AI

The rise of AI has a significant impact on networks in data centers. AI workloads, especially those involving GenAI, require exceptionally high bandwidth, low latency and rapid data transfer between computing nodes, which strains traditional Ethernet infrastructure. These workloads generate intense network traffic from massive dataset processing and constant communication among distributed processors or GPUs.

Several key technologies are being implemented to answer these challenges:

- The second version of “RDMA over Converged Ethernet” protocol (RoCE v2), which allows Remote Direct Memory Access (RDMA) over an Ethernet network, optimizes data-intensive workloads by reducing latency and offloading data transfers from the CPU
- Lossless Ethernet mechanisms ensure the reliable transmission of data
- 400G Ethernet is required for massive data transfers taking place during the operations of GenAI

Application note

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AI and regulations

The integration of responsible AI and regulatory compliance into AI strategies is becoming a critical requirement for enterprises globally. Across the globe, regulatory frameworks are prompting enterprises to adopt responsible AI practices that ensure ethical, transparent and secure AI applications for customer relations, employee efficiency and IT/OT operations.

Main governmental/regional AI regulations

As AI services are becoming pervasive across the consumer and enterprise world, regulations are being put in place to prevent misuses and to protect users and citizens. ALE is committed to comply with the all current and future regulations for AI-enabled solutions and services. We believe that regulation is not an obstacle to innovation. On the contrary, it is a constraint that encourages the emergence of innovation for good, which is at the heart of ALE's ESG strategy.

Europe	US	APAC
Europe is leading the way in AI regulation with its AI Act, which classifies AI applications by risk level (high-risk, limited-risk). High-risk AI applications must meet stringent requirements, including transparency, human oversight and robustness against biases.	The US administration introduced a policy to minimize regulatory oversight in early 2025. Key provisions include an action plan for AI leadership, a review of federal agency actions under the former AI Executive Order, and fewer regulatory barriers for businesses developing or using AI.	The AI regulatory landscape in Asia-Pacific is evolving, with countries like Singapore and Japan establishing ethical AI frameworks. These focus on transparency, accountability and human-centric AI to foster innovation while ensuring societal benefits.
GDPR remains a cornerstone for AI regulation, setting high standards for data privacy and security. This impacts AI tools that handle personal data, compelling companies to adopt privacy-by-design principles.		China has implemented regulations requiring companies to disclose AI-driven decision-making processes in consumer-facing applications, emphasizing ethical and responsible AI use in alignment with government priorities.

ALE Code of Conduct

On top of these regulations, and for our own use of AI services, development and applications, ALE has defined and adopted an AI Charter, which outlines principles and commitment to responsible AI usage. We apply the same strict rules when embedding AI-enabled services in our products and solutions for use by our partners and customers.

Conclusion

AI is unleashing new possibilities and opening up opportunities for enterprises to explore areas of communications and networking that technology alone could not access. ALE is mobilizing significant research and development resources on actionable and comprehensive applications in the communications and networks space to enable our customers and partners to take advantage of some of the unlimited capabilities offered by AI technology while respecting regulations and user privacy.



Learn more about Alcatel-Lucent Enterprise

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