



# The power of engagement micro-journeys

Customer interaction; Cpaas; Multi-channel; Advanced cloud services; Visual Builder tool

**White paper**

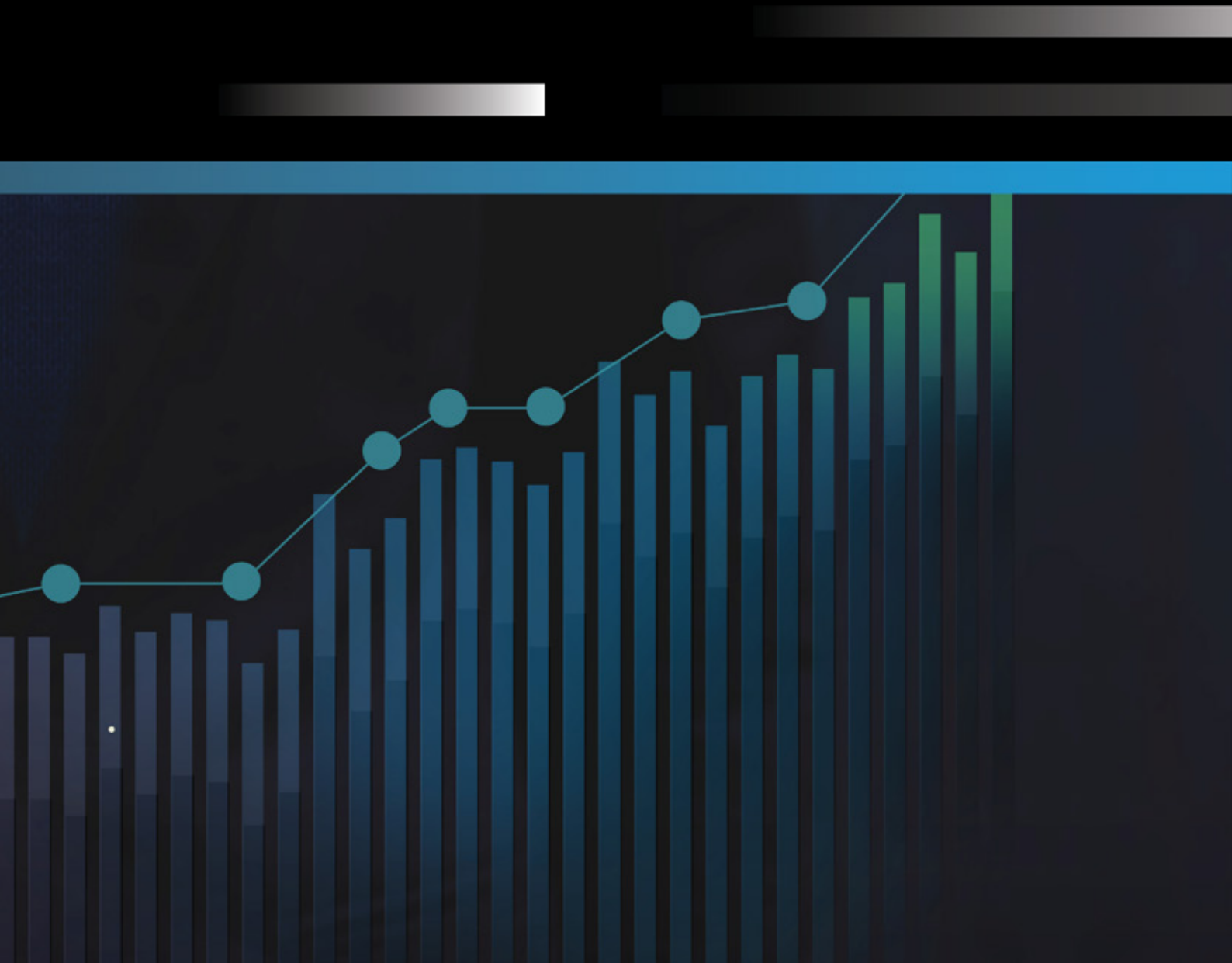
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# Introduction

In the last two years, cloud business communications platforms have been strongly leveraged by the transformation needs imposed by the COVID-19 pandemic. The outbreak crisis forced organizations to change quickly and take advantage of the available cloud-based solutions to keep the businesses running. Since many of these organizations were unprepared, the transition was not smooth and required them to quickly adapt their existing processes for remote work and online communication and collaboration.



In parallel, for many organizations to survive, they had to accelerate the digitization of their customer interactions, operations, and supply-chain workflows. Thanks to the communication solutions already in place and their evolution during the pandemic, the transformation was possible in a short time. Cloud business communication platforms have played a fundamental role in this transformational era and societal change.



Nowadays, the cloud business communications market comprises three main pillars: unified communication as a service (UCaaS), contact center as a service (CCaaS), and communications platform as a service (CPaaS).



**UCaaS:** provides a comprehensive set of tools, combining voice, video, messaging, conferencing, and collaboration, helping organizations keep their workforce connected and productive, giving a consistent communication experience across channels and devices. Some of the main functions are call forwarding, advanced call routing, call recording, instant messaging, web conferencing, and tools for teams' collaboration. UCaaS is mainly used for internal communication within the enterprise.



**CCaaS:** is the evolution of the classic on-premises contact center platforms but provided in the form of subscription-based cloud software as a service (SaaS), avoiding the need of the organizations to invest in hardware and platform software licenses and to have infrastructure maintenance costs. Typically, this kind of cloud communication platform is aimed at small and medium businesses (SMB), offering a streamlined onboarding process built, taking scale in mind. This new wave of contact center platforms is designed to allow service representatives and salespeople to easily connect with the customers across multiple channels, providing a set of functionalities to make the agents more productive. Call queuing, routing, and recording, interactive voice response (IVR) menus, voicemail, reporting and analytics, integration connectors with most popular business software (e.g., customer relationship management - CRM, and helpdesk). Bots, natural language processing (NLP), and artificial intelligence (AI)/machine learning technologies, which can improve the attendants' performance and boost customer satisfaction, have also been included in CCaaS solutions. The coherent combination of unified communications and contact center functions helps organizations to be even more customer-centric. A helpdesk agent's ability to easily access an internal expert to obtain rapid answers while engaging with the customer is an example of this value-added integration, which positively impacts the customer experience. UCaaS and CCaaS are full-featured communication package software tools targeted to the organization's users.



**CPaaS:** offers developers or business technologists a framework to integrate advanced communication capabilities into existing business processes and applications (web sites, mobile apps, and enterprise applications). CPaaS expands the possibilities far beyond UCaaS and CCaaS since it provides the organizations the communication building blocks to drive an integrated and tailored customer experience for a fully digitalized engagement journey. As per Gartner's market definition [1], CPaaS offers application leaders a cloud-based multilayered middleware on which they can develop, run, and distribute communications software. The platform provides API that simplify the integration of communications capabilities (for example, voice, messaging, and video) into any app, service, or business process. CPaaS delivers the means for organizations to infuse advanced communications capabilities into existing workflows through a visual builder tool that enables non-technical users to build the workflows with a user-friendly drag-and-drop graphic approach.

In fact, the no-code or low-code paradigms, such as proposed on CPaaS approach, are gaining momentum in a new age of synergies between IT personnel and non-IT people in highly collaborative agile contexts. The democratization [2] of business processes and applications development, allowing people without coding skills or little experience to participate in the solutions building processes directly, presents promising prospects and empowers organizations to achieve higher productivity, accelerate the time-to-market when launching new products and services, and improve teams' motivation.

This no-code/low-code movement is paving the way in the CPaaS adoption. Visual builders are one of the evolving areas where the vendors focus on improving their tools to attract non-technical people. Additionally, beyond the API (voice, VoIP, video, messaging, chat, and numbering) and visual environments for workflow composition and design, CPaaS stacks are also including additional functionalities, which complement the communication functions, such as authentication, anonymization, payments, sentiment analysis, and task routing.

For customers, CPaaS allows accelerating the transformation towards complete digitalization, enabling the rapid creation and improvement of applications and business processes at lower costs. CPaaS is at the heart of the transformation pathway in an age where organizations need to rethink the customer engagement journey to deliver an even more connected and frictionless customer experience. Building micro-journeys straightforwardly and fully integrated with the existing processes and IT assets of the company, in a coherent omnichannel engagement approach, represents a step ahead in interacting with the customers, wherever they are or whatever terminal and channel they choose to use.

## CPaaS use cases

CPaaS, as mentioned before, has the power to accelerate the digital transformation in a wide variety of industries, including healthcare, education, retail, finance, hospitality, and smart living, to name just a few. There are countless scenarios and use cases that can take advantage of its functionalities, namely:



### Hospitality

Hotels can automate and fully digitalize the interaction with their customers. By integrating the existing processes with virtual assistants, hotels can simplify the booking, check-in, and check-out processes. This interaction journey can benefit from other CPaaS core capabilities such as: multi-channel reminders that can be sent during all the phases to improve customer satisfaction and reduce no-shows; two-factor authentication to reinforce interactions' security; advanced AI functions (e.g., sentiment analysis) to improve the interaction efficiency.



### Retail

Traditional and online retailers have in CPaaS solutions an excellent opportunity to improve the customer experience, such as in the onboarding and delivery processes, by sending registration contacts validation, order confirmations, shipping information, and real-time delivery updates. However, retailers can go further with CPaaS by recurring to intelligent IVR and virtual assistants in the pre-sales and post-sales, improving the efficiency and providing a 24x7 first line of support and help, avoiding missing any critical contact.





### e-Government & smart cities

In recent years, central and local governments have been implementing a new age of e-services to improve citizens' quality of life and get better efficiency of the traditional services. CPaaS is a foundational component, complemented with IoT, AI, and 5G technologies, to deliver innovation and build an innovative ecosystem to address the emerging opportunities in this space. The future of excellent public citizen-centric services will benefit a lot from the CPaaS services.



### (Contactless) shopping

The integration of a variety of sensors, cameras, and machine learning technologies, allowing the customers, after a quick check-in using their smartphone, to walk inside the store, picking up items from the shelf and, in the end, walkout from the store without the need to stay in a queue waiting for validation and payment, represents a step ahead in the shopping experience – already being tested by Amazon. In the future, with the massification of this concept, new opportunities will open for CPaaS services providers. The connected real-time omnichannel experience required in this kind of new contactless and cashless stores can enormously benefit from CPaaS services and capabilities embedded in the involved complex automated processes.



# Use case #1

## Healthcare: advanced cloud IVR

Due to constraints on the staff dimension, a small dentist clinic decided to use robotic process automation (RPA) to automate patient interactions (see Figure 1) to schedule and re-schedule appointments, freeing up the attendants for tasks requiring human reasoning. In this RPA, all incoming phone calls for appointment scheduling are handled by the call flow journey designed through the CPaaS Visual Builder tool that combines the system capabilities to play announcements and IVR to recognize options selection and interface with external functions.



Each journey for a voice channel requires one or more telephone numbers to enable incoming and outgoing calls. The enterprise can select from his free numbers as previously provided or buy new ones directly from the service provider.

The journey begins when a call is received on one of the specified entry numbers. In **Figure 1**, the clinic decided to have both flows for emergency attending and appointment scheduling right at the beginning. An announcement with an IVR presenting the available options enables the selection via dual tone modulated frequency (DTMF) digits input from the caller’s phone or voice recognition.

Moreover, the clinic decided that the emergency attending service was only available during a specific period. For calls received outside that period, the patients leave a callback request that triggers a notification for analysis and retrieval when possible. For appointments, the journey interacts with the clinic’s schedule system to retrieve scheduled appointments for the calling patient and allow patients to schedule a new appointment or re-schedule to another available slot. As the journey ends, a notification confirming the changes is sent for both patient and the clinic attendant.

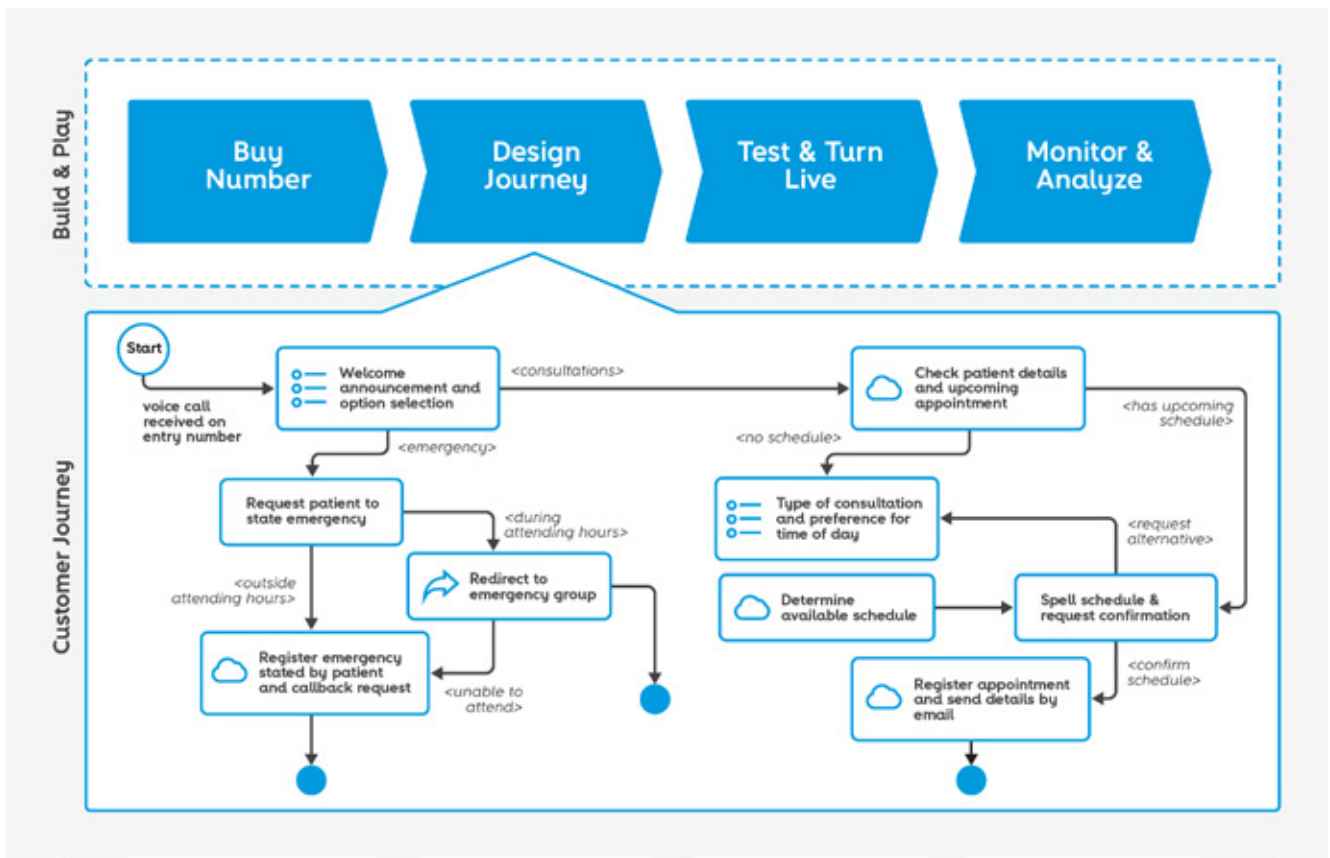


Figure 1 - Healthcare use case

# Use case #2

## Sales & marketing: automated multi-channel customer interaction

A small and medium business (SMB) company decided to launch a new marketing campaign for some of their products and services to improve sales (see Figure 2). In the visual tool of the CPaaS Platform, the business team designs the interaction flow for the desired customer micro-journey.

The journey begins when a user visits the company’s website, being invited to start an online chatbot session. The bot tries to recognize his intent and asks his name to have a more personalized interaction. In case of interest in a product or service, the bot answers the customer’s questions. When the customer manifests an interest in additional information during the interaction, the bot asks him to indicate his contact information (e-mail and phone number) for future communications. During the interaction, the sentiment of the customer is being monitored and classified. If it is negative, the session is transferred to a human agent, otherwise an e-mail is sent thanking the customer and giving more detailed information about the product or service. After two days, if the customer does not subscribe to the offer, a reminder SMS is sent.

After designing the interaction journey, the business team must instruct and train the bot to answer the customer’s questions. A script file can be uploaded with the customers’ most frequent questions and answers to ease and accelerate the training phase. After testing the overall interaction flow, the business team activates the flow to be available online for the customers.

These two use cases illustrate the potential and benefits of integrating real-time communication and AI capabilities in existing processes towards full digital customer interaction services: it increases efficiency and enhances engagement while creating a better customer experience.

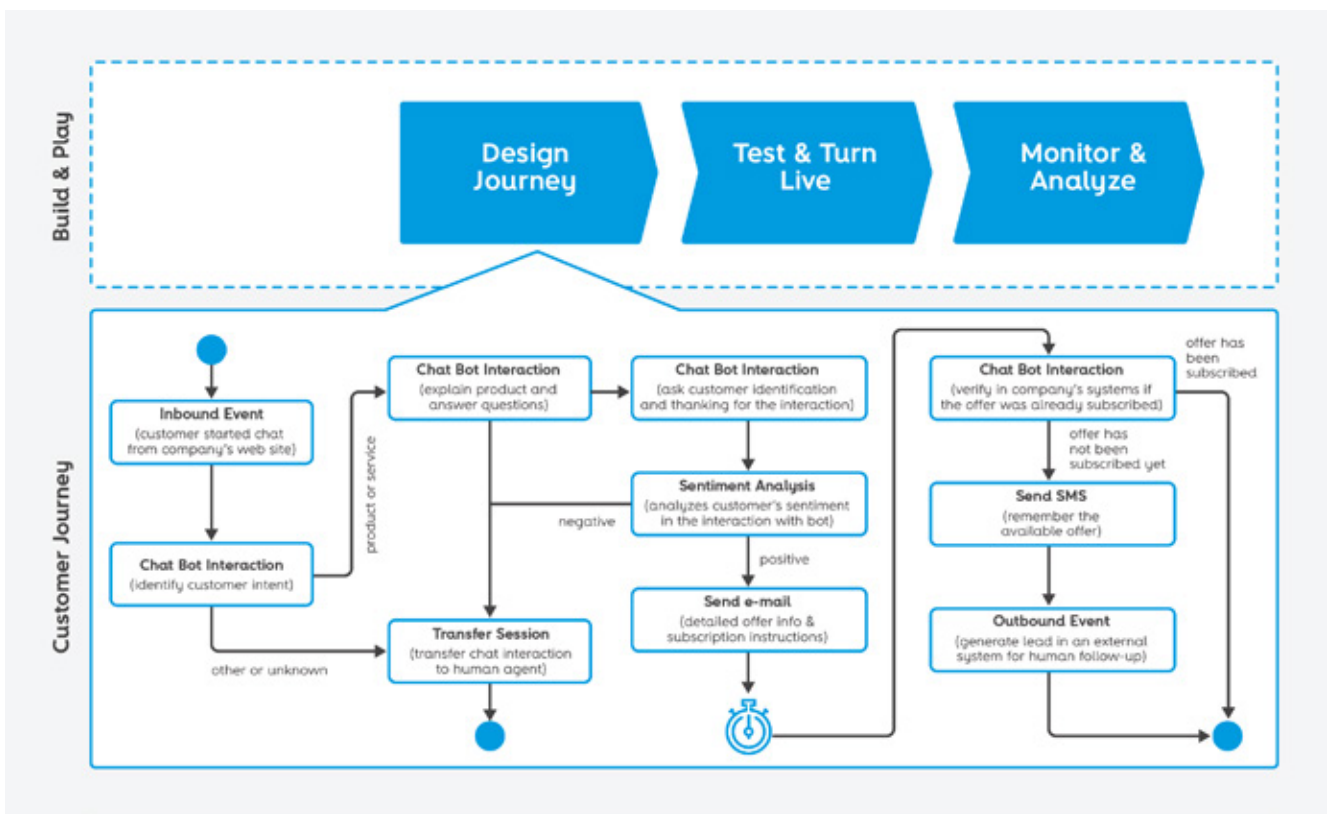
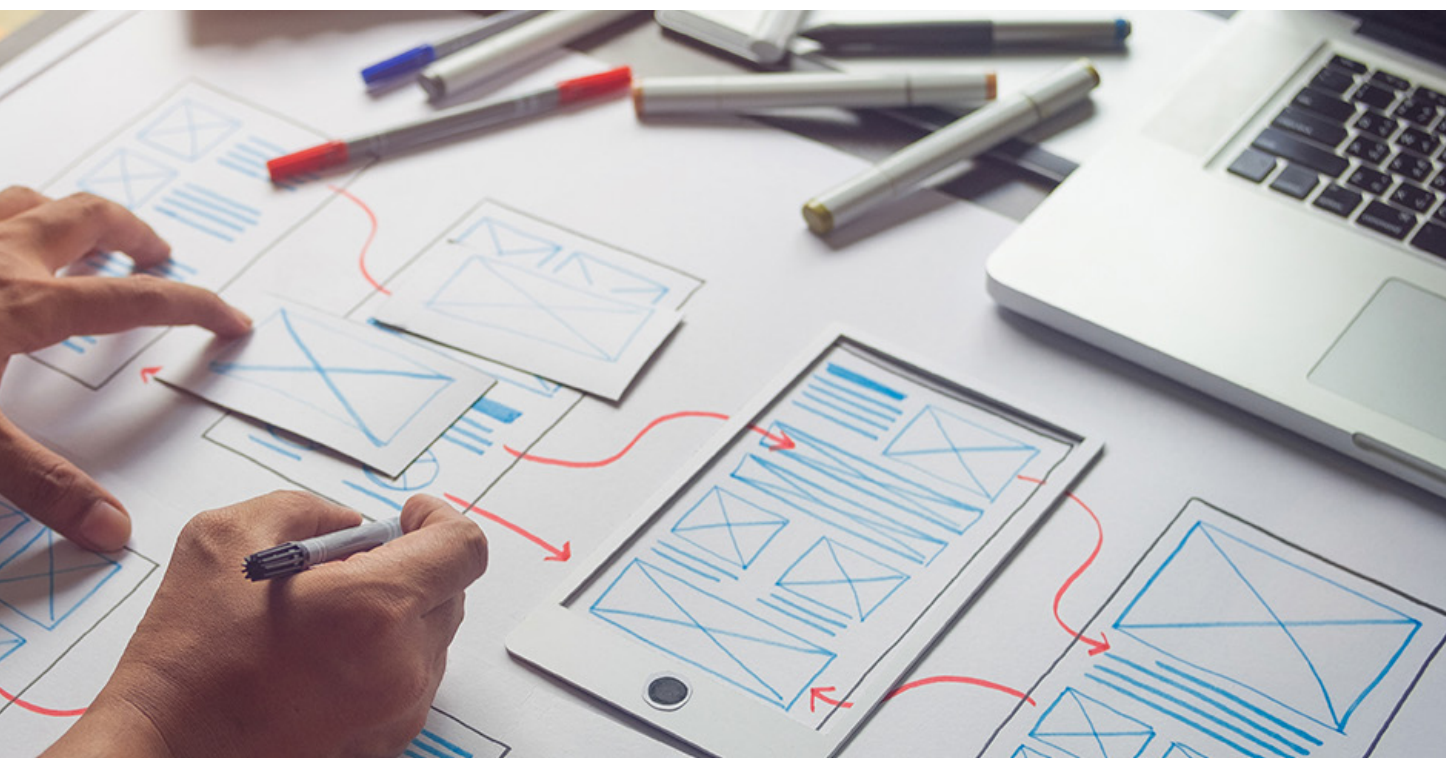


Figure 2 - Sales & marketing use case

## CPaaS and the CSP

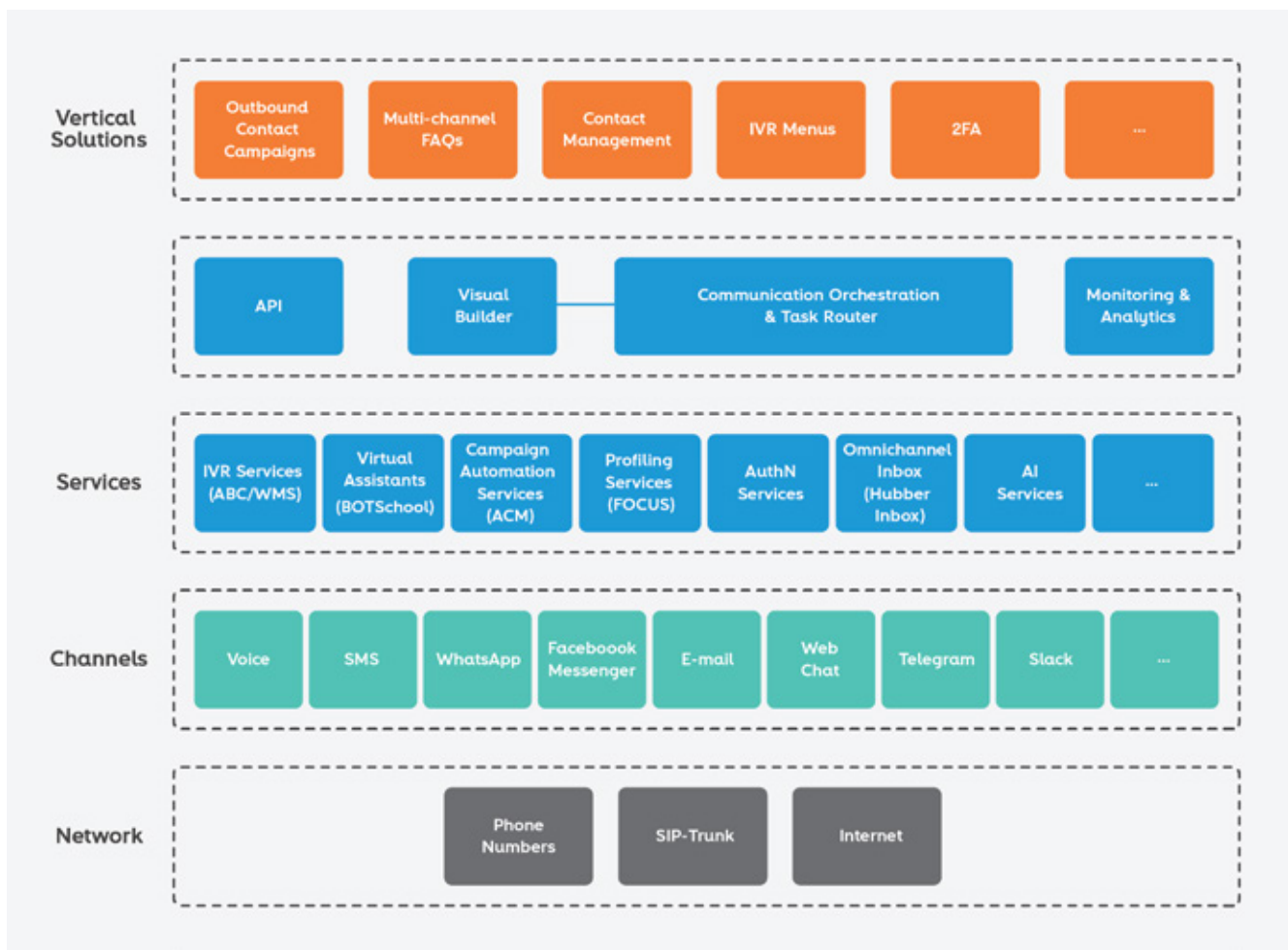
CPaaS represents the opportunity for communication service providers (CSP) to increase revenues and strengthen relationships with enterprise customers who want to innovate and accelerate digital transformation. In recent years, the market has been experiencing solid and consistent growth [3] [4], penetrating companies of all dimensions, types, and sectors, driven by the ongoing digital transformation on organizations, which is motivating a “gold rush” among the vendors, given the promising perspectives of revenues.

In an era of everything-as-a-service (XaaS), CSP need to rethink and redefine their offerings to remain competitive in the business communications space. Keeping in mind the transformation changes in place, they should provide a new age of cloud-based services, with embeddable real-time communication capabilities and an orchestration framework, to make it easier to drive innovation in the applications and processes of their enterprise customers, improving stickiness and loyalty (decreasing the churn rate). By implementing their own CPaaS services or partnering with enablement vendors, CSP can gain a competitive advantage and improve profits, competing with global players.



## Altice Labs' CPaaS solution overview

Altice Labs has a vast track record of creating and delivering innovative communication platforms. Regarding business communications platforms, Altice Labs is building a coherent CPaaS stack incorporating some existing platforms of its current portfolio and developing new services to complement the offer – **Figure 3** presents a layered vision of this new stack.



**Figure 3** – Altice Labs' CPaaS stack

In the following sub-sections, each of the layers are covered in more detail.



### Network layer

Altice Labs' CPaaS platform interfaces with the CSP network via session initiation protocol (SIP) protocol, enhancing the call and SMS treatment capabilities on the CSP numbering plan and enabling SIP-trunk interface scenarios. Enterprises can use their existing numbering or acquire more numbers from the CSP.

Additionally, the platform connects directly over the Internet to other over-the-top (OTT) services/ channels, such as WhatsApp and Facebook Messenger. These types of services might require 3<sup>rd</sup> party activation.



### Channels layer

The multi-channel architecture of the Altice Labs' CPaaS platform provides the ability to combine multiple indirect and direct communication channels, enabling flexibility on the CSP customers' communication strategy and empowering people to choose the most convenient channel when engaging with companies and brands.

Being this platform built on top of an extensible framework, more channels can be added whenever required by specific use cases and when there is a market demand.



### Services layer

Besides the multi-channel capabilities, the platform integrates various services from the Altice Labs' products portfolio:

- For **voice communication channels**, traditional IVR with input digits recognition and conversational IVR with natural language processing are made available by enhancing those features from Advanced Business Communications (ABC) and Windless Media Server (WMS) products.
- For more **elaborated IVR interactions and virtual assistant services**, it is possible to integrate with the BOTSchool. This low-code virtual assistant cloud solution eases creation and management for any channel, allowing to train conversational bots capable of natural language understanding, engaging complex interactions with the customers (by voice or messaging) with the capability to interpret intents, make decisions based on context, and even evaluate customer sentiment that can influence the answer.
- **Campaign Automation** is a bundle of real-time multi-channel marketing automation services provided by the Active Campaign Manager (ACM), a suite to create, run, monitor, and optimize multi-channel contextual and personalized marketing campaigns. Campaign automation services can be invoked from the communication flows, for instance, to obtain information about the campaigns available for a specific customer.
- **Customer profiling services** are provided by FOCUS, a profiling system able to collect data from external sources, process, transform and store customer profiles in a unified view. Profiling services can be used to make decisions in the communication flows based on customer data (e.g., user preferences, inferred preferences, services usage insights). Altice Labs' CPaaS Inbox is an omnichannel solution that aims to provide a centralized deck to enable seamless communication aggregation, customer engagement approaches, unified messaging experience combined with voice and IVR capabilities, removing boundaries between different means of communication channels.

Other transversal services, such as authentication functions and AI services (natural entity recognition, automatic speech recognition, text to speech, optical character recognition, and language detection), are also available for integration within journey configuration.



### Orchestration & interfaces layer

All the interfacing with the platform can be achieved via interfaces and API, ranging from management functions to control functions for services and channel events. It provides the means for CSP and their partners and customers to implement specific solutions for their business processes integrated into their systems.

Altice Labs' CPaaS Visual Builder tool can be used as an alternative to the programmatic approach or as a complement. Customers can design by themselves interaction flows for voice and messaging channels on a user-friendly web application frontend simply by dragging and dropping building blocks and defining the connections and transition conditions between them, requiring only the knowledge of the business case to be supported. Those flows designed on the Visual Builder tool are then interpreted by the communication orchestration and task router component, responsible for managing each flow's life cycle according to the triggered events and the subsequent step conditions.



### Vertical solutions layer

This layer provides a flexible framework to implement a wide range of use cases such as:

- **Outbound contact campaigns** supported in ACM services, virtual assistants and other AI functions (e.g., sentiment analysis);
- **Multi-channel FAQ** by leveraging the conversational bot's ability to recognize intents and provide contextual responses;
- **Inbound and outbound contact management** flows by combining the call distribution capabilities from ABC and WMS components;
- **IVR menus** with the possibility to integrate with bots and external systems;
- **Two-factor authentication** (2FA) scenarios.

Wrapping up, Altice Labs' CPaaS is a comprehensive communication stack, built taking advantage of our experience in business communications platforms. This ecosystem, complemented with new functions, API, and tools, supported in a strong orchestration foundation, provides the ingredients that will empower CSP to offer new services to their business customers.



## Conclusions

Customer habits, needs, and expectations are changing quickly, requiring enterprises the agility and speed to follow the ongoing changes. On top of this, the recent pandemic precipitated many businesses' digital transformation, increasing the demand for omnichannel real-time communication solutions to enable a seamless connected experience between enterprises and their customers. It is also leveraging the growth of cloud-based business communications platforms - UCaaS, CCaaS, and CPaaS, which expands the possibilities far beyond the first two platforms, mainly due to:



Embeddable communications linked with AI capabilities (e.g., bots, virtual assistants, sentiment analysis) and other advanced services (e.g., authentication, profiling), enabled by CPaaS, empower enterprises to create new or evolve existing applications and processes, improving efficiency and delivering a superior customer-centric experience for better engagement.

Easy to integrate API and low-code/no-code paradigm tools emerged and became key assets to unlock the power of CPaaS, providing the foundation for programmers and non-technical personnel to access features like the multi-channel communication capacity that in the past was a major challenge with high developing cost.

The ability to instantly buy a number and quickly create a communication flow with, for instance, IVR menus, call forwarding, call recording or online multi-channel messaging, opens countless opportunities, taking enterprises to a new level of agility in this new digital age. Designing connected customer journeys and joining communications channels with AI services, straightforwardly through a visual builder tool, represents a step ahead to scale up the CPaaS adoption by engaging with non-IT enterprise employees (e.g., business technologists, citizen developers).

CSP need to continue playing a central role in business communications. Despite the threats of OTT players in this area, the telecommunications industry has a new range of opportunities that can be leveraged by their network assets, technological knowledge, and customer base. Having a CPaaS strategy can help operators face this digital transformation, maintaining a competitive advantage over the OTT players. [🔗](#)

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