



Mindtree

A Larsen & Toubro Group Company

Welcome to possible



CONVERSATIONAL IVR

Gateway for Customer Success

Chapter 2 – The journey towards elegance

Abstract

The growing demand for customer success, and decision-makers' adoption of AI and emerging technologies makes the biggest impact on organizations. What does it take to realize conversational IVR?



Content

Conversational IVR



Comprehending the
stumbling blocks

1



The journey towards
elegance

2



Looking beyond
the abyss

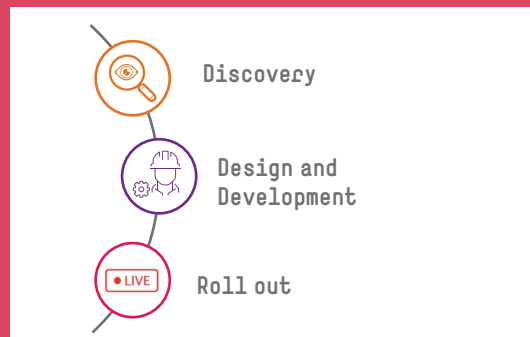
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How to overcome the hurdles of the customer / IT service desk?

Sustaining a cost-effective customer / End User Computing Service as well as ensuring customer expectations with the right service is a tough assignment for the service desk leaders.

With the proliferation of digital engagement, customer expectations have changed with time. Customers want to interact with the service desk in a simplified manner, through a system that is intelligent enough to understand them naturally in their choice of language, which is available 24x7.

In furtherance to engineer and meet above customer expectation, a Smart Interactive Voice Response (Smart IVR) bolt-in solution is one of the options. This solution can address amplifying the customer experience and issues in traditional IVR



The bolt-in solution needs to be designed such that it can complement the existing telephony and IVR system.

The solution can be realized with a three-phase approach like any other IT project. This helps streamlining the investment / effort to achieve a clear outcome.

Discovery - The journey begins

Discovery is the fuel to competitive advantage; it is the driver that pushes for betterment of a product/service. It can also be said that discovery is the process of refinement of your problem statement, which brings out actionable points and the crux of the problem. During the discovery phase, the following activities play a key role to find out the set of use cases that generate high volume calls for the service desk. The activities are -

- a. Identify the call volume drivers
- b. Understand the technical landscape
- c. Understand SOP
- d. Shortlist the key use-cases

a. Identify call volume drivers

This process starts with analyzing the ticket dump, which typically contains details including the ticket category, sub-category, description, summary, intermediate comments and customer feedback. There are two standard ways of performing data analysis at this stage:

1. Filtering methodology:

Tickets are filtered, and grouped based on the category, sub-category etc. It's quicker to achieve, albeit it doesn't reveal a lot of information contained in your data. This method reveals the volumetric description of tickets and a graphical representation of the same.

2. Exploratory Data Analysis:

EDA is the standard data science practice to start the analysis process. Using ticket description, summary, intermediate agent comments and customer feedback details, the tickets can be put into right bucket. EDA reveals the hidden patterns in your data, which may or may not be visible at the first glance.



Once all the details are bucketed correctly, the volume for each category can be identified as an individual use case.

b. Understand the Technical Landscape

A key volume driver must be tied back to its corresponding technical components. The idea behind this is to realize the complexities and challenges associated with the organization's technology landscape and how they can be mitigated, including the telephony system. Paying attention to the security aspect becomes critical if PII data is involved. In the end, the solution must align to the organization's policies for technology and data handling. Addition of new components may become inevitable, which could impact the timelines if organizational readiness is not taken into account.

c. Understand Standard Operating Process (SOP)

Clarity in the functional overview of the key volume driver and appreciating the end-to-end as-it-is process from the functional as well as the service desk owner's perspective is as important as understanding the technical landscape. In addition to this, the historical data walkthrough, either through call transcripts or recordings to comprehend the process better is imperative.

d. Shortlist the key use cases

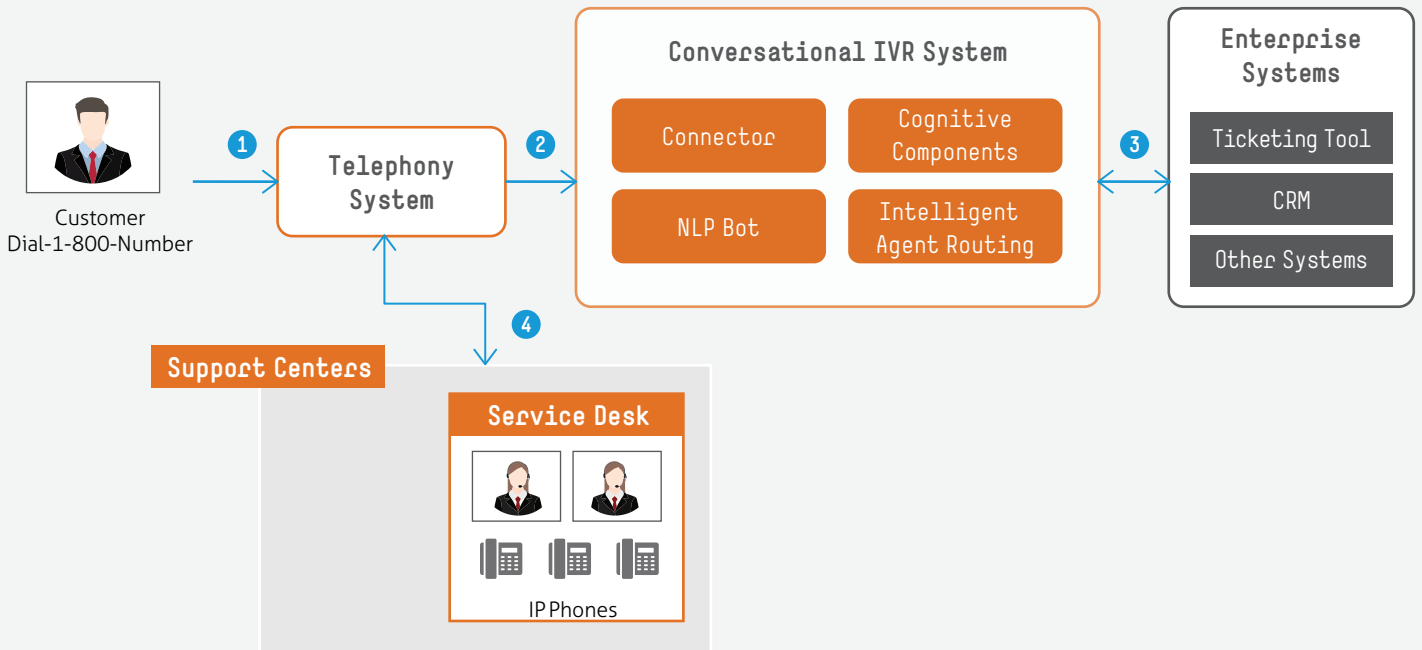
While functional and technical complexity is the process to identify the right use cases, ROI analysis is needed to understand whether they would impart value to the organization in either the short or long run. Here are the points to consider while performing ROI analysis-

- a. Technical costs associated
- b. SOP changes needed
 - a. Making users aware about the change

Design and Development

Key components

The key building blocks to realize conversational IVR are the telephony, Conversational IVR and Enterprise systems. Below is the reference architecture when all the components are combined:



Telephony system

As mentioned previously, selecting the right telephony based on the requirement is imperative. If one wants to adopt this solution for the existing telephony, it is possible too. According to our study and experience from the implementations, in general, every telephony system provides a few basic features like:

- Inbound and outbound calling
- Call flow management
- DTMF services
- Call recording and analytics
- Call patching and transfers
- Soft phone and desk phone option for agent
- CRM integrations
- Integration for self-service bot



Some telephony service providers have components that can seamlessly integrate with the voice bot to enable conversational IVR with minimal effort. For example, Twilio, Amazon connect, Nice inContact, etc.

Conversational IVR system

The voice bot is enabled by NLP, which helps engage the customer in a conversational manner and overcome the shortcomings of menu-based options in traditional IVR. Typically, the base platform for conversational IVR system should be selected in alignment with the organizational technology landscape strategy.

Enterprise system:

Once the enterprise system's integration touch points are identified, how they can be exposed for the conversational IVR should be looked into. The conversational IVR system should be in harmony with the overall organization technology landscape. While the integrations are dependent on the use case, there are a few standard ones in terms of user identification, user authentication, ticketing tool and CRM systems, which are achieved through restful services.

Rollout

Once the Smart IVR / Conversational IVR solution framework is in place, multiple priority use cases identified during the discovery phase can be rolled out. Here are the steps for the implementation of conversational IVR:

Conversational model design:

In order to establish a better user experience, conversational model design is very predominant step. A sketch of the bot's conversational flow is made here for every use case. A personality for the bot is also created based on the domain knowledge and use cases. During this phase, utterance for the use cases is identified and mapped to right intent.

Bot development, testing and training:

Based on the conversational design, the NLP is trained for the required use cases. Training and testing play a predominant role in the case of handling voice interaction. There would be data loss due to user accent, background noise and environment, etc.

Enterprise system integration:

To enable the transactional capability on conversational IVR, it's important to perform enterprise integration. Key considerations during enterprise integration are availability and reliability for the APIs to achieve better conversational experience. A caveat here is to have a quick response time; otherwise, users may feel that they have been on call waiting forever.

Data Security:

Along with enterprise integrations, there arises the risk of data security. The bolt in solution comprises multiple layers and components. A service-oriented architecture is always preferred for scaling the solution. Many of the use-cases need integration with the enterprise system and usually, it is through APIs. In general, data security is a key concern for everyone - data needs to be secured during transit and at rest. To ensure that the security aspects are taken care of, the solution should be audited for vulnerability assessment in the application layer and pen tested once deployed.

Integration Telephony:

Once the bot is ready, its integration with the telephony system is next step. Based on the telephony system, integrations can be planned. During this integration, special attention should be given to state/context management and data loss while transferring from the telephony to conversational IVR system.

Intelligent call routing and agent transfer:

Intelligent call routing to the right agent is a more modernized feature that can enhance user experience. With use of NLP, it helps understand the user's intent and helps route the call to the right agent in case the bot fails to answer the query. Agent skill mapping must be carried out in order to achieve this.

Additional features for Conversational IVR

There can be additional features which conversational IVR can bring in. These features can be modernized and enhanced with time.

Biometric Authentication:

In order to provide personalization, authentication of the user becomes primary. To achieve this over telephony, voice biometric authentication can be used.

AI-ML-based Summarization:

In a customer / IT service desk, agents usually capture the call summary, which is fed to the ticketing or CRM systems in order to maintain records. This process can be automated using AI-ML-based models in combination with cognitive services.

Capturing additional KPIs using AI-ML:

AI-ML can even be used to capture additional KPIs from the existing data corpus. For instance, enabling topic modeling for unanswered queries can help to find the right use case for future development.

Advance Agent Dashboard:

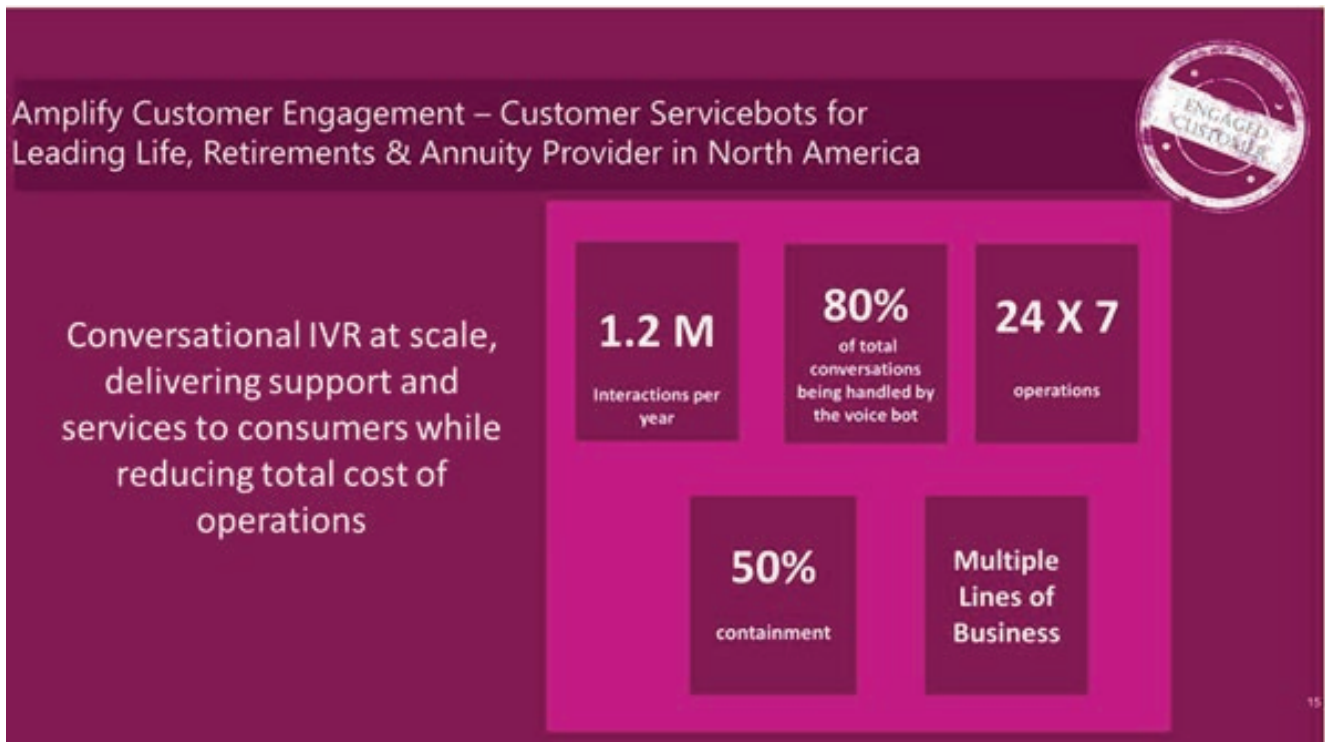
If the agents of the service desk are adapted to the soft phone system, then an advance agent dashboard provides AI-powered suggestions and information during the call. Once the call lands on the agent screen, complete customer information can be displayed along with the summarized problem and AI-suggested resolutions. Even the customer sentiments can be enabled on the agent dashboard.

Sentiment analysis:

Analyzing the customer experience and identifying strain points throughout the call using sentiment analysis can be done and appropriate actions can be triggered. The sentiment can be analyzed on voice as well as through conversations, and appropriate guidance can be shared with the help desk agent to achieve better user experience.

Case studies

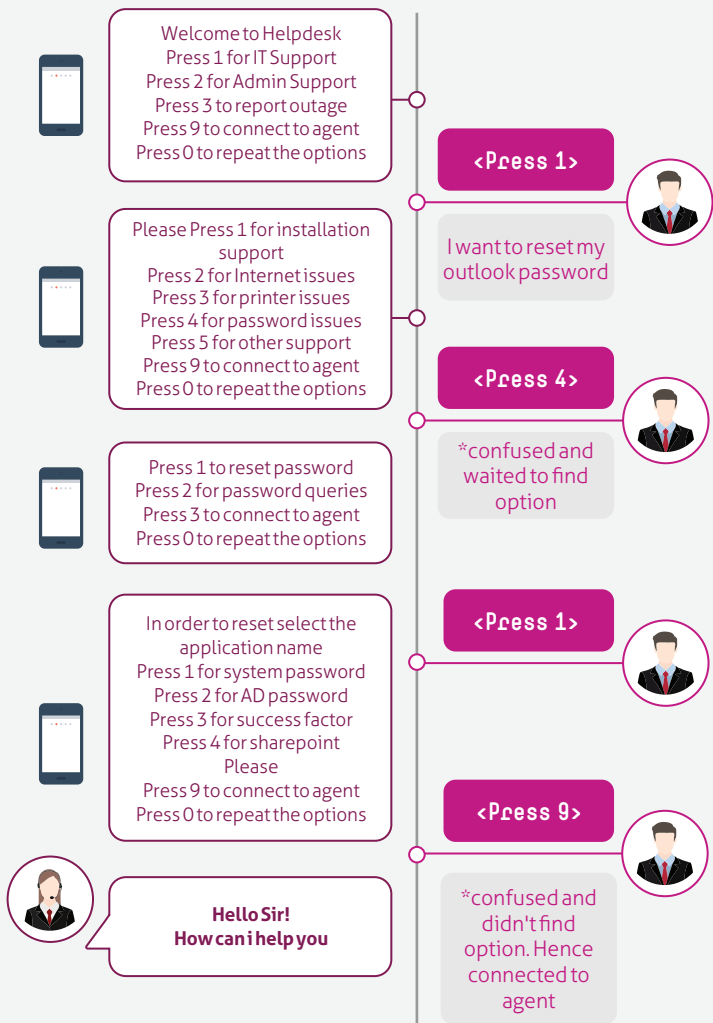
The following case studies are realized based on the proposed reference architecture above.



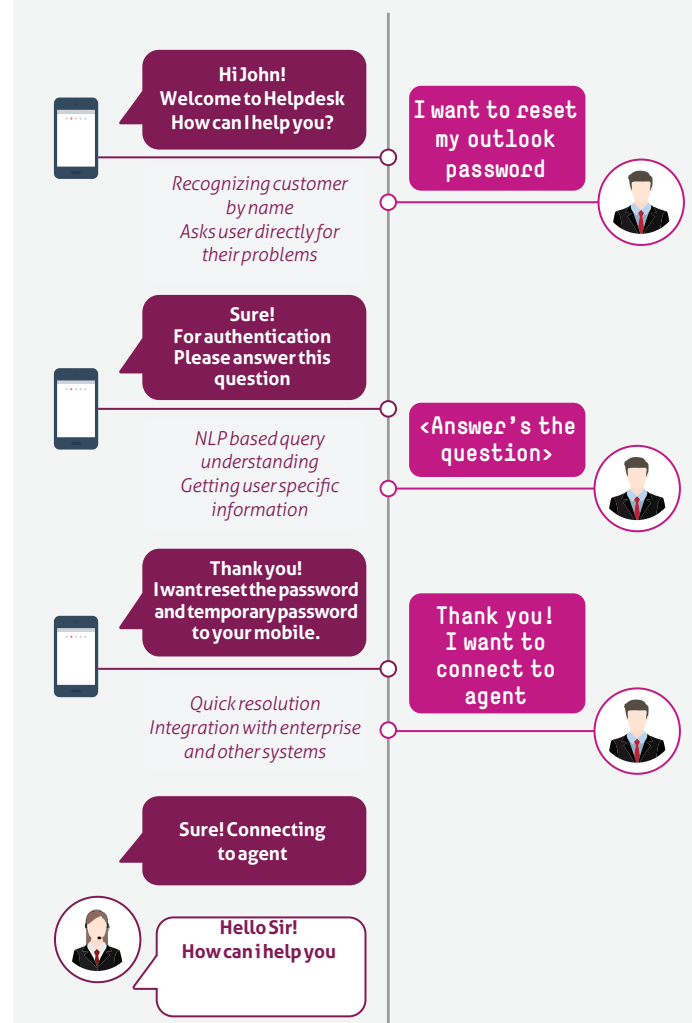
Conclusion

Implementing conversational IVR can bring better customer experience compared to traditional IVR. Here is a sample example of the change in experience.

Traditional IVR



Conversational IVR



However, it is imperative to note that costs associated with the self-service embedded capability could soon be detrimental, and this is where the expertise of service partners come into play. A right partner can not only help you accelerate the process but also provide better suggestions from experience and bring the right tools to overcome the challenge.

References

<https://www.gartner.com/en/documents/3980373/6-key-functions-of-modern-ivr-systems>

<https://www.gartner.com/en/documents/3975821>

<https://www.gartner.com/en/newsroom/press-releases/2019-09-25-gartner-says-only-9--of-customers-report-solving-thei>

<https://www.gartner.com/en/newsroom/press-releases/2020-01-15-gartner-says-74--of--customer-experience-leaders-expe>

https://en.wikipedia.org/wiki/Interactive_voice_response

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He is the practice owner for Conversational AI at Mindtree. He has over two decades of experience working for customers globally, and has been involved in multiple innovation and Digital Transformation programs to improve customer success. His core focus is enterprise IT automation, self-service for brands and contact center automation using cognitive service, AI/ML and deep learning models.

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About Mindtree

Mindtree [NSE: MINDTREE] is a global technology consulting and services company, helping enterprises marry scale with agility to achieve competitive advantage. "Born digital," in 1999 and now a Larsen & Toubro Group Company, Mindtree applies its deep domain knowledge to 275+ enterprise client engagements to break down silos, make sense of digital complexity and bring new initiatives to market faster. We enable IT to move at the speed of business, leveraging emerging technologies and the efficiencies of Continuous Delivery to spur business innovation. Operating in more than 15 countries across the world, we're consistently regarded as one of the best places to work, embodied every day by our winning culture made up of over 22,000 entrepreneurial, collaborative and dedicated "Mindtree Minds."