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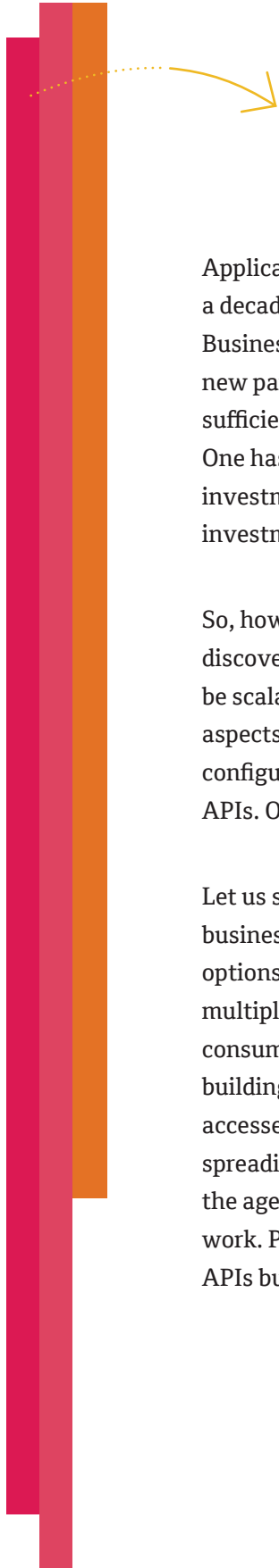
# Chatbots – the perfect medium to accelerate API consumption



A Mindtree POV | 2020



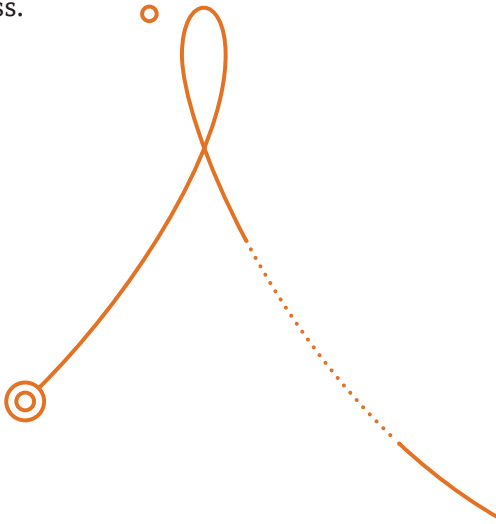
*Welcome to possible*



Application Programming Interface (API) has been one of the buzz phrases in the IT industry for a decade. Software developers are building and consuming APIs for several functionalities. Businesses are implementing APIs with the belief that APIs will help grow their business, forge new partnerships, and boost their revenues. However, just implementing APIs might not be sufficient for driving growth. The goal of an API is to be consumed by developers or customers. One has to find ways to increase the consumption of APIs so that the time, efforts, and investments in building and implementing them will bring returns that are worth beyond the investment made into APIs.

So, how do we increase the consumption of APIs? We can make them reusable and discoverable. They need to be scalable to serve and respond to all the requests they receive. To be scalable, we can clone and deploy APIs on multiple servers, these are some of the basic aspects to consider for ensuring consumption. However, after performing these actions and configurations to make API scalable, we still cannot guarantee the increase in consumption of APIs. One way to address this is by introducing new channels for the APIs to be consumed.

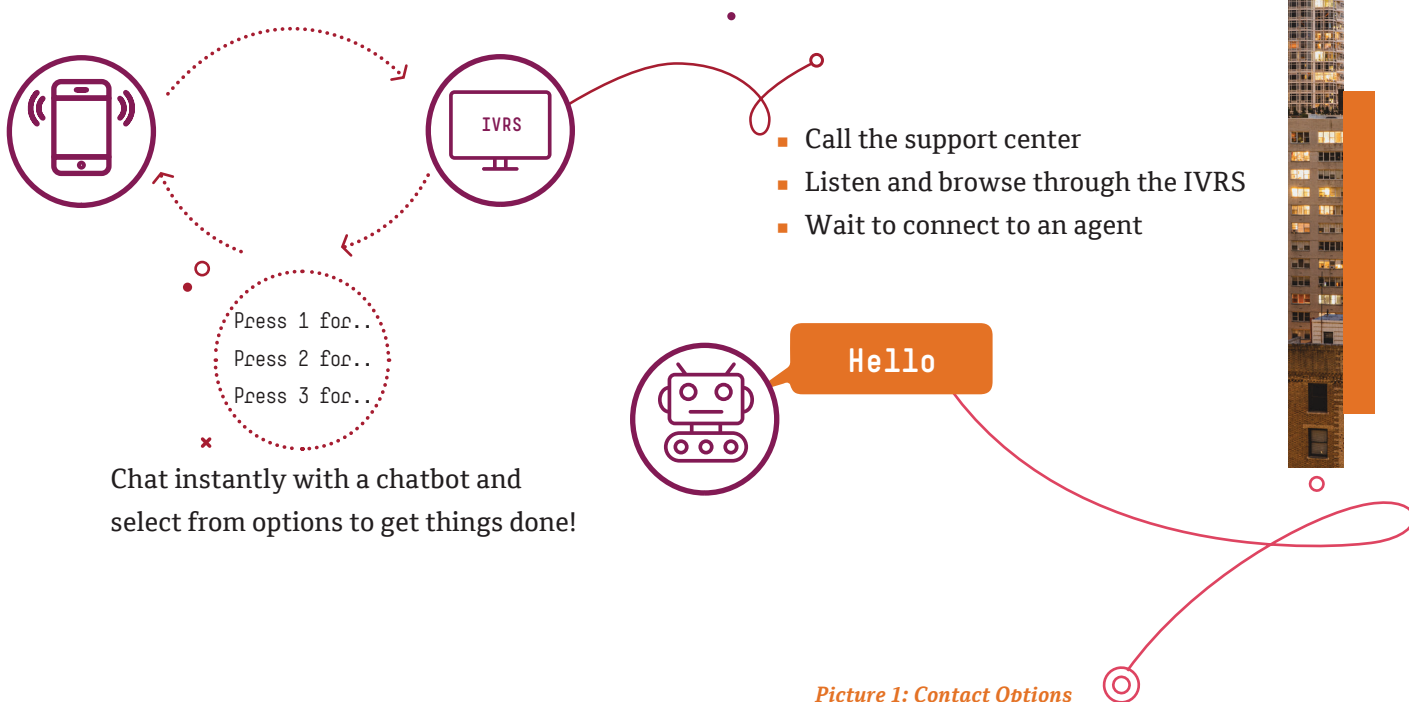
Let us see how offering multiple channels to consumers for accessing APIs can be useful for a business. These days when everything is done online, consumers have to choose between options such as an app vs browser vs IVR vs chat to make a booking. On similar lines, offering multiple channels for API consumption will open up different routes and possibilities for consumers and vendors to reach the business and utilize their services, which could also help in building an ecosystem. In short, channels are just the medium through which an API can be accessed to consume the services a business is providing. These days with the COVID-19 virus spreading all over the world, consumers would want to avoid a face-to-face conversation with the agents. Consumers would be searching for easier, online, self-serving alternates to do their work. Providing alternative options to consumers can not only increase the consumption of the APIs but also help the consumers to connect better with the business.



Let's go through an example to understand this better. For instance, most of us would have traveled on flights with airlines. For this, travel bookings are often done online - through a website (airline/aggregator) or a mobile app. While booking a flight, we search for flights, book a flight and opt for services such as meals, quick check-in, etc. To support these operations across platforms and channels, airline companies have invested in developing APIs, which could be reused. Now, what good are the APIs if they are not consumed? Hence, airlines need to search for new ways to reach their customers and have these APIs consumed.

Think of an "adventurous" traveler who wants to visit and see many places. However, he does not have a fixed itinerary or does not book his flights in advance and he likes to decide his next destination while he is on the go. He also finds it convenient to add ancillary services as needed, such as extra meals or an additional piece of baggage. If he feels like, he might even opt to upgrade his seat to business class on his next flight. Now since he is traveling, he might not have access to high-speed internet to load the airline's website or the app to make his bookings, or he is too tired to look at these options. With that said, one approach to book the services is on the phone with the customer care of the airlines. This still requires browsing through the IVRS menu and waiting to reach a human agent, which can be even more testing.

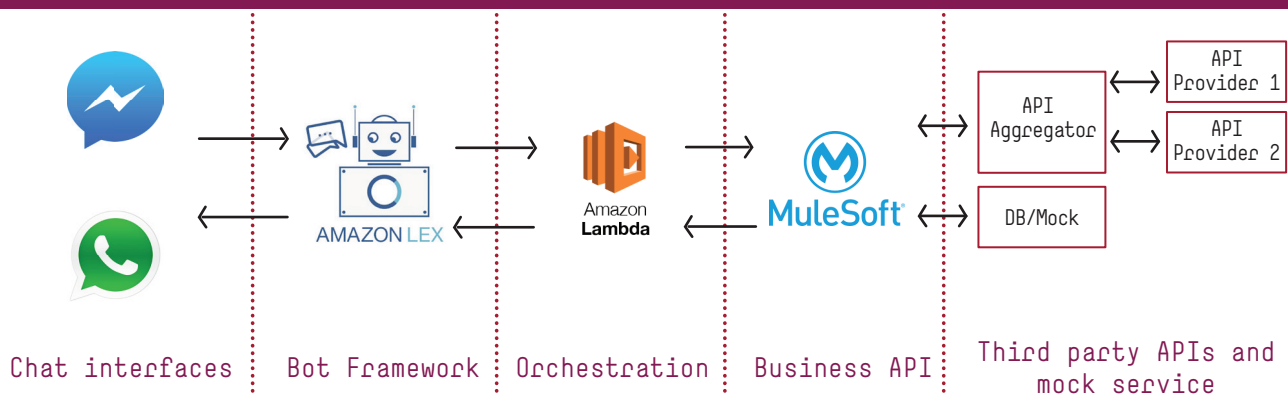
As an alternate option and possibly the quickest way to get things done in this scenario is through text interaction via a chatbot, which can either an app or integrated to channels such as Facebook Messenger. A chatbot will respond to the traveler very quickly to address his questions about the services that the airlines provide. The traveler gets to see the options and chooses one of the available options within a few seconds.



Chatbots can be a good medium to increase the consumption of APIs and make them convenient to use for the customers. Business owners can add multiple channels so that the end-users have multiple options to choose from. With that said, some of us with a background in building APIs and services might not build chatbots, the whole nine yards. However, we will have to develop the APIs required in facilitating the functionalities needed for a chatbot solution.

Let us try to understand the concept with an example of a chatbot prototype developed by us for the airline domain.

The below diagram shows the architecture we had followed.



Picture 2: Architecture

We consumed a few third-party APIs from aggregators to suite our use cases. For other use cases, we built our APIs using MuleSoft and used Amazon LEX as the chatbot framework. To connect these two entities, we have used the Amazon Lambda (serverless functions) component. We have also integrated the LEX bot with Facebook Messenger. Note that LEX provides you the options to integrate with other channels such as Kik, Twilio, and Slack as well.

Chatbots can be deployed to highly available servers or on the cloud. They do not have any time or zone restrictions. With these advantages, and by connecting to channels, consumers can interact with them from anywhere and at any time. Consumers can use their mobile devices to connect to them. This will also open up multiple marketing channels for business owners. Since the chatbots do not require manual intervention from the business personnel, they are the stepping stones for the business and marketing automation.

Let us go through an illustration of the bot when it is connected through Facebook Messenger.

When a user enters “Hi”, the bot responds with a welcome message and displays the services it offers as options, from which the user can choose the desired option.




Picture 3: Services available with the chatbot

Flight Status: Let’s assume the user wants to know his flight status. For this, the bot requires the PNR number and the passenger’s last name. The bot asks the user to enter these values. This, in turn, will be passed on to the business APIs (built on MuleSoft) in the backend and as a response, the API would return the status of the flight.

The following picture shows how the user has interacted with the bot to get this operation executed.



Picture 4: Get Flight Status



Chatbots powered by APIs can be created for any domain and/or industry like hospitality, banking, etc. APIs published for business partners can be used to monetize and bring growth in revenue. Chatbot as a medium in certain scenarios can help increase the utilization of APIs with minimal additional investments. The higher utilizations of the APIs would also help the business justify the investment in API with a strong business case for investment on the APIs in the future too.


Advantages to the businesses are:

- Common questions from the customers can be answered by the chatbots
- Chatbots can respond to the queries immediately which increases customer satisfaction
- Chatbots are available 24 X 7 for the consumers to interact with
- Chatbots can be scaled automatically based on the number of customers who want to connect.

These form the basis for a self-service platform, which will help keep the customer support agents available to answer only the complex questions. Chatbots can also help cut-down the service and operational costs by 30%.

A chatbot can be used as a sales and marketing channel, which helps in acquiring new customers. They form a new platform to reach out to mass audience instead of the annoying cold calls, boost business automation, and improve the conversion of prospects-to-leads and leads-to-customers. The customers can be provided options to enter their details to create their profile, which reduces improper and bad data stored in their profiles due to human errors. They also help retain existing customers by showcasing new and upcoming products and services.

And, what better place to show recommendations than on social media? Connectivity to social media can be used for promotions, releasing offers, and keeping the customers engaged with the business. Happy and satisfied customers will also keep returning to the business for more. In the long run, it will help the business to grow and provide better services to the customers.





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Nikhil Venugopal is working as a consultant in Mindtree. He has experience in middleware technologies such as Oracle SOA, OSB, and Mulesoft. He has worked in different domains like Logistics, Payments, and Banking.

## 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 290+ 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 21,000 entrepreneurial, collaborative and dedicated "Mindtree Minds".