Speeding up innovation
Through a multichannel conversational platform

Technical White Paper by hi.guru™

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Abstract

Being able to quickly and efficiently engage with, and manage interactions is the hallmark of excellent customer service. Without which, valuable time is lost by business users, and customer satisfaction is less likely to be achieved. People want to feel valued, and this is attained through human-like customized interactions that provide specific solutions to their problems, rather than automated replies. The use of cognitive technology can provide this experience, in a fraction of the time. Through an AI-driven conversational platform, with real-time interaction, cross-channel capability, integrated smart conversations, as well as easy deployment and maintenance, the speed and quality of engagement is increased significantly. All this is enhanced through a multi-channel platform, which consolidates these conversations and augments the total customer experience.

Furthermore, many businesses are looking out for ways to innovate and improve operations and revenue streams to stay ahead in a vastly competitive market. However, they find it increasingly difficult to set up and configure complex environments with multiple applications on their own, which ultimately leads to significant productivity loss. This, in turn, has a direct effect on company performance and revenue.

Various organizations have seen the need to partner and work closely with software companies and their development teams to cohesively facilitate a way to integrate middleware software which improves the speed of delivery and deployment of resources and enhances overall business agility.

hi.guru™, with its multi-channel conversational platform, is such a partner. hi.guru™ can be applied as a shared, consolidated platform to deliver middleware services and complete automation to reduce delivery time.

Introduction

Speed is a leading indicator of success. The faster you and your business can progress, the faster it will be able to succeed. Customers value speed too. Today 55% of consumers are interested in interacting with a business using messaging apps to solve a problem (Williams, 2018), with 73% of consumers placing "valuing their time" as the most important aspect of great customer service. (Artificial Solutions, 2017).

"When responsiveness meets discoverability, users get the best of conversation and the internet together," Derry Finkeldey, research director at Gartner.

This leads us to the question of whether bot interaction is the solution? Numerous customers already use or are ready to use, bots for customer engagement. HubSpot Research found that

47% of consumers are open to buying items using a chatbot, while 57% of consumers are interested in getting real-time answers from chatbots on a company website (Williams, 2018).

"While increasingly being used by businesses for customer service, chatbot technology is still in its rough, early stages", Forrester vice president, Julie Ask, said. The technology will need human help to get through its growing pains and into a breakout year. (Krauth, 2018). Experienced practitioners know that defining "best answers" is a dynamic process and that customer relationship managers and other subject matter experts remain vital resources for defining the 'when', 'where' and 'how' of how an Intelligent Assistant should respond. (Miller, 2018)

Engaging customer experience relies on using channels that consumers enjoy using – and are already spending significant time using — such as messaging, chat or other natural-language interfaces, ideally powered by artificial intelligence, to communicate. Bot interactions may provide speed but, on their own, they aren't enough. When e-commerce offers a conversational experience, it converts up to 20% of visitors. A more human-like experience produces tangible economic results. (iAdvize, 2016)

The challenge is to marry the predisposition to send messages, the benefits of AI tools as well as the need for personalization into one solution.

A conversational platform provides the foundation to bring together disparate sources of incoming customer messages and serves as an interface that enables brands to interact in real-time with customers. These interactions may be related to enquiries, sales, promotions, complaints or even take the form of machine-to-machine messaging.

Customised & personalised interactions can take place in social media, mobile apps, e-commerce websites or within closed online portals. But the differentiator is that the business platform consolidates these conversations and augments the total customer experience. Artificial intelligence capability further adds to the efficiency and experience of businesses using conversational platforms.

Businesses should focus on providing support to customers on every channel". Focusing on the customer experience isn't just the latest trend , it's also smart business. Making every touchpoint great improves customer experience and revenue.(SalesForce 2019)

Benefits of a multichannel conversational platform

What constitutes a best-in-class conversational e-commerce platform? Which features and functionalities should the platform deliver on customer expectations and what potential should

this technology offer? The following are key features to be considered, regardless of application.

Real-time interaction

Conversations need to be instant, in an always-on, always-present environment. Stakeholders need to have the same experience, regardless of the time of day. The ability to extend the conversation interface to a mobile application ensures that people on the run, have real-time engagement ability. The solution should be very amenable to horizontal scaling to handle an influx of conversations or system messages.

Cross-channel capability

Whether it's Facebook, Twitter, Text (SMS), WebChat or WhatsApp, a multitude or selection of channels should be available to customers to engage with the brand or system. It is essential that all communication channels are consolidated to give a single view of the customer.

Integrated conversations

The ability to escalate conversations with and to the right people in the organization will ensure a seamless experience. The platform also needs to be able to run parallel to existing systems or be fully integrated within an existing CRM, HR, or data management system. Not every customer conversation is about getting help/support; it could be sales-oriented or related to getting account information for example, and direct access to such structures is necessary for a unified customer experience.

Smart conversations, driven by AI

Conversations need to be guided by AI and machine learning. Using cognitive technology for business conversations has many benefits such as reducing waiting times through chatbot responses, accurate product pairing suggestions or through serving as a feedback loop to fine-tune customer interactions. AI optimizes the customer's experience by drawing on legacy information and resolutions, enabling the conversation to be faster and more successful.

Responses should not always be automated but should also be vetted by platform users. The platform should anticipate varied and complex communications from customers and should respond accordingly.

A hybrid approach that combines the best of linguistic and machine-learning models allows enterprises to quickly build AI applications, whatever their starting point – with or without data

– and then use real-life inputs to optimize the application from day one. In addition, it ensures that the system maintains consistent behavior, aligned with business goals.

Easy deployment and maintenance

A system that is easy to set up, maintain and support, is critical to getting it off the ground quickly, which furthermore allows businesses to reap the benefits of the solution as quickly as possible. Easy, distance-enabled maintenance will ensure uninterrupted service delivery takes place according to the standards required.

Complete data security

It is critical for a conversational platform to meet stringent security conditions relevant to legal requirements, and across multiple geographies. While most enterprises have no issue with a standard cloud deployment, however, when complying with industry regulations or ensuring security policies are met, the cloud isn't always an option. If this applies to your business, you need to ensure that an on-premises option is available.

hi.guru™ platform components and middleware offering

Middleware can be defined as software that connects network-based requests generated by a client to the back-end data the client is requesting. It is a general term for software that serves to "glue together" separate, often complex and already existing programs.

The hi.guru™ platform has been developed to deliver on all the critical requirements of a sophisticated conversational business platform. Built in a modular form, distinct elements of the platform can be isolated and applied in different business contexts to speed up innovation and create immediate value for the business user.

The different elements of the hi.guru™ platform are:

Translation layer

The hi.guru™ Translator micro service provides easy and fast integration with popular IM platforms, such as Facebook Messenger, Twitter, Telegram, WhatsApp, our mobile app, and web app. The platform-specific data then gets transformed into a generic model, allowing communication with our hi.guru™ services over an industry standard protocol (XMPP). The Translator software is developed using the functional language, Elixir, which uses the Phoenix

framework. The Elixir language was designed for building scalable, low-latency, distributed, and fault-tolerant systems, while still being maintainable.

A hi.guru™ story:

For a prominent sport organisation the translation layer provides the ability to bring together multiple channels so that the engagement through the channel can be handled in a consistent manner or alternatively, in a way specific to the channel. This allows an optimal experience during busy match times.

A Legal insurer with its own Mobile Number will be able to receive and send SMS/Texts into and out of hi.guru™. This will assist them with in managing and tracking debt collection and marketing Text messages.

API

The backend of the hi.guru™ platform is a restful API. Developed in Ruby on Rails – it manages and stores all the data, such as, consumers, users, companies, and company units – that serves as an interface between the various internal micro-services. This RAD tool enables new development at high speeds. A relational database supports high levels of data integrity.

Routing service

The routing service uses a set of predefined configurable algorithms to determine which users should be matched to which consumers. It uses Elixir's multi-threaded capabilities for improved speed. The service is a continuous observer between the consumers, users, and matched conversations. The algorithm will use all this information in order to make the optimal decision to meet customers' needs.

A hi.guru™ story:

A small customer care team that currently handles high volumes of social engagements relies on intelligent routing of conversations according to availability and skill of customer facing staff. "Hot swapping"/Load balancing is done.

AI and bot service

The bot service uses both internal and external interfaces to assist customers by utilizing different AI and NLP platforms, such as *IBM Watson and SAP Conversational AI.* Customers can decide which of these services they want to use and will be able to configure every step

in the process. The service will help handle mundane processes like basic sets of questions for a questionnaire. Users of the system will be given recommendations from the various interfaces to assist in giving the end user the best answer possible.

A hi.guru™ story:

An automotive software provider required a bot to filter and evaluate incoming failure messages in order to categorise it as urgent or critical. The conversations can be routed to a general team or a specialist field agent based on the impact of the problem on the customer.

We have developed hi.guru™'s own bot framework and we help our clients design and build process chatbots, or, more advanced chatbots, capable of Natural Language Processing (NLP), according to specifications.

Messaging service

hi.guru™ can provide an out of the box messaging service that is based on the industry standard messaging protocol XMPP. Mobile SDK's can be added to any mobile application to provide messaging capabilities to your mobile application. Our custom JavaScript web chat application can be added to your company website to create richer customer engagement.

A hi.guru™ story:

An Insurance group has built an app that encourages safe driving but does not have messaging/chat ability.

hi.guru™ plugs into this app to take it from static one-way communication to a two-way interaction with the brand. Similarly, the website is easily transformed through the WebMessage addition, creating greater stickiness for visitors.

Campaign tracking

The hi.guru™ campaign tracking services allows our customers to understand their own campaigns better. All interactions, from URL clicks, page likes, direct messaging, app downloads and app interactions, are all tracked by this service. This real-time service lets you see what your customers are doing, when they are doing it and from which channel. Set up a new campaign via a simple restful API and use the unique URL generated to track your customers' actions.

A hi.guru™ story:

The direct marketing team for an insurance brand needed to understand the outcomes of their outbound email and SMS campaigns and wanted to be able to track them in real time. They use these insights to tweak and optimise campaigns.

The hi.guru™ solution makes use of the Sparkfly platform to integrate into the world's leading POS (physical or digital) environments. The platform allows brands the following abilities:

1.Track the ROI performance of various media channels in real time through unique Ad tracking technology. 2. Create tactical marketing offers and promotions

Portals

The conversational portal connects agents (receivers) and consumers (senders) through an interface that is designed to help agents manage their conversations optimally. Agent and consumer can converse with rich media to get intent across; an inbox-management algorithm guides agent to the next conversation. Media, documents, canned responses, and bots, which are set up on the management portal, are easily accessible and ready to be used to resolve consumer queries.

A hi.guru™ story:

A telecommunications giant has many customer facing agents and have recently gained their own WhatsApp channel and built an associated bot. They have realised that they need an interface (conversational portal) from which to manage the interactions with the potential of adding more channels.

The management portal is the gateway to manage users, teams, social media integrations, documents, bots, and various settings related to customizing the way hi.guru™ is used. It implements a role-based user-management system that separates access to company units based on assignment by privileged user accounts, which allows for sophisticated managerial and consumer-facing teams to be set up. The portal introduces a social-collaboration aspect between managers and agents with a chat interface, connected to the conversational portal specifically for inter-company conversations. Both portals are developed in Angular. However, the conversational portal implements Redux Architecture to handle the complexity of chat-related applications.

A hi.guru™ story:

The hi.guru™ management portal conversational logger module allows the Legal insurer to view history of conversations and actions taken on the management portal. The system is also able to export the conversations to email in order to be catalogued in the primary CRM system.

Applications

Native iOS and Android mobile applications, developed in Kotlin (Android) and Swift (iOS), will allow users to engage with the platform through their smartphone devices. These applications will allow users to run their whole business from their phone, through the linking of all social channels, managing files, and the setting up of their account.

A hi.guru™ story:

The mobile applications are used in several ways 1. Small business owners handle customer engagement from their phones 2. Food orders placed via a chat is sent to a waiter/runner on his mobile device for collection from the kitchen. 3. Service technicians receive alerts from ice vending machines with proactive information on servicing needs and faults.

The web application is developed in React. React is a JavaScript framework, created and maintained by the Facebook development team. React implements a component-based immutable state; immutable state management is industry standard for chat applications. The web app compiles data into a small, bundled JavaScript file, which can be embedded into a client's website using the embed code, which is emailed to the user when the web chat option is activated from the management portal.

A hi.guru™ story:

In the context of software support for an IoT system management portal, hi.guru™ allows intelligent conversation to address queries. Customer info and meta-data are passed through to the conversation portal when the customer agent is viewing the incoming conversation. This provides the organisation and agent further detail into the customer they are chatting with or have chatted with in the past. Through website channels, support staff can now view, in real-time, which pages customers are on while chatting.

eCommerce ability

The platform is integrated with 3rd party payment services like, Stripe and Vodafone Pay. These allow companies to sign up effortlessly onto the platform and to receive payments from their customers. It allows online purchases through the same channels that customers already interact through.

A hi.guru™ story:

For a mobile ordering service, an interactive food menu was populated into different social media channels to enable the shopping experience for end-customers. Payment was made and the food delivered in a matter of minutes.

IoT module

Device communication management - The organisation will have the ability to add their connected IoT devices to hi.guru™, allowing them to communicate errors or device issues and commands into the hi.guru™ conversational interface. It will allow device agents or bots to respond back with actions to fix or configure changes through instant messaging.

Device actioning - Agents will be able to search and view specific devices and drop them into end-user conversations, allowing them to action those devices and control its options through instant messaging conversations.

Security

hi.guru™ employs standard industry-best practices to secure user data. User passwords are hashed and salted to ensure password safekeeping. The internal services are protected behind a firewall, as well as a proxy server. All external connections are required to make use of SSL to ensure transport layer security.

Customer data is stored, protected and managed to align to GDPR standards.

Conclusion

In our fast-paced modern world, speed and efficiency when dealing with stakeholder engagement is imperative. Being able to quickly and efficiently interact is not only beneficial to the customer, but to the smooth running and productivity of all businesses, as well.

Although chatbot technology is still in its infancy, it is the way forward to achieve streamlined, speedy engagement among internal and external parties. With the help of a highly customizable AI-driven conversational platform with industry-leading components such as real-time interaction, cross-channel capability, integrated smart conversations, as well as easy deployment and maintenance, customer expectations will be met, and business goals will be achieved, faster.

About hi.guru™

hi.guru™'s intelligent technology integrates conversations from various communication channels into a web application, allowing business users to interact with customers in an efficient and streamlined manner. hi.guru™ uses smart agents and avatars to deliver mass consumer personalization at scale. Its broad customizability ensures that processes can be handled by a bot, a person, an algorithm, or by all three. hi.guru™ enables sharing of rich media to enhance the discussion and amplify understanding.

The hi.guru™ platform is highly flexible allowing integration into multiple channels and back-office systems. The unique technology-agnostic platform allows full configurability and adaptability to accelerate innovation in partner businesses

References:

An, M. (2017, February 26). Death By 1,000 Apps: Why Tech Is Actually Making Us Less Efficient. Retrieved from research.hubspot.com: https://research.hubspot.com/tech-is-making-us-less-efficient

Artificial Solutions. (2017). The Future of Customer Engagement and the Role of the Intelligent Digital Assistant. Retrieved from marketing.artificial solutions.com: http://marketing.artificial-solutions.com/the-future-of-customer-engagement-wp-digital-employee.html

iAdvize. (2016). White Paper: Customer Experience in the Age of Conversational Commerce . Retrieved from iAdvize: https://landing.iadvize.com/en/white-paper-conversational-commerce

Krauth, O. (2018, January 9). Will 2018 be the year of the chatbot? Not without human help. Retrieved from TechRepublic: https://www.techrepublic.com/article/will-2018-be-the-year-of-the-chatbot-not-without-human-help/

Pettey, C. (2016, July 25). The Art of Conversational Commerce. Retrieved from www.gartner.com: https://www.gartner.com/smarterwithgartner/the-art-of-conversational-commerce/

Schneider, C. (2017, October 16). 10 reasons why AI-powered, automated customer service is the future. Retrieved from https://www.ibm.com: https://www.ibm.com/blogs/watson/2017/10/10-reasons-ai-powered-automated-customer-service-future/

Sellberg, D. (2018, February 8). 2018 is the Year Business Messaging Takes Hold. Here's Why. Retrieved from thinkgrowth.org: https://thinkgrowth.org/2018-is-the-year-business-messaging-takes-hold-heres-why-c4abcf281a7f

Williams, S. (2018, January 3). 7 Fascinating Stats HubSpot Research Uncovered in 2017. Retrieved from thinkgrowth.org: https://thinkgrowth.org/7-fascinating-stats-hubspot-research-uncovered-in-2017-f8f6b09b6fa4

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