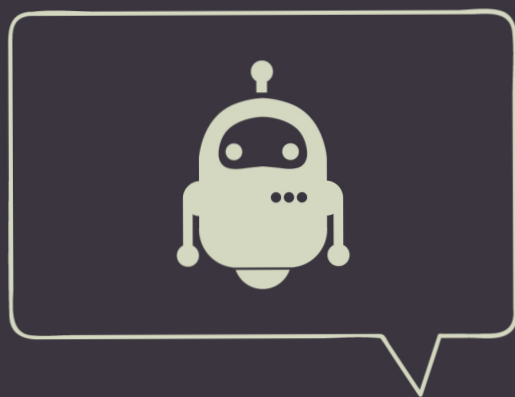

A Guide to Choosing an Enterprise BOT



Builder
Platform



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CHAPTER 1

Introduction to Enterprise Bots

Last year at the Microsoft build developers conference, CEO Satya Nadella delivered a three-hour keynote, during which he highlighted his belief that the future of technology lies in human language. During the conference, he shared his vision of the future, which obviously involved chatbots, machine learning, and artificial intelligence. He went on to talk about how “bots are the new apps”, making a special mention of how human machine interaction has evolved over the years and the kind of advancements we can expect to see over the next few years.

As these new technologies mature rapidly and seep into the everyday life of an enterprise, it is important to ask if your business should be paying attention to chatbots too.

Conversation is the new interface

It's interesting to note the sudden flood of interest bots have garnered in the recent years and how easily they are starting to make an appearance in mainstream applications. This rapid adoption is largely due to the fact that building powerful and effective bots has become far easier, thanks to technologies such as natural language and syntax parsing, machine learning, as well as, the simplicity of integration with cloud-based applications.

With 2016, we saw chatbots being brought to the limelight of enterprise innovation. And why not? chatbots can give you: 1.) More scalability 2.) Reduce costs 3.) Enhanced user experiences.

In recent years, Natural Language Processing engines have become better than ever. These, coupled with deep learning and neural networks are now empowering developers to build interfaces that are highly engaging and human-like.

chatbot

/ˈtʃatbɒt/

noun

a computer program designed to simulate conversation with human users, especially over the Internet.

"chatbots often treat conversations like they're a game of tennis: talk, reply, talk, reply"

Feedback

Chatbots provide a convenient new channel(s) for enterprises to interact with their users and keep them engaged continually. This opens up interesting new implementations of bots in various scenarios, when integrated with various enterprise applications. The close level of engagement chatbots offer hold tremendous potential for enterprises. In the next chapter, we will delve further into a few use cases that your business might be able to relate to.

CHAPTER 2

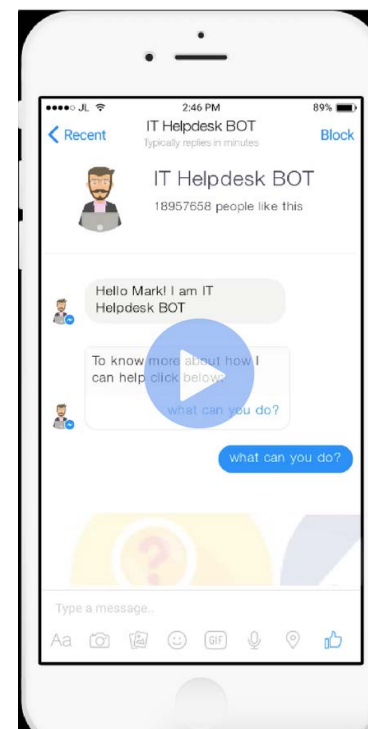
Chatbots in Enterprise

When Microsoft's Xiaoice was released in 2014, it marked the beginning of technology enterprises launching chatbots into the public market. Soon, Facebook followed suit with M and last year, Google launched Allo. But it isn't just large enterprises building and releasing chatbots, several startups are interested as well.

Let's imagine this scenario. You are facing issues with your computer - a program that you need to use isn't loading as expected. What you would do next is probably get in touch with the IT support team by shooting them an email or giving them a frantic call, if you are faced with an urgent need. Then you have to wait for the support team to get around to your ticket and contact you back in order to resolve your problem.

What if this task can be accomplished via a quick conversation with a bot?

Just think about it, what if you could directly have a quick conversation with a ["helpdesk bot"](#) who can then immediately pull up troubleshooting tips to help you and if that doesn't work as well, raise a ticket on priority so the technical team can then be requested to look at it? Not only is your concern being addressed speedily, but you are also able to accomplish this with a simple, rather natural conversation. Bots are enabling customer self-service scenarios like never before.

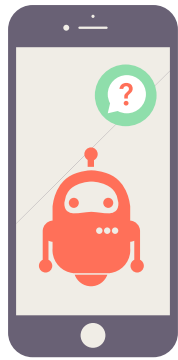


Now imagine a slightly more complicated scenario. You need to seek technical assistance in your enterprise. But you are unsure of which department to contact and unable to correctly articulate the problem.

In such a scenario, a chatbot can ease up the process by answering the front line queries that need the same answers. An advanced chatbot can even present a detailed solution using rich media like videos, images etc. Think of all the time that could be saved!

Truth is, as far as business applications are considered, we still rely on using the application directly in order to get various tasks done, whether it is to update or gather information.

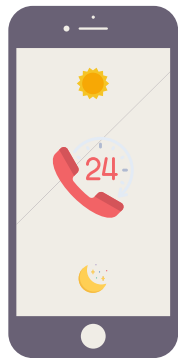
But bots can offer a natural, conversational approach to accomplishing various tasks in the enterprise. This means, we can reduce the amount of time we spend trying to communicate with complex systems and instead, work towards increasing employee productivity.



How can chatbots increase value and maximize ROI for your business?

Messaging has become the primary way for employees to interact with each other in organizations, much like they do in their personal lives. Obviously, users spend a lot of their time on mobile and specifically, messaging apps. Just last year, Business Insider revealed that messaging apps are bigger than social networks. Businesses are intrigued by the capabilities chatbots offer, with their innate ability to understand and respond to commands and questions.

The question for organizations is, how can they apply this preference for messaging to maximize user productivity, and to take it a step further, to improve outcomes for the business? Let's take a look at what chatbots can potentially offer.



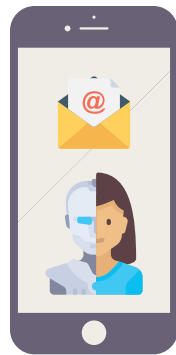
IT Helpdesk support:

IT related issues of their employees, enterprises usually deploy an IT troubleshooting cell. But in most organisations, both employees and helpdesk staff find themselves equally frustrated.

As the staff can't handle all the problems at once and usually aren't available 24/7, employees get irritated due to the lack of timely help. At the same time the IT helpdesk staff might find it cumbersome to keep providing solutions for the same set of problems. As the size of an organization increases, the number of complaints and the waiting time increases disproportionately. Chatbots can be of great help in such cases. Not only are they available 24/7, but also give a lightning speed response to every problem. As a result, the productivity of your IT support staff increases drastically as they can spend their time and energy only on high priority issues which need their attention. Even employees don't have to waste their time hovering around support staff and can get their problems resolved quickly.



- **Improved user experience:**
Enterprise software is typically known to be clunky and cumbersome. Complicated workflows foil user experience and can be rather time consuming. Enter chatbots. Chatbots can not only improve user experience for both your customers and your employees (depending on the usecase), but they can also speed up various processes and eliminate data leakage.



● Internal communications:

Several businesses still rely heavily on email for all internal communication purposes. Even if you are using messaging services like Skype or Slack to facilitate faster responses, you are still forced to wait till the person on the other end is able to respond back to you. Chatbots can help eliminate this delay and drastically improve the efficiency of internal communications within the business environment. Take the HR department for example. They spend a large number of their working hours answering questions about policies about holidays, sick days, or appraisals and so on - all of which can easily be handled by a chatbot. This will allow the HR personnel to spend their time engaging in activities that will impact the business outcomes, rather than on answering mundane questions or working on non-challenging admin tasks. The same efficiency can be extended to various other departments such as legal, IT support, finance, marketing, and so on.



● Customer service like never before:

The success of any business is very closely tied to the kind of customer service they are able to provide. This especially applies to businesses that

rely heavily on constant communication with customers. How can a business ensure that they are able to provide prompt and useful answers to the constant barrage of questions, without affecting performance in any way?

Chatbots help streamline communication with customers and provide them the information they require instantly and with greater efficiency, rather than have the customer wait for a support rep to get back to them.

In fact, the more we see various applications of chatbots, it becomes evident that the most important and practical use of chatbots is for customer service.

Even if customer service isn't your primary goal because of the nature of your business, chatbots can still play a crucial role in increasing business productivity for various other departments. There are various use cases that businesses can consider - what about a bot that can schedule meetings for you? (Think X.ai), what about a bot that can. There are several low priority tasks that can be taken over by chatbots, that can save a lot of time for your business.

There are an astounding number of applications for chatbots in enterprises. According to a report from Forrester, by 2025, 12.7 million new U.S. jobs will involve building robots or automation software

As chatbots become increasingly intelligent, personal and humanized, we expect to see an even greater increase in its adoption frequency. As the benefits for using chatbots to streamline both business operations and internal communications become evident, businesses will have to ramp up strategizing how best they can



Section 1:

Resources required for building enterprise bots

Now that we have discussed the importance of chatbots, let's move on to the big question.

What resources do you require in order to build an enterprise chatbot?

Resources that you will need to get started with building your bot fall into these main categories:

Framework



Just like bots, frameworks also are evolving everyday. Some of the latest frameworks provide toolkits which support different languages for bot development, portals for quick assembly and emulators for bot testing.

As the complexity of the use case increases, the conversation needs to support thesaurus, taxonomies etc. Unfortunately there not many frameworks support such capabilities as of today.

A few examples of notable frameworks include Microsoft BOT framework, IBM watson, Chat fuel, MOTION.AI etc. Each has their own pros and cons, which we will talk about in a later section.

Language processing and learning



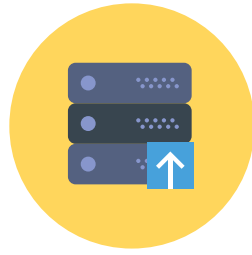
An effective bot should be able to understand the user's language and the context of conversation throughout the chat. While comprehending the language of user requires text and linguistic analysis i.e parts of speech tagging, phrase analysis etc. analyzing the context of conversation involves modelling the entities, intents and actions of the user.

Dialog development

The user engagement directly depends on how well the bot converses with the user. An effective bot should should send natural language responses based on the inputs. Dialog development services include:

- Obtaining the profiles of users
- Retaining the context of conversation
- Improving user interaction by providing a User interface based on the inputs

Host channel



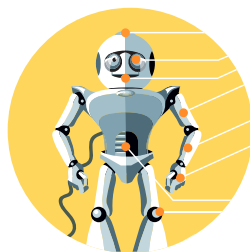
Host channel is the channel through which you host the conversation with a user. By providing suitable API support for bots, a channel can prove to be an excellent host for publishing custom bots. A few of the most notable chat applications like Slack, Skype etc. have started providing support for bots. A few more categories to consider include visual recognition, language translation and multi device support among others.

While companies such as Microsoft, IBM etc provide these components, there will still be a lot of customization involved in order to achieve features such as:

- Better understanding of context
- Connecting with the user profile
- Fetching of business data hassle-free, etc.

Section 2:

Bot building best practices



There are so many best practices when it comes to bot building!

But after much brainstorming our experts have come up with a list of the most critical ones:

Developing a buyer persona and identifying the KPIs



Before you even start building a bot, you need to clearly define your buyer persona. You need to thoroughly understand your user base and identify their needs and pain points. By getting a clear understanding of who is going to use your bot, you can develop it in a much more effective manner. The creation of a buyer persona also helps you in defining the features of your bot.

Identifying KPIs helps you in measuring your business's growth towards achieving crucial success parameters. These metrics also help you in determining various essential features of the bot. By shortlisting and analyzing these KPIs from time to time, you can develop a better framework strategy in the future to meet your business goals.

Security!



Security is one feature which is often ignored and overlooked by many bot builders. No matter how fancy your bot is, if it lacks tight security, you might end up losing a major chunk of your customer base due to a bad experience.

Security should be taken into account in all stages of development. Monitoring common risks such as XSS, CSRF and SQLi is highly necessary during the development stage of your web application.

There are several aspects of security that need to be considered while building a bot. Here are few significant ones:

- Using the proper authorization and rate limiting in your APIs and bot services to prevent any system breakdowns
- Constantly encrypting your data in transit
Monitoring the rate of messages sent from all your bots. By validating the speeds, you can prevent many DDos attacks.
- User authentication and verifying that you are not getting traffic from unauthorized sources

Log your bot conversations



We accept this is a tough task to accomplish. But by maintaining a log for all the conversations of your bot, you can improve user experience over time.

If it's not possible to maintain a log for all conversations, at least log those, in which your bot did not respond to your user in a satisfactory manner.

Logging these conversations helps you in taking well informed decisions regarding development in the future.

Integrate cognitive and analytics



Add on features are one of the most important factors which influence your user engagement. Integration of features such as Image Recognition, thermostat connection etc. to your bot can improve user engagement significantly.

Other than these you can even add some cognitive and analytical services like personality insights, sentiment analysis etc. to make your bot sound more like a human.

Choose the correct messaging platforms and framework



Based on your target user base and business goals, it is extremely crucial to select the right messaging platforms for integrating your bot. In addition to choosing the right platforms, you need to select a suitable framework which enables you to deploy the bot in all the applications you chose.

Conversational interface



Any messaging platform today offers you multiple customization options. Depending on your target audience, you will have to choose the right type of conversational interface. For example you need to decide:

- The type of interaction between your user and the bot i.e whether it should be via text or speech
- Whether you want your user to type the whole response or provide them with buttons to choose the response.

These are just a couple of scenarios. To truly enhance your end user experience and increase engagement, you need to choose the best and most suited conversational interface according to the platform.

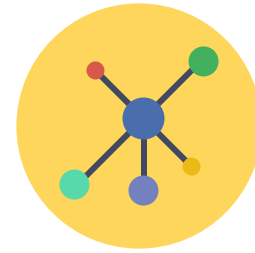
Section 3:

What features should a bot-building platform have in order to excel among others

There are several bot-building platforms out there offering a whole lot of features with each platform having its own set of unique features. But which features will actually matter for better business bottomlines?

Here is our take on the top features you should be looking for:

Hassle free social media integration



Gone are the days when we used to get our information and news via print or television. For the better or worse, social networks have become the primary sources of information today. Just think about it, we text and stay connected with many people through Facebook, we watch various videos on Youtube, share photos and videos on Instagram and what not! Our Facebook news feed is inundated with goings-on of the world and the latest trends in every genre from music to politics to technology.

In fact, a survey revealed that an average person spends around 2 hours of his/her day on social media. So, for the chatbot to have the maximum reach, social media integration is highly necessary. In fact, several companies that have successfully implemented chatbots have not limited themselves to a single social network. For the convenience of their user, enterprises have created accounts in all popular platforms. From the user's perspective, he/she might prefer to get all their news and updates from a single platform. This feature, unfortunately is missing in a lot of bot building platforms.

Broadcasting



When we say there can't be a bot platform without broadcasting, we mean it. Through broadcasting, the admin of a chatbot can easily send a notification to all the users regarding any important event. This feature of a chatbot platform has gained significance during noteworthy events such as the People's Choice Awards, World Surf League etc., in which users were kept informed and updated about future events.

Payments plugin



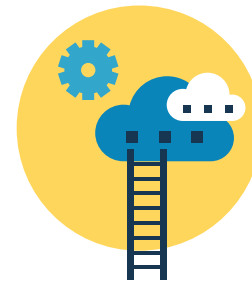
If you are in the ecommerce industry, having this feature in your chatbot would prove invaluable for your business. For example, consider the chatbots of Burberry or H&M, you can easily buy any selected item with a single click of the button. Even though Facebook has already started to experiment with this feature in a beta version that has been released in the U.S. , it would most likely to take slightly longer for this feature to be launched in a full-fledged manner all over the world.

Subscriptions



This is yet another significant feature that must be present in order for a chatbot to be successful. In an era of content explosion, you are going to lose users if they don't have the ability to choose which content they want to see. Subscriptions list is an excellent feature through which the user can easily subscribe to all the content and topics they are interested in, with a single click on the button.

RSS feed plugin



Today, its rare to find a company without a blog or at least a newsfeed. Through a RSS feed plugin, the user can read all the articles from these sources in the chatbot itself. The chatbot can present the information in the form of a gallery or can let the user subscribe to the newsfeed updates of his/her choice.

Website search



A chatbot should never be used as a tool to replicate the entire content of a website. If the chatbot presents all the content of the site, the user might find it difficult to access everything through his/her mobile. Instead, by integrating a Google search plugin in the chatbot, users can search for a particular offering according to their preferences. Since it's impossible to predict the individual requests of every user, a site search option would really assist the user for accessing the content hasslefree.

Knowledge base



A knowledgeable bot should provide responses to all supported questions or operations that the user requests from the bot.

Apart from this, the bot should enable the creation of guided conversations i.e the conversations which are like workflows of different responses and questions, that the bot asks a user in order to guide them to the desired outcome or final conversation state. The bot should be able to guide the user hasslefree by asking the proper questions and giving the suitable responses.

Excellent memory



An efficient bot should remember the context of the entire conversation. The bot builder platform should have a good memory and state management within it. It should define the intents, entities, relationships and context handling which in turn happen automatically within the bot.

Effective conversation system



Based on the particular need and situation, the bot should have the ability to initiate a tailored conversation with the user.

An efficient bot would have features such as

- Trigger service – Service that an integrating application can use to send a trigger
- Message queuing – Trigger messages are queued for large scale message volume
- User & channel data store – Triggers can be sent to users on one or more channels that they are connected to with the bot.

Location



The location plugin can save the customer a lot of time! For example, let's say you have a chat bot for your ice cream selling business. By integrating a location plugin into the chatbot, users no longer need to manually fill out the address column in the form. As soon as the user shares his/her location through the plugin, an admin receives it the form of a map.

Think of all the time saved during this process!

Vocabulary



User experience is extremely crucial for the success of any chatbot. Your chatbot should never be “boring”. By boring, we mean your bot should not miss any feature that elevates user experience. For example, let's consider vocabulary. If the bot gives a standard response with limited phrases, the user may be discouraged from continuing the conversation. An efficient chatbot should have a high range of variable vocabulary and understand familiar user phrases.

Registration flow



This feature is extremely useful in cases where users need to access their private information regularly. Lets consider the chat bots in banks. Using the chatbot, users can get information regarding their account balance or previous transactions effortlessly.

This information changes from time to time and user to user. So a good chat bot should remember the data of all users and present them to the precise registered user whenever prompted.

Section 4:

Pros & cons of popular bot builder platforms

Microsoft bot framework

Pros:

- Easy to use
- Well documented
- Allows creation of bots not only for skype but also for Facebook messenger and Slack

Cons:

- Doesn't allow Artificial Intelligence
- You need to manually manage everything by yourself

IBM Watson

Pros:

- It has a flowbuilder which assists Machine learning based natural language understanding.
- Handles large amounts of data

Cons:

- Doesn't integrate with popular apps such as Messenger, Telegram, Slack etc.
- The process of successful integration within the company is time consuming.
- A bit costly

Motion AI

Pros:

- Excellent UI/UX
- Automatically corrects spelling errors
- Good support information and documentation

Cons:

- You can't set questions of your choice and provide with the suitable responses
- Operates only in multiple choice or bot statement formats

API.AI

Pros:

- Provides machine learning along with speech to text and text to speech capabilities
- Supports intents and entities along with domains

Cons:

- Too complicated to understand
- UI/UX is not upto the standard
- Intents start to clash with each other at times.

WIT.AI

Pros:

- It's free
- Uses NLP i.e free speech can be handled
- You can create stories

Cons:

- You need to code to set up on a new platform
- Changing stories is time consuming and more over the more stories you create, the slower Wit becomes.
- You can't switch to live chat directly

Chatfuel

Pros:

- Excellent UI/UX
- Automatically corrects spelling errors
- Good support information and documentation

Cons:

- You can use it only in Messenger and Telegram
- It Doesn't have NLP. As a result you can't train it to identify meanings and typos.
- Exporting and importing of files is not possible.

- Cost of Implementation is lower since it leverages existing infra/cloud investments as well have the flexibility because of plug n play. Custom bot builders do not have this advantage.
- Use enterprise communication channels like Skype for Business other than the standard channels like Skype, Slack, Facebook, Cisco spark etc.
- Easily ramp up existing IT staff to quickly train and deploy bots. The familiar SharePoint user interface makes the training and rampup time lesser.

Acuvate BotCore

Pros:

- Ability to spawn any flavour of an enterprise bot (IT, HR, intranet, sales etc)
- One stop shop for bot Setup, Training, publishing and administration.
- Leverage your existing investments in Microsoft, Amazon, Google etc.
- Ability to Leverage any industry standard AI service like (MS cognitive, IBM Watson, Amazon Alexa etc)

Cons:

- This bot builder platform is extremely addictive and incredibly productive. You can expect high ROI and astounding results. Ok, not exactly a con. But you'll see why. Just ask us for a free demo!



CHAPTER 4

How you can get started

Once considered a distant dream, AI is now revolutionizing the way enterprises function. However businesses are yet to adopt it in a full fledged manner. With rapid advancements in the field of AI and machine learning, chatbots are gaining significant attention everyday.

Judging from the fast proliferation of chatbots in the tech enterprise space, it is not too far fetched to admit that if your enterprise lacks a messaging platform strategy in 2017, you might just end up lagging behind competition.

If you are ready to revolutionize your enterprise and make it future ready, allow us to present to you our most intuitive and powerful bot builder platform.

Acuvate's BotCore

Acuvate has developed a BotCore that can be used for implementing your next conversational bot. The BotCore is enterprise ready and leverages your existing On-Premise or Azure investments.

Our customers are using BotCore with multiple bots that we have deployed. Our Intranet Bot solution, MeshBOT is also built using the same. BotCore is built as a flexible service that can leverage any AI service.

What is BotCore?

BotCore is an enterprise bot builder platform and toolset using which enterprises can train and deploy chatbots for their organization. BotCore is fully deployable into Microsoft Azure and leverages many of the features available in it. BotCore also provides the administrative interface to administer the bot once its in production and available to all its users. BotCore features surface themselves via a SharePoint site interface. There is a standalone version also available that doesn't need SharePoint.

Its capability of blending with the existing legacy systems gave it a global market competency. Its readiness to hook well with existing AI cognitive services platforms like Google AI, Amazon AI, IBM Watson, etc has received applause from industry leaders. It establishes a perfect connect with any kind of data source and any cognitive services. Bots in action just need 4 weeks of feed time. Its self-service option to train the chatbot and convert to MDL has drawn attention of the global audience.

Our goal is to connect the dots – we translate the power of bots into solutions that deliver real business outcomes and generate impact that can be meaningfully felt across industries.

Definition:

BotCore is an Azure based enterprise ready bot builder platform and toolset that surfaces itself within a SharePoint site.

What are the different features of BotCore?

1. Knowledge base

The knowledge base is the primary source of knowledge for the bot. Using this feature, the bot can provide responses to all supported questions or operations that the user requests from the bot.

Knowledge base has support for the following:

- Handling singular Q&A responses and contextual responses.
- Creation of guided conversations

Guided conversations

— Conversations which are like workflows of different responses and questions that the bot asks a user to guide them to the desired outcome or final conversation state.

2. Conversation system

- Message Definition Language (MDL) - MDL is a HTML-like scripting language using which you can define the bot responses. Once a message is defined using MDL, BotCore ensures that the same will be rendered

on various supported Bot channels without any changes. MDL supports text, images, hyperlinks, buttons, cards and carousels

- Bot memory and state - In order for the Bot to remember the context of a conversation, memory and state management is handled within the BotCore. All you have to do is to define the intents, entities & relationships and context handling happens automatically within the bot.
- Standard responses - Standard set of responses of the bot can be easily configured

3. Security

Security module provides the authentication and authorization mechanisms for the bot

- User authentication
- User authorization
- Multi factor authentication
- One time authorization
- Channel authorization

4. Triggers

Using the trigger module, the bot can initiate a conversation with a user based on certain business rules or triggers

- [Trigger service](#) - Service that an integrating application can use to send a trigger
- [Message queueing](#) - Trigger messages are queued for large scale message volume

- **User & channel data store** -

Triggers can be sent to users on one or more channels that they are connected to with the bot

5. Administration

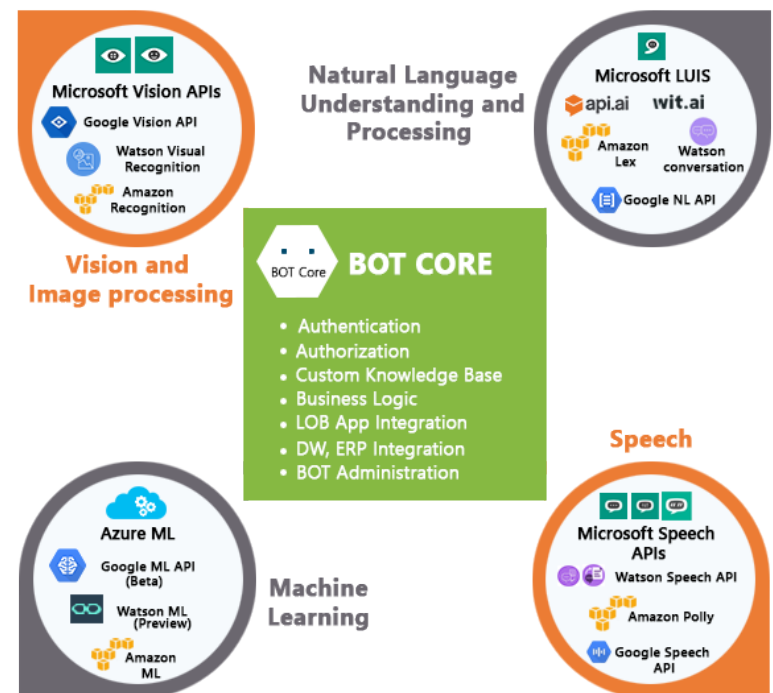
Just like any other software, bots also need to be administered and maintained

- **Training module** - With this module, an admin can train the bot to learn additional intents & entities
- **Maintenance mode** - Admin can put the bot in maintenance mode to test the results of any new training or actions

- **Logs**

1. **Error log** - log of bot core errors that can help in debugging production issues
2. **Chat logs** - Bot logs each conversation that it has had with any user
3. **Zero intent log** - Bot will log anything that it didn't understand or was not found in its knowledge base

- **User and Channel management**



About Acuvate



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acuvateTM
... where *Acumen* drives *Innovation*

