UI IS DEAD
BOT CHECKS IN
In 2014 WhatsApp, the popular messaging app, clocked a record of over 64 billion messages exchanged in a single day with estimated 450 million active users back then. A mind-boggling 740k plus messages zipping through every second. Messaging has just grown ever since. 6 of the top 10 apps in appstore are messaging apps. Compare that to existing systems and data flow within the enterprise. Time to gear up, for messaging is showing up on enterprise screens already. Chat is taking over the conversation and it is guaranteed to invade the traditional enterprise soon. Why?

In April, at a Microsoft developer conference “Build 2016,” Satya Nadella outlined Microsoft’s vision for Conversations as a Platform (CaaP). He explained that pairing “the power of natural human language with advanced machine intelligence” will enable organizations and consumers to get more done and have more fun, with the help of intelligent bots and digital personal assistants.

What is fueling all this conversation talk? Remember SMS, the basic text messaging that revolutionized telephones? They were very simple, short, limited and that’s exactly what helped it explode. It’s happening again and this time the party includes bots: human-taught, artificially intelligent agents capable of understanding and responding to messages, and simply getting the job done. For the first time, we are looking at technology not just to help make processes more efficient for people at work, but may actually eliminate the need for many of those processes – a true paradigm shift.

First, consumer-style agents got started with the popular Siri from Apple. Voice-activated and able to carry out tasks as one’s personal assistant was amazing. However, this technology remained a niche with the likes of Apple, Google and select few others with big R&D spend. Recent announcements on open messaging and bot platforms by Microsoft, Facebook, Google, Apple, Amazon, IBM and a host of startup players just changed the game from a niche play, to workbench within the reach of every developer. A significant enabler, these announcements compare very well with the initial days of mobile app stores that we all witnessed. What is different is now we have several times more number of active devices, and it is just going to be a much bigger party. So, how ready are we within the enterprise?
Today the usage of apps is on the decline and most users use fewer than 20 apps. Fragmented platforms increase delivery cost besides the constant upkeep with version changes and device sizes. The popular web model hasn’t scaled well beyond the desktop either due to fundamental design constraints.

Companies and developers got access to end users in an unprecedented, no-friction way. Today, the number of active devices around the globe is far higher than the early days of app stores and we have a recipe of a mega trend with billion plus people on messaging apps spending an average of 2 hrs a day. Apps till yesterday were leading the connected device experience. The clock however keeps ticking!

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Dramatic slashing of barriers to entry and easier access to market led to the app revolution. Companies and developers got access to end users in an unprecedented, no-friction way. Today, the number of active devices around the globe is far higher than the early days of app stores and we have a recipe of a mega trend with billion plus people on messaging apps spending an average of 2 hrs a day. Apps till yesterday were leading the connected device experience. The clock however keeps ticking!

The first half of 2016 was also dominated by announcements from some of the biggest technology and internet companies around Natural Language Processing (NLP) as a service. The offerings from Microsoft and Facebook have already attracted tens of thousands of developers within couple of months. Not far behind fueling this interest are a string of messaging focused startups such as Slack, kik which are driving what would sound like the bot economy – chat agents carrying out simple tasks delivering value. For example, early mover in the bot space, kik shared that 1.8 million messages have been exchanged on its bot platform in the first 3 months since its launch. The platform has already attracted over 18,000 chat bots contributed by developers.

Technology landscape experienced a tectonic shift with the launch of apple app store close to a decade ago. For the first time, the space otherwise dominated by large organized applications companies got a taste of democracy and that taste lasted long enough to establish app economy. Dramatic slashing of barriers to entry and easier access to market led to the app revolution.

App model of interacting with business has worked well but hasn’t been without pain. The fragmented platform coupled with limited space on devices is a layer of friction. Today the usage of apps is on the decline and most users use fewer than 20 apps. Fragmented platforms increase delivery cost besides the constant upkeep with version changes and device sizes. The popular web model hasn’t scaled well beyond the desktop either due to fundamental design constraints.

Messaging is not new even in the enterprise context. Why then the shift talk? The big difference is this time the other end is not a human. That’s right! This means the other end is available 24/7 and maybe just lacks a bit of, let’s say emotions (though there is active research on to put emotions). The ability to understand and respond in an acquired human-like way through unstructured text, audio or video is enabling information flow in a seamless way that is so much simpler to understand and to query, giving rise to a new interaction design often called the “Conversational UI”. Instead of screens & forms, articulated workflows, wizards, menus, navigations and all that structured user interface, we are looking at simple messages or simply put a short message to share our intent or expectation and the job gets done. Once again driving simplification at work, the complexity of UI, theme, color, design, orientation, screen size, devices, platforms, technology are all getting down to a single input field. Sure, the counter argument would be that not everything will fit a textbox, but the drift is hard to miss. And as it happens, things get better with usage and time and likely new design paradigms will emerge. However, the current status is already quite advanced to win a solid justication for shift within the enterprise and connected applications; much more beyond a mere trend. What really is making it explode? Is it just technology evolution?
Bandwidth limitation and occasionally connected nature of mobile devices are all additional challenges. Messaging in contrast enables interactions with such day-to-day services in a way that just feels natural and convenient. Near real time responses with flexibility around connectivity coupled with lack of structure is driving this change. Let’s consider a simple request. Say you got pulled into an unplanned customer escalation situation. You tell your personal assistant, the messenger, to take care of this schedule change. A personal assistant at work would just know how to handle this and notify your team, communicate to your scheduled meeting participants that you are not going to make it and to any other stakeholders who need to know. Extend it to your enterprise systems covering travel, expense, invoice, tickets, customers and you have several situations where you can do with a little help with all those follow ups, reminders, alerts etc. How about someone taking care of your expenses while you are on the road. All you do is send / forward the bills. Or you had a query about a particular shipment and wanted your assistant to keep an eye on?

If you missed the early days of app economy, you can’t miss this one – the conversation economy. And if you didn’t miss the last time, then you know already why this is so much bigger, now that the pain of downloading yet another app is eliminated as well. All one needs is a messenger app that they already use and the experience starts right away.

How ready is it?

Consumer expectations are getting shaped. First round of conversation bots or chatbots as they are often referred, affected the consumer side and that saw the response on sell side apps or outside the enterprise. Hotel Reservation or Travel booking to weekend concerts or just hailing a cab led the first round. The same experience is walking in within the enterprise with the consumer/employee. And it does make business sense to follow suit. Chatbots already offer higher levels of user engagement driven by ease-of-use and zero training required by design. Reinforced Learning with auto building knowledge base is fast forwarding a much more superior degree of contextualization and personalization.

Conversations @work

Hubot, the github bot is one of the many examples of how regular, repetitive to-dos are getting handled by bots. Assistants can now fire a product build or deploy software just by you messaging them or search and collate info on a topic that you wanted to review. At operational frontier, it may just be a simple way for co-workers to keep in sync with shift schedule and auto adjust in case someone is running
behind or fails to show up for some reason. And turns out it is not just the simplicity of messaging and connected devices that is driving this shift.

A big driving force behind chatbots is recent advances of Artificial Intelligence (A.I) and machine learning (M.L). Fueled by increasing amount of data and cheaper computing / storage, last year has seen a phenomenal progress towards enabling AI in the context of user conversations. One particular branch of AI that is enabling the shift is Reinforced Learning (R.L) which takes feedback from users to improve responses and machine learn. This approach makes bots learn through iterations and feedback, towards perfection over time. The ability to acquire intelligence enables domain-specific use cases and context-aware conversations that help build the knowledge base organically.

Intelligent bots today can learn how to play a game just by observing humans play without anyone programming them specifically for the rules of the game. The impact of such learning abilities within the enterprise is huge. Be it repetitive support requests from user groups or info exchange between working groups, self-learning applications that can take control of the front line as response agents can dramatically reduce cost and time to serve.

The self-learning approach implies it becomes imperative to start early. Unlike traditional web applications or mobile apps which tend to come in a configurable defined scope, mode or solution, chatbots walk a different path. The scope and capability builds up with use in contrast to a shrink-wrapped product. It is much like a child going through school learning rather than say buying a book. Learning happens over time and must be acquired on the job rather than ready buy.

One of the leading players in the bot space, Facebook, rolled out “Bots for Messenger” when many considered them hardly ready. Some of them were awful and yet Facebook rolled them out to learn on the job. This shift unlike the technology shift would pose a different kind of challenge; a challenge to the buying or building processes within enterprise IT.

The other related gap situation would be, what happens while things take time to mature? This too would need a careful approach of combining chatbots with human support as failover. To take care of initial bump, manage a human backend and reduce and eventually eliminate. Manage a smooth transition.

The debate over “To or not To” would also need a fair consideration towards the economic impact to business. Biggest advantage of near relative time conversations and chatbots is reduced overall IT and support costs. Unlike conventional mobile apps which need to be supported on several platforms and versions with their own release cycles, messaging platforms provide a layer of
The simplicity of Conversational UI:
- The visible messaging platform
- The bot brain or cognitive computing layer
- The doer or worker layer
- The data-centric layer

The simplicity of Conversational UI and chatbots is essentially wrapped up in several layers of clever technology that abstracts out the complexity. The visible and top-most section is the messaging platform that users are already on. Slack, Facebook Messenger, Kik, Telegram, Skype, WeChat, etc are popular choices. Organizations can pick a dominant messenger app amongst its user base. If there are concerns over privacy and security, explore organization-owned messaging platforms as an alternative. The bot friendly messaging apps all have one common feature i.e. an API backend for bots to connect and mimic a human user-like response.

The next layer can arguably be called the bot brain or the cognitive computing layer. For the first-generation bots, this is mostly the Natural Language Processing (NLP) layer to understand the incoming messages and extract intent and key info elements often called “entity extraction” from the messages. The next layer is the doer or worker layer that takes care of interpreting the extracted data and take logical actions. The action can be pre-programmed as well as learnt over a period of time through conversations.

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The other significant economic benefit is speed of information flow. Decision-making is lot faster and the benefits flow all the way from there. For example, consider traditional enterprise dashboard which provide lot of information but little in terms of inference. Bot intelligence can address this with a monitor and alert when something looks odd or out of range. A yes / no response from the user adds to the learning bit and soon you have mature buddy.

The ultimate benefit is, it is now possible to connect the enterprise easily, much more easily. No tight integrations between systems and bot platforms and connectors take care of the glue part. In fact, one of the significant bi-products of bot strategy is simplification of enterprise data backend as well.

Biggest advantage of chatbots:
- Reduced overall IT
- Reduced support costs

Chatbots dramatically slash costs around user interface. Part of the savings is of course offset by cost of developing bots but the clever part is that a significant part of building up the knowledge based is crowd sourced by design. The bots cost is further easily managed by leveraging integrated Conversational UI platforms that are enterprise-ready with connectors to enterprise data. Ramco’s Enterprise Bot Platform provides just the right building blocks to jump start organizations’ bot initiative. Establishing value early is key to adoption.

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Anatomy of a bot

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abstraction much like the browser-based web applications. Write once and run on any device. However, unlike web applications which require constant connectivity, chatbots do just fine in occasionally connected mode. Avoiding structured screens, complex navigations and workflow,
The last data centric layer is typically the interfaces to application data sources within the enterprise.

Orchestrating all these layers in a conversational style is what delivers the bots their acquired character and needs a domain specific approach. The bot brain that drives the understanding part requires special attention in a domain-specific approach to fast track the learning part. While it is early days for such domain-specific brain platforms, Ramco’s bot platform is definitely one of the credible options to kick start a bot strategy.

**Is your organization bot-ready?**

It is indeed very rare to have a one size fits all scenario. Chatbots are no different. While the general direction is hard to miss adapting a bot strategy is a function of 3 indicative metrics.

- **Share of repeat tasks.**
  One study found about 60% of the queries that a HR support desk gets from employees are repetitive. Users typically send out e-mails and have to wait on an average 12-18 hrs to get a response. Perfect setting for bots to get into action.

- **Cost to serve.**
  Mobile and Web apps both suffer from a great degree of platform fragmentation. This requires platform specific investment which drives up the costs and impacts time-to-market. If this, or intranet apps, are a significant part of your IT spend, then bots provide a great alternative.

- **Speed.**
  Perhaps the most compelling factor is speed. Speed not just as a satisfier, but is actively turning into a business advantage. Timely and proactive information on parts availability in an engineering supply chain can be a significant business advantage.
The last few years have seen gradual blurring of lines between consumer technology and enterprise IT. Chatbots are accelerating the shift further. Simplicity of conversations however needs to be powered right, with a ground up approach to Machine Learning and Artificial Intelligence. Traditionally, wait-and-watch approach to technology adoption has been rewarding at times as technology matures but may not be the case with Machine Learning. Starting early helps not just build the knowledge base but also helps organization users orient better. The shift is bound to happen just like we all witnessed with mobility and the strategic advantage favors early adopters.

About the Authors

Virender Aggarwal,
Chief Executive Officer

With a strong track record in building business and a keen interest in the latest technologies, Virender Aggarwal has been focusing on evaluating new market opportunities, attracting strategic partnerships, realigning the company’s portfolio of offerings and driving profitable growth. An astute businessman, Virender has a flair for predicting technology trends that will drive the future. He has a reputation for spotting disruptive technology trends and leveraging transformational services (Cloud, Mobility, Analytics, etc) to create value for customers, while growing business operations multi-fold. This quality, coupled with Virender’s rich international experience, has been steering Ramco towards becoming a strong Cloud ERP player.

His latest passion is around exploring the topic of BOTS and how they can simplify the world of enterprise software.

Sandeep Ray

Drives platform strategy and innovation at Ramco and is the company’s Global Technology Evangelist. With over 2 decades in the Technology leadership, Sandeep has helped craft several cutting-edge products across multiple geographies that have delivered measurable business value and strategic advantage to businesses.
Ramco Systems is part of the USD 1 Billion diversified conglomerate, the Ramco Group of companies, and has 1600+ employees with 22 offices spread across India, USA, Canada, Europe, Australia, Middle East, South Africa and APAC. Ramco is a fast-growing enterprise software player disrupting the market with its multi-tenanted cloud and mobile-based enterprise software for HCM and Global Payroll, ERP and M&E MRO for Aviation.


To know how Ramco can help you create business value for your organization, mail us at contact@ramco.com