



Deep dive into building Bots with the Microsoft Bot Framework and Cognitive Services



Vishesh Oberoi

Developer / Technical Evangelist / Microsoft

@ovishesh

<http://aka.ms/NDC-BotsDeepDive>

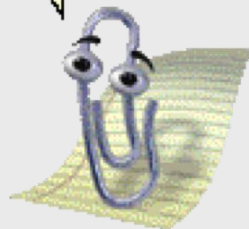
A blue-tinted photograph of the interior of Grand Central Terminal. The image shows a large, open hall with a high ceiling and large windows. A large crowd of people is walking through the hall, creating a sense of motion. In the background, there are ticket machines and a clock. An American flag is visible on the left side of the image. The text "How do we get our computers to understand the real world?" is overlaid in white on the image.

How do we get our computers to understand the real world?

It looks like you're writing a letter.

Would you like help?

- ☒ Get help with writing the letter
- ☒ Just type the letter without help
- ☐ Don't show me this tip again



Ubiquity of Communication Channels



Bots aren't new – why are they blowing up?

- Ubiquity of communication channels
- App boom is slowing (and top apps are chat apps!)
- Convergence of technologies
- Tools and intelligent services make building powerful bots accessible

Conversations as a Platform



People

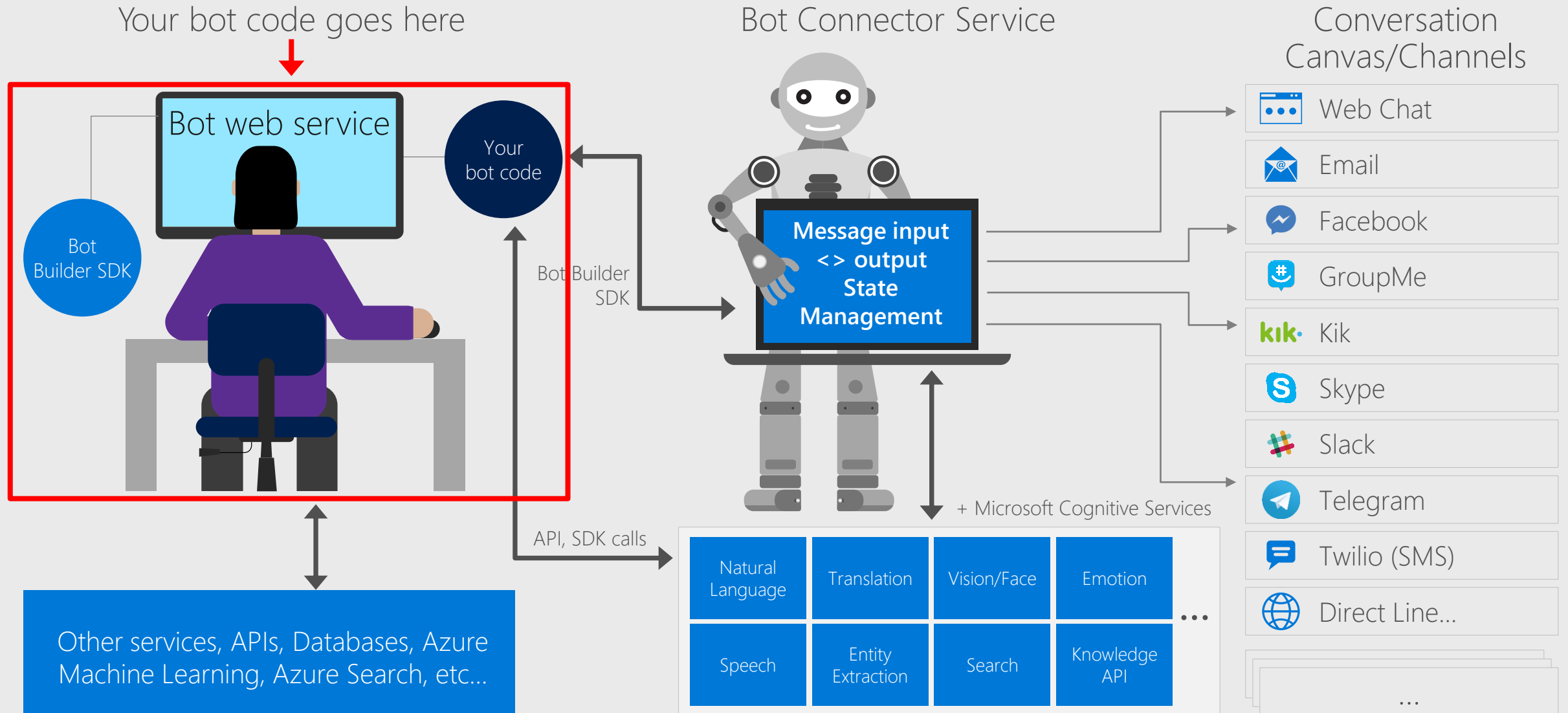


Digital assistants



Bots

Anatomy of a Bot



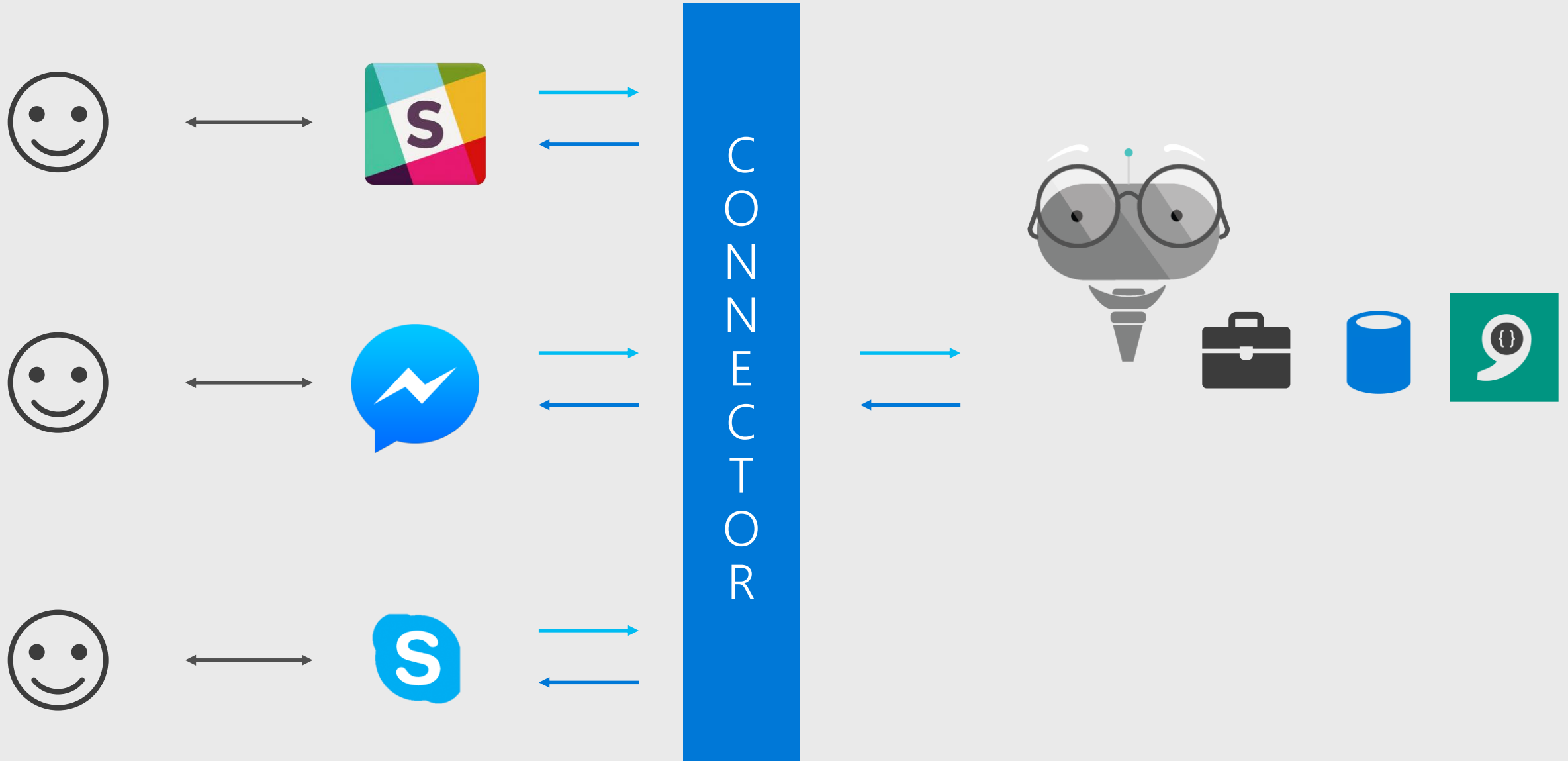
What is a Bot?

Bots are apps



Demo

Microsoft Bot Framework



Help Desk

Help Desk

What can I help you with today?

I cannot open a web page.

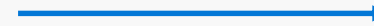
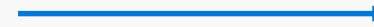
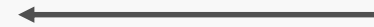
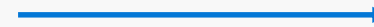
Sounds Good. How Important is your issue?

I need it working asap.

I've assigned you a ticket number 545 with High priority.

Thanks!

Aww 😊



Help Desk

What can I help you with today?

I cannot open a web page.

Greeting

NLP – Branch to the appropriate Dialog

Sounds Good. How Important is your issue?

I need it working asap.

Prompt for Response

NLP – extract priority

I've assigned you a ticket number 545 with High priority.

Thanks, you are awesome!

Complete Workflow and Send Response

Sentiment Analysis

Aww 😊

LUIS and Bots

Dashboard

Intents

Entities

Features

Train & Test


Publish App


← Back to App list


Here you are in full control of this intent; you can manage its utterances, used entities and suggested


Utterances (14) Entities in use (1) Suggested utterances


Type a new utterance & press Enter ...

 Save

 Discard

 Delete

Reassign Intent 

Labels view (Ctrl+E): 

<input type="checkbox"/>	Utterance text
<input type="checkbox"/>	who is [\$Name] ?
<input type="checkbox"/>	tell me what you know about [\$Name]
<input type="checkbox"/>	it ' s a drawing of [\$Name]

Language Understanding
Intelligence Service

Trains utterances
(examples) into a REST API

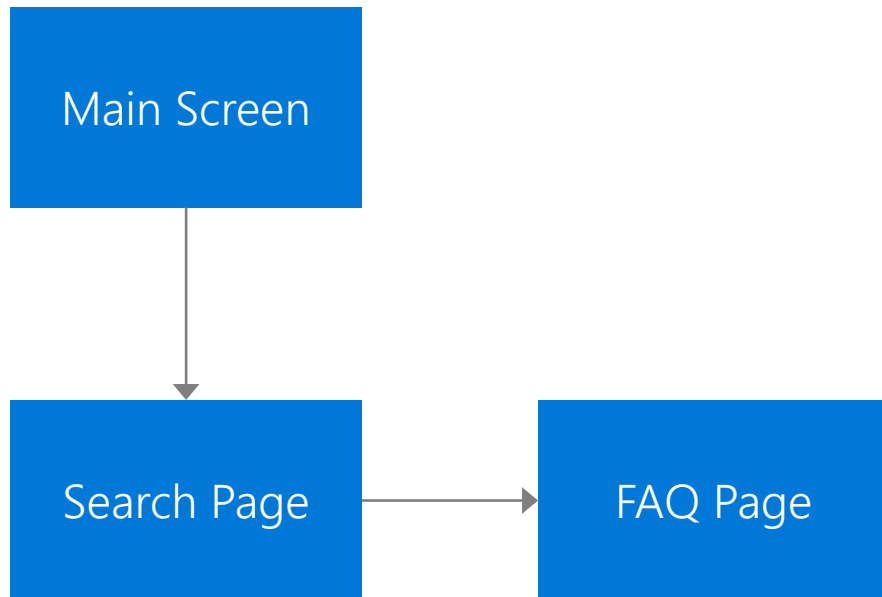
Maps utterances to intents
(verbs) and extracts entities

Demo

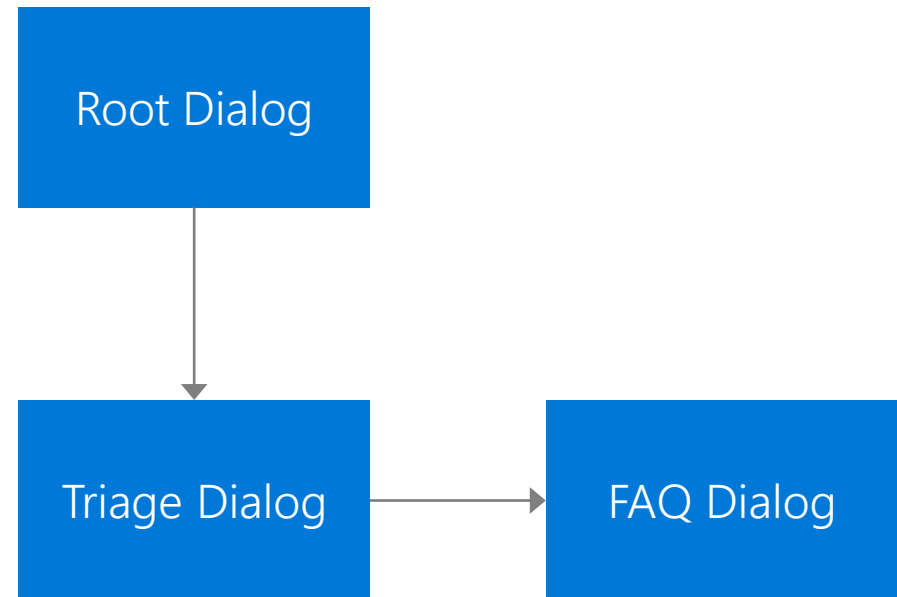
Dialogs are for bots like screens are for apps

They separate concerns and organize flows, exactly the same way:

Traditional Application

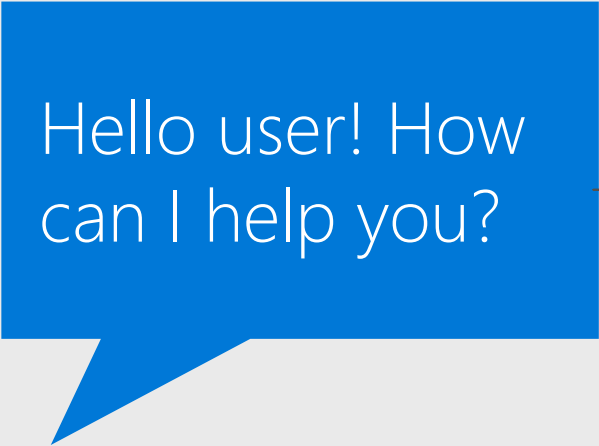


Bot



Anti-pattern: Overuse of NLP

A bot with a single dialog using 100 LUIS intents is a **bad design**:



Hello user! How
can I help you?

1 question

100 different things your bot can do (intents)

100 different utterances (examples) per intent

= 10,000 different things users may say (plus
the other N possibilities you didn't predict)

Users will only guess 3 or so things from 100

So you might have wasted 97% of your code

Knowledge Base Bots and QnA Maker

QnA Maker
PREVIEW

My services

Create new service

Documentation

Feedback

Now share your knowledge base with other users. [Learn more](#) >

From FAQ to Bot
in minutes.

Build, train and publish a simple question and answer bot based on FAQ URLs, structured documents or editorial content in minutes.

GET STARTED >

What is the URL of your company FAQ page?

libertysandwich.com/FAQ

Create

Knowledge Base Bots

- Corpus of data
- Event bots, Help Desk bots, Contact bots, etc.

Knowledge Base Bots

- Fuzzy Searching
- Faceting/Filtering to guide a conversation

"I want to find a house for sale that has 3 or 4 bedrooms, priced between \$300 and \$350 with a large garden, about 2000 square feet, preferably green, within 10 miles from my work which is in the city center, with a large garage and a backyard with a pool"

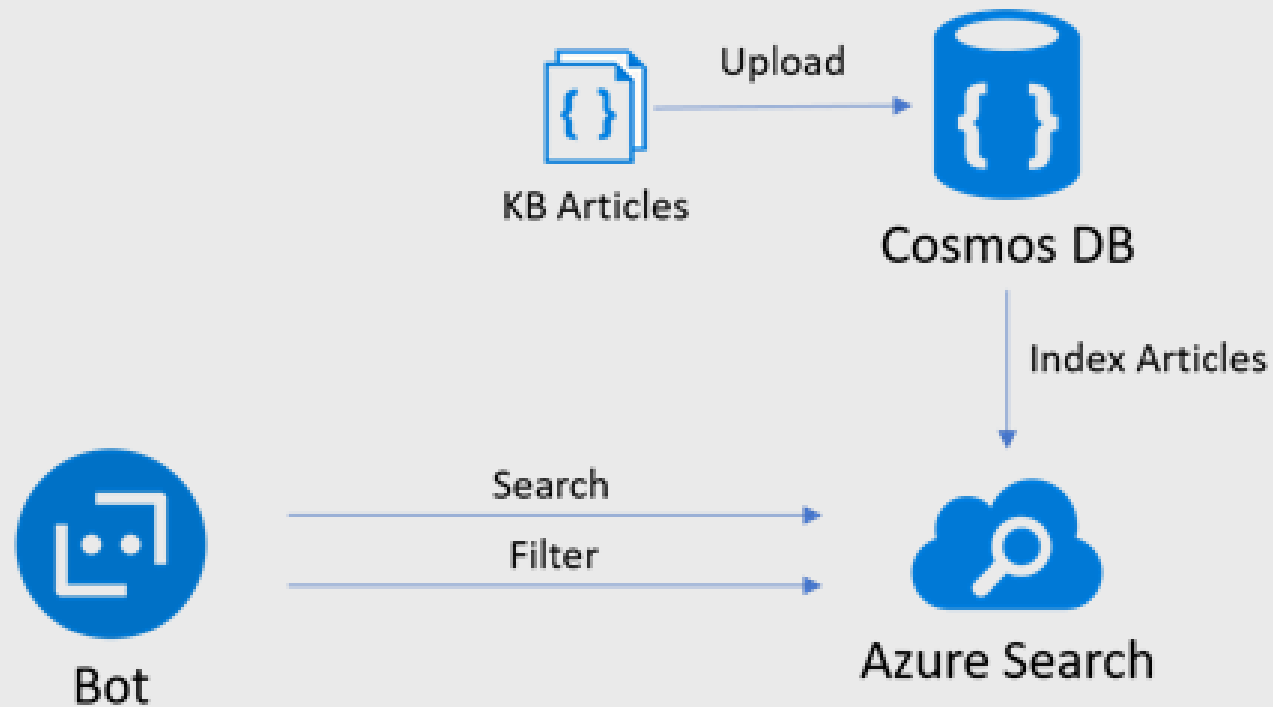
-Said nobody, ever

"I want to find a house"

-Said everybody else

- Generating search queries from natural language

Cosmos DB + Azure Search

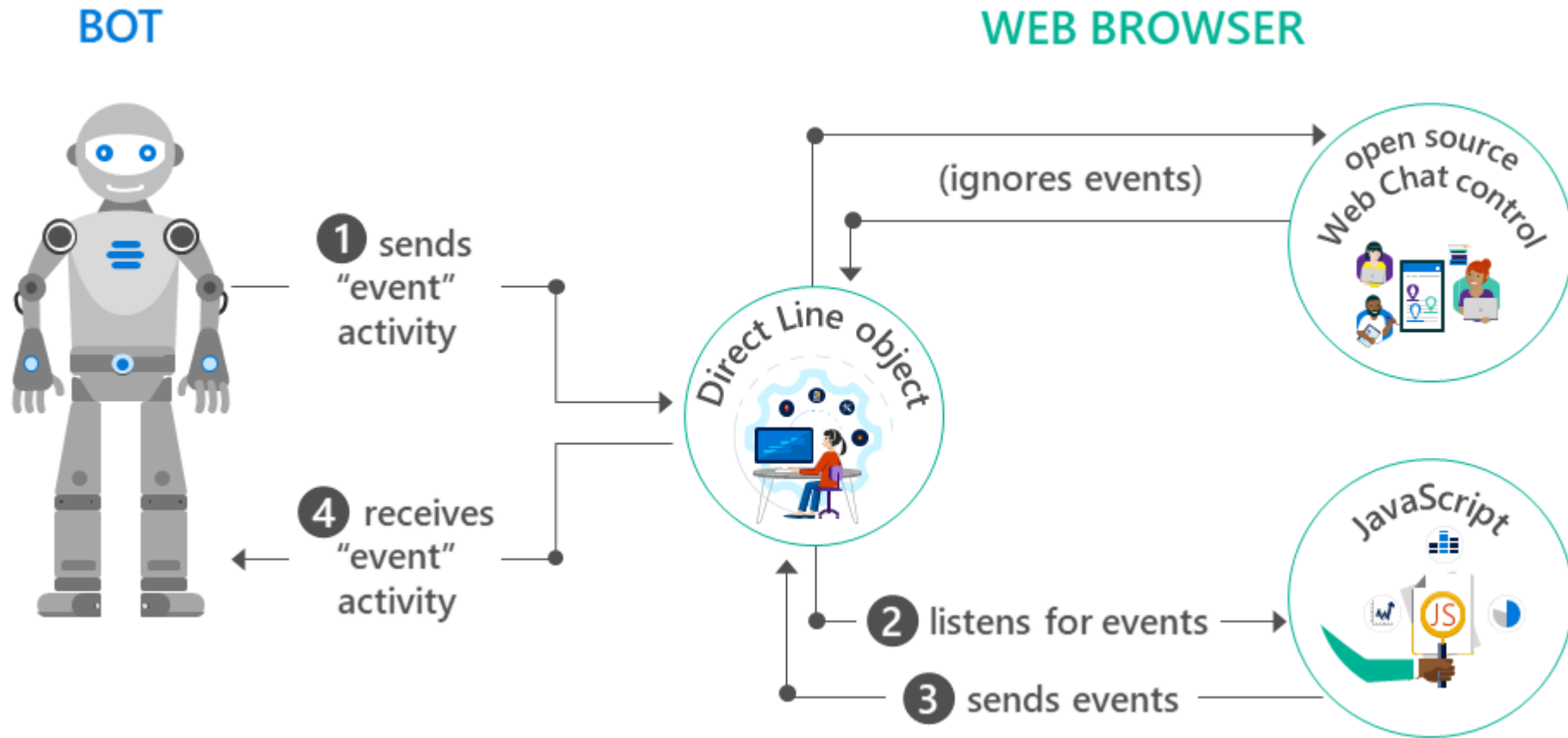


Demo

Supervised Learning

- Internal Testing
- Improve Search Scoring and Indexing
- Supervised Conversations

Backchannel

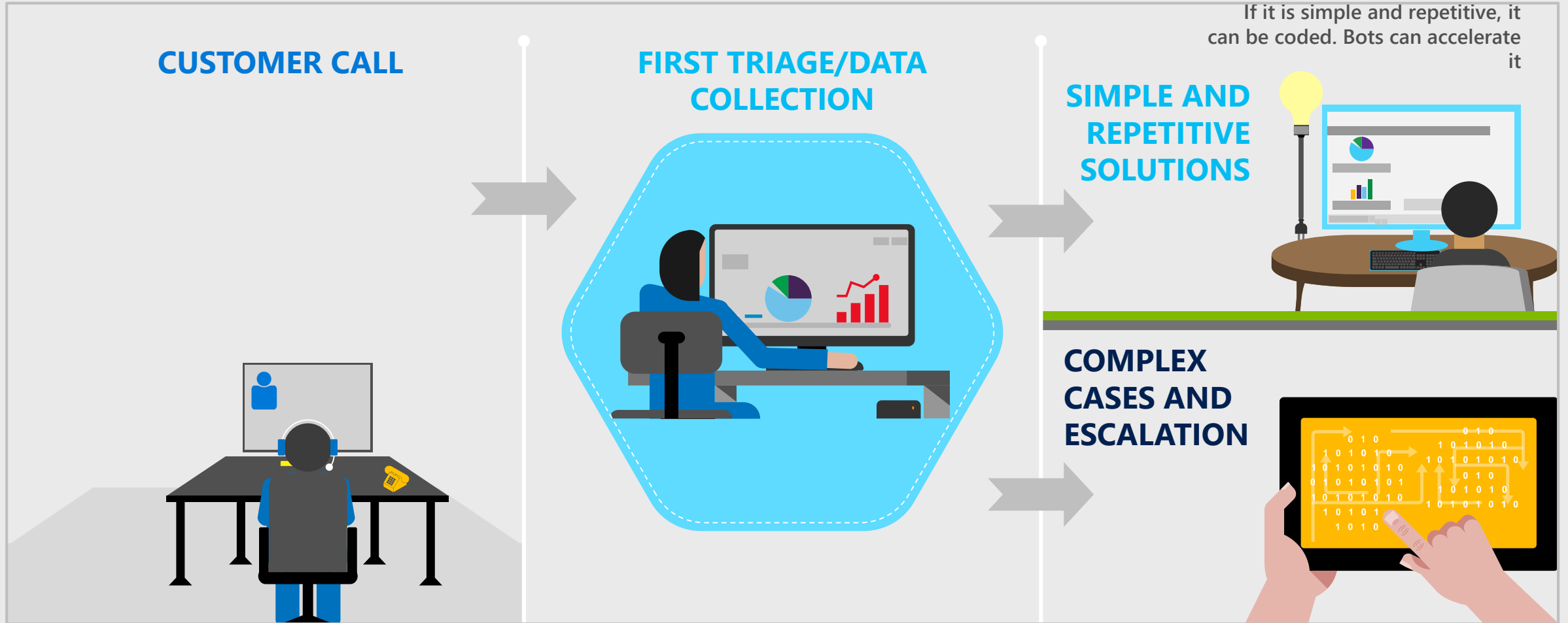


Backchannel in websites/apps

- Communicate clickstream/user behaviors to bot
- Have bot communicate changes to be made to the host
- Pass auth tokens back and forth

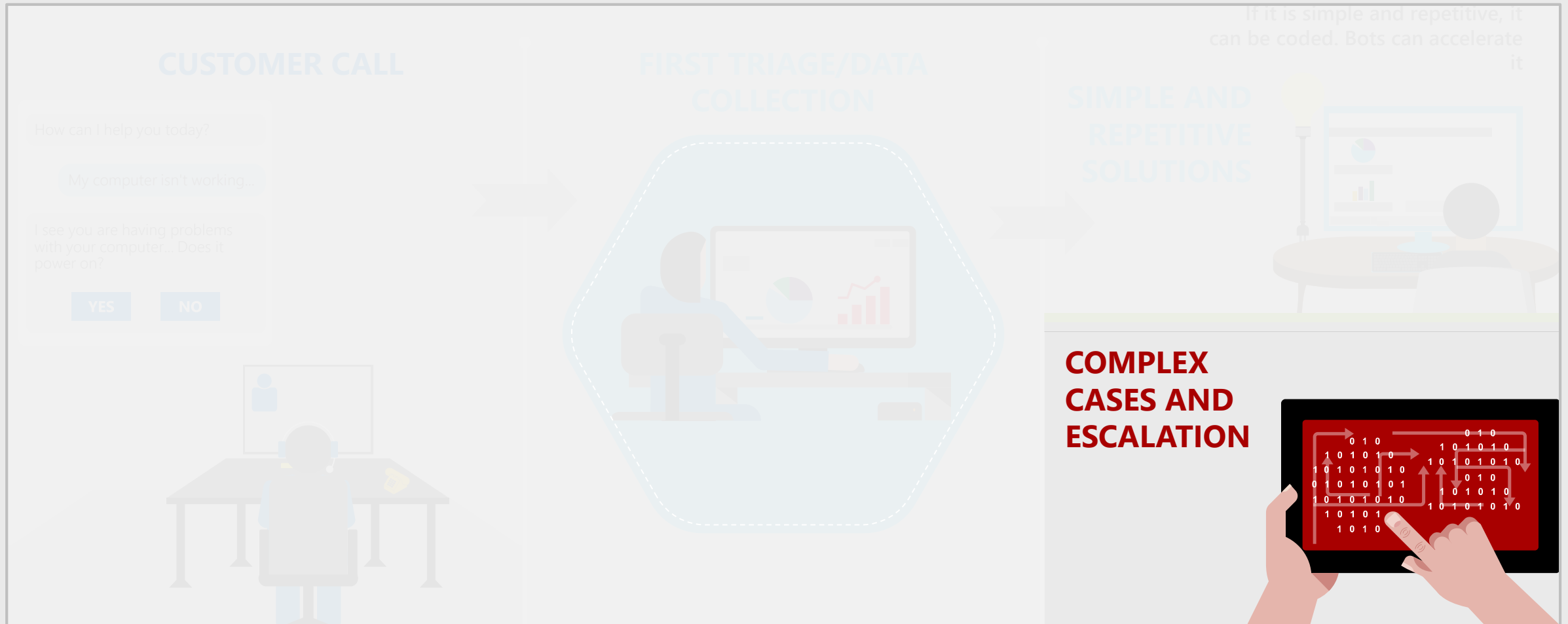
Demo

Handoff to Human



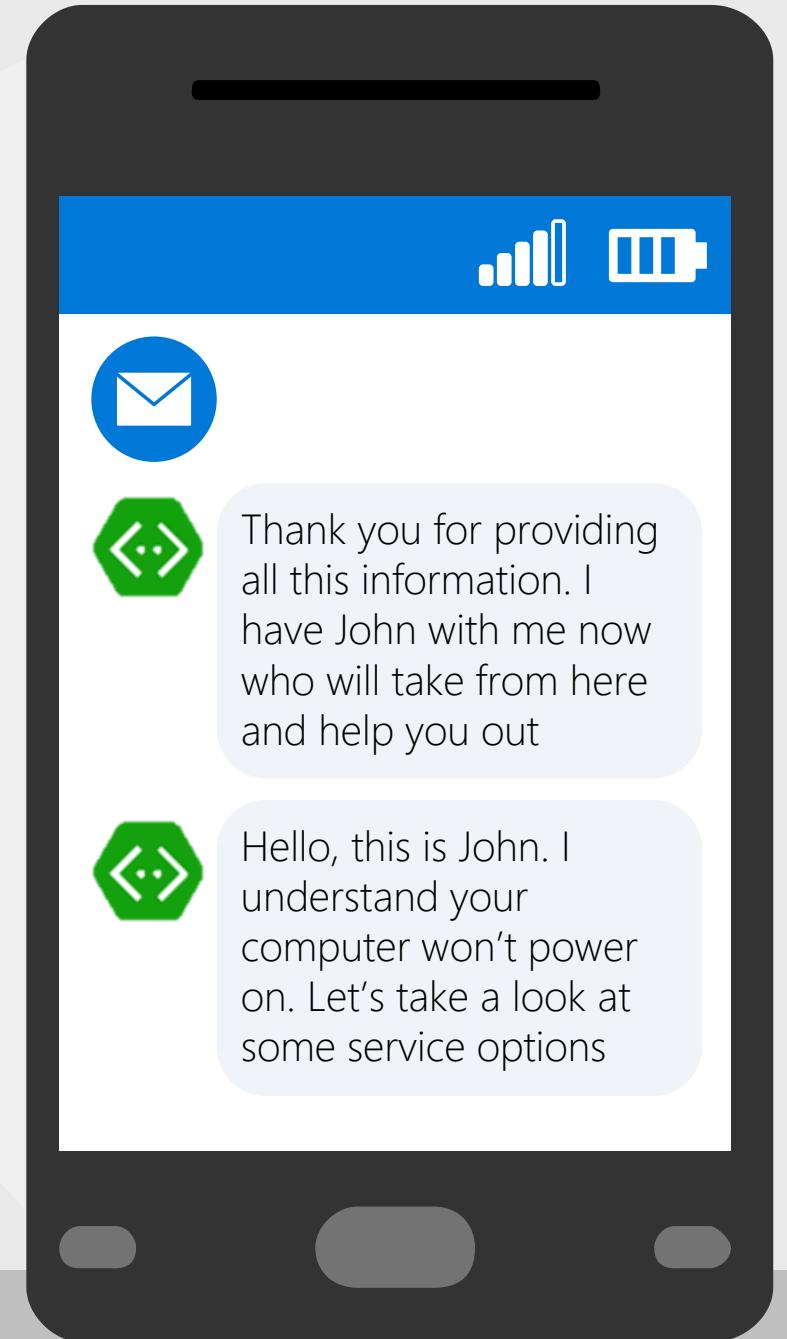
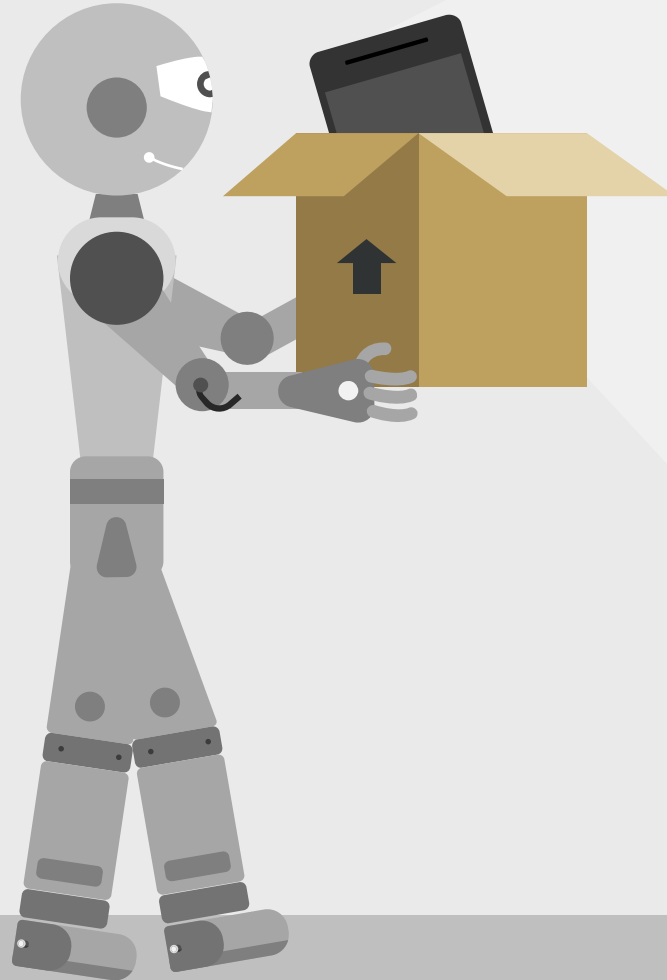
Handoff to Human

BOT TO HUMAN HAND OFF: COMPLETE OR SUPERVISED



Handoff to Human

Complete
bot to human
hand off

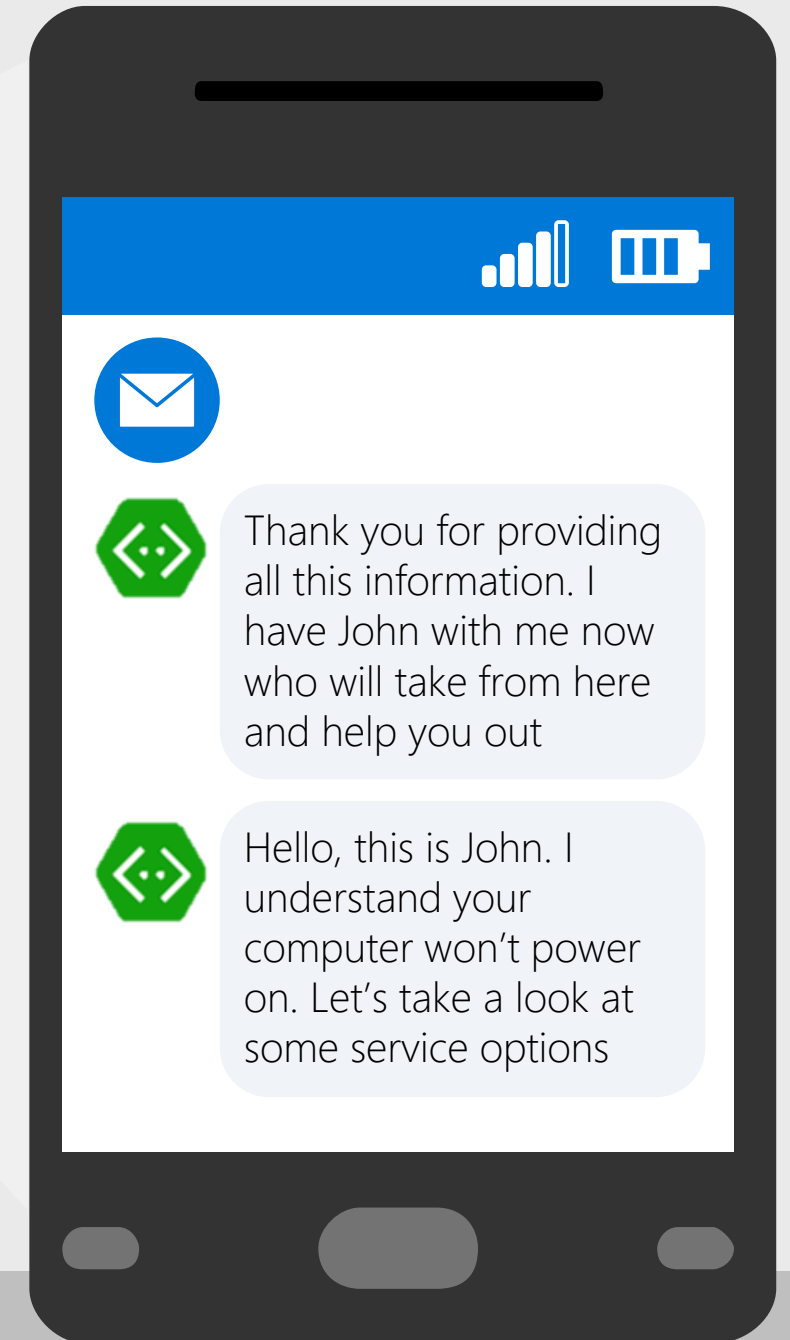
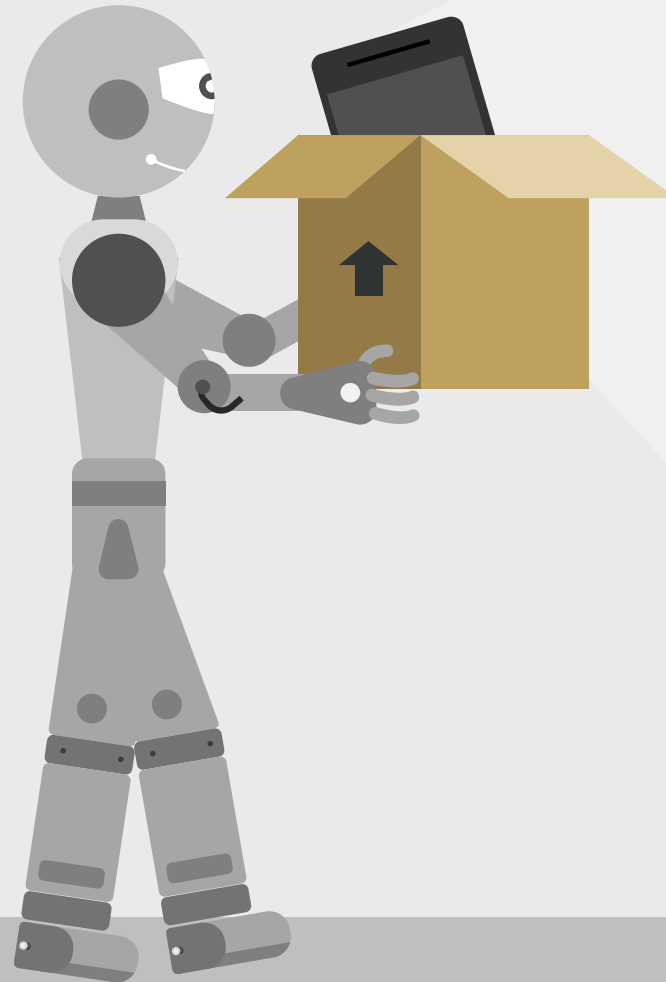


Thank you for providing all this information. I have John with me now who will take from here and help you out

Hello, this is John. I understand your computer won't power on. Let's take a look at some service options

Pattern: Handoff to Human

Complete
bot to human
hand off

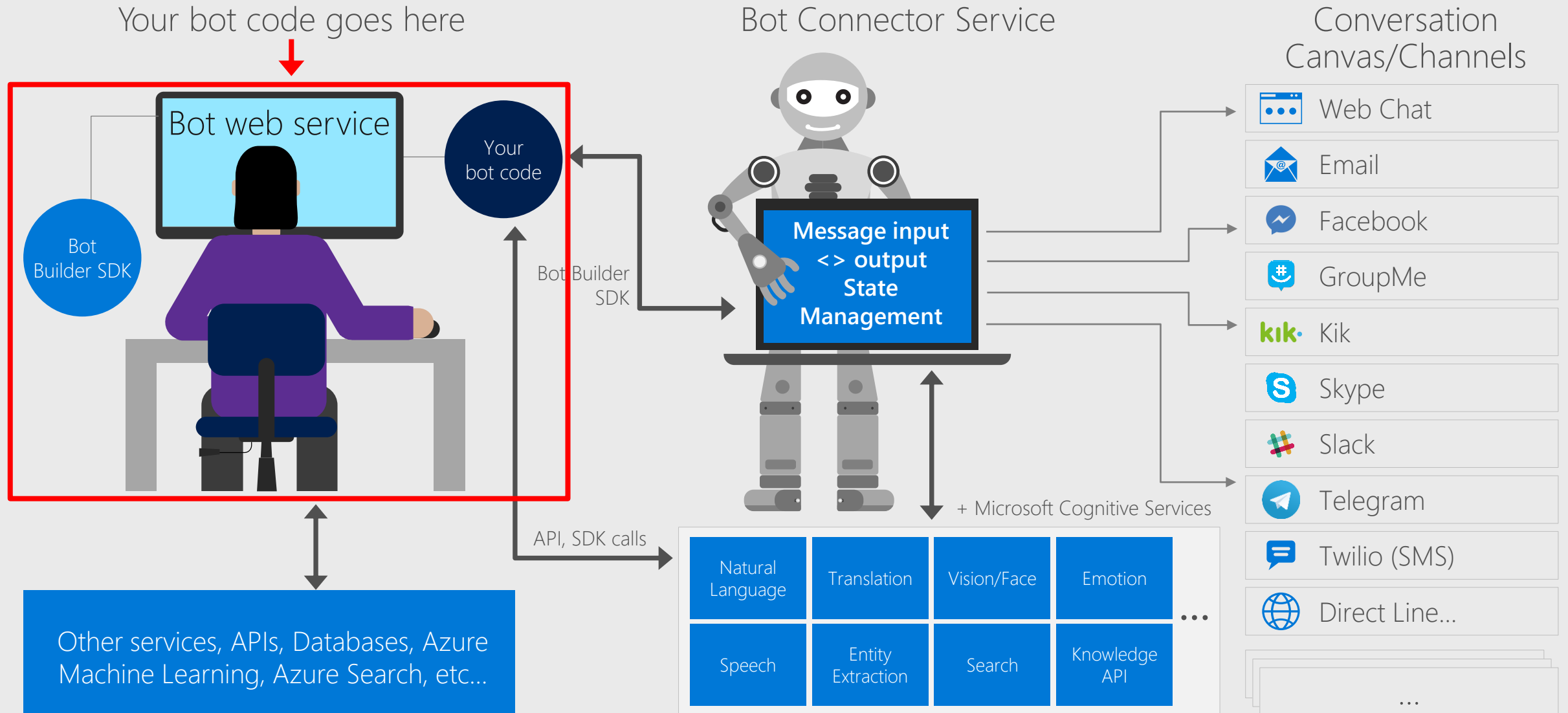


Demo

Bots are apps with a new interface that provide more natural interactions



Anatomy of a Bot



Summary

- Stateless
 - The framework will maintain the conversation stack
- Scalable
 - Web Service
- Intelligent
 - Cognitive Services

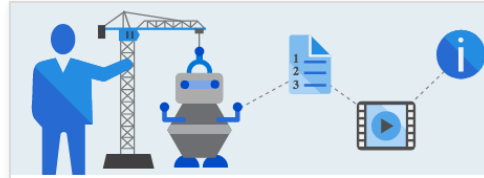
Summary

- QnA Maker – Simple FAQ
- Knowledge Base with Azure CosmosDB and Search
- Supervised Learning
- Handoff to Human Agent
- CI/CD Pipelines – Just like any other Web Service

New Docs:

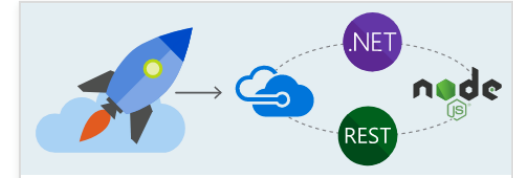
<https://docs.microsoft.com/en-us/bot-framework/>

Better details, based on real feedback and actual projects built with our partners



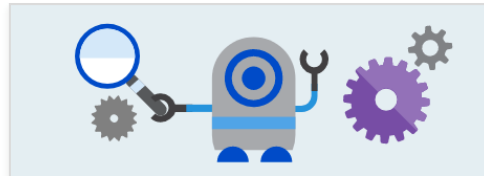
Introduction to the Bot Framework

Learn about the Bot Framework and how it can help you build smart and powerful bots.



Get started with bots

Create your first bot in a few minutes using .NET, Node.js, or Azure Bot Service.



Key concepts

Explore the core concepts of building, deploying, and publishing bots with the Bot Framework SDK.



Plan and design bots

Explore the user experience guidelines and patterns for designing bots.

Bot Talks @ NDC Sydney

Room 6

Wed 17:40

Deep dive into building Bots with the Microsoft Bot Framework and Cognitive Services

At Microsoft, we have first-hand experience writing bots and building artificial intelligence systems, so we've shared our services and tools so you can use them to add conversations to your own products.

In this session, we will take a deep dive into Microsoft's Conversations as a Platform and look in Microsoft Bot Framework, Cognitive Services and other Azure services to graduate your app from small talk into truly insightful conversations.



Vishesh Oberoi

Technical Evangelist, Microsoft

Vishesh is a Technical Evangelist at Microsoft focused on driving early adoption of Microsoft's emerging technologies by building solutions directly with Software Startups, Independent Software Vendors (ISVs) and Large Companies across New Zealand. He currently leads all the developer effort across NZ around Bots, Cognitive Services and Azure IoT Suite.

Room 5

Fri 10:20

Chatbots - the next UI

For years human needed to understand computers and learn how to use them to get the result they wanted. Nowadays, this model has been flipped and computers are trying to understand human conversations.

Latest data indicates that messenger apps have been used more than social networking websites. Are you prepared to leverage from this behavioural change?

Chatbot increases the customer engagement and improves customer experience by focusing on the simplicity. It provides personalised content and an intuitive experience.

In this session Microsoft Technical Evangelists Jordan and Azadeh will walk you through conversational UI concepts and Cognitive Services; what they are and the problems they solve before we delve into the new world of easily accessible intelligent services, framed by modern development techniques.



Azadeh Khojandi

Technical Evangelist, Microsoft

Microsoft Technical Evangelist and Sitecore MVP with more than 10 years experience across a range of diverse and exciting web and mobile solutions. Az is co-organiser of girls geek dinner and Sydney Sitecore user group. She recently started Girls .Net user group. Az has worked with clients including Vodafone, KFC Australia, Sydney Airport, Lend Lease, Sydney Olympic Park.



Jordan Knight

Senior Technical Evangelist, Microsoft

Jordan is a Microsoft Senior Technical Evangelist and professional software developer. He and his team work with software developers and development teams to help them get the most out of modern development platforms and techniques.

Before joining Microsoft, Jordan ran a Software development company where they built apps for Xamarin (iOS, Android and Windows), Xbox (360 and One) and countless others.

Jordan's current keywords are: Serverless, Scalability, Docker, Node, C#, ASP.NET Core, Bots and Cognitive Services and there is a fair chance you'll see some or all of this in his sessions.

Room 2

Fri 15:00

Take Control of the Data of You

You have the power to change your life with actionable insights from your own data. As Alan Turing famously said - "Sometimes it's the very people who no one imagines anything of that do the things that no one can imagine".

In this session I want to share a personal story of how I have grown to understand my own data and share examples of how the data of you may be one of the first big data sets that you can master to have the most profound impact on the way that you form habits and gain insight into your personal health. I will demonstrate Cortana Analytics Suite and introduce Microsoft Azure Machine Learning and show how I have used it to detect and be notified of the early warning signs of getting a virus. I will demonstrate Microsoft's new globally distributed, multi-model database service Cosmos DB and show how you can use it along with LUIS.ai to create a cross platform bot that supports natural language interfaces and provides insight to your behaviours. You can use the service to look for correlations in your data and leverage tools like Power BI to visualize your data. You'll be inspired and full of ideas on what you could do with your own personal health data and be buzzing with ideas on how you can use your own digital personal assistant to ask questions of your data.



Nigel Parker

Leads Technical Evangelism for Microsoft across Asia Pacific

Nigel leads technical evangelism for Microsoft across Asia Pacific. Nigel has been at Microsoft for 12 years starting his journey in New Zealand. Prior to Microsoft Nigel had broad experience in start-ups and system integrators building and launching software and service based products locally and globally. During his time in DX he has led strategic change with New Zealand developers, government agencies, start-ups, top NZ websites and media companies.

Nigel is not driven by technology, he is driven by the impact that technology can have on people's lives. His experiments around using technology to improve his personal health have been widely documented. While it is undeniable that the industry needs more computer scientists and engineers if it is to continue to prosper and compete we have to stop thinking of the ICT industry as a group of stereotypical "geeks" and start recognising it for what it is, an opportunity for creative and expressive developers of all races and genders to be at the forefront of the transformation to a world where everything will be available as a service and a plethora of interesting, creative jobs will emerge covering all industries from reinventing personal health, to the way that we interact with each other, to how we make things and get things done.

Room 5

Fri 16:20

The Art of Coding a Conversation: Designing Bots

While top apps on your App Store are Messaging Apps, and conversational canvases becoming more ubiquitous, there is a certain hype around building bots.

Although there might be a lot of you who still haven't jumped on the Bot hype, but you might certainly be going through the app fatigue. Learn about building bots the right way with more meaningful interactive experiences for your users and why is there such a hype around them.



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Q/A

Meet Bots, the new apps

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Technical Evangelist / Commercial Software Engineering / Microsoft

Vishesh.Oberoi@Microsoft.com

@ovishesh

