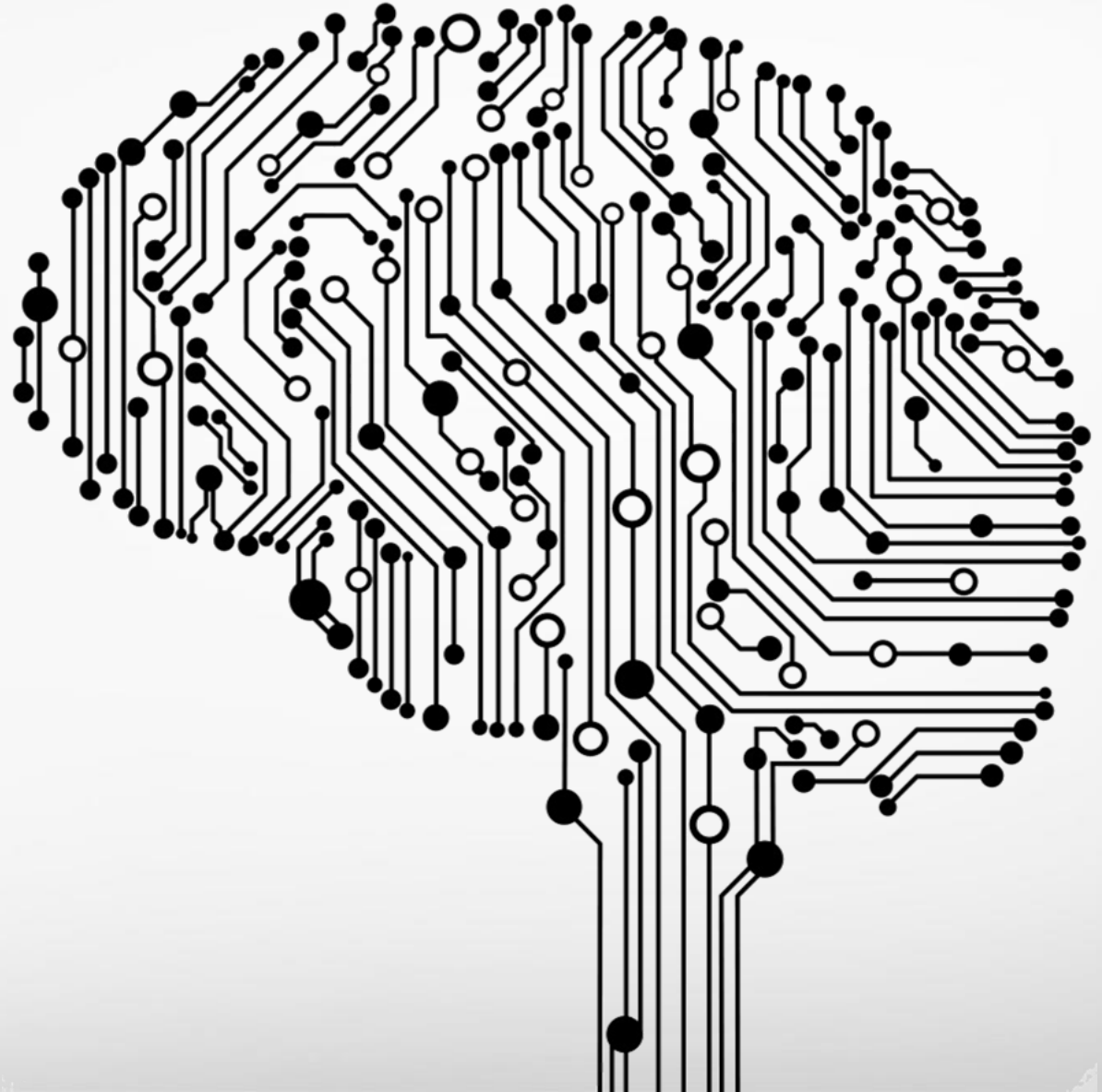


Microsoft Bot Framework Best Practices

Darren Jefford

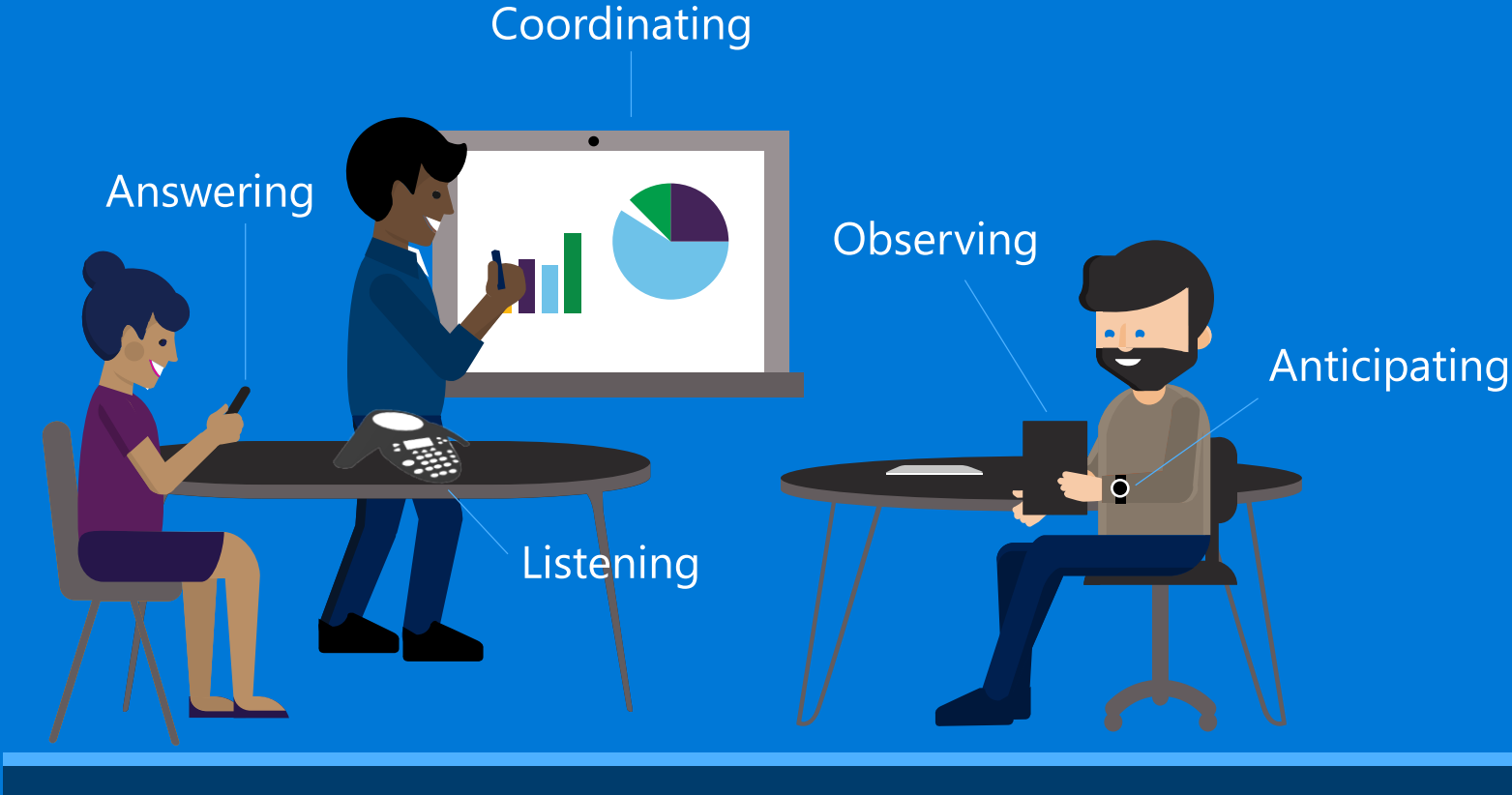
Artificial Intelligence Lead Architect
Microsoft Services Technology Office
darrenj@microsoft.com



We learn and use technology.



Technology learns us and discovers ways to be helpful.



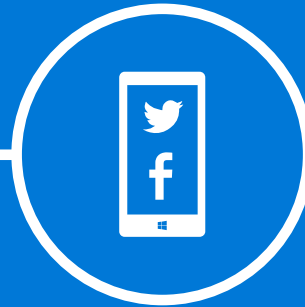


1980s: **PC**

- Desktop

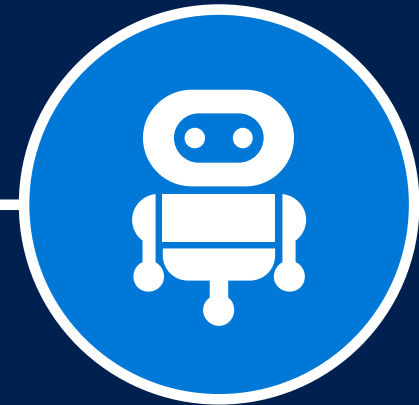
1990s: **Internet**

- Search
- User "visits" websites



2000s: **Mobile**

- Social
- User download apps from App Stores



The future: **Conversations**

- Natural language between people and technology
- Conversational canvas
- Bots and agents

Conversations as a platform



Developers

The new canvas



Businesses

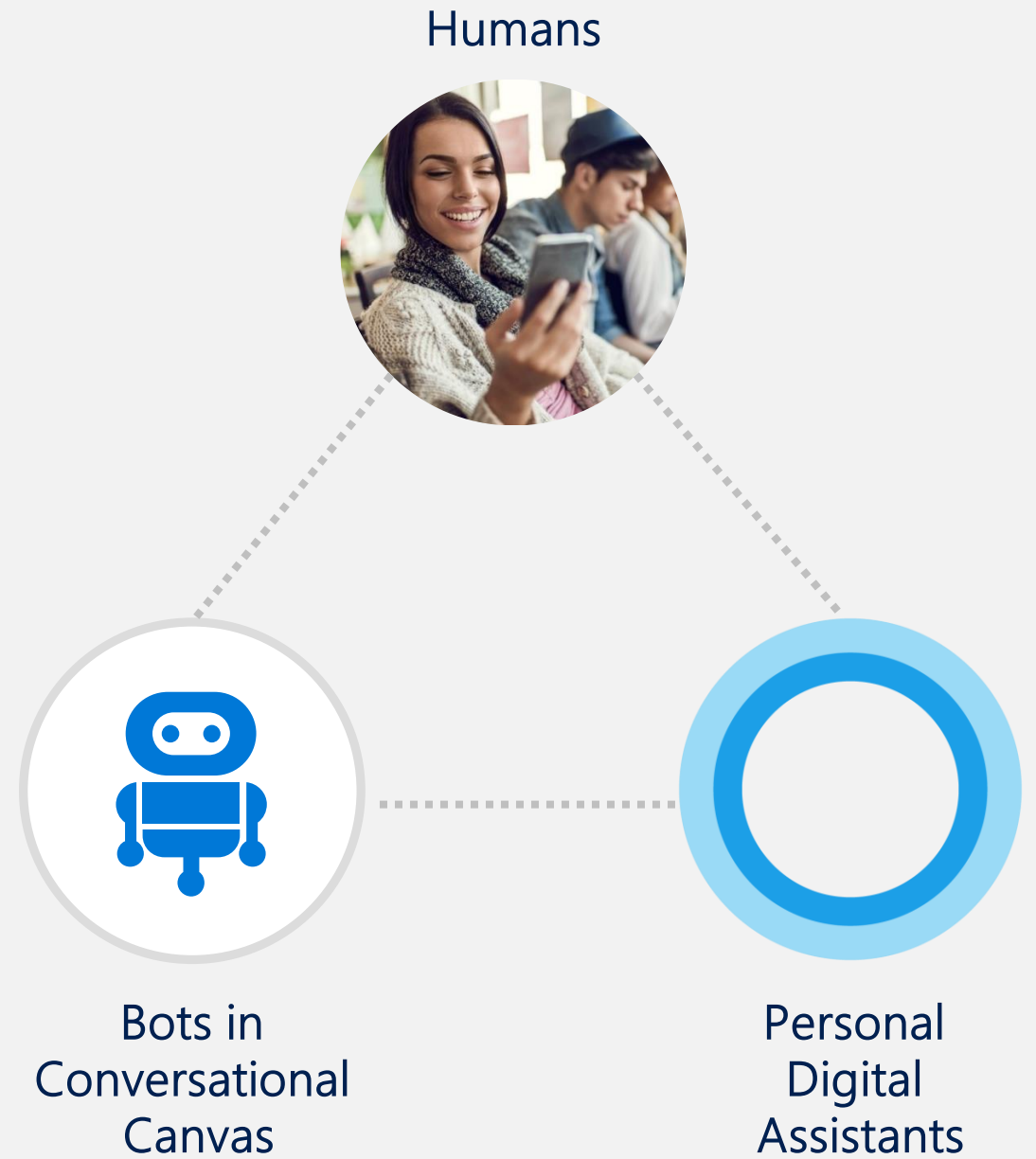
The new opportunity



Individuals

More personal way to
discover, access, and interact

Conversations as a platform



Over **1 billion** created account
with **700 million active users**

806 million MAU of Weixin &
WeChat, increase of 34% YoY

Users in China spend **70 minutes**
per day on WeChat

Average revenue per UU more
than **\$7 per year**



Transforming engagement



Productivity task completion

Enhance productivity through task automation and through automated workflows



Reach customers anywhere, on any platform or device



Engage with customers and users in a natural way, conversationally and in context



Expose your products and services via messaging platforms, where users are already highly engaged



Improve customer experience and reduce the need for human assistance

Microsoft AI Portfolio

People



Agent

Cortana



Applications

Office 365
Dynamics 365
SwiftKey
Pix
Customer Service and Support
Skype
Calendar.help



Services

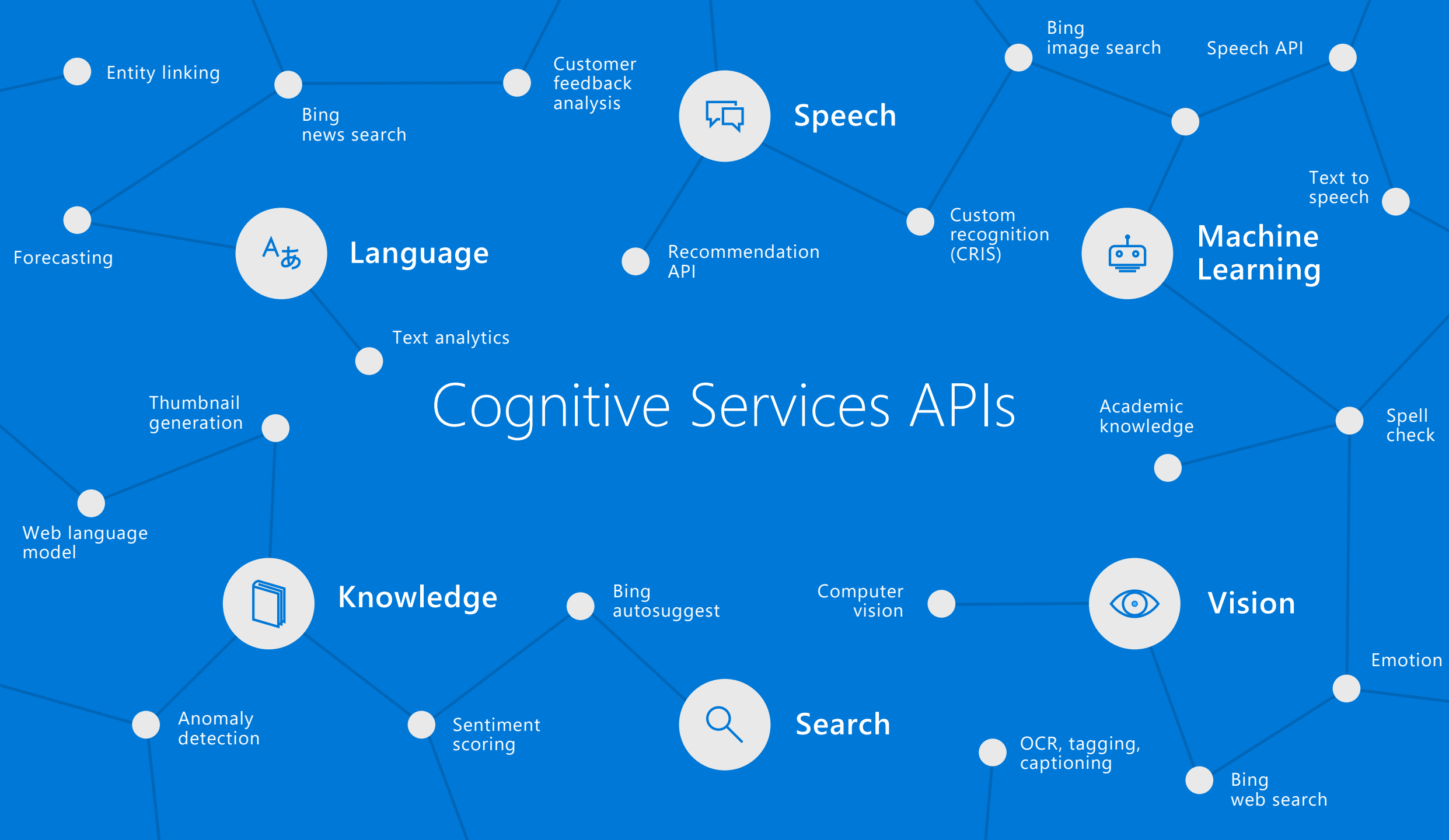
Cortana Intelligence
Cognitive Services
Bot Framework
Cortana Devices SDK
Cognitive Toolkit











Infrastructure

Azure Machine Learning
Azure N Series
FPGA

Cognitive Services APIs



Build applications that understand people

Intelligence	 Vision	 Speech	 Language	 Knowledge	 Search
 Cognitive Services	Computer Vision	Speaker Recognition	Text Analytics	Academic Knowledge	Bing Search API
 Bot Framework	Face	Speech	Bing Speller	Entity Linking Service	Bing Image Search API
 Cortana	Emotion	CRIS	Web Language Model	Knowledge Exploration Service	Bing Video Search API
	Video	Translation Services	Linguistic Analysis	Recommendations	Bing News Search API
	Content Moderator		Language Understanding Intelligent Service	QnA Maker	Bing Auto Suggest API

- Faces, images, emotion recognition and video intelligence
- Spoken language processing, speaker recognition, custom speech recognition
- Natural language processing, sentiment and topics analysis, spelling errors
- Complex tasks processing, knowledge exploration, intelligent recommendations
- Bing engine capabilities for Web, Autosuggest, Image, Video and News

Your Bot Framework Bot



Bot Builder

Tools and services to build great bots that converse wherever your users are.

- Open source SDK on Github for Node.js, .NET and REST
- From simple built-in prompts and command dialogs to simple to use yet sophisticated 'FormFlow' dialogs
- Support for rich attachments (image, card, video, doc, etc.); support for calling (Skype)
- Online/offline chat Emulator
- Add bot smarts with Cognitive Services for language understanding and more



Developer Portal

Connect your bots to text/sms, Skype, Slack, Facebook Messenger, Office 365 mail and other channels.

- Register, connect, publish and manage your bot through your bot's dashboard
- Automatic card normalization across channels
- Skype channel auto-configured
- Embeddable Web chat control
- Host your bot in your app via the Direct Line API
- Fast, scalable message routing
- Bot Directory for discovery and trial



Cognitive Services

23 purpose-built ML and AI services to add predictable, configurable intelligence into any software

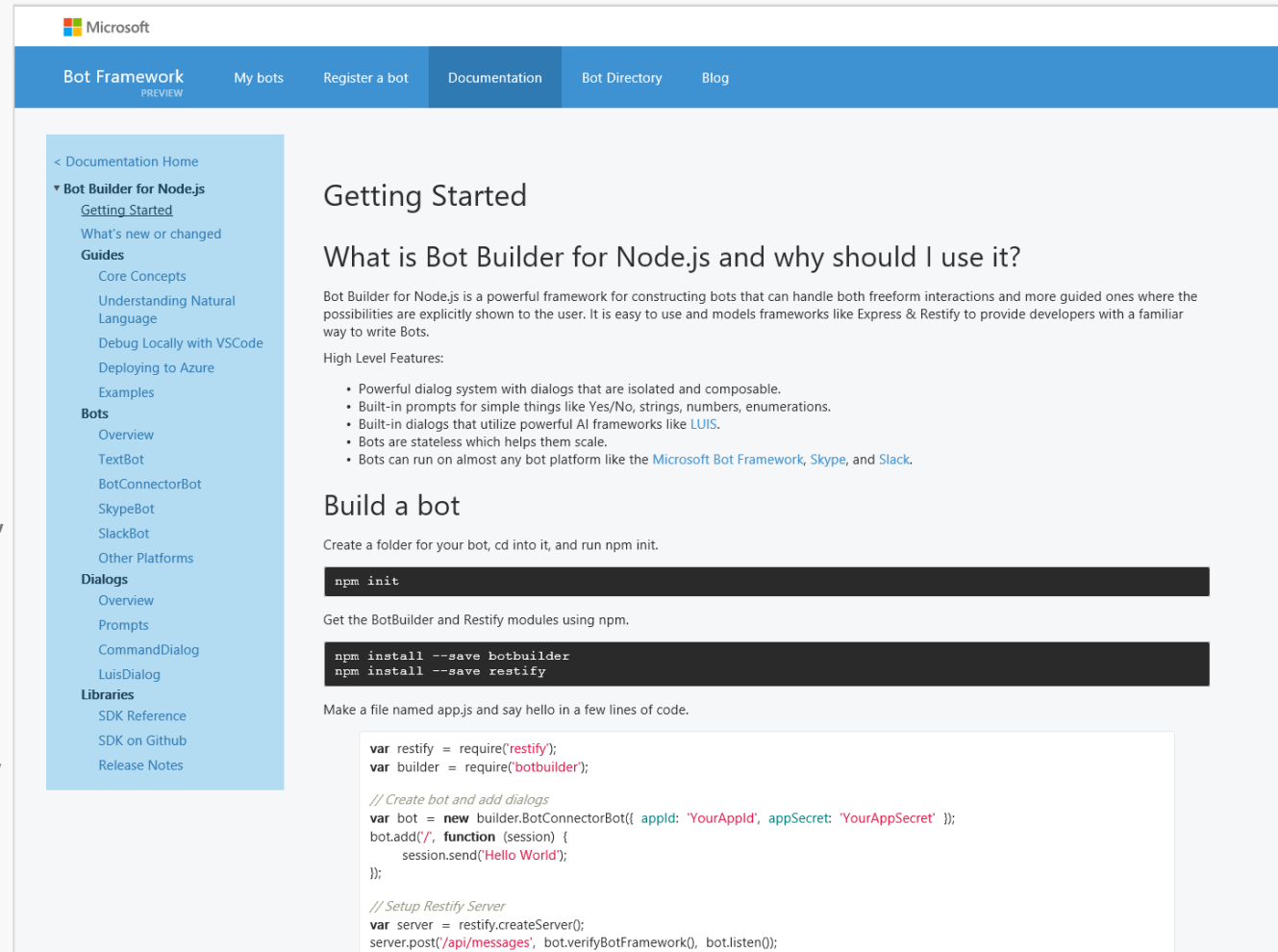
- Parse natural language (LUIS)
- Real-time transcription and translation services for voice
- Vision and face detection algorithms
- Sentence diagramming
- Web language (hashtag) parsing
- Many more



Bot Builder SDK

Node.js, .NET and REST

- Dialogs to model conversation
 - Dialogs are reusable
 - Types of Dialogs include:
 - Built-in prompts
 - Yes/No, String, Number, Choices
 - FormFlow and form slot filling (branching, disambiguation, multi-turn)
 - Conversations are scalable to multiple machines
- Rich interactions
 - Support for rich attachments (image, card, video, doc, etc.); support for calling (Skype)
 - Service extensions for language understanding (LUIS) and translation
- Online/offline Chat Emulator
- Samples



The screenshot shows the Microsoft Bot Framework documentation page for Node.js. The page is titled "Getting Started" and includes a navigation menu on the left with categories like "Bot Builder for Node.js", "Dialogs", and "Libraries". The main content area is titled "Getting Started" and "What is Bot Builder for Node.js and why should I use it?". It provides a brief overview of the framework and lists high-level features. Below this, there is a section titled "Build a bot" which includes instructions on how to create a folder, run npm init, and install the necessary modules (botbuilder and restify). A code block shows the JavaScript code for setting up the bot and the RESTify server.

Microsoft

Bot Framework PREVIEW My bots Register a bot Documentation Bot Directory Blog

< Documentation Home

▼ Bot Builder for Node.js

- Getting Started
- What's new or changed
- Guides
 - Core Concepts
 - Understanding Natural Language
 - Debug Locally with VSCode
 - Deploying to Azure
 - Examples
- Bots
 - Overview
 - TextBot
 - BotConnectorBot
 - SkypeBot
 - SlackBot
 - Other Platforms
- Dialogs
 - Overview
 - Prompts
 - CommandDialog
 - LuisDialog
- Libraries
 - SDK Reference
 - SDK on Github
 - Release Notes

Getting Started

What is Bot Builder for Node.js and why should I use it?

Bot Builder for Node.js is a powerful framework for constructing bots that can handle both freeform interactions and more guided ones where the possibilities are explicitly shown to the user. It is easy to use and models frameworks like Express & Restify to provide developers with a familiar way to write Bots.

High Level Features:

- Powerful dialog system with dialogs that are isolated and composable.
- Built-in prompts for simple things like Yes/No, strings, numbers, enumerations.
- Built-in dialogs that utilize powerful AI frameworks like LUIS.
- Bots are stateless which helps them scale.
- Bots can run on almost any bot platform like the [Microsoft Bot Framework](#), [Skype](#), and [Slack](#).

Build a bot

Create a folder for your bot, cd into it, and run npm init.

```
npm init
```

Get the BotBuilder and Restify modules using npm.

```
npm install --save botbuilder
npm install --save restify
```

Make a file named app.js and say hello in a few lines of code.

```
var restify = require('restify');
var builder = require('botbuilder');

// Create bot and add dialogs
var bot = new builder.BotConnectorBot({ appId: 'YourAppId', appSecret: 'YourAppSecret' });
bot.add('/', function (session) {
    session.send('Hello World');
});

// Setup Restify Server
var server = restify.createServer();
server.post('/api/messages', bot.verifyBotFramework(), bot.listen());
```

Developer Portal

- Register your bot
- Connect to channels
- Test
- Publish
- Manage
- Measure

The screenshot shows the Microsoft Bot Framework Developer Portal interface. At the top, there's a navigation bar with 'Bot Framework', 'My bots', 'Register a bot', 'Documentation', 'Bot Directory', and 'Blog'. A search bar is on the right. A blue notification banner at the top says: 'You've successfully connected your bot to Skype and Web chat. Click Edit on a channel to fine tune its specific settings.'

The main content area is for the 'Liberty Sandwich Bot' (Liberty's Delightful Sinful Bakery & Cafe). It features a 'Publish' button in the top right. A blue callout box states: 'Skype and Web chat channels have been auto configured. Click "Edit" to fine tune channel specific capabilities and settings.'

The interface is divided into several sections:

- Details:** Shows Bot ID (LibertySandwichBot), App ID (ae9284bf-06a6-4f4b-a8b6-b779b390a415), Password (masked), and Messaging endpoint (https://ic-adbot-scratch.azurewebsites.net).
- Channels configuration:** A table showing channel status and controls.

	Test link	Status	Published	
Skype	Add to Skype	Running (Preview)	On	Edit
Web chat	Chat on the web	Disabled	Off	Edit
- Add another channel:** Lists Direct line, Email Office 365, Facebook Messenger, GroupMe, Slack, and SMS, each with an 'Add' button.
- Analytics:** A section with a lightbulb icon, asking for an Azure App Insights key to receive analytics.
- Cognitive Services:** A section with a brain icon, explaining that Cognitive Services enable bots to see, hear, interpret, and interact in more intelligent ways.
- Chat:** A section titled 'Chat with this bot now via web channel' showing a chat window with a bot's greeting: 'Hi! I'm Liberty Sandwich Bot. I help you with your order and answer questions about our menu items.' It also shows a contact link 'LibertySandwich.vcf' and a question 'What can I help you with?'.

Bot Directory

Public Directory of Bot Framework Bots

- Users can discover, try, and add bots to the conversation experiences on which the bot is configured (no app required)
- Bots are public at developer discretion; bots must be submitted for review in order to appear in the directory
- Searchable

The screenshot displays the Microsoft Bot Framework Bot Directory website. The top navigation bar includes links for Bot Framework (PREVIEW), My bots, Register a bot, Documentation, Bot Directory, and Blog. Below the navigation is a blue banner with the text "Meet the bots" and "Say hello! Try out a bot and add it to your favorite conversation experiences." A link for developers to learn how to build and deploy a bot is also present.

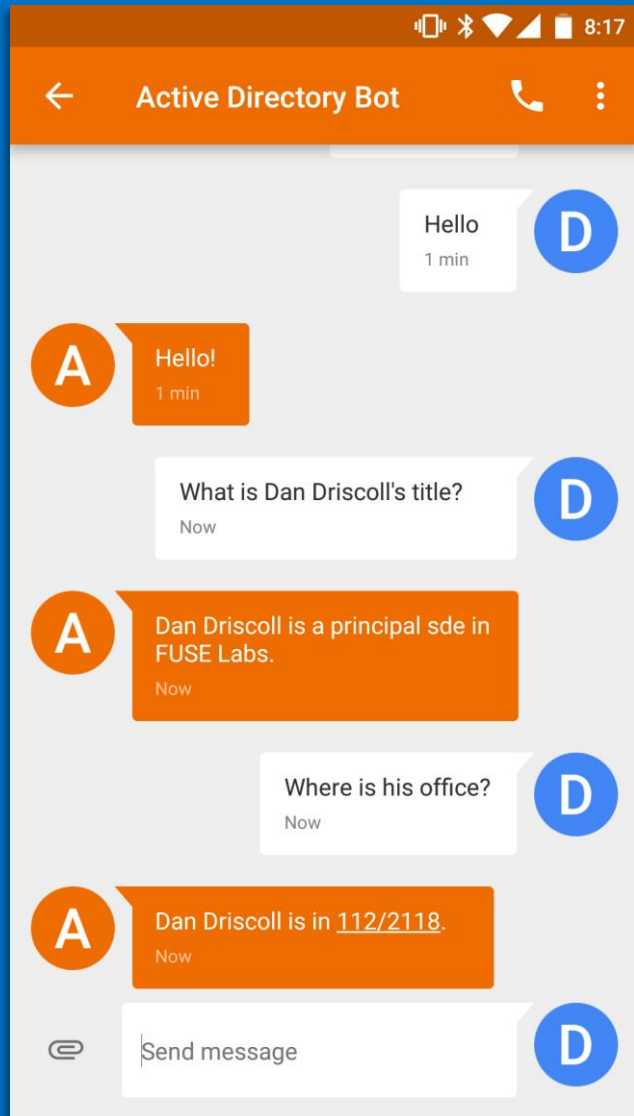
The "Featured bots" section lists three bots:

- Vision Bot** by Kik Interactive Inc. (Microsoft)
- Summarize** by Microsoft
- Bing Image Bot** by Bing

The "Publish your bot" form is shown, featuring a toggle for "Automatically show bot in directories after review" which is turned on. Below this is a text input field for "Any notes for us in addition to your description?" with a 256-character limit. At the bottom of the form are "Cancel" and "Submit for review" buttons. A note at the bottom of the form states: "Note, channels may require additional steps be taken in order for your bot to be available to their users. See channel developer documentation to learn more."

The footer contains links for Contact Us, Privacy & Cookies, Terms Of Use, Trademarks, and © 2016 Microsoft.

Language Understanding Intelligent Service (LUIS)



Who is John?

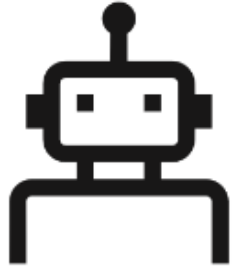
Where does Sue work?

What is Erika's phone number?

Examples of **intent detection**

Examples of **entity extraction**

Building a Bot



Hi, I'm [Bot name]

I love to....add the service description of the bot here

PERSONALITY TRAITS

GOALS

MY VOICE & TONE CHANGES WHEN I'M...

Getting started

Being proactive

Troubleshooting

Sensing a problem

Wrapping up



**MY RELATIONSHIP
WITH MY
USERS**

**THINGS I
MUST
DO**

**THINGS I
NEVER
DO**

The dev is the
easy bit...

Introduce
yourself

Knowledge
and Tasks

UX / Language
sophistication

Translation

General
Knowledge

Personality

Search
Powered

Exception
Handling

Attachments



TechReadyBot

This person isn't in your Contact list.

Unread messages



TechReady24 Bot

Hey There! I'm the TechReady Bot, built to try and make your week a little easier.

I'm multilingual, just start speaking to

What's new in TechReady Bot?

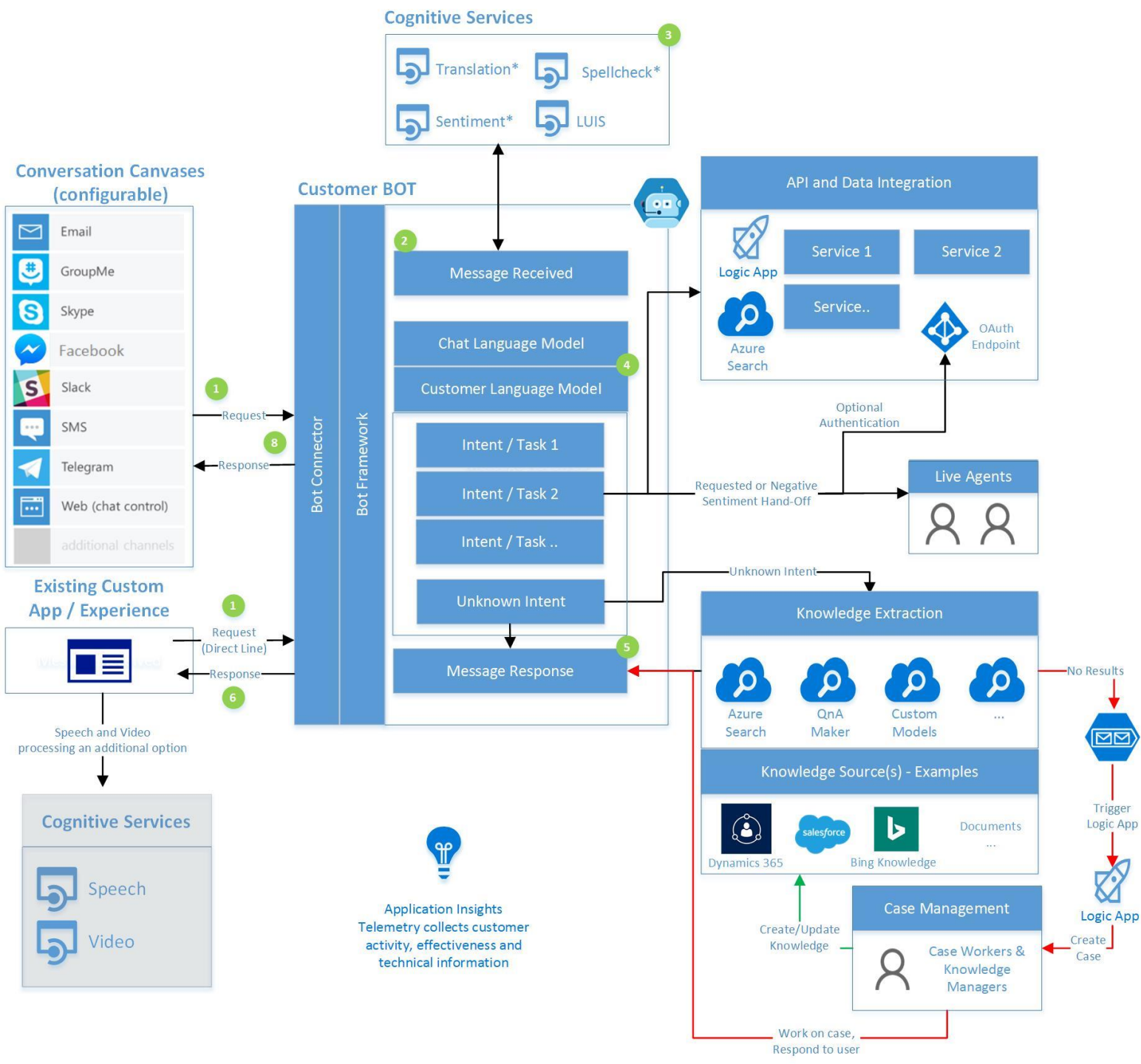
Help!

Introduce Yourself

```
private async Task<Activity>
HandleSystemMessage(Activity
message)
{
    ...

    else if (message.Type ==
ActivityTypes.ConversationUpdate)
    {
        // Your introduction here
    }
}
```

Knowledge and Tasks



what is in my schedule



**2/8/2017: 13:00 - 14:15 WSCT301
(WSCC) 205**

Cognitive Services

Remove from schedule

More information



**2/8/2017: 14:45 - 16:00 WSCT302
(WSCC) 205**

Cortana and Bots (Conversation as a Platform)

Remove from schedule

More information

UX and language sophistication

what is my balance



Sorry, I need you to authenticate before I can help you with that

Connect

was ist hololens

Microsoft HoloLens ist der erste holographische Computer unter Windows 10. Es ist völlig ungebunden – keine Drähte, Telefone oder Anschluss an einen PC benötigt. Microsoft HoloLens können Sie Hologramme in Ihrer physischen Umgebung und bietet eine neue Möglichkeit, Ihre Welt zu sehen.



Unterstützung von Bild

* Powered by Dynamik 365 Knowledgebase * (39,41 %)

Half, die Antwort auf Ihre Frage?

Ja

Nein

Teilweise

Translation

Introduce
yourself

Knowledge
and Tasks

UX / Language
sophistication

Translation

General
Knowledge

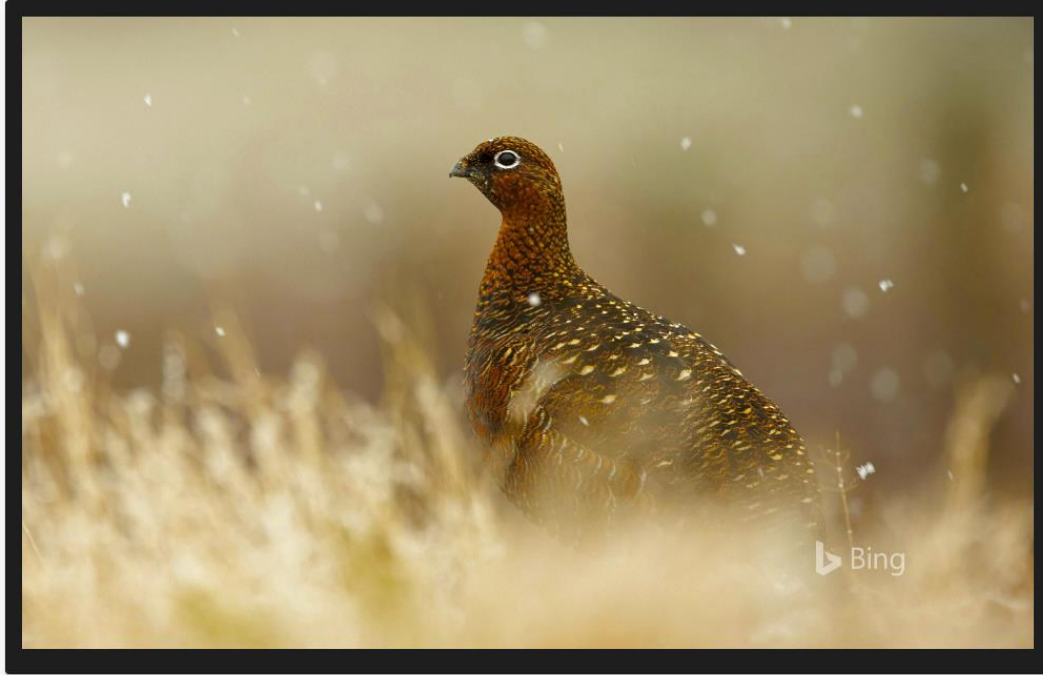
Personality

Search
Powered

Exception
Handling

Attachments

Bot at 08:50:41



User

I think it's a close up of a bird

Attachments

Next steps

Experiment! Start with understanding the end users needs...

Sign up for a free Azure Trial

<https://azure.microsoft.com/en-us/free/>

Microsoft Bot Framework

<https://dev.botframework.com/>

Cognitive Services

<https://www.microsoft.com/cognitive-services/en-us/>

