The background image shows a modern office building's interior. It features a series of curved, glass-enclosed walkways or stairs that connect different floors. People are seen walking on these walkways, some in silhouette against the bright light coming through the glass. The ceiling is high and supported by a complex network of steel beams and glass panels.

Cognitive Services & BOT

Mehul Shah
Cloud Solution Architect



“

OUR GOAL IS TO **DEMOCRATIZE A.I.**
TO EMPOWER EVERY PERSON
AND EVERY ORGANIZATION
TO **ACHIEVE MORE**

”

SATYA NADELLA



Microsoft AI

For every person and every organization



Agent



Applications



Services



Infrastructure



Agent

Cortana

Knows you | Knows your work + life | Knows the world

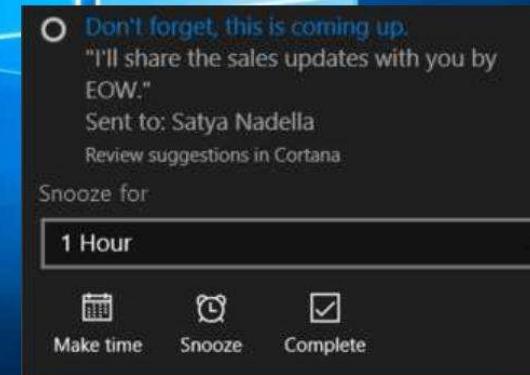
1,000+ skills and knowledge

133 million users | 12 billion questions



DIGITAL PERSONAL ASSISTANTS







Applications

Office 365

Dynamics 365

Flow Keyboard

Pix

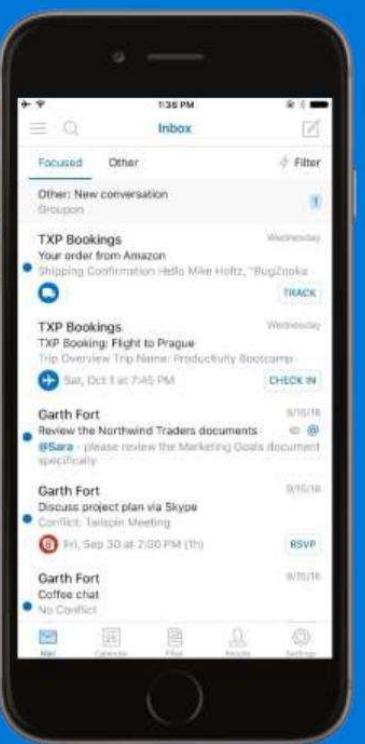
Customer Service and Support

Skype

Teams

Calendar.help

Focused Inbox



A Microsoft Outlook window titled 'Focused' showing the inbox. The inbox is organized by time: 'Last Week', 'Two Weeks Ago', and 'Earlier this Month'. Items include a message from 'TXP Bookings' about an order from Amazon, a draft from 'Garth Fort' about a review, and a message from 'Garth Fort' about a project plan. The right side of the window shows a preview of an email from 'SaraD@MOD830899.onmicrosoft.com' and a list of recent messages and notifications.



MyAnalytics

Search

Home
Me
MyAnalytics
Favorites

People
Bruno Zhao
Guadalupe Carr
Owen Jarrett
Ladonna Roman
Wendy James
Juliette Joyner
Joshua Vemburen

Boards
Marketing Campaigns

Get Delve mobile app
Are my documents safe in Delve?

Ask me anything

MyAnalytics

9/4/2016 - 9/10/2016

Your time

Based on your calendar and inbox with your time settings

Time settings

Meeting hours	Email hours	Focus hours	After hours
18.5 hours Edit goal	10.5 hours Edit goal	11.5 hours Edit goal	8.7 hours Edit goal

Goal + 15 hours
Goal + 12 hours
Goal + 10 hours
Goal + 5 hours

Network

Stay in touch

Important Tap collaborators

Search to add View details

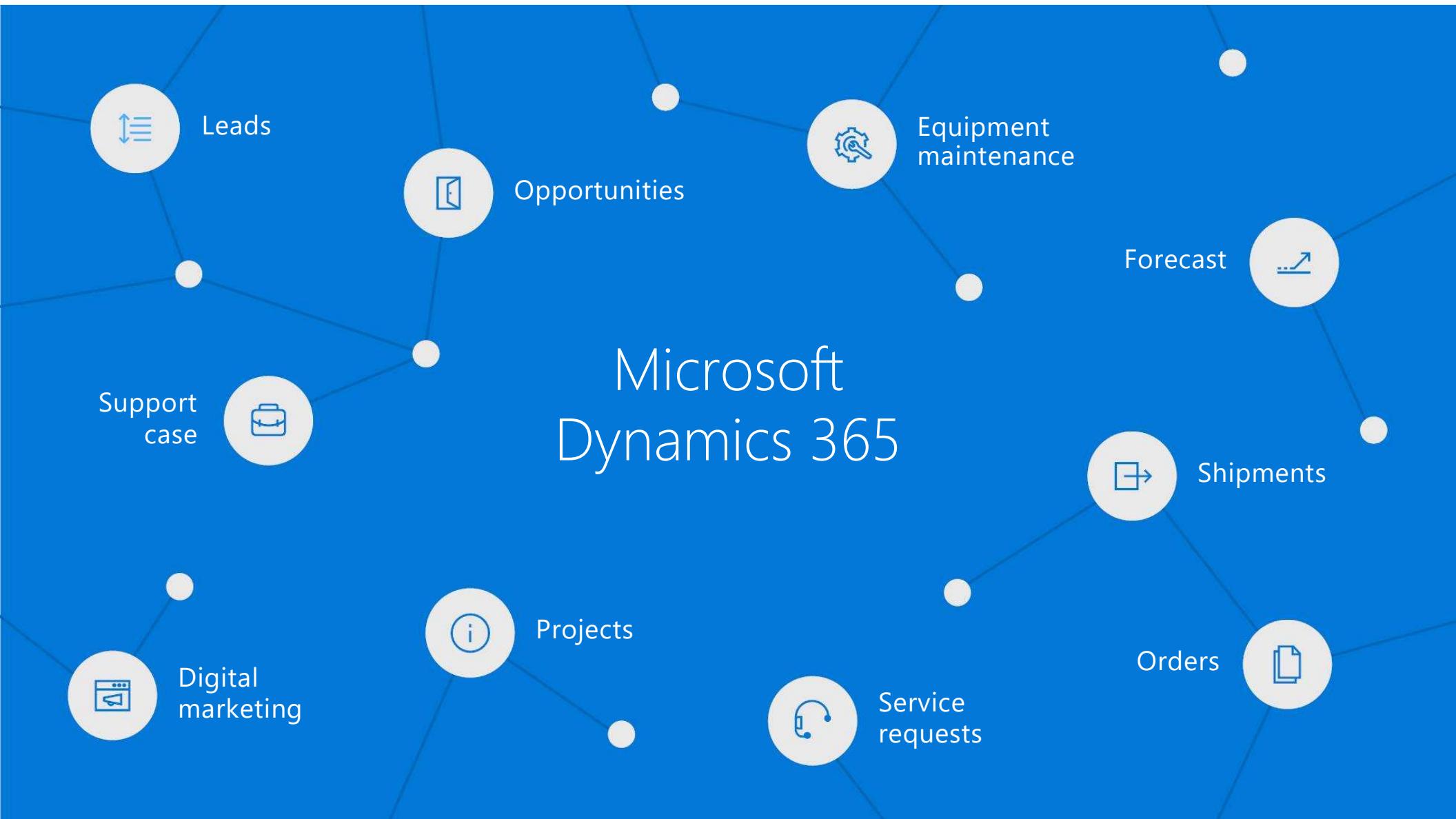
Isiah Langer	Megan Bowen	Johanna Lorenz	Enrico Cattaneo
Marketing Manager	Auditor	CHI Engineering	Analyst
Collaboration time	4 hr	Collaboration time	0 hr
Your read percentage	88%	Your read percentage	100%
Your response time	2 hr	Your response time	30 min

...
117 PM 7/15/2016

Calendar.help



Microsoft Dynamics 365



Intelligence from the web graph



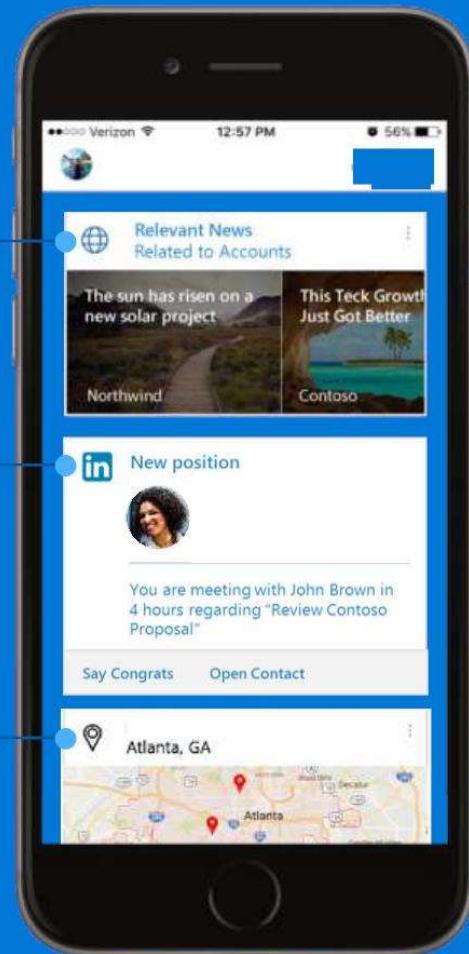
Relevant News



Your connections



Your schedule & travel



Intelligence from the CRM graph



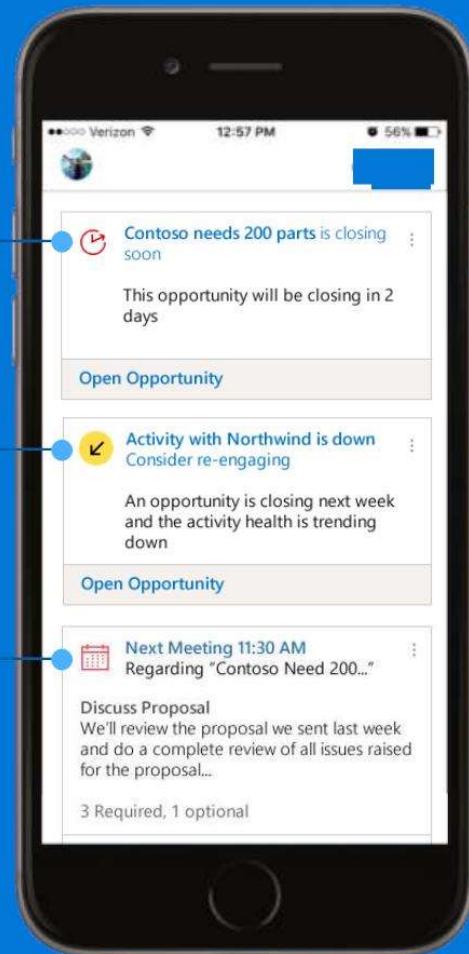
Close alert



Monitor account activity



Action





Services

Cortana Intelligence

Cognitive Services

Bot Framework

Cortana Devices SDK

Cortana Skills Kit SDK

Cognitive Toolkit



CORTANA DEVICES SDK

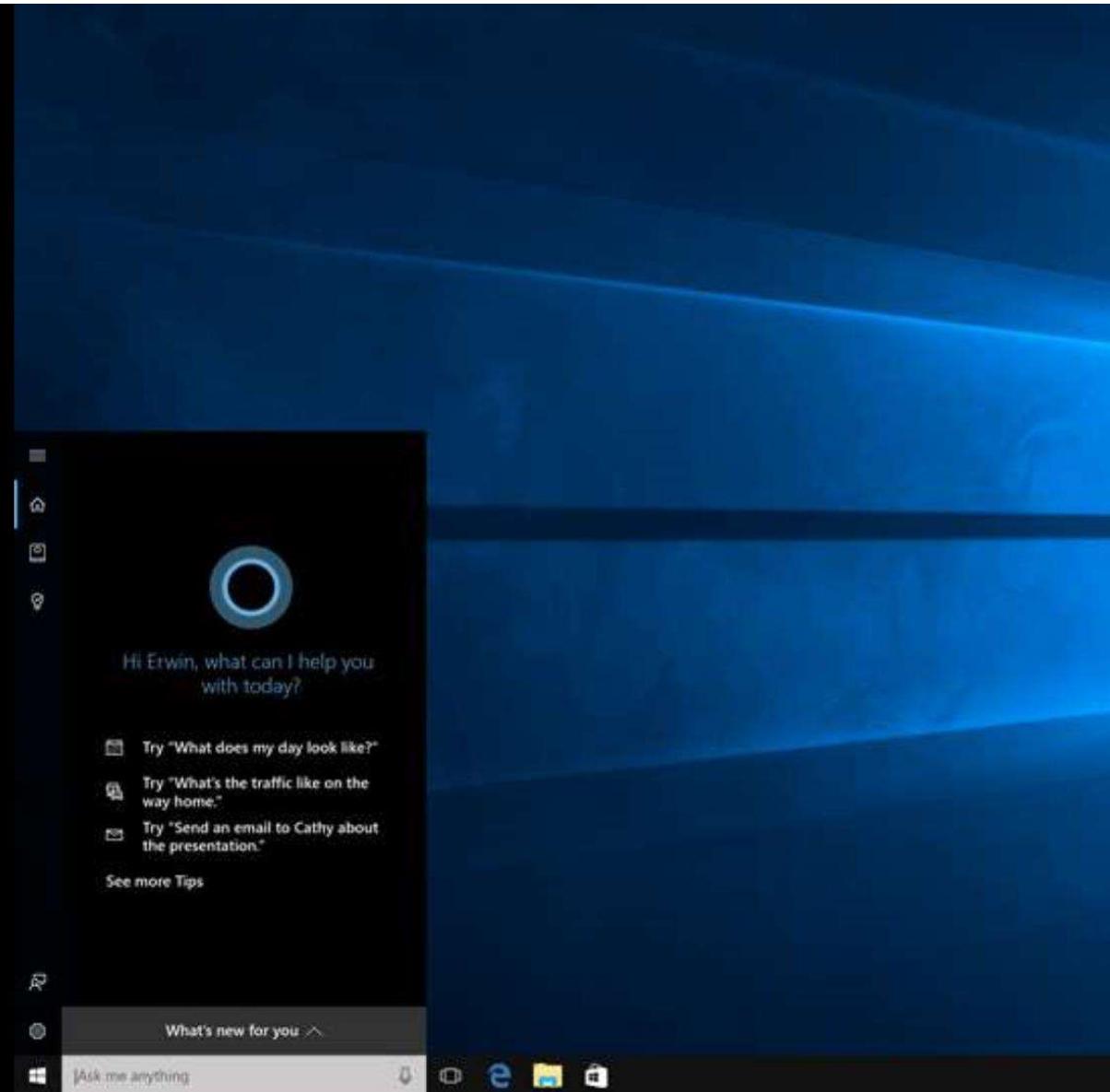




Cortana
Devices
SDK



CORTANA SKILLS KIT





Cortana's got skills

A number of partners are currently developing skills for Cortana. Some of the first skills are now available¹ as an early preview and are listed below. Many of these skills work best on Windows 10 Creators Update, in addition to Android and iOS.² For any skills that aren't working for you, please provide us feedback in Cortana using the feedback button.

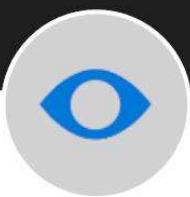
Featured: All

 Dark Sky "Hey Cortana, ask Dark Sky for today's forecast." <small>● ○ ○</small> LEARN MORE	 Domino's Pizza "Hey Cortana, ask Domino's to place my Easy Order." <small>● ○ ○</small> LEARN MORE	 Food Network "Hey Cortana, ask Food Network for brunch recipes by Ina Garten." <small>● ○ ○ ○</small> LEARN MORE	 Safeco Insurance "Hey Cortana, open Insurance Advisor." <small>● ○ ○</small> LEARN MORE	 OpenTable "Hey Cortana, ask Open Table to reserve a table at Palomino." <small>● ○ ○</small> LEARN MORE
 Progressive "Hey Cortana, ask Progressive Insurance for tips to save money on my car." <small>● ○ ○</small> LEARN MORE	 Skyscanner "Hey Cortana, ask Skyscanner if the BA flight to Edinburgh is on time?" <small>● ○ ○</small> LEARN MORE	 StubHub "Hey Cortana, ask StubHub to find me concerts this weekend." <small>● ○ ○</small> LEARN MORE	 TuneIn "Hey Cortana, play 90.3 on TuneIn." <small>● ○ ○</small> LEARN MORE	 iHeartRadio "Hey Cortana, play Z100 on iHeartRadio." <small>● ○ ○</small> LEARN MORE



Microsoft Cognitive Services

Give your apps a human side



Vision

From faces to feelings, allow your apps to understand images and video



Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



Language

Process text and learn how to recognize what users want



Knowledge

Tap into rich knowledge amassed from the web, academia, or your own data



Search

Access billions of web pages, images, videos, and news with the power of Bing APIs



Labs

An early look at emerging Cognitive Services technologies: discover, try & give feedback on new technologies before general availability

Microsoft Cognitive Services

Give your apps a human side



Vision

Computer Vision
Content Moderator
Emotion
Face
Video
Video Indexer

Speech

Bing Speech
Speaker Recognition

Language

Bing Spell Check
Linguistic Analysis
Text Analytics
Translator Text & Speech
Web Language Model

Knowledge

Academic Knowledge
Entity Linking
Knowledge Exploration
Recommendations
QnA Maker

Search

Bing Autosuggest
Bing Image Search
Bing News Search
Bing Video Search
Bing Web Search
Bing Entity Search

Labs

Project Prague (gesture)
Project Cuzco (events)
Project Johannesburg (routing)
Project Nanjing (isochrones)
Project Abu Dhabi (distance matrix)
Project Wollongong (location)

CUSTOMIZATION

Custom Vision Service

Custom Speech Service

Language Understanding

Custom Decision Service

Bing Custom Search

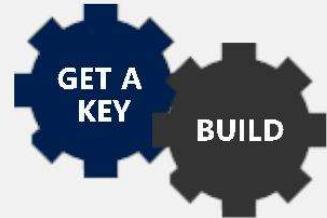
Why Microsoft Cognitive Services?



Easy

Roll your own with REST APIs

Simple to add: just a few lines of code required



Flexible

Integrate into the language and platform of your choice
Breadth of offerings helps you find the right API for your app
Bring your own data for your custom experience



Tested

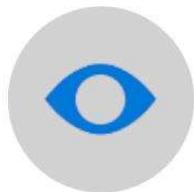
Built by experts in their field from Microsoft Research, Bing, and Azure Machine Learning

Quality documentation, sample code, and community support





Vision



Computer Vision API

Distill actionable information from images



Face API

Detect, identify, analyze, organize, and tag faces in photos



Emotion API

Personalize experiences with emotion recognition



Video API

Analyze, edit, and process videos within your app



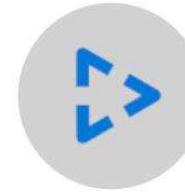
Content Moderator

Machine-assisted moderation of text and images, augmented with human review tools



Custom Vision Service

Customizable web service that learns to recognize specific content in imagery



Video Indexer

Process and extract smart insights from videos



Intelligent Kiosk



Speech



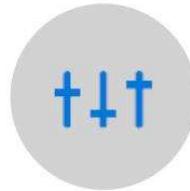
Bing Speech API

Convert speech to text and back again, and understand its intent



Speaker Recognition API

Give your app the ability to know who's talking



Custom Speech Service

Fine-tune speech recognition for anyone, anywhere

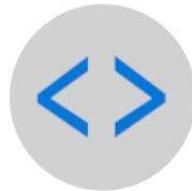


Language



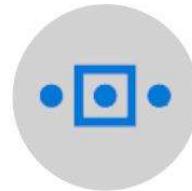
Bing Spell Check API

Detect and correct spelling mistakes within your app



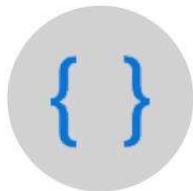
Web Language Model API

Leverage the power of language models trained on web-scale data



Linguistic Analysis API

Easily parse complex text with language analysis



Language Understanding Intelligent Service

Teach your apps to understand commands from your users



Text Analytics API

Detect sentiment, key phrases, topics, and language from your text



Translator

Easily perform speech and text translation



Knowledge



Academic Knowledge API

Explore relationships among academic papers, journals, and authors



Knowledge Exploration Service

Add interactive search over structured data to your project



Entity Linking Service

Contextually extend knowledge of people, locations, and events



Recommendations API

Provide personalized product recommendations for your customers



Custom Decision Service

Create custom experiences with adaptive, contextual decision-making



QnA Maker

Distill information into conversational, easy-to-navigate answers



QnA Maker

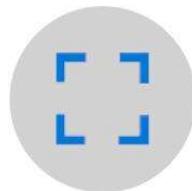


Search



Bing Web Search API

Connect powerful search to your apps



Bing Image Search API

Bring advanced image and metadata search to your app



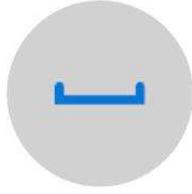
Bing Video Search API

Trending videos, detailed metadata, and rich results



Bing News Search API

Link your users to robust and timely news searches



Bing Autosuggest API

Give your app intelligent autosuggest options for searches



Bing Entity Search

Enrich user experiences with contextual entity search results



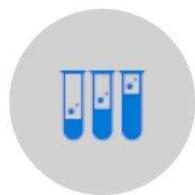
Bing Custom Search

Create a highly-customized web search experience



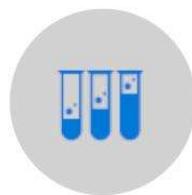
Microsoft Cognitive Services Labs

An early look at emerging Cognitive Services technologies:
discover, try, and give feedback on new technologies before general availability



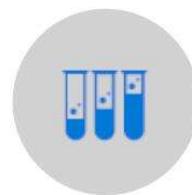
Project Prague

Gesture based controls



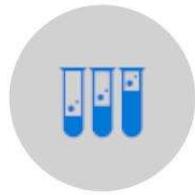
Project Cuzco

Event associated with Wikipedia



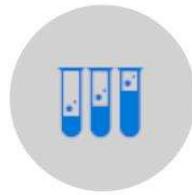
Project Johannesburg

Route logistics



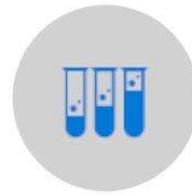
Project Nanjing

Isochrones calculations



Project Abu Dhabi

Distance matrices



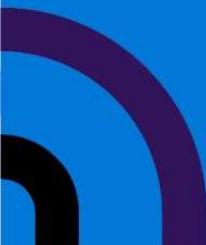
Project Wollongong

Score location attractiveness

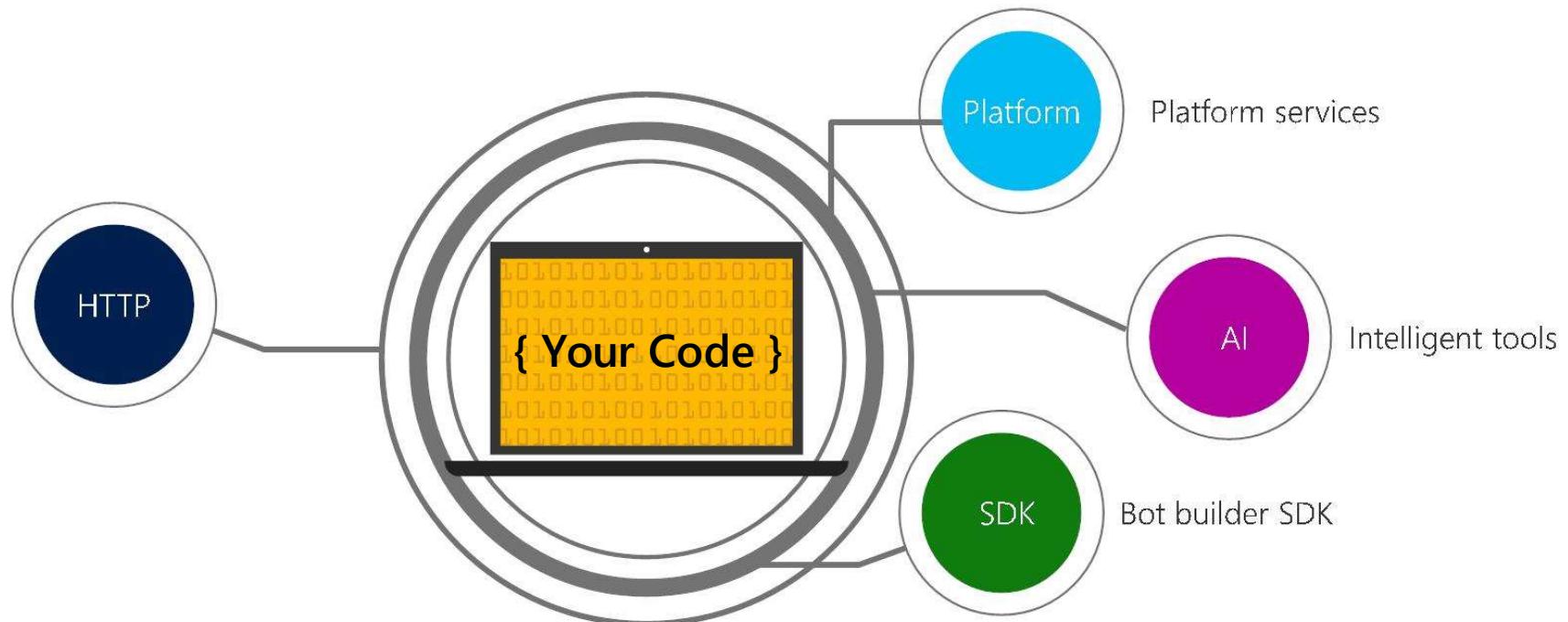


Conversation as a platform

BOT demo



What is a bot?



REST endpoint
[Direct Line Protocol](#)



Conversational and
business logic

Canvas aware

Context
sensitive

What is the bot framework?

What?

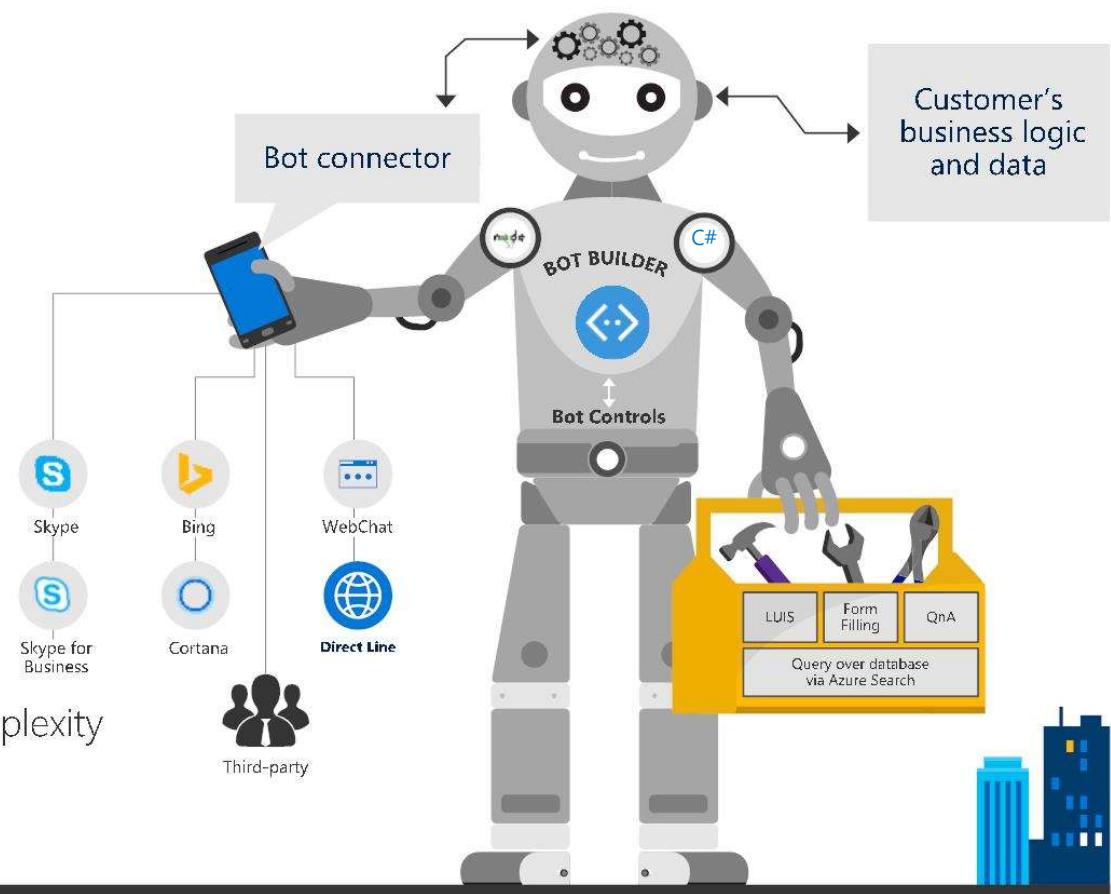
- Tools for building REST websites
- Services to enrich
- Mechanisms for receive events
- Data to debug and tools to analyze

Why?

- Implements standard protocols
- Modeling conversations is hard; tools help!
- UI across multiple canvases is hard; cards rock!
- Language understanding is hard
- Common and well understood patterns

Goals

- Start simple; add complexity; no dead-ends
- Bot adapts to the user, based on context
- Composable and intelligent controls to manage complexity



Bot patterns

01 Information Retrieval

Lookup, reference and information seeking, scenarios backed by a data source

*"What are the features of service plan A?"
"When are the trains leaving on Thursday?"*

03 Advisory Role

Prescriptive guidance via 'expert systems' based on user input.

*"How much can I save if I switch to payment plan B?"
"Should I add an additional component to my service plan?"*

02 Transactional

Look up info, make amendments, scenarios backed by a data source

*"Upgrade my account to plan B"
"book two tickets for film A on Monday using my credit card"*

04 Social Conversations

Ability to sense sentiment and engage in open-ended conversation within the bots area of expertise.

*"Your product is terrible, I would like a refund."
"I have had a terrible experience, who can I talk to?"*



Bot Channels

 Skype
 Web chat
 Direct Line
 Email O365
 Facebook Messenger
 GroupMe
 Kik
 Slack
 SMS
 Telegram
 Microsoft Teams

Bot

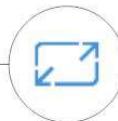
Web Application

Bot Connector

Routes Messages
Manages State
Bot registration/directory
Session Tracking
Per-user, per-bot storage
APIs

BOT CONNECTOR

Adaptive cards



OPEN FRAMEWORK
MULTIPLE CANVASES

Card created: Publish Adaptive Card schema

Miguel Garcia
Created Monday, February 13, 2017 10:08:19

Note that we have define the main rules and features of the format, we need to produce a schema and ...

Board: Adaptive Card
List: Backlog
Assigned to: David Claus
Due date: Not set

[Set due date](#) [Comment](#) [View](#)

Card created: Publish Adaptive Card schema

Miguel Garcia
Created Monday, February 13, 2017 10:08:19 PM

Now that we have define the main rules and features of the format, we need to produce a schema and publish it to GitHub. The schema will be the starting point of our reference documentation.

Board: Adaptive Card
List: Backlog
Assigned to: David Claus
Due date: Not set

[Set due date](#) [Comment](#) [View](#)

Card Created: Publish...

Miguel Garcia
Created Monday, February 13, 2017

Note that we have define the main rules and features of the format, we need to produce a schema and publish it to ...

Board: Adaptive Card
List: Backlog
Assigned to: David Claus
Due date: Not set

Card Created: Publish...

Miguel Garcia
Created Monday, February 13, 2017

Note that we have define the main rules and features of the format, we need to produce a schema and publish it to ...

Board: Adaptive Card
List: Backlog
Assigned to: David Claus
Due date: Not set

Notification

Microsoft Teams

Skype

Android

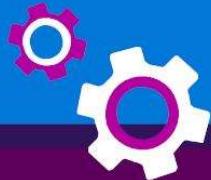
iOS

BOT BUILDER SDK

▶ C#

▶ NodeJS

▶ Cross platform emulator



This repository Search Pull requests Issues Gist

Microsoft / BotBuilder

Code Issues 184 Pull requests 12 Projects 0 Pulse Graphs

The Microsoft Bot Builder SDK is one of three main components of the Microsoft Bot Framework. It provides just what you need to build and connect intelligent bots that interact naturally with people via text/SMS to Skype, Slack, Office 365 mail and other popular services. <http://botframework.com>

1,655 commits 6 branches 54 releases

Branch: master New pull request Create new

Stevenic Updated to support TypeScript 2.1 ...

CSharp Merge pull request #1936 from brandonh-msft/promptdialog-fixes

Node Updated to support TypeScript 2.1

.gitattributes More documentation.

Contributing.md Update Contributing.md

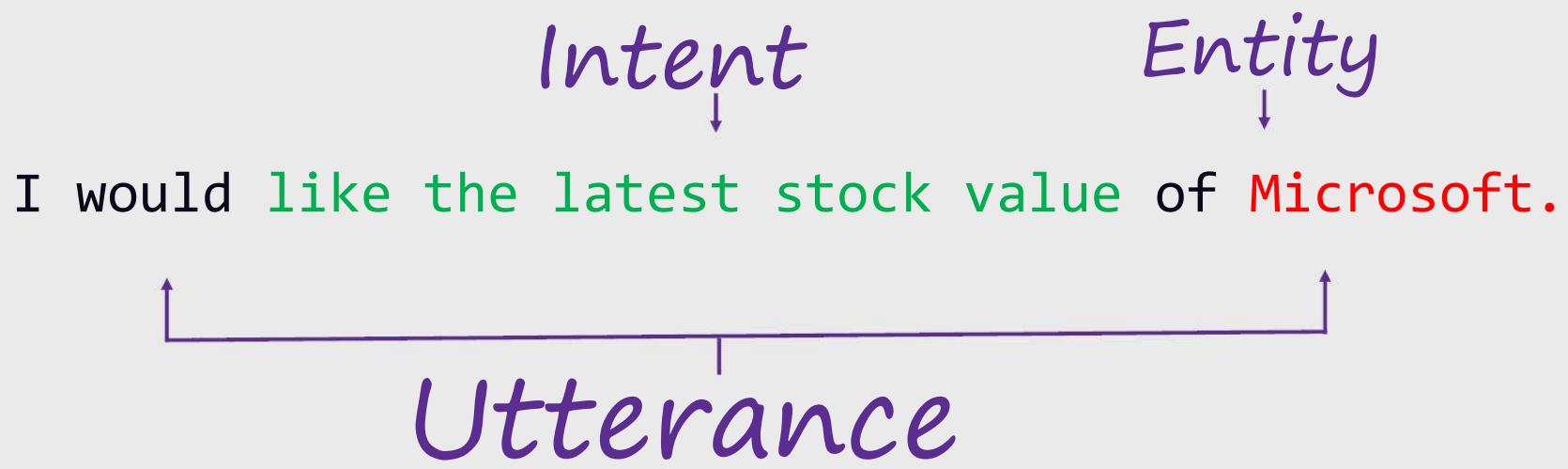
LICENSE Update LICENSE

README.md Update README.md

README.md

Bot Builder SDK





Luis

LANGUAGE UNDERSTANDING

Top requested features

- Production staging and versioning
- More languages (Dutch, Korean, dialects)
- Increased intent and entity limits
- 25 customizable prebuilt domains

More new features

- Lists
- Improved recognizers(*)
- Semantic dictionaries
- Spell checking

(*) Recognizers are open-sourced

Luis

LANGUAGE UNDERSTANDING

Pre-built domains

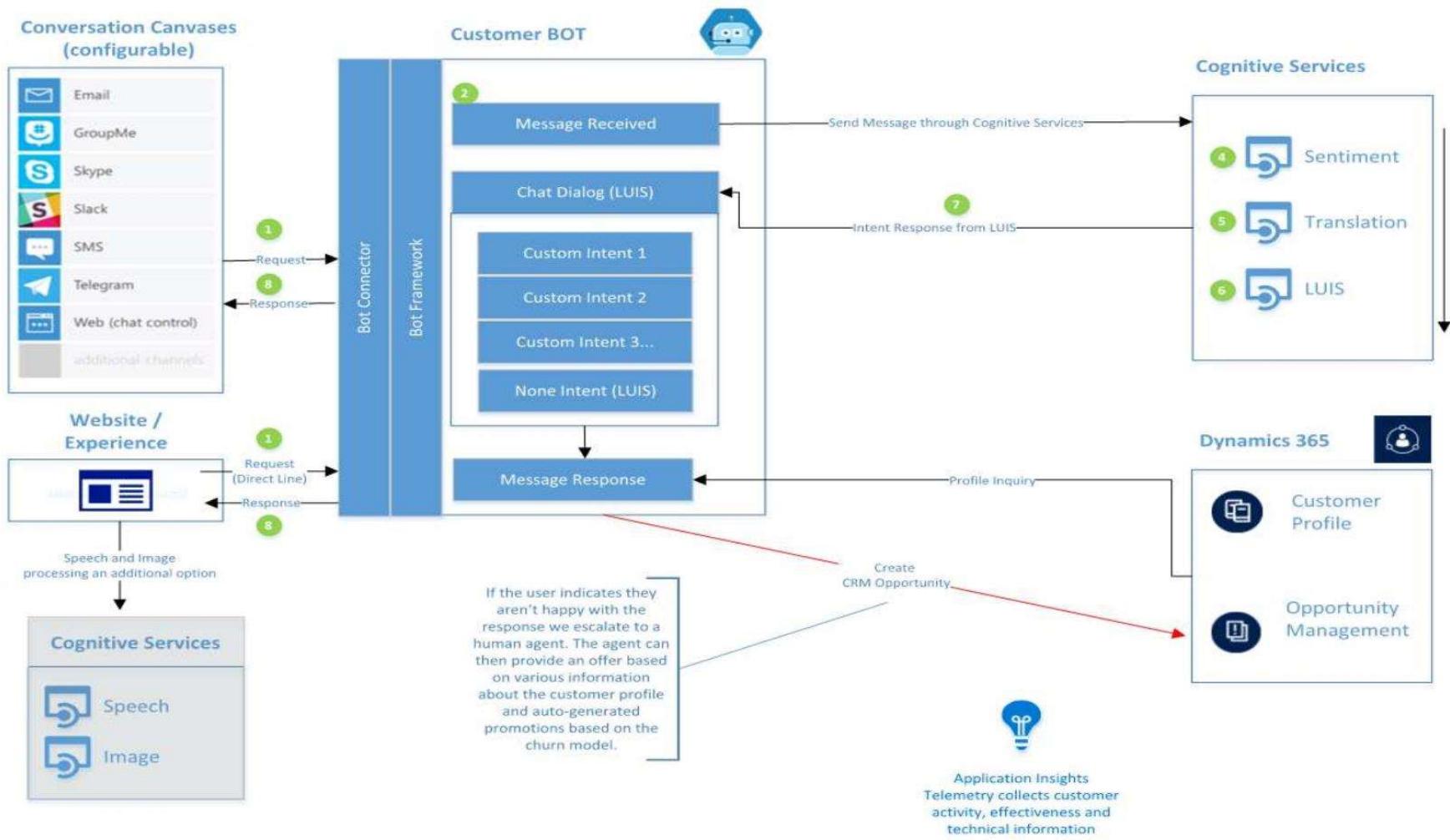
- Predefined packages
- Bootstrap model creation
- Customizable!

Examples of pre-built domains

- | | |
|---------------|-------------------|
| ○ Sports | ○ Entertainment |
| ○ Weather | ○ Fitness |
| ○ Stock | ○ Home automation |
| ○ Contacts | ○ Music |
| ○ Calendar | ○ Translation |
| ○ Restaurants | ○ Movie tickets |

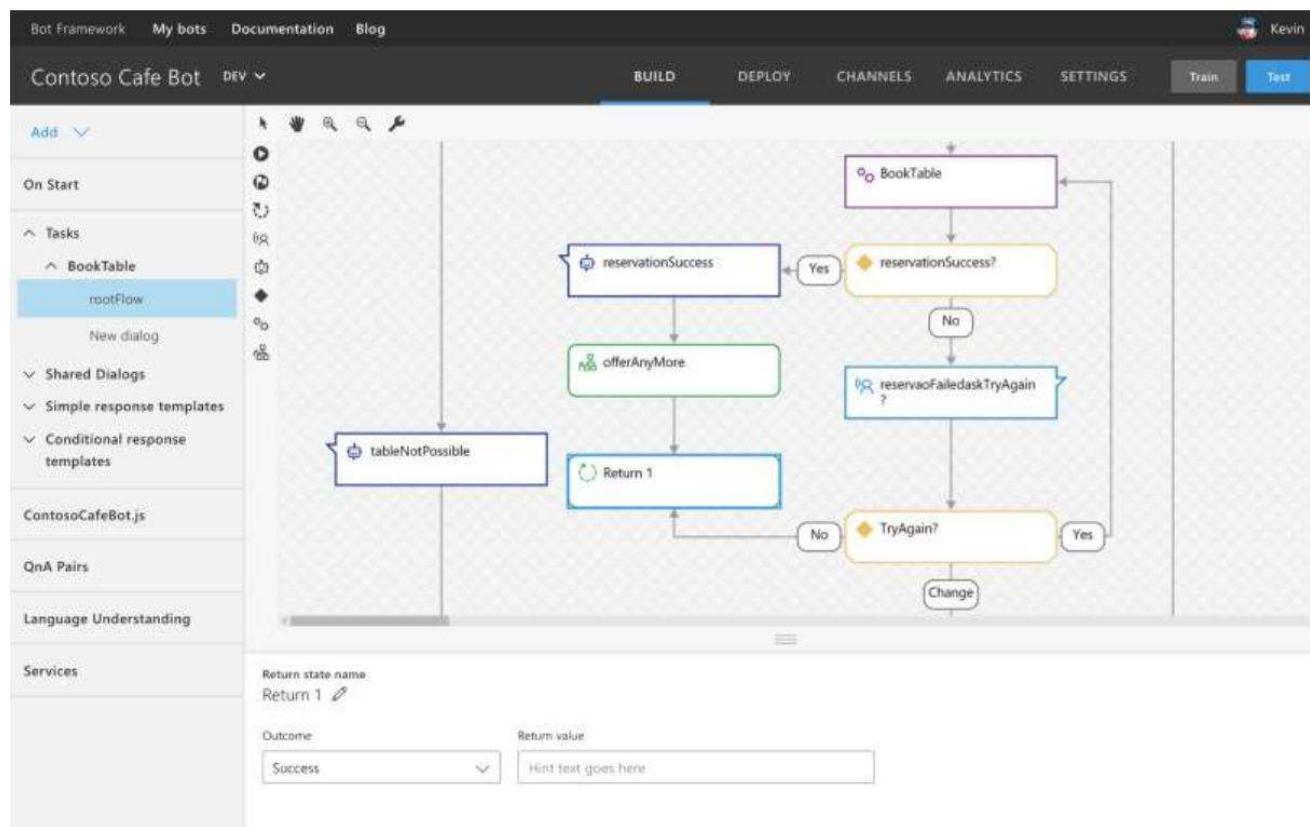
Bot analytics





Azure bot service v.Next

Conversation designer



Bot discovery

BING SEARCH FOR BOTS

- Bing Search Terms**
- Top bots
 - Top Skype bots
 - Famous Skype bots
 - Best Facebook bots
 - Latest Slack bots

The image shows two side-by-side Bing search results pages. The left page is titled "top bots" and the right page is titled "best skype bots". Both pages have a "Web" tab selected and show search results for bots across various platforms: AI, Telegram, Facebook, Slack, and Skype.

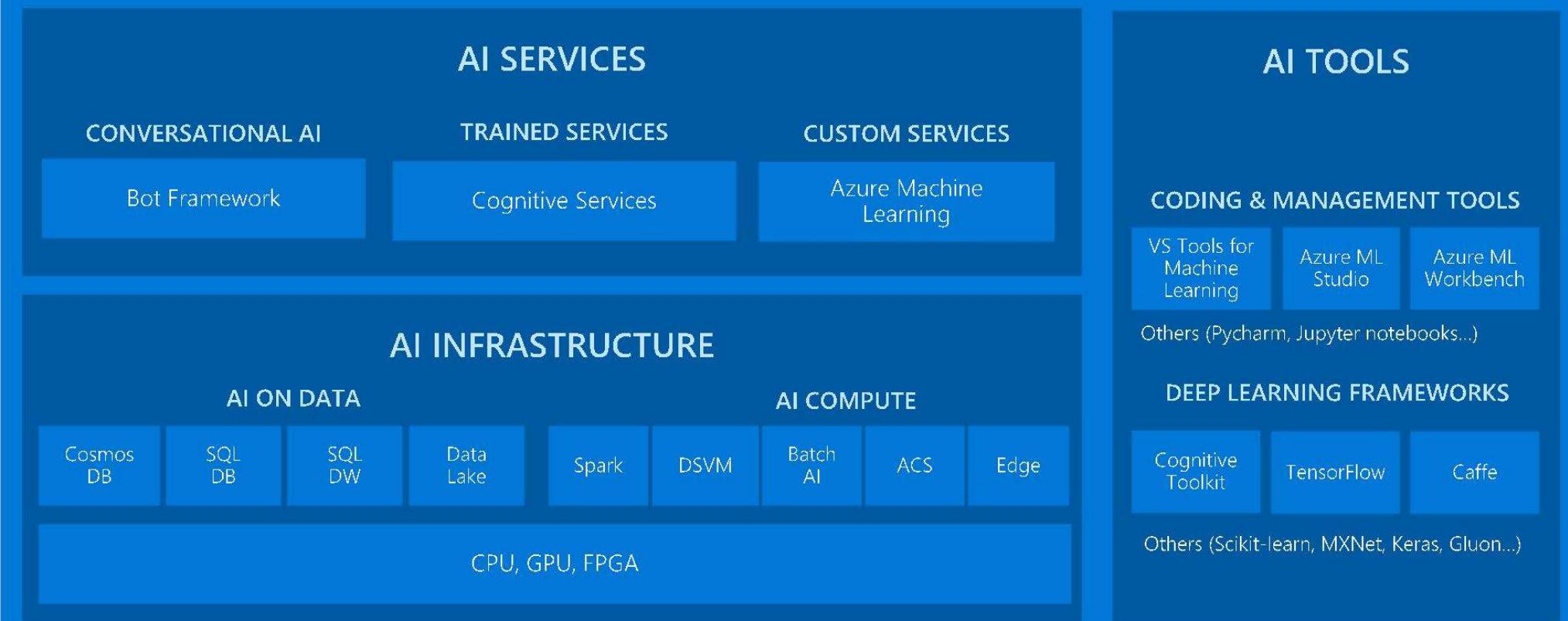
Search Results for "top bots":

- Wiwatheman (4.5 stars, 1790 reviews)
- My AIEExpress (4.5 stars, 1320 reviews)
- Zodiac (4.5 stars, 1190 reviews)
- MyPokerBot (4.5 stars, 1140 reviews)
- VK Music Bot (4.5 stars, 1060 reviews)
- Amazon Search n' (4.5 stars, 987 reviews)

Search Results for "best skype bots":

- Expedia (4.5 stars, 1120 reviews)
- UPS Bot (Beta) (4.5 stars, 1070 reviews)
- Movie Night (4.5 stars, 1040 reviews)
- Youtube MP3 Downloader (4.5 stars, 1020 reviews)
- Hipmunk (4.5 stars, 980 reviews)
- Findo (4.5 stars, 970 reviews)

The Microsoft AI platform



Call to action

- Build bots—<https://dev.botframework.com/>
- Docs—<https://docs.microsoft.com/en-us/bot-framework/>
- GitHub—<https://github.com/Microsoft/BotBuilder>
- Continue your education at [Microsoft Virtual Academy](#) online

Code resources

Microsoft Cognitive Toolkit (CNTK) website

- Tutorials: <https://docs.microsoft.com/en-us/python/cognitive-toolkit/tutorials?view=cntk-py-2.0>
- Code examples: <https://github.com/Microsoft/CNTK/tree/master/Examples>

In-depth tutorials

- Object detection: <https://github.com/azure/ObjectDetectionUsingCntk>
- Image Similarity: <https://github.com/Azure/ImageSimilarityUsingCntk>
- Image Classification: <https://github.com/Azure/ImageClassificationUsingCntk> (coming soon)

Solution guide

- Object detection: <https://github.com/Azure/cortana-intelligence-product-detection-from-images>