



# MICROSOFT BOT FRAMEWORK

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# THE QUEST FOR ANSWERS...



# MICROSOFT A.I



## Agent

Cortana



## Applications

Office 365  
Dynamics 365  
SwiftKey  
Pix  
Customer Service  
and Support



## Services

Bot Framework  
Cognitive Services  
Cortana Intelligence  
Cognitive Toolkit



## Infrastructure

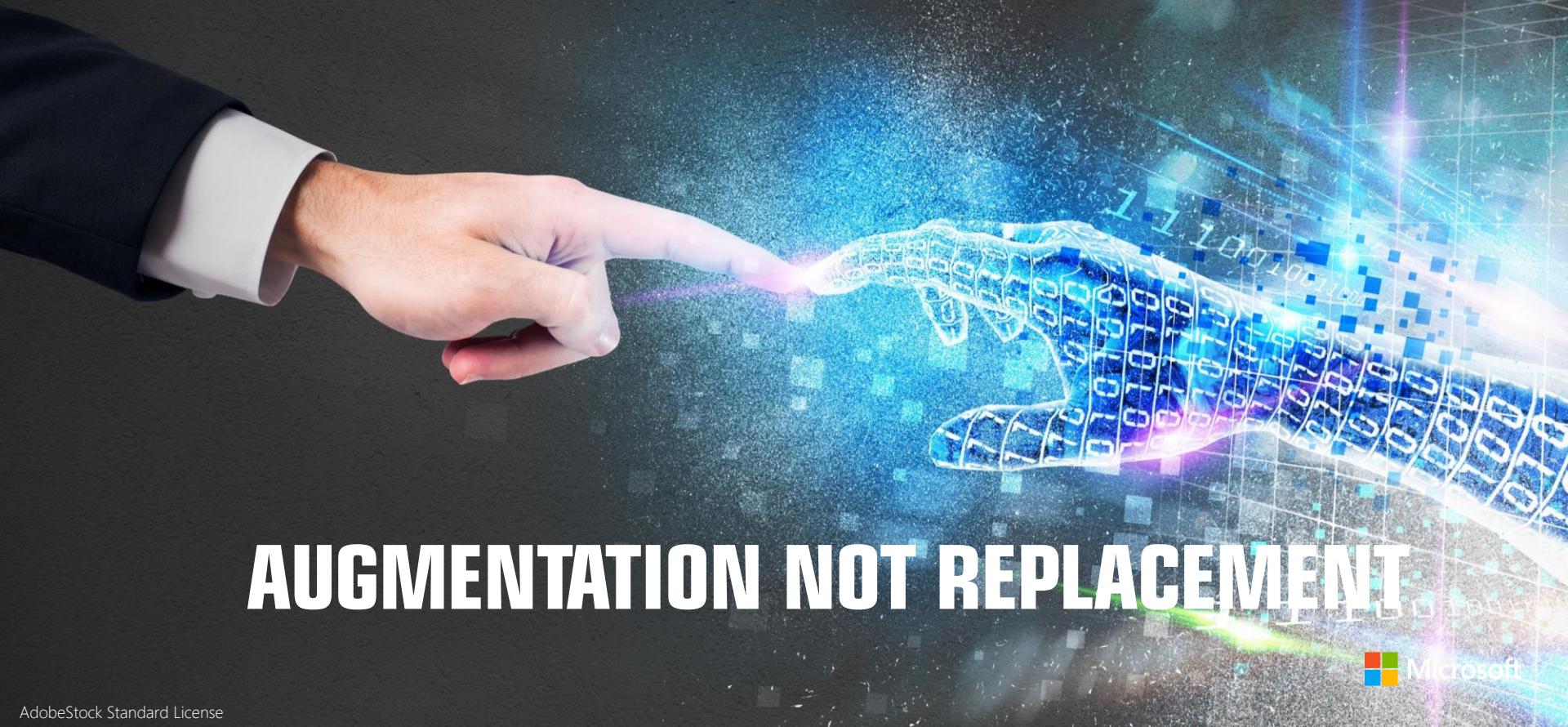
Azure Machine  
Learning  
Azure – CPU/GPU at  
scale



"OUR GOAL IS TO DEMOCRATISE A.I.  
TO EMPOWER EVERY PERSON  
AND EVERY ORGANISATION  
TO ACHIEVE MORE"

SATYA NADELLA

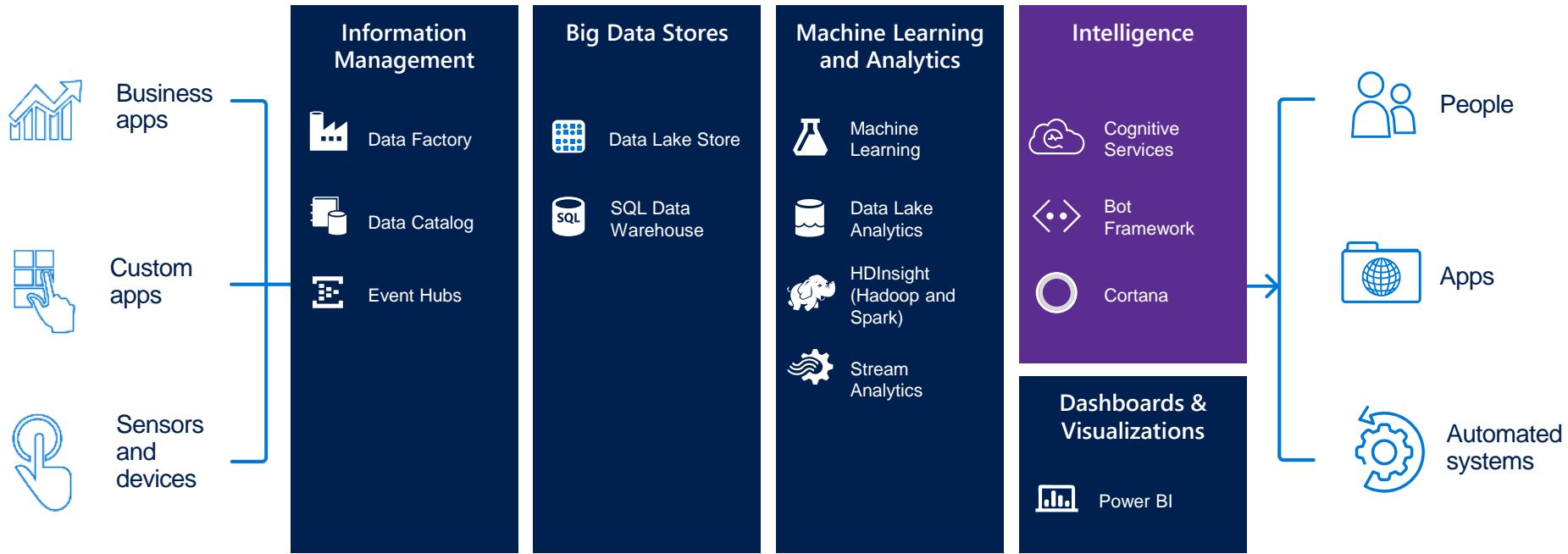
# HUMAN AND MACHINE



## AUGMENTATION NOT REPLACEMENT



# CORTANA INTELLIGENCE SUITE

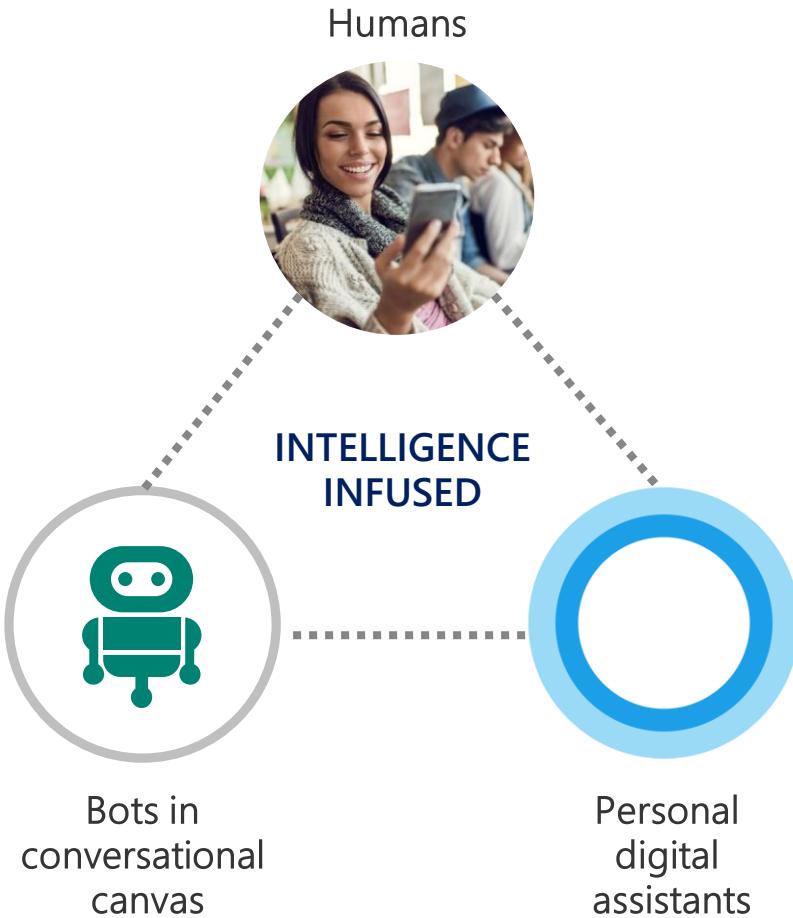


**Data** → **Intelligence** → **Action**

# CONVERSATIONAL INTERFACES



# CONVERSATIONS AS A PLATFORM





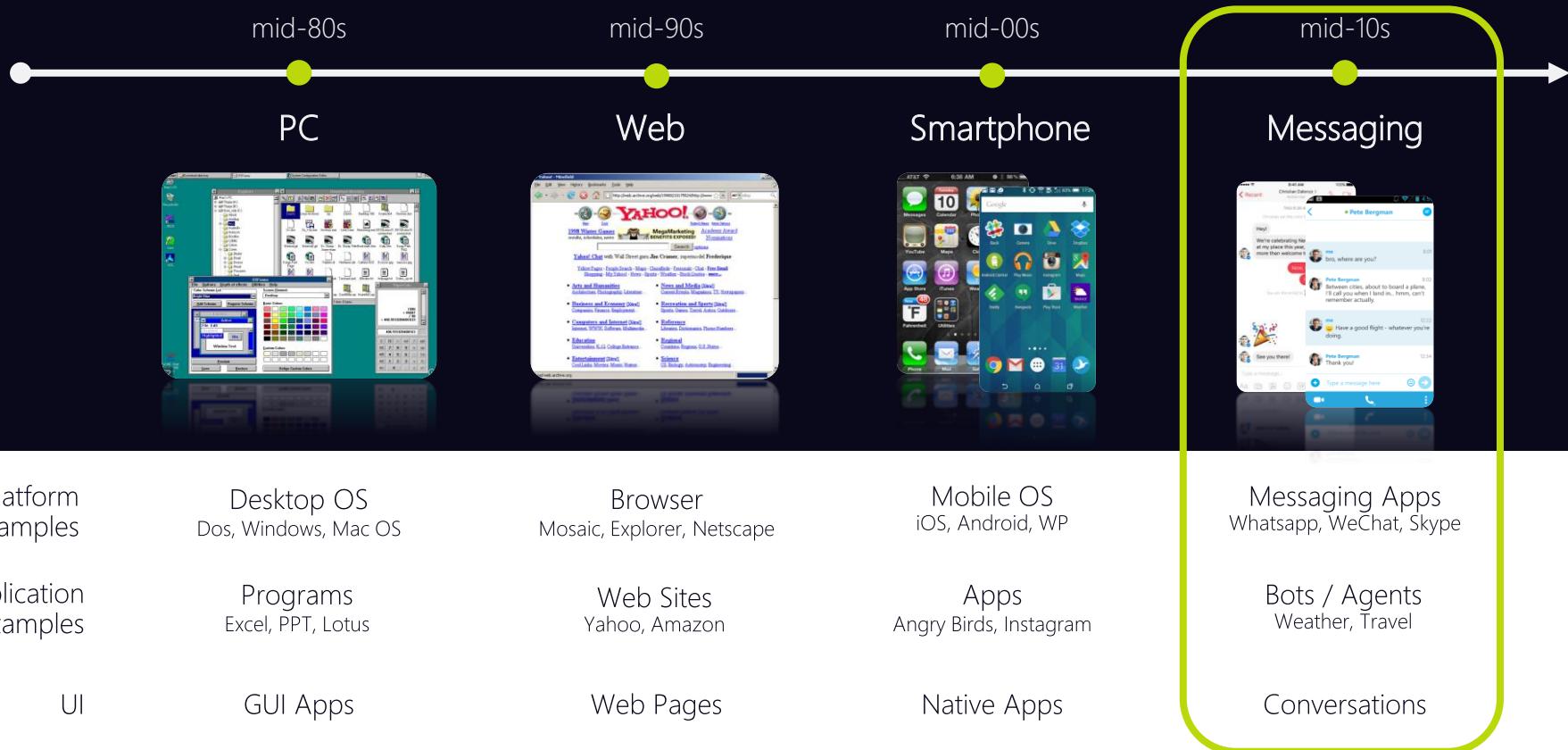
# Cortana Devices SDK



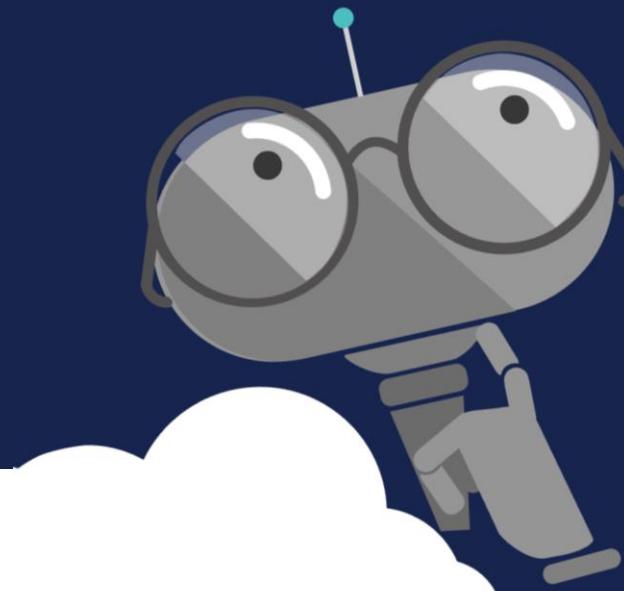


# The world and technology are once again transforming

– Satya Nadella, CEO Microsoft



# BOTS: WHAT?



**Repeat with me: ‘bots are apps’**

# BOTS: WHAT?

Like an app, bots ...

- Solve a problem
- Exist in different channels
- Exist across platforms

Unlike apps, bots are ...

- Easier to build
- Quicker to publish
- Easier to publish everywhere

Social



# BOTS: WHY NOW?

## 01 Artificial Intelligence



Machine Learning  
Natural Language  
Processing

## 02 Data



Volume of Data  
Need to extract  
"Insight"

## 03 Messaging Platforms

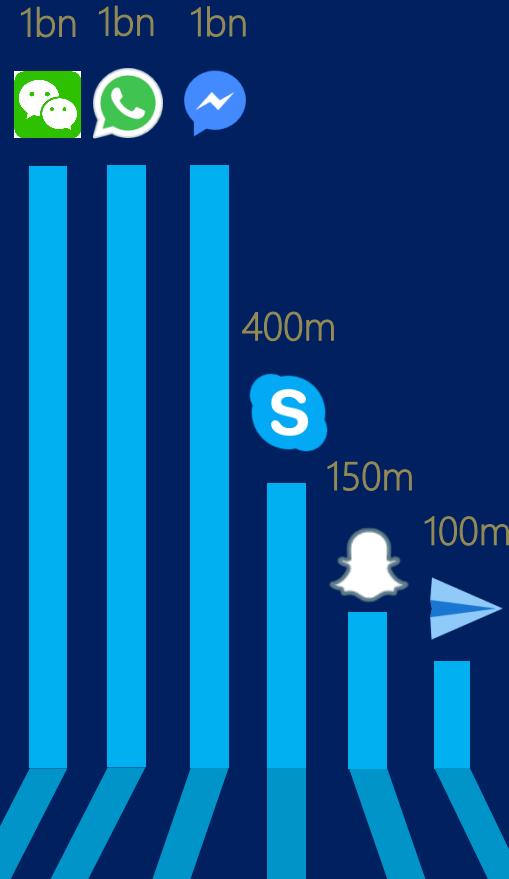


Conversational  
Platform  
Growth in usage

# MESSAGING PLATFORM USAGE

>4 billion

people use messaging  
and chat apps every day



# BOTS: WHAT VALUE?

Opportunity  
for your  
Business?



Cost effective younger users engagement



Customer experience and cost of serving improvement



Improved productivity and team collaboration



New life for enterprise apps

# MICROSOFT BOT FRAMEWORK

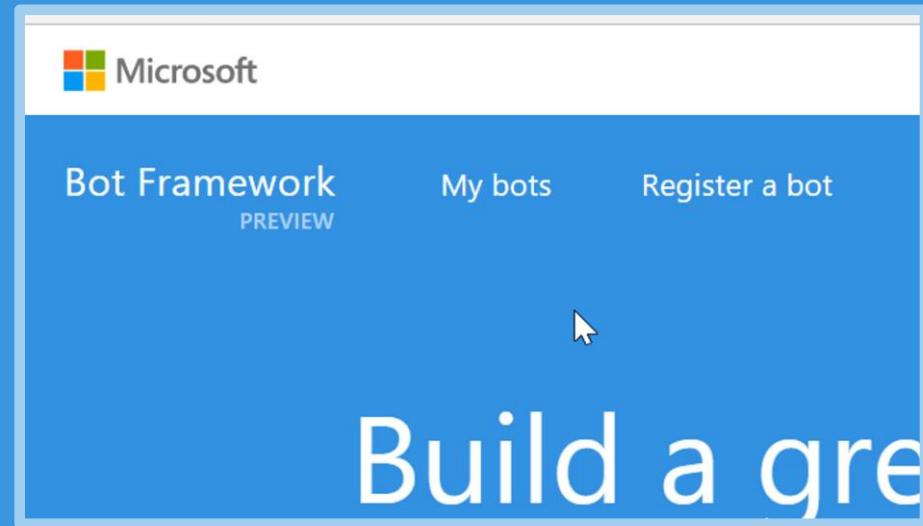
Build a great  
conversationalist.



Sure Lili, I'm happy to help.

# REGISTER

Register your Bot  
Application through Bot  
Framework Portal



# BUILD

Build your Bot using Bot  
Builder C# or Node SDK

```
using System.Net;
using System.Net.Http;
using System.Threading.Tasks;
using System.Web.Http;
using System.Web.Http.Description;
using Microsoft.Bot.Connector;
using Newtonsoft.Json;

namespace CarInsuranceBot
{
    [BotAuthentication]
    public class MessagesController : ApiController
    {
        /// <summary>
        /// POST: api/Messages
        /// Receive a message from a user and reply to it
        /// </summary>

        public async Task<HttpResponseMessage> Post([FromBody]Activity activity)
        {
            if (activity.Type == ActivityTypes.Message)
            {
                ConnectorClient connector = new ConnectorClient(new Uri(activity.ServiceUrl));
                // calculate something for us to return
            }
        }
    }
}
```

# DISTRIBUTE: MULTIPLE CHANNELS

my electric has gone out

You

It looks like you want to report a problem. I can help with that, I will just need to take a few details.

Energy Ltd

Firstly, can I just check if the problem you have is a dangerous situation which might cause injury?

Energy Ltd at 12:34:19

Type your message...

Web chat

Energy Ltd

My electric is out

It looks like you want to report a problem. I can help with that, I will just need to take a few details.

Firstly, can I just check if the problem you have is a dangerous situation which might cause injury?

Type a message...

Facebook

my electric has gone off 12:36

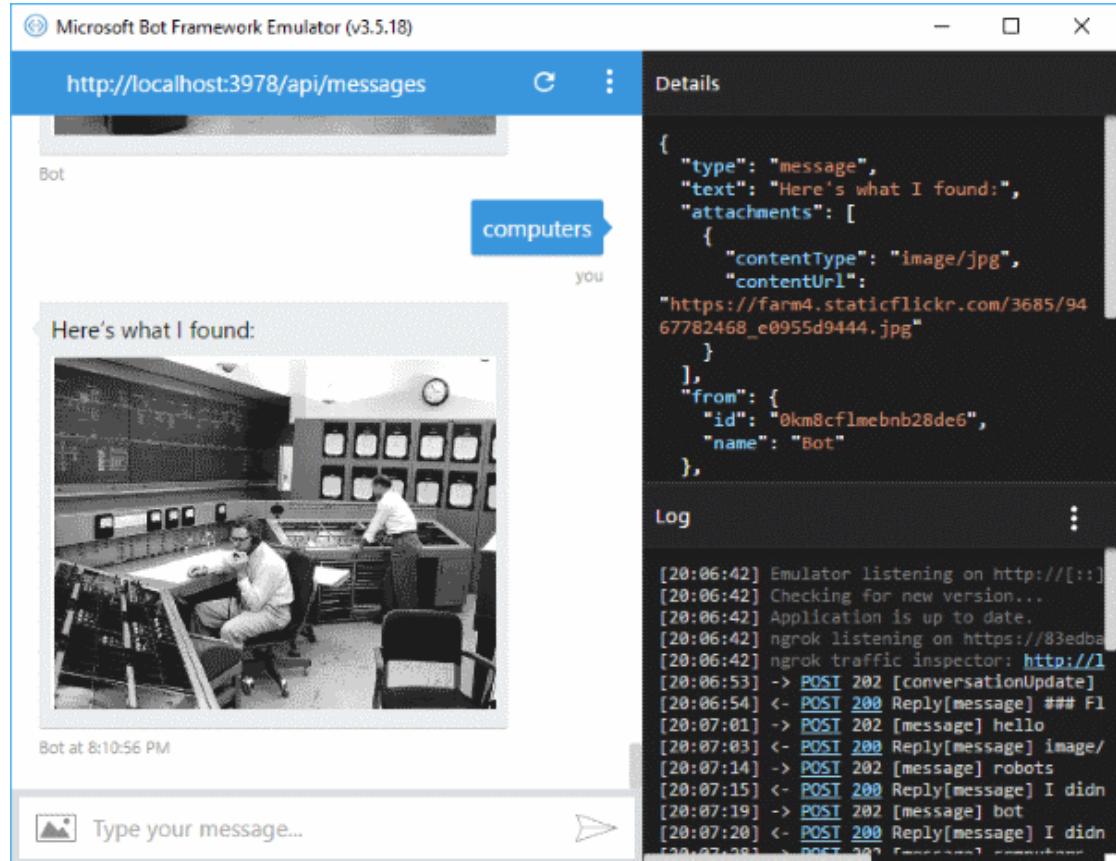
It looks like you want to report a problem. I can help with that, I will just need to take a few details. 12:36

Firstly, can I just check if the problem you have is a dangerous situation which might cause injury? 12:36

Type a message

Skype

# EMULATOR



Download from: <https://github.com/microsoft/botframework-emulator>

# CHANNEL INSPECTOR

The screenshot shows the Microsoft Bot Framework Channel Inspector page. At the top, there's a navigation bar with the Microsoft logo, followed by links for "Bot Framework PREVIEW", "My bots", "Register a bot", "Documentation", "Bot Directory", and "Blog". The main content area has a sidebar on the left with a search bar and a list of channels: All, Documentation Home, Channels (selected), Channel inspector, Skype Features, Web Chat Features, Email Features, Facebook Features, GroupMe Features, Kik Features, Microsoft Teams Features, Slack Features, Telegram Features, and SMS Features.

The main content area features a title "Channel Inspector" and a preview of a mobile messaging interface. The interface shows a message input field with placeholder "Type a message here" and a "Smile" emoji, along with icons for attachments. Below the input field is a "All actions" button menu with options: ImBack, OpenUrl,PostBack, and Signin.

On the right side, there are two dropdown menus: "Channel:" set to "Skype" and "Feature:" set to "Keyboards". Below these dropdowns is a section titled "Buttons" with the subtext "Display of buttons and keyboards." and a link to "Bot Framework Documentation".

At the bottom, there's a "Notes" section with a "Supported" status for "Skype supports inline buttons." and a "Send Feedback" link.

<https://github.com/microsoft/botframework-emulator>

# WHY BOT FRAMEWORK?

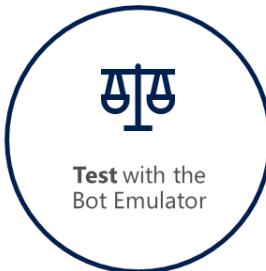
Write once...



**Register** and **manage** your bot



**Build** with the Bot Builder SDK



**Test** with the Bot Emulator



**Deploy** to Azure or other cloud service



**Access** open source code and samples

# WHY BOT FRAMEWORK?

... Publish everywhere



Skype

Web chat

Direct Line

Email O365

Facebook Messenger

GroupMe

Kik

Slack

SMS

Telegram

Microsoft Teams

# AZURE BOT SERVICE

- Start quickly using built-in templates
- C# and Node.js bot dev supported
- No server management or patching needed.
- Scales out automatically
- Pay only for what you use.

The screenshot shows the Microsoft Azure Bot Service interface. At the top, there's a navigation bar with 'Preview' (highlighted in orange), 'Microsoft Azure' logo, 'Bot Service', 'Report a bug', and a search bar. On the left, a sidebar lists various service icons. The main area has a title 'Choose a language' with two buttons: 'C#' (highlighted in blue) and 'NodeJS'. Below that is a section titled 'Choose a template' with six options arranged in a grid:

<b>Basic</b> A bot with a single dialog that echoes back the user input.	<b>Form</b> A bot that shows how to collect input from a user using a guided conversation using FormFlow.	<b>Proactive</b> A bot that shows how to use Azure Functions to trigger events in Azure bots.
<b>Language understanding</b> A bot that shows how to handle natural language using the Cognitive Services LUIS API.	<b>Question and Answer</b> A bot that distills information into conversational, easy-to-navigate answers.	



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# DEMO

# ECHO BOT

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LILIAN KASEM

# COGNITIVE SERVICES



# MICROSOFT COGNITIVE SERVICES

25 API'S, 66 FUNCTIONS

## Vision

- Computer Vision
- Content Moderator
- Emotion
- Face
- Video

## Speech

- Custom Recognition Intelligence Service
- Speaker Recognition
- Speech

## Language

- Bing Spell Check
- Language Understanding Intelligent Service
- Linguistics Analysis
- Text Analytics
- Translator
- Web Language Model

## Knowledge

- Academic Knowledge
- Entity Linking Intelligence Service
- Knowledge Exploration Service
- Q&A Maker
- Recommendations

## Search

- Bing Autosuggest
- Bing Image Search
- Bing News Search
- Bing Video Search
- Bing Web Search

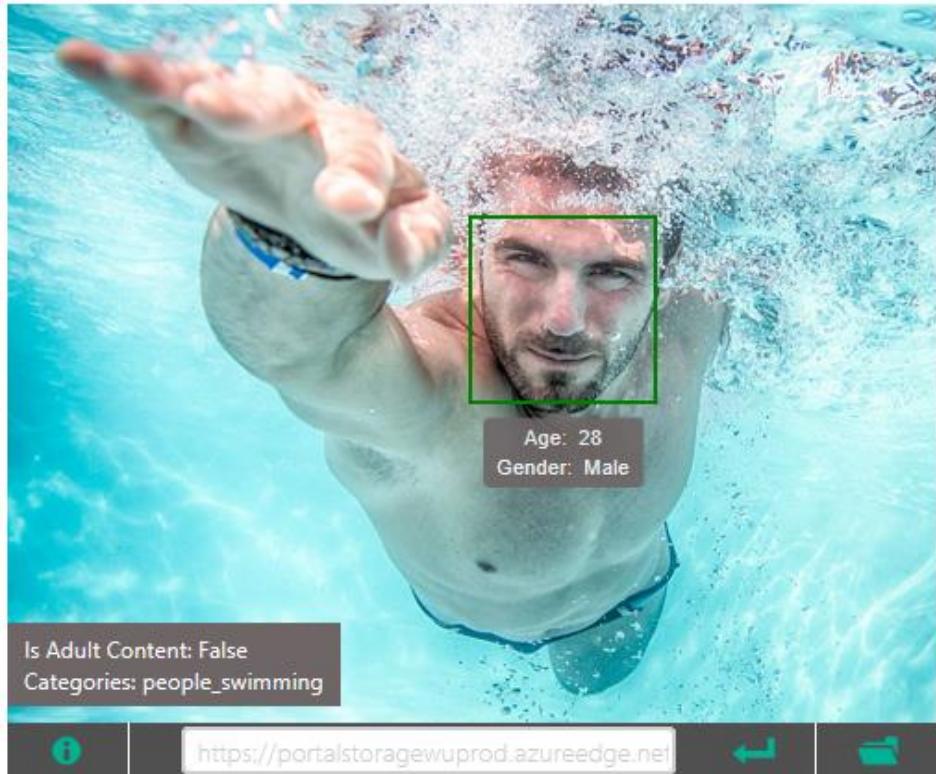
# VISION

## COMPUTERS CAN SEE

- COMPUTER VISION
- CONTENT MODERATOR
- EMOTION
- FACE
- VIDEO



## VISION: IMAGE ANALYSIS



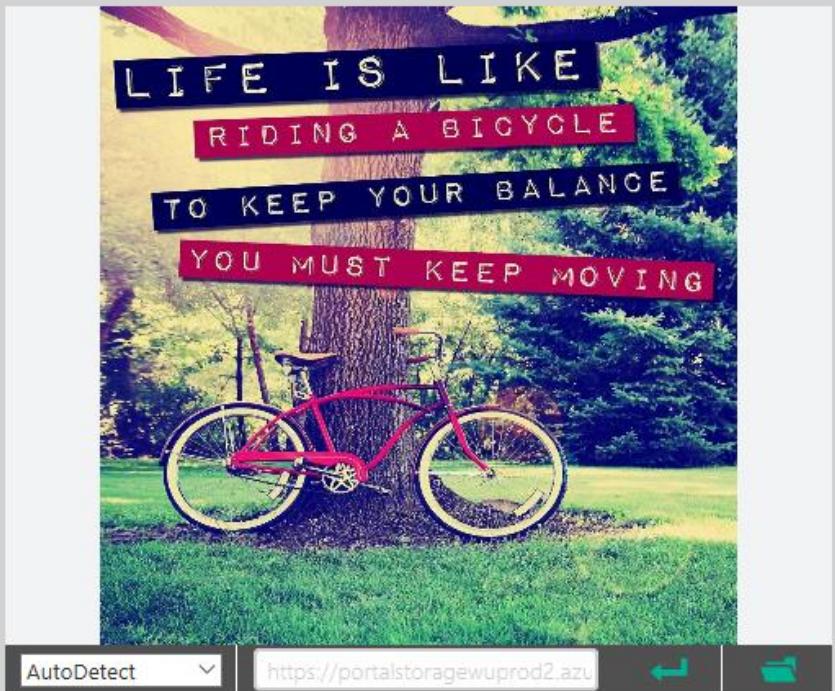
Is Adult Content: False  
Categories: people\_swimming

Age: 28  
Gender: Male

## Features:

Feature Name	Value
Description	{ "type": 0, "captions": [ { "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 } ] }
Tags	[ { "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062818288803101, "hint": "sport" }, { "name": "pool", "confidence": 0.8787588477134705 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" } ]
Image Format	jpeg
Image Dimensions	1500 x 1155
Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-LineDrawing
Black & White Image	False

## VISION: OPTICAL CHARACTER RECOGNITION



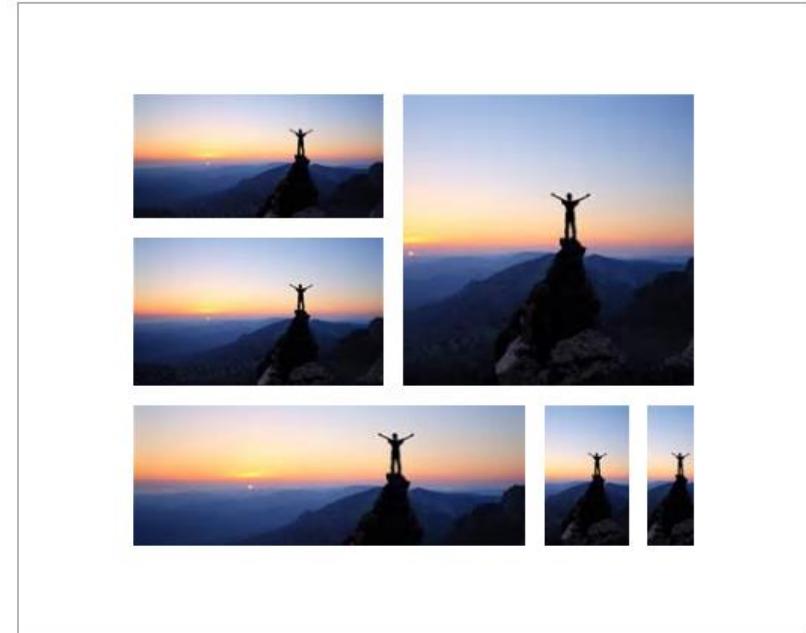
Text JSON

LIFE IS LIKE  
RIDING A BICYCLE  
TO KEEP YOUR BALANCE  
YOU MUST KEEP MOVING

AutoDetect

<https://portalstoragewuprod2.azu>

## VISION: THUMBNAIL GENERATION



## VISION: DETECT EMOTION

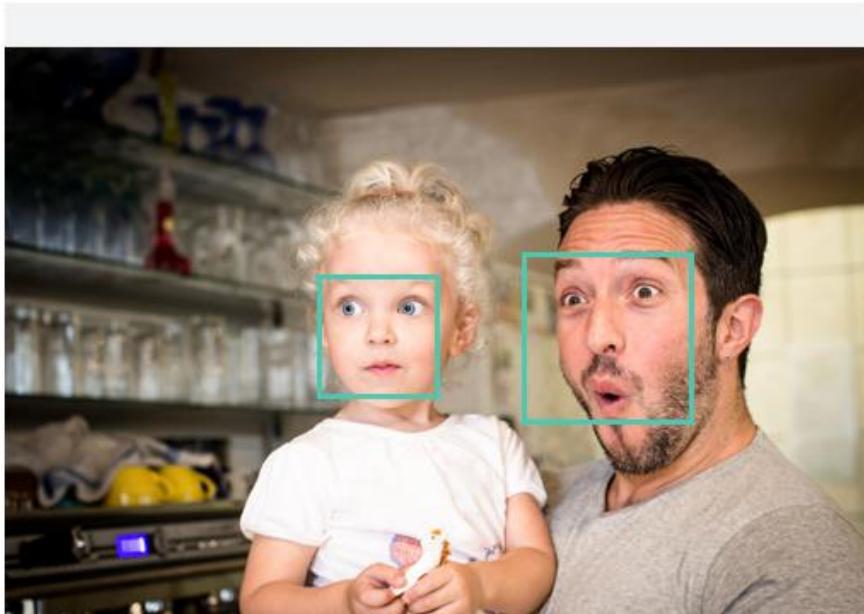


Image URL



Detection Result:

2 faces detected

JSON:

[

{

  "faceRectangle": {  
    "left": 479,  
    "top": 189,  
    "width": 160,  
    "height": 160

},

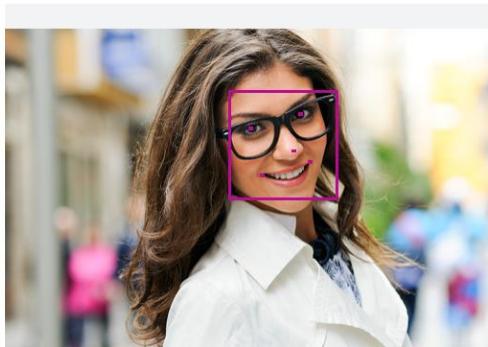
  "scores": {

    "anger": 0.0000102376043,  
    "contempt": 0.0000217592042,  
    "disgust": 0.000005393408,  
    "fear": 0.00126100751,  
    "happiness": 0.0000120425466,  
    "neutral": 0.0015419157,  
    "sadness": 0.00000278396146,  
    "surprise": 0.9971449

}

,

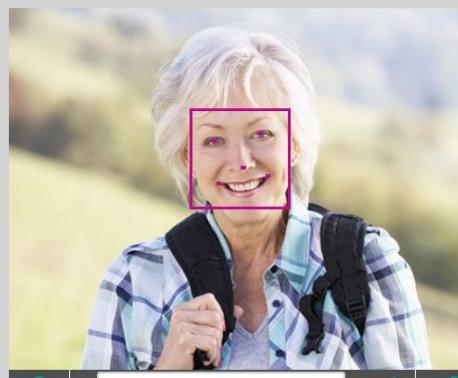
# VISION: FACIAL DETECTION AND VERIFICATION



Eye icon |  | Camera icon

Detection Result:  
JSON:

```
[{"faceId": "9332bd0-c94b-435e-8420-87271971e630", "faceRectangle": {"width": 228, "height": 228, "left": 466, "top": 125}, "faceLandmarks": {"pupilLeft": {"x": 507, "y": 204.9}, "pupilRight": {"x": 609.8, "y": 175.4}, "noseTip": {"x": 596.4, "y": 250.9}}]
```



Eye icon |  | Camera icon

Verification Result:  
The two faces belong to different persons.  
Confidence is 0.342.



Eye icon |  | Camera icon

# VISION: VIDEO ANALYSIS AND EMOTION



# SPEECH

## COMPUTERS CAN SPEAK

- BING SPEECH
- CUSTOM RECOGNITION
- SPEAKER RECOGNITION



# LANGUAGE

## COMPUTERS CAN UNDERSTAND

- BING SPELL CHECK
- LANGUAGE UNDERSTANDING
- LINGUISTIC ANALYSIS
- TEXT ANALYTICS
- TRANSLATOR





# LANGUAGE: SENTIMENT ANALYSIS

I am very happy with the purchase of my new PC. It is so much quicker

Analyze!

Analyzed Text      JSON

Language: ⓘ English (confidence: 100%)

Key phrases: ⓘ I am very happy with the **purchase** of my **new PC**. It is so much quicker

Sentiment: ⓘ **98 %**

Very disappointed with your customer service. Item was faulty and I emailed you 10 days ago. Still not resolved!

Analyze!

Analyzed Text      JSON

Language: ⓘ English (confidence: 100%)

Key phrases: ⓘ Very disappointed with your **customer service**. **Item** was faulty and I emailed you 10 **days** ago. Still not resolved!

Sentiment: ⓘ **5 %**



# LANGUAGE: TRANSLATION

English (Auto-Detected) ▾

This is an example of the Microsoft Translation service

X

Translate

55/5000

Speaker icon

Down arrow icon

German	French	Greek
Afrikaans	Haitian Creole	Portuguese
Arabic	Hebrew	Querétaro Otomi
Bosnian (Latin)	Hindi	Romanian
Bulgarian	Hmong Daw	Russian
Cantonese (Traditional)	Hungarian	Samoan
Catalan	Indonesian	Serbian (Cyrillic)
Chinese Simplified	Italian	Serbian (Latin)
Chinese Traditional	Japanese	Slovak
Croatian	Kiswahili	Slovenian
Czech	Klingon	Spanish
Danish	Klingon (plqɑD)	Swedish
Dutch	Korean	Tahitian
English	Latvian	Thai
Estonian	Lithuanian	Tongan
Fijian	Malagasy	Turkish
Filipino	Malay	Ukrainian
Finnish	Maltese	Urdu
French	Norwegian Bokmål	Vietnamese
German	Persian	Welsh
Greek	Polish	Yucatec Maya

# KNOWLEDGE

## COMPUTERS CAN KNOW

- ACADEMIC GRAPH
- ENTITY LINKING
- KNOWLEDGE EXPLORATION
- QnA MAKER
- RECOMMENDATIONS



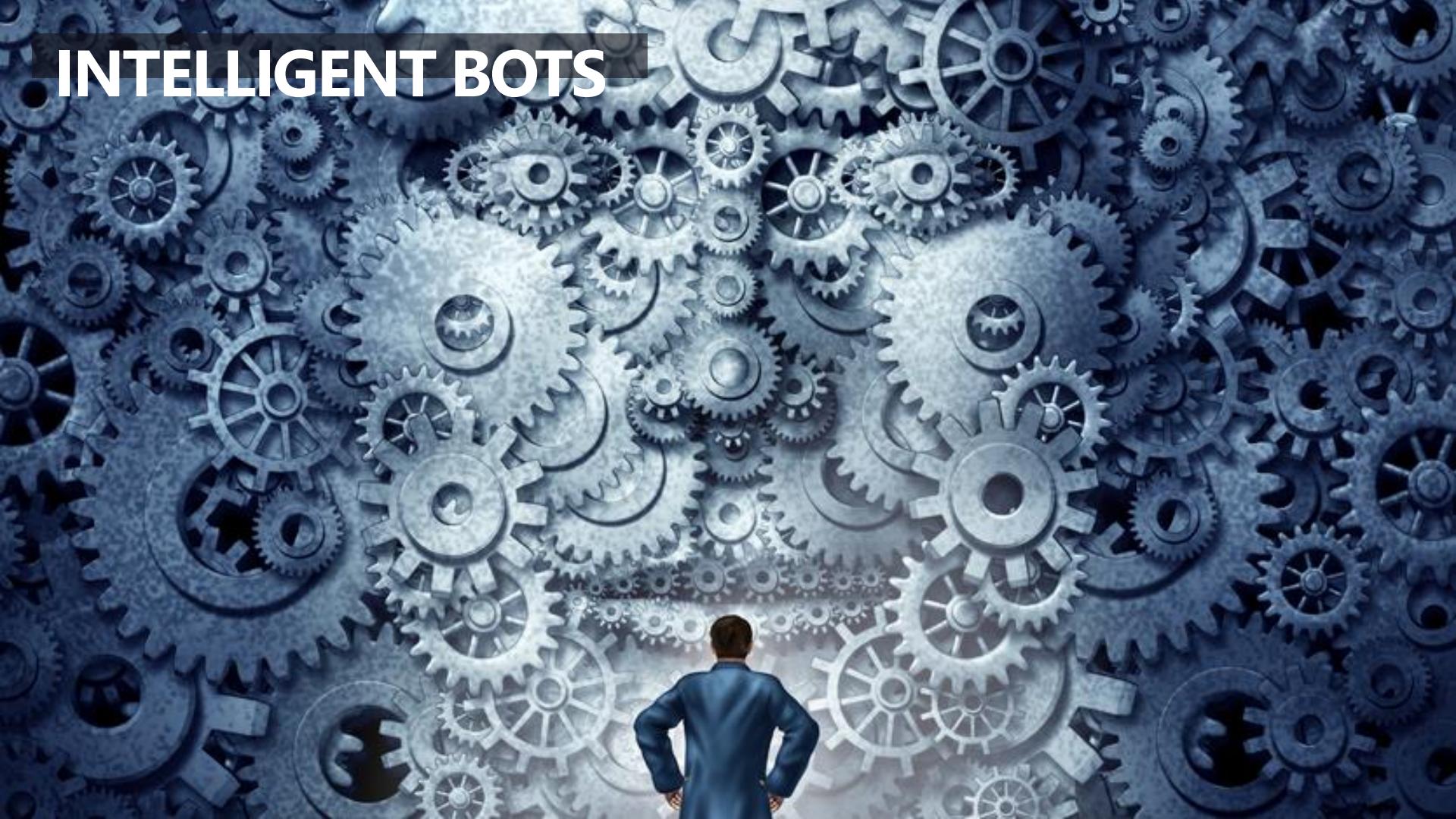
# SEARCH

## COMPUTERS CAN FIND

- BING AUTOSUGGEST
- BING NEWS SEARCH
- BING IMAGE SEARCH
- BING VIDEO SEARCH
- BING WEB SEARCH



# INTELLIGENT BOTS



# BOTS + COGNITIVE SERVICES

<b>Computer vision API</b>	<b>human readable captions</b>
<b>Computer vision API</b>	<b>OCR for capturing information (receipts)</b>
<b>Face API</b>	<b>facial verification/authentication</b>
<b>Speech API</b>	<b>voice verification/authentication</b>
<b>LUIS API</b>	<b>understanding intent</b>
<b>Knowledge APIs</b>	<b>retail product recommendation</b>
<b>Autosuggest API</b>	<b>ease query input</b>
<b>Linguistic API</b>	<b>sentiment analysis</b>
<b>QnA Maker</b>	<b>conversational Interface for FAQs</b>
<b>Translation API</b>	<b>Auto text translation &amp; language detection</b>
<b>Translation API</b>	<b>Auto speech (voice) translation</b>
<b>Bing Maps API</b>	<b>User location</b>

# 1.

## LANGUAGE UNDERSTANDING (LUIS)

Natural language understanding

Determine intent and detect entities

<https://www.luis.ai>

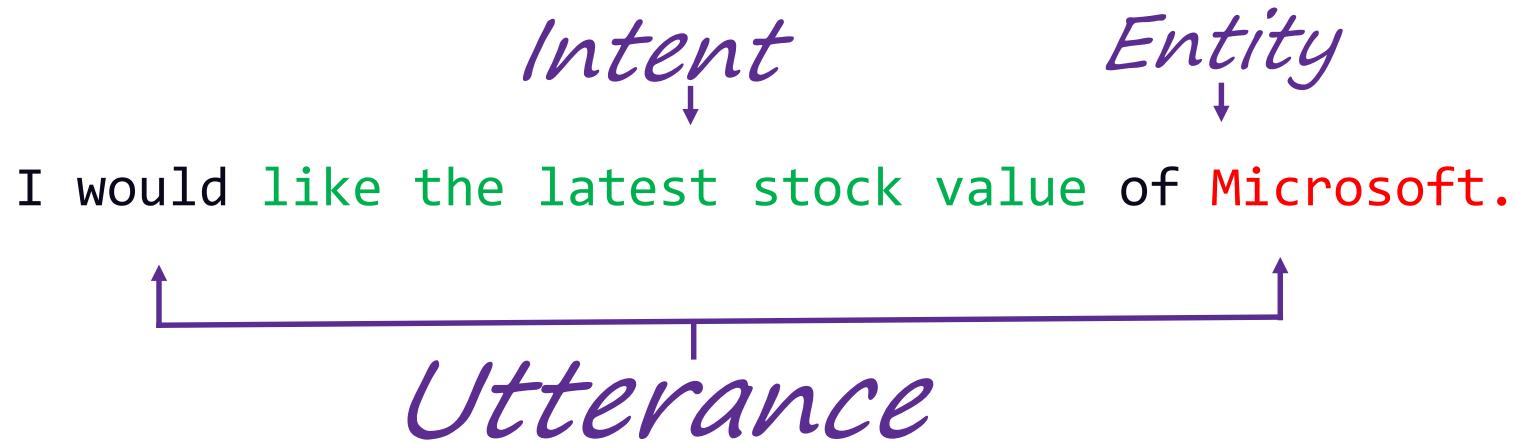


# STOCK BOT

STOCK SYMBOL:

MSFT

# STOCK BOT + LUIS





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# DEMO

# LUIS

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LILIAN KASEM

## 2. QnA MAKER

Build, train and publish  
Q&A bots based on **existing FAQs**

<https://www.qnamaker.ai>

From FAQ to Bot  
in minutes.





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# DEMO

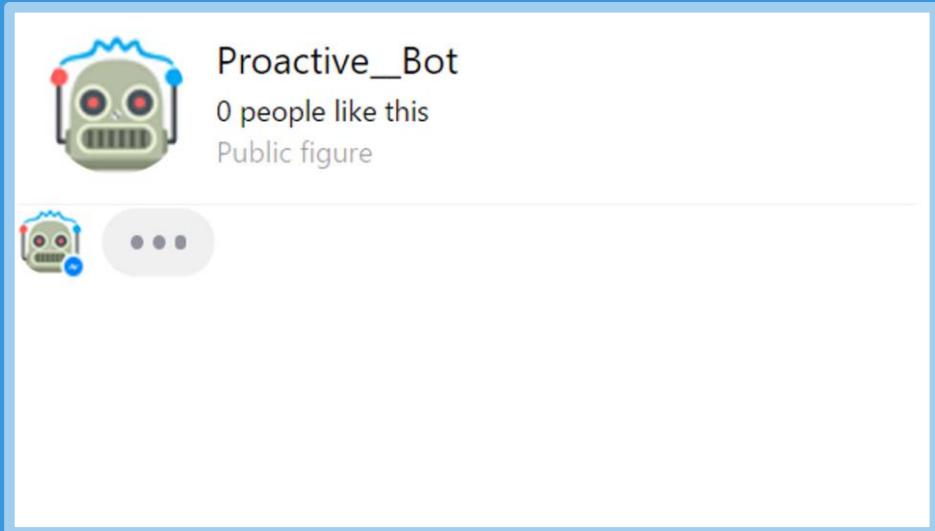
# QnA Maker

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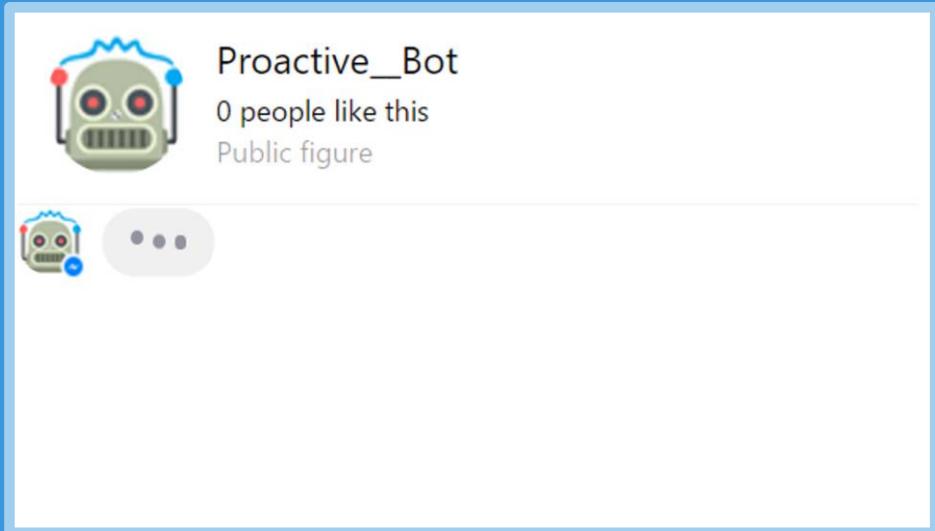
# PRO-ACTIVE BOT

## 1. Reminders & alerts



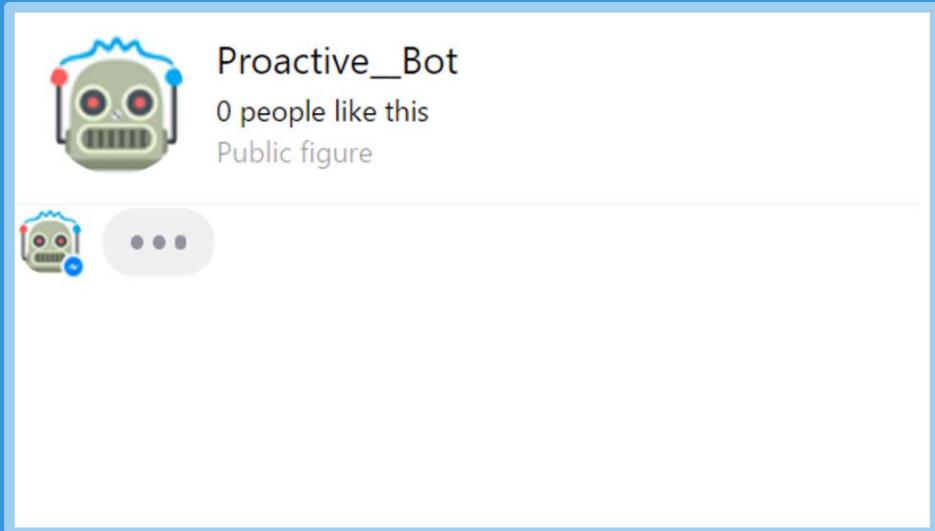
# PRO-ACTIVE BOT

2. Long running tasks



# PRO-ACTIVE BOT

3. Cross-selling & up-selling





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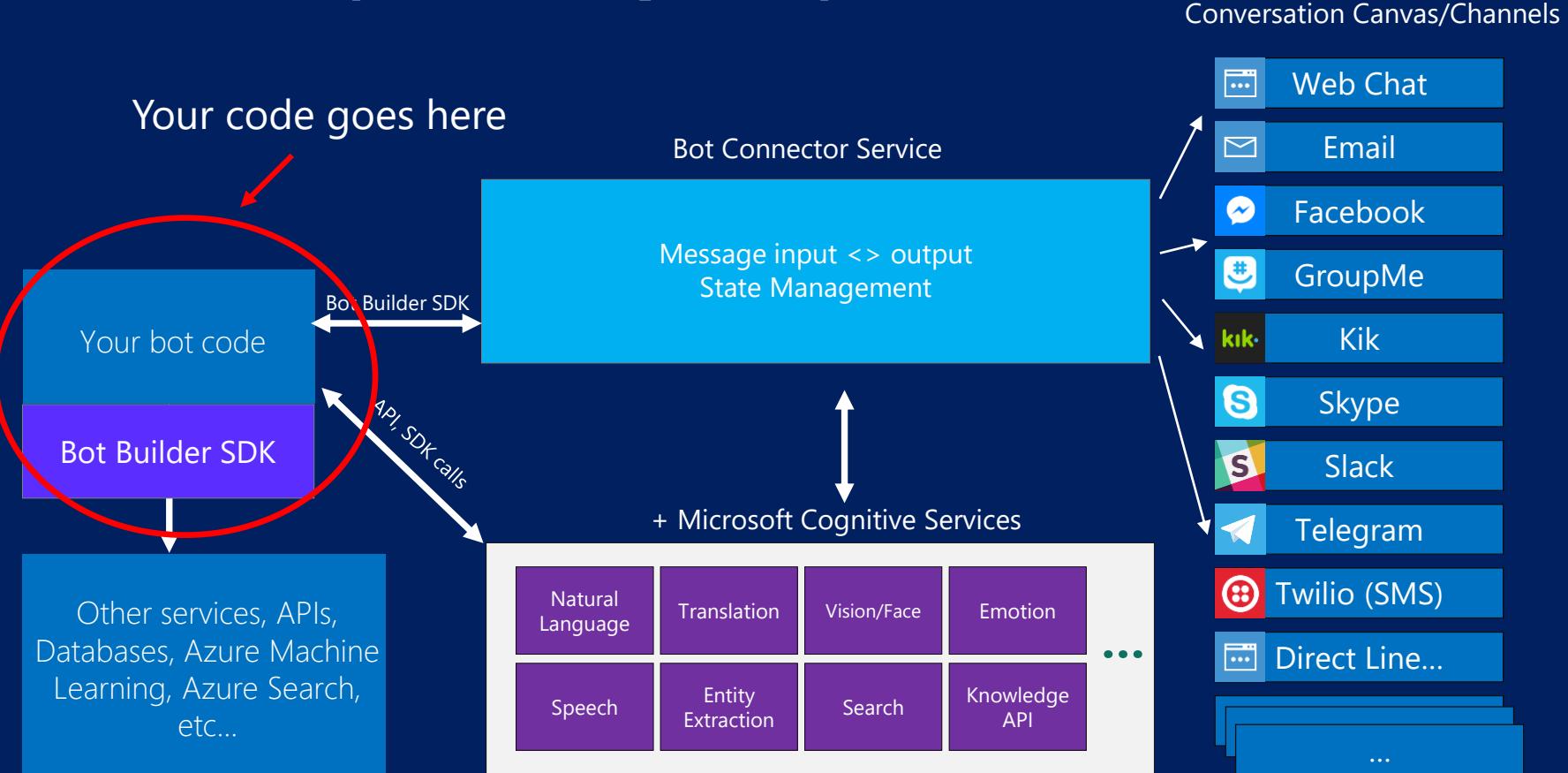
# DEMO

# PRO-ACTIVE BOT

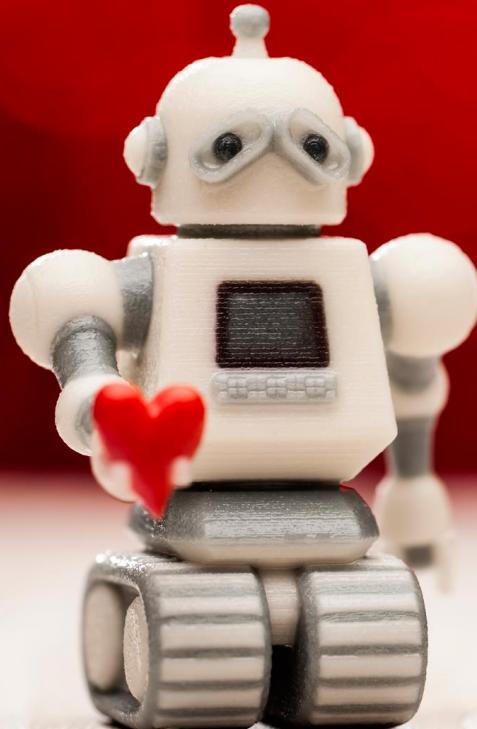
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LILIAN KASEM

# AN X-RAY OF A 'TYPICAL' BOT



# TO BOT OR NOT?

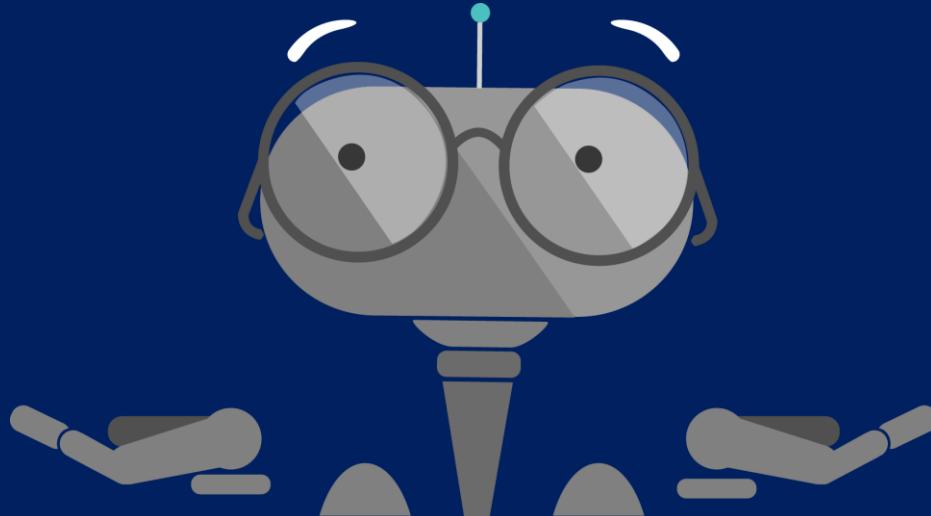


# #1 RULE FOR A GREAT BOT

It has a clear purpose that it can achieve quicker, easier, more conveniently than other options.



Tell me scenarios that make sense for a bot



# BOT PATTERNS #1

## INFORMATION RETRIEVAL

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

**“What are the features of service plan A?”**

**“What times are the train leaving on Thursday morning?”**

# BOT PATTERNS #2

## TRANSACTIONAL

**Lookup info, make amendments,  
scenarios backed by a data source**

“Upgrade my electricity account to  
plan B”

“Book Two Tickets for Star Wars  
next Monday using my credit card”

# BOT PATTERNS #3

## ADVISORY ROLE

Prescriptive guidance via ‘expert’ systems

“How much can I save on my gas bill if I switch to tariff B?”

“Should I add home start to my breakdown cover? ”

# BOT PATTERNS #4

## OPEN-ENDED ‘SOCIAL’

**Ability to engage in open-ended natural conversation within bots area of expertise. Ability to detect sentiment etc.**

“Your product is terrible. I would like a refund”

“I am unhappy. I want to speak with someone ”

# BOTS: SCENARIOS

## CUSTOMER SERVICE

- FAQ's
- Account queries
- Augment customer service agents
- Order tracking
- Pro-active notifications
- Capture user feedback
- Resolve account/policy issues

## PRODUCTIVITY

- Meeting reminders
- Report generation
- Data extraction
- Data analysis

## COMMUNICATION

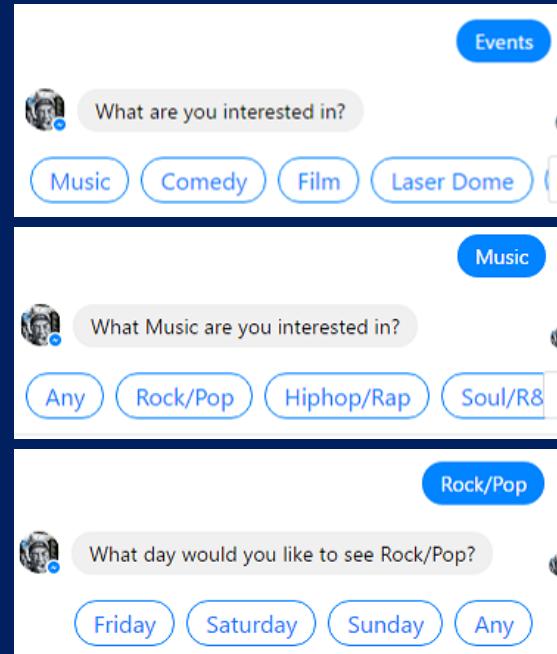
- Polls
- User feedback
- Proactive offers and recommendations

## EMPLOYEE SUPPORT

- New-user onboarding
- Training
- Meeting bookings
- Internal FAQs
- Booking leave
- HR

# KNOWLEDGE BASE / FAQ BOTS

Bots that can answer any question about a given data source (relational, documents, etc)



Check QnAMaker.ai and Azure Search

# CALL CENTRE | HELP DESK | CUSTOMER SERVICE

If it is simple and repetitive, it can be coded. Bots can accelerate it



# BOTS IN RETAIL



## Contact Centre

What are the opening times for my local store?

How much will I be charged for using FB in Spain...?

Where is my delivery?



## Shopping Experience

I'm looking for a new TV but not sure what I need?

Do you have any of this dress in blue?

I need cream for my tired eyes?



## Staff Super Power

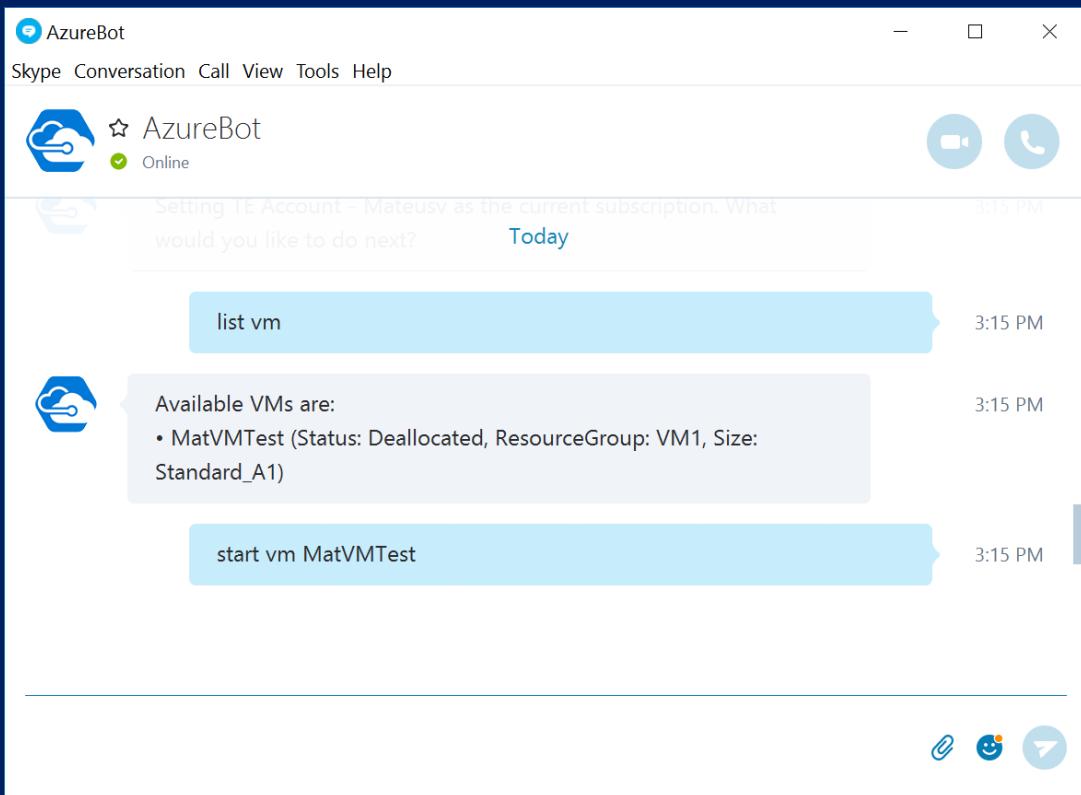
What are the return policy rules between countries?

Is this in stock online?

How do I reset password?

# BOTS ADAPT: AZURE BOT

Start from the desktop, list your VMs, start a VM  
(it all takes 5 seconds!)



# AZUREBOT



Switch to your phone, confirm you want to star the VM, receive the notification when done.

- No logon required
- No app sync required
- Works across all your devices and web

It. Just. Works.

# SKYSCANNER

**"Chat bots offer something truly revolutionary by bringing travel search within the very platforms users are already interacting with on a frequent basis."**



# SAGE

# Pegg



## Works hand in hand with Sage One

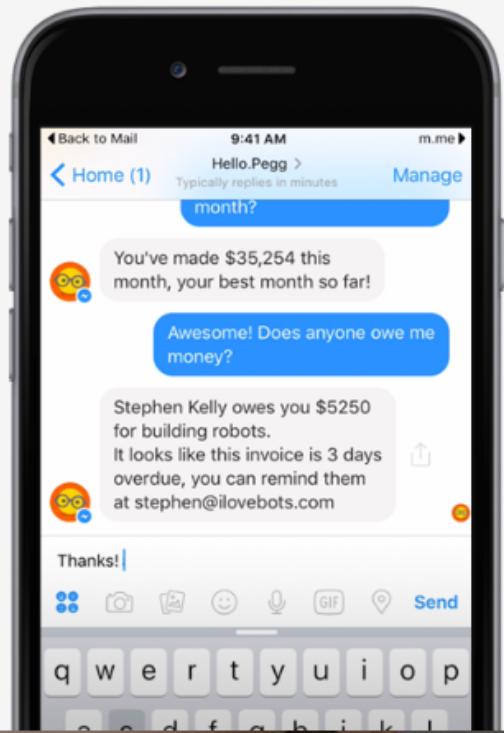
Accounting made simple! Because of clever integration, simply message Pegg with your expenses and it automatically accounts for it in Sage One.

## Simplifies your cash flow

Pegg hides all the complex issues of financial admin. In fact, managing your income and expenses is so simple and trouble free, it's as easy as texting a friend.

## It gets to know your business

Pegg uses artificial intelligence to recognize how you work, so the more you chat to it, the more it learns and adapts to give you recommendations tailored to your business.

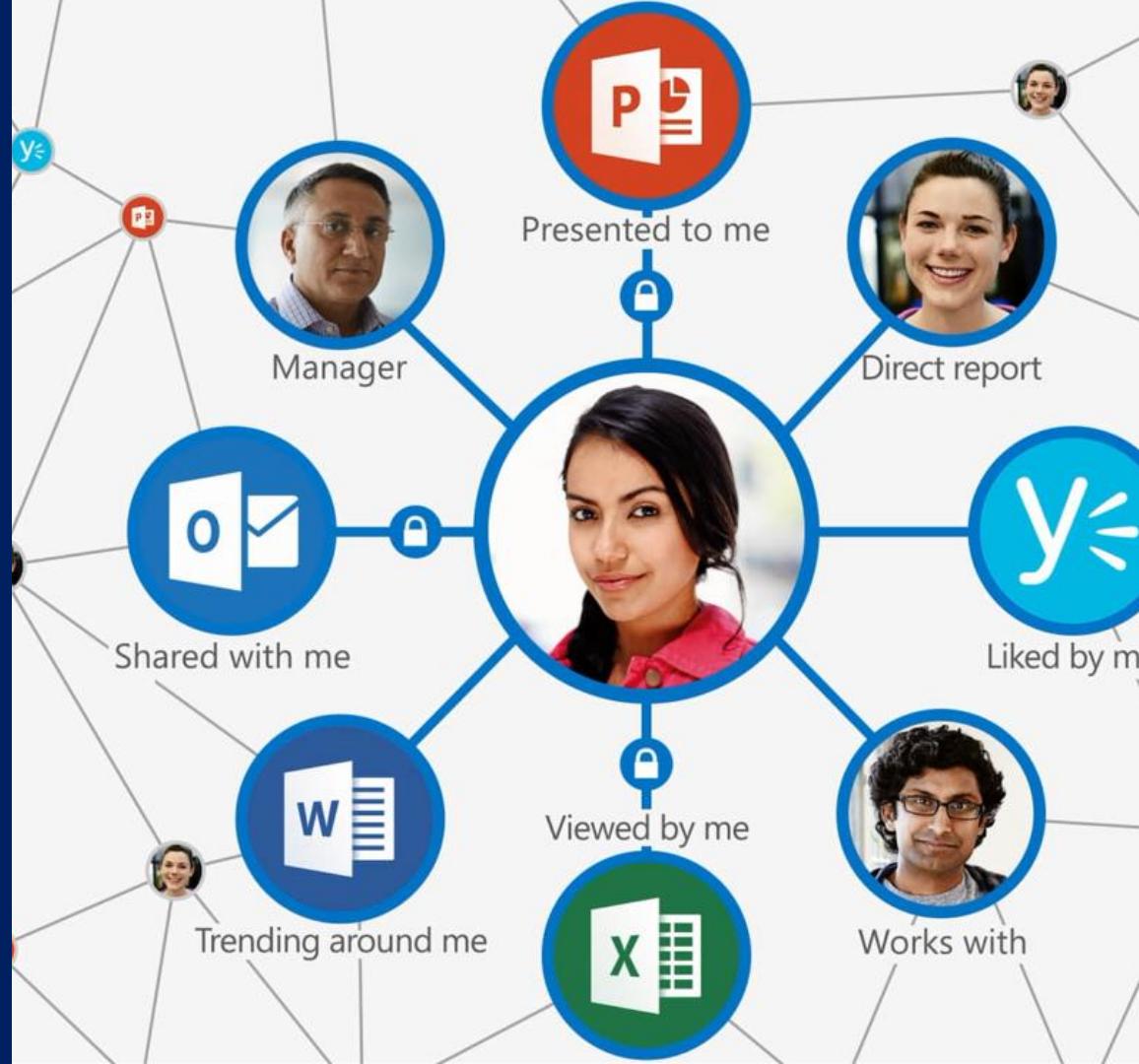


<https://hellopegg.io/>

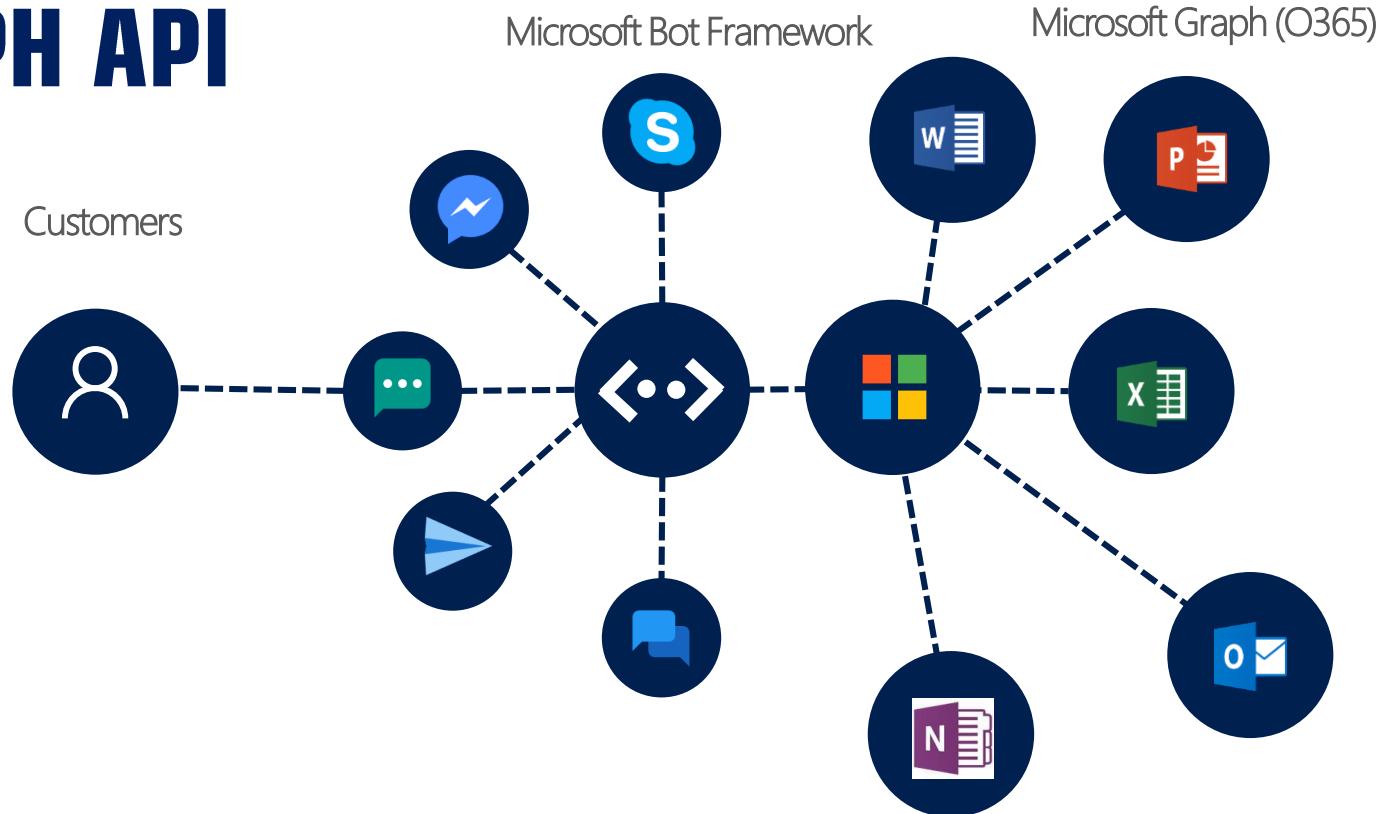
# PRODUCTIVITY: “EXCEL BOT”

Using power of O365 Graph API

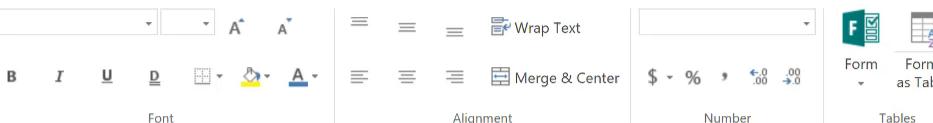
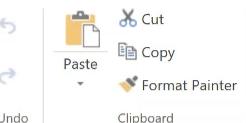
<https://graph.microsoft.io>



# BOTS + GRAPH API



FILE HOME INSERT DATA REVIEW VIEW Tell me what you want to do EDIT IN EXCEL



fx 4

	A	B	C	D	E	F	G	H	I	J	K
1	SIMPLE LOAN CALCULATOR										
2											
3	LOAN VALUES										
4	Loan amount \$8,000.00										
5	Annual interest rate 2.00%										
6	Loan period in years 4										
7	Start date of loan 5/1/2016										
8											
9	PMT NO.	PAYMENT DATE	BEGINNING BALANCE	PAYMENT	PRINCIPAL	INTEREST	ENDING BALANCE				
10	1	6/1/2016	\$8,000.00	\$173.56	\$160.23	\$13.33	\$7,839.77				
11	2	7/1/2016	\$7,839.77	\$173.56	\$160.49	\$13.07	\$7,679.28				
12	3	8/1/2016	\$7,679.28	\$173.56	\$160.76	\$12.80	\$7,518.52				
13	4	9/1/2016	\$7,518.52	\$173.56	\$161.03	\$12.53	\$7,357.49				
14	5	10/1/2016	\$7,357.49	\$173.56	\$161.30	\$12.26	\$7,196.19				
15	6	11/1/2016	\$7,196.19	\$173.56	\$161.57	\$11.99	\$7,034.62				
16	7	12/1/2016	\$7,034.62	\$173.56	\$161.84	\$11.72	\$6,872.78				
17	8	1/1/2017	\$6,872.78	\$173.56	\$162.11	\$11.45	\$6,710.68				
18	9	2/1/2017	\$6,710.68	\$173.56	\$162.38	\$11.18	\$6,548.30				
19	10	3/1/2017	\$6,548.30	\$173.56	\$162.65	\$10.91	\$6,385.65				
20	11	4/1/2017	\$6,385.65	\$173.56	\$162.92	\$10.64	\$6,222.73				
21	12	5/1/2017	\$6,222.73	\$173.56	\$163.19	\$10.37	\$6,059.54				
22	13	6/1/2017	\$6,059.54	\$173.56	\$163.46	\$10.10	\$5,896.08				
23	14	7/1/2017	\$5,896.08	\$173.56	\$163.73	\$9.83	\$5,732.35				
24	15	8/1/2017	\$5,732.35	\$173.56	\$164.01	\$9.55	\$5,568.34				
25	16	9/1/2017	\$5,568.34	\$173.56	\$164.28	\$9.28	\$5,404.06				
26	17	10/1/2017	\$5,404.06	\$173.56	\$164.55	\$9.01	\$5,239.51				
27	18	11/1/2017	\$5,239.51	\$173.56	\$164.83	\$8.73	\$5,074.68				
28	19	12/1/2017	\$5,074.68	\$173.56	\$165.10	\$8.46	\$4,909.58				
29	20	1/1/2018	\$4,909.58	\$173.56	\$165.38	\$8.18	\$4,744.20				
30	21	2/1/2018	\$4,744.20	\$173.56	\$165.65	\$7.91	\$4,578.54				
31	22	3/1/2018	\$4,578.54	\$173.56	\$165.93	\$7.63	\$4,412.61				

Loan Calculator



Excel Bot

Online

what charts?

26/01

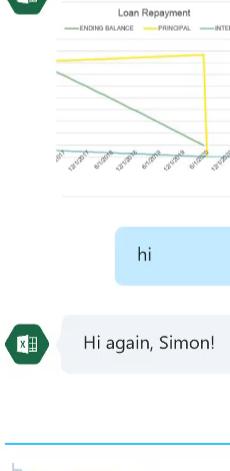
There is 1 chart on Loan

Calculator:  
\* Chart2

show Chart2

26/01

Picture



hi

19:34

Hi again, Simon!

19:34

Type a message

HELP IMPROVE OFFICE

# EMERGING RULES FOR SUCCESS

1

## **Start simply**

Some bots don't  
need AI at all

2

## **Stay focused**

Don't try to do  
more than one job

3

## **Control the conversation**

They always know  
how to react

4

## **Keep learning**

Include user  
feedback instruments

# Bots represent a new channel for businesses



**Reach customers anywhere, on any platform or device**



**Engage with customers in a natural way; conversationally and in context**



**Improve customer experience and reduce the need for human assistance**



Lilian Rincon, Yasmin Khan, Cortana, Silver Cup

5 members

@Silver Cup Flat White, please



Silver Cup 10:23 pm

I'll get that ready for you Lilian. Would anyone else like something?

Americano

Flat White

Iced Latte

10:23 pm

@Silver Cup Americano, please



Silver Cup 10:23 pm

I'll get that ready for you Gurdeep. Would anyone else like something?

Americano

Flat White

Iced Latte



Yasmin 10:23 pm

@Silver Cup Iced Latte, please



Silver Cup 10:23 pm

I'll get that ready for you Yasmin



Silver Cup 10:23 pm

Where should I deliver?

Send to my location

Choose another place

10:23 pm

@Silver Cup Send to my location

Type a message here



# THANK YOU



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