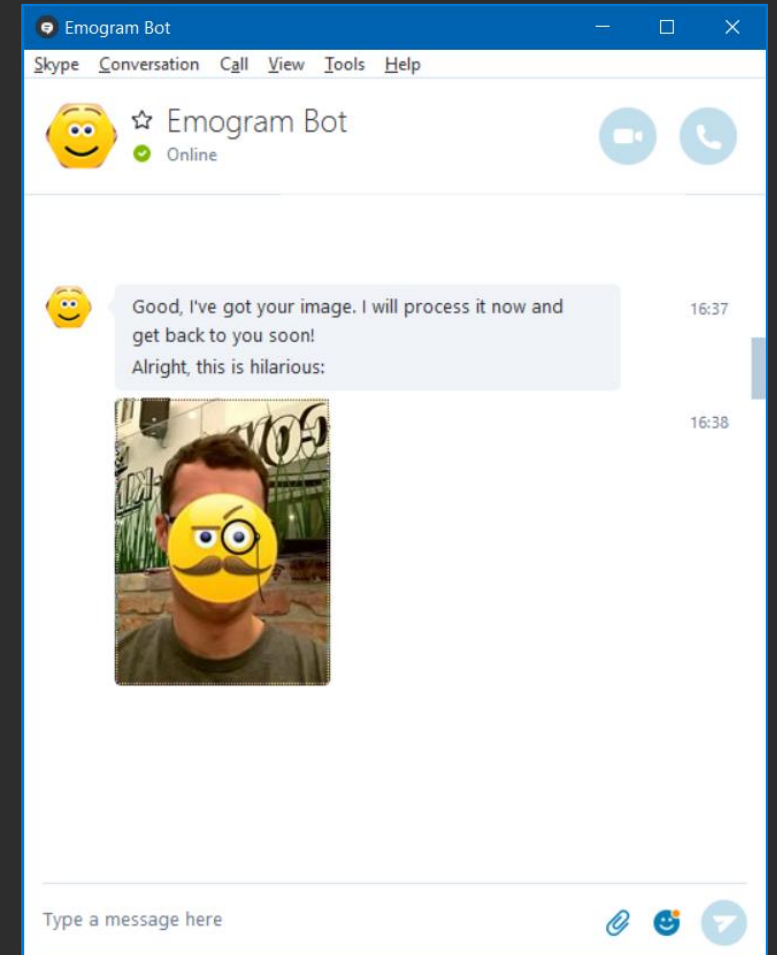


# Microsoft Bot Framework

Martin Šimeček

@deedx

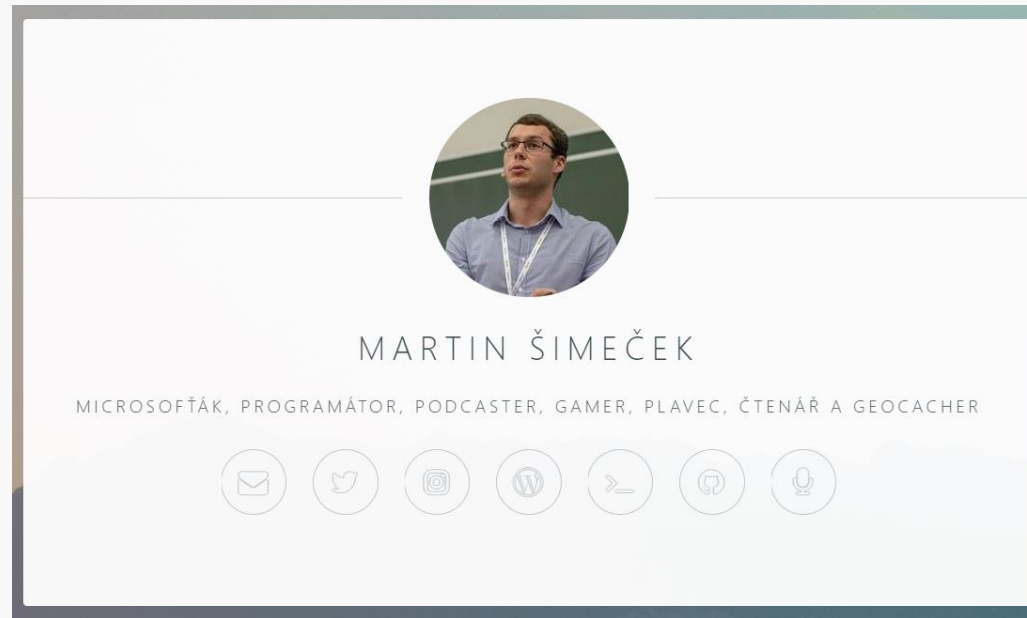
martin.simecek@microsoft.com



# whoami?

5 years @ Microsoft

Consultant > Technical Evangelist > Software Engineer



<http://deedx.cz>

# .NET.CZ Podcast

<http://bit.ly/netczpodcast>



The image shows a podcast player interface. On the left, there is a play button icon and a title card for ".NET.CZ (Episode.14) - Kontejnery, Dockery a Linuxy". Below the title, it says "In playlist: .NET.CZ Podc...". To the right of the title, it says "1 day" and "# Technology". At the bottom of the player, there is a waveform and a progress indicator showing "48:23". On the right side of the player, there is a large graphic featuring a stylized face with curly braces for eyes and a smile, with the text ".NET.CZ #14" below it.

.NET.CZ

.NET.CZ (Episode.14) -  
Kontejnery, Dockery a  
Linuxy

In playlist: .NET.CZ Podc...

1 day

# Technology

48:23

.NET.CZ  
#14

# Chatbots

**Bots:**

Machines we speak with to get stuff done.

# Why bots now?

Stronger mobile presence

Facebook & others building platforms

„Always-on“ customer care

F8 2016

## Facebook launches Messenger platform with chatbots

Josh Constine @JoshConstine / Apr 12, 2016

### The bots are coming

Starting today, you'll see links like this in Telegram and elsewhere. Embrace them, they are bots! They will provide the services you asked us for - polls, news, games, integrations, e-butlers or cat images. Any dream can come true with bots.

*The Telegram Team,  
June 24, 2015*

Microsoft Build 2016

## Microsoft is bringing bots to Skype — and everywhere else

Sarah Perez @sarahintampa / Mar 30, 2016

 Comment

# Why bot instead of mobile app?

Mobile users prefer chat applications

Faster deployment & updates

Cross-platform by nature

Free notifications 😊

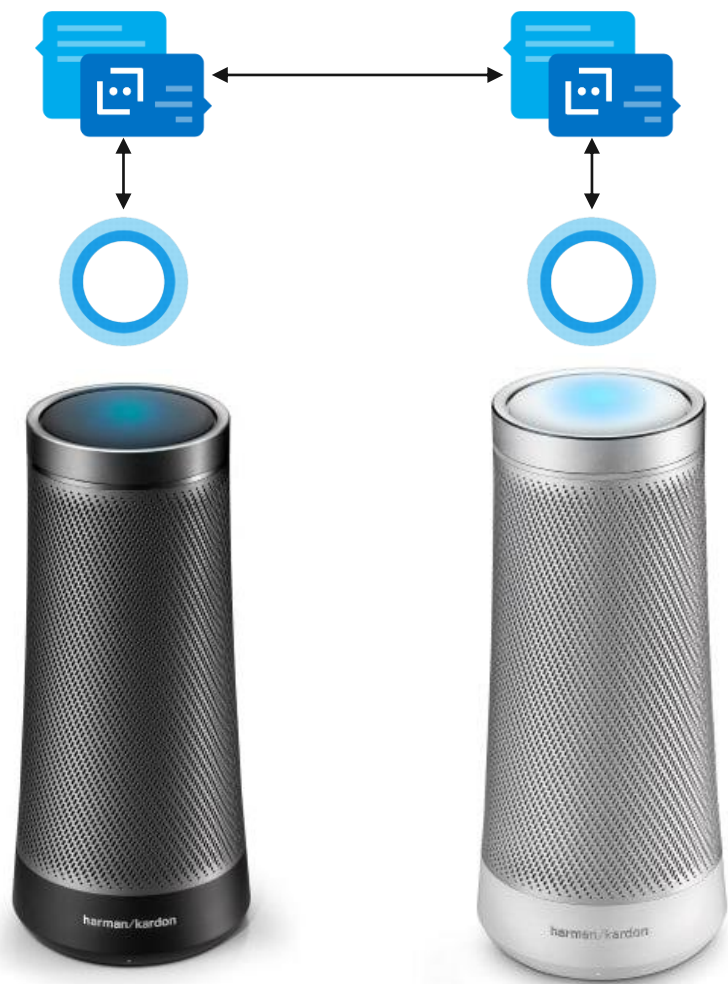
Maintains history

You probably know Cortana... 

Cortana is more than a chatbot, it's a **digital assistant**

Not every chatbot needs to be like Cortana

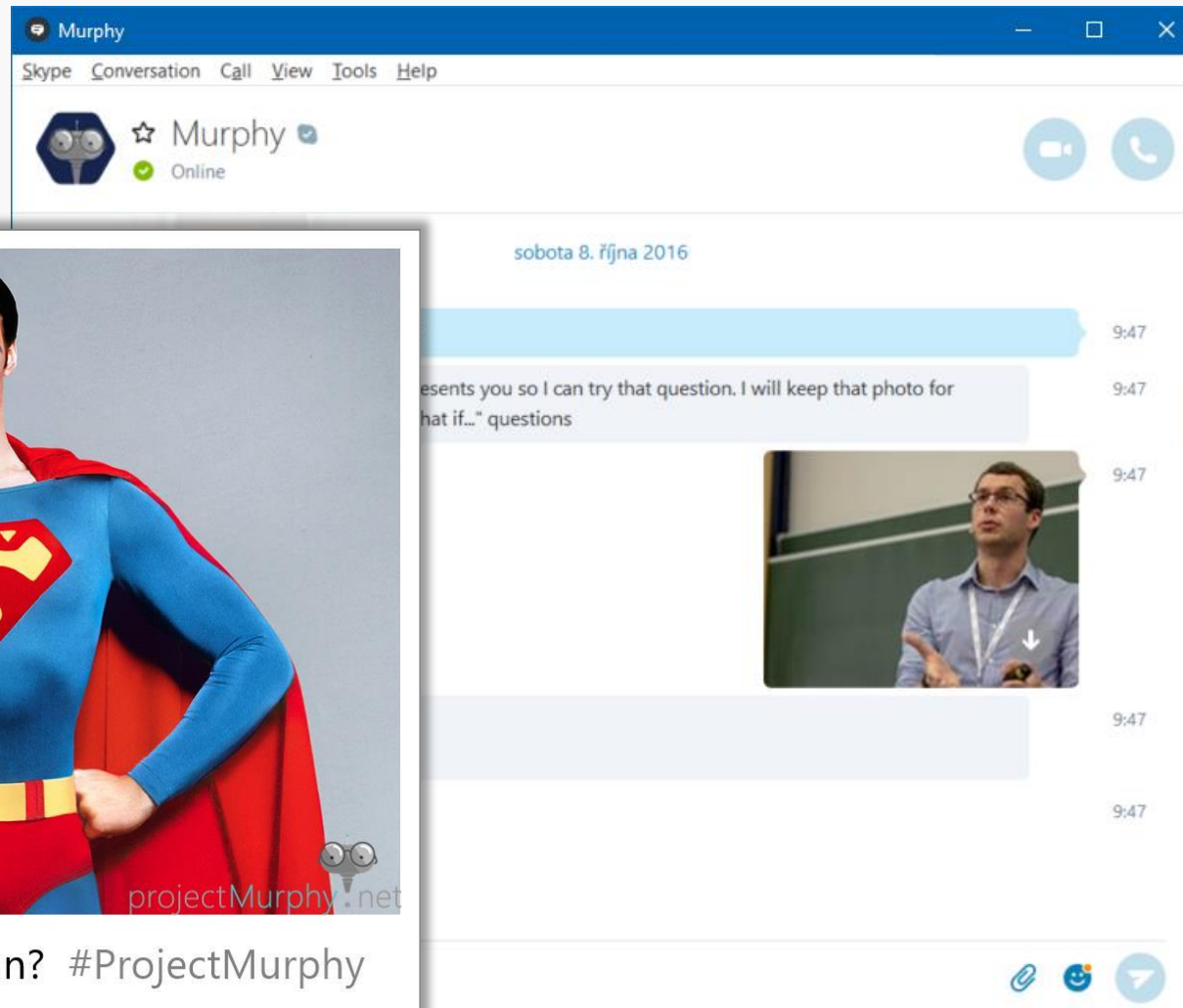




# Scenarios

# Fun Bot

## Murphy



# Helpful Bot

The screenshot shows a Skype chat window titled "Skyscanner". The interface includes a menu bar with "Skype", "Conversation", "Call", "View", "Tools", and "Help". The contact name is "Skyscanner" with a star icon and a status indicator "Online".

The chat history shows the following messages:

- Skyscanner (Bot):** "Show weekend trips" (21:03)
- User:** "Don't know Show weekend trips" (21:03)
- Skyscanner (Bot):** "Flying Friday, April 7, 2017 and returning Sunday, April 9, 2017. Here are some suggestions." (21:03)
- Skyscanner (Bot):** A carousel of two travel suggestions:
  - Brussels from \$86:** Includes a photo of a European city street, a "Route tips" button, and a "Try Brussels" button.
  - Bucharest from \$99:** Includes a photo of a city skyline, a "Route tips" button, and a "Try Bucharest" button.(21:04)
- User:** "i want to fly from prague to seattle" (21:15)
- Skyscanner (Bot):** "Searching for a flight from Prague, Czech Republic to Seattle, United States, flying out on Friday, April 7 and flying back on Sunday, April 9. Replying with results shortly." (21:15)

The bottom of the chat window shows a text input field and icons for attachments, emojis, and sending.

# Helpful Bot

Skyscanner

Skype Conversation Call View Tools Help

Skyscanner Online

Today

I want to fly from prague to seattle

21:15 Searching for a flight from Prague, Czech Republic to Seattle, United States, flying out on Friday, April 7 and flying back on Sunday, April 9. Replying with results shortly.

21:16

→ Fri Apr 07		← Sun Apr 09		→ Fri Apr 07		← Sun Apr 09	
07:10	PRG	13:12	SEA	07:10	PRG	14:00	SEA
1 stops 13h 35m		1 stops 13h 18m		1 stops 13h 40m		1 stops 12h 0m	
11:45	SEA	11:30 <sup>+1</sup>	PRG	11:50	SEA	11:00 <sup>+1</sup>	PRG

**Cheapest flights (\$913)**  
Flying with Air France

Book

Show top 5 cheapest

Set price alerts

**Fastest flights (13h 40m and 12h 0m return; \$4804)**  
Flying with Lufthansa

Book

Show top 5 shortest

Set price alerts

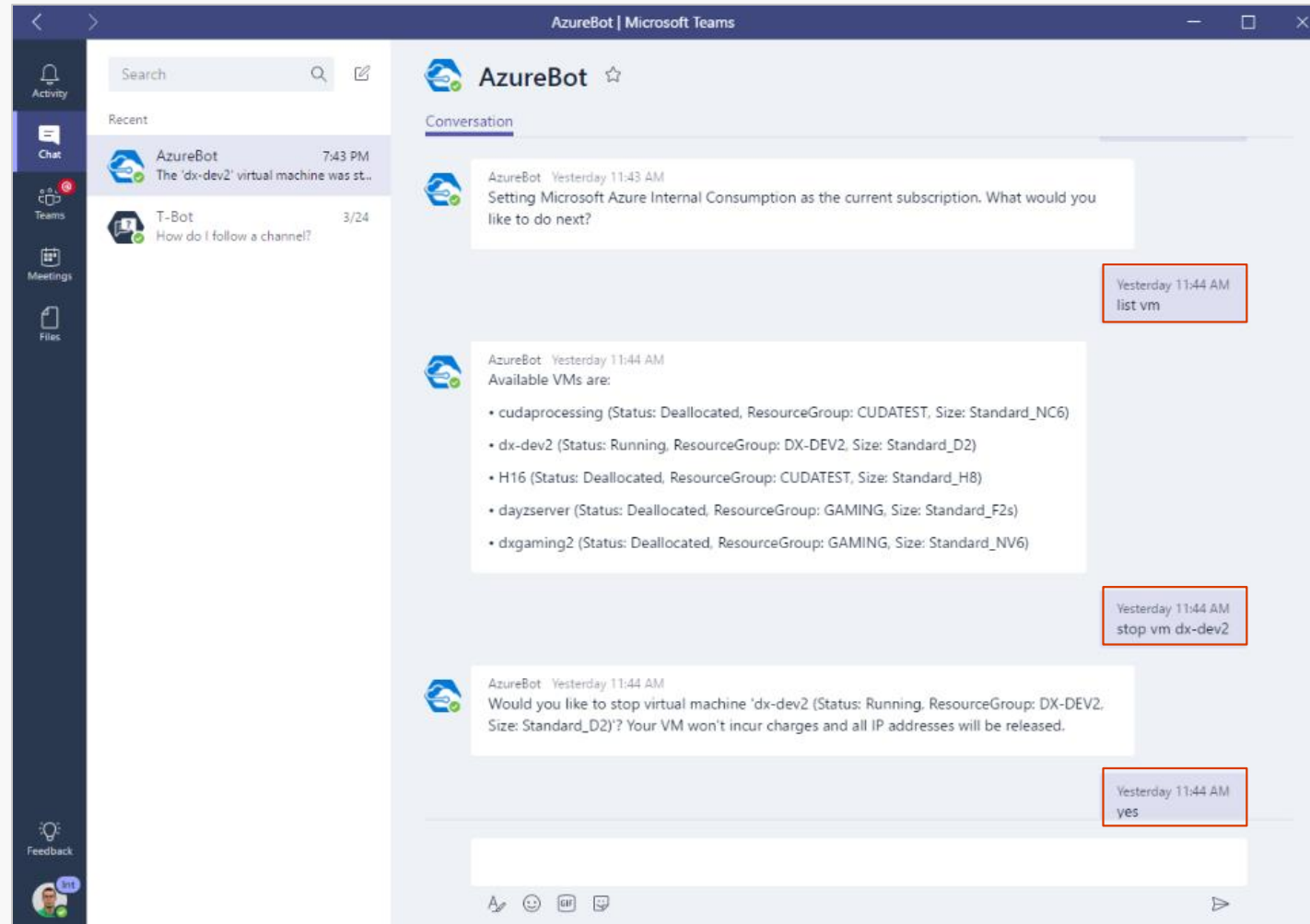
What would you like to do next?

Modify search New search

Type a message here

# Task-oriented Bot

## AzureBot



# QnA Bot

can I pay with a credit card?

dotsuser

Yes, you can pay by credit and debit card online, we accept all credit and debit cards.

DOTSbot

Type what I can look up for you. Or "back" to return.

Back

DOTSbot at 4:28:25 PM

|Type your message...

6	""Goods are on their way"". When will they be delivered?"	This indicates that the goods are on order from the supplier but the specific term of delivery to our warehouse is unknown. The approximate delivery date will be sent to you via email and will also appear in your order history.
7	Can I pay by credit or debit card?	Yes, you can pay by credit and debit card online, we accept all credit and debit cards.
8	When will the products be available?	Product availability is always clearly indicated alongside each individual product with a color to help identify the information at a glance. For further information, follow this <a href="https://www.microsoft.com/">link</a> (https://www.microsoft.com/).

# Retail Bot

**Chat** [X]

Dobry den, vitejte ve svete Microsoft! S čím vám mohu pomoci?

Zajímá mě konkrétní verze Office.

Hledám vhodnou verzi Office.

AlzaChatbot

Hledám vhodnou verzi Office.

alzauser

**Pro jaké účely si chcete Office pořídit?**

Pro domácí využití

Pro podnikání

AlzaChatbot at 4:53:06 PM

Type your message...

What can I help you with?

Nearest store

Order status

Questions

Complaints

DOTSbot

Questions

dotsuser

What are you interested in? (For example: "What is pro forma?", "Can I return the goods?")

DOTSbot at 4:27:16 PM

can I pay with a credit card?



# Internal Bot

People search...

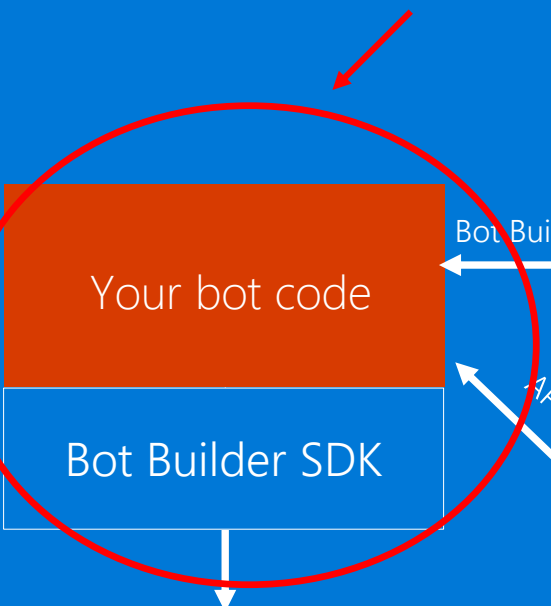
HR advisory, Q/A...

CRM access...

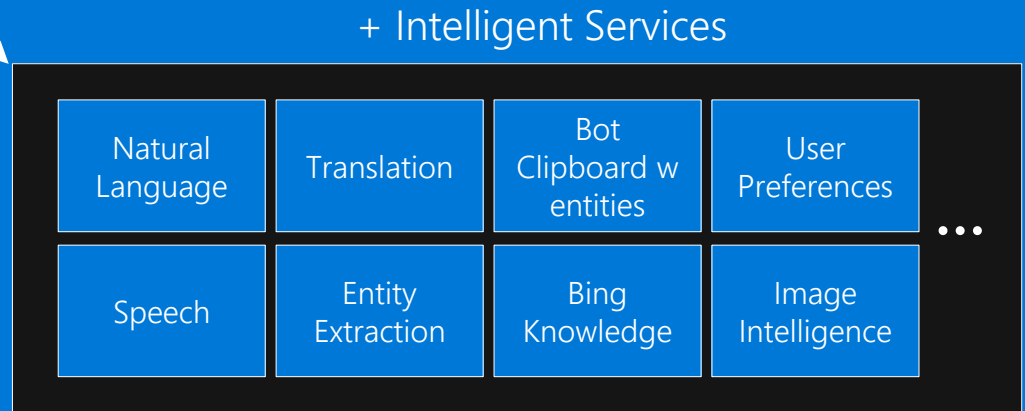
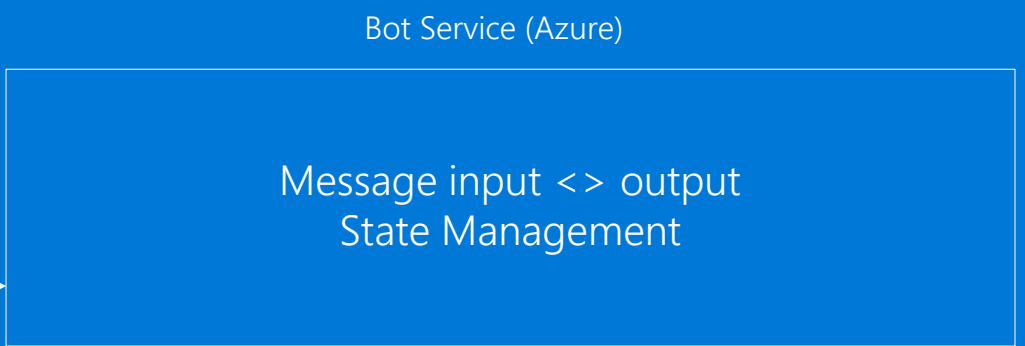
Implementation

# Microsoft Bot Framework

Your code goes here



Other services, APIs, Databases, Azure Machine Learning, Azure Search, etc...



Conversation Canvas/Channels

- Web Chat
- Email
- Facebook
- GroupMe
- Kik
- Skype
- Slack
- Telegram
- Twilio (SMS)
- Direct Line...
- ...



User is here

# Bot Builder SDK (v3)

C#



Dialogs as a way to model the conversation

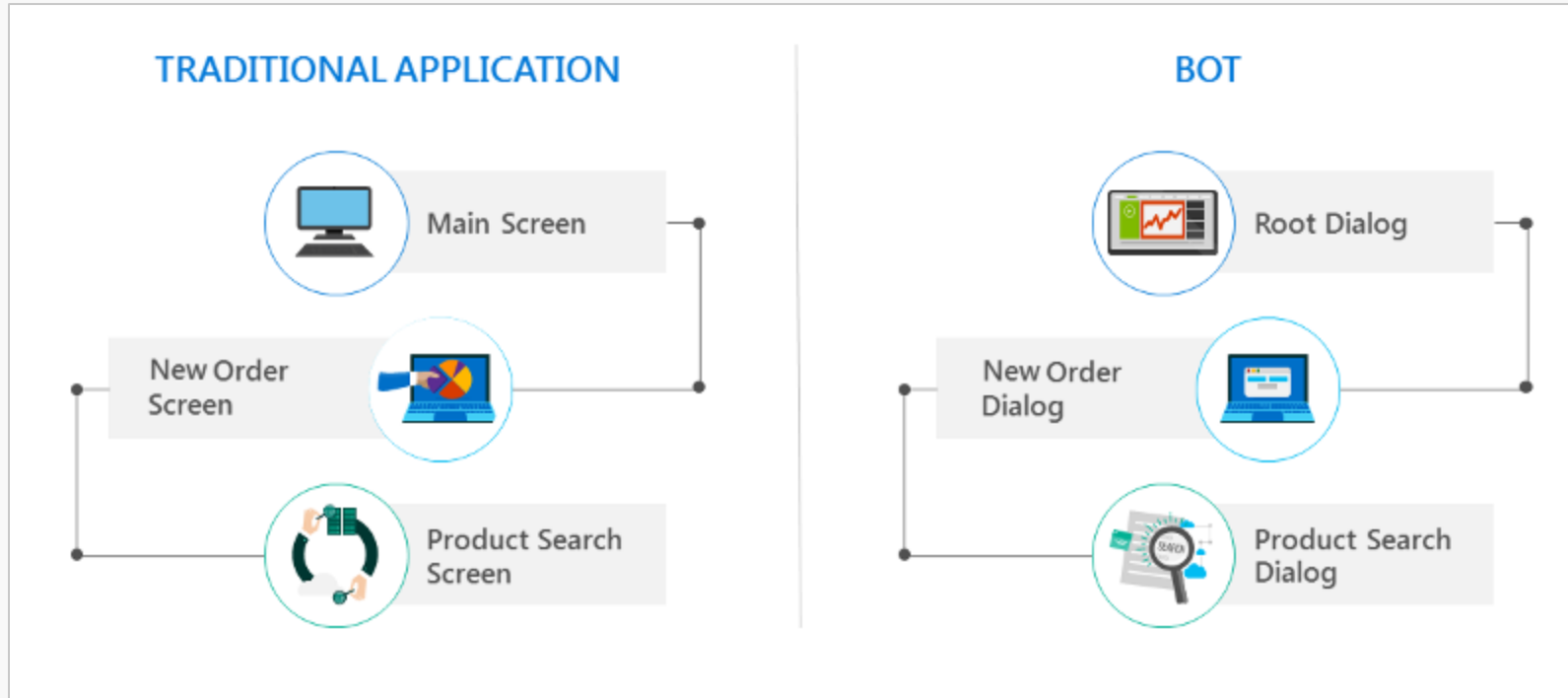
- Persistent state

- Different types of dialogs

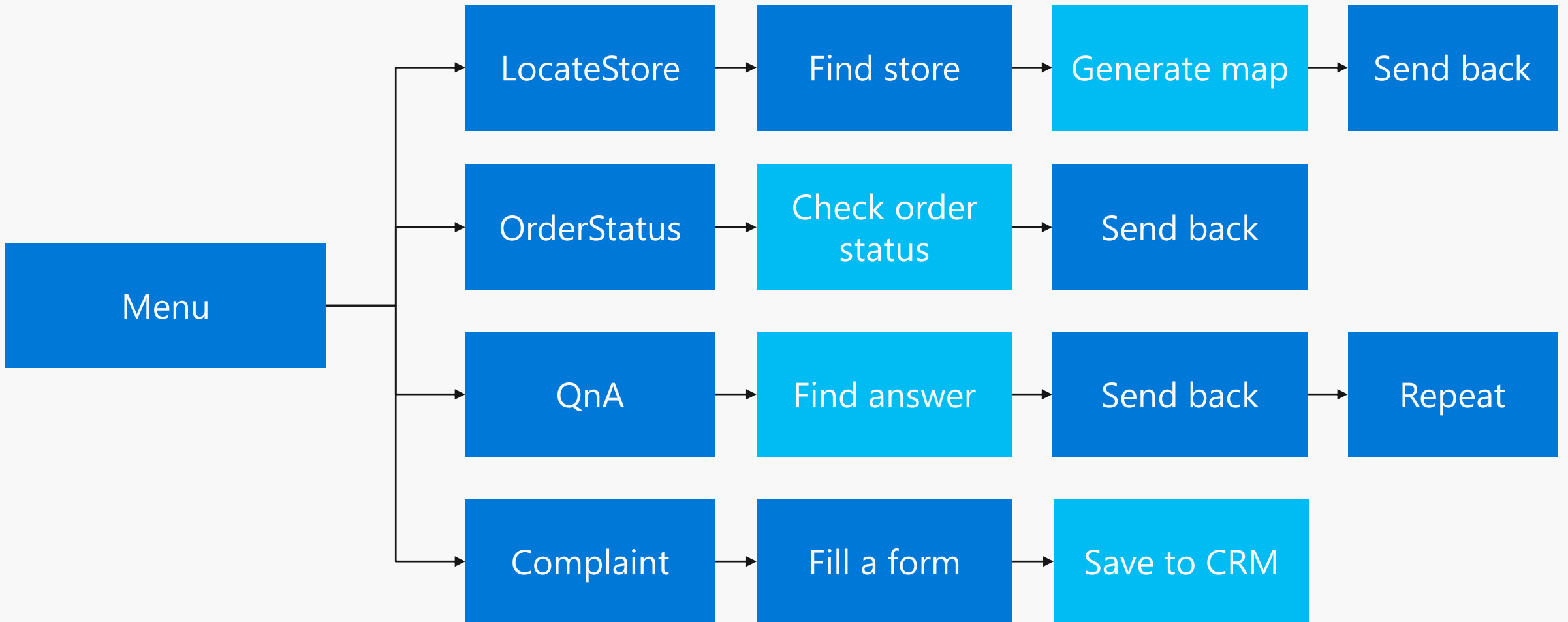
- Supports multiple UI elements

- Open-source

# Dialogs



# Dialog Linking



# Bot Builder SDK Preview (v4)

.NET, Node.js, Python, Java...

Still under active development, contributions welcome!

<https://github.com/Microsoft/botbuilder-dotnet>



# Bot Framework Emulator

Test locally

Able to visualize  
buttons and cards  
JSON messages

The screenshot displays the Bot Framework Channel Emulator interface. The main window shows a chat conversation between a user and a bot. The user asks, "How satisfied were you with the proposed solution?" and selects the "Somewhat" button. The bot responds with "Filing your complaint. One second, please." and "Your complaint was issued a number: c890." The user then asks, "What can I help you with?" and the bot displays a card with buttons for "Nearest store", "Order status", "Complaints", and "Questions".

The right-hand panel shows the JSON message details for the selected "Somewhat" button. The JSON structure is as follows:

```
{
  "type": "message",
  "timestamp": "2017-03-17T21:56:04.349Z",
  "serviceUrl": "http://localhost:20614",
  "channelId": "emulator",
  "from": {
    "id": "default-bot",
    "name": "Bot"
  },
  "conversation": {
    "id": "e2njb4a6d5kekgh19"
  },
  "recipient": {
    "id": "default-user"
  },
  "attachmentLayout": "list",
  "locale": "en-US",
  "text": "",
  "attachments": [
    {
      "contentType": "application/vnd.microsoft.card.hero",
      "content": {
        "title": "",
        "text": "How satisfied were you with the proposed solution?",
        "buttons": [
          {
            "type": "imBack",
            "title": "Not at all",
            "value": "Not at all"
          }
        ]
      }
    }
  ]
}
```

The bottom panel shows the log of the conversation, including the user's message and the bot's responses.

# Azure Bot Service

# Bot Framework Dev Portal

Deprecated since March 2018

=> Bot Service

# Bot Service (GA)

## Web App Bot

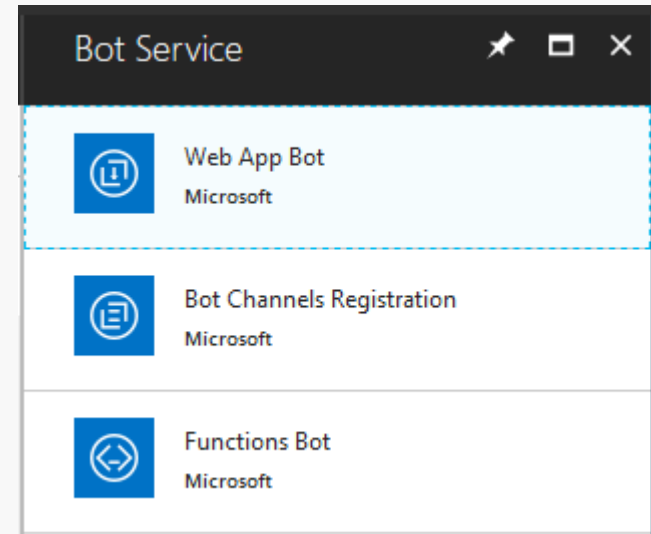
Hosted as Azure Web App

## Functions Bot

Hosted as Azure Function

## Bot Channels Registration

No hosting, just channels



# Bot Service Pricing

	<b>FREE</b>	<b>\$1</b>
Standard channels	Unlimited messages	Unlimited messages
Premium channels	10,000 messages/month	\$0.50 per 1,000 messages

\* Premium channels = DirectLine, Web Chat

- + (optional) hosting costs (App Service Plan, Functions Consumption Plan...)
- + (optional) Application Insights
- + (optional) LUIS
- + (optional) QnA Maker

# DEMO

*Building a bot with Bot Framework*

<https://aka.ms/cz/bots-workshop-2018>

# More Complex Stuff

<https://github.com/msimecek/SellerNotesBot>

<https://github.com/tompaana/bot-message-routing>

<https://github.com/tompaana/intermediator-bot-sample>

Extra: Provide Intelligence



# Intelligent Services

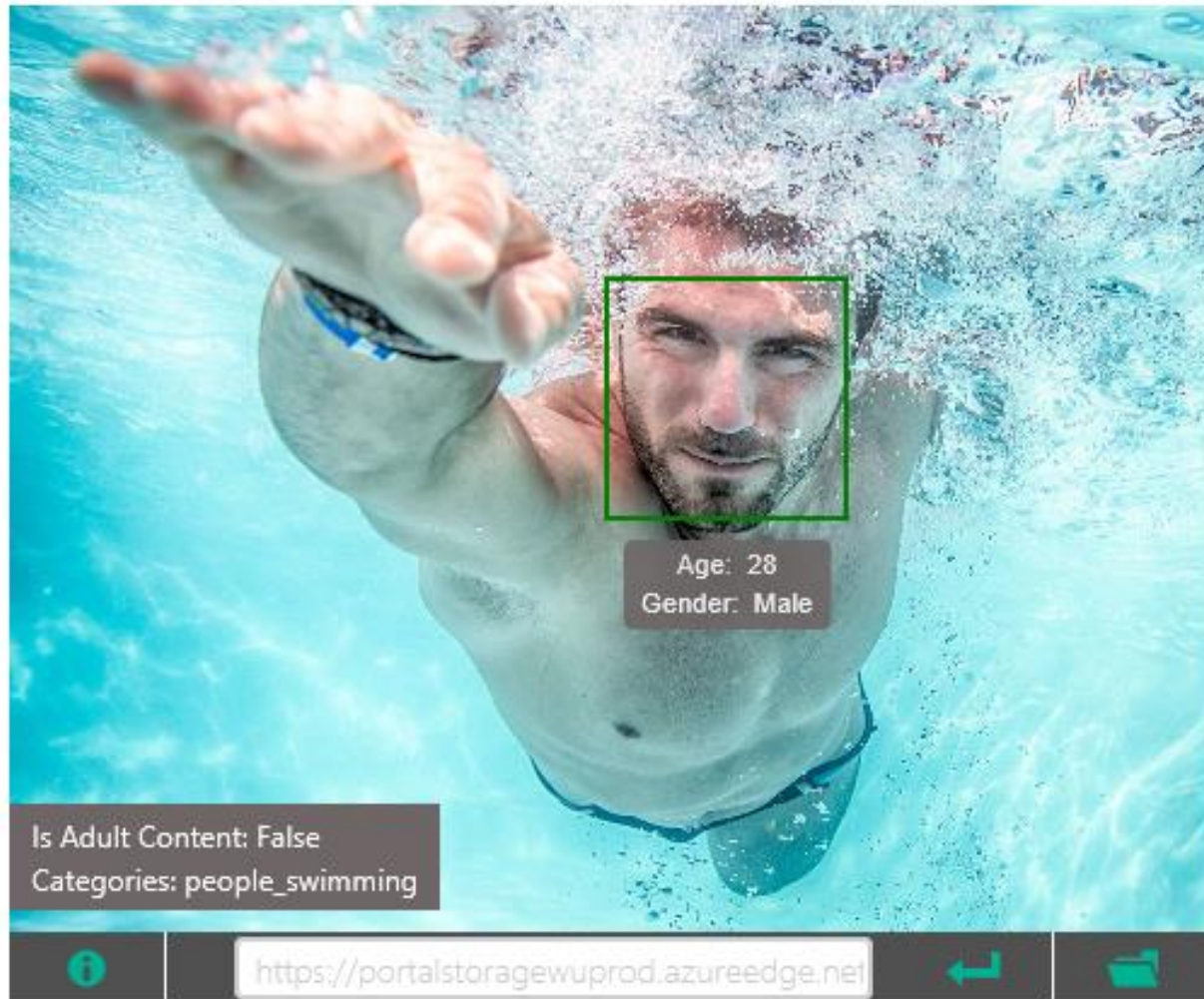
Cognitive Services

LUIS

QnA Maker

Azure Search

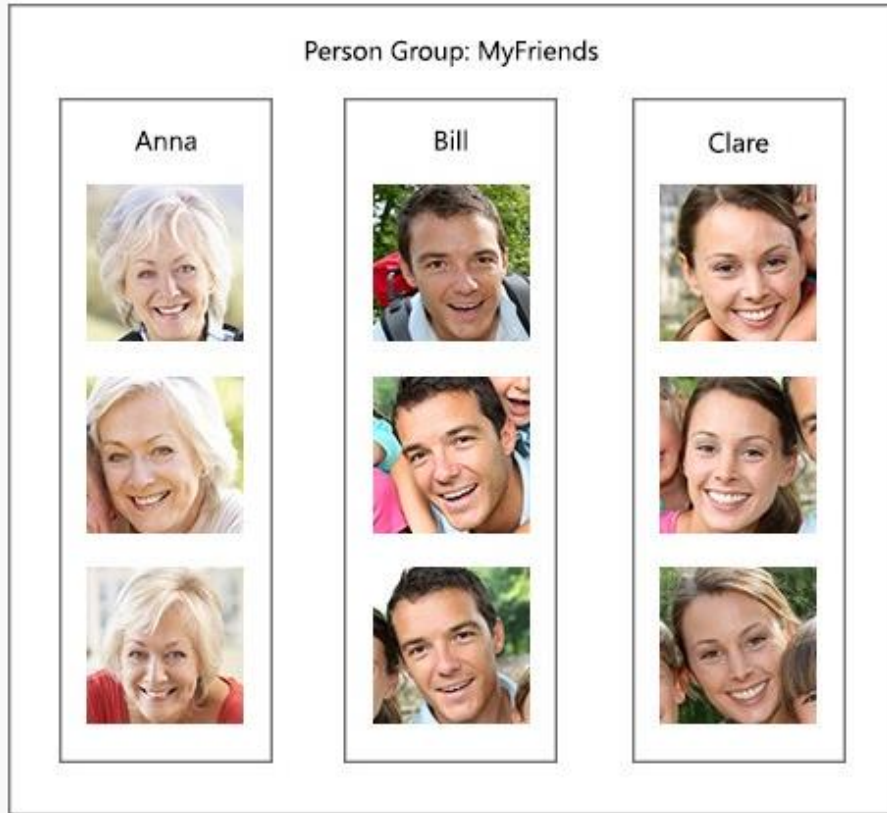
# Computer Vision API



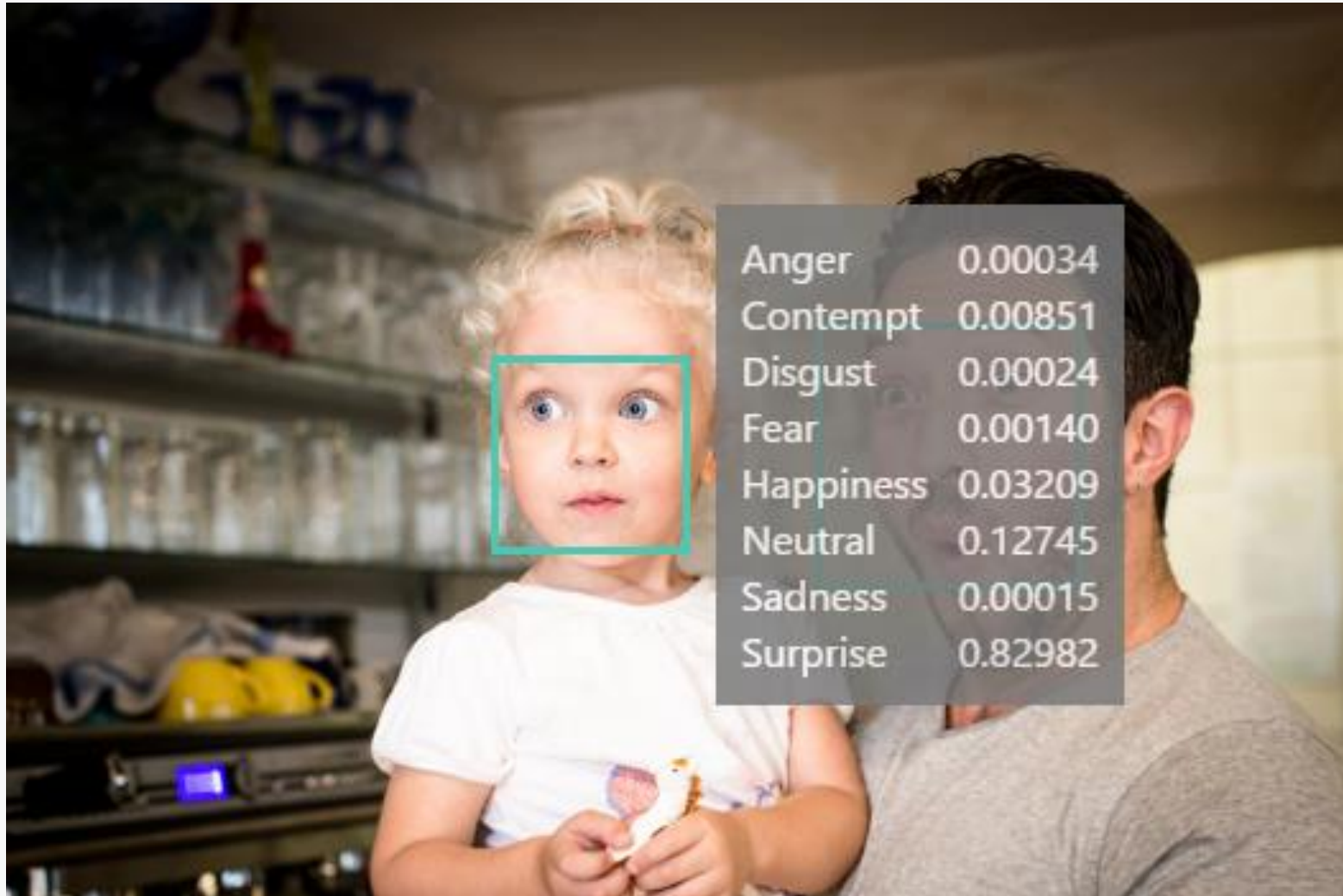
Features:

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

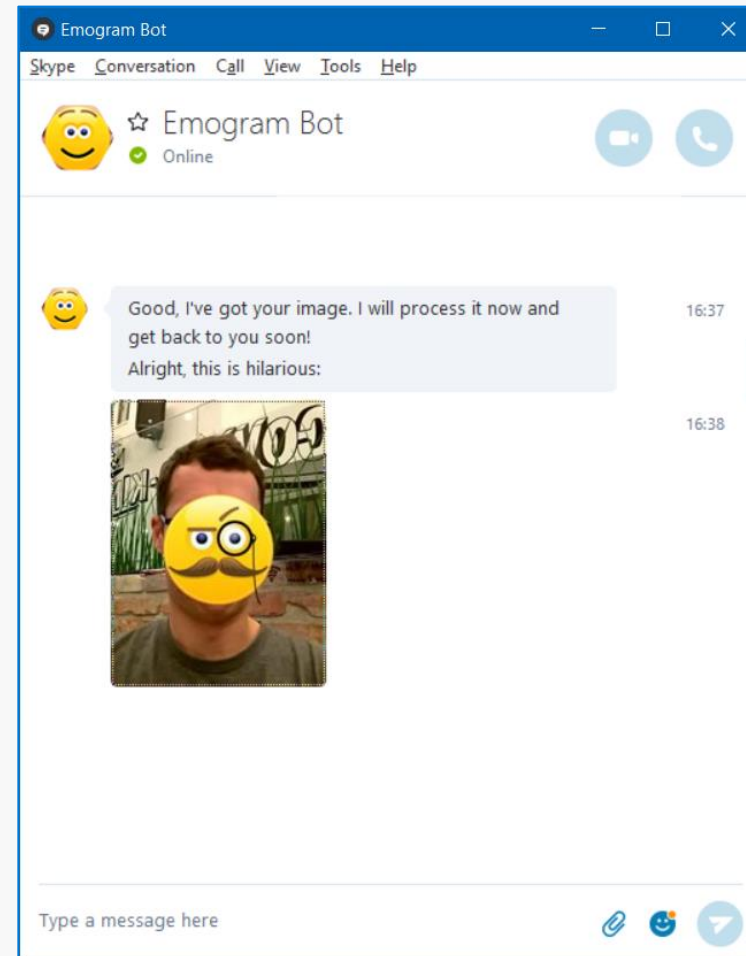
# Face API



# Emotion API



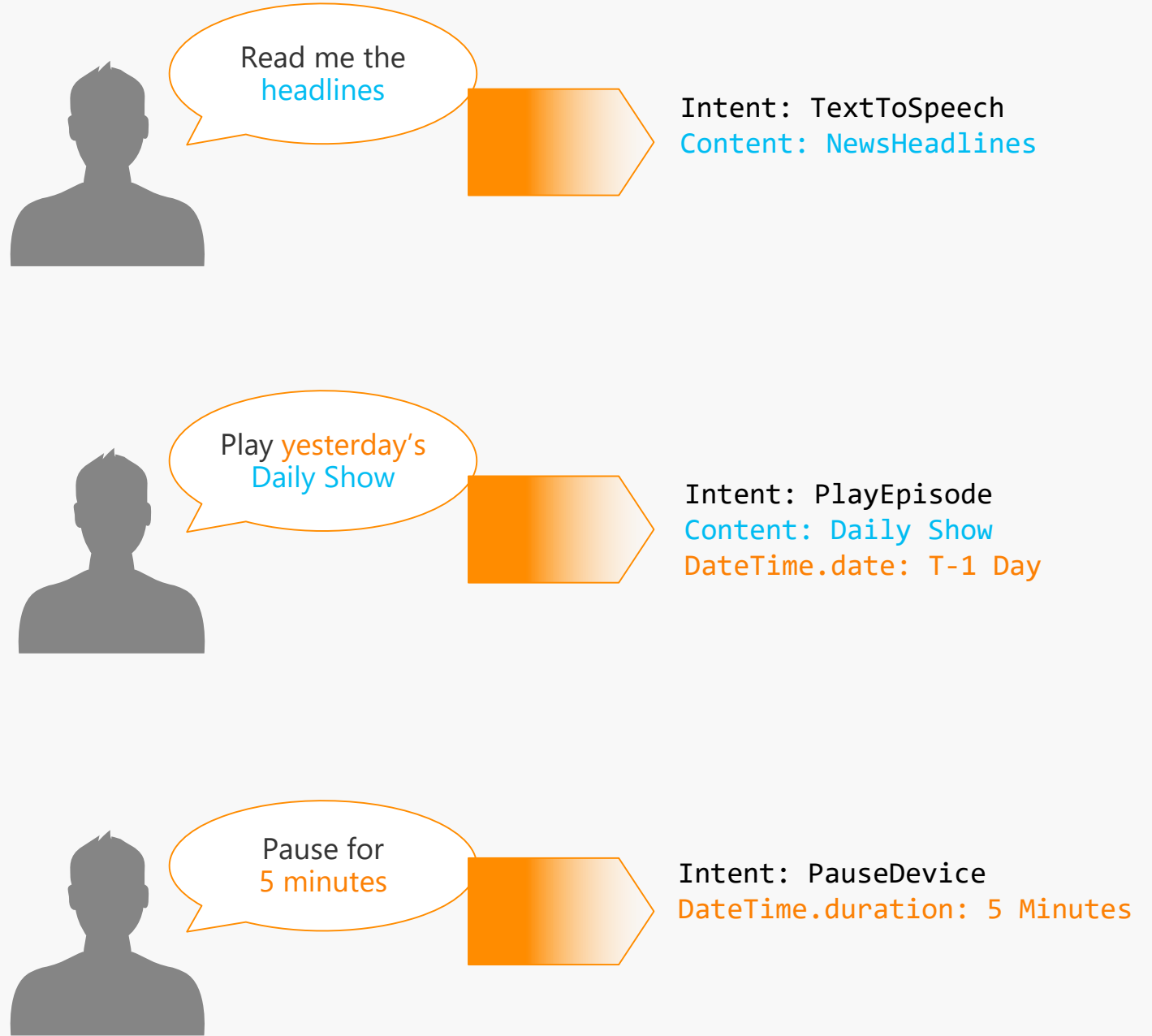
<https://www.microsoft.com/cognitive-services/en-us/emotion-api>





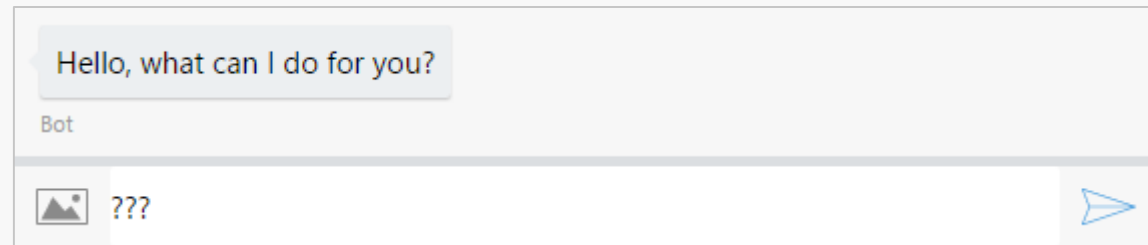
LUIS

Language Understanding  
Intelligent Service



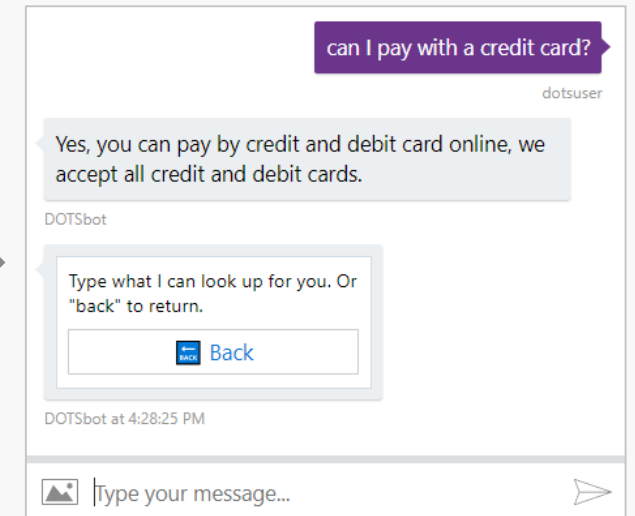
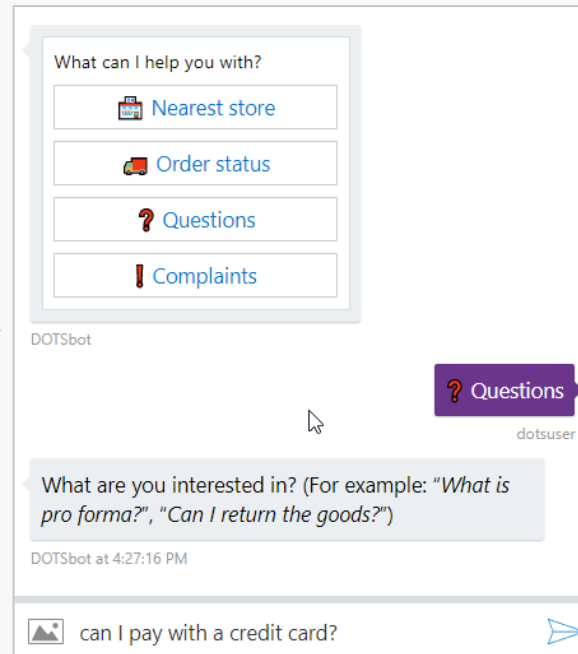
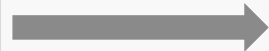
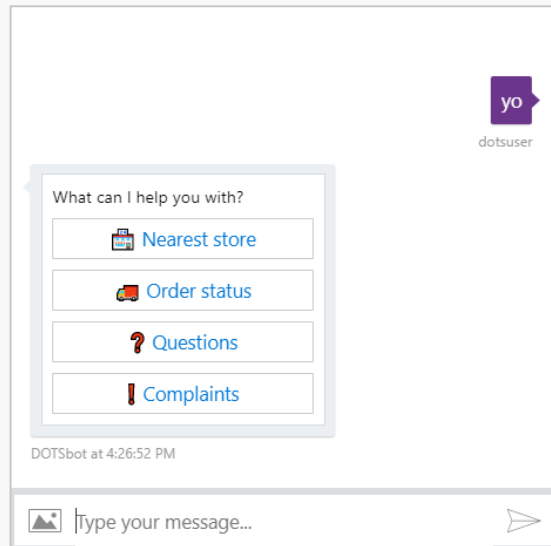
# Natural Language Processing?

Don't overdo it...



# Natural Language Processing?

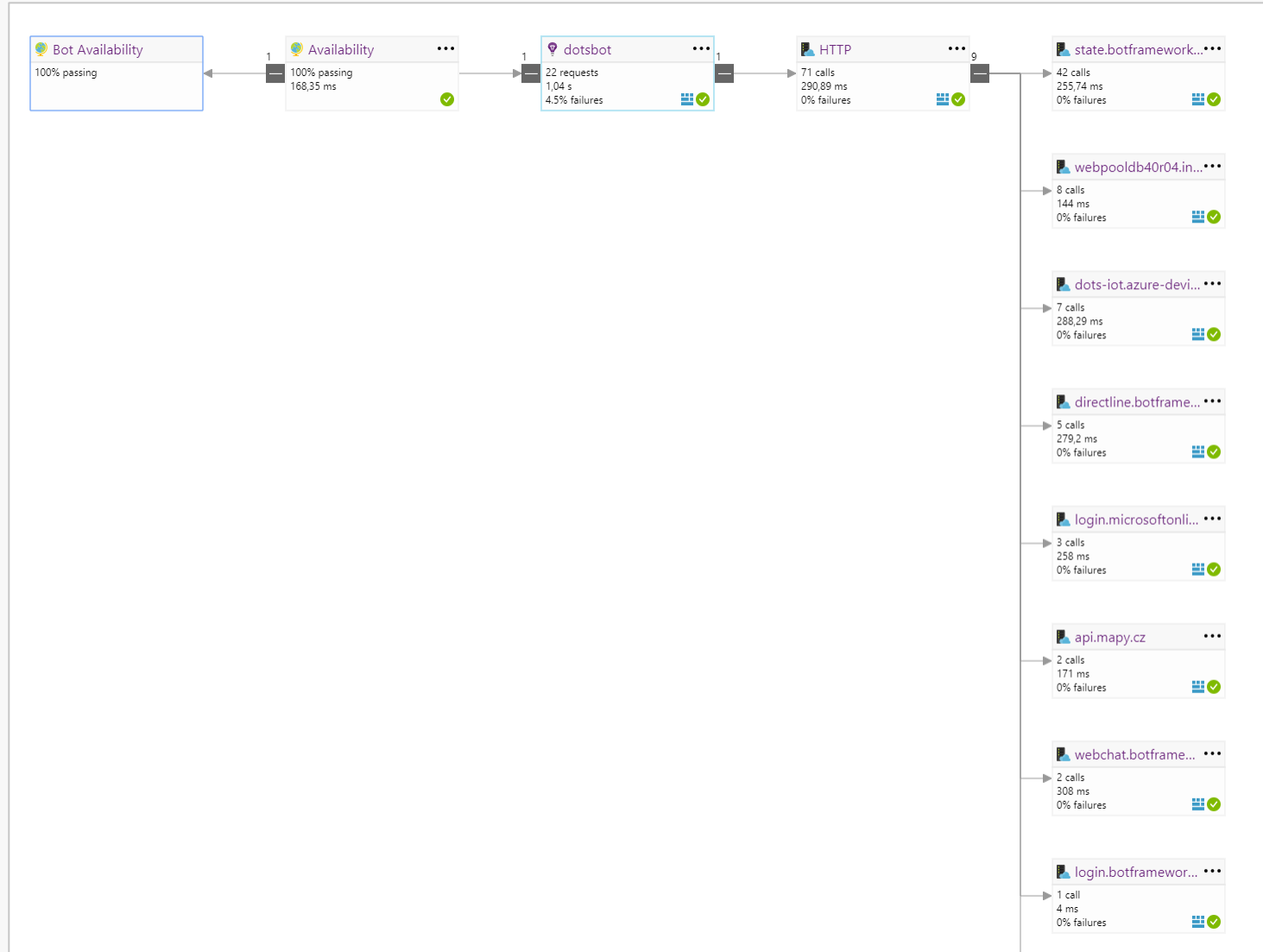
Don't overdo it...



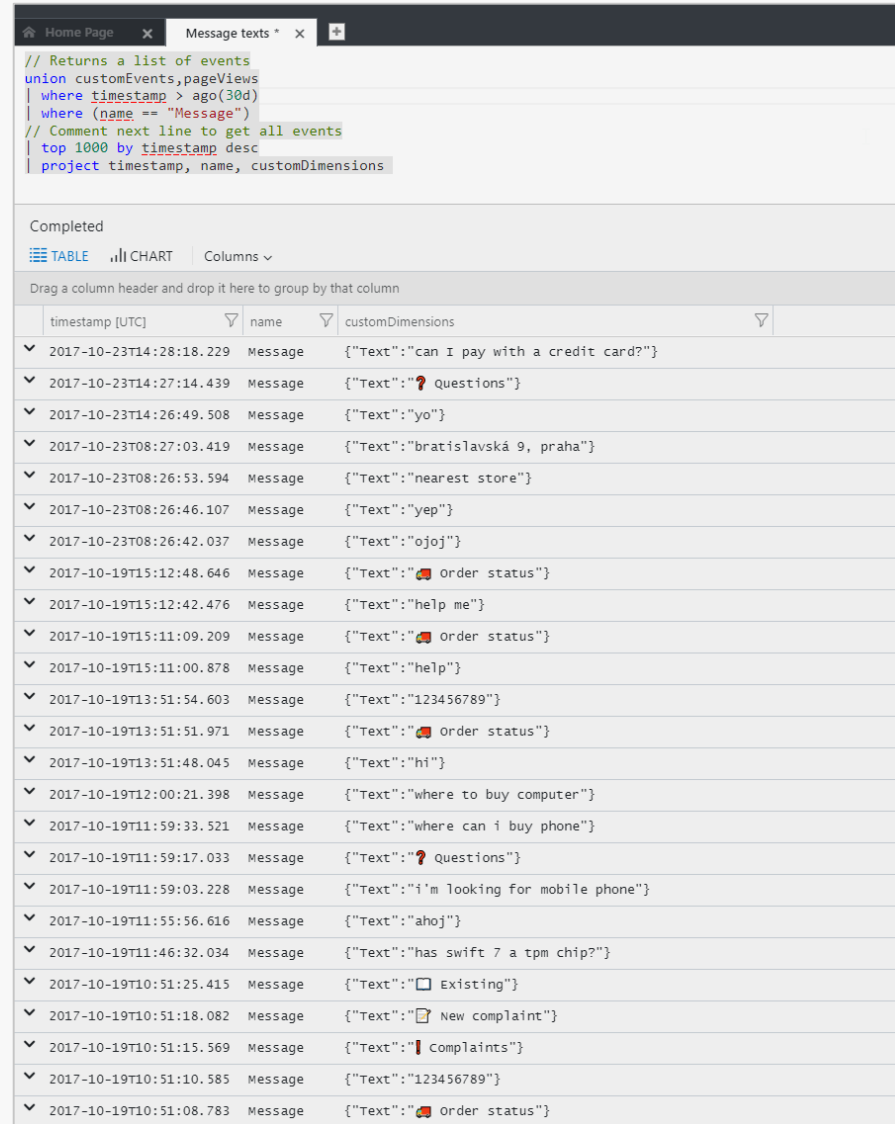


Telemetry

# Application Insights



# Application Insights



```
// Returns a list of events
union customEvents,pageViews
| where timestamp > ago(30d)
| where (name == "Message")
// Comment next line to get all events
top 1000 by timestamp desc
project timestamp, name, customDimensions
```

Completed

TABLE CHART Columns ▾

Drag a column header and drop it here to group by that column

timestamp [UTC]	name	customDimensions
2017-10-23T14:28:18.229	Message	{"Text":"can I pay with a credit card?"}
2017-10-23T14:27:14.439	Message	{"Text":"? Questions"}
2017-10-23T14:26:49.508	Message	{"Text":"yo"}
2017-10-23T08:27:03.419	Message	{"Text":"bratislavská 9, praha"}
2017-10-23T08:26:53.594	Message	{"Text":"nearest store"}
2017-10-23T08:26:46.107	Message	{"Text":"yep"}
2017-10-23T08:26:42.037	Message	{"Text":"ojoj"}
2017-10-19T15:12:48.646	Message	{"Text":"🛒 Order status"}
2017-10-19T15:12:42.476	Message	{"Text":"help me"}
2017-10-19T15:11:09.209	Message	{"Text":"🛒 Order status"}
2017-10-19T15:11:00.878	Message	{"Text":"help"}
2017-10-19T13:51:54.603	Message	{"Text":"123456789"}
2017-10-19T13:51:51.971	Message	{"Text":"🛒 Order status"}
2017-10-19T13:51:48.045	Message	{"Text":"hi"}
2017-10-19T12:00:21.398	Message	{"Text":"where to buy computer"}
2017-10-19T11:59:33.521	Message	{"Text":"where can i buy phone"}
2017-10-19T11:59:17.033	Message	{"Text":"? Questions"}
2017-10-19T11:59:03.228	Message	{"Text":"i'm looking for mobile phone"}
2017-10-19T11:55:56.616	Message	{"Text":"ahoj"}
2017-10-19T11:46:32.034	Message	{"Text":"has swift 7 a tpm chip?"}
2017-10-19T10:51:25.415	Message	{"Text":"☐ Existing"}
2017-10-19T10:51:18.082	Message	{"Text":"📄 New complaint"}
2017-10-19T10:51:15.569	Message	{"Text":"! Complaints"}
2017-10-19T10:51:10.585	Message	{"Text":"123456789"}
2017-10-19T10:51:08.783	Message	{"Text":"🛒 Order status"}

# Bot Portal

## GRAND TOTALS

**147** **1.6k**

Users Messages

## RETENTION - % USERS WHO MESSAGED AGAIN (LAST 10 DAYS)

Date	Users	Days later									
		1	2	3	4	5	6	7	8	9	10
10/12/2017	5	0%	0%	0%	0%	0%	40%	40%	0%	0%	0%
10/13/2017	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	
10/14/2017	0	0%	0%	0%	0%	0%	0%	0%	0%		
10/15/2017	0	0%	0%	0%	0%	0%	0%	0%			
10/16/2017	1	0%	0%	0%	0%	0%	0%				
10/17/2017	0	0%	0%	0%	0%	0%					
10/18/2017	5	40%	0%	0%	0%						
10/19/2017	30	0%	0%	0%							
10/20/2017	0	0%	0%								
10/21/2017	0	0%									

## USERS



**135**

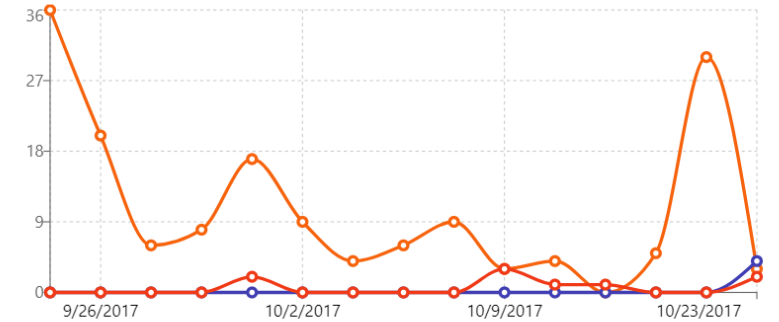
Direct Line

**4**

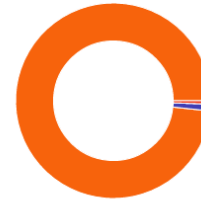
Skype for Business

**8**

Web Chat



## MESSAGES



**1.6k**

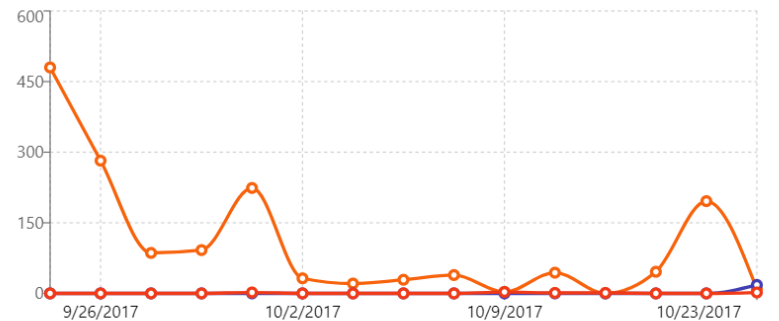
Direct Line

**18**

Skype for Business

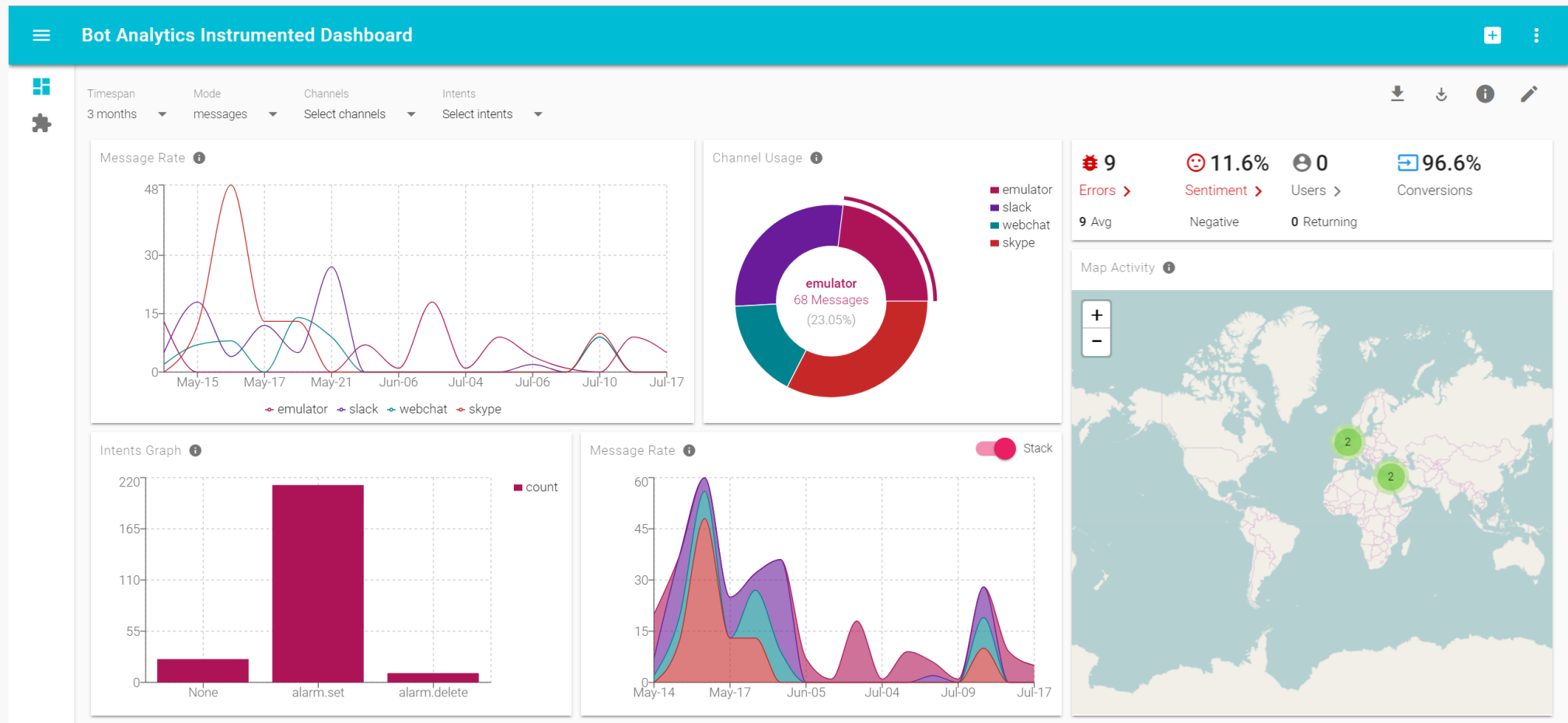
**9**

Web Chat



# IBEX dashboard

<https://github.com/Azure/ibex-dashboard>



How to start?

# How to start

## Bot Framework Portal + Docs

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

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

## Bot Workshop – GitHub

<https://github.com/msimecek/Chatbot-Student-Workshop>

<https://github.com/msimecek/Bot-Workshop>

# Microsoft Bot Framework

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martin.simecek@microsoft.com

