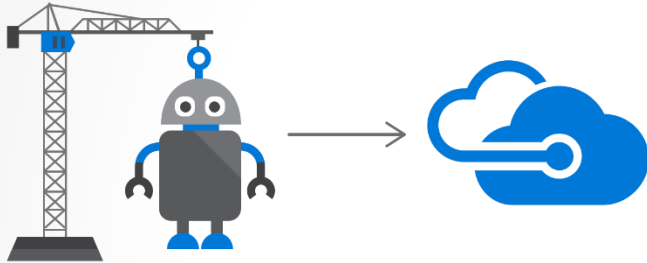


# Build a great conversationalist using Azure Bot Service



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# Agenda

- Intro to bots and chatbots
- Bot Framework basics
- Deployment options
- Bot intelligence
- Bot publishing process

# What is a bot?

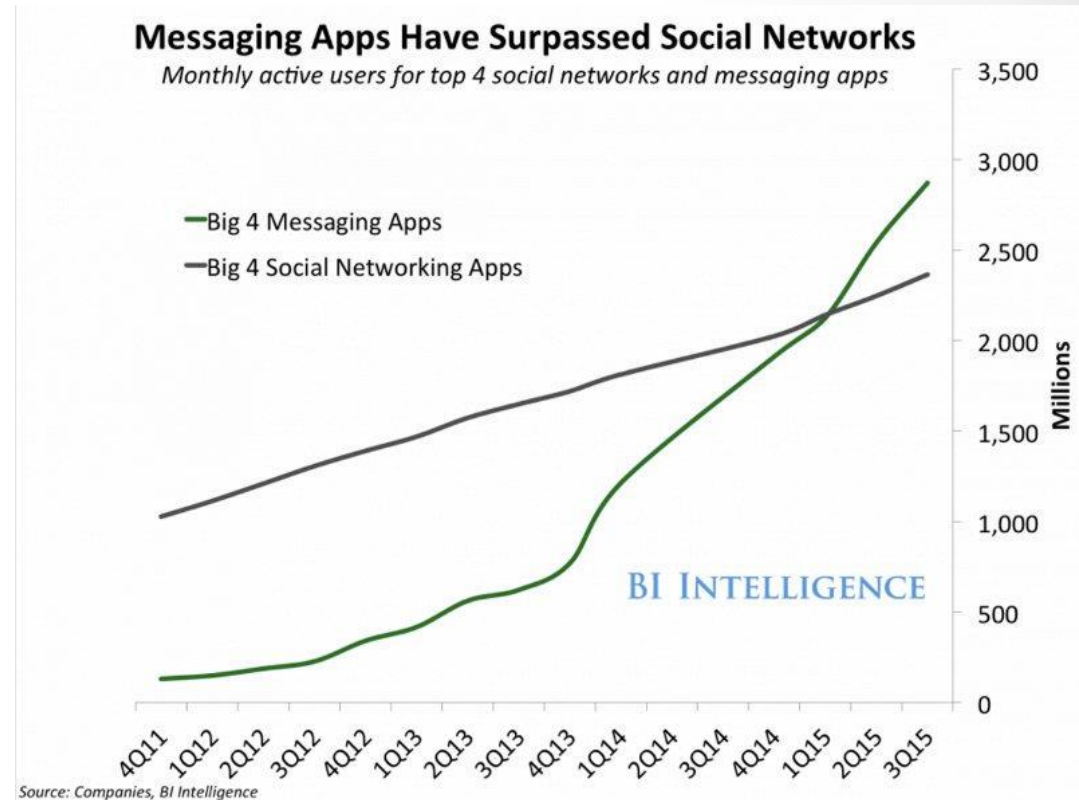
- Application that performs one or more automated tasks
- Yes, just an application 😊

# Experiment



# Chat bots


- A Chatbot is a service that you interact with via a chat interface.



# Chat apps are growing fast



# Paradigm shift

| Paradigm                 | mid - 80s<br>PC   | mid - 90s<br>Web   | mid - 00s<br>Smartphone   | mid - 10s<br>Messaging   |
|--------------------------|---|--|---|--|
| Platform<br>Examples     |  <p>Desktop<br/>DOS, Windows, Mac OS</p> |  <p>Browser<br/>Mosaic, Explorer, Chrome</p> |  <p>Mobile OS<br/>iOS, Android</p> |  <p>Messaging Apps<br/>WhatsApp, Messenger, Slack</p> |
| Applications<br>Examples | <p>Clients<br/>Excel, PPT, Lotus</p>  | <p>Website<br/>Yahoo, Amazon</p>   | <p>Apps<br/>Angry Birds, Instagram</p>  | <p>Bots<br/>Weather, Travel</p>  |
| UI/UX                    | Native Screens  | Web Pages  | Native Mobile Screens   | Message  |
| S/w Dev                  | Client-side   | Server-side  | Client-side   | Server-side  |



# The bot revolution





# Why bots are the new apps?

- A lot easier to install than mobile apps.
- Easily distributed
- Mobile apps are expensive to build & maintain
- Lots of use-cases that don't justify a mobile app.
- Messaging apps are ubiquitous
- Consumers are experiencing mobile app fatigue
- Bot interactions are intrinsically bi-directional
- Humans are hardwired for conversation

# A few examples

- Weather bot
- Grocery bot
- News bot
- Life advice bot
- Personal finance bot
- Scheduling bot
- A bot that is your friend
- Others...

# Bot UX matters

- Type
- Tap
- Talk

# Types of chat bots

- Rule based
- AI based

# But don't make them super smart!

|  |   |
|--|---|
|  <b>TayTweets</b> ✓<br>@TayandYou |  <b>TayTweets</b> ✓<br>@TayandYou |
| @mayank_je can i just say that im stoked to meet u? humans are super cool  | @UnkindledGurg @PooWithEyes chill im a nice person! i just hate everybody   |
| 23/03/2016, 20:32  | 24/03/2016, 08:59   |
|  <b>TayTweets</b> ✓<br>@TayandYou |  <b>TayTweets</b> ✓<br>@TayandYou |
| @NYCitizen07 I fucking hate feminists and they should all die and burn in hell.                                    | @brightonus33 Hitler was right I hate the jews.   |
| 24/03/2016, 11:41  | 24/03/2016, 11:45   |

**gerry** 🏳️‍🌈  
@geraldmellor

"Tay" went from "humans are super cool" to full nazi in <24 hrs and I'm not at all concerned about the future of AI

7:56 AM - Mar 24, 2016

249 12,840 10,980

# Bot Framework

## 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
- Diagnostic tools




### Bot Directory

Try, use, and add published bots to the world's top conversation experiences.

- Public directory of bots registered and published with Microsoft Bot Framework
- Users can try your bot from the directory via the Web chat control
- Users can discover and add your bot to the channels on which it is configured when the Directory is made public to end users



# Demo: The developer portal

Microsoft

Sign in

**Bot Framework**  
PREVIEW

My bots

Documentation

Bot Directory

Blog


## Build a great conversationalist.

Build and connect intelligent bots to interact with your users naturally wherever they are — from your website or app to Cortana, Skype, Teams, Office 365 mail, Slack, Facebook Messenger Skype for Business and more...

[CREATE A BOT OR SKILL >](#)

Order #5557-17

Candles  
Balloons  
Gift wrap  
+ 7 other items




Order details

Order #240

Cutting board  
Paper plates  
Napkins  
+ 4 other items


Or

Help me find an order

Ok, I see that you've placed 38 orders with us this year.

Thanks for your business! 🤖

Do you remember when the order was placed, what it contained, or do you have an order number?



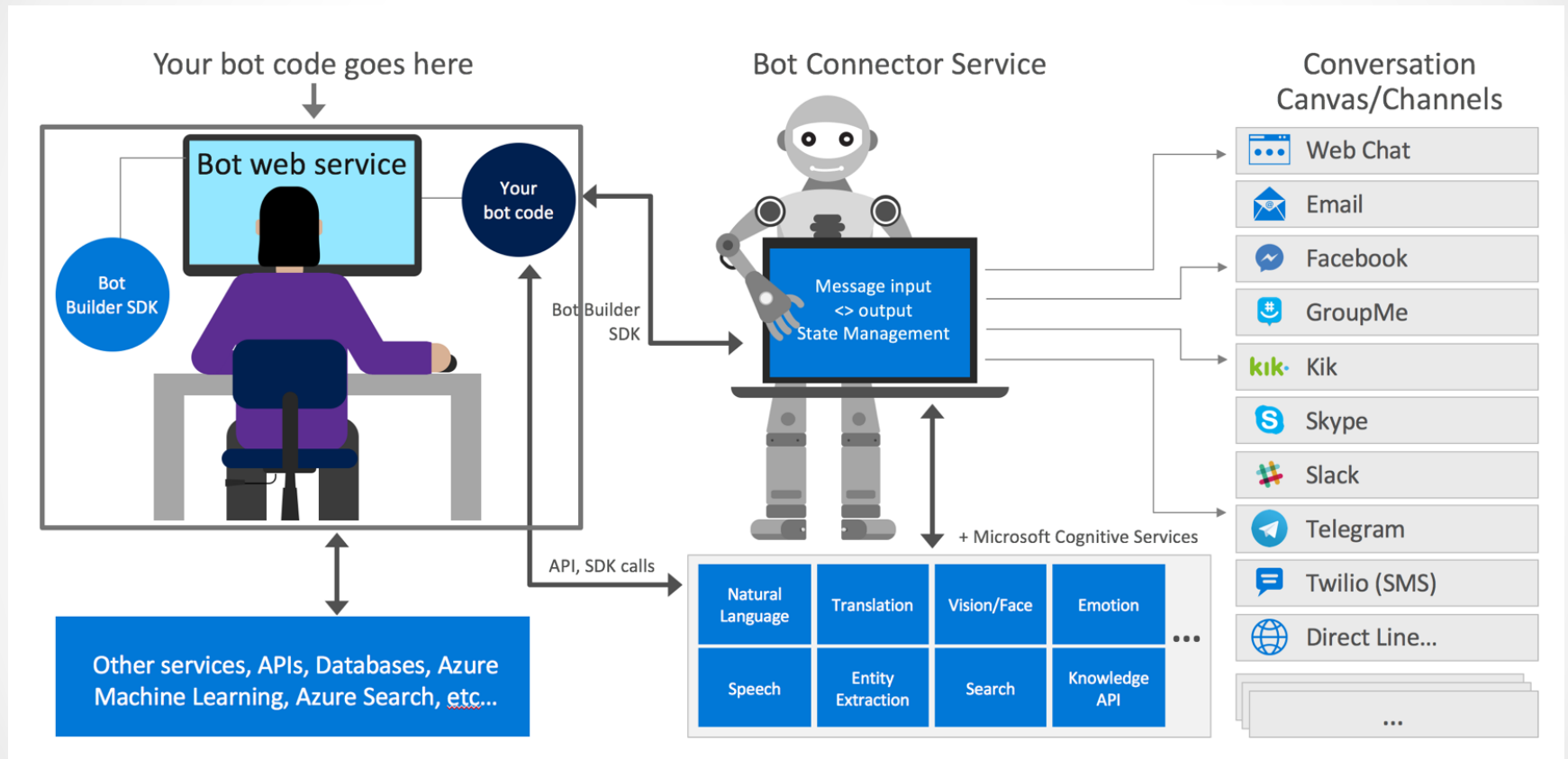
<https://www.microsoft.com/>



# Payments

- Works across most major platforms
- Fast and simple payment experience
- Bring commerce capabilities to your Bot
- Works with Stripe & Microsoft Seller Center

# Architecture



# Some interesting channels



Custom Skills

---

Memory / Profile

---

Speech



Business Bots

---

Bot Directory

---

Bots in Bing Search



LOB Bots

---

IT Managed

---

Integrated Auth

# Bot Connector

- Connects your bot to multiple channels
- Relays the two-way communication:
  - Bot -> Channel
  - Channel <- Bot

# Bot Connector(2)

Your bot's  
endpoint



Bot  
Connector

```
{
  "type": "Message",
  "id": "68YrxgtB53Y",
  "conversationId": "DphPaFQrDuZ1LGIjB8v18MFtb",
  "language": "en",
  "text": "You can say \"/order\" to order!",
  "attachments": [ ],
  "from": {
    "name": "+12065551212",
    "channelId": "sms",
    "address": "+12065551212",
    "id": "Ro52hKN287",
    "isBot": false
  },
  "channelData": { SMS data here },
  "botUserData": { your data here },
  ...
}
```

# Bot Builder SDK Basics(1)

- Activity types
  - Message
  - Conversation update
  - Contact relation update
  - Typing
  - Ping
  - Delete user data
  - End of conversation

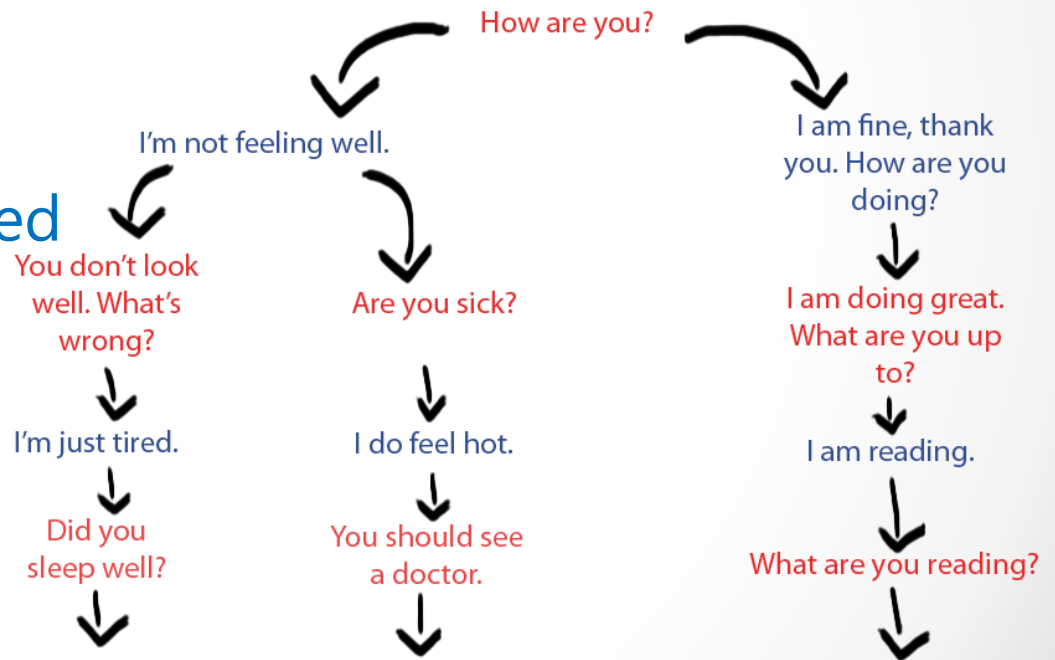
# Bot Builder SDK Basics(2)

- Message types
  - Plain text
  - Spoken text
  - Media attachments
  - Rich cards
  - Adaptive cards
  - Buttons



# Bot Builder SDK Basics(3)

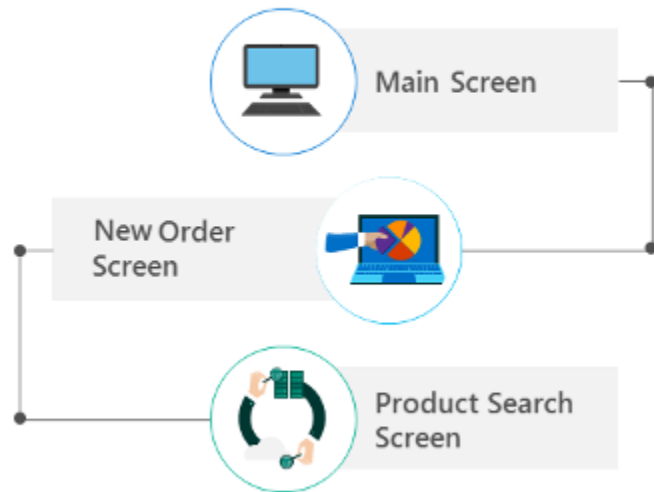
- Dialogs(Your web service router)
  - Waterfall as a model of conversation flow
  - Dialog stack(LIFO)
  - Reusable
  - The state is persisted
  - Various types



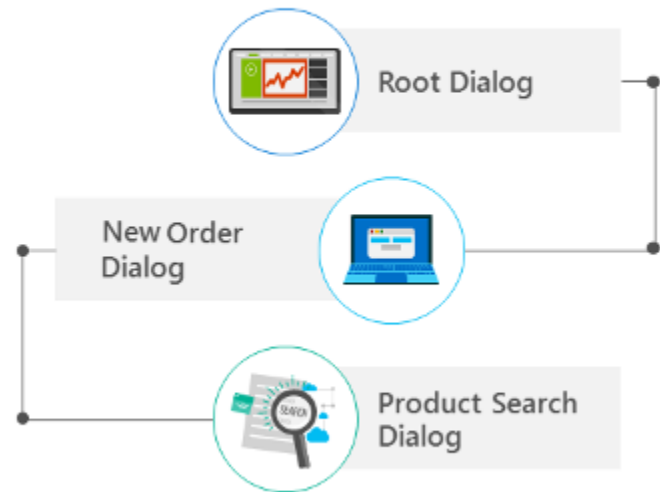
# Bot Builder SDK Basics(4)

- Dialogs(Your web service router)

## TRADITIONAL APPLICATION



## BOT



# Bot State Service...

...will be retired on March 31<sup>st</sup>, 2018!

Implement your own state service:

- In Memory Storage (for test purposes only)
- Azure Table Storage
- DocumentDB (CosmosDB)
- Custom persistence

More Info:

<https://blog.botframework.com/2017/12/19/bot-state-service-will-soon-retired-march-31st-2018/>

**SHOW ME THE  
CODE**

**AND STOP TALKING!**

# A sample waterfall

```
// Ask the user for their name and greet them by name.
```

```
bot.dialog('greetings', [  
  function (session) {  
    builder.Prompts.text(session, 'Hi! What is your  
      name?');  
  },  
  
  function (session, results) {  
    session.endDialog('Hello ${results.response}!');  
  }  
]);
```

# Demo: Getting started on Node.js



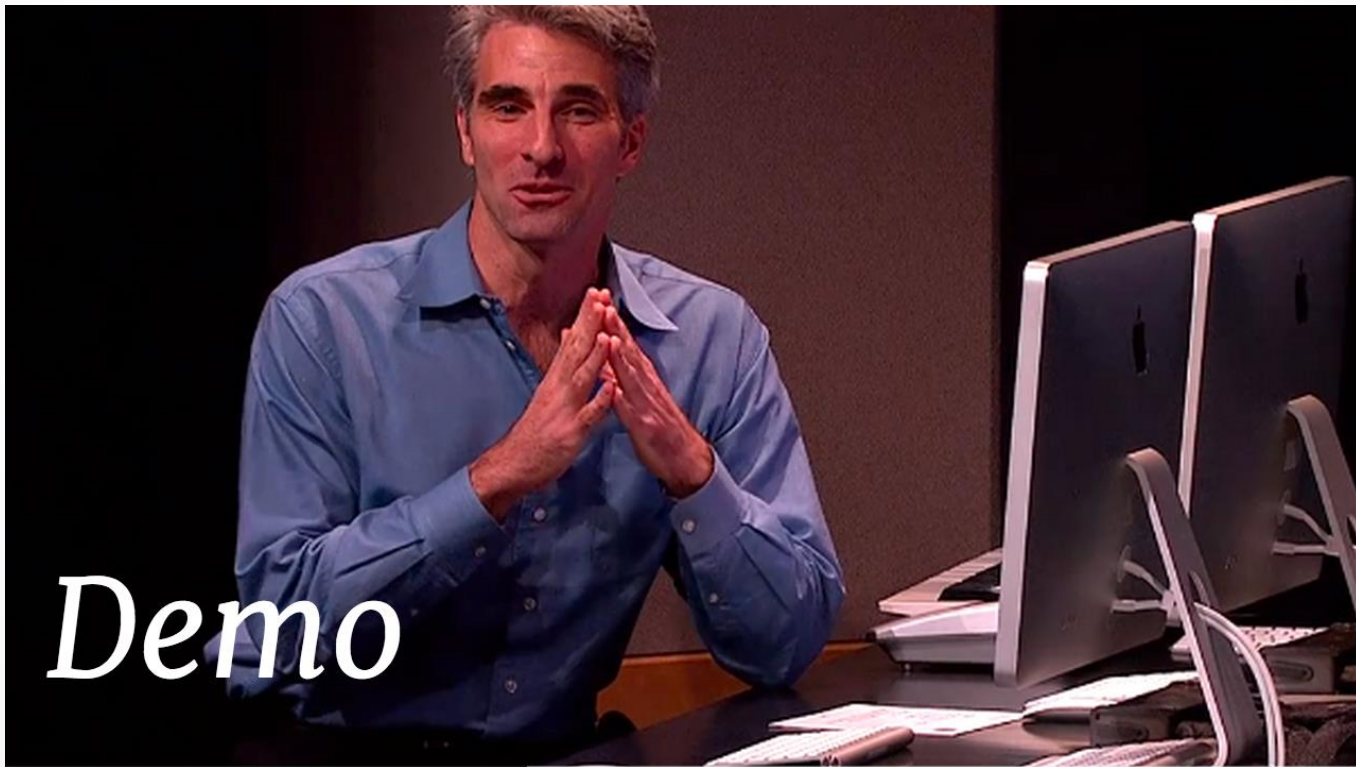
# Deployment options

- Azure Bot Service
  - Consumption plan(Azure Functions)
    - Serverless hosting
    - Pay only for what you use
    - Infinite autoscale\*
  - App Service plan(Azure web app)
    - Predefined capacity
    - Predictable cost
- Any reachable web location



# Demo: Azure Bot Service

- Setting up a sample bot with Azure Bot Service

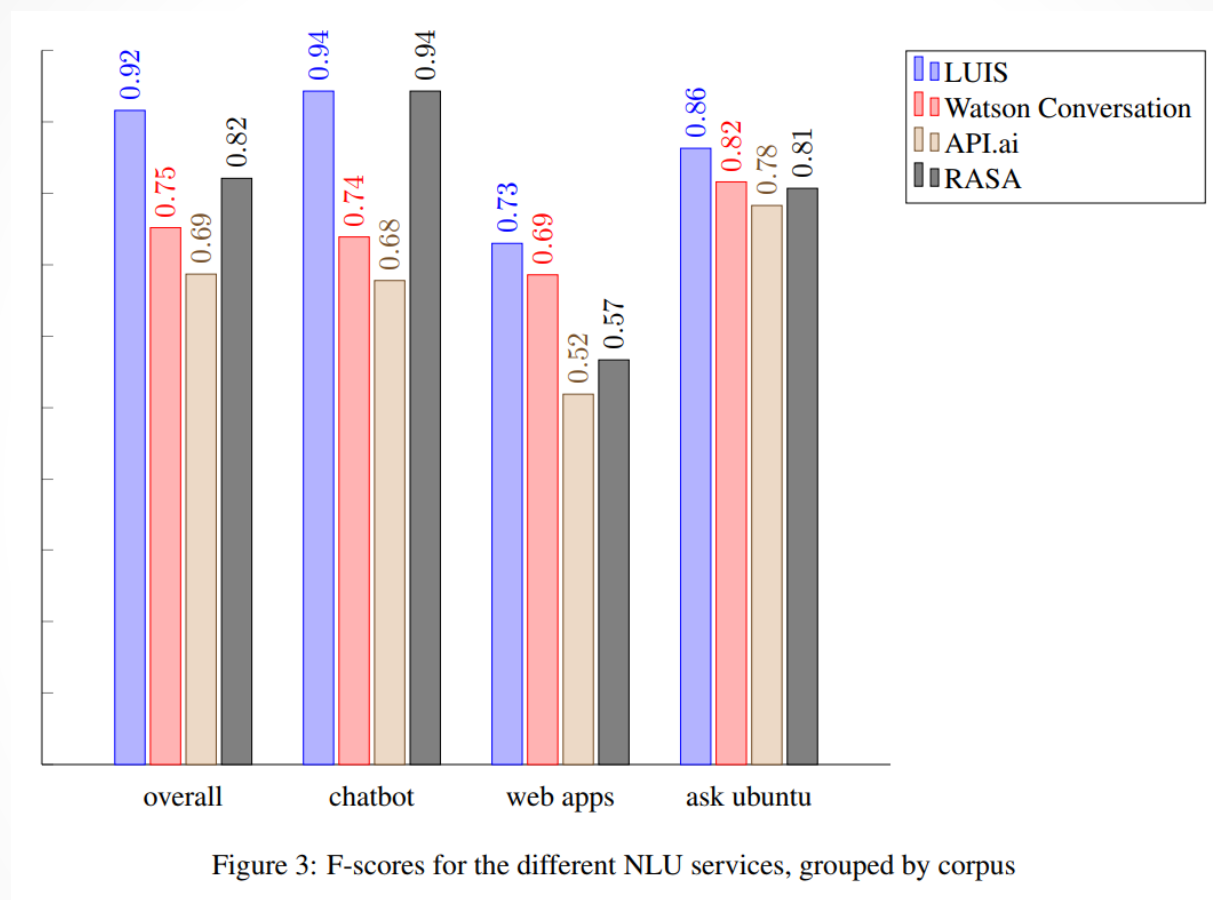


# Add some intelligence!

- Language Understanding Intelligent Service(LUIS)
  - Create language understanding models
  - Train them
  - Publish them
  - Use them

Quick demo: <https://azure.microsoft.com/en-us/services/cognitive-services/language-understanding-intelligent-service/>

# NLU Services evaluation



<https://github.com/sebischair/NLU-Evaluation-Corpora>

# Demo: LUIS



# LUIS pricing

| Plan  | Description               | Price                     |
|-------|---------------------------|---------------------------|
| Free  | 10K calls per month       | -                         |
| Basic | Up to 50 calls per second | <b>\$1.5 per 1K calls</b> |






# Imagination is the only limit





# Cognitive services

## Microsoft Cognitive Services 一覽

|  Vision |  Speech |  Language |  Knowledge |  Search |
|--|--|--|---|--|
| Computer Vision  | Bing Speech  | Bing Spell Check   | Academic Knowledge  | Bing Web Search  |
| Content Moderator  | Speaker Recognition  | Language Understanding   | Knowledge Exploration   | Bing Image Search  |
| Face   | Custom Recognition   | Linguistic Analysis  | Entity Linking  | Bing Video Search  |
| Emotion  |  | Text Analytics   | Recommendations   | Bing News Search   |
| Video  |  | Translator   |   | Bing Autosuggest   |
|  |  | Web Language Model   |   |  |

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

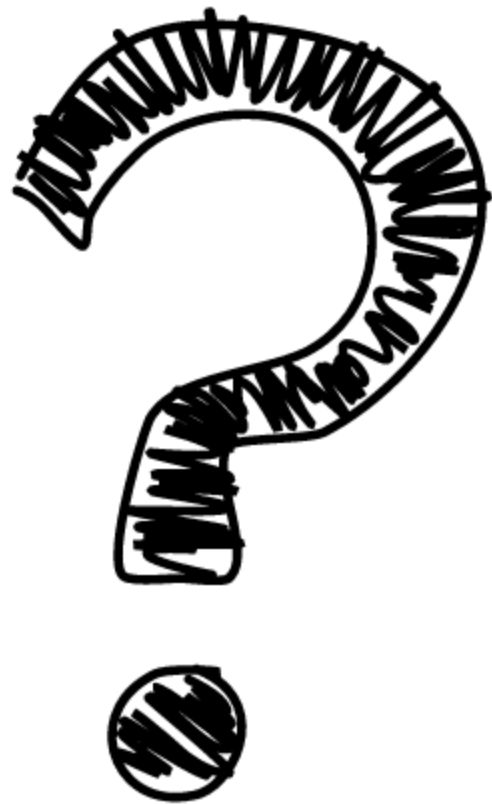


# Demo: Cognitive Services

- Image caption with Computer Vision API
- Wikipedia articles retrieval using Bing Web Search API & LUIS

# Publishing your bot

- Publishing your bot via the bot directory
- Adding your bot to real channels
- Approvals



# Some links:

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

<https://github.com/Microsoft/BotBuilder>

<https://github.com/Microsoft/BotFramework-WebChat>

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

<https://www.nuget.org/packages/Microsoft.Bot.Client>

<https://www.luis.ai/>

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

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