创新交互方式，全新用户体验

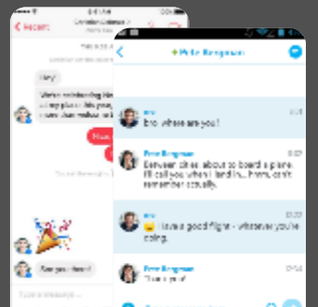
Conversation as a Platform

丁煜恒
微软（中国）有限公司
开发者体验和平台合作事业部

yuding@Microsoft.com

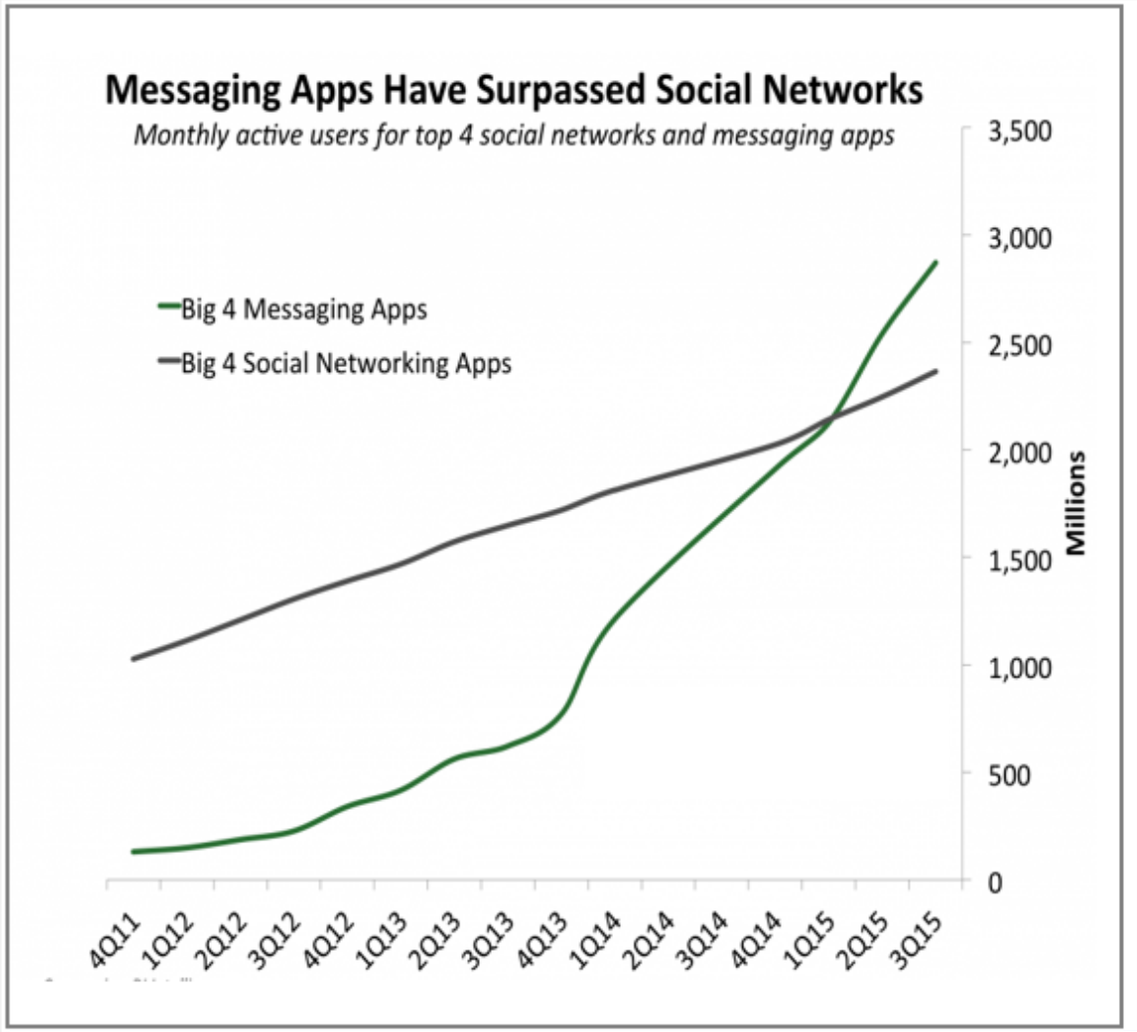
世界和技术正在经历又一次转型

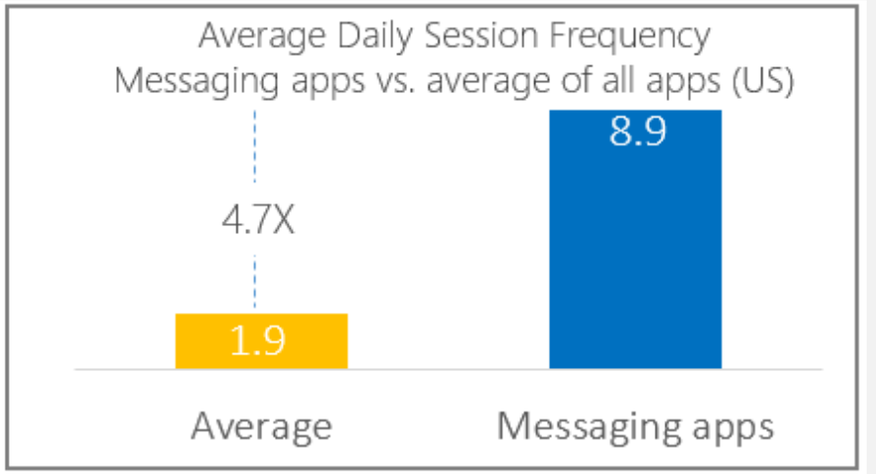
– 微软CEO， Satya Nadella

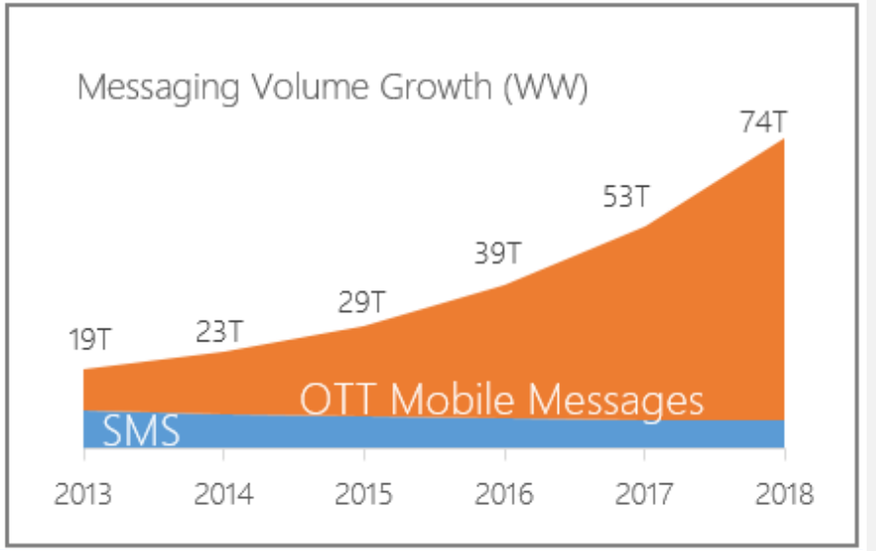
	80年代中期	90年代中期	21世纪00年代中期	21世纪10年代中期
	电脑	**网络**	**移动手机**	**对话**
				
平台示例	桌面操作系统 Dos, Windows, Mac OS	浏览器 Mosaic, Explorer, Netscape	移动端操作系统 iOS, Android, WP	即时通讯应用 微信, QQ, Skype
应用示例	程序 Excel, PPT, Lotus	网站 雅虎, 亚马逊	应用（APP） 愤怒的小鸟, Instagram	对话机器人/代理 （询问）天气、旅行
用户界面	图形用户界面（GUI）应用	网页	手机本地应用	对话型的用户界面

对话服务已经成为人们的生活一种主要习惯之一

消息应用呈现出快速增长的态势







Source: BI Intelligence, Portio Research

对话即平台

Conversation as a Platform

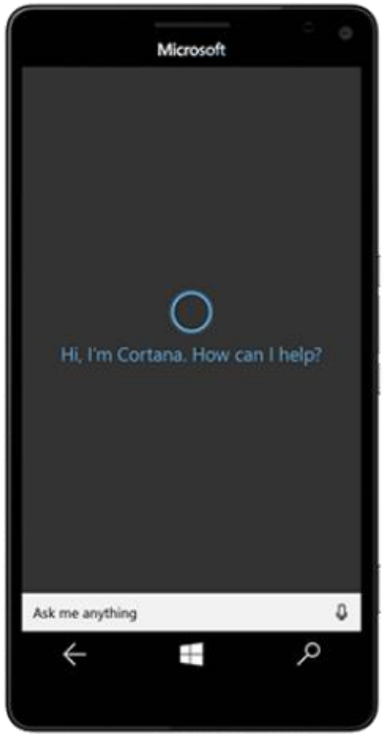
用户

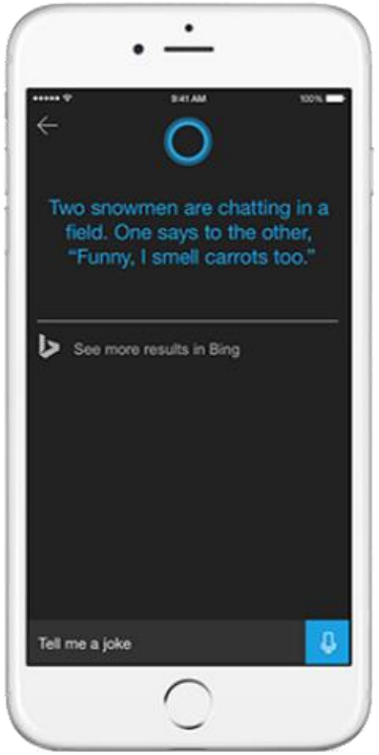
数字助理

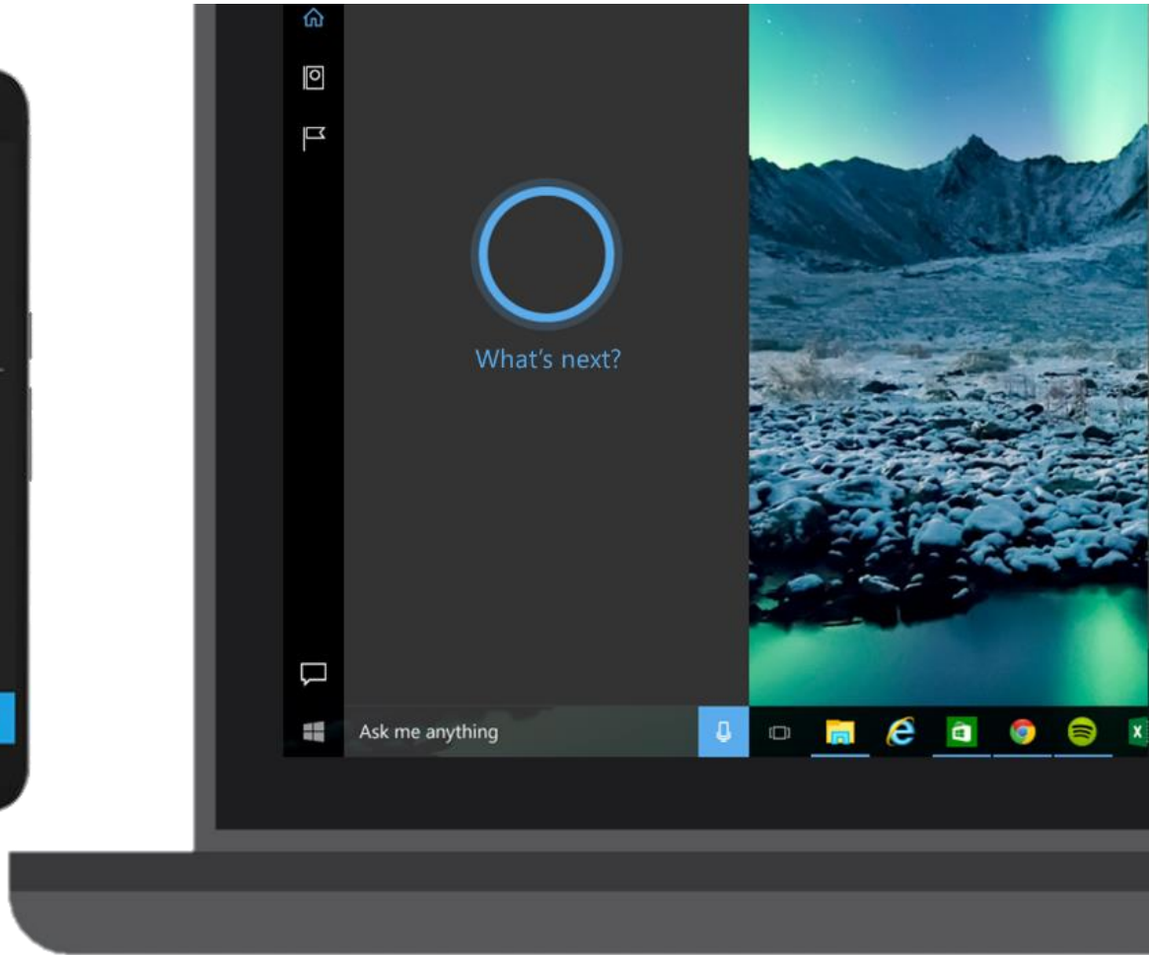
聊天机器人

Cortana——跨平台的个人助手，如你所愿

HTML5 DREAMWORKS IT大咖说 知识分享平台







Microsoft

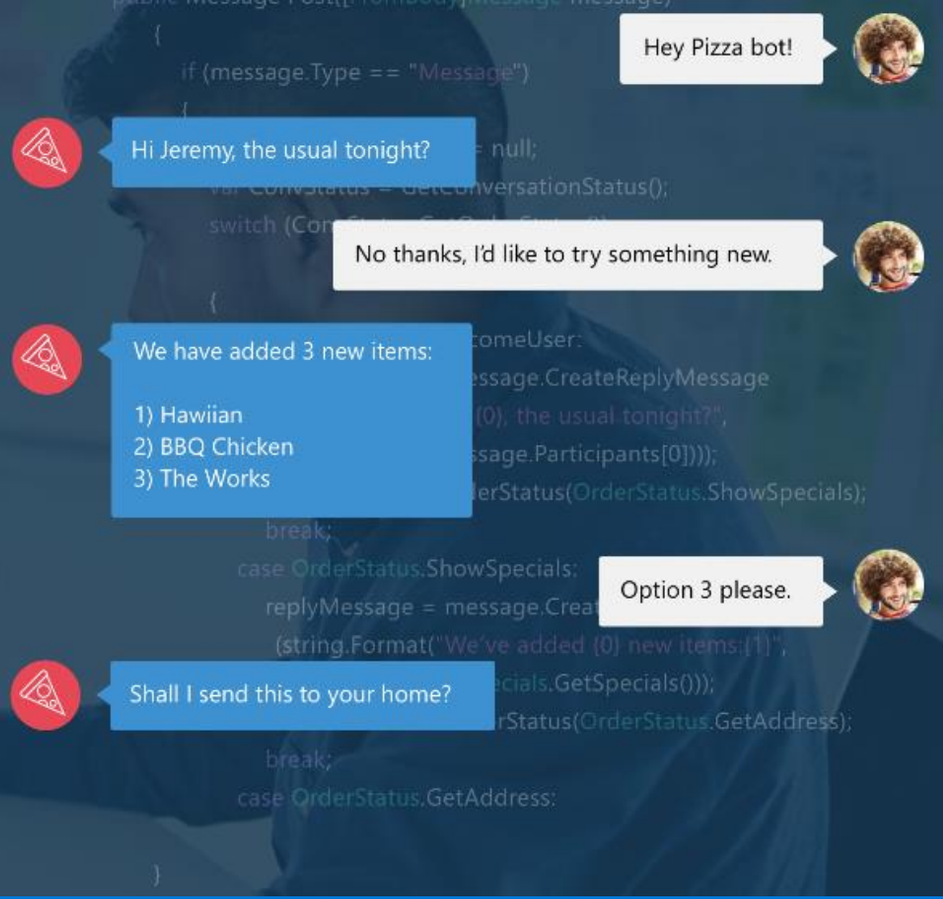
HTML5 DREAMWORKS | IT大咖说 知识分享平台

Microsoft Bot Framework

Your bots — wherever your users are talking.

Build and connect intelligent bots to interact with your users naturally wherever they are, from text/sms to Skype, Slack, Office 365 mail and other popular services.

Get started



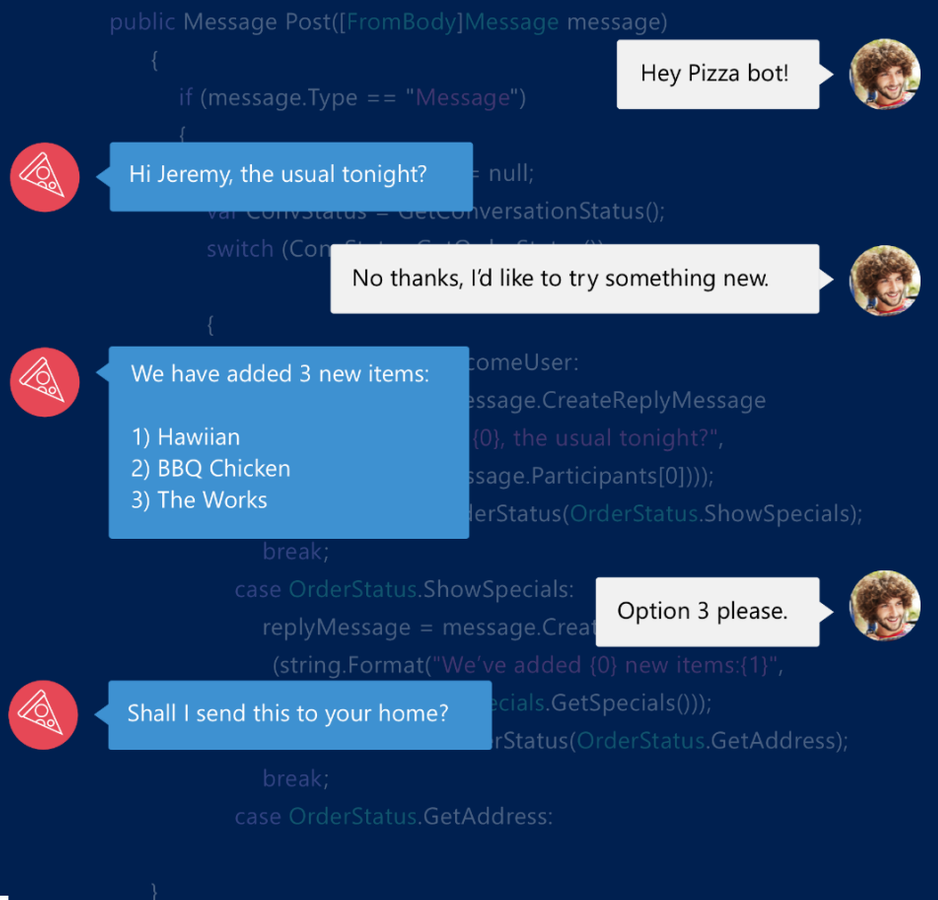
www.botframework.com

Bot 框架

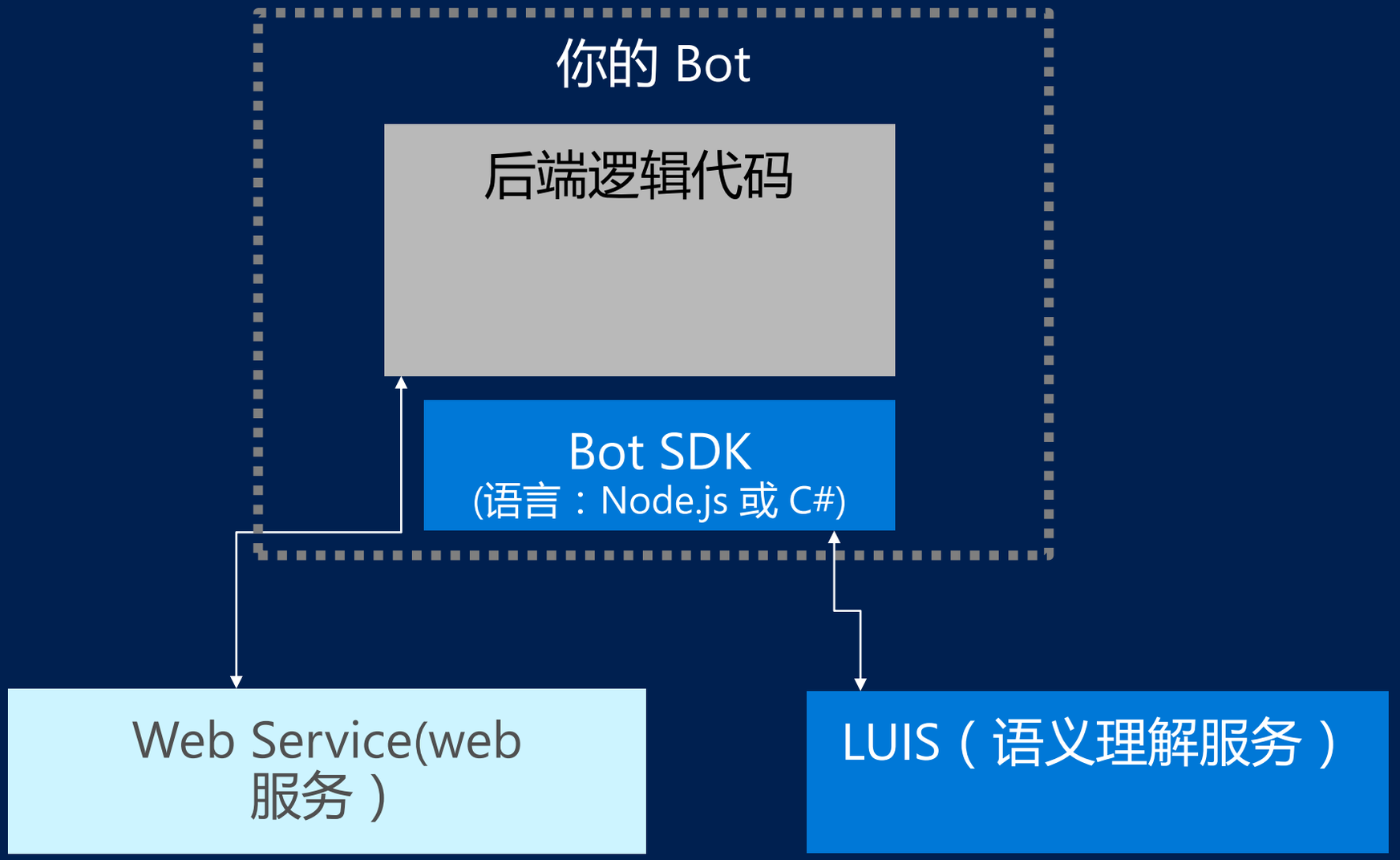
Bot 框架是**微软提供的服务 也是一个**SDK.

Bot 框架是微软提供编写bot机器人的众多技术之一

其他技术: LUIS(**语义理解**), Speech APIs(**语音识别技术**), **认知服务**, more



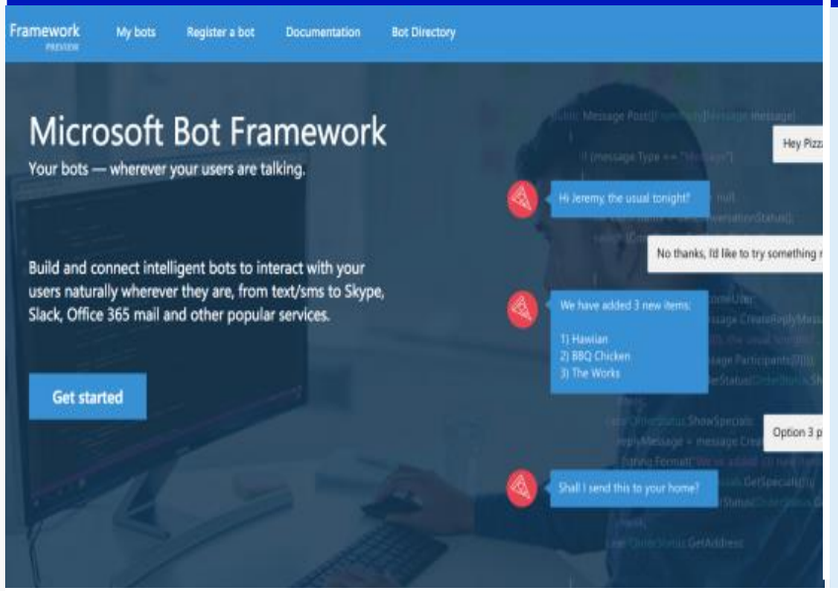
www.botframework.com


你的 Bot
后端逻辑代码
Bot SDK
(语言：Node.js 或 C#)
Web Service(web 服务）
LUIS（语义理解服务）

Microsoft Bot 框架的组成部分

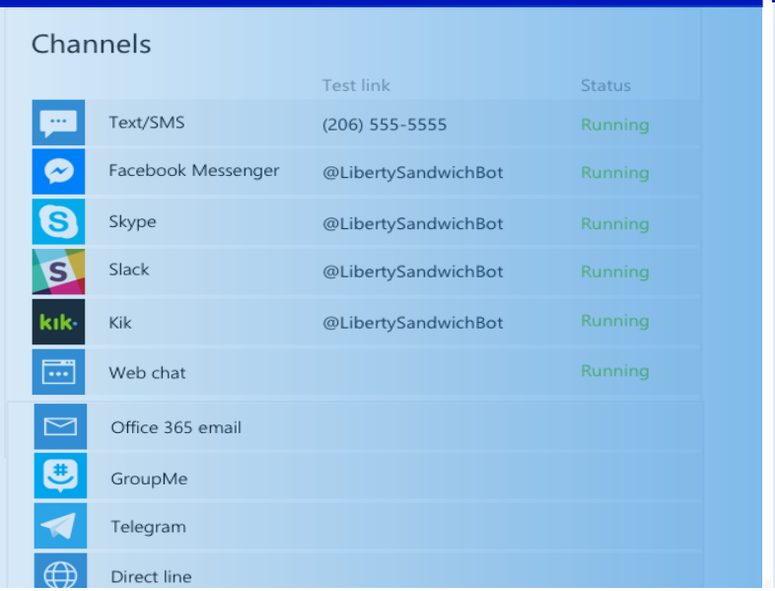
Bot Developer SDKs

Open source SDKs make it possible to bring your bot to life in minutes



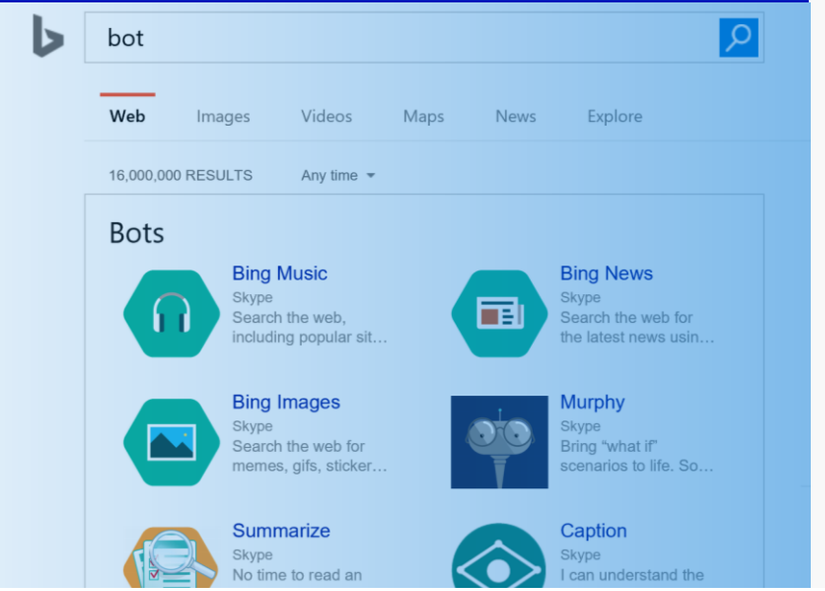
Bot Connector

Connect your bot to any or all of the top conversational experiences to reach >1B users



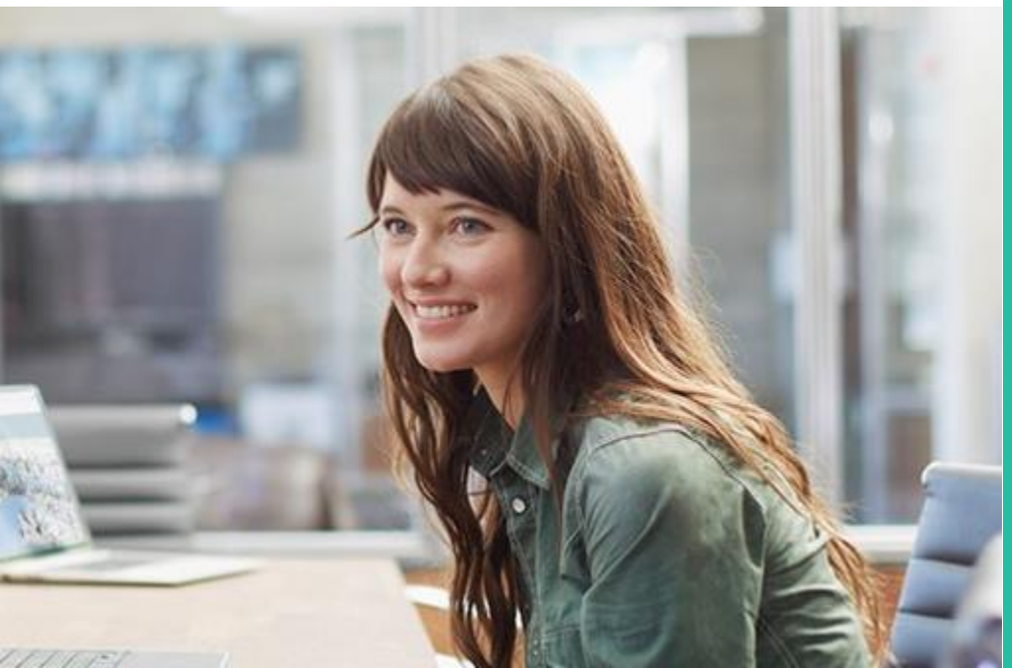
Bot Directory

Make your bot discoverable via Bing, Cortana and other Microsoft surfaces



微软
认知服务

利用世界领先的人工智能技术，让您的应用更具人性化



视觉

从面部感官到感觉，让您的对话机器人了解图像、视频和情绪

语音

把语音转换为文本或把文本转换为语音；

了解您的意图，翻译语言，过滤噪音以及识别说话者

语言

教您的对话机器人理解自然语言指令，解析复杂的文本以及了解用户情绪

知识

从网络、学术界或您自己的数据积累中融合丰富的知识

搜索

通过必应API的强大功能访问数十亿网页、图片、视频和新闻

微软认知服务

视觉

计算机视觉

目录	人; 1 张脸
成年人 / 活泼的?	错误 / 正确
主色	
重色	

语音

语音转换为文字 & 文字转换为语音

将文本转换为语音

将语音转换为文本

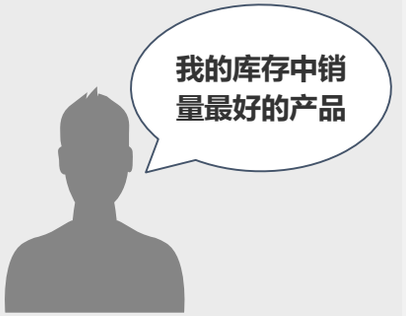
提取用户的意图

语言

自然语言处理

意图：展现事件
内容：日常 事件
日期：今日

知识



知识搜索服务

这些是最佳搜索结果：

Genetic Algorithms in Search, Optimization and Machine Learning
1989, David E Goldberg
Cited 18,910 times View PDF

Induction of Decision Trees
1986, Machine Learning
J R Quinlan
decision tree expert system machine learning computer science
Cited 4,819 times View PDF

Outline of a New Approach to the Analysis of Complex Systems and Decision Processes
1973, IEEE Transactions on Systems, Man, and Cybernetics, issue 1, pp 28-44
Lotfi A Zadeh (University Of California Berkeley)
fuzzy set complex systems artificial neural network computer simulation
machine learning artificial intelligence computer science
Cited 2,602 times View Link

搜索

必应搜索

这是我为您找到的：

计算机视觉 API

图像分析
基于所输入图像的视觉内容分析出图像的视觉特征

光学字符识别
在图像中检测并识别文本

生成缩略图
生成高品质和高存储效率的缩略图

图片分析

图片类型:

Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-Line Drawing
Black & White Image	False

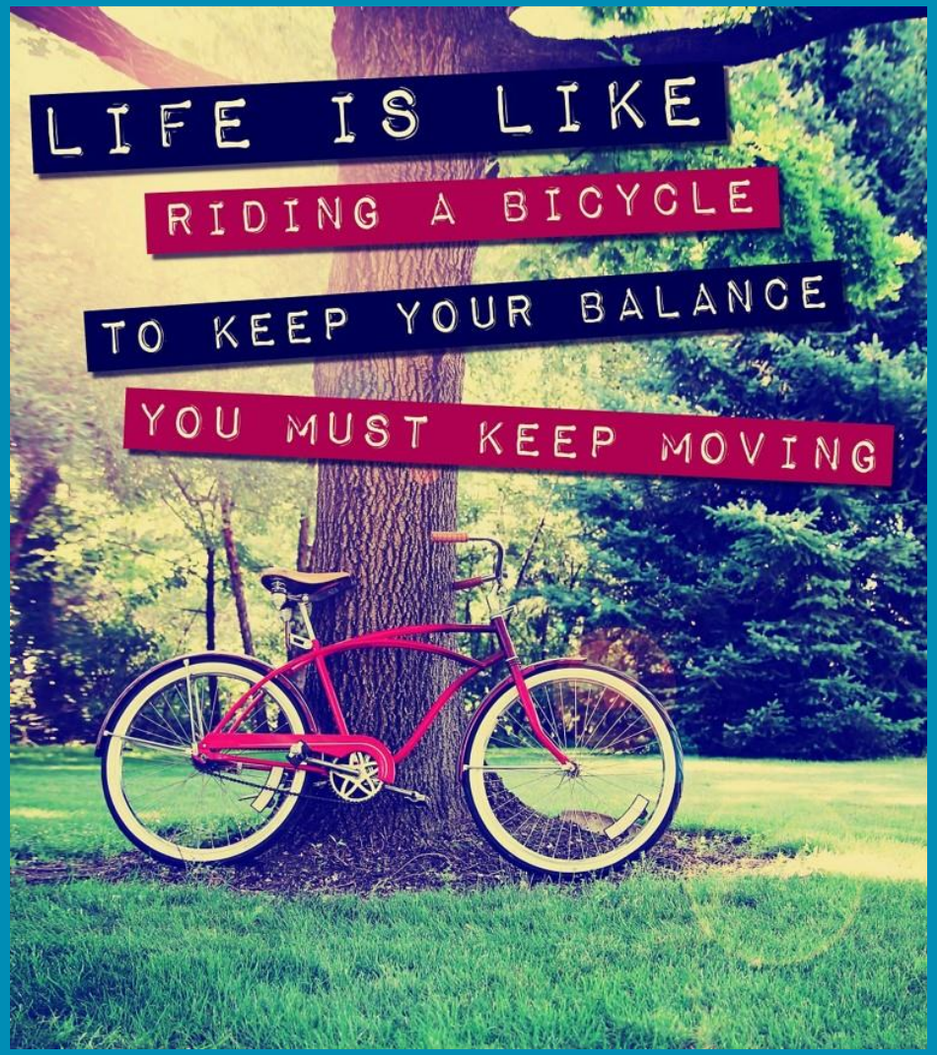
图片内容:

Adult Content	False
Adult Score	0.18533889949321747
Faces	[{ “age”: 27, “gender”: “Male”, “faceRectangle”: {“left”: 472, “top”: 258, “width”: 199, “height”: 199}}]
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" }]

图片色值:

Dominant Color Background	White
Dominant Color Foreground	Grey
Dominant Colors	White
Accent Color	

光学字符识别



已支持功能：

- 扫描图片
- 含有文本的图片
- 纹理致密的位置信息

有待增强功能

- 机动车牌照
- 手写文本
- 超大文本识别

人脸识别 API

HTML5 DREAMWORKS | IT大咖说 知识分享平台

人脸检测
检测图片中的人脸并识别属性

人脸验证
核对两张人脸是否属于同一个人

相似人脸搜索
从多张人脸中找出与所查人脸相似的人脸

人脸分组
根据识别的人脸进行分组

人脸辨识
查询某张人脸，与提供的数据中的何人相匹配

人脸识别 API

检测

"faceRectangle": {"width": 193, "height": 193, "left": 326, "top": 204}

...

属性特征

"attributes": { "age": 42, "gender": "male",

"headPose": { "roll": "8.2", "yaw": "-37.8", "pitch": "0.0" }}

分组

辨识

Jasper Williams

情感识别 API

识别情感
基于面部表情来检测感情

情感识别 API

人脸检测

"faceRectangle": {"width": 193, "height": 193, "left": 326, "top": 204}

…

情感指数

"scores": { "anger": 5.182241e-8,
"contempt": 0.0000242813,
"disgust": 5.621025e-7,
"fear": 0.00115027453,
"happiness": 1.06114619e-8,
"neutral": 0.003540177,
"sadness": 9.30888746e-7,
"surprise": 0.9952837}

语音API

语音识别 (语音转文本)
将语音转换为文本

语音输出(文本转语音)
将文本合成语音

说话者ID & Diarisation
即将上线

声纹识别 API

声纹验证
检测两个声音是否来自于同一个人

声纹辨识
辨识出谁正在说话

MICROSOFT CONFIDENTIAL – INTERNAL ONLY

拼写检查 API

微软最先进的拼写检查算法，以云平台为基础
检测及识别多种拼写错误

在上下文语境中识别常用名称错误
能更正上下文中的同形同音异义词及其他难以识别的错误

与时俱进
支持不断涌现的新生品牌名称及其他创造性表达式

MICROSOFT CONFIDENTIAL – INTERNAL ONLY

拼写检查 API

检查单个词语或者整个句子

“Our engineers developed this four you!”

Corrected Text: “four” → “for”

标识错误并提供修改建议

```
"spellingErrors": [
    {
        "offset": 5,
        "token": "gona",
        "type": "UnknownToken",
        "suggestions": [
            { "token": "gonna" }
    ] }
```

语言理解智能服务

理解用户所说的话
使用来自Bing和Cortana的预构的模型或者自己创建的模型

语言理解智能服务

用交互的特征来减少贴标签的工作

使用可视化来测量和提升性能

与语音识别服务的无缝集成

几个样例就足以搭建自己的应用，并自主学习

定义概念

提供样例

BOT4BOT

Dashboard
Intents
Entities
Features
Train & Test
Publish App

← Back to App list

Dashboard (App Id: 99388c6e-152b-4719-9490-884718842758)

Facts & statistics about the app's data and the received endpoint hits at any period of time ... Learn more

App status

Last train: Mar 15, 2017 5:02:32 PM **Last published:** Mar 15, 2017 5:20:57 PM

Intent Count	Entity Count	Prebuilt Entity Count	Labeled Utterances Count
10 / 80	2 / 30	0 / 8	71

Endpoint Hits Per Period
PER DAY (LAST WEEK)

No endpoint hits or utterances to show.

Total Endpoint Hits
SINCE APP CREATION

593

Key Usage

Privacy & Cookies | Terms of use | Developer Code of Conduct | Trademarks | © 2016 Microsoft

HTML5 DREAMWORKS
IT大咖说 知识分享平台

Engage your customers

Customer Support Scenario

Optimize your operations

Hi there! I am the Contoso Coffee Bot.
I can help you with features of your coffee machine and provide help to fix issues.

Abbie has an issue with her coffee machine and needs to get help.

She opens a chat window with the Contoso Coffee Bot on her phone.

My coffee machine has stopped working

Sorry to hear that.
First I need to know what model you have.
You can either enter the model number or send my a photo of the tag at the back.

Abbie tells the bot that her coffee machine has stopped working.

The bot identifies the intent and needs to know more information to find a solution.

Contoso
S/No.:
110CCM14
MODEL : CCM14

Ok, you have a Coffee Pro, great choice!
Please describe the issue.

The top light is flashing red and it won't boil

Abbie sends a photo of the serial number on the coffee machine.

The bot reads this label and determines the model & year.

Abbie then describes the issue she is having

One second while I check....

It sounds like you have a blocked filter

Here's a video explaining how to fix this:

The bot checks through the knowledge base which is curated from articles, previous cases and community content.

It determines the correct response which includes a video of the fix, which it passes to Abbie.

Did this resolve your issue?

Yes, Thank you!

Glad we could help!

The bot then asks for feedback.

Abbie is happy that it is resolved.

The bot uses this feedback to train the results it will provide in the future.

Empower your employees

Internal Help Desk Scenario

Optimize your operations

Welcome to the team Ken! I'm the new starter bot and can help you with settle in here.

Ken has just joined Contoso and is provided with his new machine.

When he logs in, he is greeted by the Contoso Bot.

First things first. You'll need to update your user profile, sign up to our benefits programme and make sure that you have any prearranged leave booked.

I've added these to your task list with links to each option

The bot follows the Contoso business process for new starters and highlights the tasks he should undertake.

These are added to his Office account along with links & guides.

How do I use the Annual Leave Tool?

Here's a list of steps ...

I can also book your annual leave for you if you like?

Yes please

Ken has an issue booking his annual leave and reaches out to the bot.

The bot uses shared knowledge to provide the steps he needs, however the bot can also undertake these actions for him.

When would you like to book?

17th of December this year to January 2nd

One second...

Booked! This included 3 bank holidays. Enjoy!

Ken states his request in natural language which the bot can understand.

The bot connects to centralised on premise systems and completes his holiday request.

How do I configure Directory Routing?

I've found some answers on Directory Routing Check the following articles
...

Ken is working on a complex task and needs help.

The bot can provide articles to resolve the issue.

Did this resolve your issue?

No

Ok, let's see if we can find someone to help us.

However, Ken is still having difficulty and the bot is unable to help.

However, through the Office Graph, the bot is able to determine resident experts who are available to help.

Hi Spencer. You are an expert in Directory Routing and have opted in to help colleagues.

Could you please help Ken with an issue?

Sure thing

Spencer, an infrastructure expert is contacted in a proactive chat by the bot, requesting his support in resolving the issue with Ken.

The bot provides context and the previous recommended answers.

Ken, meet Spencer Low. He is one of our experts.

Hi Ken, what's the issue?

The bot adds Spencer to the previous conversation with Ken.

During the conversation & when a resolution is found, Spencer tags the answer which is added to the bots training for future queries.

Engage your customers

Retail Customer Experience

Optimize your operations

Hi there! How can I help you?

I need to buy a new laptop.

Sure thing, what would you use the laptop for?

I'm a graphics designer and I use it for emails too

Chris is a consumer and is looking to buy a new laptop.

While on a retailer's website, he clicks to talk to the shop assistant bot and describes his needs.

I've found these laptops that may suit your needs

Here is a summary of the reviews of these laptops online ...

I'd like to test out the Surface Book

Great! I can book and appointment at your local store

The bot builds a profile of Chris and searches through the inventory.

It curates public information such as reviews and prices to ensure Chris is fully up to speed without leaving the site.

Chris would like an appointment.

I've found the following slots available

Tomorrow, 1 in the afternoon please

No problem, we can offer you a personalised service if you sign in?

Login through Social

The bot connects to the nearby store calendar and finds available slots, Chris chooses one.

The bot would like to gather more information about Chris and offers a personalised service in exchange for access to his social profile.

Hi, there is a new appointment booked for the branch tomorrow.

Chris would like to test a Surface Book at 1pm

Once the appointment is booked, the available store assistant is notified about the appointment and provided a summary of Chris and his requirement.

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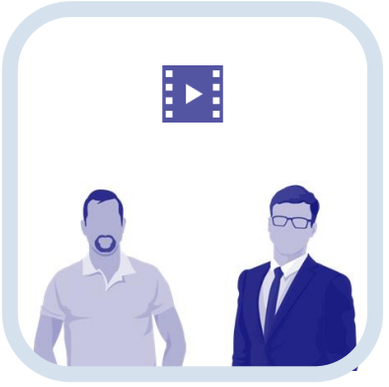
Welcome Chris. Mark will be with you shortly

Mark, Chris has arrived for his 1pm Appointment

On the day of the appointment, as Chris enters the store, his profile information is used to identify him using facial recognition.

Chris is welcomed to the store by the bot and Mark is notified of his arrival.



Here's the details of the laptops we spoke about.

Let me play an introductory video of their features.

As Chris is greeted, his previous searches and profile are brought up on a local display so that Chris & Mark can determine the best product for Chris.

Levels of Surface Book Pen Sensitivity

1024

This question has a propensity for using Pro Graphics Software which matches Mark's profile.

Offer the graphics bundle

However, Chris has some Complex questions about the product that aren't in the standard material.

Mark is able to privately asks the bot on his device which not only provides the answer but highlights propensity for up sell.

Hi Mark, thanks again for your purchase!

I can help you setup your new Surface Book

Mark purchases the laptop and is happy with the service.

As he begins to use the product, the bot transitions into post sale support and is able to provide him with help when he needs it without installing any additional software.

Bot Service

lamdemobot

Configure continuous integration - manage your code in your repo of choice and edit locally.

Save

- lamdemobot
  - Bot.sln
  - commands.json
  - debughost.cmd
  - host.json
  - messages
    - BasicForm.csx
    - function.json
    - MainDialog.csx
    - project.json
    - project.lock.json
    - run.csx
  - PostDeployScripts
  - readme.md

```
11  public class MainDialog : IDialog<BasicForm>
12  {
13      public MainDialog()
14      {
15      }
16
17      public Task StartAsync(IDialogContext context)
18      {
19          context.Wait(MessageReceivedAsync);
20
21          string sGreeting="";
22          context.PrivateConversationData.TryGetValue("SentGreeting", out sGreeting);
23          context.PostAsync("Read:" + sGreeting);
24
25
26          return Task.CompletedTask;
27      }
28
29      public virtual async Task MessageReceivedAsync(IDialogContext context, IAwaitable<IMessageActivity> argument)
30      {
31          var activity = await argument;
32
33
34          context.Call(BasicForm.BuildFormDialog(FormOptions.PromptInStart), FormComplete);
35      }
36
37      private async Task FormComplete(IDialogContext context, IAwaitable<BasicForm> result)
38      {
39          try
40          {
41
```

Log Clear

```
2016-11-16T18:54:01  No new trace in the past 7 min(s).
2016-11-16T18:55:01  No new trace in the past 8 min(s).
2016-11-16T18:56:01  No new trace in the past 9 min(s).
2016-11-16T18:57:01  No new trace in the past 10 min(s).
2016-11-16T18:58:01  No new trace in the past 11 min(s).
2016-11-16T18:59:01  No new trace in the past 12 min(s).
2016-11-16T19:00:01  No new trace in the past 13 min(s).
2016-11-16T19:01:01  No new trace in the past 14 min(s).
2016-11-16T19:02:01  No new trace in the past 15 min(s).
2016-11-16T19:03:01  No new trace in the past 16 min(s).
2016-11-16T19:04:01  No new trace in the past 17 min(s).
2016-11-16T19:05:01  No new trace in the past 18 min(s).
2016-11-16T19:06:02  No new trace in the past 19 min(s).
```

lamdemobot

Please select your favorite color

Red

White

Blue

lamdemobot

/deleteprofile

couldn't send retry

Stored Yes

lamdemobot

User profile deleted!

lamdemobot

a

You

Stored Yes

lamdemobot

Read:

lamdemobot

Hi! What is your name?

lamdemobot at 18:46:35

Type your message...

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