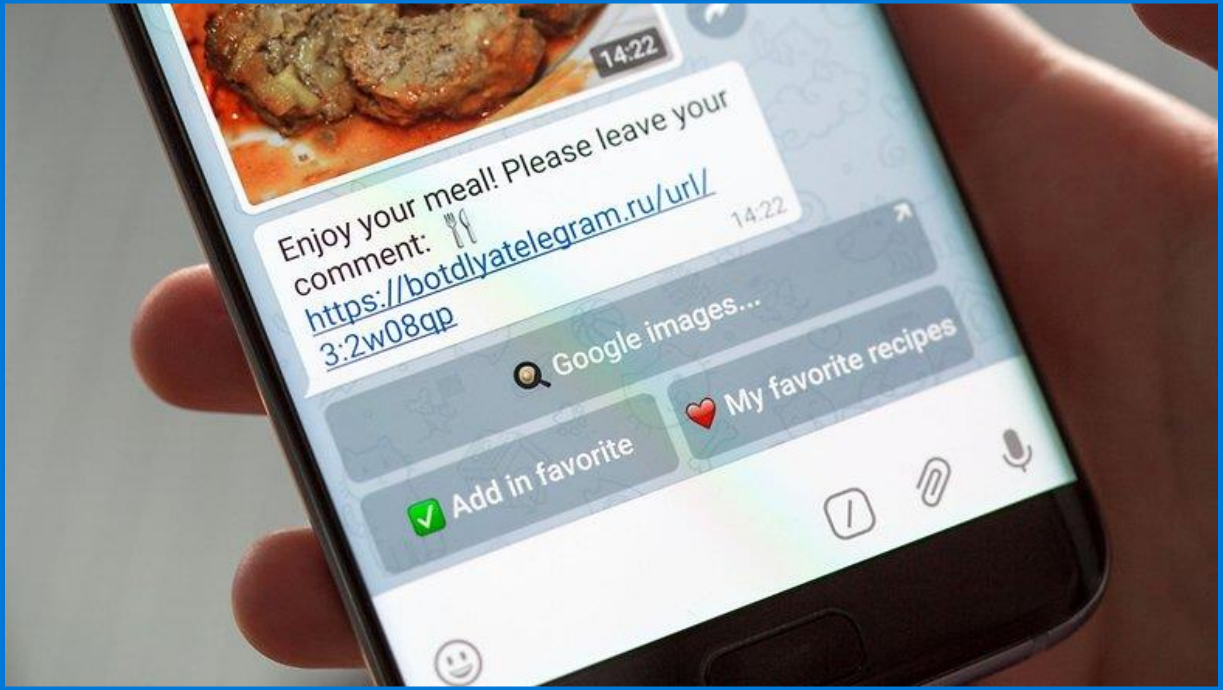
Microsoft

Chatbot Hands on Lab

김영욱 부장
Technical Evangelist / CSE
Blog://YoungWook.com
youngwook@outlook.com

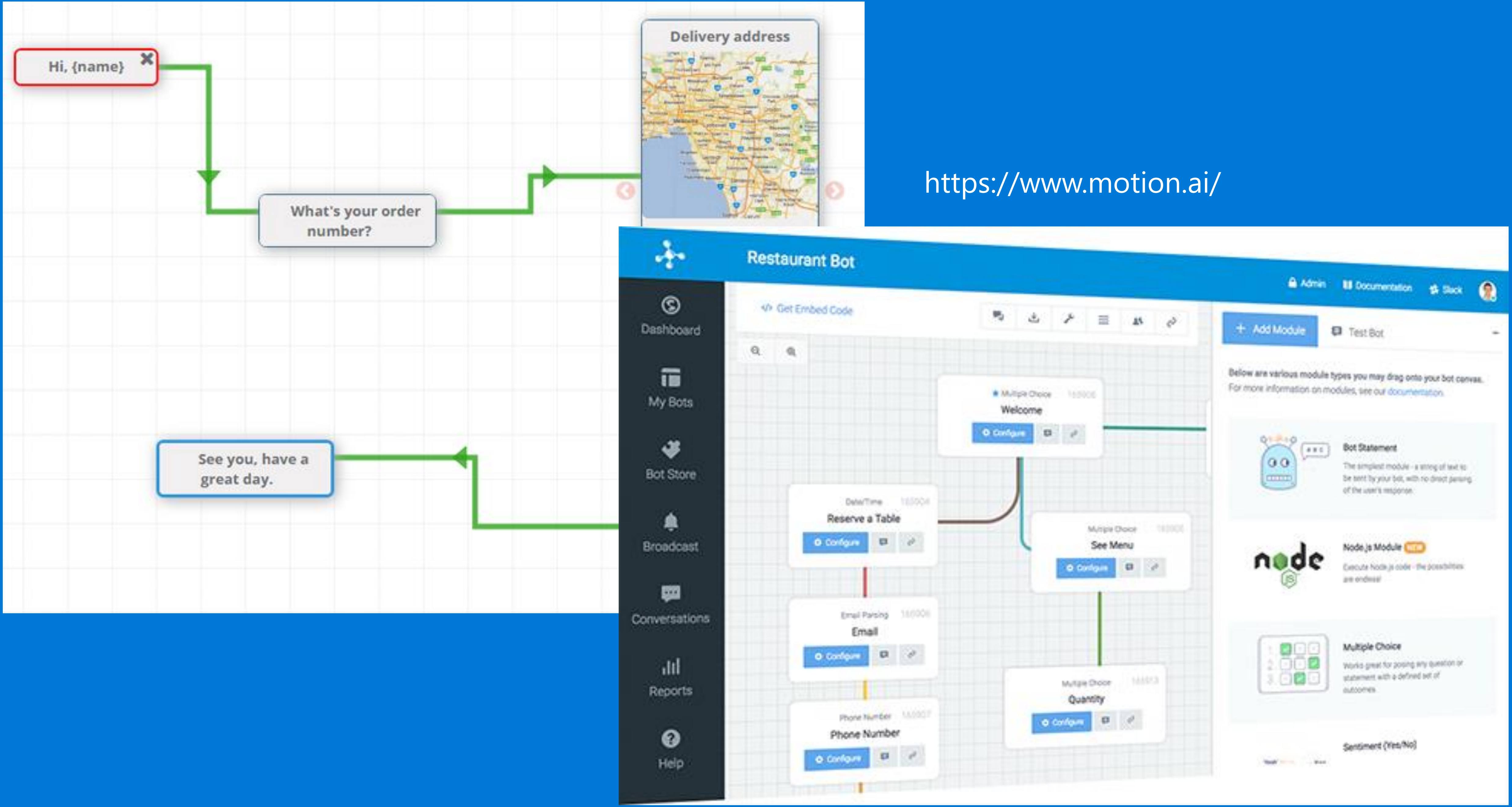
Chatbot Platform



Enjoy your meal! Please leave your comment: 🍴 https://botdlyatelegram.ru/url/3:2w08qp 14:22

https://www.rebotify.com/

https://www.motion.ai/



Hi, {name}

What's your order number?

See you, have a great day.

Below are various module types you may drag onto your bot canvas. For more information on modules, see our documentation.

Bot Statement

The simplest module - a string of text to be sent by your bot, with no direct parsing of the user's response.

Node.js Module NEW

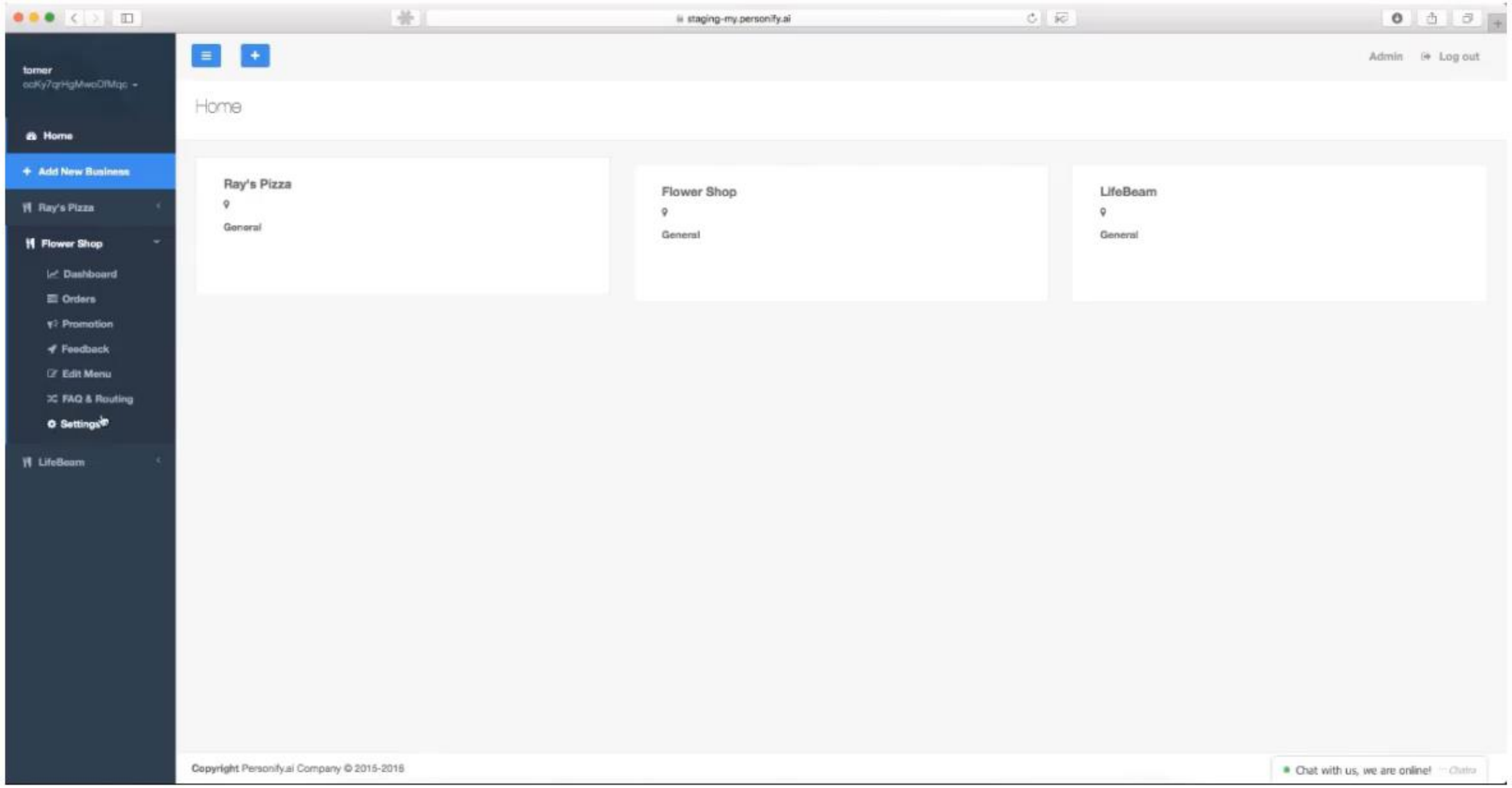
Execute Node.js code - the possibilities are endless!

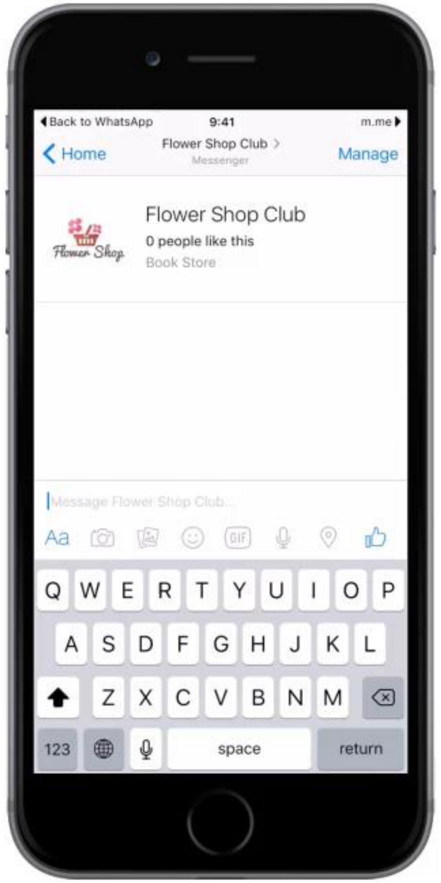
Multiple Choice

Works great for posing any question or statement with a defined set of outcomes.

Sentiment (Yes/No)

https://personify.ai/

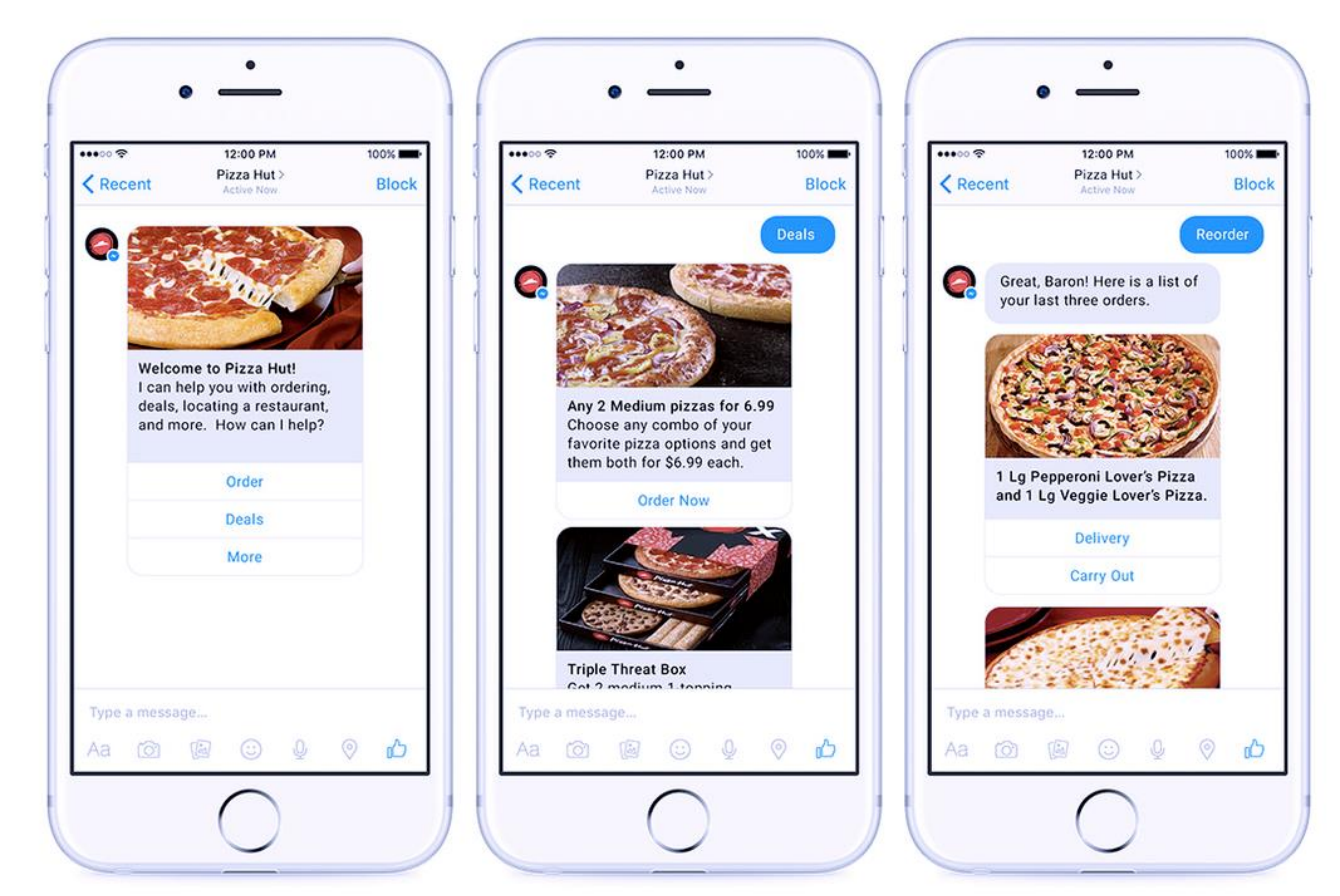




주요 챗봇 플랫폼

- ChattyPeople
- Meokay
- Smooch
- Botsify
- Beep Boop
- Chatfuel
- Facebook Messenger Platform
- Telegram Bots
- BotKit
- FlwXO

https://www.entrepreneur.com/article/289788



Welcome to Pizza Hut!
I can help you with ordering, deals, locating a restaurant, and more. How can I help?

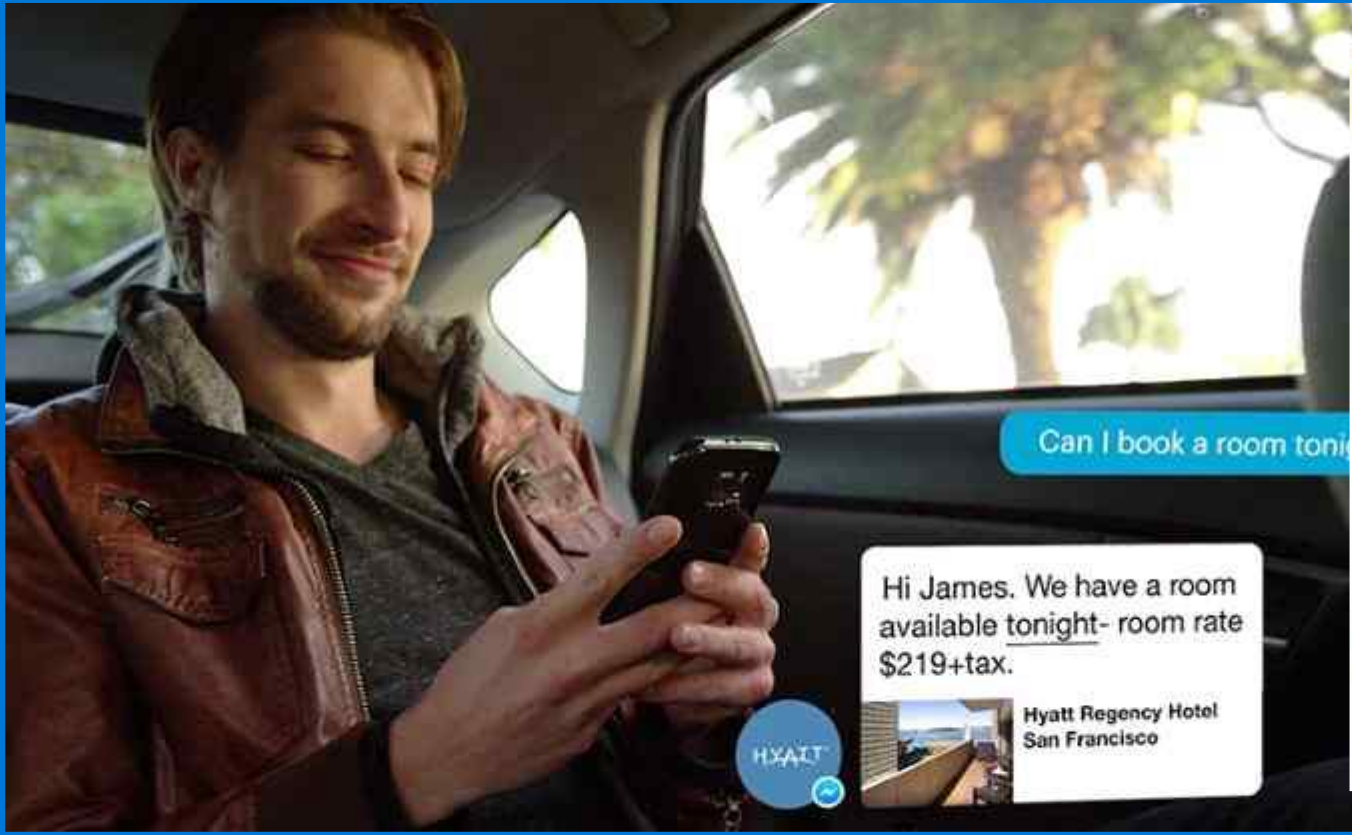
Any 2 Medium pizzas for 6.99
Choose any combo of your favorite pizza options and get them both for $6.99 each.

Triple Threat Box
Got 2 medium 1-topping

Great, Baron! Here is a list of your last three orders.

1 Lg Pepperoni Lover's Pizza and 1 Lg Veggie Lover's Pizza.

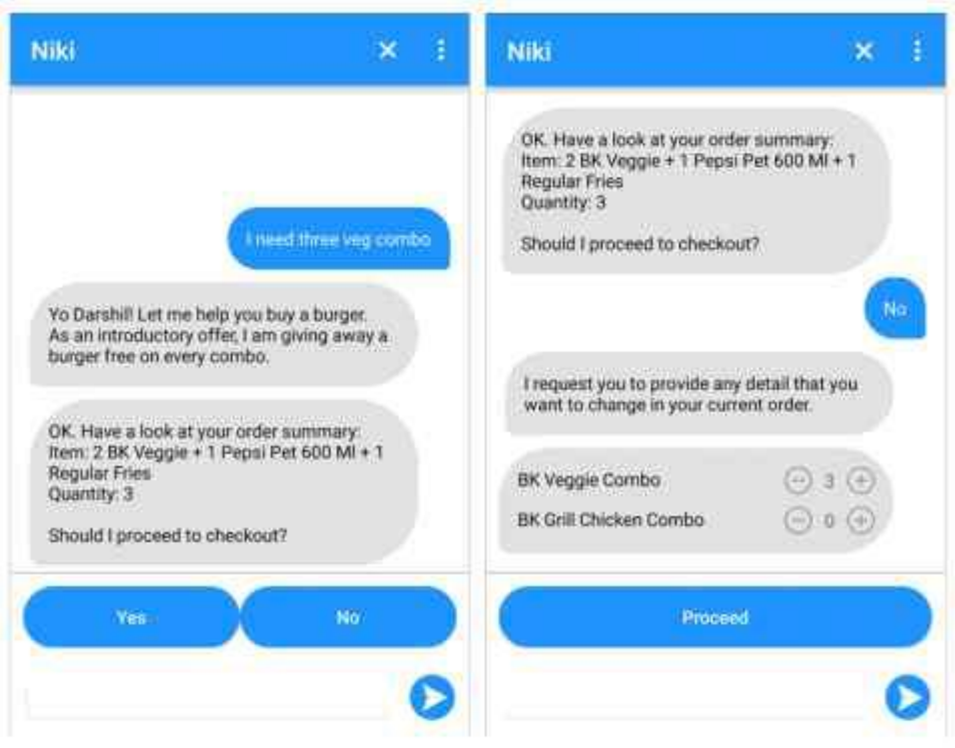
Chatbot.



Can I book a room toni

Hi James. We have a room available tonight- room rate $219+tax.

Hyatt Regency Hotel San Francisco



I need three veg combo

Yo Darshil! Let me help you buy a burger. As an introductory offer, I am giving away a burger free on every combo.

OK. Have a look at your order summary:
Item: 2 BK Veggie + 1 Pepsi Pet 600 Ml + 1 Regular Fries
Quantity: 3

Should I proceed to checkout?

OK. Have a look at your order summary:
Item: 2 BK Veggie + 1 Pepsi Pet 600 Ml + 1 Regular Fries
Quantity: 3

Should I proceed to checkout?

No

I request you to provide any detail that you want to change in your current order.

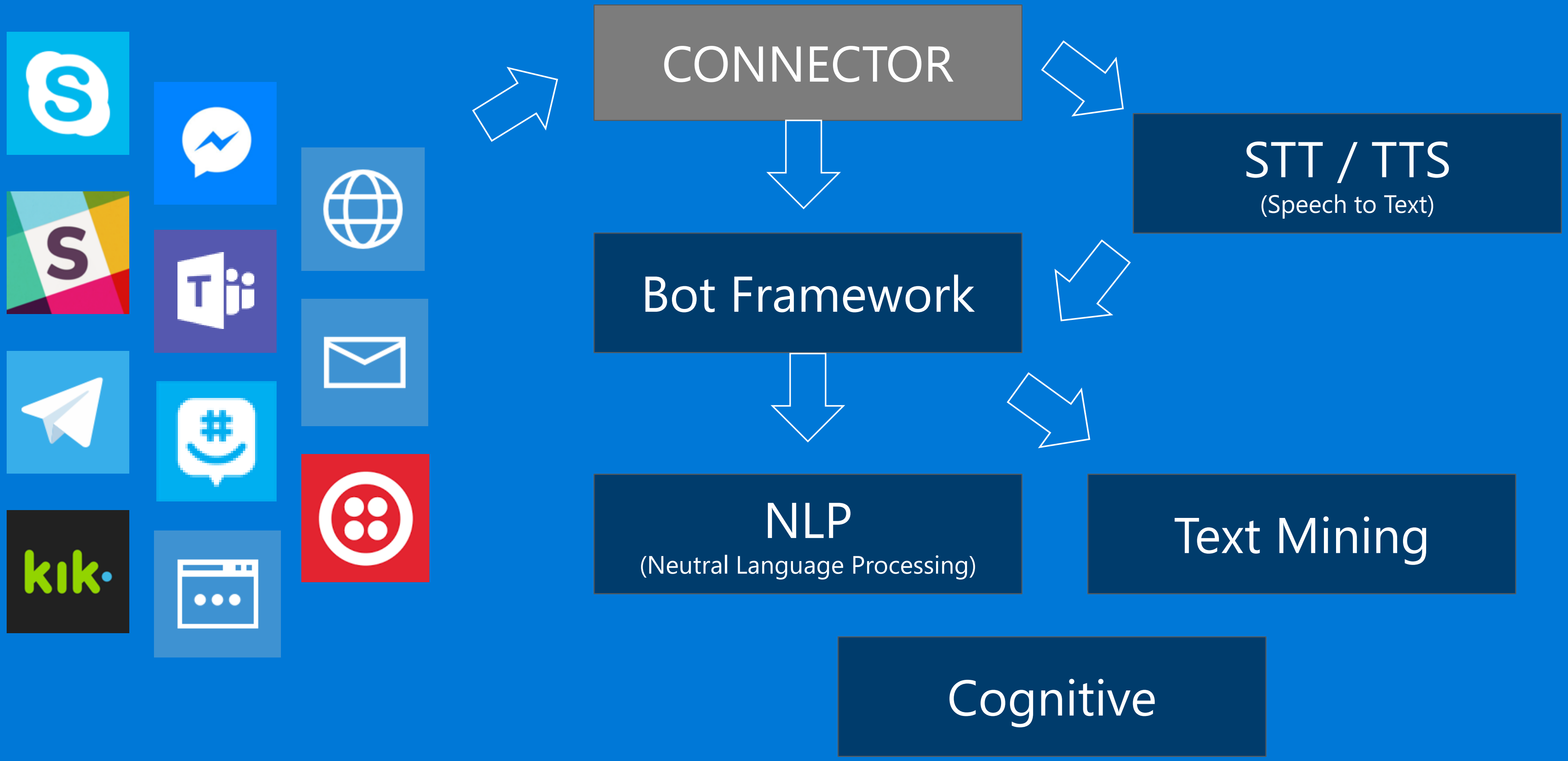
BK Veggie Combo 3

BK Grill Chicken Combo 0

텍스트 기반 챗봇 주요 핵심 기술

관련 기술	주요내용
패턴인식 (Pattern Recognition)	기계에 의하여 도형, 문자, 음성 등을 식별하는 것
자연어처리 (natural Language Processing)	인간이 보통 쓰는 언어를 컴퓨터에 인식시켜 처리하는 일 정보검색 질의 응답, 시스템 자동 번역, 통역 등이 포함됨
시멘틱 웹 (Symantic Web)	컴퓨터가 정보 자원의 뜻을 이해하고 논리적 추론까지 할 수 있는 차세대 지능형 웹
텍스트 마이닝 (Text Mining)	비정형 텍스트 데이터에서 새롭고 유용한 정보를 찾아내는 과정 또는 기술
상황인식 컴퓨팅 (Context Aware Computing)	가상공간에서 현실의 상황을 정보화하고 이를 활용하여 사용자 중심의 지능화된 서비스를 제공하는 기술.

출처 : 한국정보화진흥원, ‘모바일시대를 넘어 AI시대로’



CONNECTOR

STT / TTS
(Speech to Text)

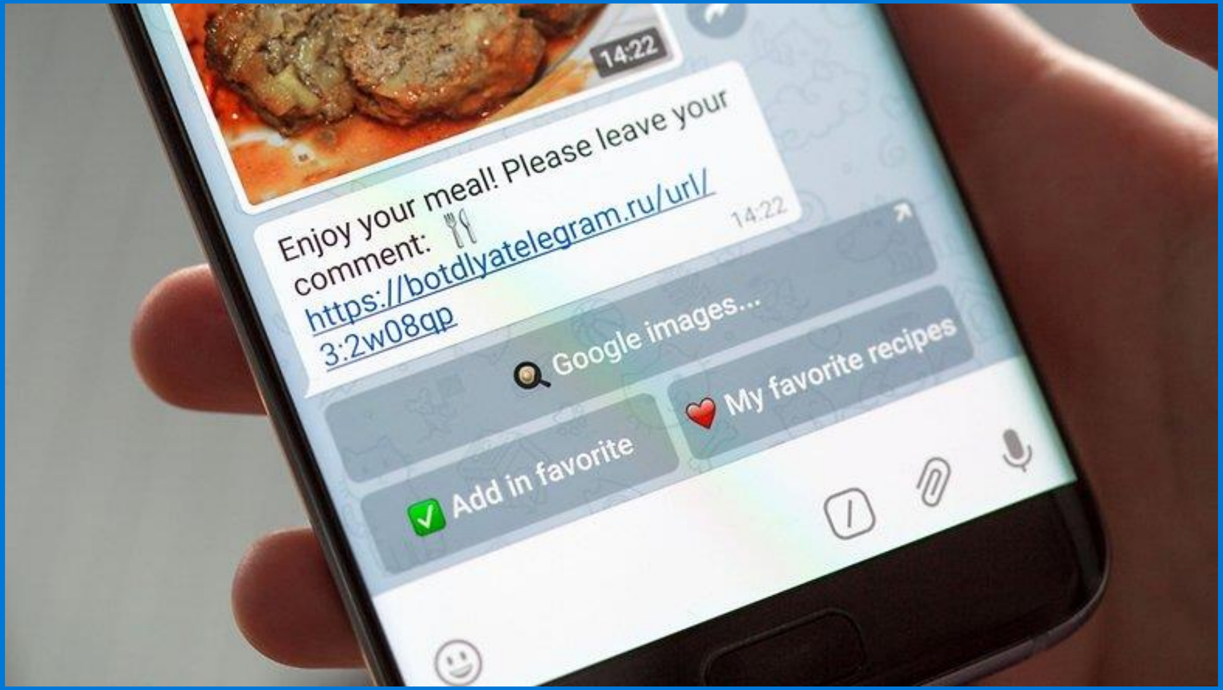
Bot Framework

NLP
(Neutral Language Processing)

Text Mining

Cognitive

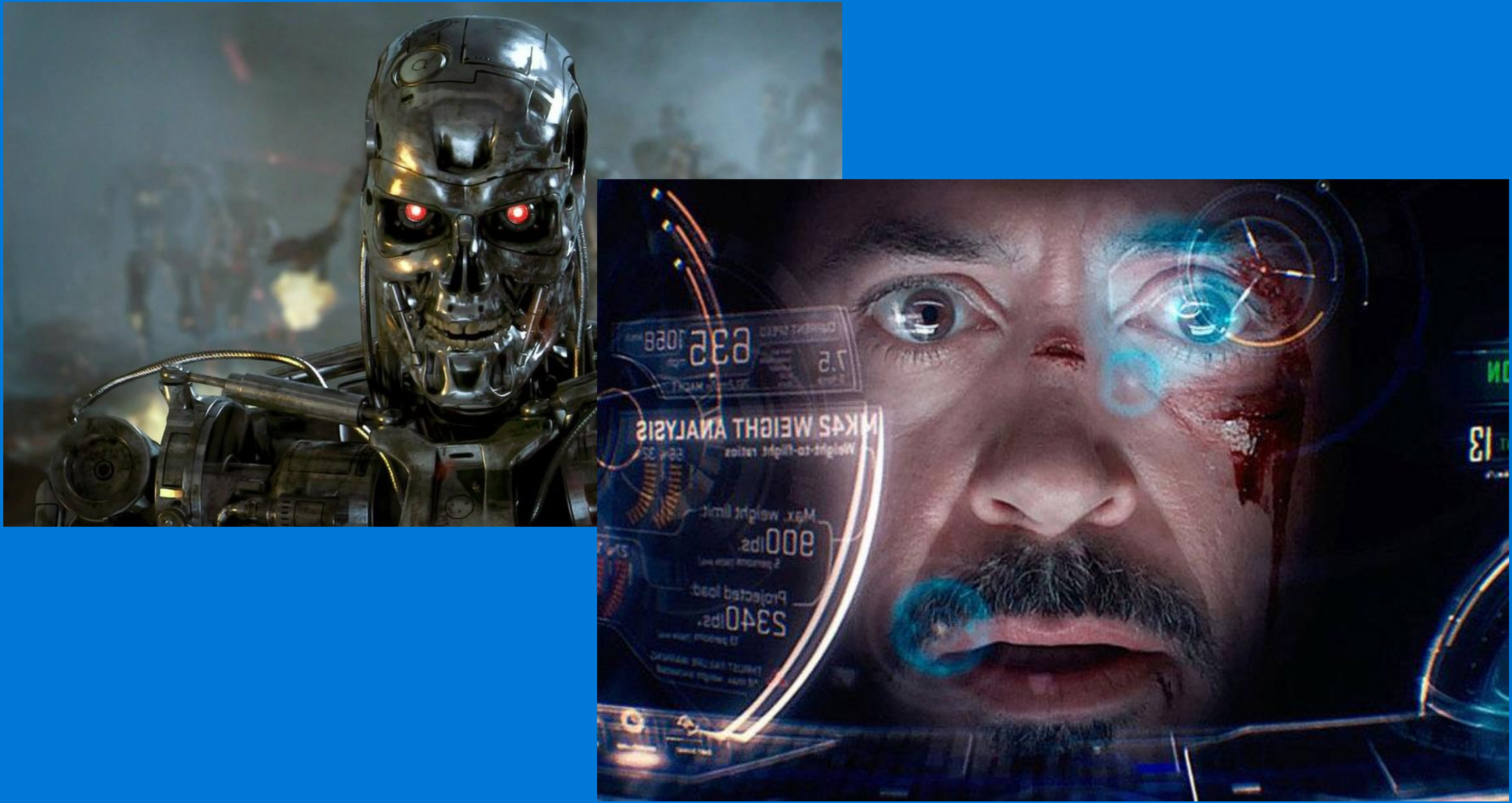
Microsoft Chatbot.



14:22

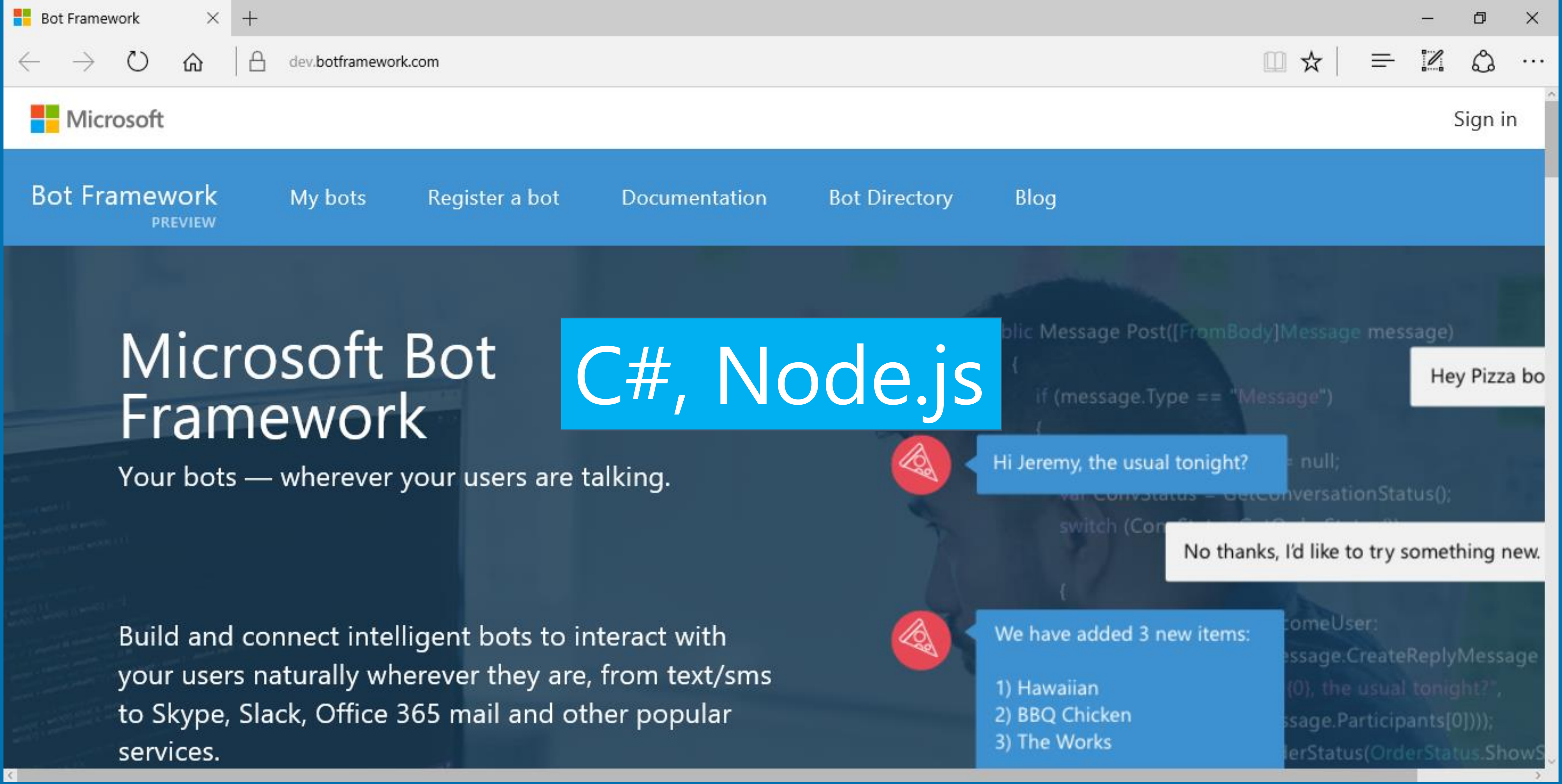
Enjoy your meal! Please leave your comment: 🍴 https://botdlyatelegram.ru/url/3:2w08qp

14:22


MK42 WEIGHT ANALYSIS
Weight-to-flight ratios
635
1058
7.5
Max. weight limit
900lbs.
Projected load
2340lbs.
13

Microsoft Bot Framework

https://dev.botframework.com



Microsoft Bot Framework

C#, Node.js

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.

```
blic Message Post([FromBody]Message message)
{
  if (message.Type == "Message")
  {
```

Hey Pizza bo

Hi Jeremy, the usual tonight?

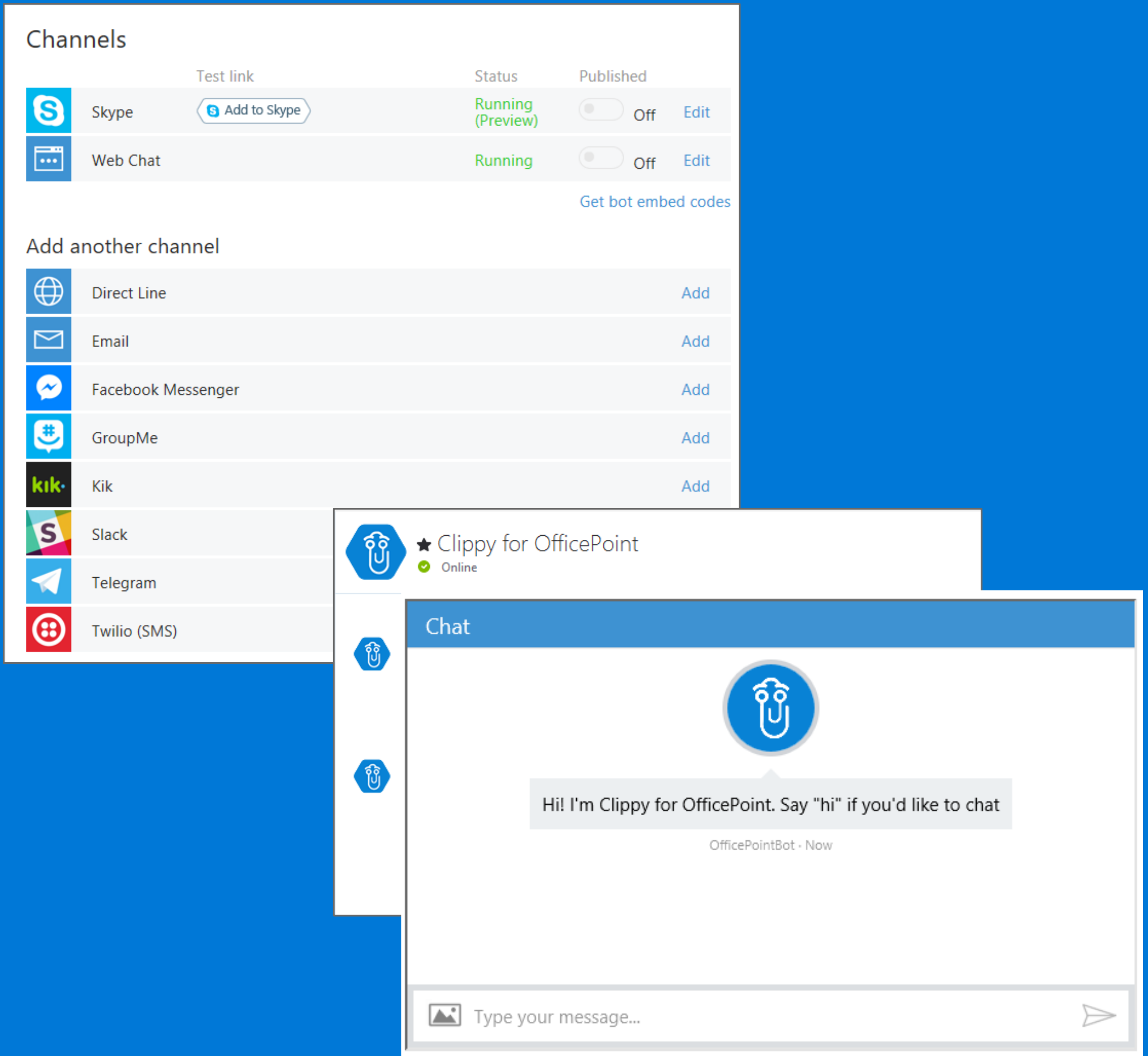
No thanks, I'd like to try something new.

We have added 3 new items:

1) Hawaiian
2) BBQ Chicken
3) The Works

Microsoft Bot Framework

Skype,
Web, email, Facebook, GroupMe,
Kik,
Slack,
Telegram,
Twilio,
direct line app integration.



Channels

	Test link	Status	Published	
Skype	Add to Skype	Running (Preview)	Off	Edit
Web Chat		Running	Off	Edit

Get bot embed codes

Add another channel

Direct Line	Add
Email	Add
Facebook Messenger	Add
GroupMe	Add
Kik	Add
Slack	
Telegram	
Twilio (SMS)	

★ Clippy for OfficePoint
Online

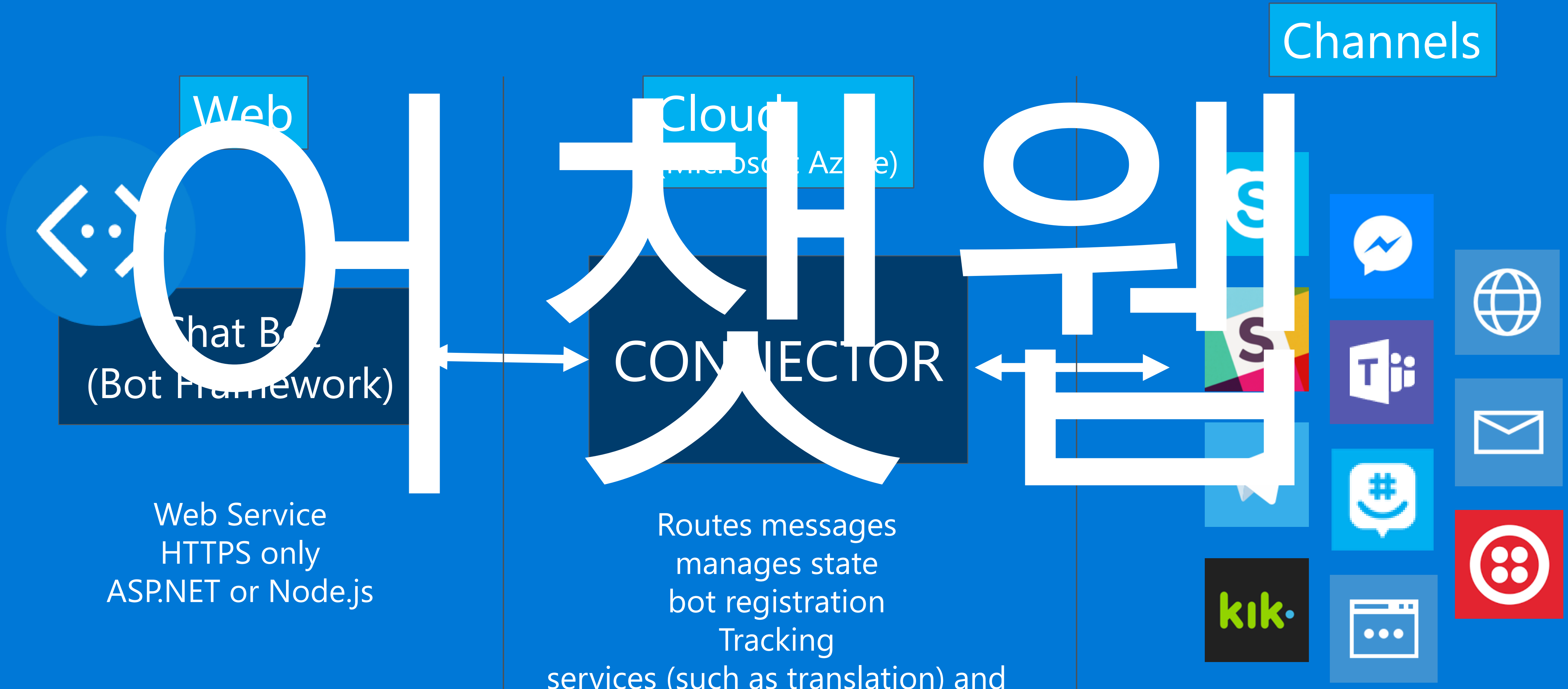
Chat

Hi! I'm Clippy for OfficePoint. Say "hi" if you'd like to chat

OfficePointBot · Now

Type your message...

Connector Service Flow.



Web Service
HTTPS only
ASP.NET or Node.js

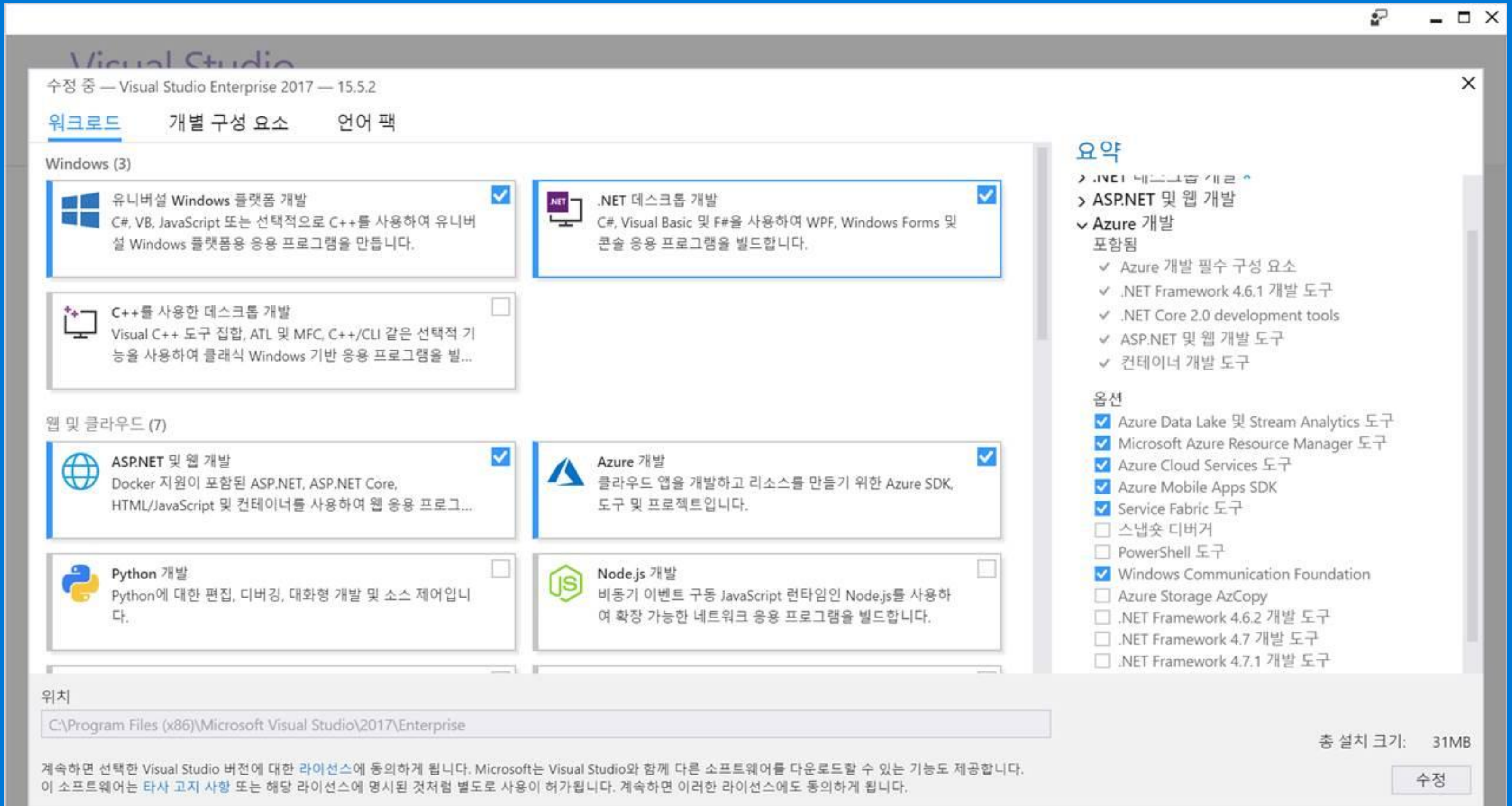
Routes messages
manages state
bot registration
Tracking
services (such as translation) and
per-user and per-bot storage

Installing Tools

- **Visual Studio 2015 or higher**
  http://www.visualstudio.com
- **Get the Visual Studio Bot Project Template**
  http://aka.ms/bf-bc-vstemplate
- **Get the Bot Emulator**
  https://download.botframework.com/botconnector/tools/emulator/publish.htm

자세한 내용은 Github

http://github.com/KoreaEva/Bot



수정 중 — Visual Studio Enterprise 2017 — 15.5.2

Windows (3)

- 유니버설 Windows 플랫폼 개발 ☑
  C#, VB, JavaScript 또는 선택적으로 C++를 사용하여 유니버설 Windows 플랫폼용 응용 프로그램을 만듭니다.
- .NET 데스크톱 개발 ☑
  C#, Visual Basic 및 F#을 사용하여 WPF, Windows Forms 및 콘솔 응용 프로그램을 빌드합니다.
- C++를 사용한 데스크톱 개발 □
  Visual C++ 도구 집합, ATL 및 MFC, C++/CLI 같은 선택적 기능을 사용하여 클래식 Windows 기반 응용 프로그램을 빌...

웹 및 클라우드 (7)

- ASP.NET 및 웹 개발 ☑
  Docker 지원이 포함된 ASP.NET, ASP.NET Core, HTML/JavaScript 및 컨테이너를 사용하여 웹 응용 프로그...
- Azure 개발 ☑
  클라우드 앱을 개발하고 리소스를 만들기 위한 Azure SDK, 도구 및 프로젝트입니다.
- Python 개발 □
  Python에 대한 편집, 디버깅, 대화형 개발 및 소스 제어입니다.
- Node.js 개발 □
  비동기 이벤트 구동 JavaScript 런타임인 Node.js를 사용하여 확장 가능한 네트워크 응용 프로그램을 빌드합니다.

요약

> ASP.NET 및 웹 개발

∨ Azure 개발

포함됨

- ✓ Azure 개발 필수 구성 요소
- ✓ .NET Framework 4.6.1 개발 도구
- ✓ .NET Core 2.0 development tools
- ✓ ASP.NET 및 웹 개발 도구
- ✓ 컨테이너 개발 도구

옵션

- ☑ Azure Data Lake 및 Stream Analytics 도구
- ☑ Microsoft Azure Resource Manager 도구
- ☑ Azure Cloud Services 도구
- ☑ Azure Mobile Apps SDK
- ☑ Service Fabric 도구
- □ 스냅숏 디버거
- □ PowerShell 도구
- ☑ Windows Communication Foundation
- □ Azure Storage AzCopy
- □ .NET Framework 4.6.2 개발 도구
- □ .NET Framework 4.7 개발 도구
- □ .NET Framework 4.7.1 개발 도구

위치

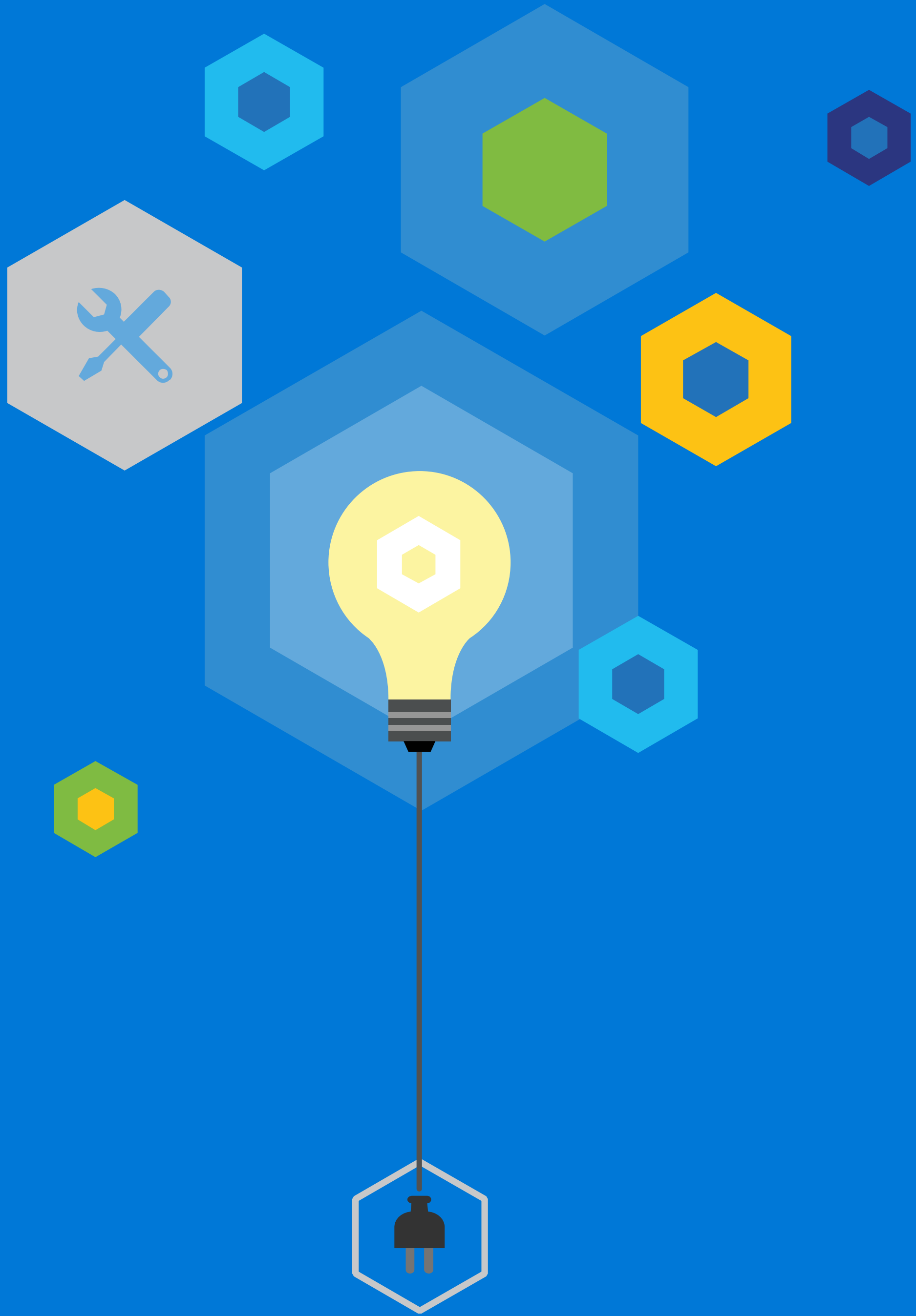
C:\Program Files (x86)\Microsoft Visual Studio\2017\Enterprise

총 설치 크기: 31MB

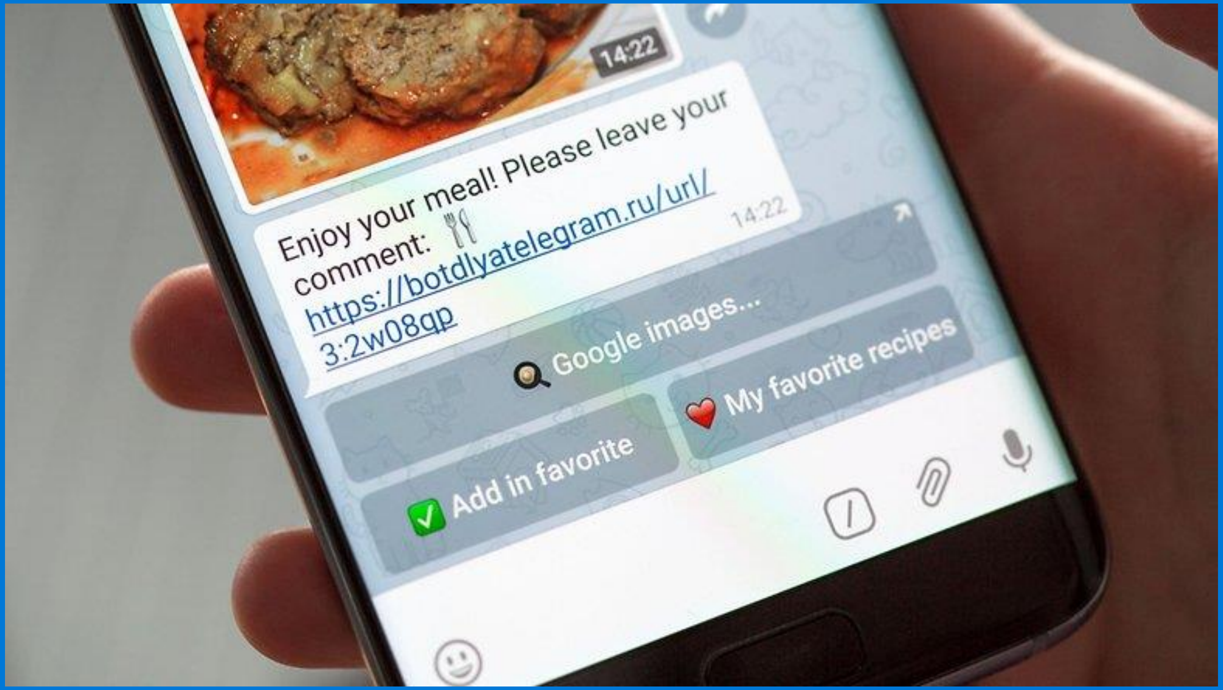
계속하면 선택한 Visual Studio 버전에 대한 라이선스에 동의하게 됩니다. Microsoft는 Visual Studio와 함께 다른 소프트웨어를 다운로드할 수 있는 기능도 제공합니다. 이 소프트웨어는 타사 고지 사항 또는 해당 라이선스에 명시된 것처럼 별도로 사용이 허가됩니다. 계속하면 이러한 라이선스에도 동의하게 됩니다.

DEMO

Hello Bot



Code Name ‘Great Wall’

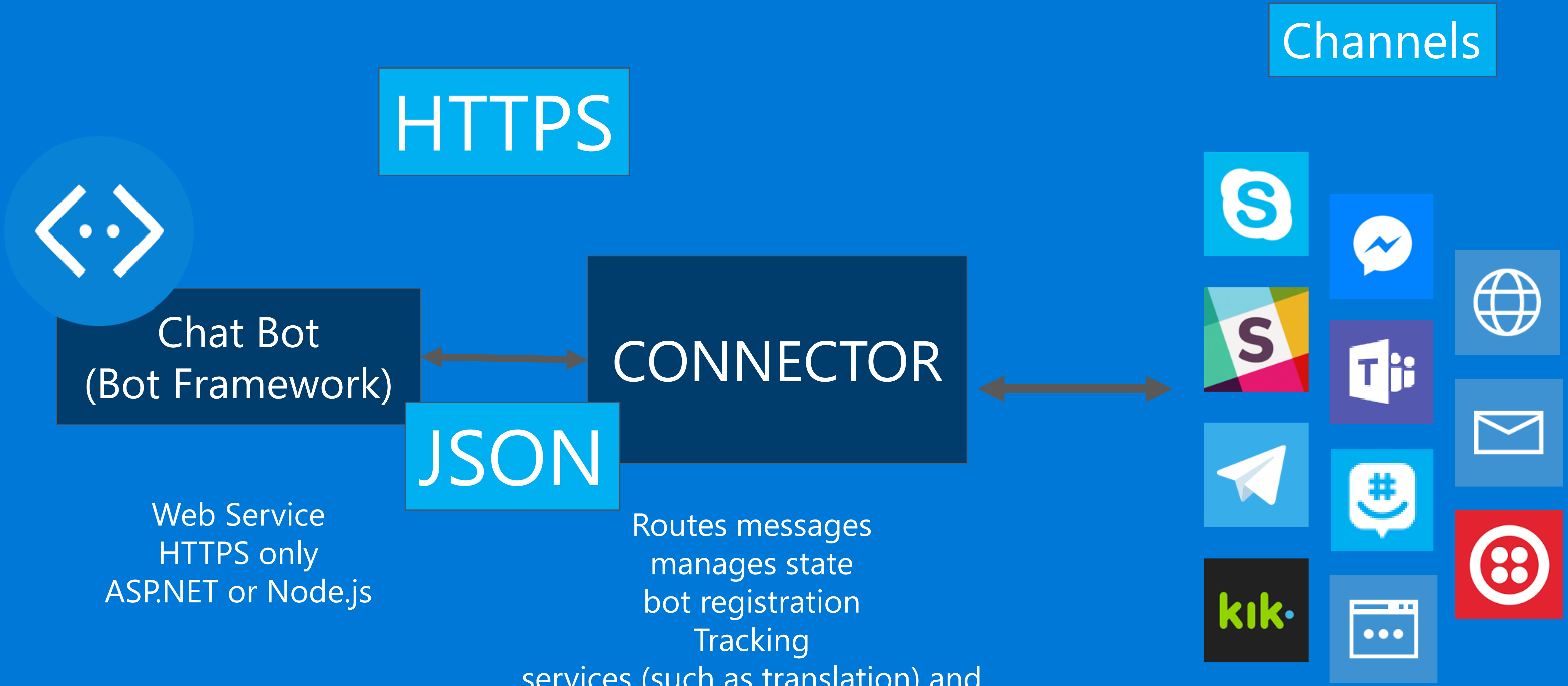


Enjoy your meal! Please leave your comment: 🍴 https://botdlyatelegram.ru/url/3:2w08qp 14:22

Connector, Activities & Messages

Connector	The Connector (or Connector Service) handles all communication, conversations, state, and authorization for all activities between a Bot and Users.
Activity	An Activity is a specific event that occurs between a Bot and Users, such as an actual message, or conversation notification.
Message	A Message is an overt (typically visible) communication between a Bot and Users, such as a User asking a question, or a Bot responding with a reply.

Connector Service Flow.



Channels

HTTPS

Chat Bot
(Bot Framework)

JSON

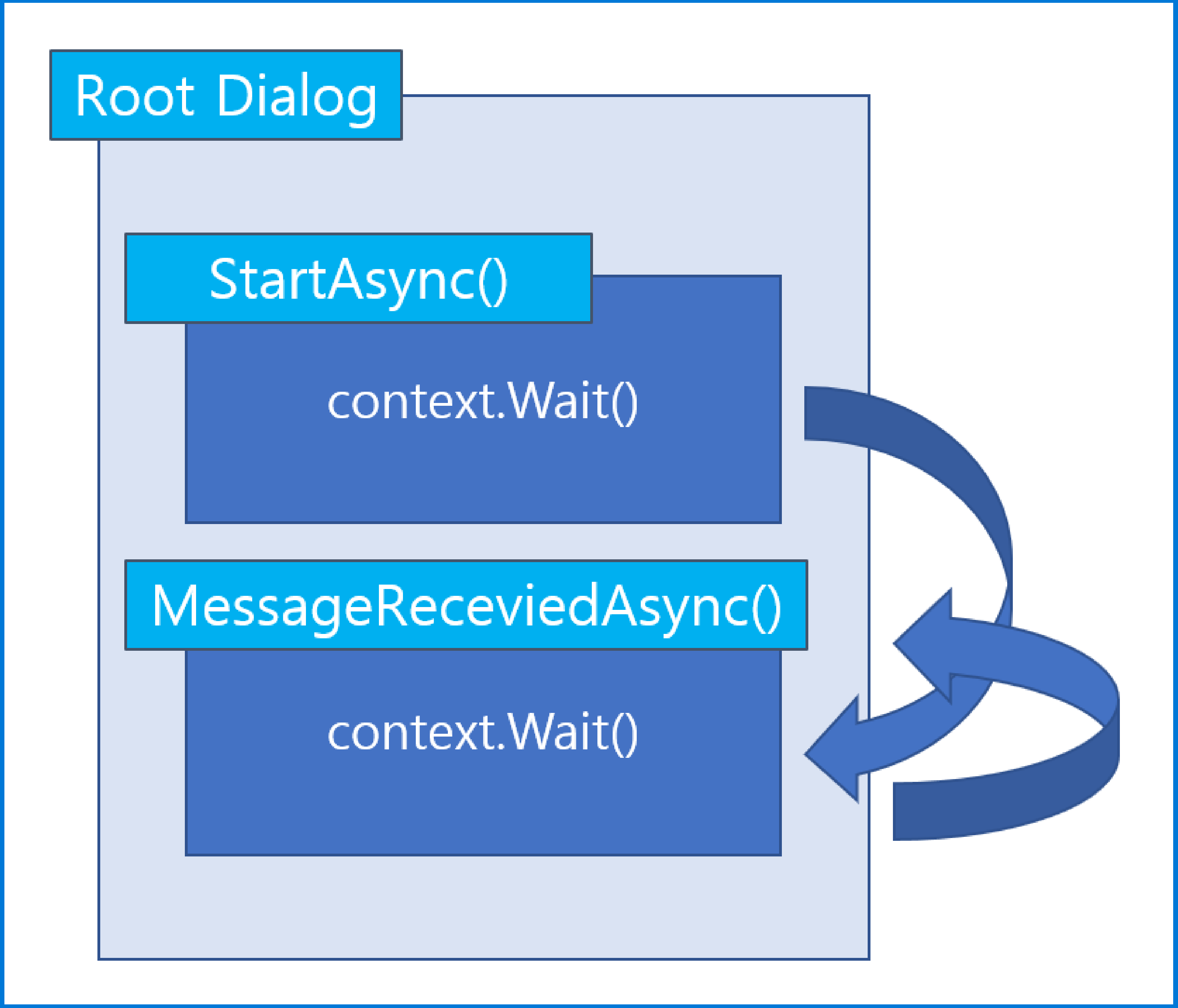
CONNECTOR

Web Service
HTTPS only
ASP.NET or Node.js

Routes messages
manages state
bot registration
Tracking
services (such as translation) and
per-user and per-bot storage

Dialogs

Dialogs model a conversational process, where the exchange of messages between bot and user is the primary channel for interaction with the outside world. Each dialog is an abstraction that encapsulates its own state in a C# class that implements **IDialog**. Dialogs can be composed with other dialogs to maximize reuse, and a dialog context maintains a stack of dialogs active in the conversation. A conversation composed of dialogs is portable across machines to make it possible to scale a bot implementation. This conversation state (the stack of active dialogs and each dialog's state) is stored in the state service provided by the Bot **Connector** service, making the bot implementation stateless between requests. (Much like a web application that does not store session state in the web server's memory.)



Root Dialog
StartAsync()
context.Wait()
MessageReceviedAsync()
context.Wait()

Context? IDialogContext?

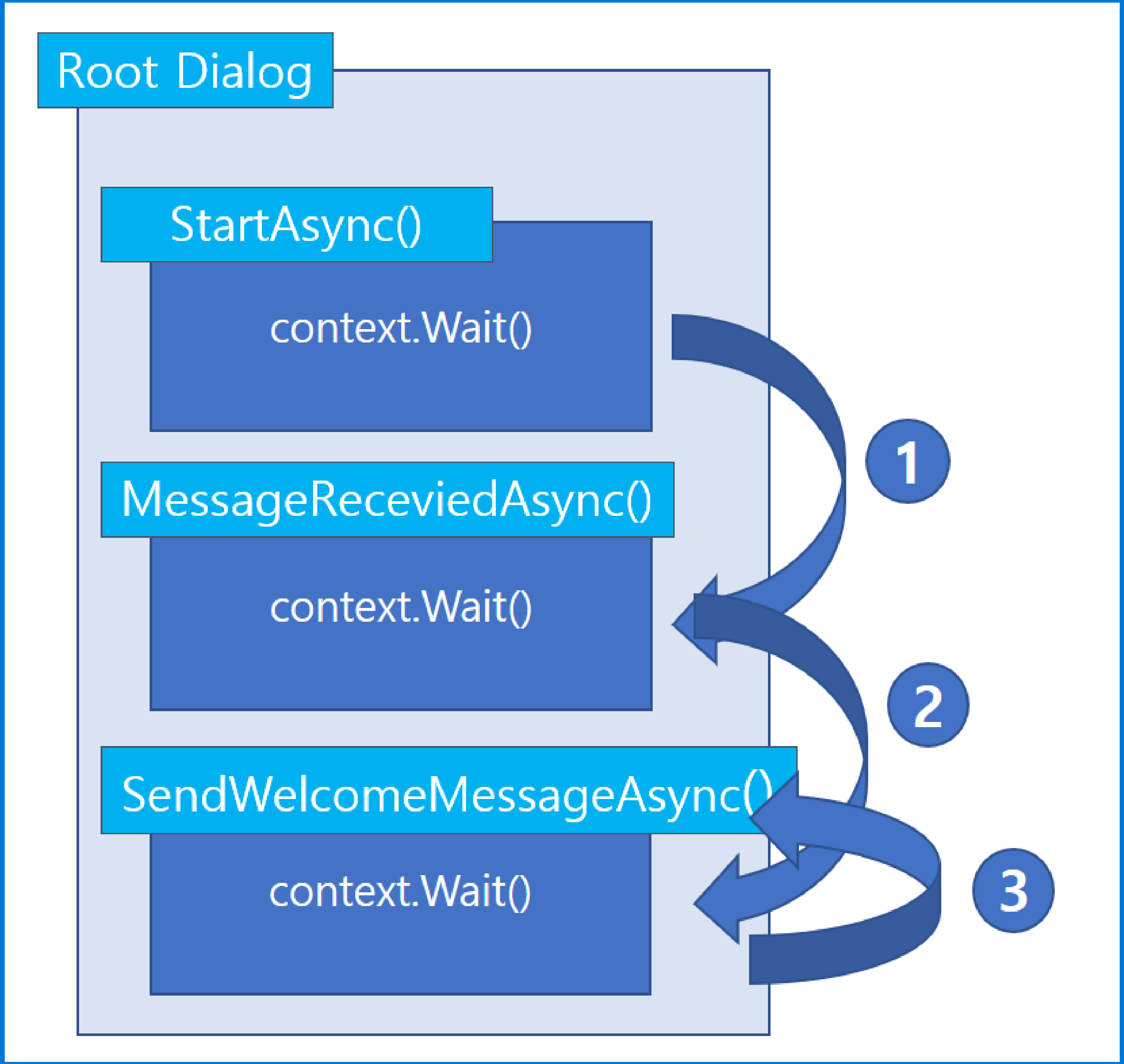
메소드	설명
Call()	다른 Dialog를 호출할 때 사용한다.
Done()	현재 Dialog를 종료하고 상위 Dialog로 돌아간다.
Fail()	현대 Dialog에서 예외를 발생하고 상위 Dialog로 돌아간다.
PostAsync()	메시지를 출력한다.
Wait()	대기 하고 있다가 다른 메소드를 실행한다.

Dialog

Namespace: Microsoft.Bot.Builder.Dialogs

```
[Serializable]
    public class FoodDialog : IDialog<object>
    {
        private string MENU;

        public async Task StartAsync(IDialogContext context)
        {
            context.Wait(MessageReceivedAsync);
        }

        public async Task MessageReceivedAsync(IDialogContext context,
        {
            var activity = await argument;
```

```
public async Task MessageReceivedAsync(IDialogContext context, IAwaitabl
{
     var activity = await argument;
     ConnectorClient connector = new ConnectorClient(new Uri(activity.S

     string message;

     message = string.Format("{0}를 주문하셨습니다. 감사합니다.", activity
     await context.PostAsync(message);

     MENU += activity.Text + ",";
     await context.PostAsync("주문내역:" + MENU);

     context.Wait(MessageReceivedAsync);
}
```



Root Dialog

StartAsync()

context.Wait()

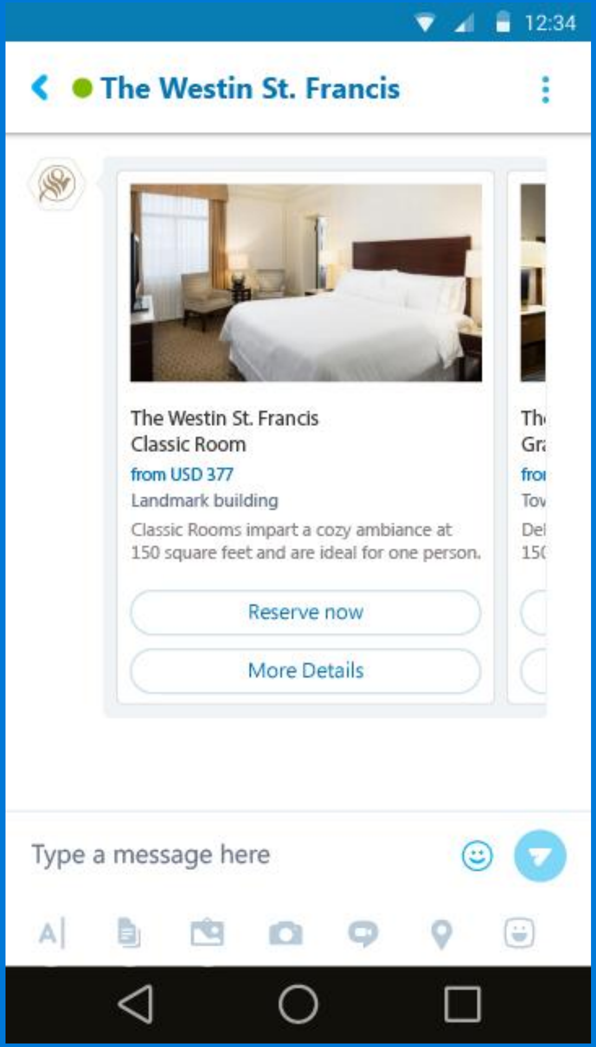
MessageRecevied Async()

context.Wait()

SendWelcomeMessageAsync()

context.Wait()

Attachments, Cards and Actions



12:34

The Westin St. Francis

The Westin St. Francis
Classic Room

from USD 377

Landmark building

Classic Rooms impart a cozy ambiance at 150 square feet and are ideal for one person.

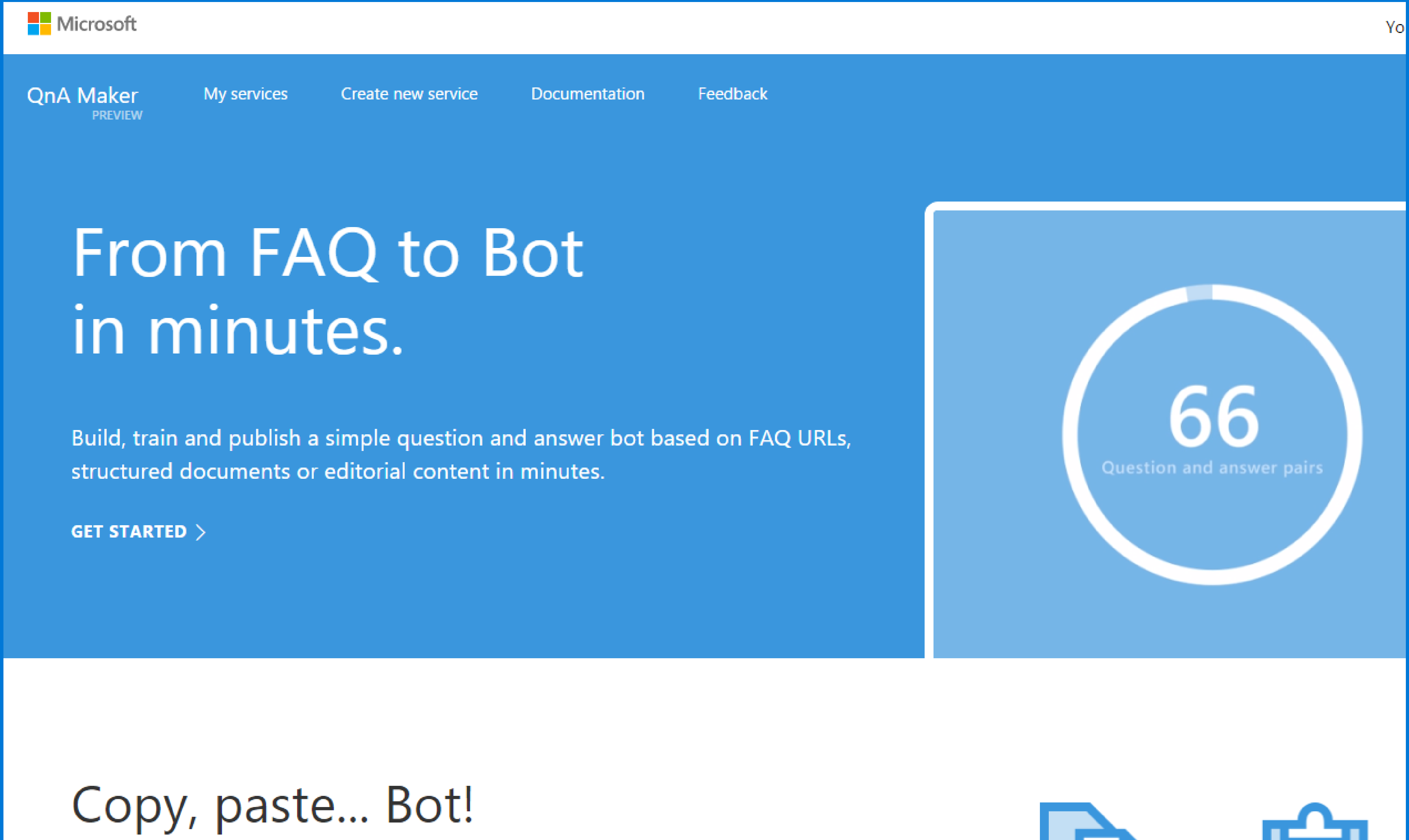
Card Type	Description	Supported Modes
Hero Card	A card with one big image	Single or Carousel
Thumbnail Card	A card with a single small image	Single or Carousel
Receipt Card	A card that lets the user deliver an invoice or receipt	Single
Sign-In Card	A card that lets the bot initiate a sign-in procedure	Single

Card Actions

Action types	**Content of value property**
openUrl	URL to be opened in the built-in browser.
imBack	Text of message which client will sent back to bot as ordinary chat message. All other participants will see that was posted to the bot and who posted this.
postBack	Text of message which client will post to bot. Client applications will not display this message.
call	Destination for a call in following format: "tel:123123123123"
playAudio	playback audio container referenced by URL
playVideo	playback video container referenced by URL
showImage	show image referenced by URL
downloadFile	download file referenced by URL
signin	OAuth flow URL

DEMO

Card and Action



From FAQ to Bot in minutes.

Build, train and publish a simple question and answer bot based on FAQ URLs, structured documents or editorial content in minutes.

GET STARTED >

Copy, paste... Bot!

```
string message = "";
using (var client = new
QnaMakerClient(“{Subscription Key}"))
{
    var result = await client.GenerateAnswer(
            new Guid(“{KB Key}"),
            activity.Text);

    message = result.Answers[0].Answer;
}
```

DEMO

QnA Maker

Integrating Language Understanding Intelligence Services

LUIS is part of Microsoft Cognitive Services offering and can be used for any device, on any platform, and any application scenario

- Essentially what Cortana uses on the backend for language and semantic interpretations
- Provides "built in" logic that can be leveraged "out of the box"
- Natural, adaptable conversational intelligence
- Model based via intents and entities

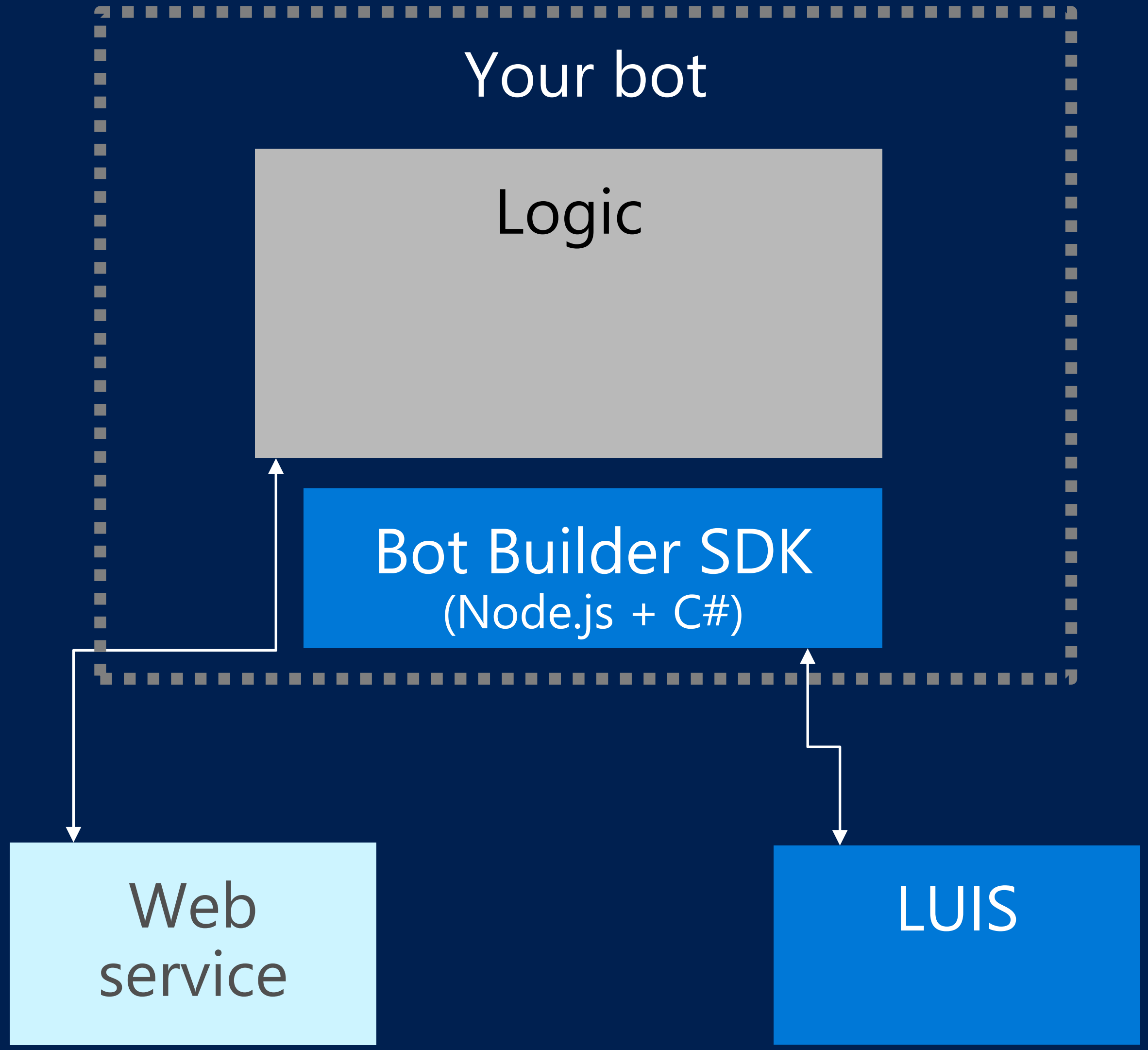
LUIS

Integrating Language Understanding Intelligence Services

학습

Intents 주문, 배달, 안내.....

Entities 메뉴: 자장면, 짬뽕, 탕수육....
크기: 보통, 곱배기, 작은거, 큰거...
수량: 하나, 한그릇, 두그릇....


Your bot
Logic
Bot Builder SDK
(Node.js + C#)
Web service
LUIS

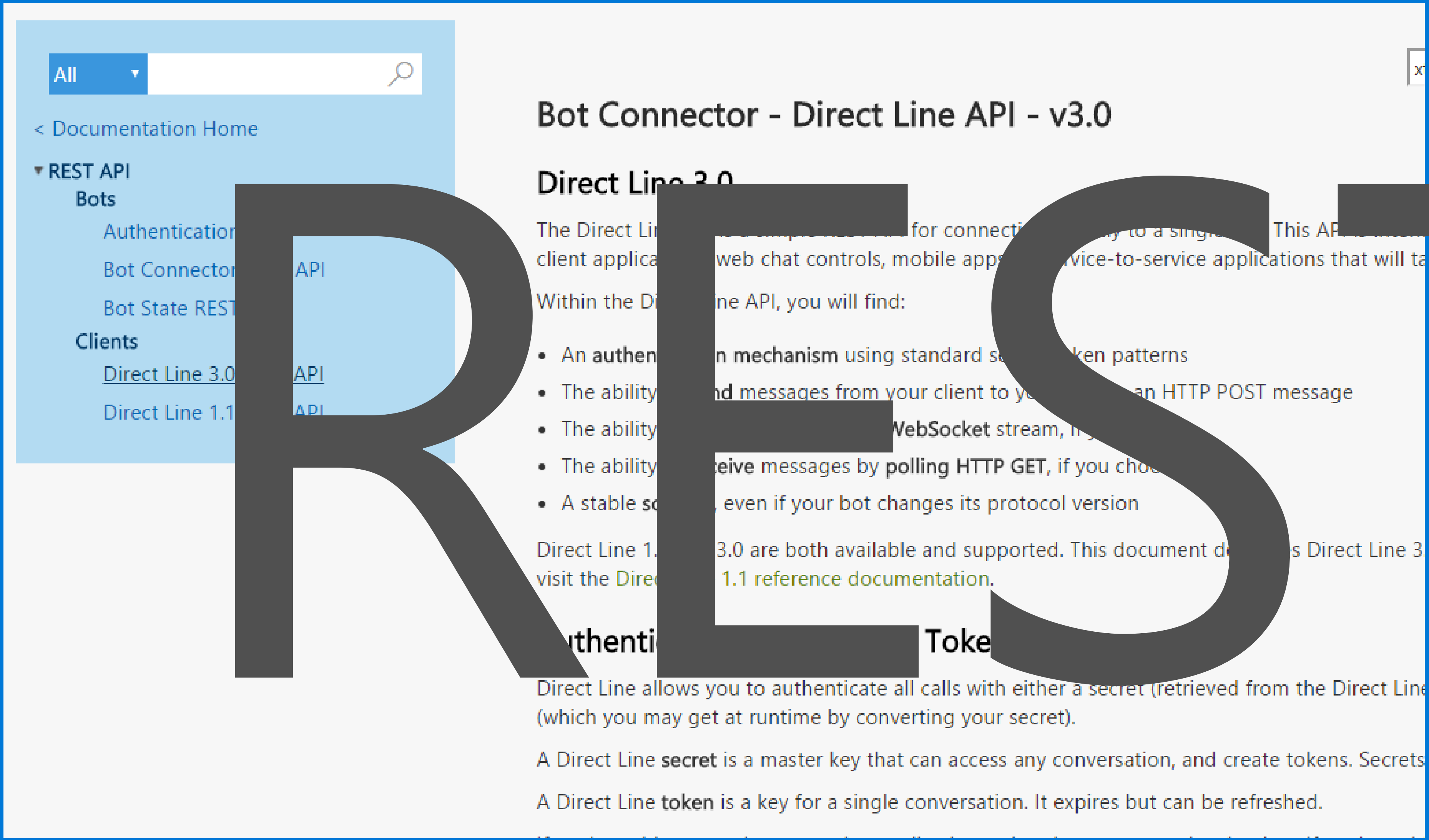
한국어 지원

서비스	LUIS가 독보적
오픈소스	Word2Vector KoNLPy

DEMO

LUIS

Direct Line API –V3.0



Bot Connector - Direct Line API - v3.0

Direct Line 3.0

The Direct Li... for connecti... to a single... This AP... client applica... web chat controls, mobile app... vice-to-service applications that will ta

Within the Di... ne API, you will find:

- An authen... n mechanism using standard s... ken patterns
- The ability... nd messages from your client to y... an HTTP POST message
- The ability... WebSocket stream, ...
- The ability... ceive messages by polling HTTP GET, if you cho...
- A stable s... even if your bot changes its protocol version

Direct Line 1. ... 3.0 are both available and supported. This document d... s Direct Line 3 visit the Dire... 1.1 reference documentation.

...thenti... Toke

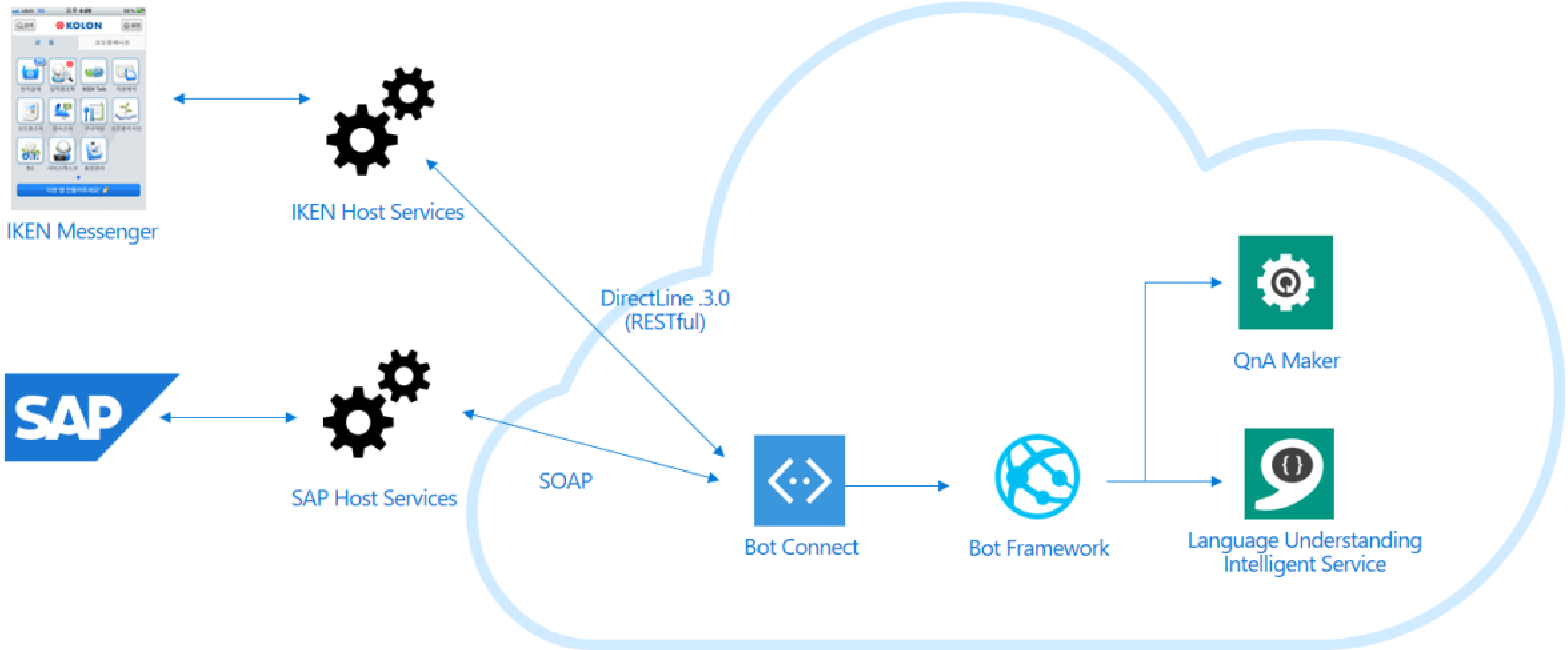
Direct Line allows you to authenticate all calls with either a secret (retrieved from the Direct Line (which you may get at runtime by converting your secret).

A Direct Line **secret** is a master key that can access any conversation, and create tokens. Secrets

A Direct Line **token** is a key for a single conversation. It expires but can be refreshed.

REST

Kolon Benit IKEN Bot Service Architecture



IKEN Messenger

IKEN Host Services

DirectLine .3.0
(RESTful)

SAP

SAP Host Services

SOAP

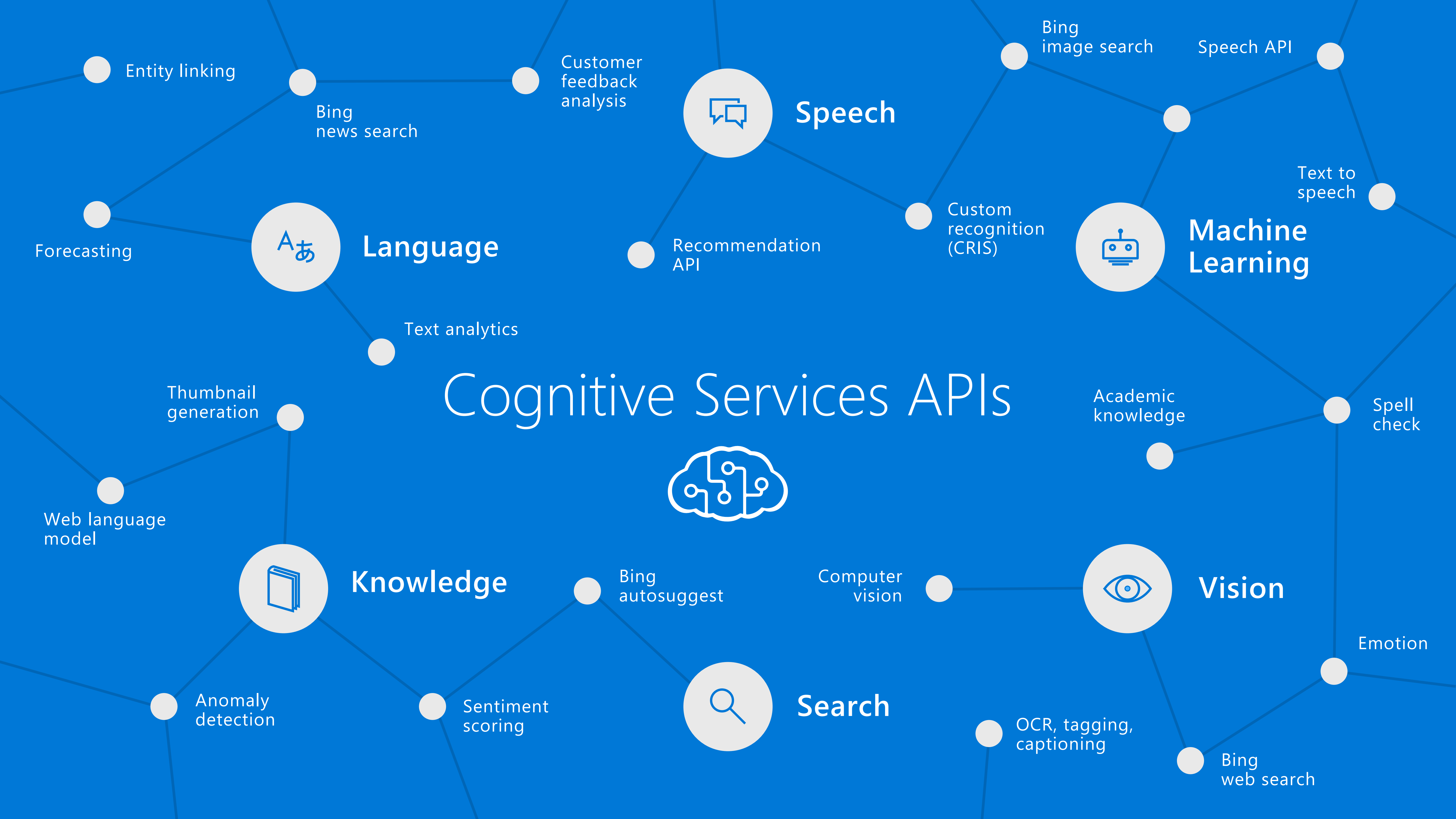
Bot Connect

Bot Framework

QnA Maker

Language Understanding
Intelligent Service

Cognitive Services APIs



Speech

Language

Machine Learning

Knowledge

Search

Vision

Entity linking

Bing news search

Customer feedback analysis

Bing image search

Speech API

Text to speech

Forecasting

Recommendation API

Custom recognition (CRIS)

Text analytics

Thumbnail generation

Academic knowledge

Spell check

Web language model

Bing autosuggest

Computer vision

Emotion

Anomaly detection

Sentiment scoring

OCR, tagging, captioning

Bing web search

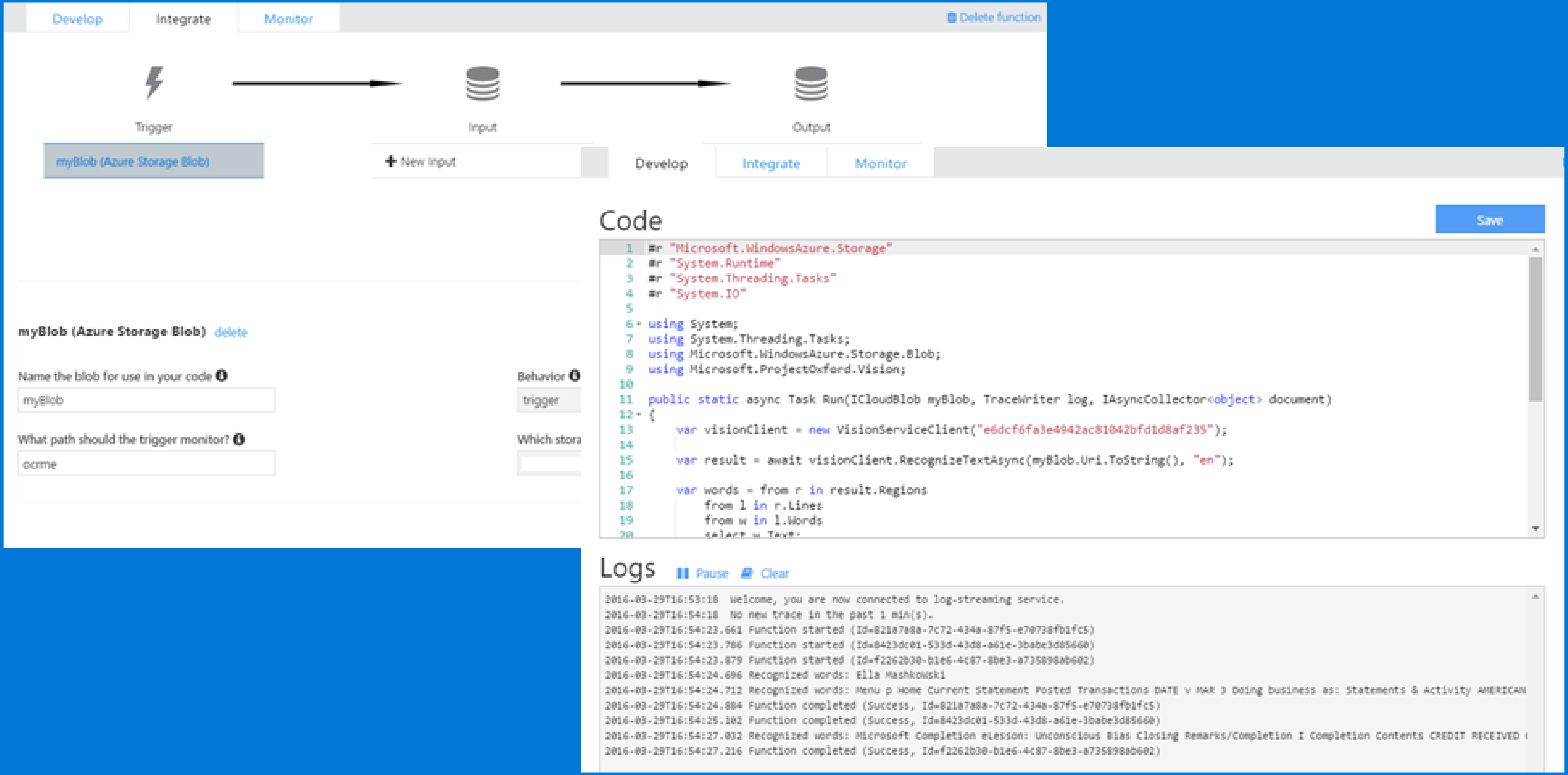
Cognitive Services

microsoft.com/cognitive

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

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

Azure Function



myBlob (Azure Storage Blob) delete

Name the blob for use in your code: myBlob

What path should the trigger monitor?: ocrme

Behavior: trigger

Which stora

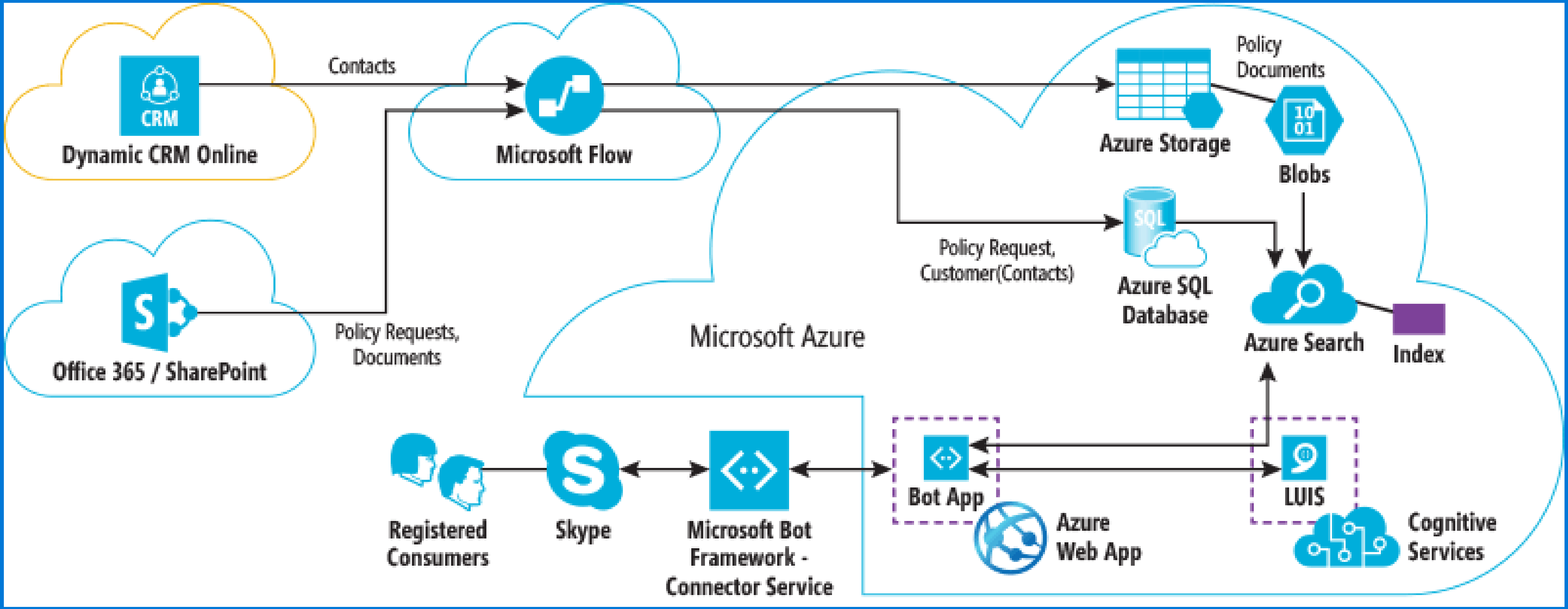
Code

```
#r "Microsoft.WindowsAzure.Storage"
#r "System.Runtime"
#r "System.Threading.Tasks"
#r "System.IO"

using System;
using System.Threading.Tasks;
using Microsoft.WindowsAzure.Storage.Blob;
using Microsoft.ProjectOxford.Vision;

public static async Task Run(ICloudBlob myBlob, TraceWriter log, IAsyncCollector<object> document)
{
    var visionClient = new VisionServiceClient("e6dcf6fa3e4942ac81042bfd1d8af235");

    var result = await visionClient.RecognizeTextAsync(myBlob.Uri.ToString(), "en");

    var words = from r in result.Regions
        from l in r.Lines
        from w in l.Words
        select w.Text;
```

Logs

```
2016-03-29T16:53:18  Welcome, you are now connected to log-streaming service.
2016-03-29T16:54:18  No new trace in the past 1 min(s).
2016-03-29T16:54:23.661 Function started (Id=821a7a8a-7c72-434a-87f5-e70738fb1fc5)
2016-03-29T16:54:23.786 Function started (Id=8423dc01-533d-43d8-a61e-3babe3d85660)
2016-03-29T16:54:23.879 Function started (Id=f2262b30-b1e6-4c87-8be3-a735898ab602)
2016-03-29T16:54:24.696 Recognized words: Ella Mashkowski
2016-03-29T16:54:24.712 Recognized words: Menu p Home Current Statement Posted Transactions DATE v MAR 3 Doing business as: Statements & Activity AMERICAN
2016-03-29T16:54:24.884 Function completed (Success, Id=821a7a8a-7c72-434a-87f5-e70738fb1fc5)
2016-03-29T16:54:25.102 Function completed (Success, Id=8423dc01-533d-43d8-a61e-3babe3d85660)
2016-03-29T16:54:27.032 Recognized words: Microsoft Completion eLesson: Unconscious Bias Closing Remarks/Completion I Completion Contents CREDIT RECEIVED (
2016-03-29T16:54:27.216 Function completed (Success, Id=f2262b30-b1e6-4c87-8be3-a735898ab602)
```

Azure Search



추천 도서

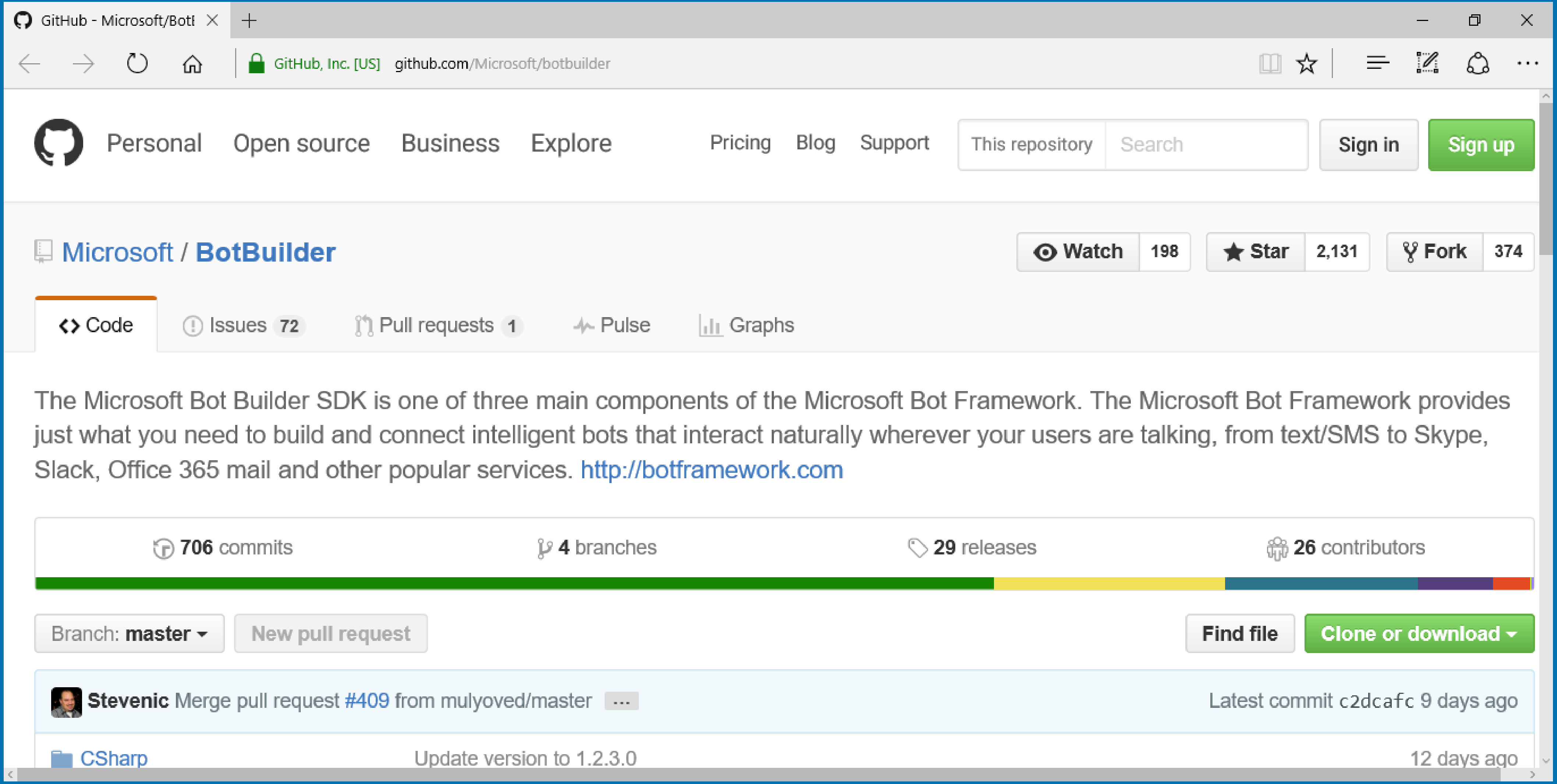
지금 쓰고 있습니다. Coming Soon Maybe 9월쯤..

도와주세요

감사합니다

Thank you~!

GitHub!



The Microsoft Bot Builder SDK is one of three main components of the Microsoft Bot Framework. The Microsoft Bot Framework provides just what you need to build and connect intelligent bots that interact naturally wherever your users are talking, from text/SMS to Skype, Slack, Office 365 mail and other popular services. http://botframework.com

706 commits | 4 branches | 29 releases | 26 contributors

Stevenic Merge pull request #409 from mulyoved/master … Latest commit c2dcafc 9 days ago

CSharp Update version to 1.2.3.0 12 days ago

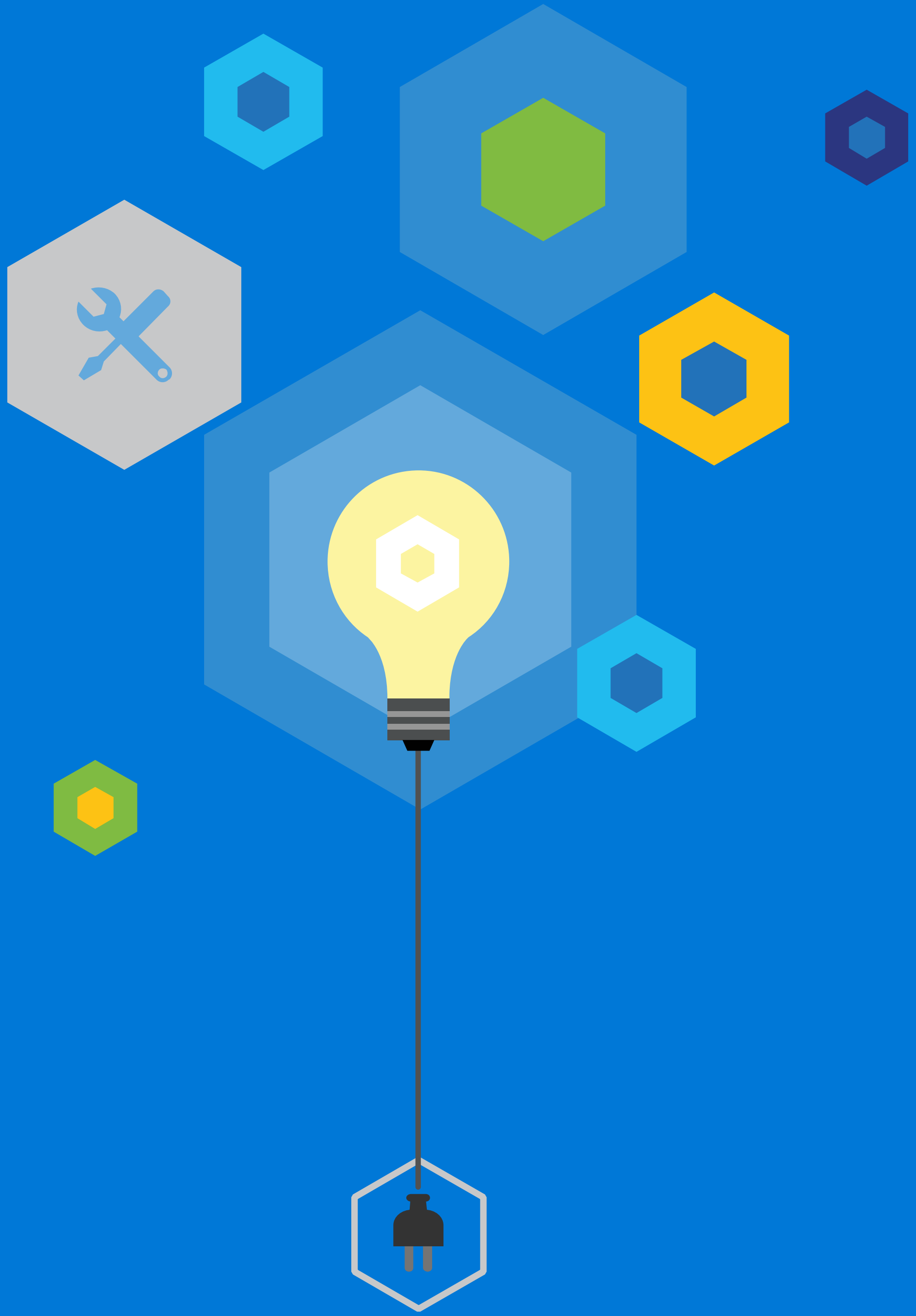
https://github.com/Microsoft/botbuilder

Tips & Tricks

- Use an empty string for your Microsoft App Id and Password in development, but remember to change these to your actual values before you publishing into production.
- Get used to understanding Lambda and "Fluid" concepts to make it easier to work with Dialogs, Forms and especially the concept of the Bot process "Chain".
- This session demonstrates storing and managing Bot State is a number of ways. Use what makes sense in your environment by uses these concepts purely as examples.
- If the Microsoft Bot Emulator continues to give you authorization issues, try changing the port for your Bot Service in the Web tab of the project and redeploy.

DEMO

Integration Language Understanding Intelligence Services



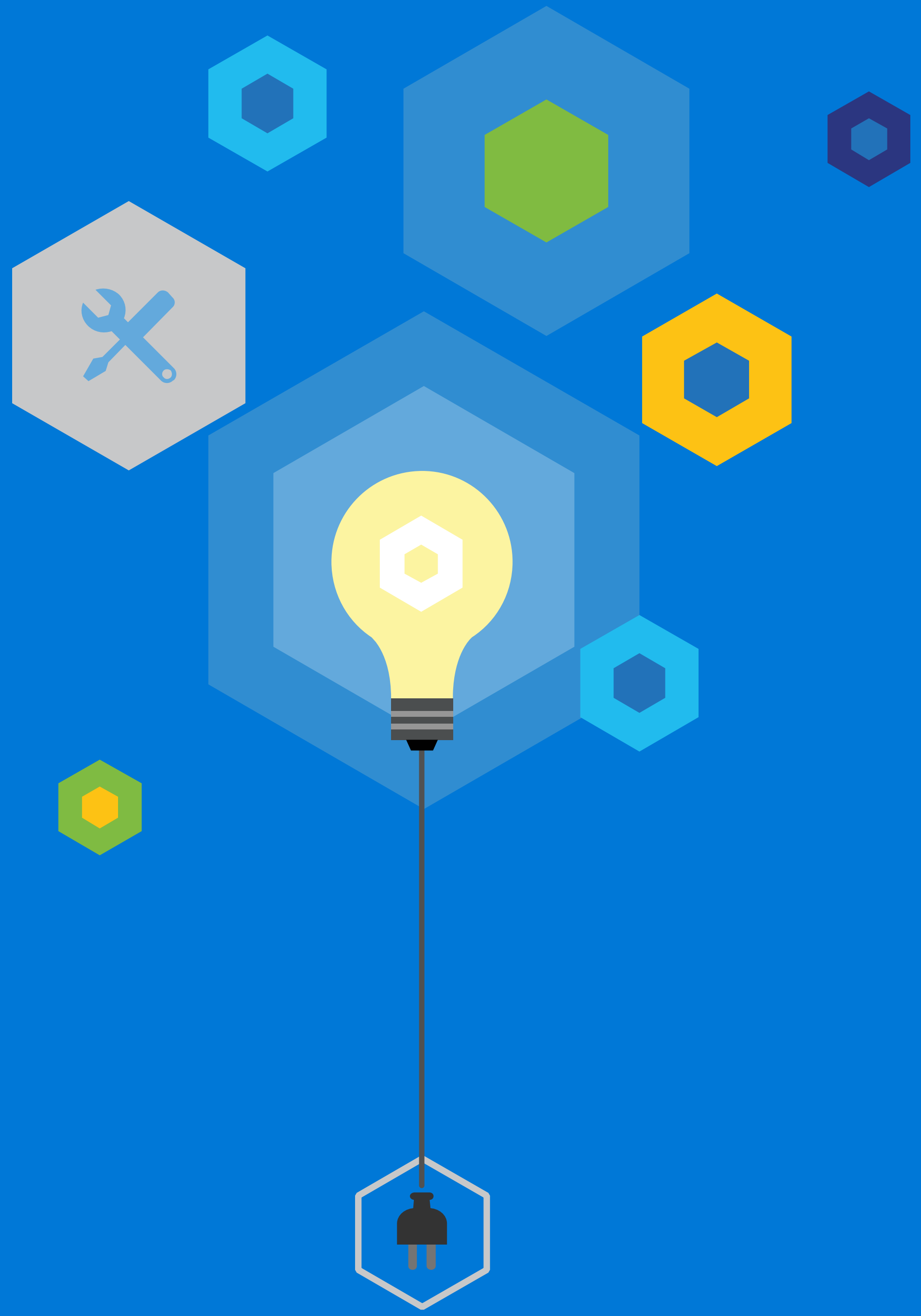
Putting it All Togethner

- Add some more features to demonstrate LUIS integration
- Walkthrough an example of using Attachments, Cards and Actions
- Publishing your Bot
- Using your Bot in a web chat and Skype

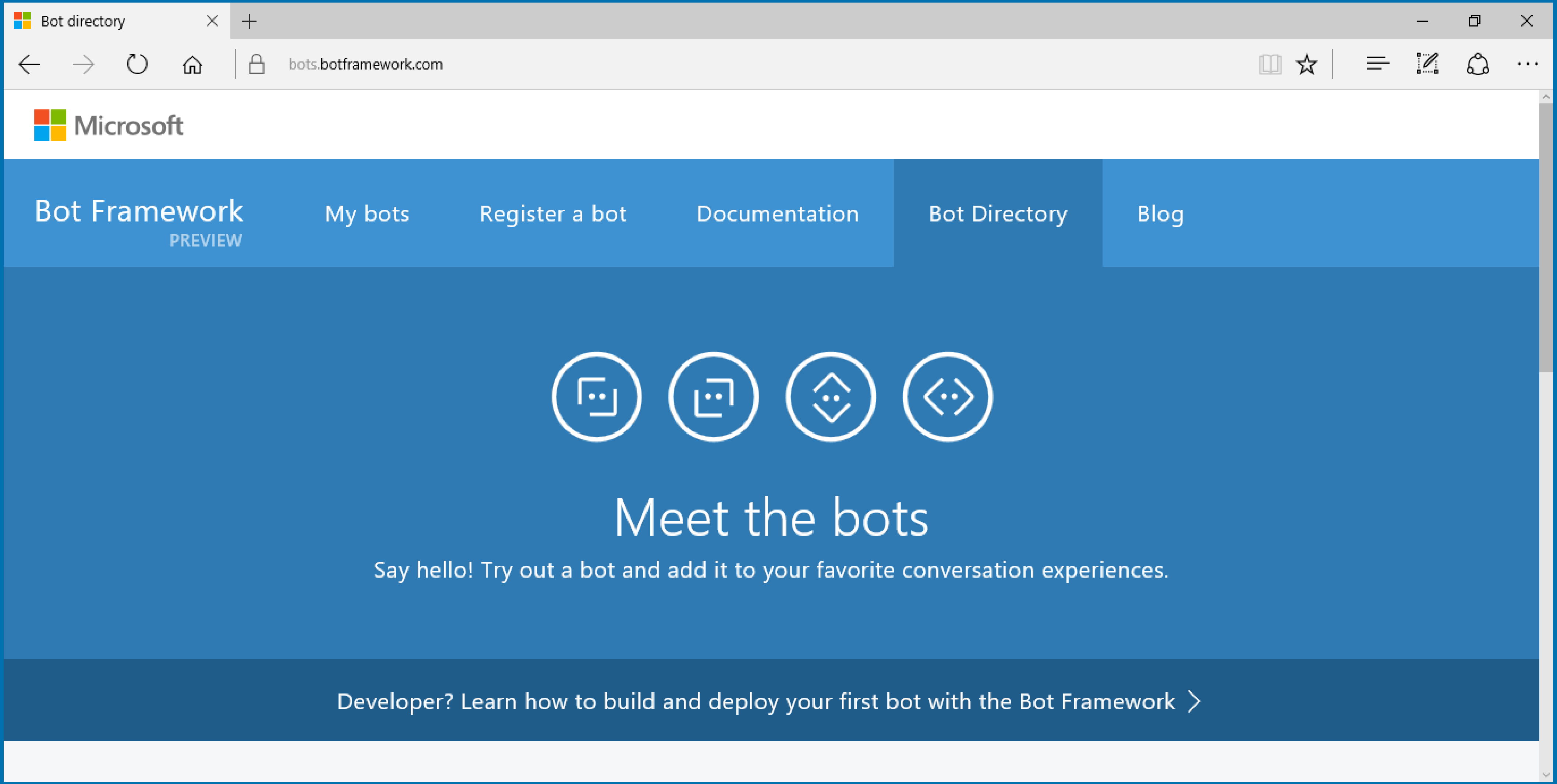
Putting it All Together

DEMO

Putting It All Together



Bot Directory



Bot directory

bots.botframework.com

Microsoft

Bot Framework PREVIEW

My bots

Register a bot

Documentation

Bot Directory

Blog

Meet the bots

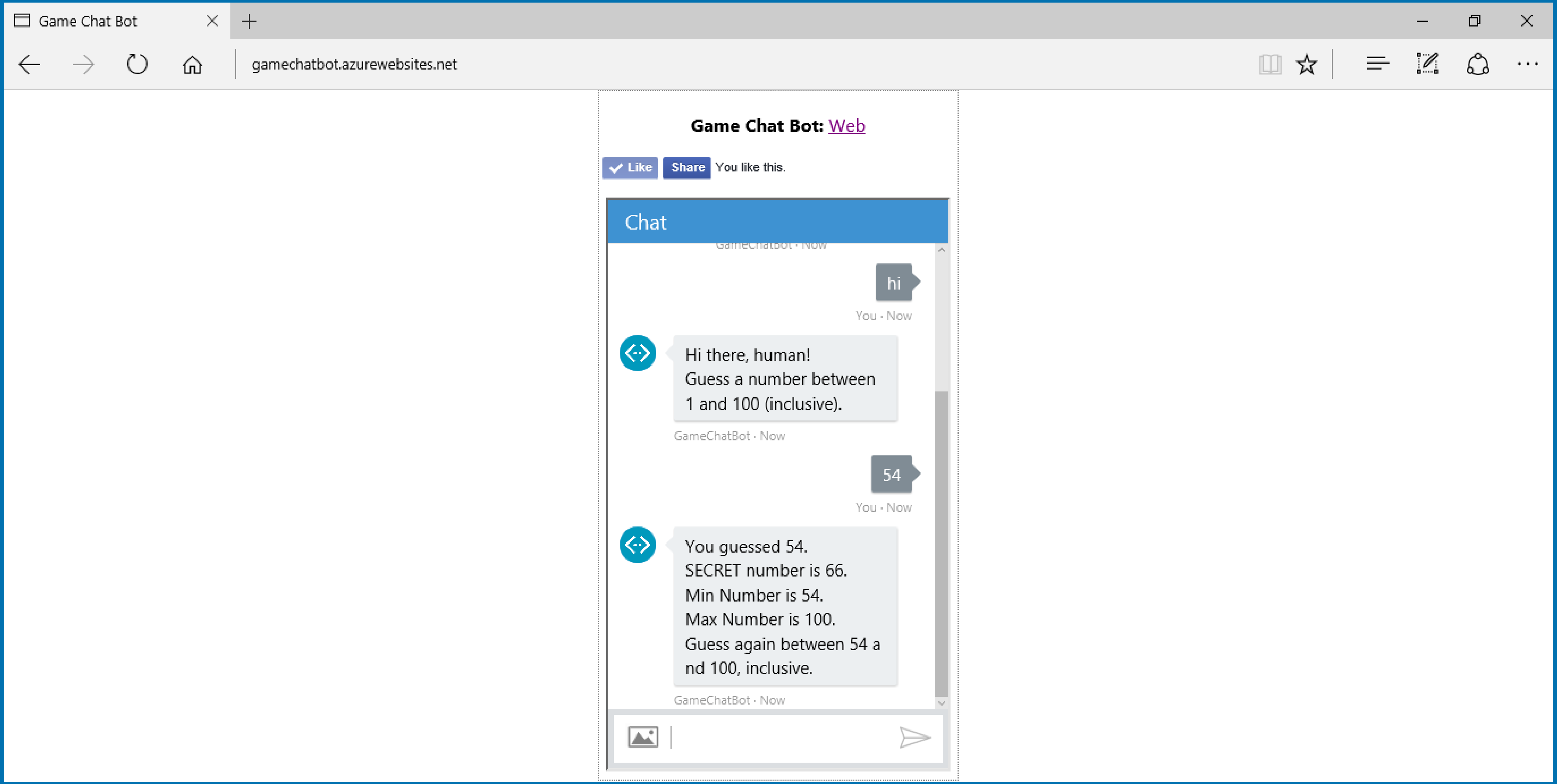
Say hello! Try out a bot and add it to your favorite conversation experiences.

Developer? Learn how to build and deploy your first bot with the Bot Framework >

https://bots.botframework.com/

Demo

Game Chat Bot



Game Chat Bot: Web

You like this.

GameChatBot · Now

hi

You · Now

Hi there, human!
Guess a number between 1 and 100 (inclusive).

GameChatBot · Now

54

You · Now

You guessed 54.
SECRET number is 66.
Min Number is 54.
Max Number is 100.
Guess again between 54 and 100, inclusive.

GameChatBot · Now

http://gamechatbot.azurewebsites.net/

기업 현황 - 해외

업체	플랫폼	주요내용
페이스북	Facebook Messenger	F8 2016에서 Facebook Messenger에 인공지능을 적용한 챗봇 공개. 40개 내외 업체들이 참여 예정
텐센트	WeChat	인공지능 기반의 챗봇 전환을 통해 메시지를 통해 대화 하며 호텔, 병원, 영화등의 예약 기능 제공
텔레그램	Telegram	Bot API 공개로 개발자들에게 챗봇 개발 지원. 대화창에서 바로 이용이 가능한 Inline Bots를 추가
킥	Bot Shop	화장품/의류업체 등이 참여한 '봇샵(Bot Shop)' 오픈을 통해 챗봇 서비스 제공
구글	Allo	인공지능 챗봇 기술 적용된 메신저 플랫폼 준비 중

출처 : Digieco, KB경영연구소, 언론기사 참조