

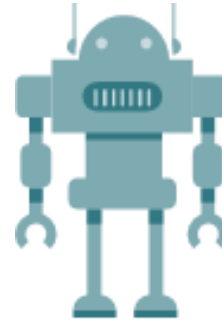
# Building Intelligent Applications Using Bot Framework

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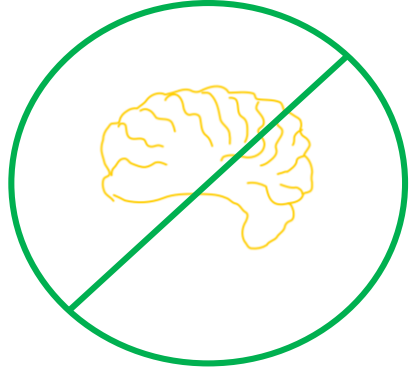
Microsoft

# What is a Bot?

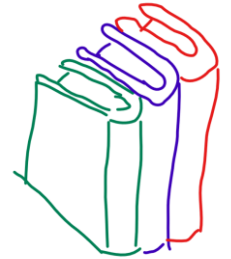
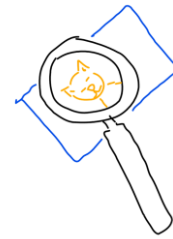


# What a Bot is Not

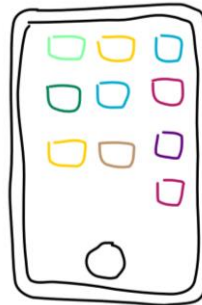
It's not AI



It's not natural language processing only

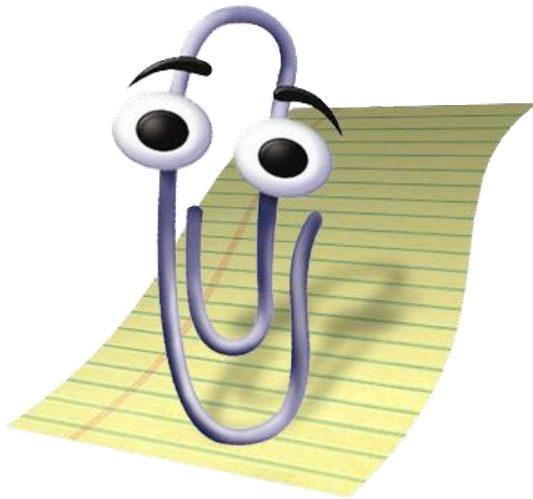


It's not text interfaces only

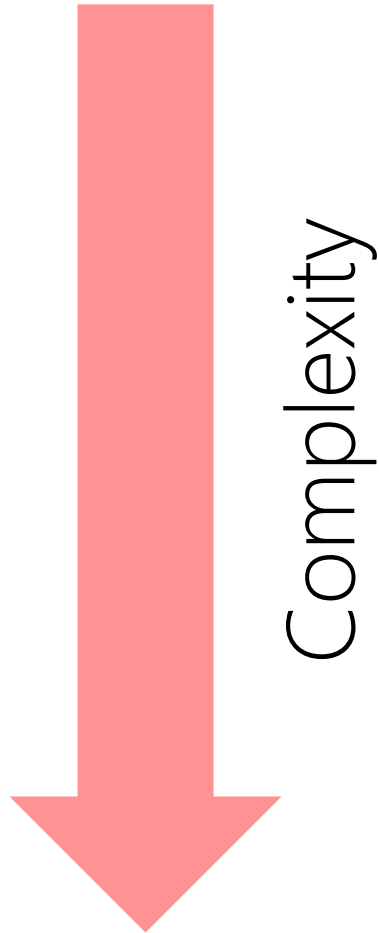


# What is a Bot?

Simply put, a bot is an **application** that performs an automated task. That's it.

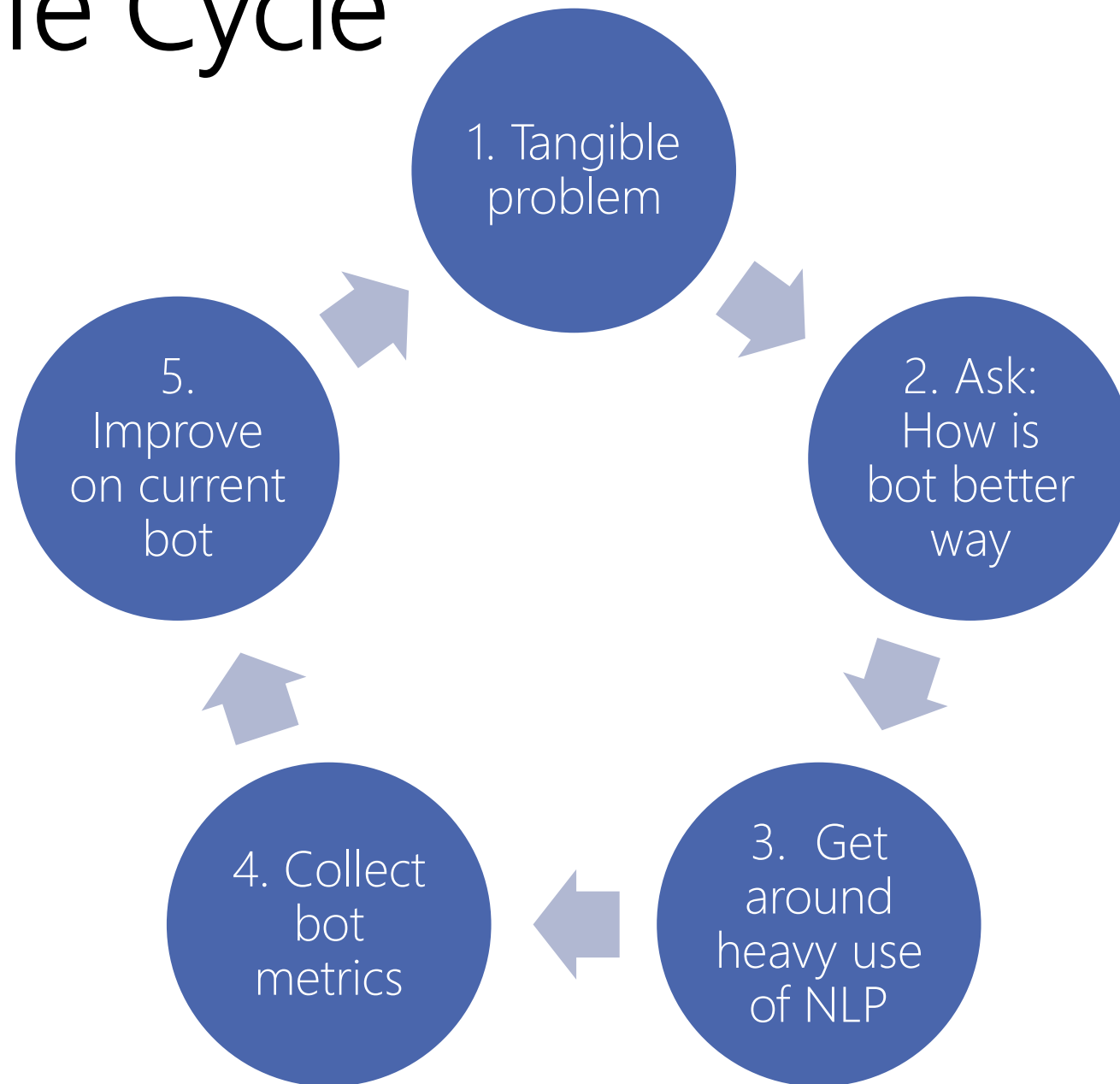


# What Types of Bots are There?



- Notifiers
- Reactors
- Responders
- Conversationalist

# The Bot Life Cycle



# Building Bots

- AIML
- Data Driven Approaches
- APIs

# What is AIML?

Artificial Intelligence Markup Language is a simple scripting language and the open standard for writing chatbots.



# AIML Bots

Companies/projects that have adopted the open AIML standard for chat robot software:

Project	URL
Pandorabots	<a href="http://www.pandorabots.com">http://www.pandorabots.com</a>
Oddcast, Inc.	<a href="http://www.oddcast.com">http://www.oddcast.com</a>
Media Semantics / HostABot.com	<a href="http://www.mediasemantics.com">http://www.mediasemantics.com</a>
AIML Scripting Resourcee	<a href="http://www.aiml.info">http://www.aiml.info</a>
Artificial Intelligence Nexus	<a href="http://www.knytettrypper.com/ain.html">http://www.knytettrypper.com/ain.html</a>
J-Alice	<a href="http://j-alice.sourceforge.net/">http://j-alice.sourceforge.net/</a>
AIMLPad	<a href="http://www.aimlpad.com">http://www.aimlpad.com</a>
PASCALice and AIML Tools	<a href="http://www.sweb.cz/alicebot/">http://www.sweb.cz/alicebot/</a>
Program E	<a href="http://sourceforge.net/projects/programe/">http://sourceforge.net/projects/programe/</a>

# Basic AIML Code

## Example

```
<category>  
    <pattern>Hi</pattern>  
    <template>Hey, what's up?</template>  
</category>
```

```
<category>  
    <pattern>Hey there</pattern>  
    <template>  
        <random>  
            <li>Hi there, what are you doing this beautiful day stranger?</li>  
            <li>Hey there, what's happenin'?</li>  
            <li>Hi there stranger What are you doing?</li>  
        </random>  
    </template>  
</category>
```

# Wildcards in AIML

The Ultimate Default Category (UDC) is used by the bot to provide an answer if no other suitable category can be matched.

```
<category>  
<pattern>*</pattern>  
<template>I have no answer for that.</template>  
</category>
```

# The \* Wildcard

The \* symbol is able to capture one or more words in the user input.

```
<pattern>HELLO *</pattern>
```

This pattern would match all of the following inputs:

Hello there!

Hello Daniel.

Hello my good friend.

Hello, anyone there?

But not the word “Hello” by itself, because there must be at least one word captured by the \* wildcard to form a match.

# The ^ Wildcard

The ^ symbol is also a wildcard, however, it can capture 0 or more words.

```
<pattern>HELLO ^</pattern>
```

# Wildcard Priority

Wildcards are ranked in order of priority, so that certain patterns will take precedence over others.

- HELLO \*
- HELLO ^

# How to teach a Bot

Supervised Learning	Unsupervised Learning
The Teacher is Crucial	No Teacher
Train from Conversation log	Train from Conversations
Targeting	Example : Cleverbot
Superbot	Deleting Garbage
Creative Writing	Filtering

# AIML Reductions

## 1) Symbolic Reduction-

Do you know what X is- What is X

## 2) Divide and Conquer

I am X and You are Y- I am X, You are Y

## 3) Synonyms

I request X- I want X

## 4) Spelling or Grammar corrections

I am happy- I am Happy

## 5) Detecting Keywords



# Problem with Reductions

Are you Married – Are you Single

Are you Single – Are you Married

Who is John – Who is John Wick

Solution: Safe Reductions

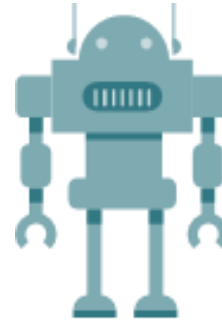
I am very \* - I am \*

Do you know what \* is – What is \*

I am\* - I am \*

Who are you – What is your name

# Microsoft Bot Framework





Bot Builder  
SDK

Dev



Bot  
Framework  
Developer  
Portal

Connect



Bot Directory

Publish

# Bot Framework

## Bot Framework

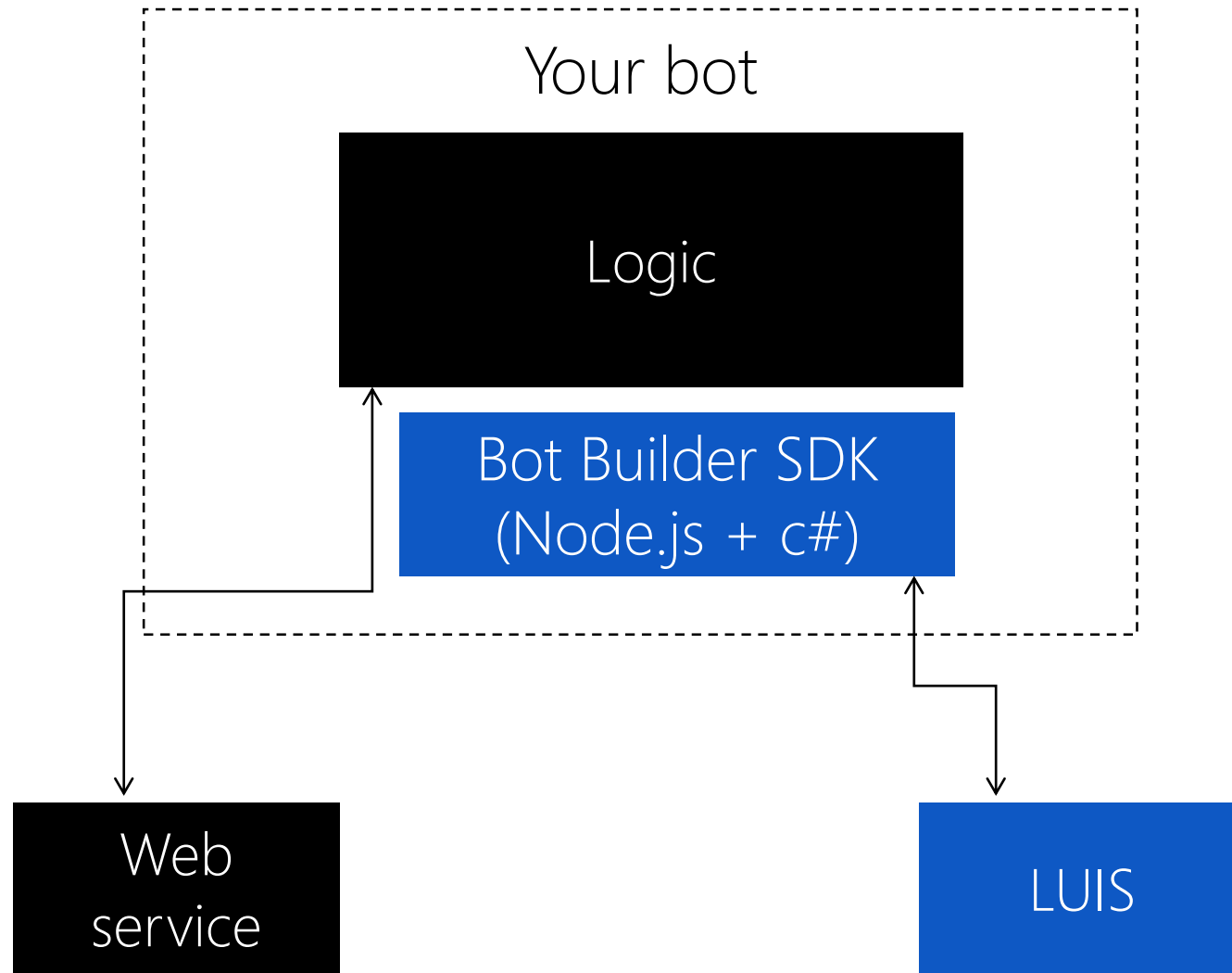
Bot Framework is a Microsoft – operated service and SDK

Bot Framework is one of many tools Microsoft offers for building a complete bot

Others include: LUIS, Speech APIs, Azure, more

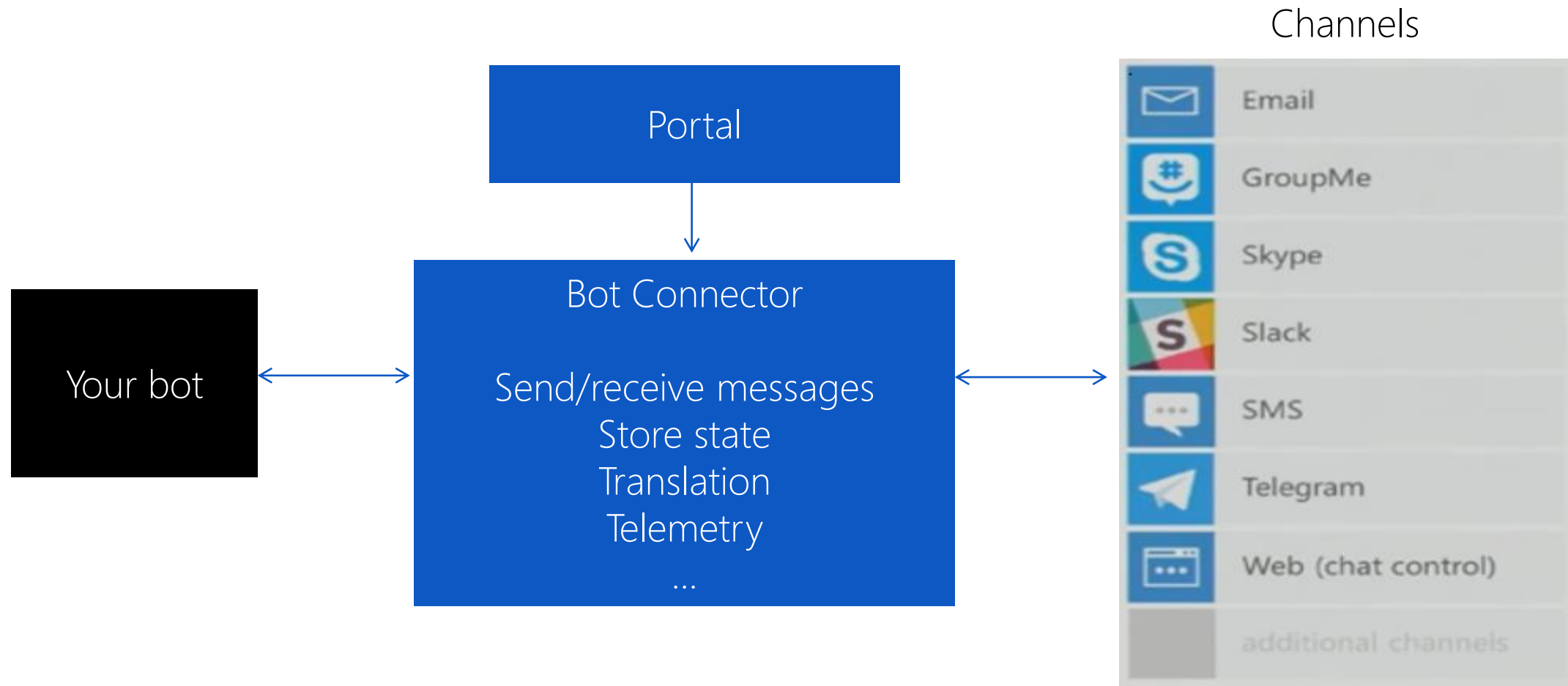


# Bot Framework – Part 1



# Bot Framework – Part 2

## *Bot Connector*



# Bot Connector Message

Your bot

Bot  
Connector

```
{  
  "type": "message",  
  "id": "68YrxgtB53Y",  
  "conversationId": "DphpaFQrDuZDKyCez4AFGcT4vy5aQDjellLGljB8v18MFtb",  
  "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 },  
  ...  
}
```

# Configuring Channels

- Take advantage of special features or concepts for a channel
- Send native metadata to that channel
- Pass extra properties via the ChannelData property



# Custom Email Messages

When you reply to a message via the email channel, you can specify the following properties:

Property	Description
<i>HtmlBody</i>	The HTML to use for the body of the message
<i>Subject</i>	The subject to use for the message
<i>Importance</i>	The importance flag to use for the message (Low/Normal/High)

## Example Message

```
1 {
2   "type": "message",
3   "locale": "en-US",
4   "channelID": "email",
5   "from": { "id": "mybot@gmail.com", "name": "My bot" },
6   "recipient": { "id": "joe@gmail.com", "name": "Joe Doe" },
7   "conversation": { "id": "123123123123", "topic": "awesome chat" },
8   "channelData":
9     {
10       "htmlBody" : "<html><body style = \"font-family: Calibri; font-size: 11pt;\" >This is more than
11         awesome</body></html>",
12       "subject": "Super awesome message subject",
13       "importance": "high"
14     }
15 }
```

# Custom Telegram Messages

Sharing a voice memo, or a sticker

Property	Description
<i>method</i>	The Telegram Bot API method to call. See below for supported methods.
<i>parameters</i>	Associative array containing method parameters. Parameters are method-specific.

## Example Message

```
1 {
2     "type": "message",
3     "locale": "en-US",
4     "channelID": "telegram",
5     "from": { "id": "12345", "name": "My Bot" },
6     "recipient": { "id": "67890", "name": "Joe Doe" },
7     "conversation": { "id": "123123123123", "topic": "awesome chat" },
8     "channelData":
9     {
10         "method": "sendSticker",
11         "parameters":
12         {
13             "sticker":
14             {
15                 "url": "https://upload.wikimedia.org/wikipedia/commons/3/33/LittleCarron.gif",
16                 "mediaType": "image/gif"
17             }
18         }
19     }
20 }
```

# Developer Portal: What Registration Does for You

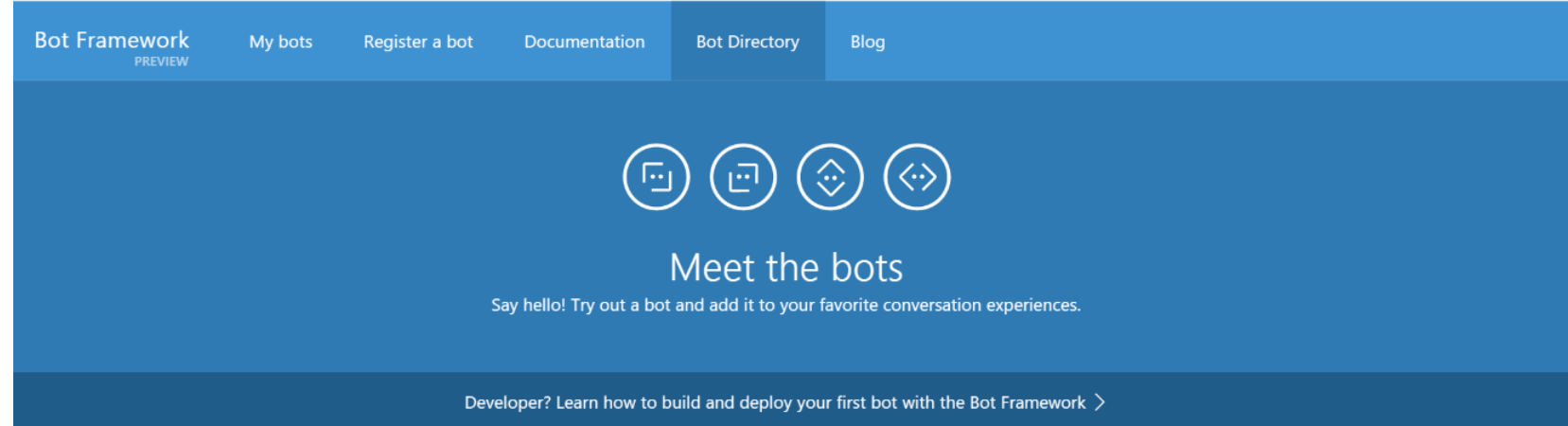
Your bot's web  
service in the  
cloud



MS Bot  
Framework  
Connector



# Bot Directory


















## Public Directory of Bot Framework Bots

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

- Discover, try, and add bots from here with no added configuration
- Bots are public at developer discretion; must be reviewed
- Searchable here

# Featured Bots



	<b>Skyscanner</b> Skyscanner The world's travel search engine		<b>AzureBot</b> Microsoft Be more productive with your own Microsoft Azure subscriptions using		<b>Spock</b> Massively Chat with Spock, second in command of the USS Enterprise, to
	<b>Hipmunk</b> Hipmunk, Inc. Hi, hi! I'm a super-powered travel assistant Hipmunk who can dig		<b>Jessie Humani</b> PullString, Inc. Jessie Humani's life is in your hands. Will you help her make some		<b>SI x GameOn ...</b> GameOn Technology Love the NFL? Add the SI x GameOn NFL bot to get unparalleled
	<b>StubHub</b> StubHub Inc. Finding tickets to sports, concerts and theater as easy as chatting with		<b>Mica, the Hips...</b> LIKE A HIPSTER Hi, I'm Mica, your local hipster adviser. I help you discover the best		<b>Baymax</b> TrueCare24 Your personal healthcare companion. The service is available
	<b>MemeBot</b> Fernando Galván Medina A simple bot that will assist you in your daily meme creation. You can		<b>Cardea</b> Powered by RingMD Meet Cardea, your personal medical aid. She will answer your health		<b>Solitaire</b> Card Lion Solitaire is the most popular card game in the world.
	<b>UNO</b> Card Lion UNO world famous card game bot		<b>Trivia Master</b> Microsoft A fiendish quiz hosted by Professor T. Master.		<b>RemitRadar</b> RemitRadar Artificial Intelligence remittance assistant chatbot. Helps you to find

# Skyscanner

Bot Framework  
PREVIEW

My bots

Register a bot

Documentation

Bot Directory

Blog



## Skyscanner

Skyscanner | #travel, #flights, #inspiration

### Overview

The world's travel search engine

[Privacy statement](#)

[Publisher email](#)

[Bot website](#)

[Report abuse](#)

### Say hello

Add this bot to your favorite conversation experiences.



Skype

[Add to Skype](#)

# Skyscanner



---

Skyscanner



Skype Certified 

Skyscanner

---

Add to Contacts

The world's travel search engine

**Capabilities**


- Send and receive instant messages and photos

This bot will have access to your Skype Name, and any chat messages or content that you or other group participants share with it.





[Privacy and Terms of Use](#)



 Home


 Contacts


Recent

 **Skyscanner**  *What's the start date...*

 History


 **Skyscanner**  *Online*



Tip of the day: at any point you can say 'help' for a more detailed explanation. 


10:18 am


Today



Hello!


10:20 am






Open


10:20 am






Open


10:21 am



From which city will you start your trip?

10:21 am





Open

10:21 am

Hi

10:20 am

I want to travel to Denmark




10:21 am

Los Angeles

10:21 am

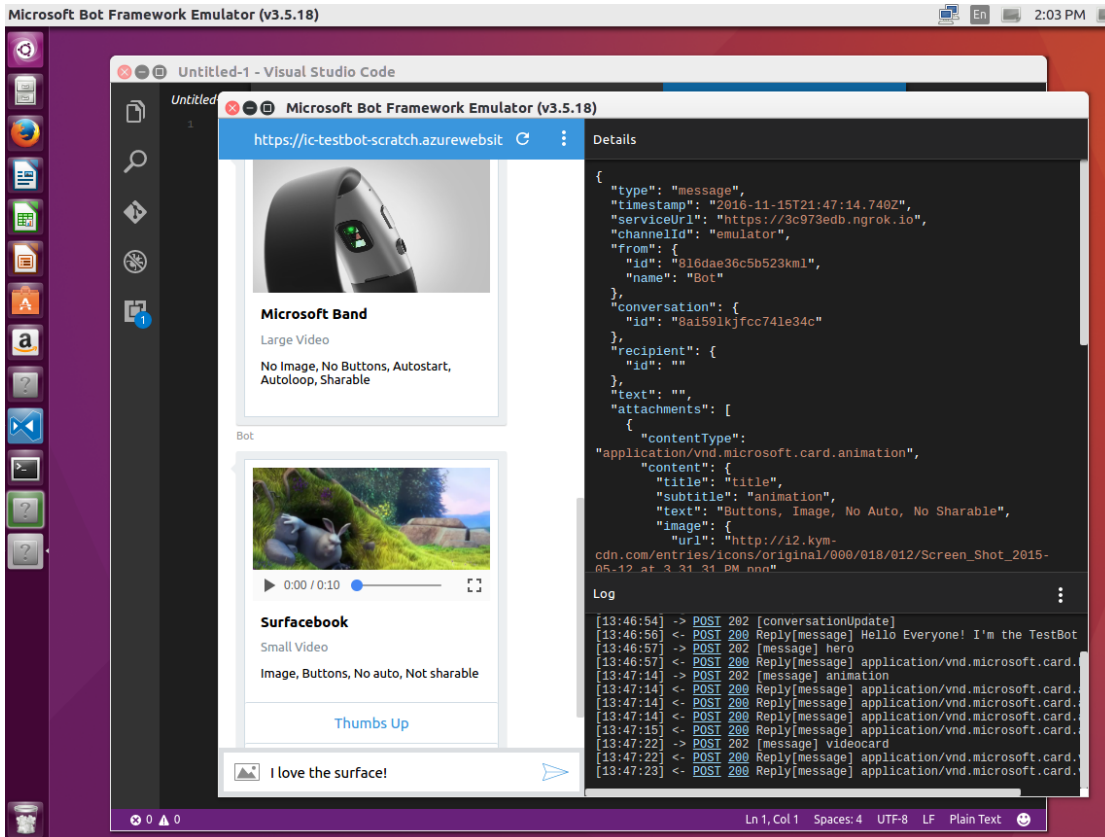
via Skype

Type a message here



# The BF Emulator to Test a Bot












- Support for Mac, Linux and Windows
- Send requests and receive responses to/from your bot endpoint on localhost
- Inspect the Json response Emulate a specific user and/or conversation

# Working with Channels


# Adding a Channel

- Skype is added by default
- Instructions are laid out

Add another channel


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



 Microsoft

Micheleen Harris ▾

## Configure Slack



### How to

^ Log in to Slack and create a Slack Application for your bot

<https://api.slack.com/applications/new>

Your Apps

Create New App

▽ Create application and set redirect URI

# Register a Bot in The Developer's Portal



Bot Framework  
PREVIEW

My bots

Register a bot

Documentation

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Blog

## Tell us about your bot

### Bot profile



Icon

[Upload custom icon](#)

30K max, png only

\* Name ?

\* Bot handle ?

\* Description ?



# Register a Bot in The Developer's Portal

Bot Framework  
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 mithunbot

Publish

Details

Edit

Bot handle  
mithunbot

Bot Framework Version  
3.0

Messaging endpoint  
https://mithunbot.com




Microsoft App ID  
b301ee5d-a909-4f32-a751-75ce3c6df561

Test connection  
to your bot

Test

Chat

Channels

	Test link	Issues	Enabled	Published	
 Skype		0	Yes	<input type="checkbox"/> Off	Edit
 Web Chat		1	Yes	<input type="checkbox"/> Off	Edit



Get bot embed codes

Type your message...







# Register a Bot in The Developer's Portal

## Channels

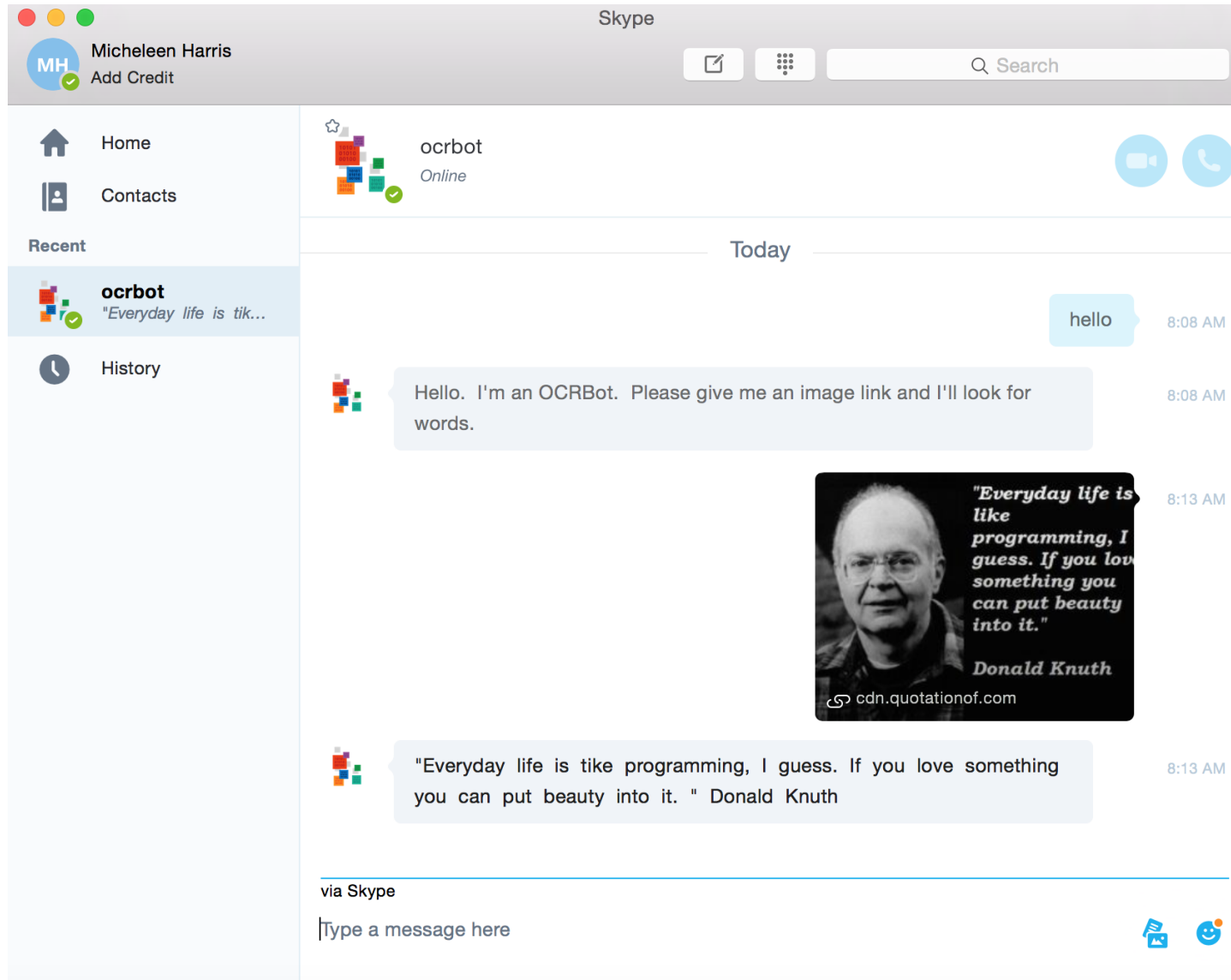
		Test link	Issues	Enabled	Published	
	Skype	<a href="#">Add to Skype</a>	0	Yes	<input type="checkbox"/> Off	<a href="#">Edit</a>
	Web Chat		1	Yes	<input type="checkbox"/> Off	<a href="#">Edit</a>

[Get bot embed codes](#)

## Add another channel

	Direct Line	<a href="#">Add</a>
	Email	<a href="#">Add</a>
	Facebook Messenger	<a href="#">Add</a>
	GroupMe	<a href="#">Add</a>
	Kik	<a href="#">Add</a>
	Microsoft Teams	<a href="#">Add</a>
	Slack	<a href="#">Add</a>
	Telegram	<a href="#">Add</a>
	Twilio (SMS)	<a href="#">Add</a>

# Skype Channel Example



# Slack Channel Example



bot-education ▾

● michhar

CHANNELS (2)

# general

# random

DIRECT MESSAGES (3)

♥ slackbot

● michhar (you)

+ Invite people

#random

👤 2 | 🔒 0 | Non-work banter and water cooler conversation

📞 ⚙️ 📖 | 🔍 Search

@ ☆ ⋮

🔗 ocrbot BOT 5:07 AM

You never fail until you stop trying. Albert Einstein

🌈 michhar 7:47 AM

<http://www.desicommments.com/dc3/03/231578/231578.jpg> (99KB) ▾

🔗 ocrbot BOT 7:47 AM

A PERSON WHO NEVER MADE A MISTAKE NEVER TRIED ANYTHING NEW. -ALBERT EINSTEIN

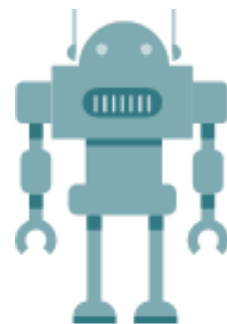
+ 🔍

Message #random

😊



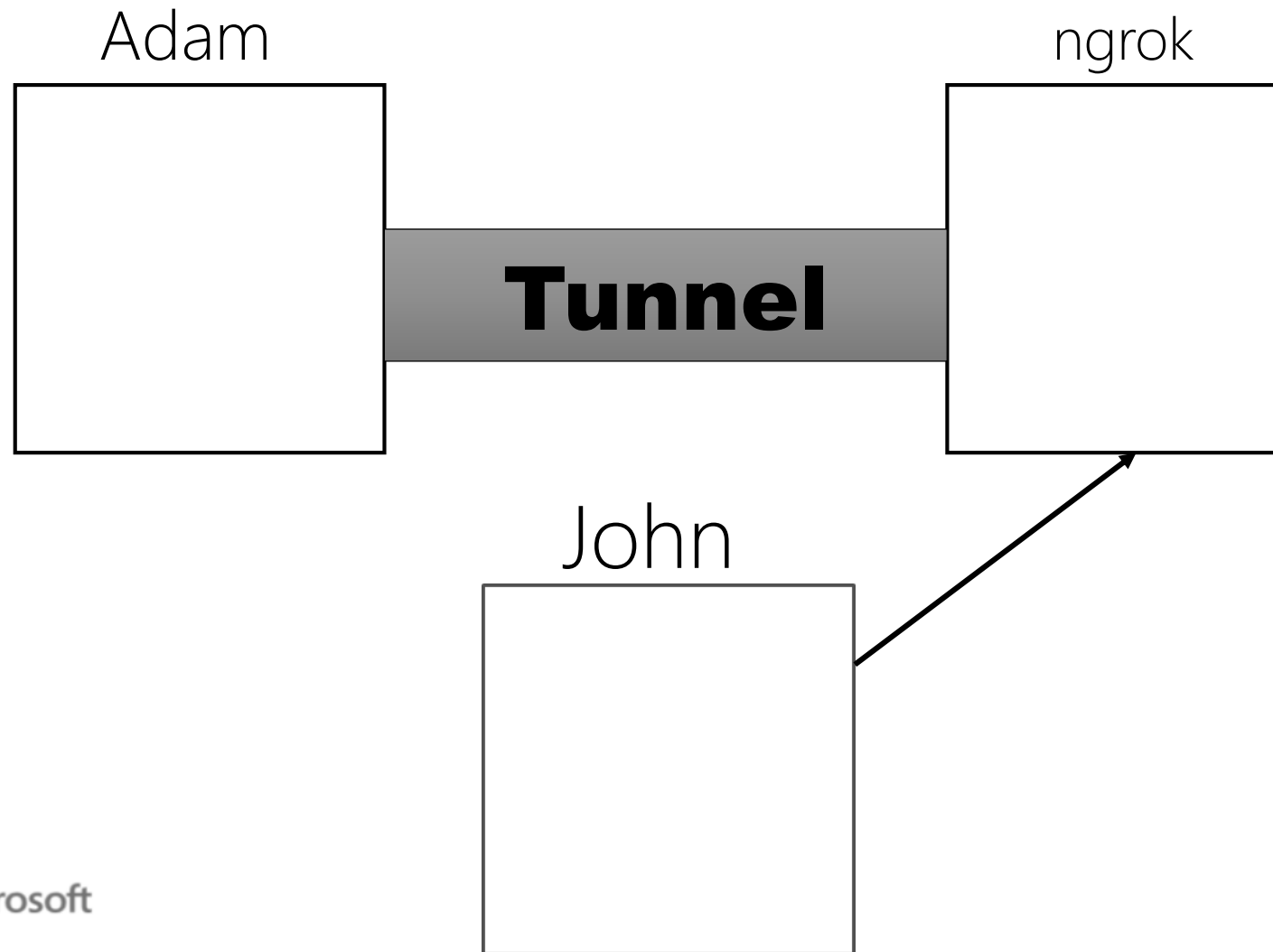
# ngrok



# Secure tunnels to localhost

"I want to expose a local server behind a NAT or firewall to the internet."

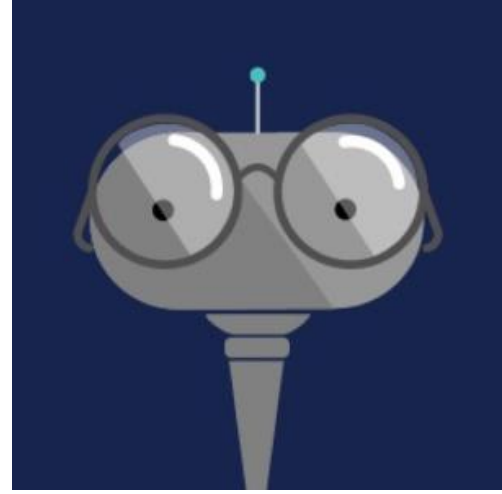
# What is ngrok?



# Forwarding

ngrok http 1111

```
ngrok                                                                    <Ctrl+C to quit>
Tunnel Status      online
Version            1.6/1.5
Forwarding          http://6125081c.ngrok.com -> 127.0.0.1:1111
Forwarding          https://6125081c.ngrok.com -> 127.0.0.1:1111
Web Interface      127.0.0.1:4040
# Conn             22
Avg Conn Time      16.86ms
```



# How to Make BOTS Smarter?