Microsoft

MICROSOFT A.I.

CONVERSATIONAL UI AND COGNITIVE SERVICES

SIMON MICHAEL

@SIMON_MICH

#botframework

Digital
World

10

ZB

2015

180

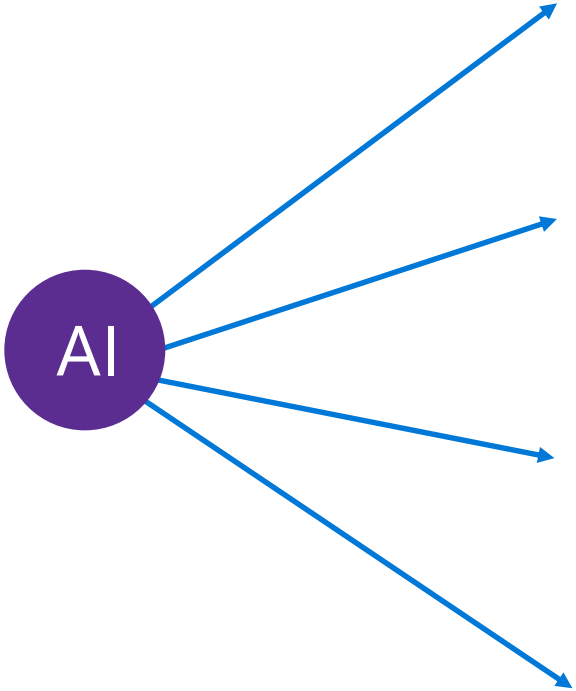
ZB

2025

"OUR GOAL IS TO **DEMOCRATISE A.I.**
TO EMPOWER EVERY PERSON
AND EVERY ORGANISATION
TO **ACHIEVE MORE**"

- **Satya Nadella**

Microsoft AI



01 Agents

Digital Personal Assistants
Cortana

02 Applications

Deeper knowledge
Improved insight
Mail, Office, Delve, Skype, XBOX One

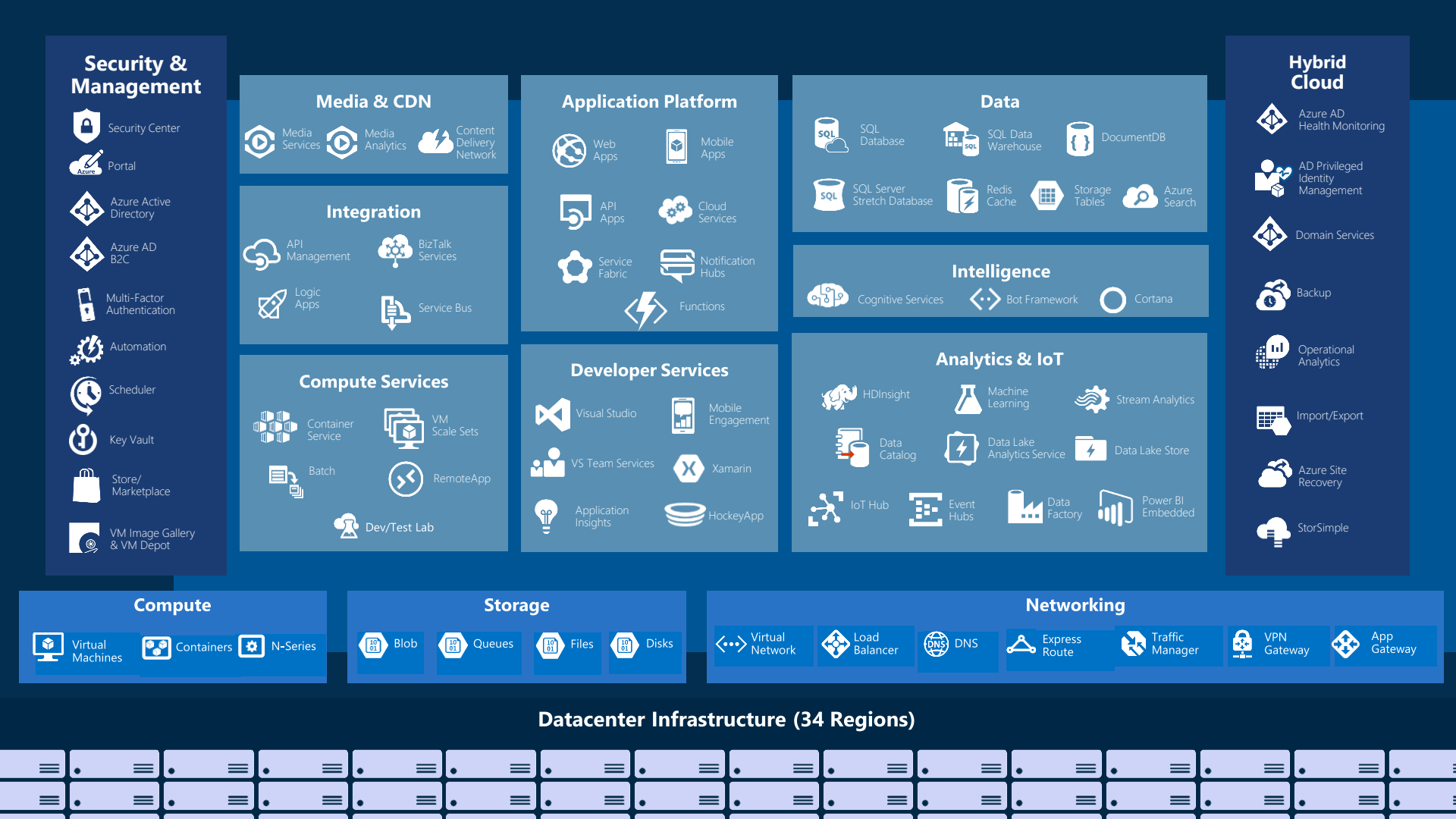
03 Services

Cortana Intelligence Suite

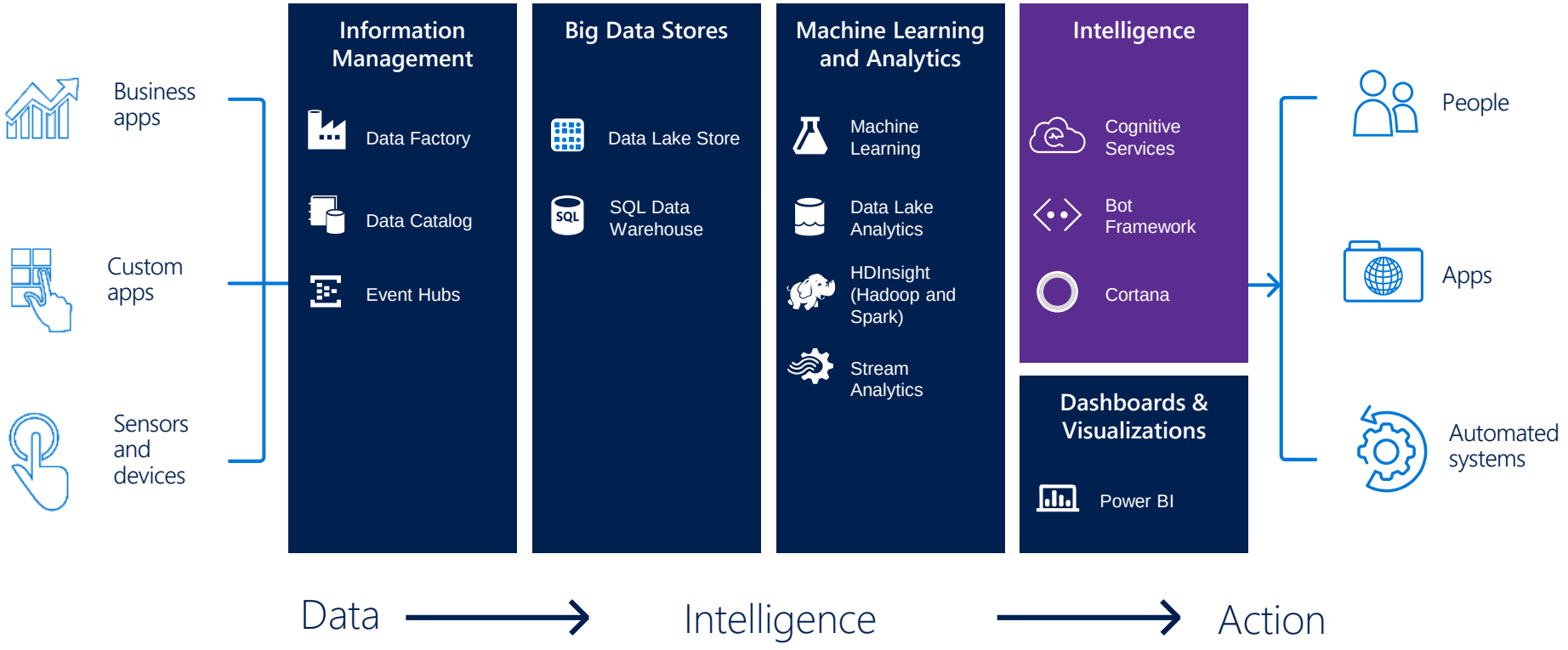
04 Infrastructure

Azure
CPU/GPU at scale
FGPA

Microsoft
Infrastructure - Azure


Security & Management
Security Center
Portal
Azure Active Directory
Azure AD B2C
Multi-Factor Authentication
Automation
Scheduler
Key Vault
Store/ Marketplace
VM Image Gallery & VM Depot
Media & CDN
Media Services
Media Analytics
Content Delivery Network
Integration
API Management
BizTalk Services
Logic Apps
Service Bus
Compute Services
Container Service
VM Scale Sets
Batch
RemoteApp
Dev/Test Lab
Application Platform
Web Apps
Mobile Apps
API Apps
Cloud Services
Service Fabric
Notification Hubs
Functions
Developer Services
Visual Studio
Mobile Engagement
VS Team Services
Xamarin
Application Insights
HockeyApp
Data
SQL Database
SQL Data Warehouse
DocumentDB
SQL Server Stretch Database
Redis Cache
Storage Tables
Azure Search
Intelligence
Cognitive Services
Bot Framework
Cortana
Analytics & IoT
HDInsight
Machine Learning
Stream Analytics
Data Catalog
Data Lake Analytics Service
Data Lake Store
IoT Hub
Event Hubs
Data Factory
Power BI Embedded
Hybrid Cloud
Azure AD Health Monitoring
AD Privileged Identity Management
Domain Services
Backup
Operational Analytics
Import/Export
Azure Site Recovery
StorSimple
Compute
Virtual Machines
Containers
N-Series
Storage
Blob
Queues
Files
Disks
Networking
Virtual Network
Load Balancer
DNS
Express Route
Traffic Manager
VPN Gateway
App Gateway
Datacenter Infrastructure (34 Regions)

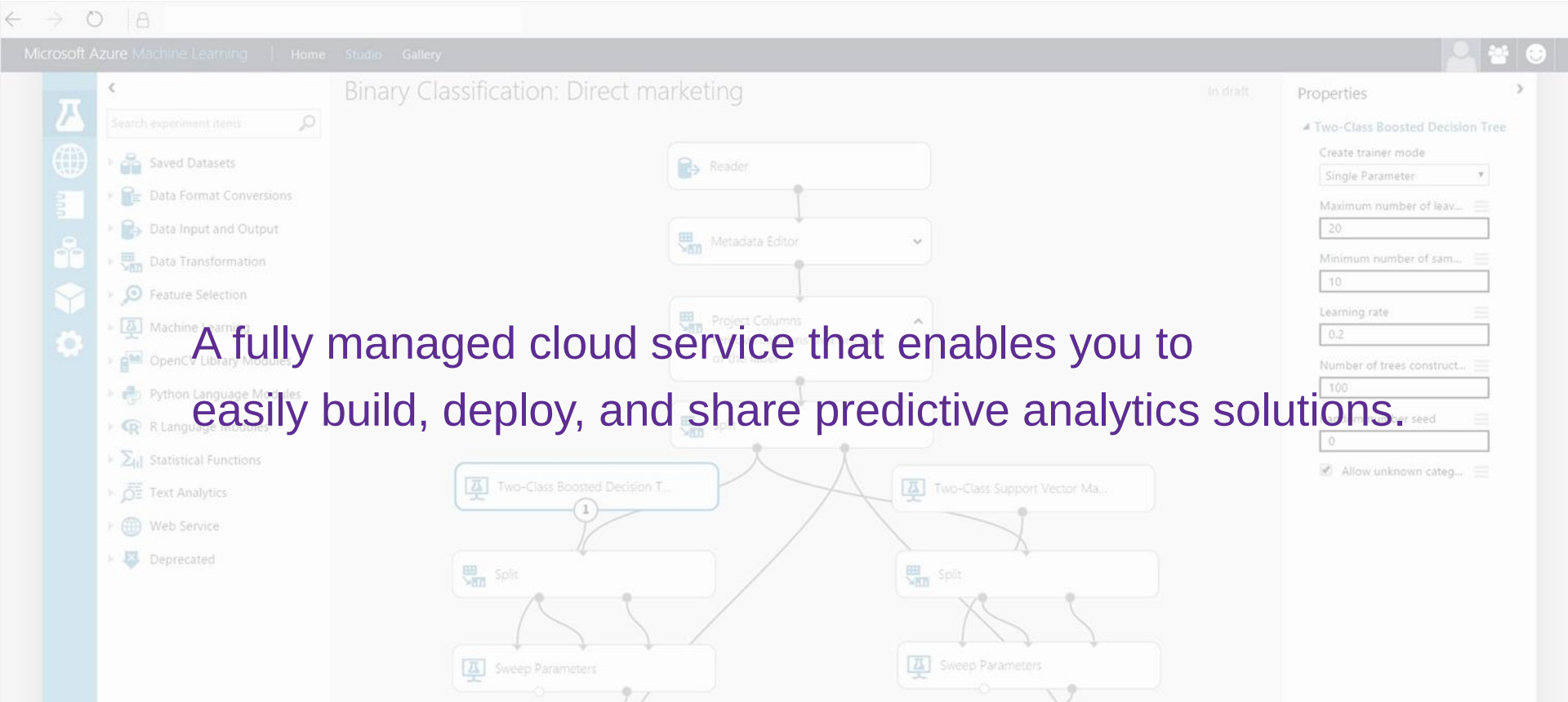
AI Services
Cortana Intelligence Suite



COGNITIVE SERVICES

Giving your apps/bots a human side

Microsoft
Azure Machine Learning



A fully managed cloud service that enables you to easily build, deploy, and share predictive analytics solutions.

Creating great ML models takes:

- Lots of high quality, tagged data. Quality is key!
- Lots of expertise
- The right tools & technology (much is open sourced)
- Lots and lots and lots and lots of computing power
- Commitment to improvement

Microsoft
Cognitive Services

“Enable your apps to see, hear, interpret, and interact in more human ways.”

“An API for accessing the real world”

“Really hard problems Microsoft has already solved so you don’t have to”

Microsoft
Cognitive Services

Vision

From faces to feelings, allow your apps to understand images and video

Computer Vision | Emotion | Face | Video

Microsoft
Cognitive Services

Speech

Hear and speak to your users, identify speakers

Custom Recognition | Speaker Recognition | Speech API

Microsoft
Cognitive Services

Language

Process text, understand intent, translate

Bing Spell Check | Language Understanding | Linguistic Analysis | Text Analytics | Web Language Model | Translator

Microsoft
Cognitive Services

Knowledge

Academic Knowledge | Entity Linking

Knowledge Exploration | Recommendations

Microsoft
Cognitive Services

Search

Access billions of web pages, images, videos, and news with the power of Bing APIs

Bing Web Search | Bing Image Search
Bing News Search | Bing Video Search
Bing Auto Suggest

DEMO

COGNITIVE

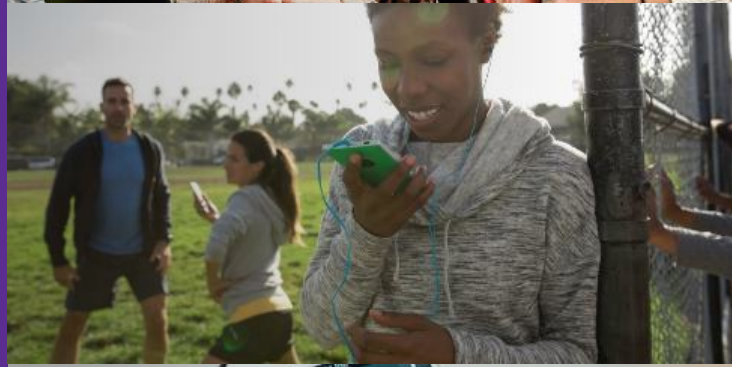
UBER

REAL-TIME ID CHECK

FACIAL API
MICROSOFT COGNITIVE

CONVERSATION AS A PLATFORM

Human Language is the new UI layer



Conversation-as-a-Platform

People

Digital Personal Assistants

Bots

REAL-TIME VOICE TRANSLATION

TRANSLATOR API
MICROSOFT COGNITIVE

BOTS

EE WiFiCall
12:37
70%
Social
Messenger
Twitter
LinkedIn
Instagram
Skype

What is a bot?

Application that performs one or more **automated** tasks.

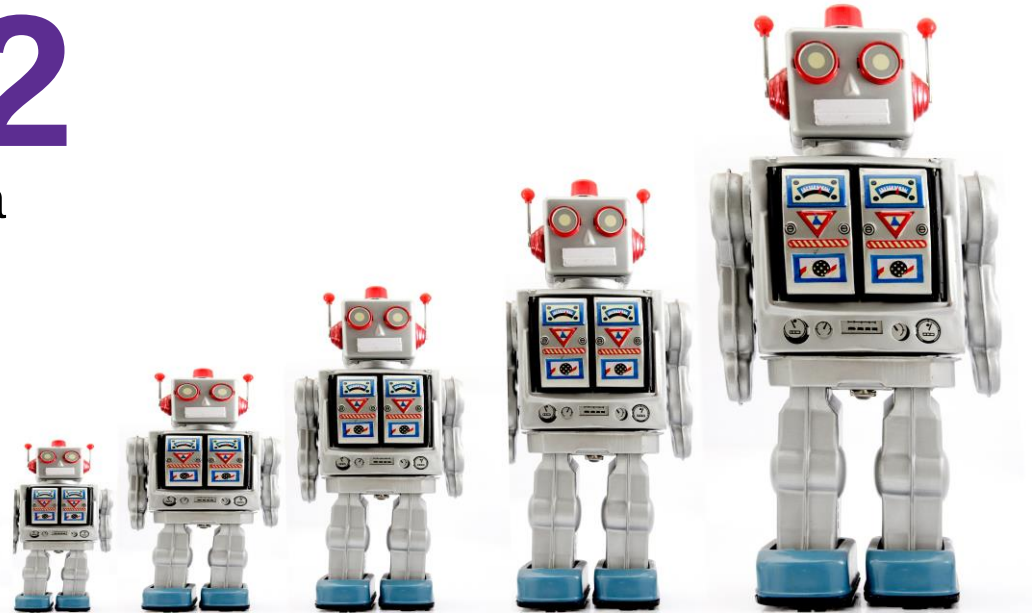
Chatbots – use **conversation** as the interface

Bots
why now?

01
AI and NLP

02
Data

03
Messaging Platforms



Bots
app numbers

4.8m

SUMMER 2016

Bots
app usage

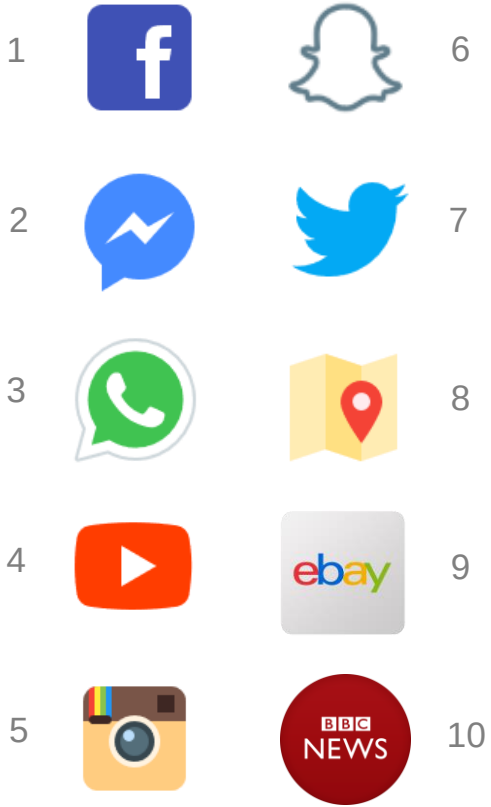
85% | **of consumer's time on smartphone spent using 5 apps***

* Each user have their own selection of those five, but mostly games, social networking or messaging apps

Source: https://techcrunch.com/2015/06/22/consumers-spend-85-of-time-on-smartphones-in-apps-but-only-5-apps-see-heavy-use/

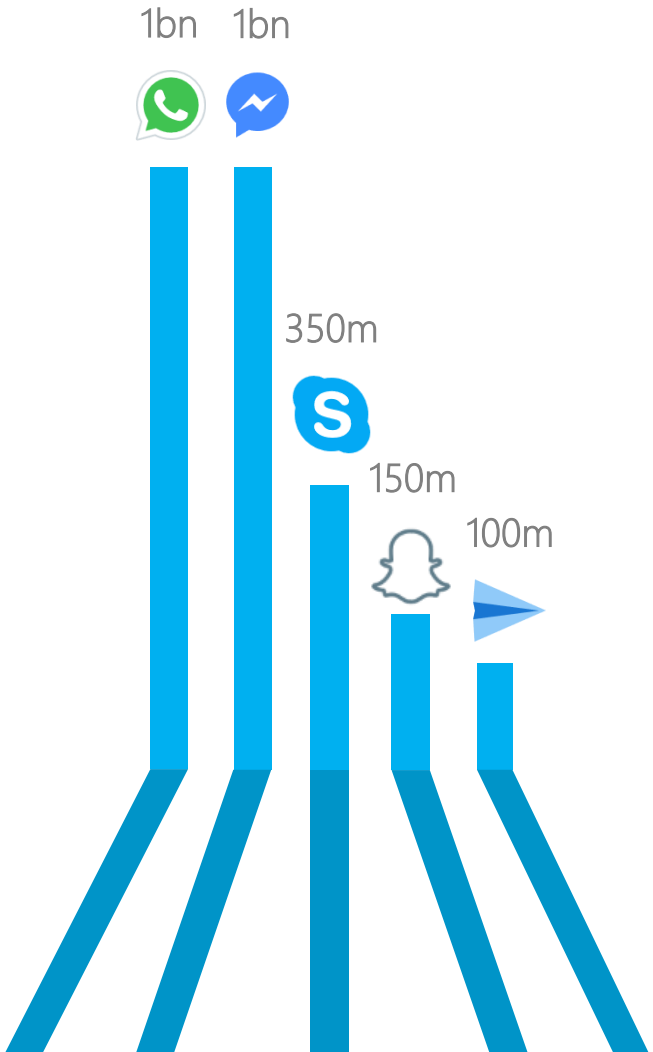
Bots
app numbers

Top App by Activity

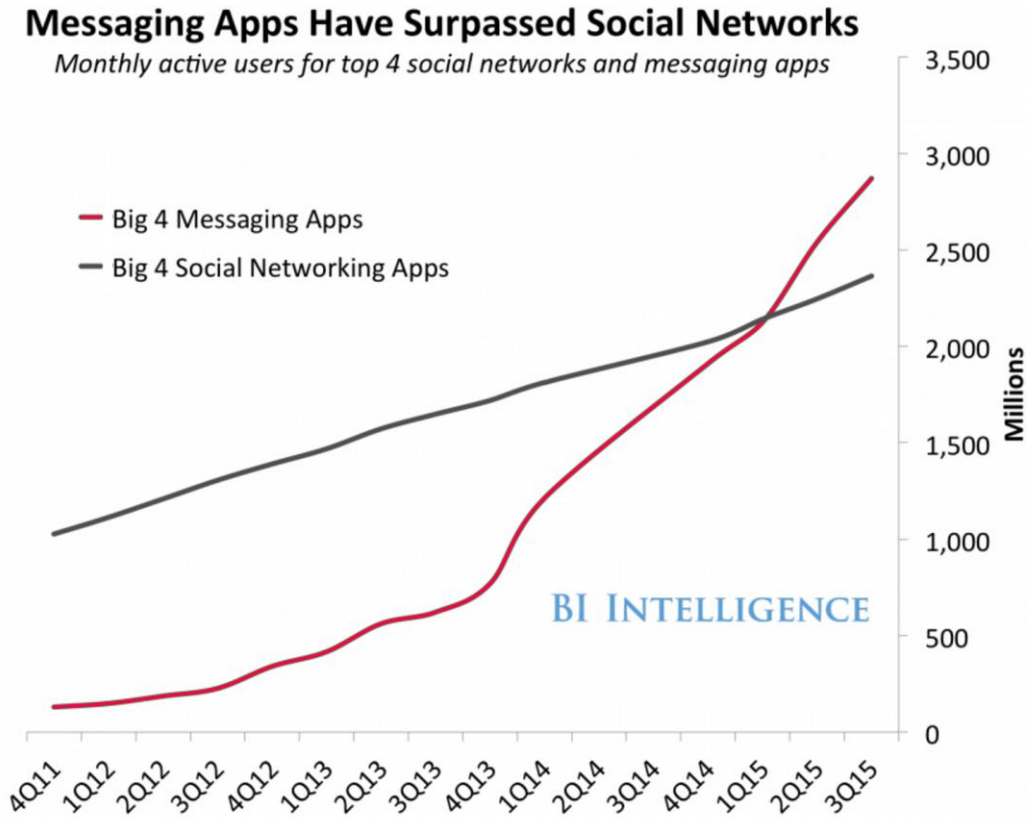


AppAnnie, 2015, iPhone (UK)

Bots
messaging apps



Bots
messaging apps vs social networks



Source: http://uk.businessinsider.com/the-messaging-app-report-2015-11

Bots
benefits for business

They can be where their customers are:
inside those messaging applications

*"…utilizing chat, messaging, or other interfaces (i.e. voice) to interact with people, brands, or services … The net result is that you and I will be talking to brands and companies over Facebook Messenger, WhatsApp, Telegram, Slack, and elsewhere before year's end, and will find it **normal**."*

chris messina
developer experience lead @ uber

"Essentially we are simply adapting to our customers' behaviours rather than trying to target new customers."

nick dutch
head of marketing @ domino pizza uk

Source: https://www.marketingweek.com/2016/08/17/dominos-pizza-explains-why-it-is-chasing-facebook-bots/
https://medium.com/chris-messina/2016-will-be-the-year-of-conversational-commerce-1586e85e3991#.8r6oolxlu

Bot patterns

01 Information Retrieval

Lookup, reference and information seeking, scenarios backed by a data source

“What are the features of service plan A?”
“When are the trains leaving on Thursday?”

02 Transactional

Look up info, make amendments, scenarios backed by a data source

“Upgrade my account to plan B”
“book two tickets for film A on Monday using my credit card”

03 Advisory Role

Prescriptive guidance via ‘expert systems’ based on user input.

“How much can I save if I switch to payment plan B?”
“Should I add an additional component to my service plan? ”

04 Social Conversations

Ability to sense sentiment and engage in open-ended conversation within the bots area of expertise.

“Your product is terrible, I would like a refund.”
“I have had a terrible experience, who can I talk to?”

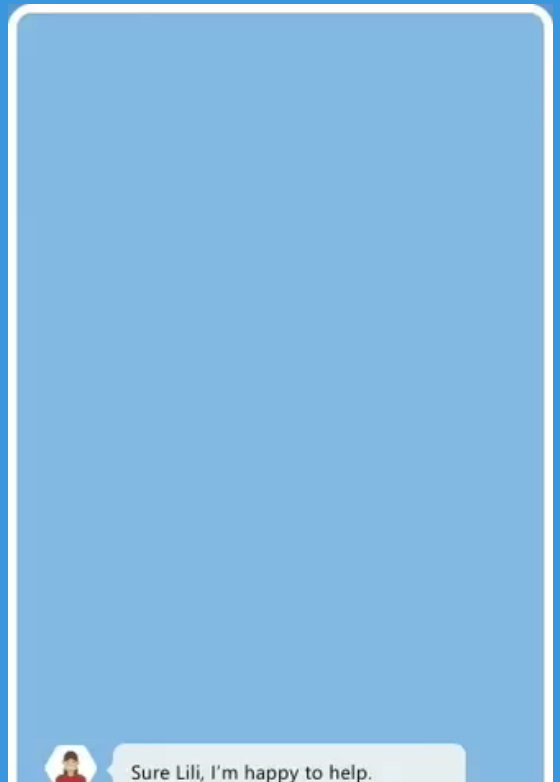
Build a bot!

How do you make a bot?

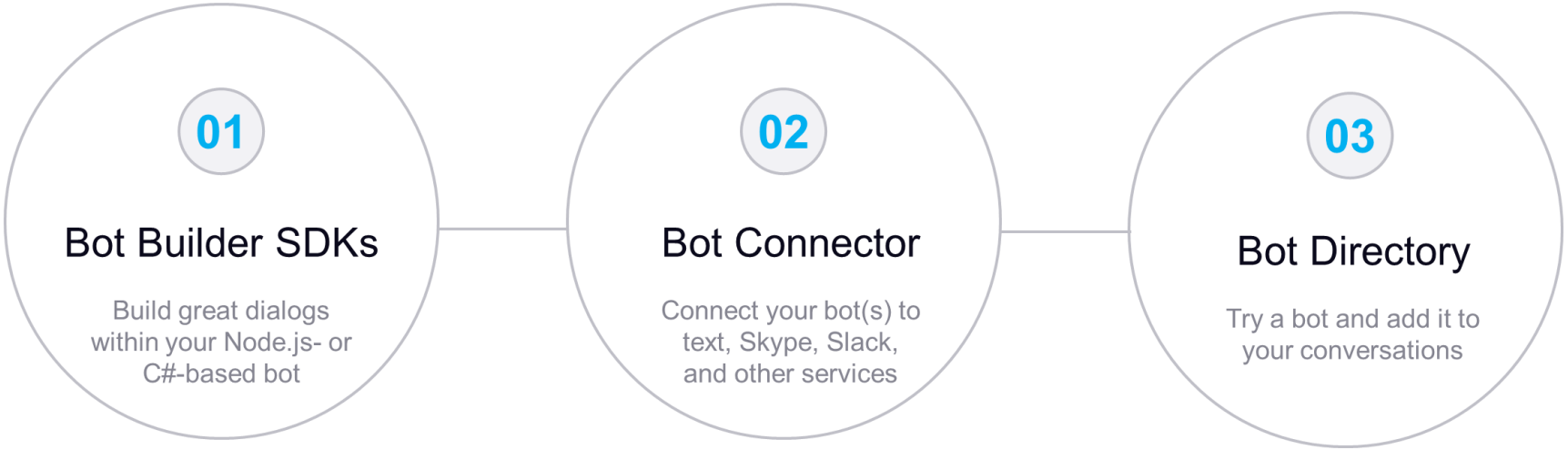
How do you make a **great** bot?

Bots
Microsoft Bot Framework

Build a great conversationalist.



Bot Framework



Bot Framework
Builder SDK

Create bot using C# or node.js

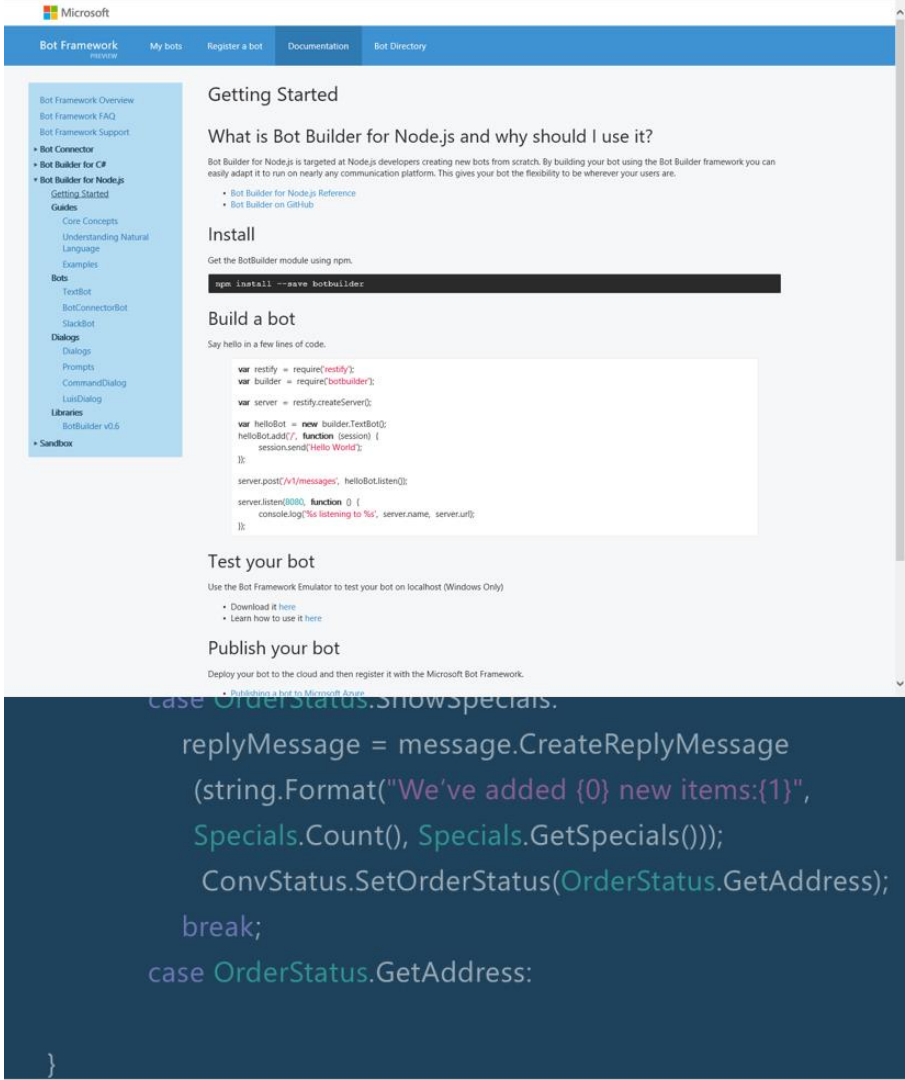
SDK supports dialogs to model a conversation:

- Reusable
- Persistent dialog state
- Various dialog types

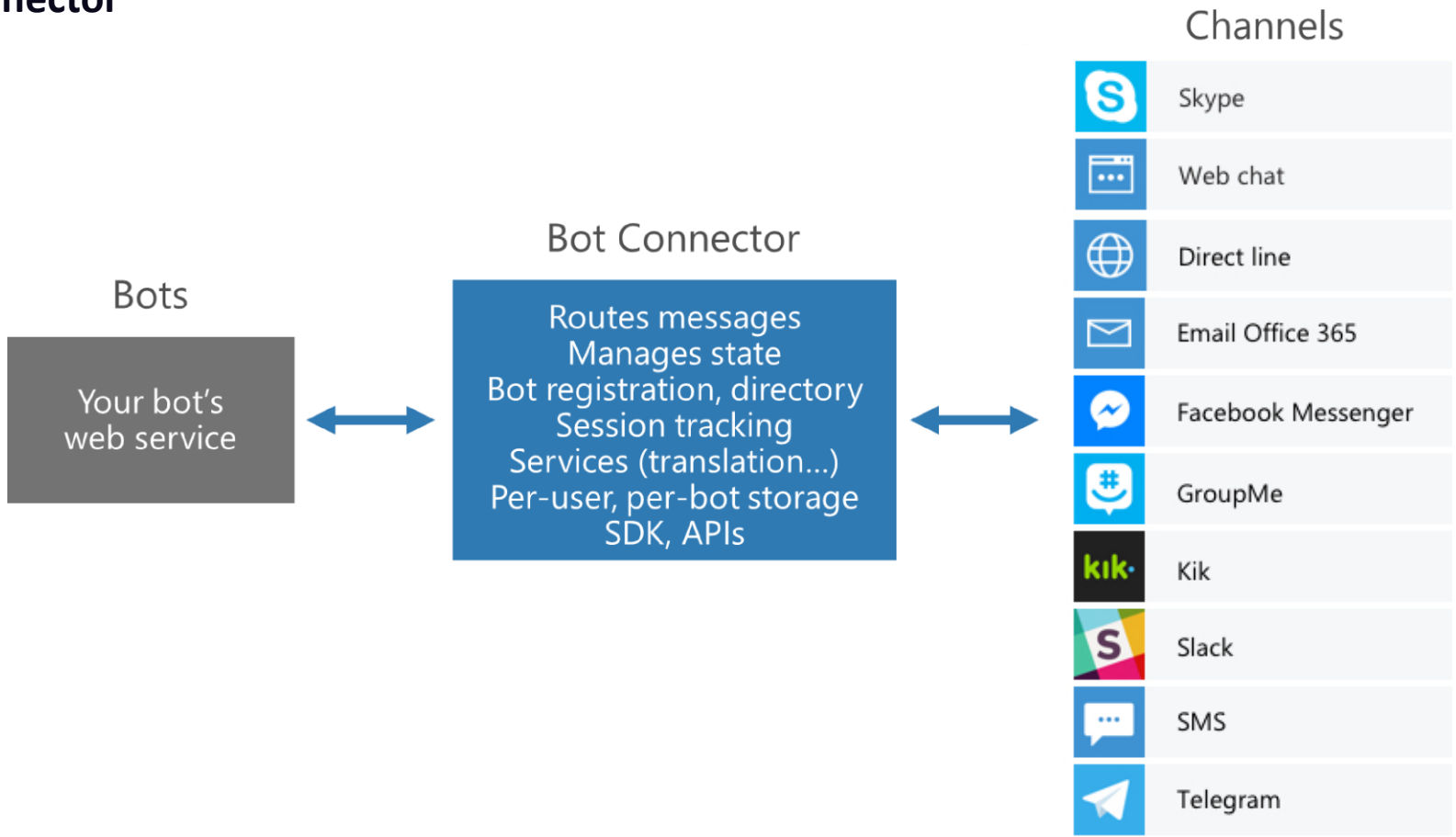
SDK allows for rich interactions:

- Rich attachments (image, card, doc, video
- Support for calling (Skype*)

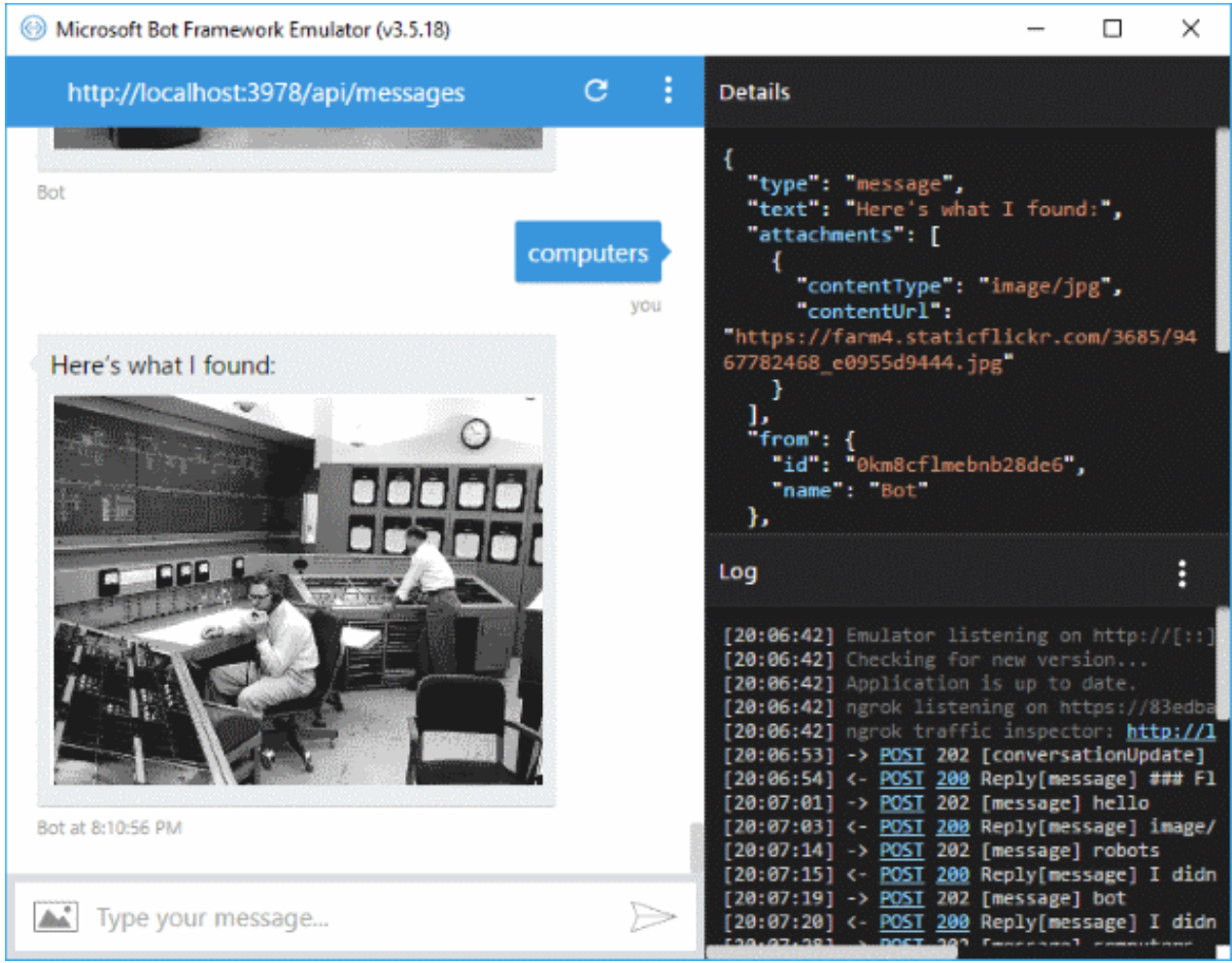
Chat Emulator



Bot Framework
Connector



Bot Framework
Emulator



Download from: https://github.com/microsoft/botframework-emulator

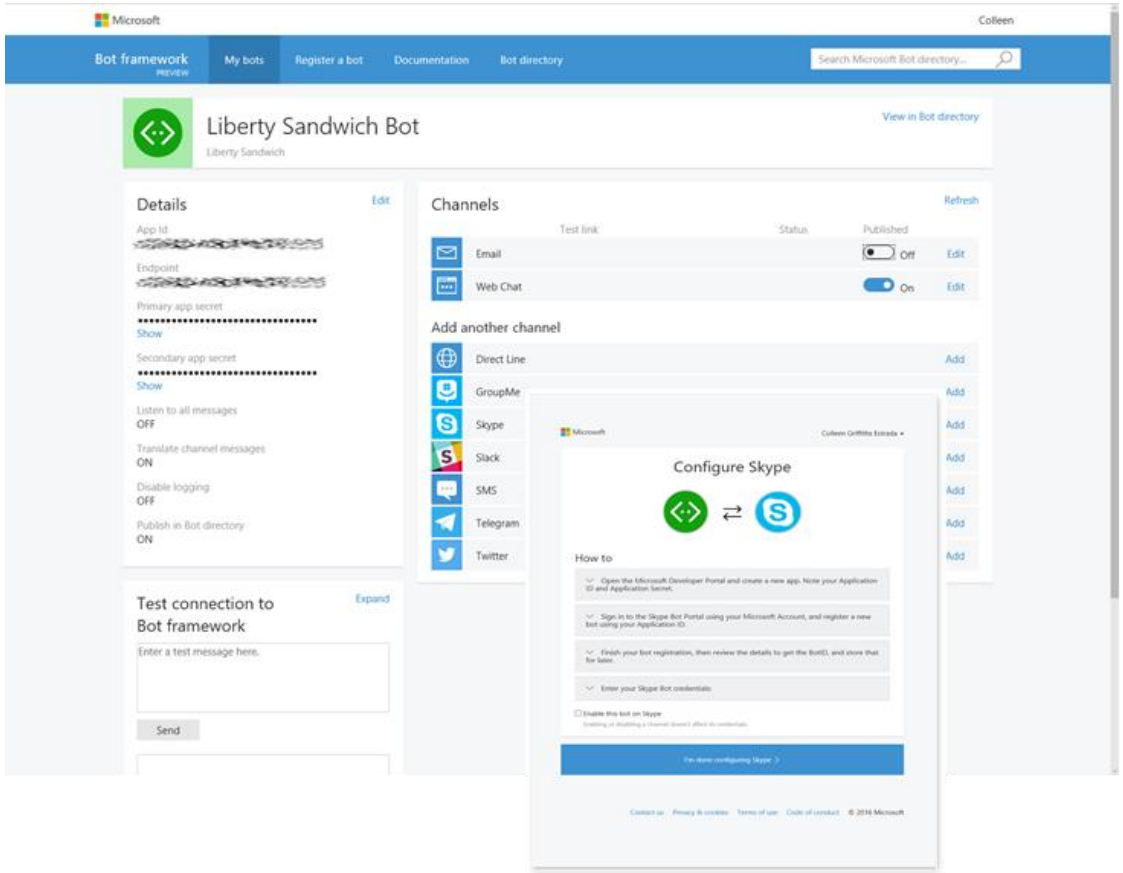
Bot Framework
Portal

Register

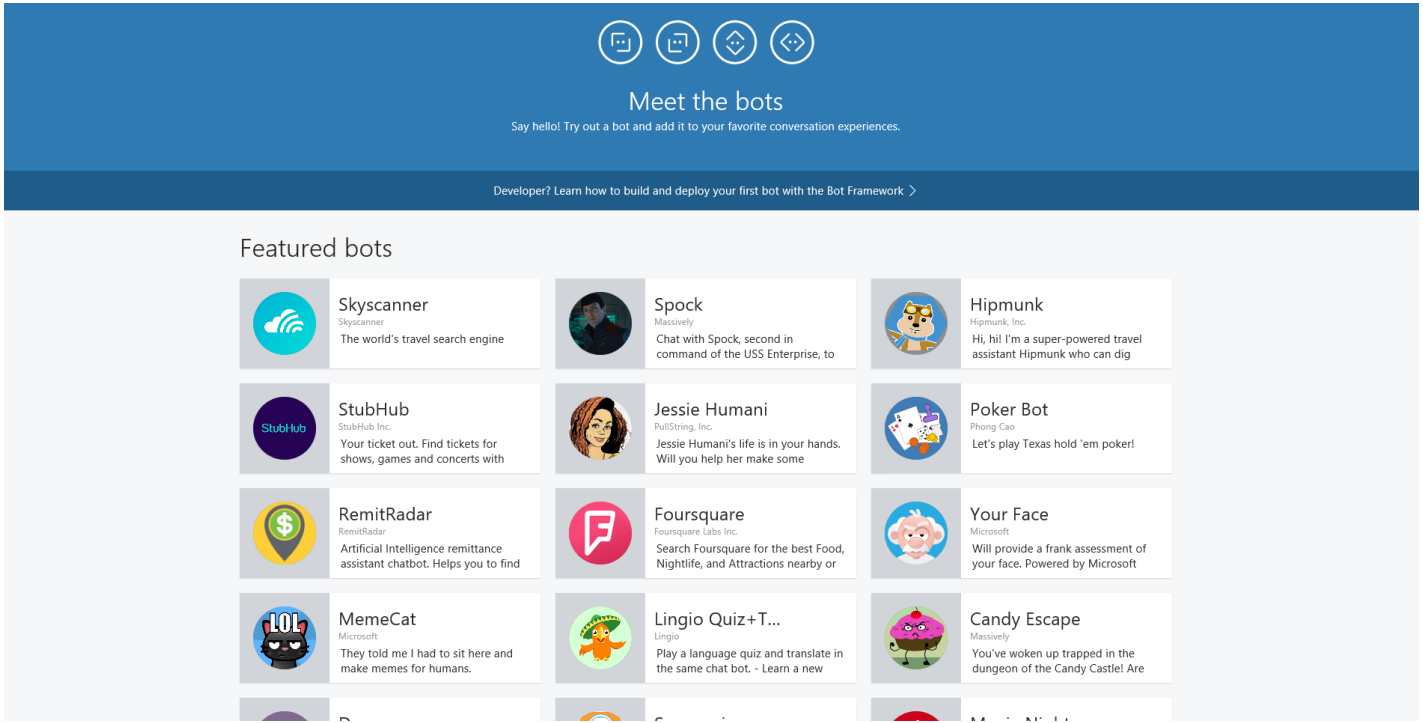
Configure Channels

Test

Manage



Bot Framework
Directory



DEMO

Hello World

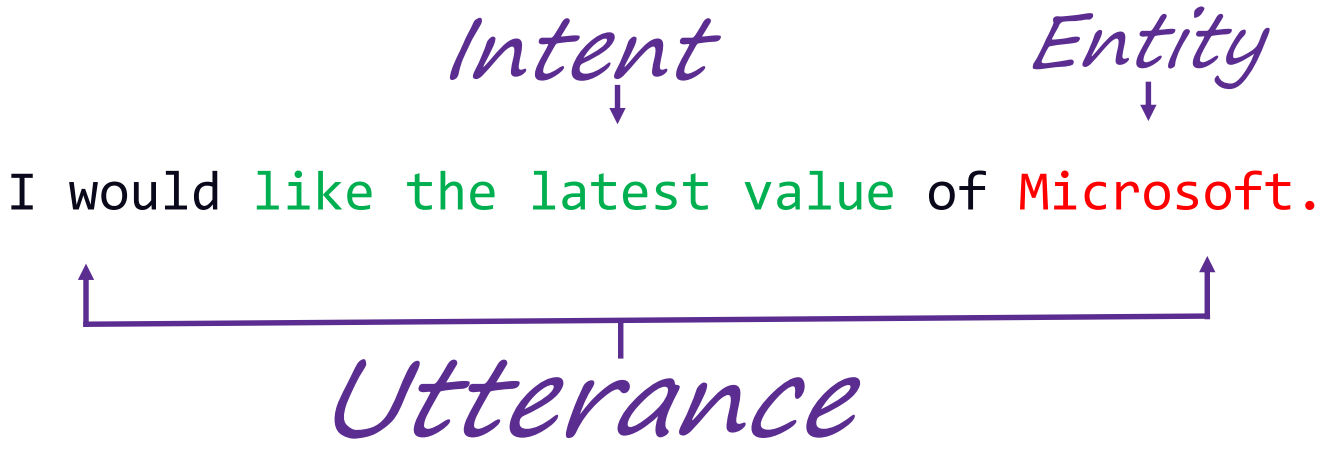
Simple Stock Bot

LANGUAGE UNDERSTANDING INTELLIGENCE SERVICE

Cognitive Services API

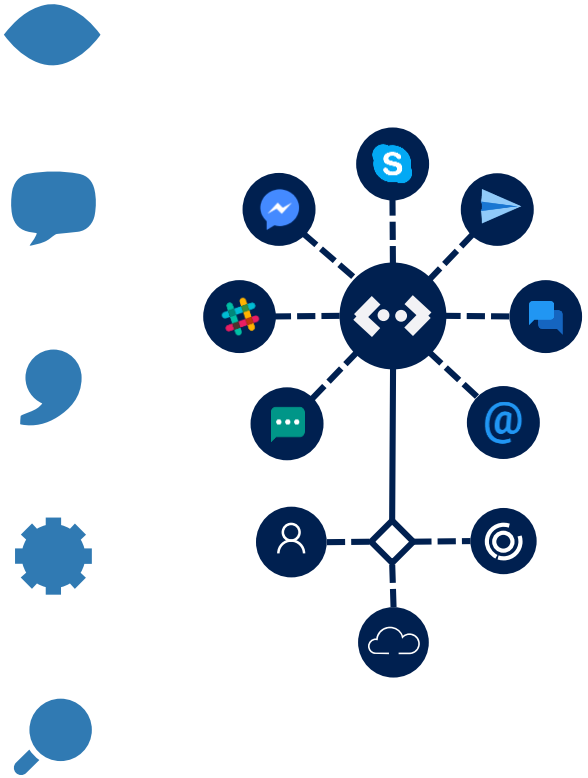
Natural language understanding

Determine intent and detect entities


Intent
Entity
I would like the latest value of Microsoft.
Utterance

Bots +
Cognitive Services

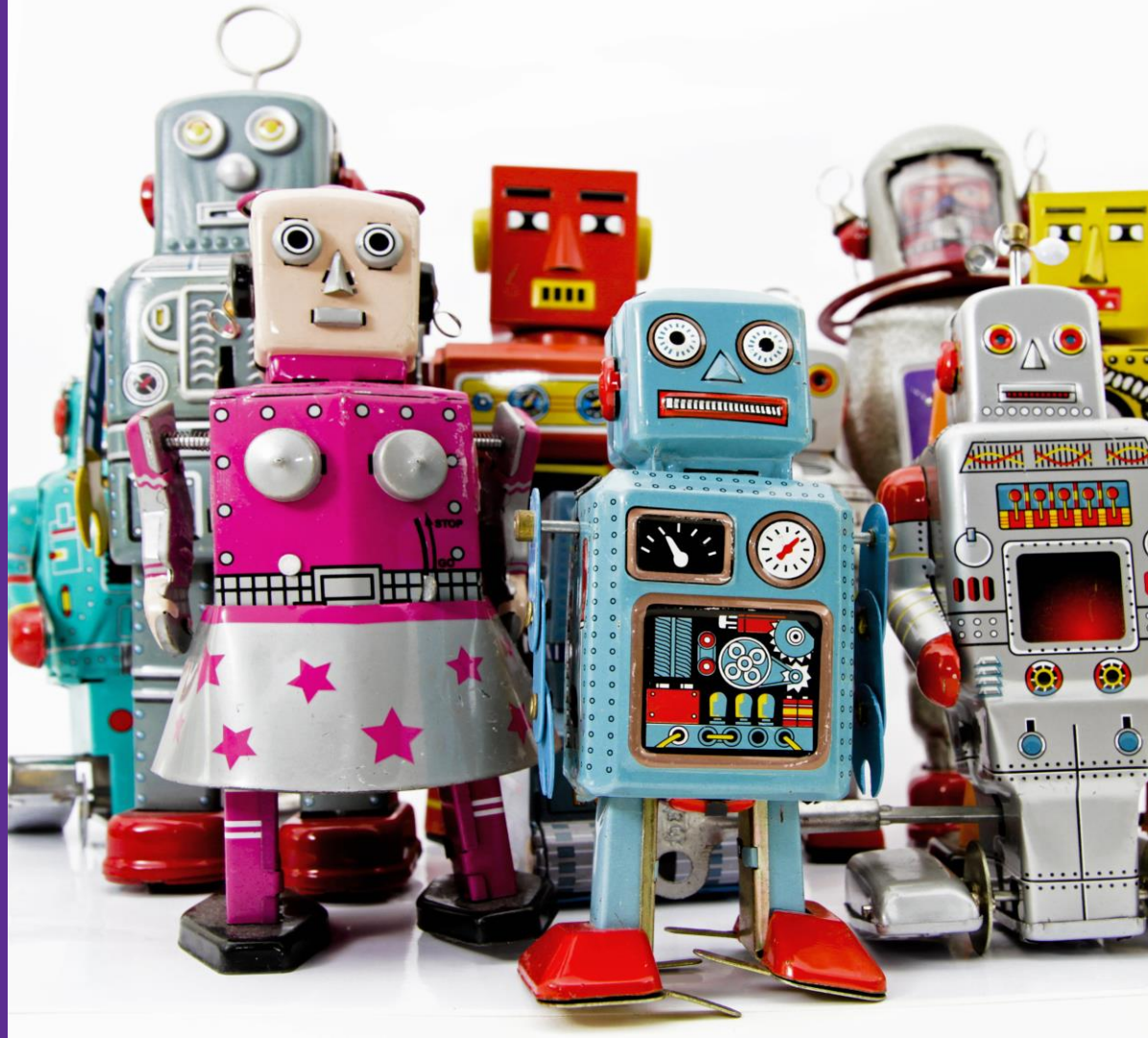
- Computer vision API : human readable **captions**
- Speech APIs: **authentication**
- LUIS API: **intent**
- Knowledge APIs: product **recommendation**
- Autosuggest API: ease **query** input
- Linguistic API: **sentiment**



DEMO

BOTS + COGNITIVE = SMART BOTS

Are Bots the new apps?



Bots
Skyscanner

"Chat bots offer something truly revolutionary by bringing travel search within the very platforms users are already interacting with on a frequent basis."

https://www.microsoft.com/en-gb/developers/articles/week05july16/skyscanners-year-in-bots/

http://en.business.skyscanner.net/en-gb/blog/skyscanner-partners-with-skype-to-build-pioneering-group-chat-travel-bot

Bots
for everything?

NO! We should not translate **all interactions** into conversations

yes		no	
Helping with tasks where lots of (sequential) options are present (i.e. appeal for parking tickets)	✓	✗	Task is un-clear, task involves a singular task with too many variables or complex analysis is required (i.e. find fastest route from A to B)
Conversations are naturally part of customer experience (i.e. order a pizza, book an appointment)	✓	✗	When a request is time critical (i.e. book restaurant for now)
Query is not time critical and customer can juggle options (i.e. book restaurant for team meeting next week)	✓	✗	Doesn't add any value over existing interaction points such as web site/apps

MICROSOFT A.I.

MICROSOFT BOT FRAMEWORK

MICROSOFT COGNITIVE SERVICES

ACHIEVE MORE

SEEING AI

MICROSOFT COGNITIVE

THANK YOU

AKA.MS/BOTRESOURCES

SIMON MICHAEL

@SIMON_MICH

SMICH.UK