Boost your Modern Workplace with Microsoft's AI ecosystem

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- Soccer

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Graz, Austria

SATURDAY VIENNA

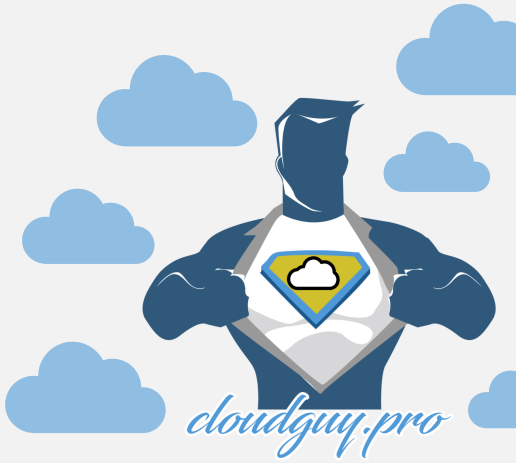
OFFICE 365 MEETUP VIENNA

OFFICE 365 MEETUP GRAZ

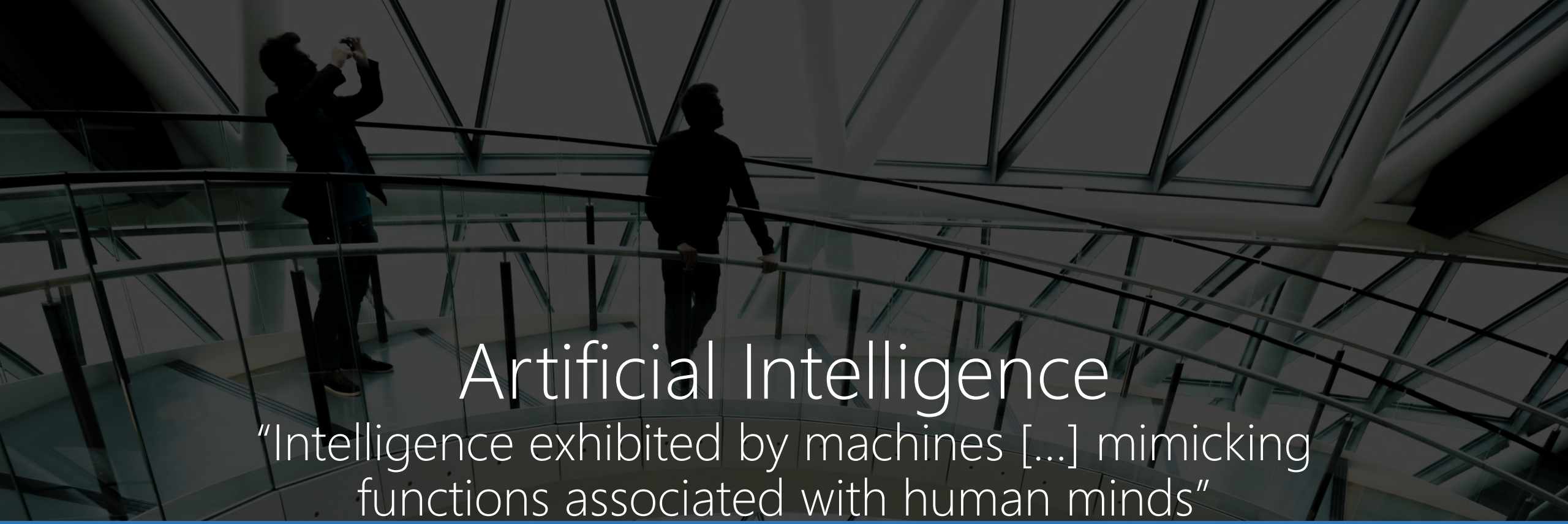
MVP Microsoft® Most Valuable Professional

Agenda

1	Background
2	Bots & Cognitive Services
3	Use cases
4	Demo



What is AI?



Artificial Intelligence

"Intelligence exhibited by machines [...] mimicking functions associated with human minds"

- Wikipedia

Reasoning

Learn and form conclusions with imperfect data

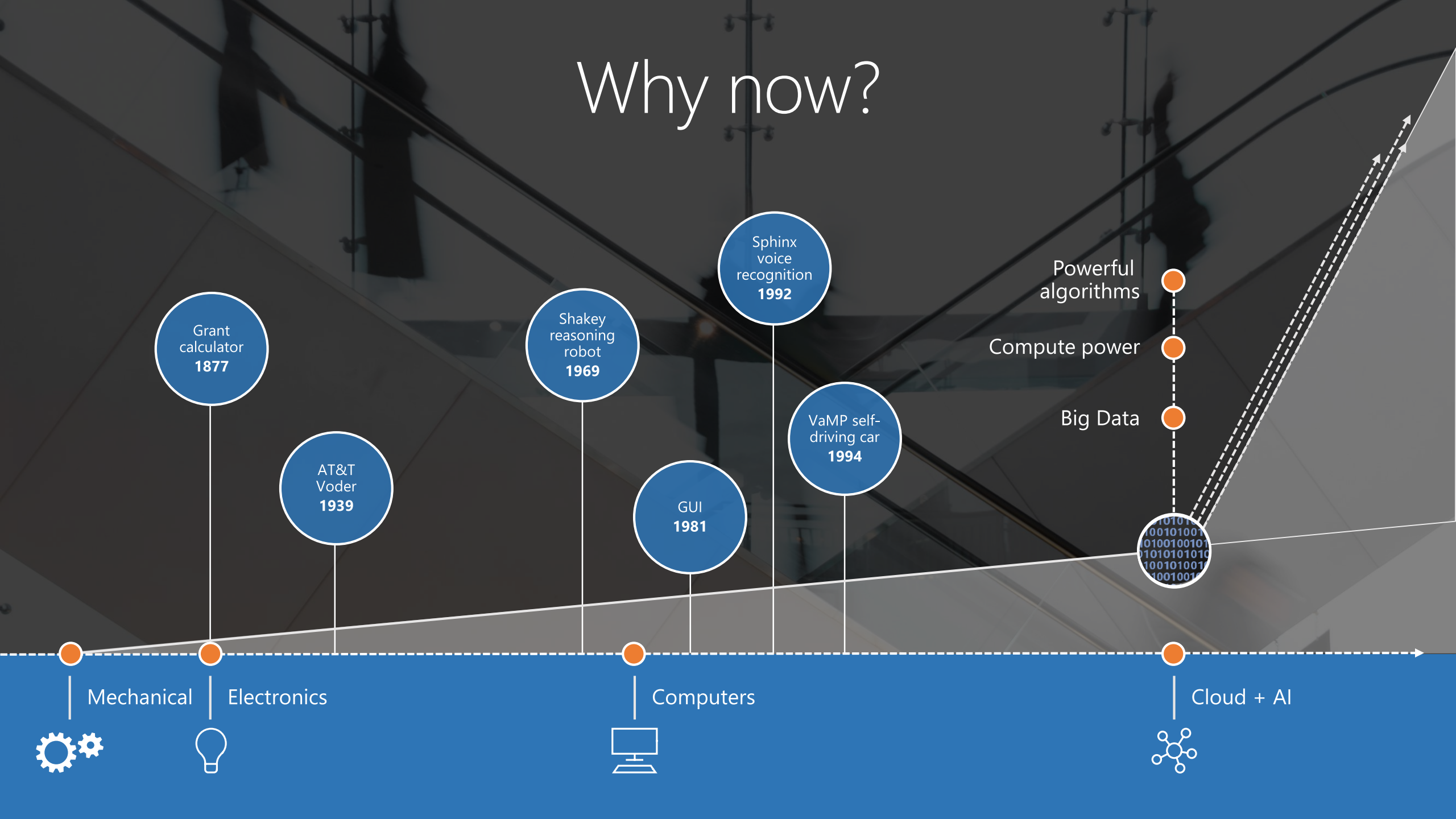
Understanding

Interpret meaning of data including text, voice, images

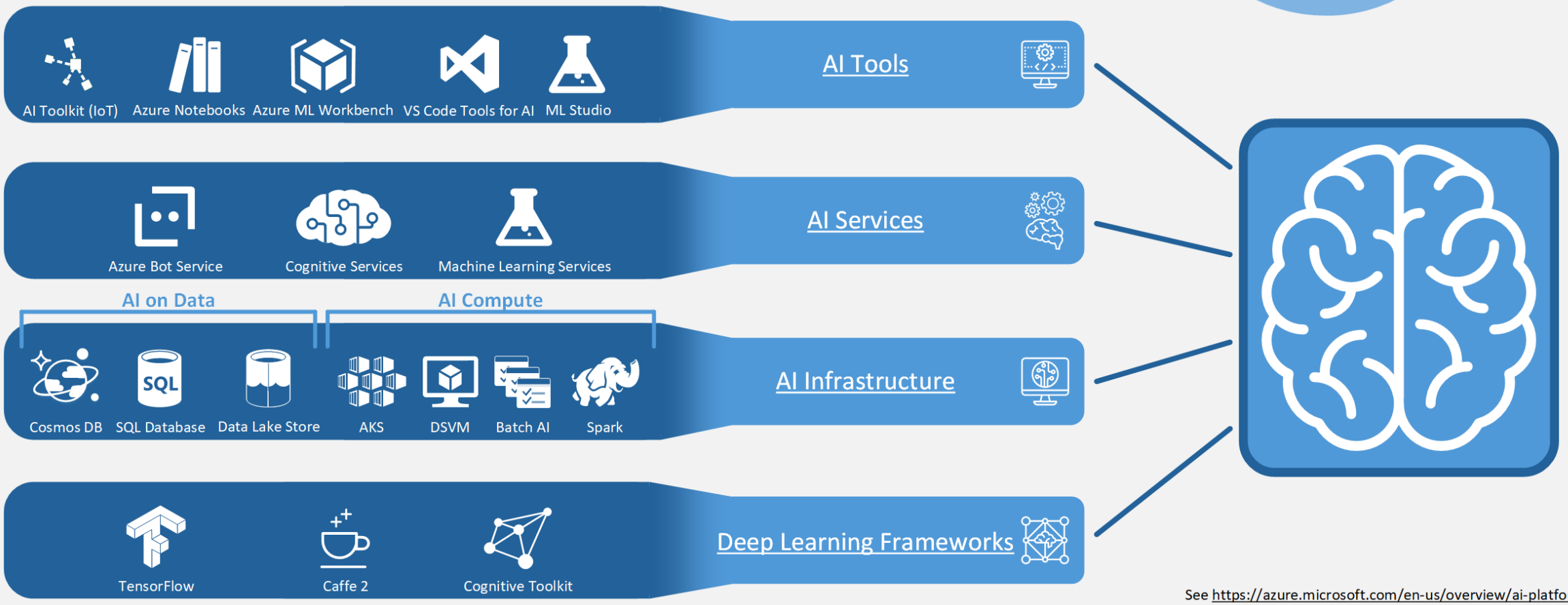
Interacting

Interact with people in natural ways

Why now?


Grant calculator 1877
AT&T Voder 1939
Shakey reasoning robot 1969
Sphinx voice recognition 1992
GUI 1981
VaMP self-driving car 1994
Powerful algorithms
Compute power
Big Data
Mechanical
Electronics
Computers
Cloud + AI

Microsoft AI Platform



See https://azure.microsoft.com/en-us/overview/ai-platform for more information about the various services and features of the Microsoft AI Platform

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Bots & Cognitive Services

The evolution of computers and IT

1980s: **PC**

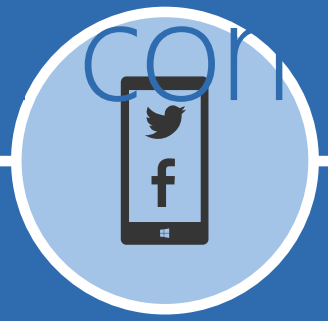
- Desktop

1990s: **Internet**

- Search
- User “visits” websites

2000s: **Mobile**

- Social
- User download apps from App Stores



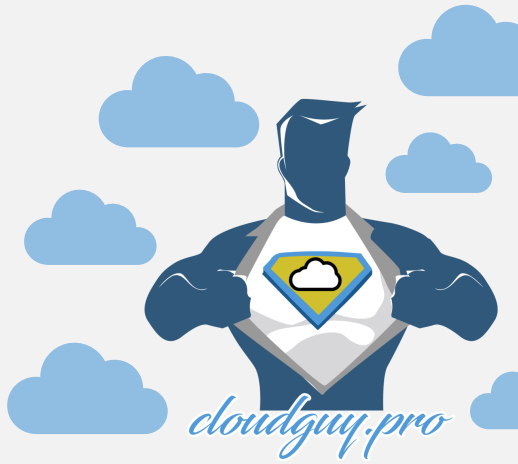
The future: **Conversations**

- Natural language between people and technology
- Conversational canvas
- Bots and agents

Bots 101

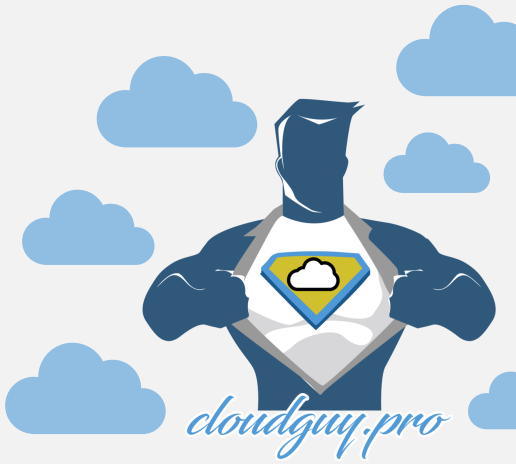
"a **computer program** designed to have a **conversation** with a **human being**, especially over the **internet**" *

* https://dictionary.cambridge.org/dictionary/english/chatbot

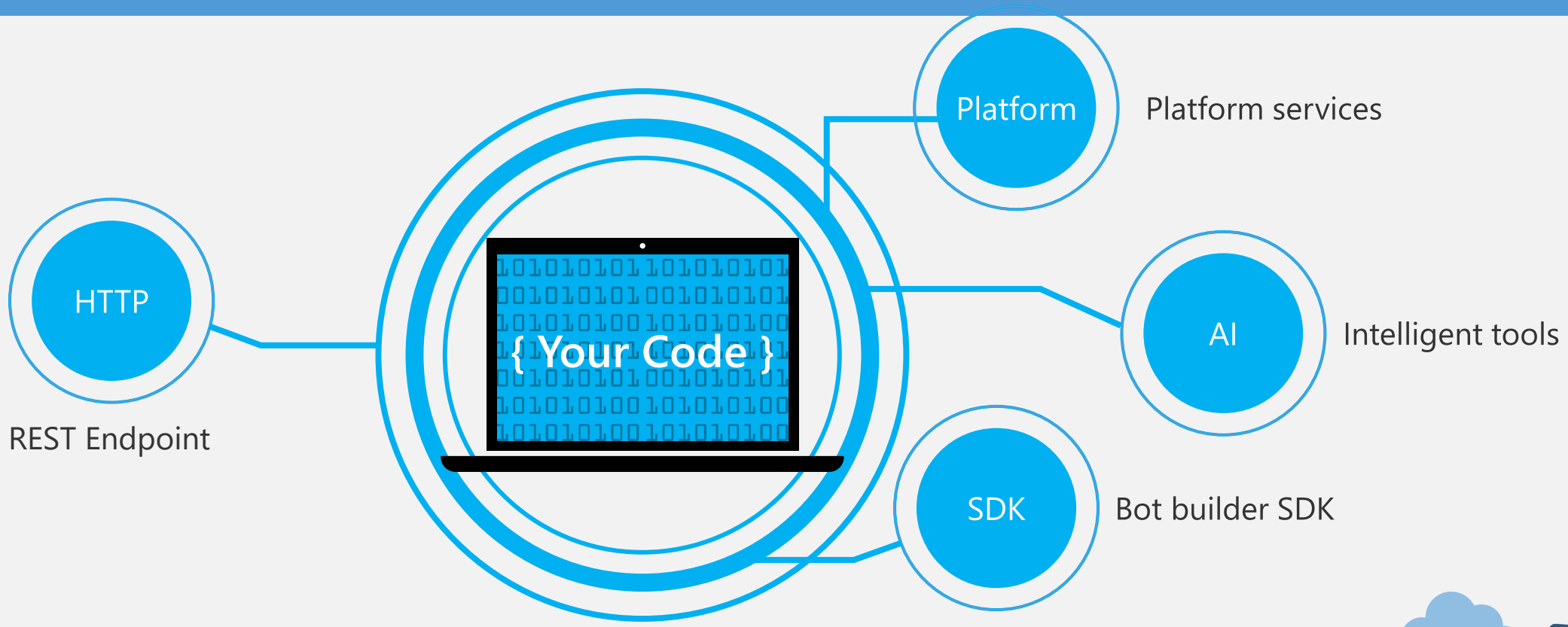


Bots 101

- It's one thing: it's an app that performs an automated task
- It solves the user's needs in the quickest/easiest way compared to any other option... like an app, or a website
- What makes a bot great:
- It is **not** how much AI it has
- It is **not** how much natural language it offers
- It is **not** whether it uses voice or not



Bots 101



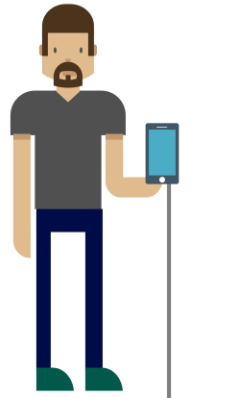
REST endpoint
Direct Line Protocol

Conversational
and business logic

Canvas aware

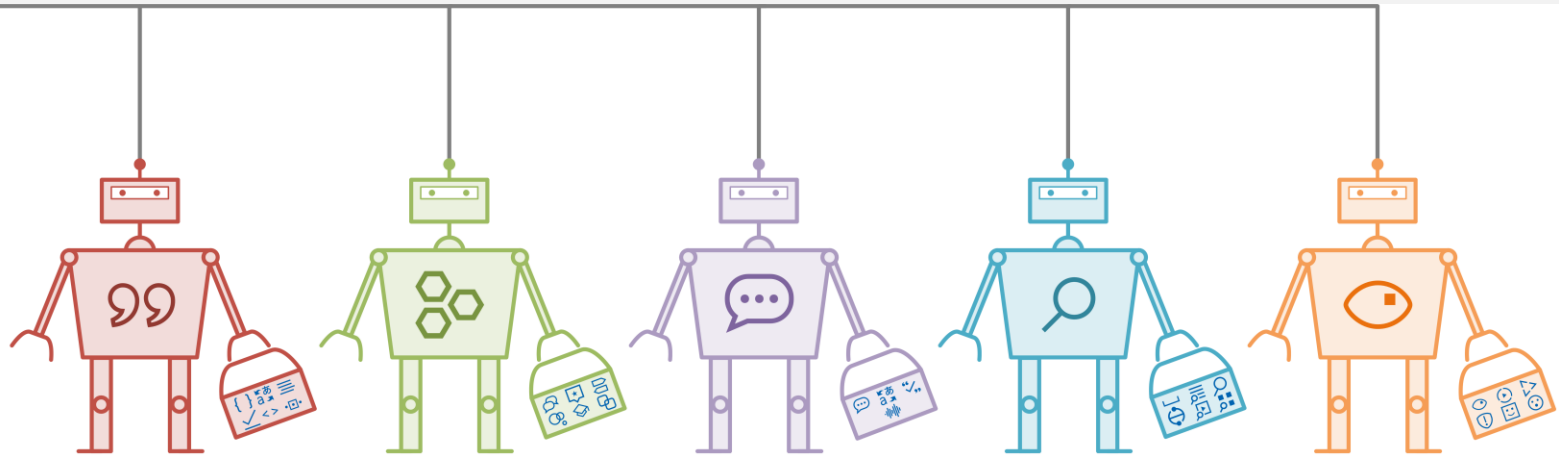
Context
sensitive

Microsoft Bot Framework



kik
Twilio (SMS)
3rd Party
Direct Line
Facebook Messenger
Telegram
Office 365
Skype (4 Business)
Web Chat
Microsoft Teams
Cortana
Mail
Slack
GroupMe
Bing

Channels



REST
Build Bots with the REST API and Direct Line

Build Bots with the Azure Bot Service

C#
Build Bots with the Bot Builder SKD for .NET

node
Build Bots with the Bot Builder SKD for Node.js

Microsoft Bot Framework & Azure

More information on: **https://dev.botframework.com/**

Platforms & SDKs

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Modelling your conversation

Roll your own
state management etc.

- Bespoke

Multi layered conversations

- Dialogs

Data capture,
"Web forms" scenarios

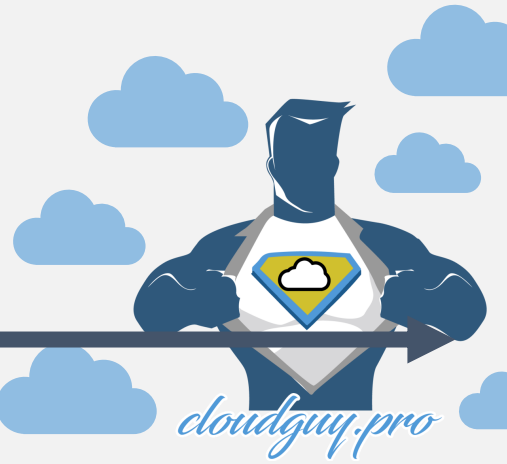
- FormFlow

FAQs,
command & control

- QnA

Flexibility

Effort to implement

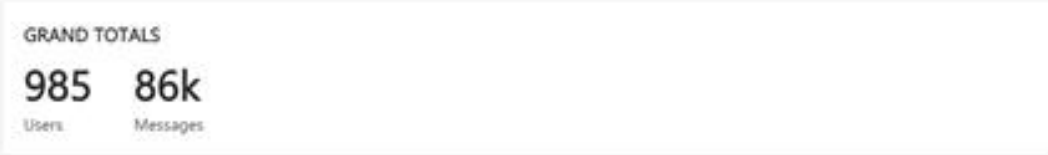


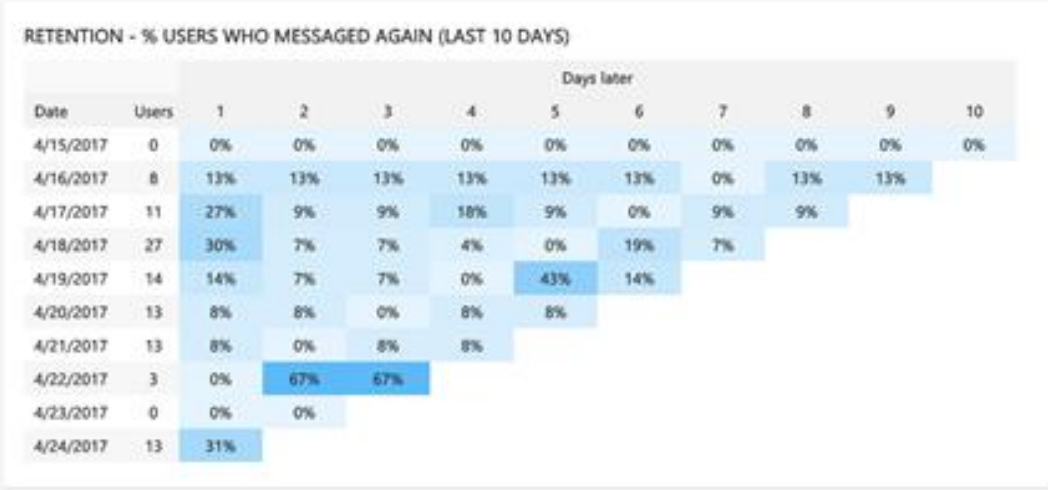
Conversational mechanisms

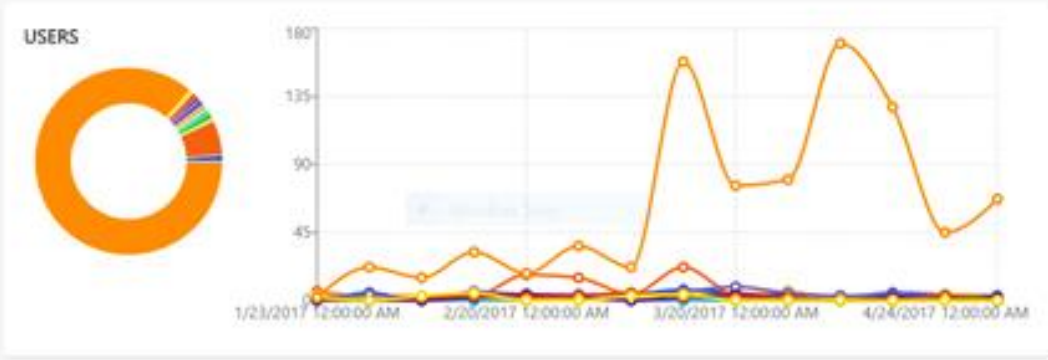
- Text, with optional media attachments
  - Traditional chat, can contain media attachments (e.g., image, video, audio, file)
- Input prompts
  - Suggested actions: Buttons, numbered items in a list, etc.
- Rich cards, rendered as a list or carousel
  - Images, buttons, audio, animations, video, user sign-in, etc.
  - Hero | Audio | Animation | Thumbnail | Receipt | Sign In | Video | Adaptive | Purchase
- Speech
  - Text-based chat using Speech Recognition & Synthesis (TTS)

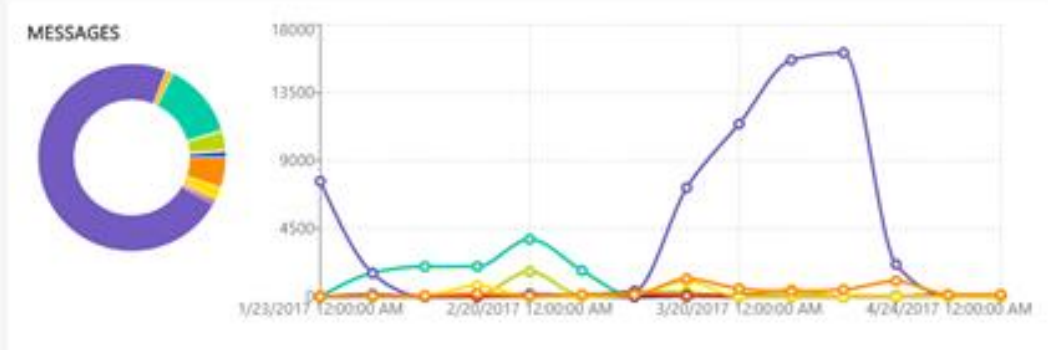
Continuous Improvement

- Instrumentation provided by App Insig Service
- Extend instrumentation through AI SDk
- If you are not building bots that will ac not building bots









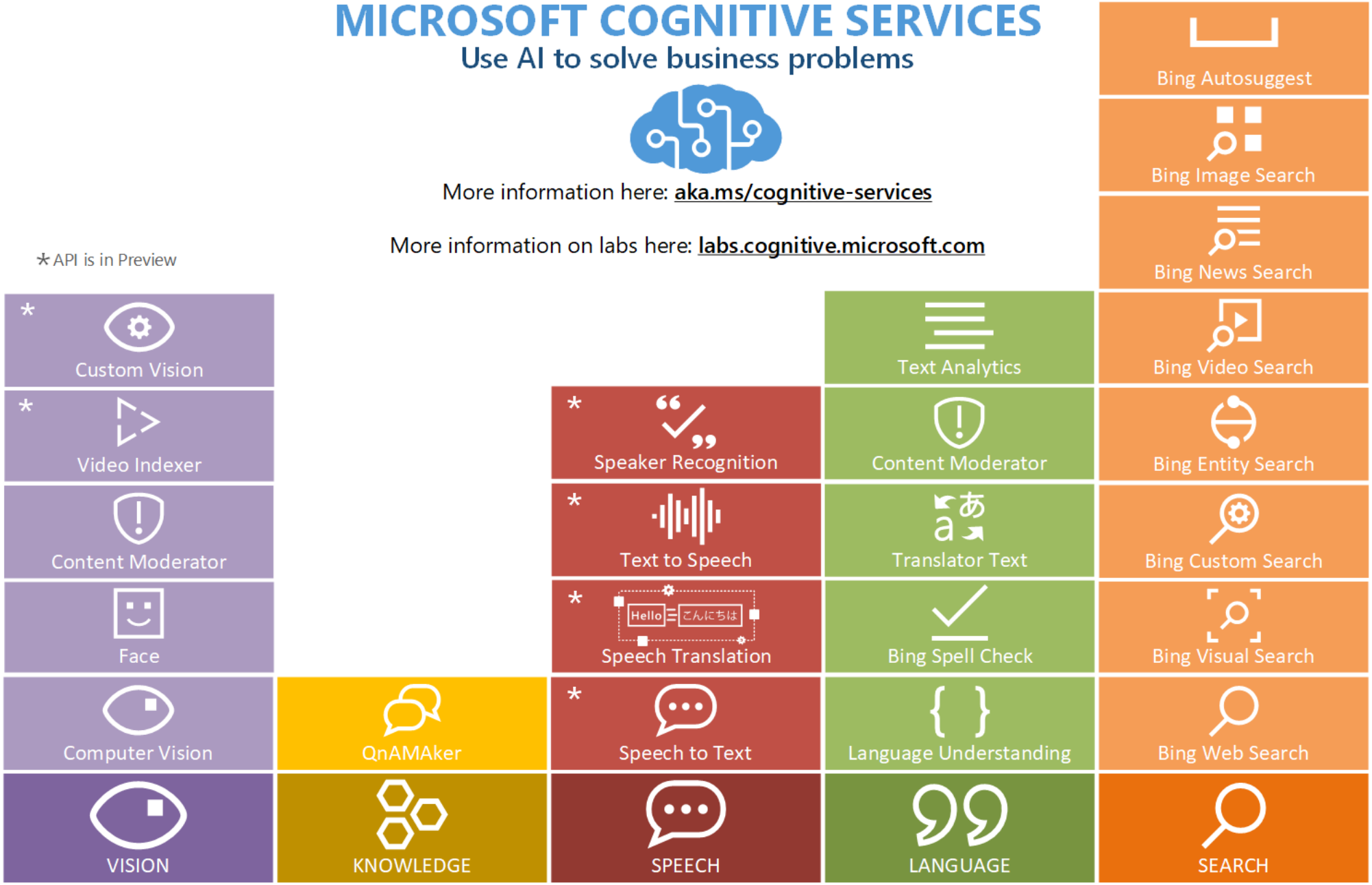
MICROSOFT COGNITIVE SERVICES

Use AI to solve business problems

More information here: **aka.ms/cognitive-services**

More information on labs here: **labs.cognitive.microsoft.com**

* API is in Preview



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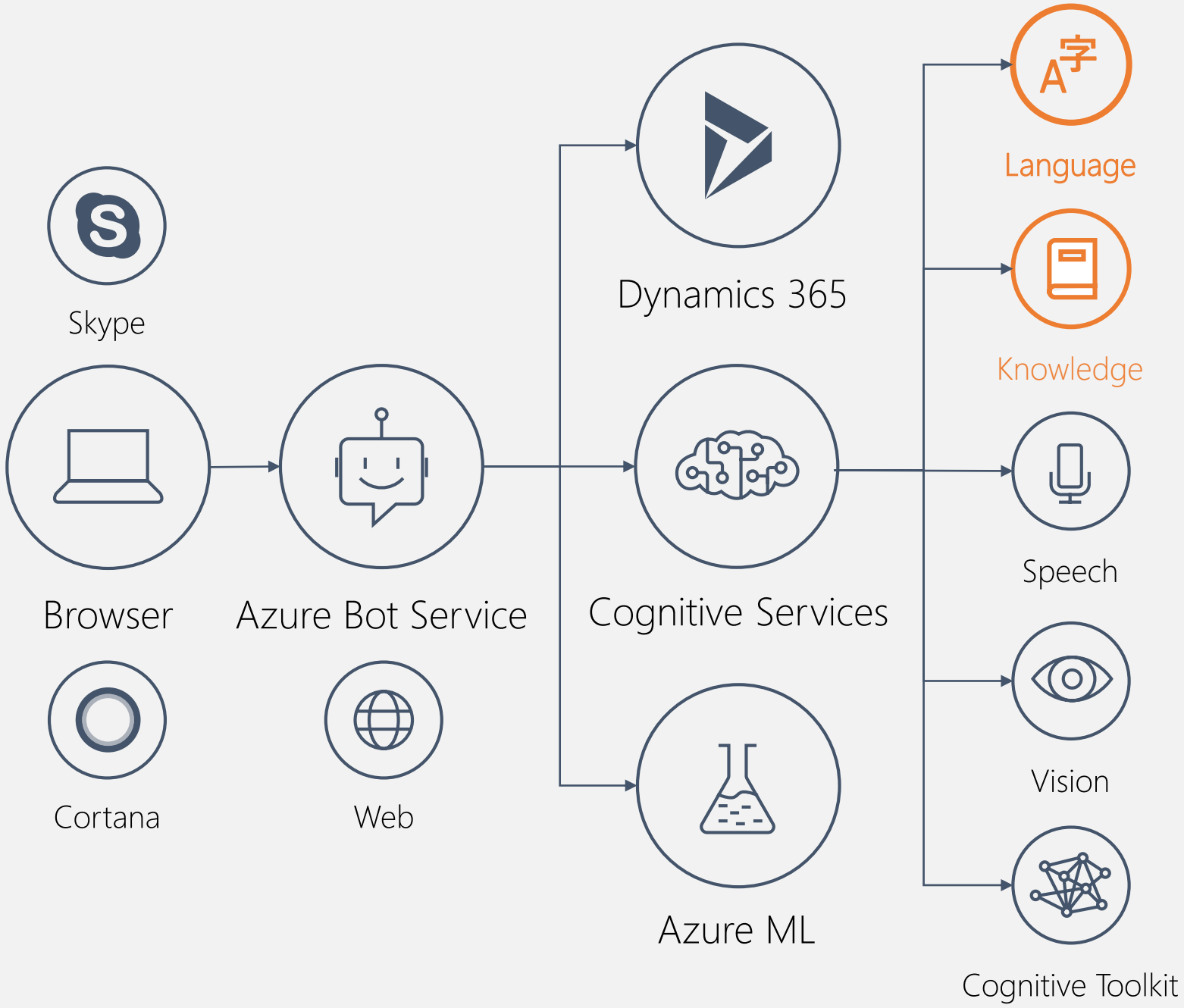
Language & Knowledge



How do I interact with my users in other languages?

How do I setup a FAQ service?

How do I detect the users' intents?

Language Understanding

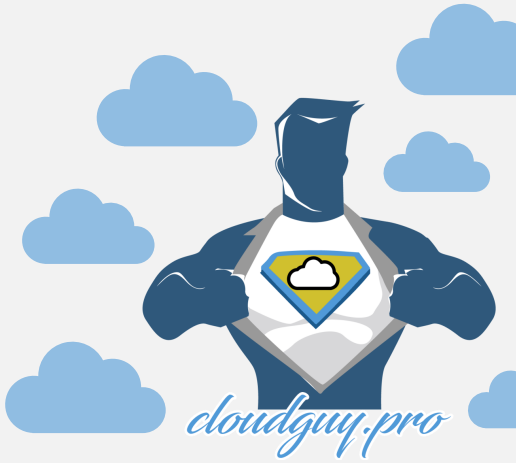
„Has the food truck arrived?“

[$LunchBell.Object] [$LunchBell.Operation]

{ }

Intent = CheckArrivalState

www.luis.ai



LUIS.ai Cheatsheet

Create intents & entities
Example:
Intent: BookHotel
Entity: Location

Add utterances
Example:
„Book a hotel in Seattle“

Train, Test & Refine
Adapt and add utterances to increase the precision

Publish & Deploy
Publish the trained model and use it within your applications like Bots and other smart apps

Refine the LUIS app

Refine the LUIS app

More information can be found here: **aka.ms/luis**

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Text Analytics

- Supports basic NLP scenarios
- Up to 1000 1K docs per request
- Call directly from Power BI & Data Lake U-SQL; SDK supports .NET Standard + Android
- Not PAYG: paid tier starts at $150 per month with 100K txns
- Example
  - I had a wonderful experience! The rooms were wonderful and the staff was helpful.

Language detection

Over 120 languages supported

```
{ "name": "English", "score": 1.0 }
```

Sentiment analysis

From 0 (-ve) - 1 (+ve); supports 15 languages

```
{ "score": 0.9979335069656372 }
```

Key phrase extraction

Main talking points; supports 5 languages

```
{ "keyPhrases":
        [ "wonderful experience",
          "staff",
          "rooms" ] }
```

QnAMaker.ai Cheatsheet

Set up your QnA Maker service

Create a new „QnA Maker" resource from the Azure Portal

Create your Knowledge Base

Create a new KB from https://qnamaker.ai and populate your KB from online resources (FAQs, ...) or enter your questions and answers manually

Train, Test & Refine your Kowledge Base

Train your KB and test it in the QnAMaker portal in order to adapt the QnA pairs as needed

Publish & Deploy your Knowledge Base

Publish the trained model and use it within your applications like Bots and other smart apps

Refine the QnAMaker KB

Refine the QnAMaker KB

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What do I use then?

EASY

Text Analytics
Start to understand unstructured content

Translator
Access languages of 95% of the world's GDP

Bing Spell Check
Make better NLP pipelines with cleaner data

QnAMaker
Add question & answer pairs to a KB and consume it easily

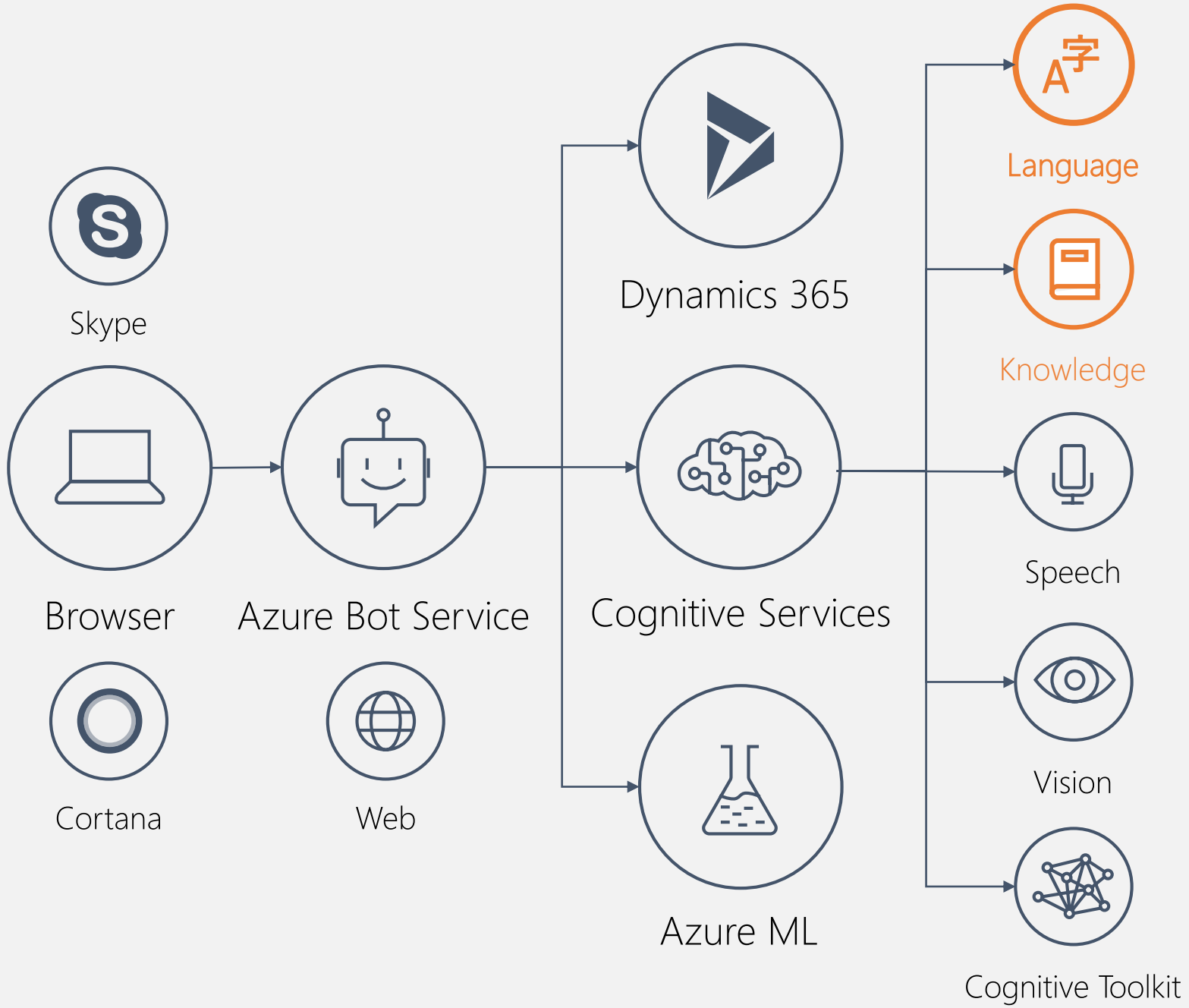
MODERATE

LUIS
Some assembly required: train and improve your models

ADVANCED

Web Language Model
Word breaking is easy; probabilities are for more sophisticated pipelines

Linguistic Analysis
Go beyond Text Analytics to pull out key aspects or even derive meaning

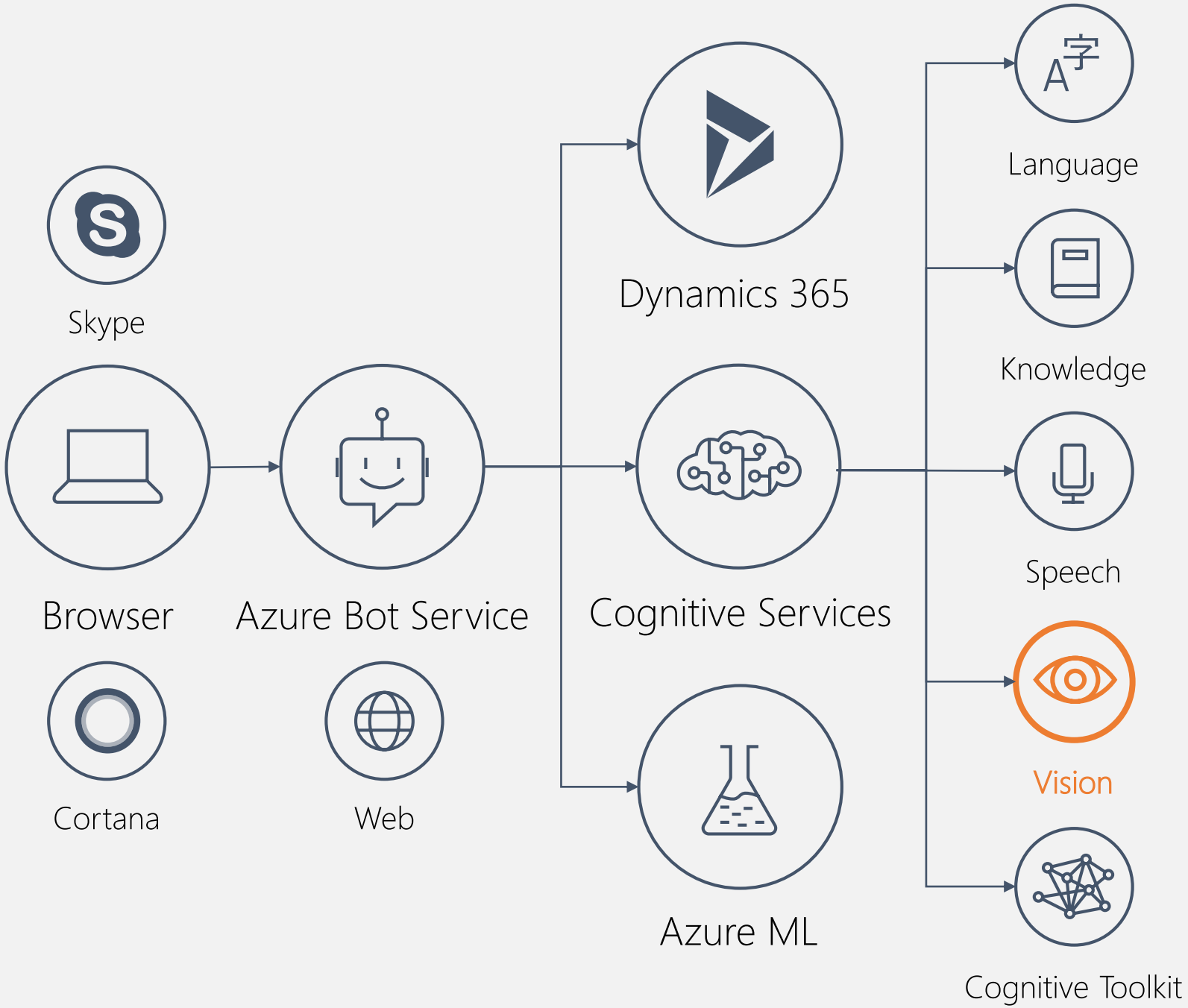


How do I interact with my users in other languages?
Translator (Text)

How do I setup a FAQ service?
QnAMaker

How do I detect the users' intents?
Language Understanding (LUIS)

Vision



How do I understand the contents of the images my users upload?

How do I distinguish between different car types?

How do I recognize my users?

Computer Vision

- General purpose image analysis
- Analyze in multiple dimensions through single API call; or use scoped operations
- Pass images as binary content or URLs; JPG, PNG, GIF, BMP
- Tags etc. available in EN, ZH
- Not designed for object classification or domain-specific concepts

Analyze

Tags, categories, faces, descriptions, colors

Extract text

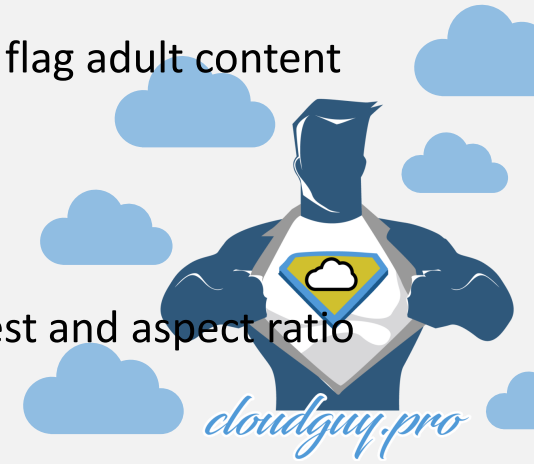
Machine generated, handwriting (preview)

Domain-specific

Celebrities, landmarks; flag adult content

Thumbnails

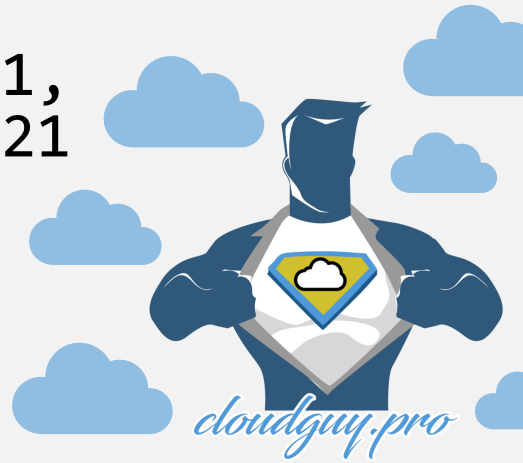
Crop to region of interest and aspect ratio



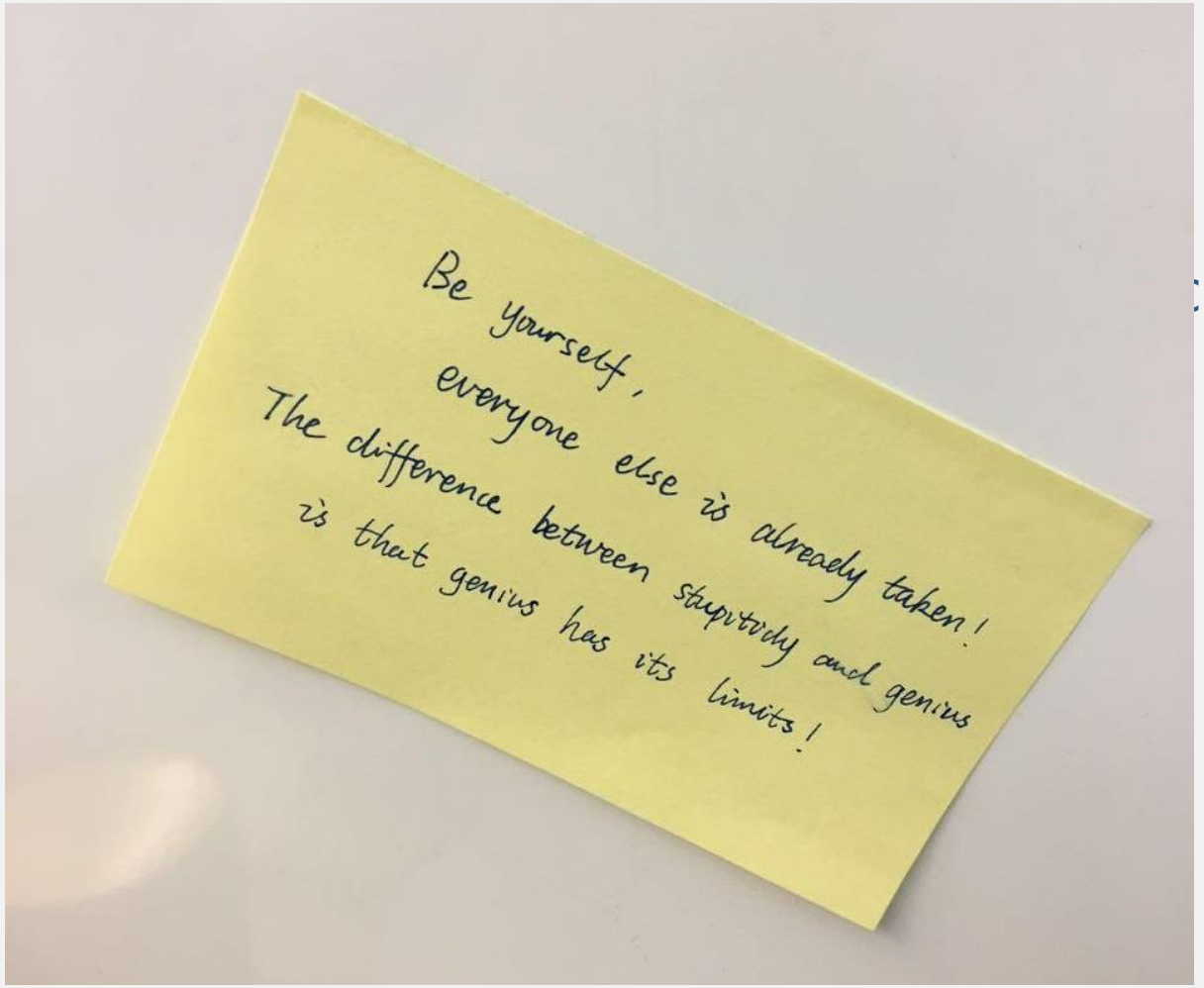
Computer Vision: Analyze

Face

```
"faces": [
  {
    "age": 36,
    "gender": "Male",
    "faceRectangle":
    {
      "left": 298,
      "top": 133,
      "width": 121,
      "height": 121
    }
  }
]
```

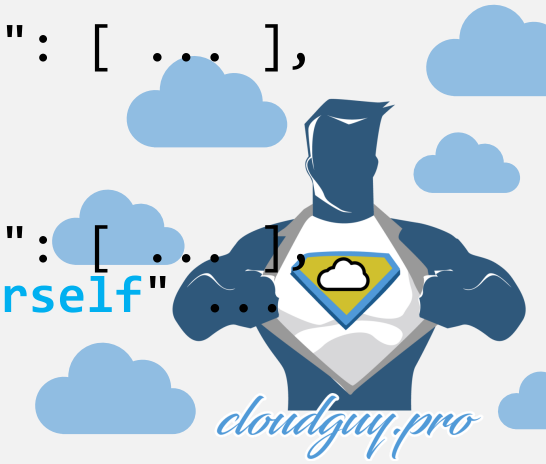


Computer Vision: Extract text



cky notes to digitize different inputs


```
{
  "status": "Succeeded",
  "succeeded": true,
  "failed": false,
  "finished": true,
  "recognitionResult": {
    "lines": [
      {
        "boundingBox": [ 354, 196, ...
      ],
        "text": "Be yourself",
        "words": [
          {
            "boundingBox": [ ... ],
            "text": "Be"
          },
          {
            "boundingBox": [ ... ],
            "text": "yourself"
          ...
```

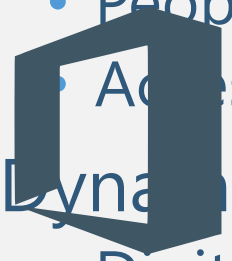



AI in the Modern Workplace

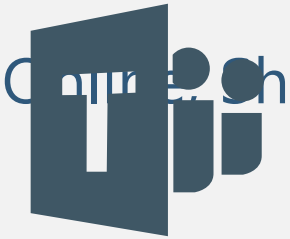
- Digital assistants
- Empower employees to achieve more
- Daily routines are done by assistants not humans

Use Cases

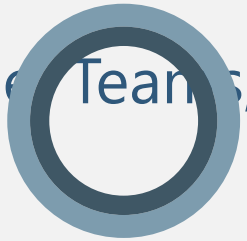
- QnA Bot
- Bots + Microsoft Graph
  - People Search
  - Access to Exchange Online, SharePoint Online, Teams, …
- Dynamics 365 Bot
  - Digital assistent for agent during phone calls/support tasks
- Support Bot
- Search Bot



Office 365

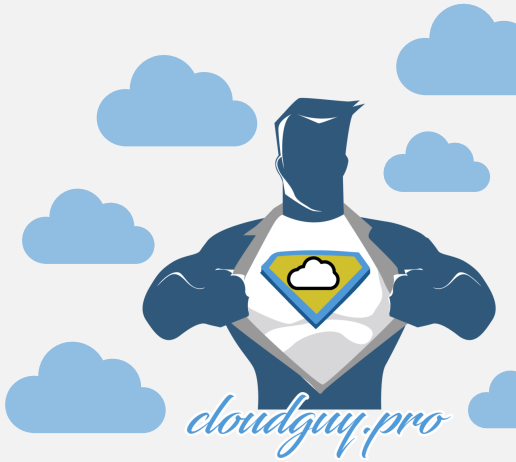


Teams

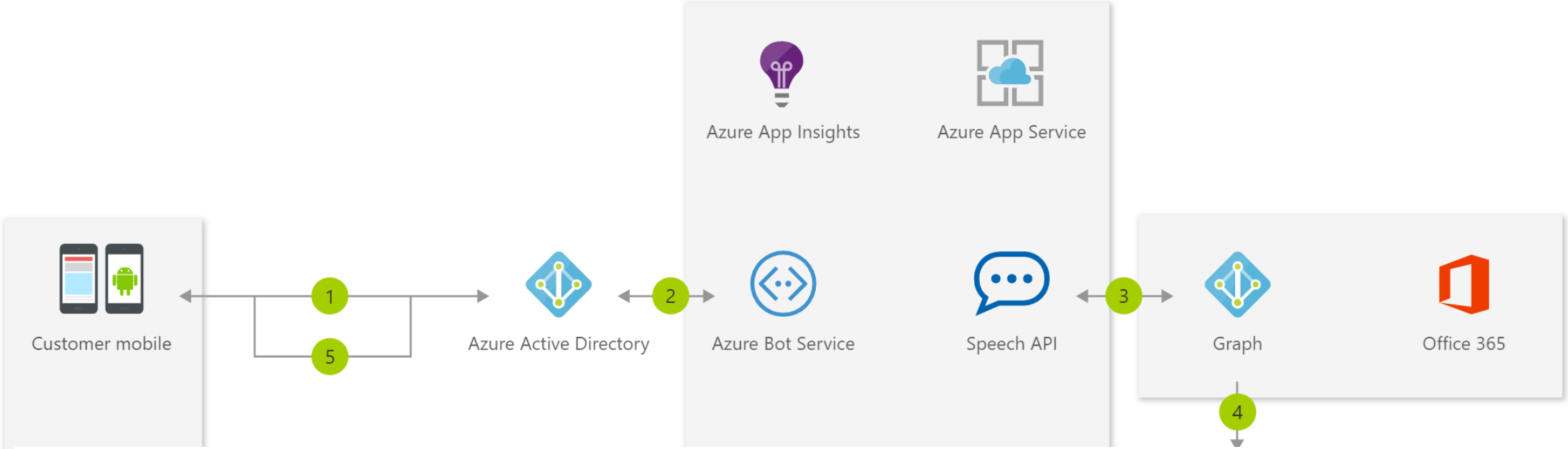


Cortana

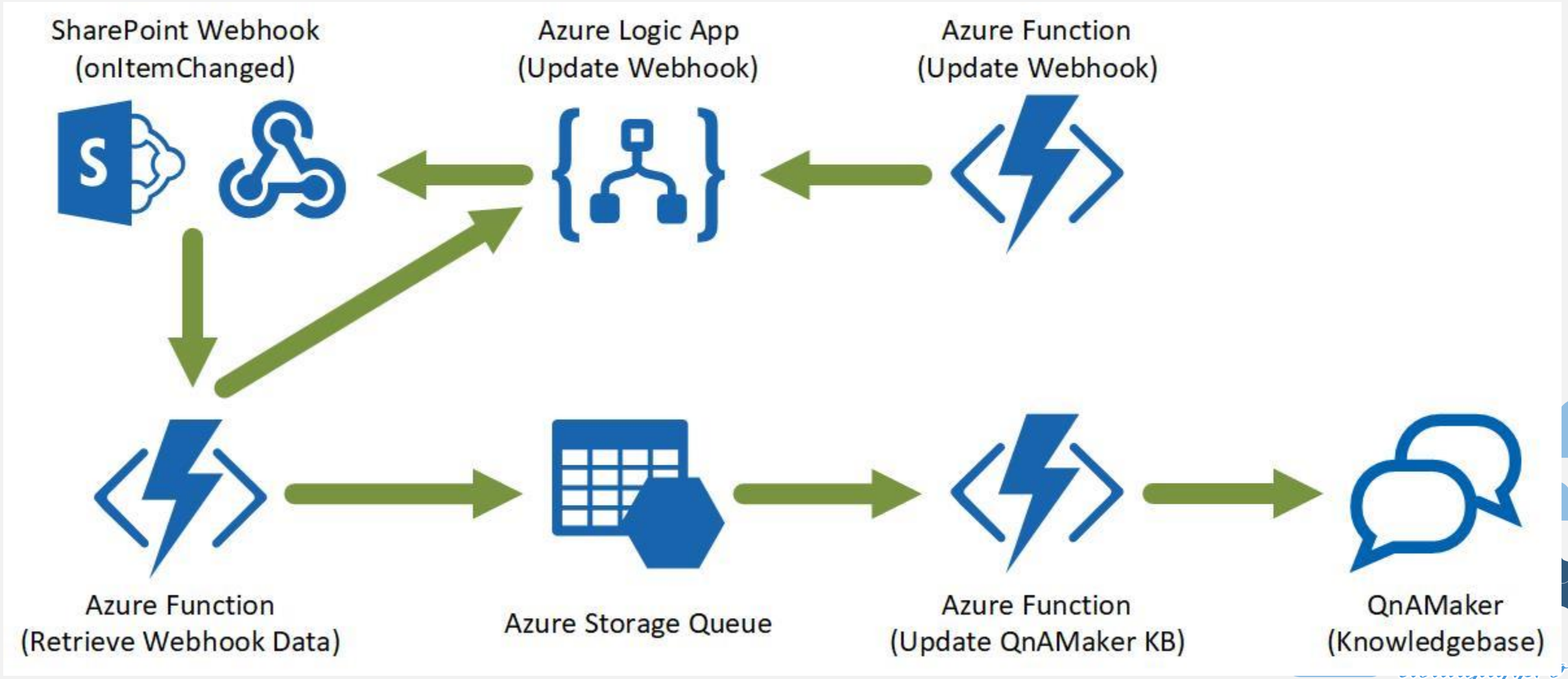
Skype



Use Case: Productivity Bot



1. Employee access Enterprise Productivity Bot
2. Azure Active Directory validates the employee's identity
3. The Bot is able to query the employee's Office 365 calendar via the Azure Graph
4. Using data gathered from the calendar, the Bot access case information in Dynamics CRM
5. Information is returned to the employee who can filter down the data without leaving the Bot
6. Application insights gathers runtime telemetry to help the development with Bot performance and usage

DEMO

QnA Bot with auto-update