



Azure Bot Services Overview

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Cloud Solution Architect
Microsoft

Bots enable.....Conversational AI

- Perform one or more automated tasks
- Use conversation as the interface
- For both employees and customers

- Conversational apps are a category of AI-based application solutions
- Imagine if technology could learn from us and discover ways to be helpful



The Next “Internet”?

1990s: Internet

- Search
- User “visits” websites



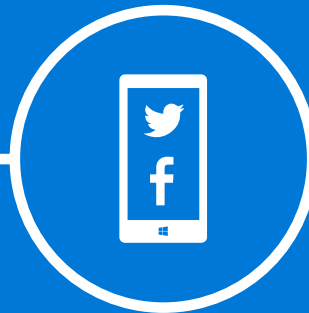
1980s: PC

- Desktop



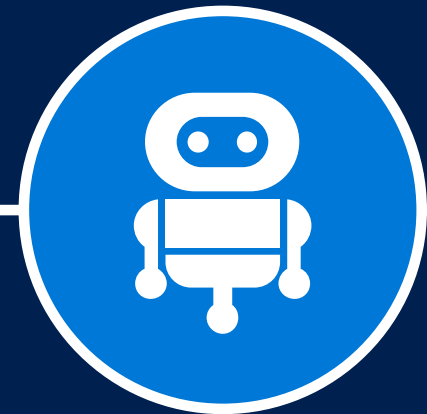
2000s: Mobile

- Social
- User download apps from App Stores

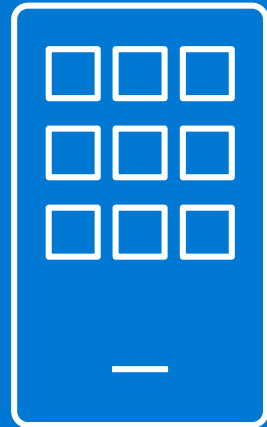


The future: Conversations

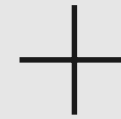
- Natural language between people and technology
- Conversational canvas
- Bots and agents



Building AI apps & agents



Your apps



Vision



Speech



Language

Cognitive services

Infuse your apps with powerful,
pre-trained AI models

Customize easily and tailor
to your needs

Use language of your choice



Vision



Speech



Language



Search



Bot service

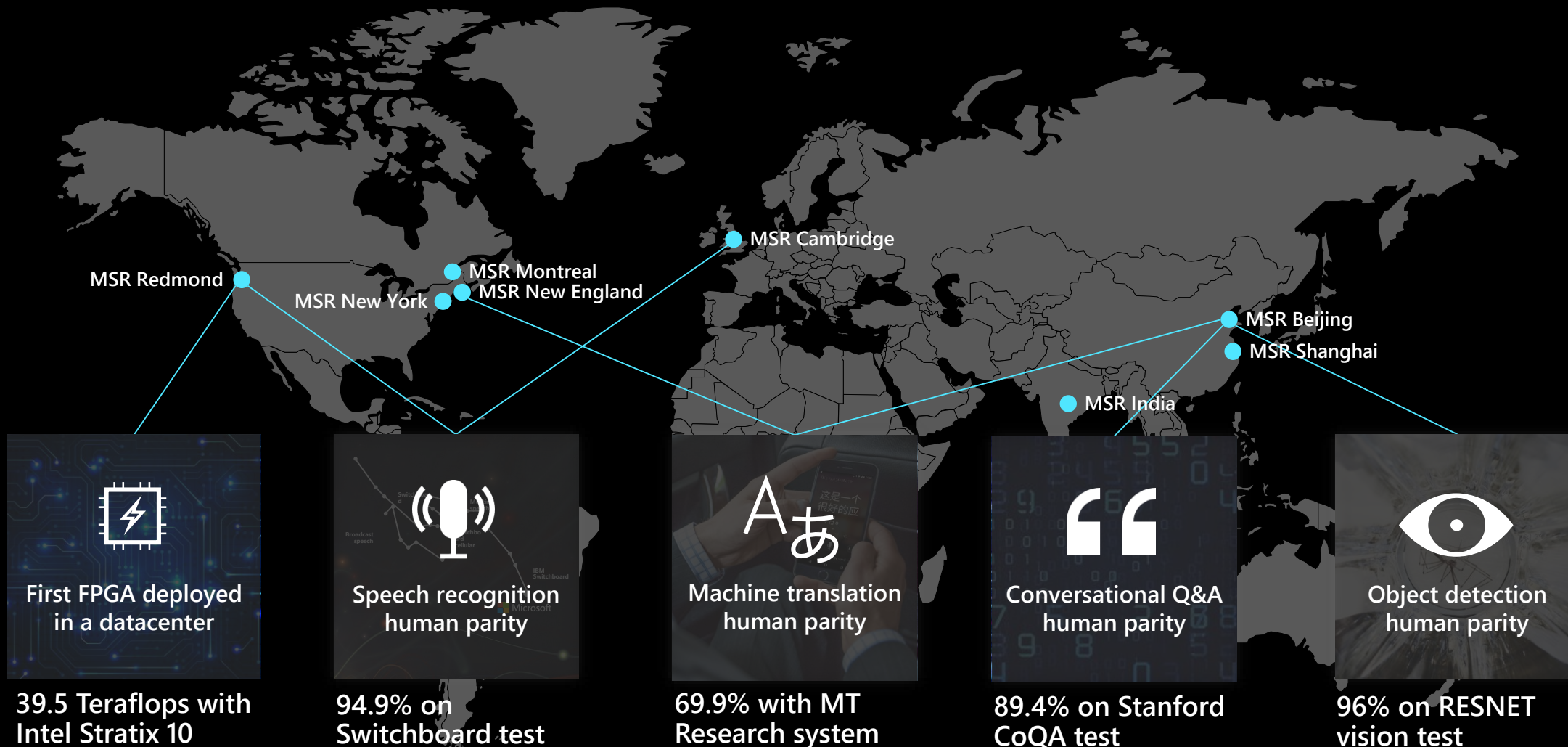
Accelerate bot development with
an integrated environment and
pre-built templates

Engage your audience easily
across multiple channels



Azure AI

Fueled by Microsoft breakthrough research



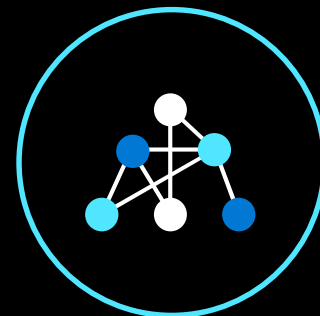
Azure AI



AI apps & agents



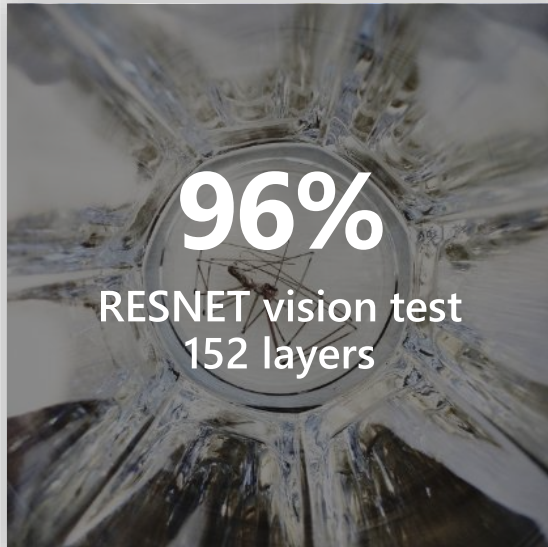
Knowledge mining



Machine learning

Microsoft AI breakthroughs

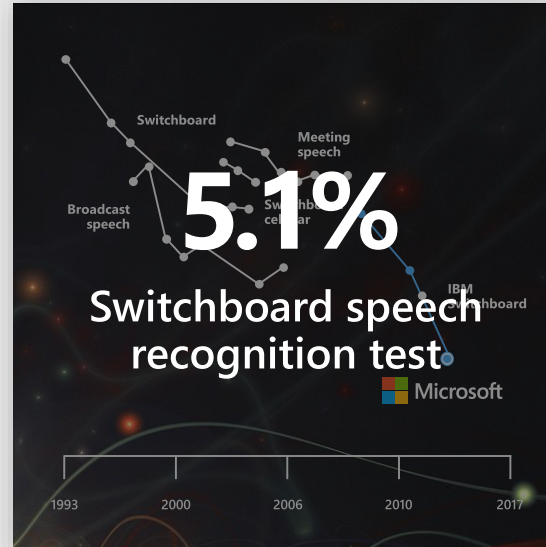
Vision



2016

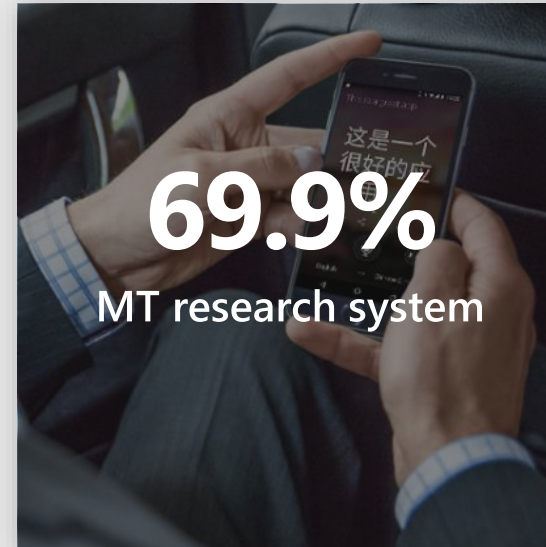
Object recognition
Human parity

Speech



2017

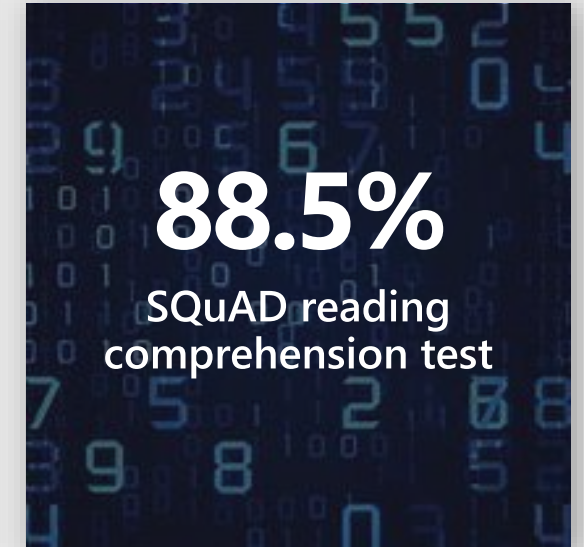
Speech recognition
Human parity



March 2018

Machine translation
Human parity

Language



January 2018

Machine reading comprehension
Human parity

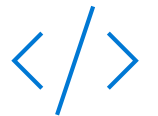
Momentum...

30,000,000+
messages per day

30,000+
active bots/month

300,000
developers

1,000+
companies



Examples of Bots & Conversational AI

Internal bots

Experiment and learn

Internal knowledge

Take existing FAQs and empower staff to provide self-serve knowledge via bots

IT helpdesk

- Report an IT problem and check its status
- Bots can provide self-help and escalation to the engineer if required

Smart document agent

Search relevant documents based on the user's needs

Simple customer bots

Unauthenticated services

General enquiries

Handle basic customer enquiries traditionally hidden in FAQs

Appointment booking

Handle simple "anonymous" tasks via chat (i.e., booking an appointment)

Complex enquiries

For requests that a bot cannot complete, hand off to a human agent

Advanced bots

Experiment and learn

Account enquiry

Handle enquiries that require identification of the customer (i.e., account balance enquiry)

Make payment

Perform actions that require a user to be authenticated and authorized (e.g., make payment to predefined payee)

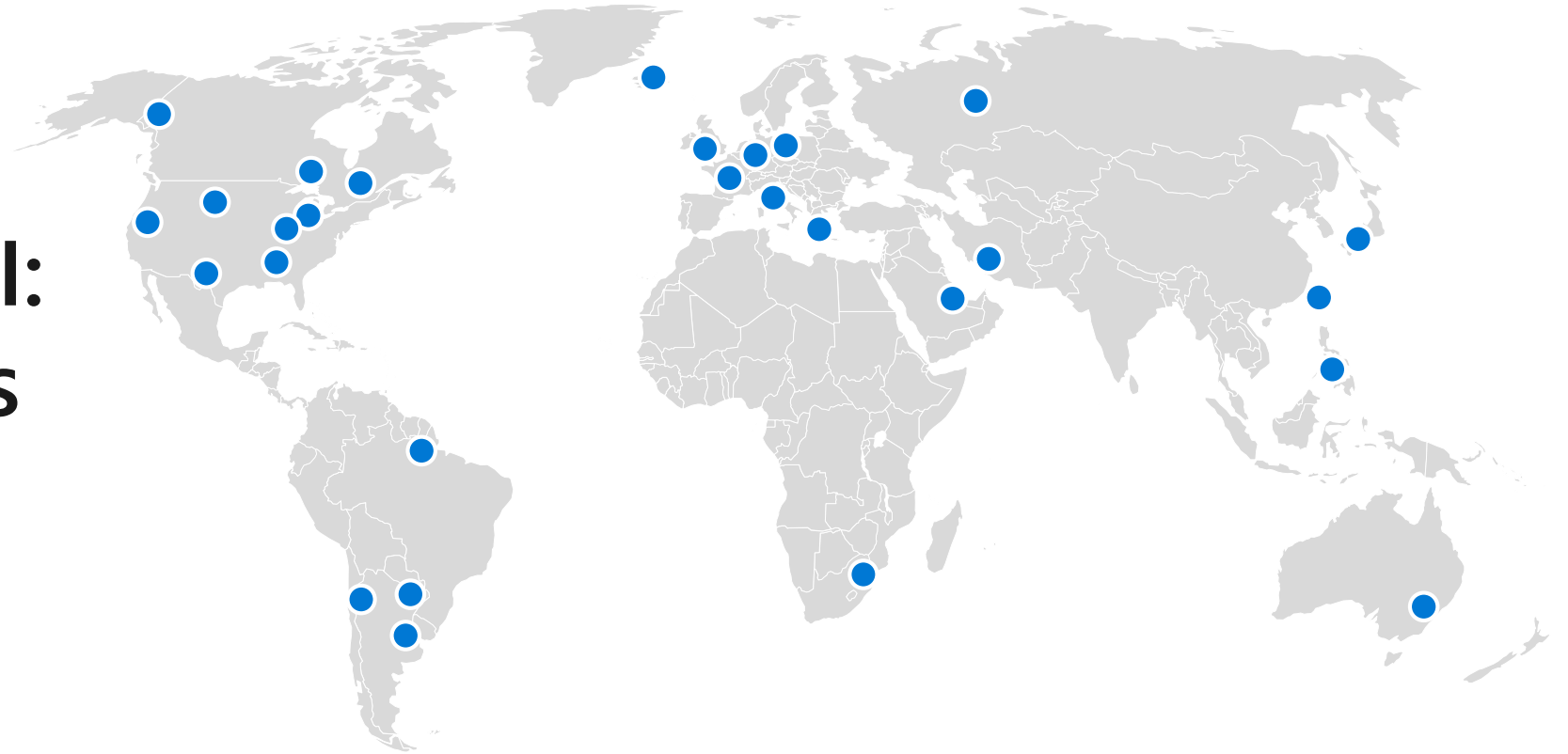
Retail-bot

Recommend products and Services. Send a customer with a new device to a stall to help them set up their services

Microsoft & Conversational AI: 1000+ companies

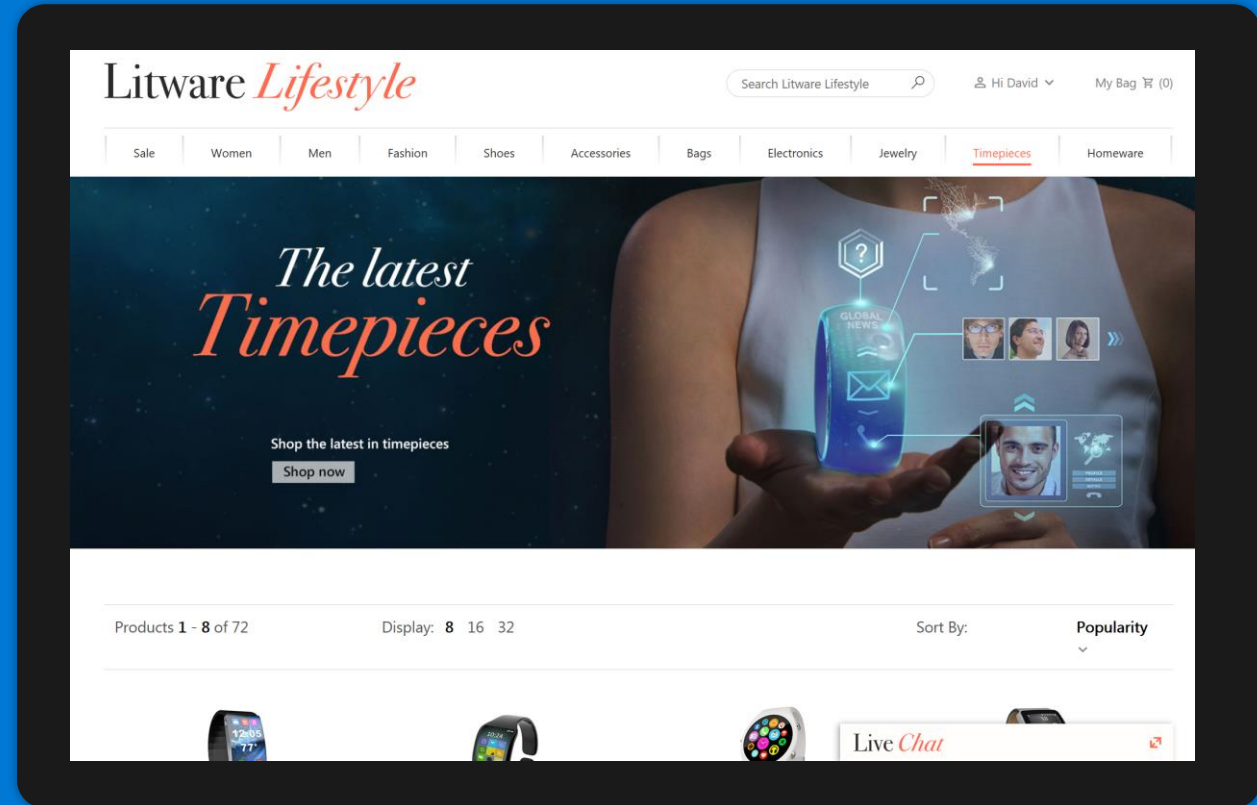
More details:

<https://customers.microsoft.com>



Intelligent Apps & Agents Demo

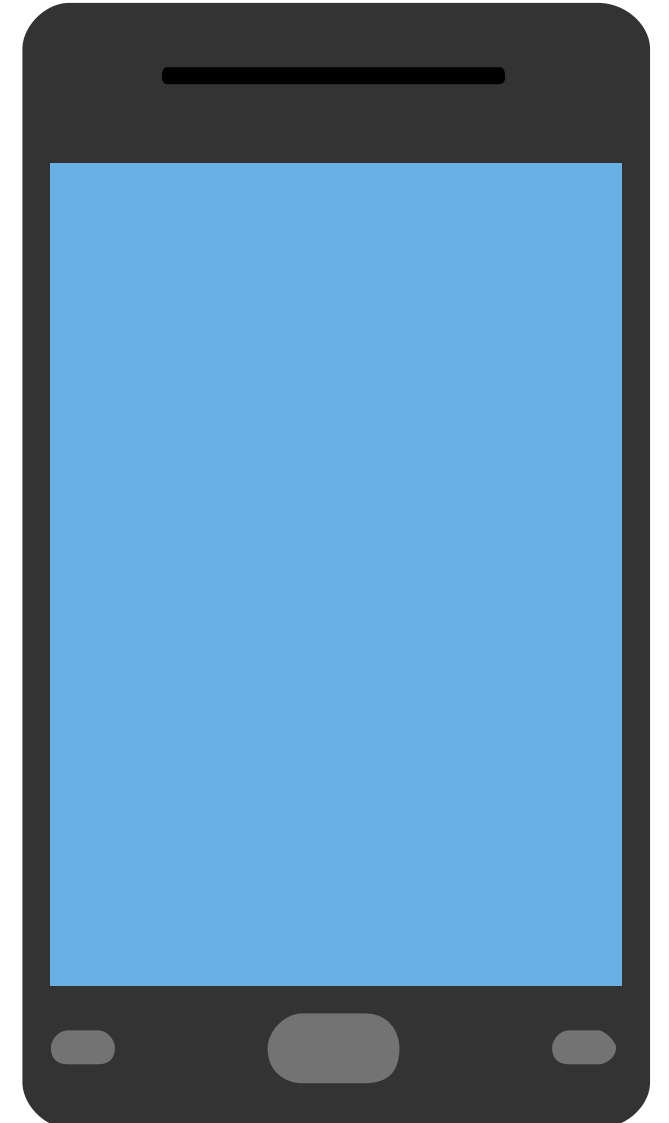
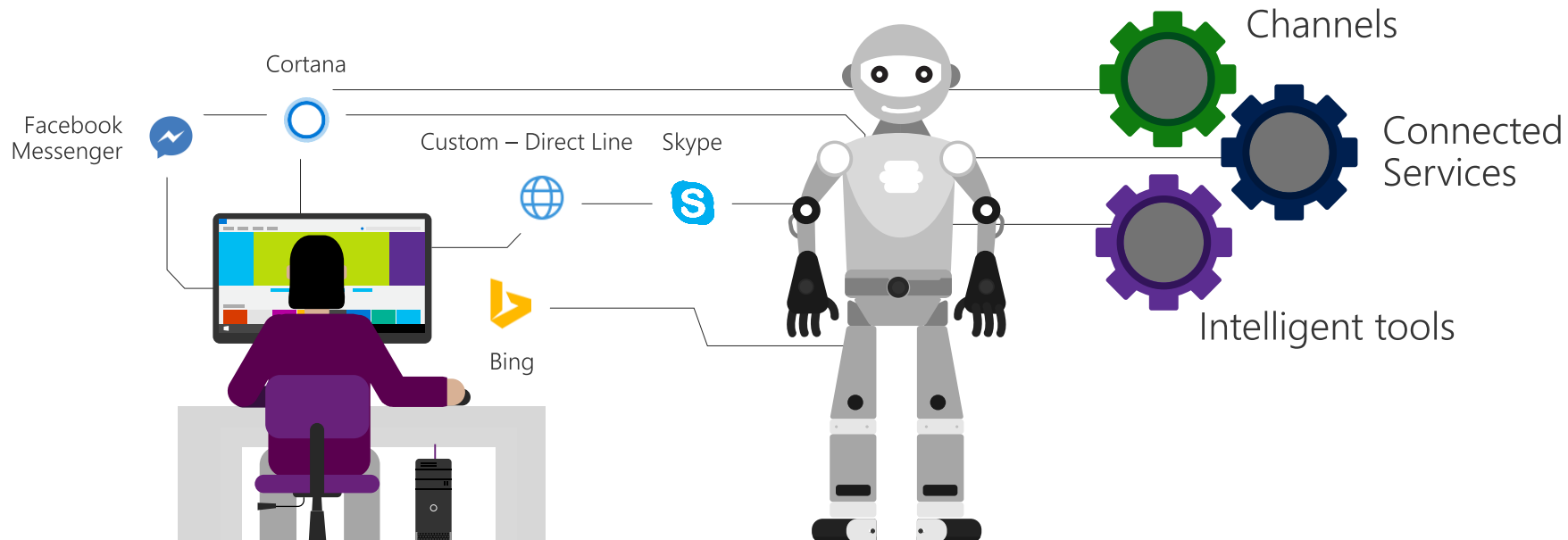
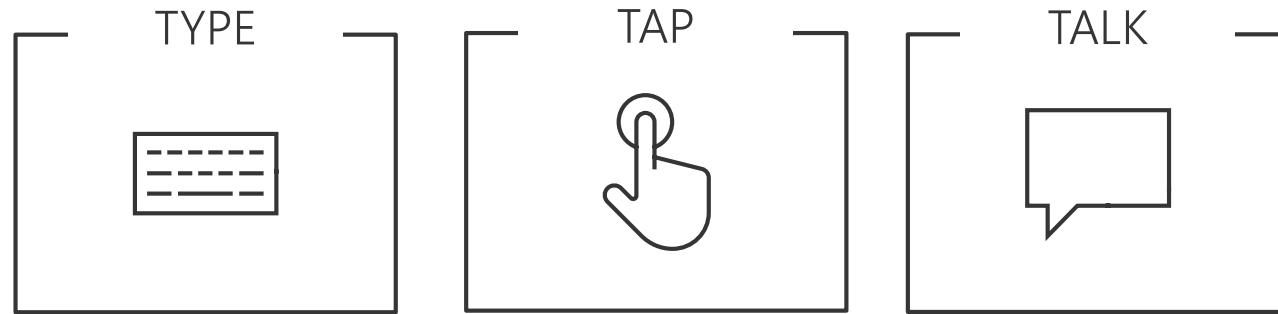
Health Bot Services



1. Overview of Platform



What is a Bot?



Creating your Bot & Conversational AI

Microsoft Bot framework



Bot Builder SDK

Build and connect intelligent bots

Powerful, easy-to-use framework

Start quickly with samples
and templates

Open source on GitHub

Supports C# (optionally Java, Python,
or Node.JS)



Azure Bot service

Accelerated development

Give your bot intelligence
with Microsoft Cognitive Services

Engage your audience,
wherever they are



Channels

Connect your bot to Microsoft Teams,
Skype, Cortana, or other channels

Configure channels via
Microsoft Azure Bot Service

User discovery of bots

Adding Intelligence: Bots are gateways to AI Services



Language Understanding Intelligent Service

*Teach your apps to understand commands
from your users*



Cognitive Search

*Integrate search into a
conversational experience*



QnA Maker

*Distill information into
conversational, easy-to-
navigate answers*



Your Own Machine/Deep Learning Model

*Link data sources and model to
suit your business processes*



Bing Speech API

*Convert speech to text and back
again, and understand its intent*



Speaker Recognition

*Give your
app the ability
to know who's talking*



Translator

*More easily perform speech
and text translation*

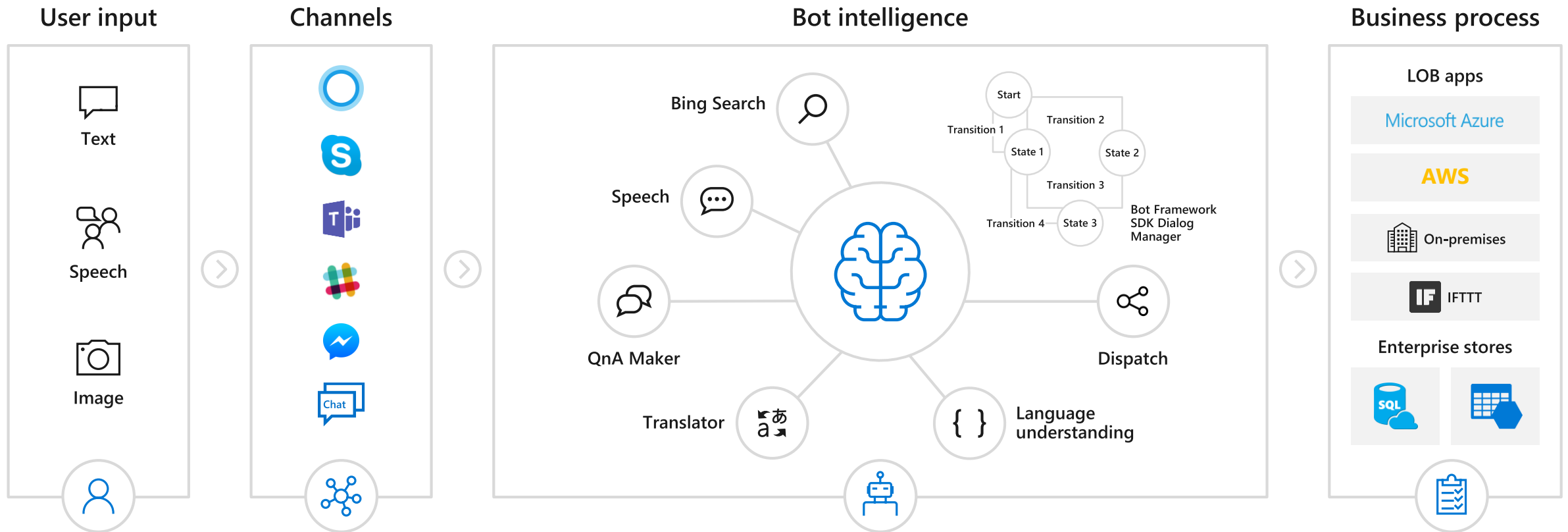


Custom Speech Service

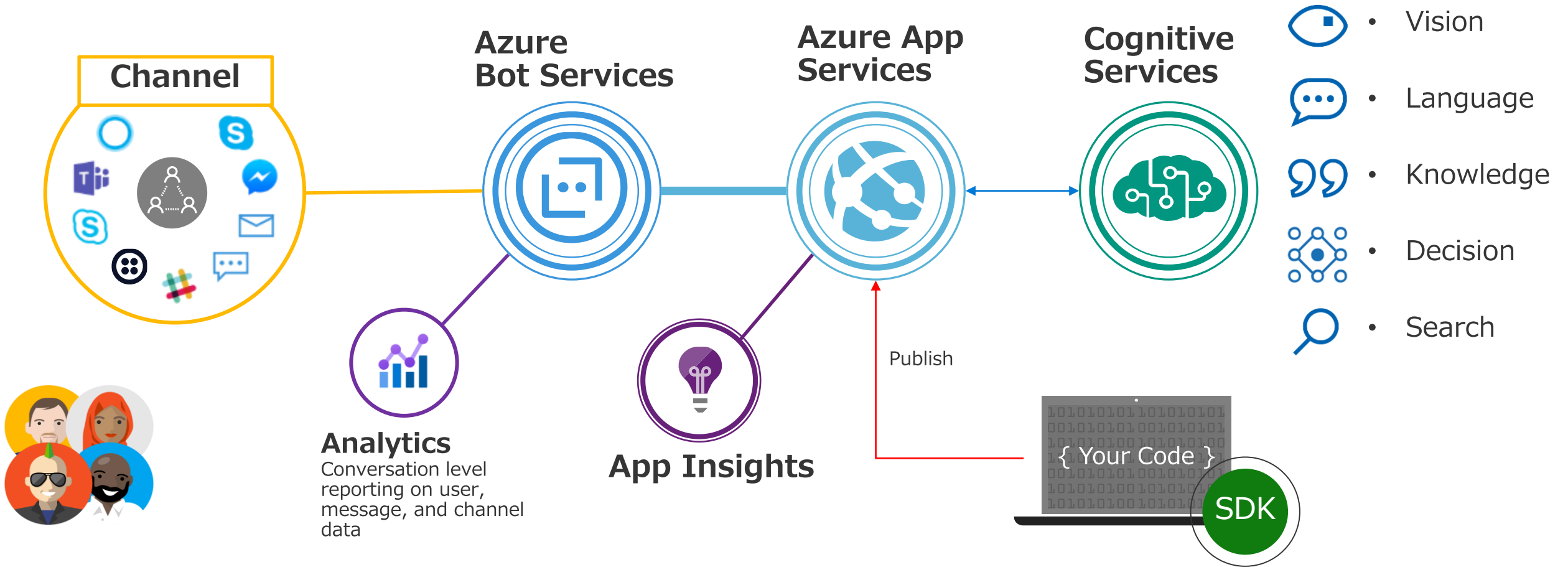
*Fine-tune speech recognition for
anyone, nearly anywhere*

A Complete Bots & Conversational AI Solution

Framework + Azure Bot Service + Cognitive Services + Data Platform



Azure Bot Architecture



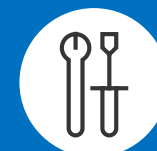
Channels

Connect your bot to Microsoft Teams, Skype, Cortana, or other channels



Azure Bot service

Give your bot intelligence with Microsoft Cognitive Services

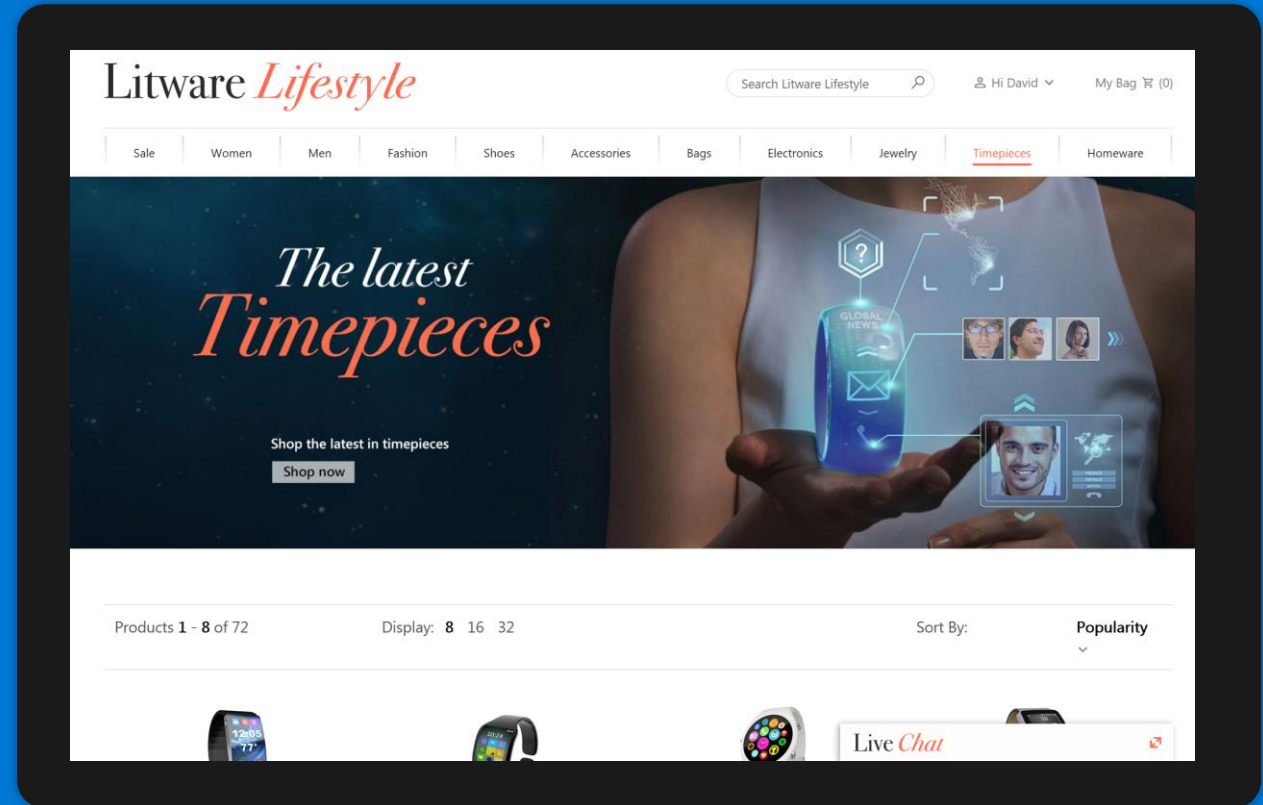


Bot Builder SDK

Build and connect intelligent bots
Powerful, easy-to-use framework

Azure Portal

Azure Bot Services



2. Learning Capabilities



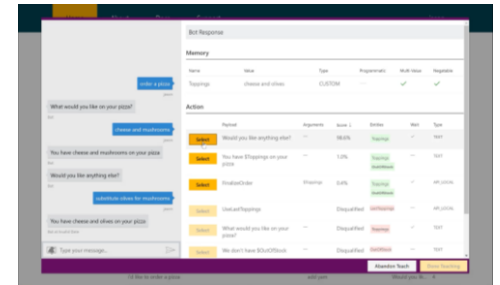
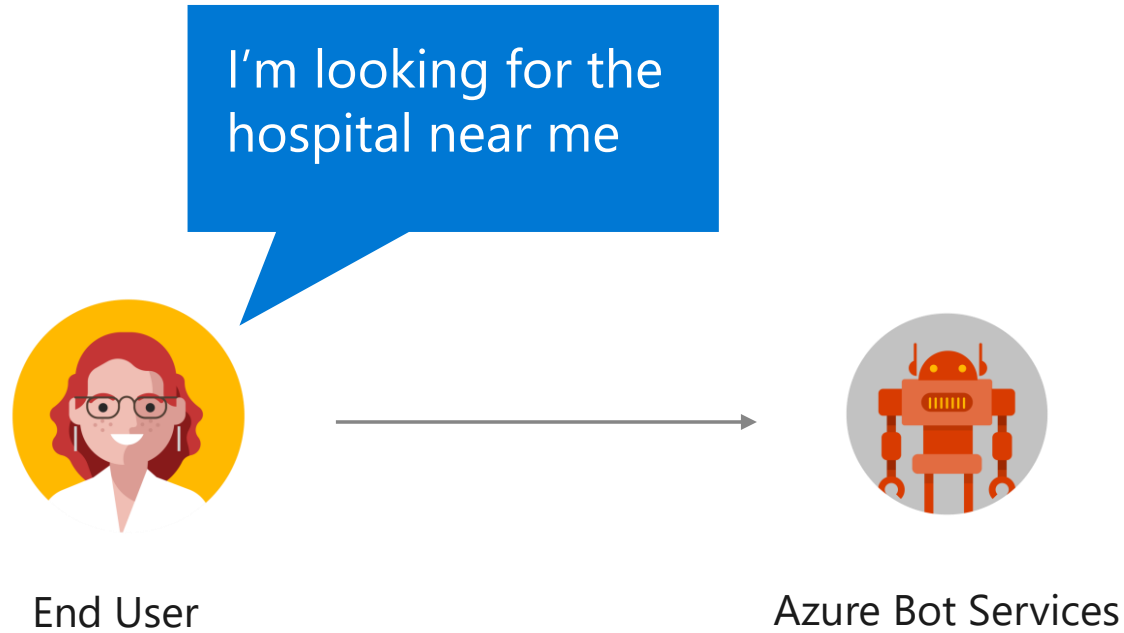
Language Understanding Intelligent Service

Understand what your users are saying

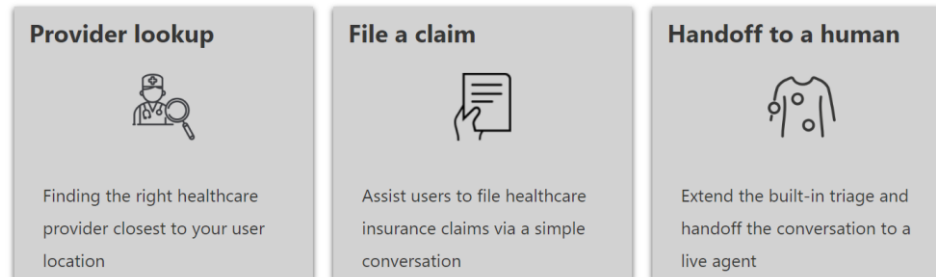
Use pre-built Bing and Cortana
models or create your own



How does LUIS work with Bot Service



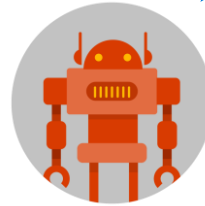
LUIS API



How does LUIS work with Bot Service

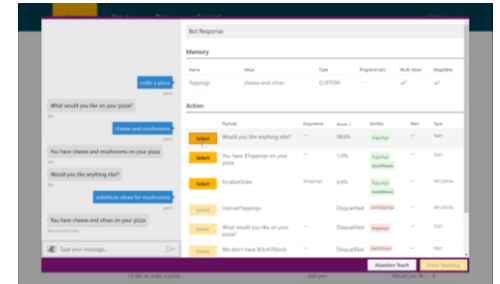


End User



Azure Bot Services

I'm looking for the hospital near me



LUIS API

Provider lookup



Finding the right healthcare provider closest to your user location

File a claim



Assist users to file healthcare insurance claims via a simple conversation

Handoff to a human

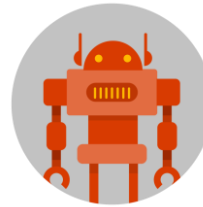


Extend the built-in triage and handoff the conversation to a live agent

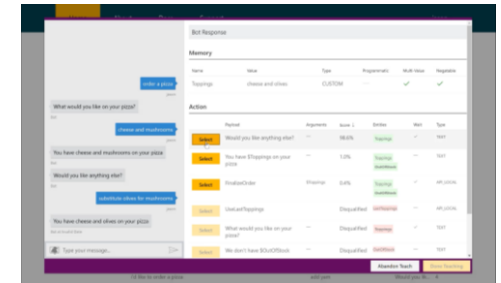
How does LUIS work with Bot Service



End User



Azure Bot Services



LUIS API

Top Intent:
ProviderLookup
(0.622)

Provider lookup



Finding the right healthcare provider closest to your user location

File a claim



Assist users to file healthcare insurance claims via a simple conversation

Handoff to a human



Extend the built-in triage and handoff the conversation to a live agent

Language Understanding Models

"I'm looking for the hospital at Seattle"

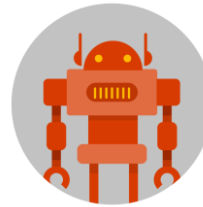


```
{
  "entities": [
    {
      "entity": "Seattle",
      "type": "Topic"
    }
  ],
  "intents": [
    {
      "intent": "ProviderLookup",
      "score": 0.99853384
    },
    {
      "intent": "None",
      "score": 0.07289317
    },
    {
      "intent": "ReadNews",
      "score": 0.0167122427
    },
    {
      "intent": "ShareNews",
      "score": 1.0919299E-06
    }
  ]
}
```

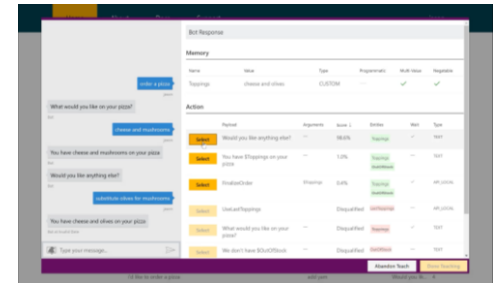
How does LUIS work with Bot Service



End User




Azure Bot Services




LUIS API

Provider lookup



Finding the right healthcare provider closest to your user location

File a claim



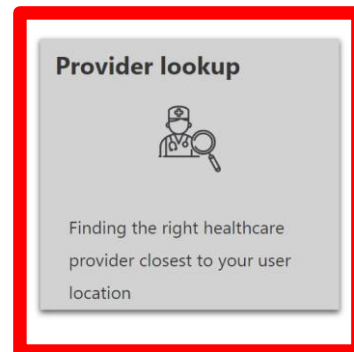
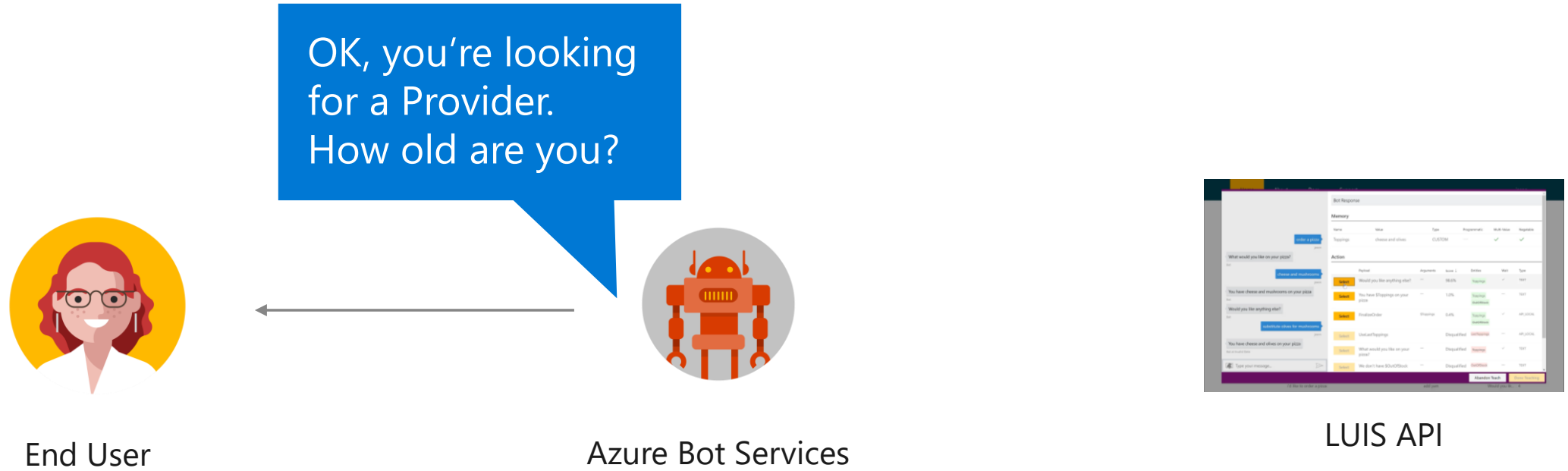
Assist users to file healthcare insurance claims via a simple conversation

Handoff to a human



Extend the built-in triage and handoff the conversation to a live agent

How does LUIS work with Bot Service



Conversation Flow starts for "Provider Lookup" Intent

1. How old are you?
2. Gender?
3. What type of provider do you look for?
4. Zipcode?

Key LUIS concepts

- Intents
 - Actions the user wants to perform
- Utterances
 - Text input from a user your app needs to understand
- Entities
 - Detailed information that is relevant to the utterance

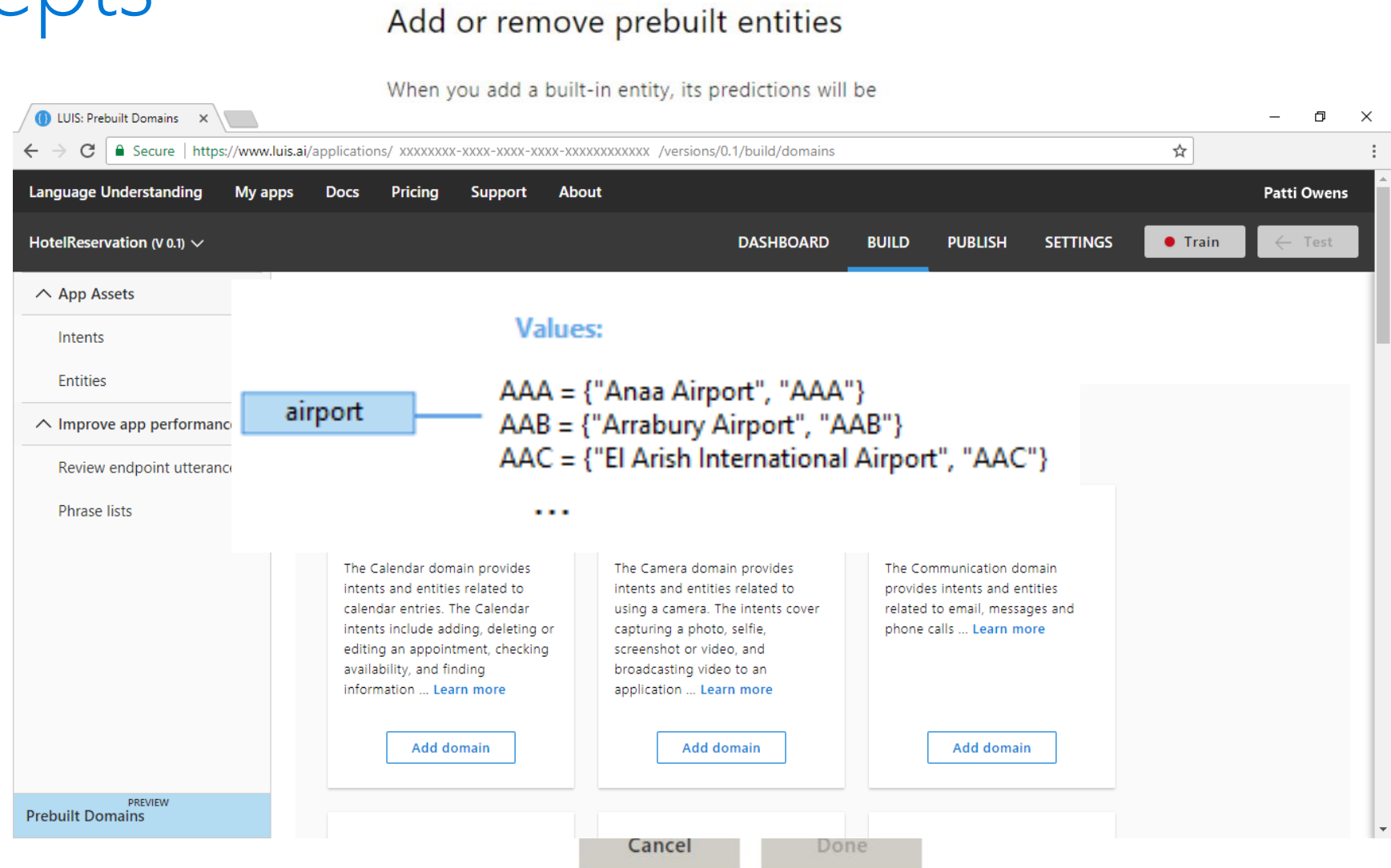
Intent	Sample user utterance	Entities
ProviderLookup	"I'm looking for the hospital at Los Angeles"	Los Angeles
StoreHoursAndLocation	"When does your store open ?"	open
ScheduleMeeting	"Schedule a meeting at 1PM with Bob in Distribution"	1PM, Bob

Key LUIS concepts

- Simple entities
- Hierarchical entities
- Composite entities
- Prebuilt entities
- List entities

Add or remove prebuilt entities

When you add a built-in entity, its predictions will be



The screenshot shows the LUIS Prebuilt Domains interface. The left sidebar contains a navigation menu with 'App Assets' (Intents, Entities) and 'Improve app performance' (Review endpoint utterances, Phrase lists). The main content area is titled 'Values:' and shows a list of prebuilt entities. A blue box labeled 'airport' is connected by a line to the first value in the list: 'AAA = {"Anaa Airport", "AAA"}'. Below this are 'AAB = {"Arrabury Airport", "AAB"}' and 'AAC = {"El Arish International Airport", "AAC"}'. At the bottom, there are three cards for 'Calendar', 'Camera', and 'Communication' domains, each with an 'Add domain' button. The interface also includes a top navigation bar with 'Language Understanding', 'My apps', 'Docs', 'Pricing', 'Support', and 'About', and a user profile 'Patti Owens'. The bottom of the interface has 'Cancel' and 'Done' buttons.

Language Understanding My apps Docs Pricing Support About Patti Owens

HotelReservation (v 0.1) ▾ DASHBOARD BUILD PUBLISH SETTINGS Train Test

App Assets

- Intents
- Entities

Improve app performance

- Review endpoint utterances
- Phrase lists

Values:

airport — AAA = {"Anaa Airport", "AAA"}
AAB = {"Arrabury Airport", "AAB"}
AAC = {"El Arish International International Airport", "AAC"}
...

The Calendar domain provides intents and entities related to calendar entries. The Calendar intents include adding, deleting or editing an appointment, checking availability, and finding information ... [Learn more](#)

Add domain

The Camera domain provides intents and entities related to using a camera. The intents cover capturing a photo, selfie, screenshot or video, and broadcasting video to an application ... [Learn more](#)

Add domain

The Communication domain provides intents and entities related to email, messages and phone calls ... [Learn more](#)

Add domain

PREVIEW Prebuilt Domains

Cancel Done

Training and testing your model

Test

[Start over](#) [Batch testing panel](#)

book a child economy ticket to dallas

BookFlight (0.98) [Inspect](#)

book a child economy ticket to paris tomorrow on virgin air

BookFlight (0.83) [Inspect](#)

book me 2 adult business tickets to paris tomorrow on air france

BookFlight (0.92) [Inspect](#)

book a flight to seattle

None (0.39) [Inspect](#)

book a flight o seattle

None (0.4) [Inspect](#)

Inspect

Currently Editing
version 0.1

Utterance
book a child economy ticket to dallas

Top scoring intent
BookFlight (0.98) [Edit](#)

Entities
Category --> "child"
Seat --> "economy"
Location::ToLocation --> "dallas"

[Show JSON view](#)

Published: production [v](#)
version 0.1

Utterance
book a child economy ticket to dallas

Top scoring intent
BookFlight (0.55)

Entities
Seat --> "economy"
Category --> "child"

Publishing your model

[Language Understanding](#) [My apps](#) [Docs](#) [Pricing](#) [Support](#) [About](#)

TravelAgent (v 0.1) ▾

DASHBOARDBUILD**PUBLISH**SETTINGS

TrainTest

☐ Include all predicted intent scores ?


☐ Enable Bing spell checker ?

Publish to production slot

Resources and Keys

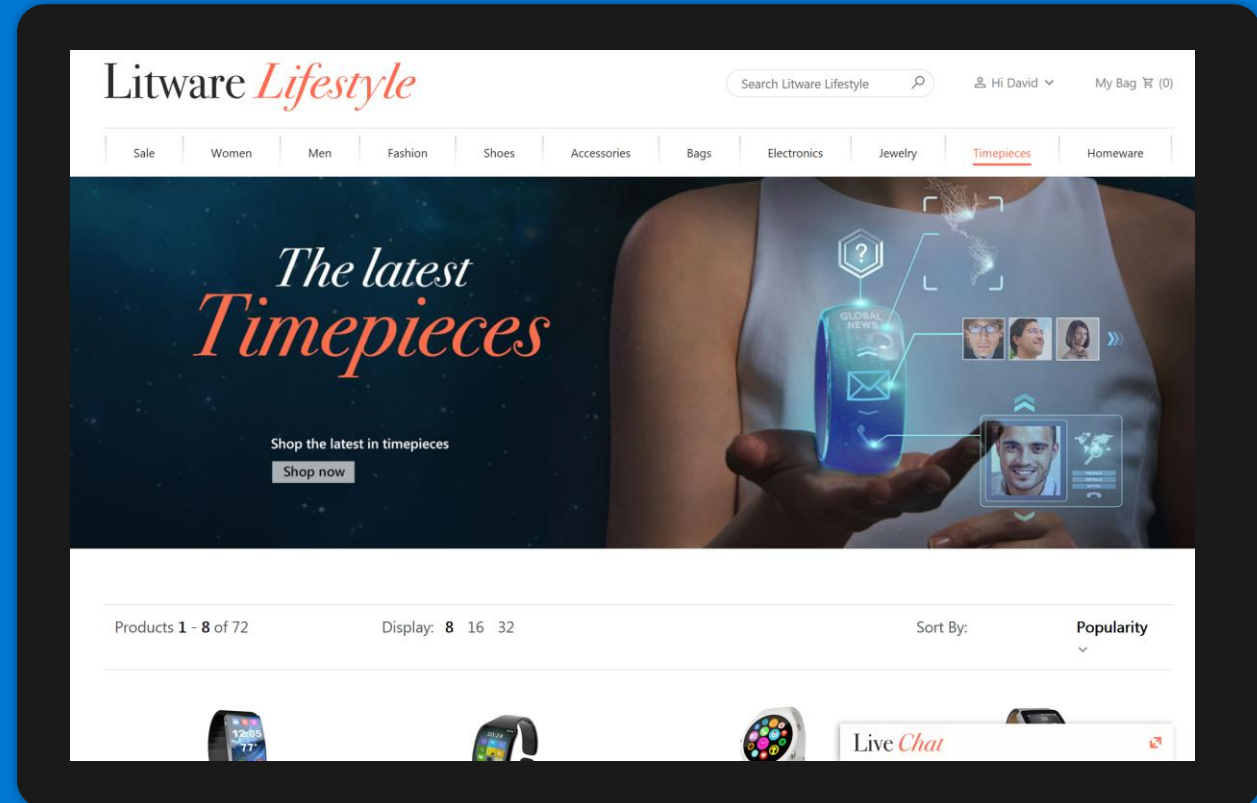
Add Key

☒ North America Regions ☐ South America Regions ☐ Europe Regions ☐ Asia Regions ☐ Australia Regions

Resource Name	Region	Key String	Endpoint
Starter_Key	westus	 755e98 ...	https://westus.api.cognitive.microsoft.com/luis/v2.0/apps/xx?subscription-key=xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx&verbose=true&timezoneOffset=0&q=

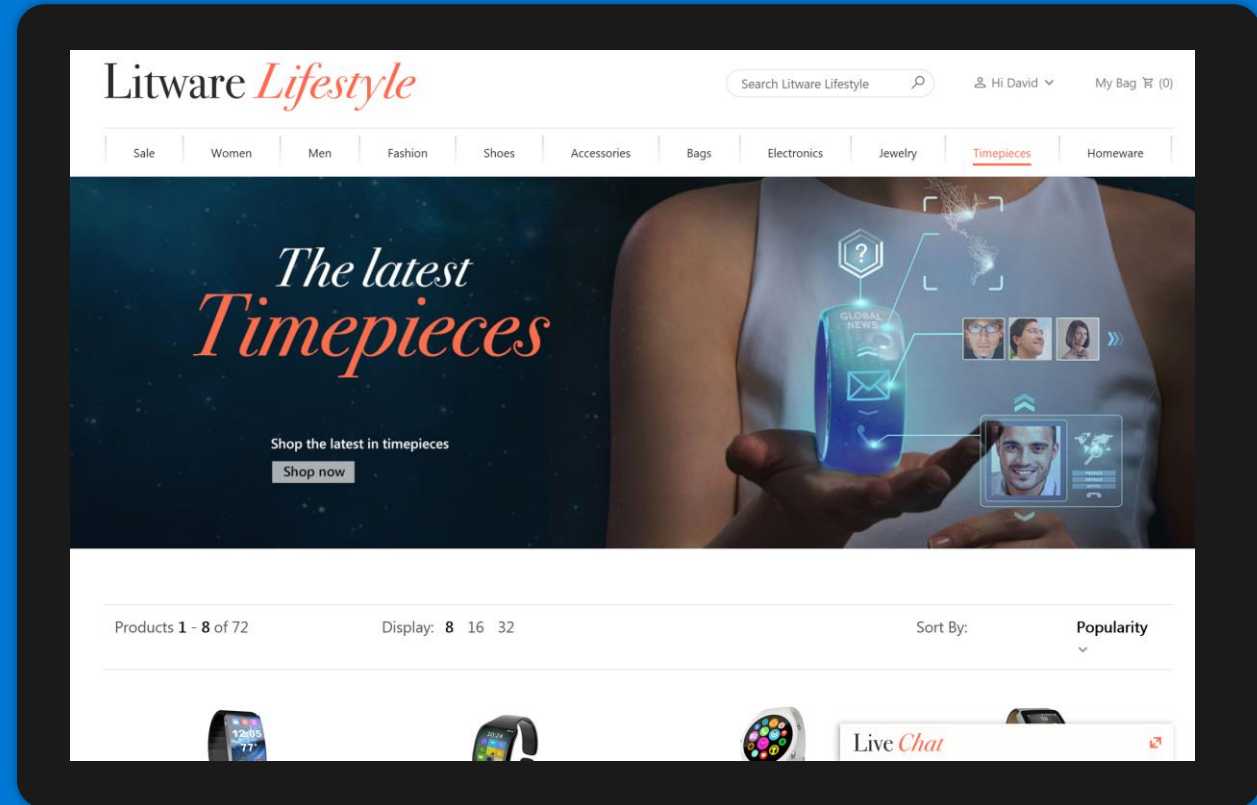
LUIS Portal

Cognitive Services



Health Bot Service

Conversation Flow Editor



3. Experience / results using for service desk chat service



QnA Maker

Distill information into conversational, easy-to-navigate answers

- **New architecture.** The data and runtime hosted in your Azure subscription.
- **No more throttling!**
- **Data privacy and compliance.** QnA data is hosted within your Azure compliance boundary.
- **Azure Application Insights integration.**

The screenshot displays the Microsoft QnA Maker web interface. At the top, there's a navigation bar with links: QnA Maker, My knowledge bases, Create a knowledge base, Documentation, and Feedback. A 'Sign In' button is in the top right. The main header area features the text 'From FAQ to Bot in minutes.' and a sub-header: 'Build, train and publish a simple question and answer bot based on FAQ URLs, structured documents, product manuals or editorial content in minutes.' Below this is a 'GET STARTED >' link. On the right, there are two buttons: 'Save and retrain' (with a refresh icon) and 'Publish' (with a checkmark icon). A status message below the buttons says 'Retrained 5 minutes ago'. The left sidebar has a 'Knowledge Base' section with 'Test' and 'Settings' options. The 'TEST' tab is active, showing a 'Chat' window. The chat window has a header 'Chat' and a message from the system: 'The system uses a special microphone on the driver's side. Verbal instructions in the Owner's Manual to use with the voice activation system.' Below this, a user message asks 'how to enable the voice activation system?'. The system's response is titled 'Activating the voice activation system' and lists three steps: 1. Press button on the steering wheel. 2. Wait for the signal. 3. Say the command. A command that is recognized by the voice activation system is announced and displayed in the instrument cluster. It also mentions a symbol in the instrument cluster indicating the voice activation system is active and suggests using iDrive if no other commands are available. To the right of the chat window, there's a section for 'Provide multiple alternative phrasings to the question, to broaden the knowledge base.' with an 'Add alternative here' button and a list of alternatives, including 'how to enable the voice a...'. At the bottom, there are links for 'Download chat logs' and 'Upload chat logs', and a text input field for 'Type your message...'.

Building QnA Bot from Manuals

Microsoft

Achraf

QnA Maker PREVIEW | My services | Create new service | Documentation | Feedback

Test Build

[Download Knowledge Base](#) | [Replace Knowledge Base](#)

[Save and retrain](#) (Retrained 5 minutes ago) | [Publish](#)

Knowledge Base | **TEST**

Test

Settings

Choose the most appropriate answer from these alternatives.

- **Activating the voice ac...**
- **The concept** ▷ Most ...
- **Requirements** Via t...
- None of the above

Chat

▷ The system uses a special microphone on the driver's side.
▷>...< Verbal instructions in the Owner's Manual to use with the voice activation system.

Test Build · 5 mins ago

how to enable the voice activation system?

You · 1 min ago

Activating the voice activation system

1. Press button on the steering wheel.
2. Wait for the signal.
3. Say the command. A command that is recognized by the voice activation system is announced and dis- played in the instrument cluster.

This symbol in the instrument cluster indi- cates that the voice activation system is active.

If no other commands are available, use func- tion via iDrive.

Test Build · 1 min ago

[Download chat logs](#) | [Upload chat logs](#)

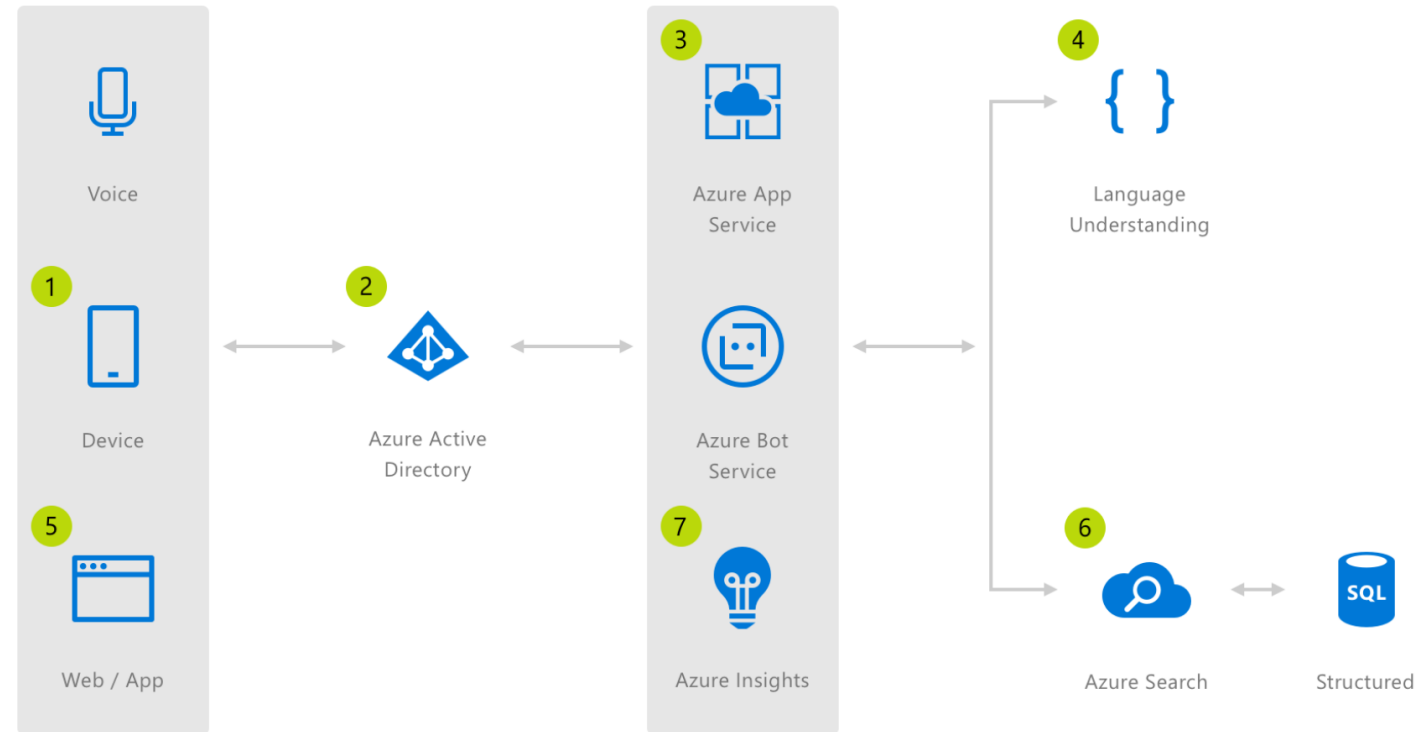
Type your message...

Provide multiple alternative phrasings to the question, to broaden the knowledge base.

Add alternative here +

how to enable the voice a... ×

Information chatbot



- 1 Employee starts the Application Bot
- 2 Azure Active Directory validates the employee's identity
- 3 The employee can ask the bot what type of queries are supported
- 4 Cognitive Services returns a FAQ built with the QnA Maker
- 5 The employee defines a valid query
- 6 The bot submits the query to Azure Search which returns information about the application data
- 7 Application insights gathers runtime telemetry to help development with bot performance and usage

QnA Maker Portal

Cognitive Services

