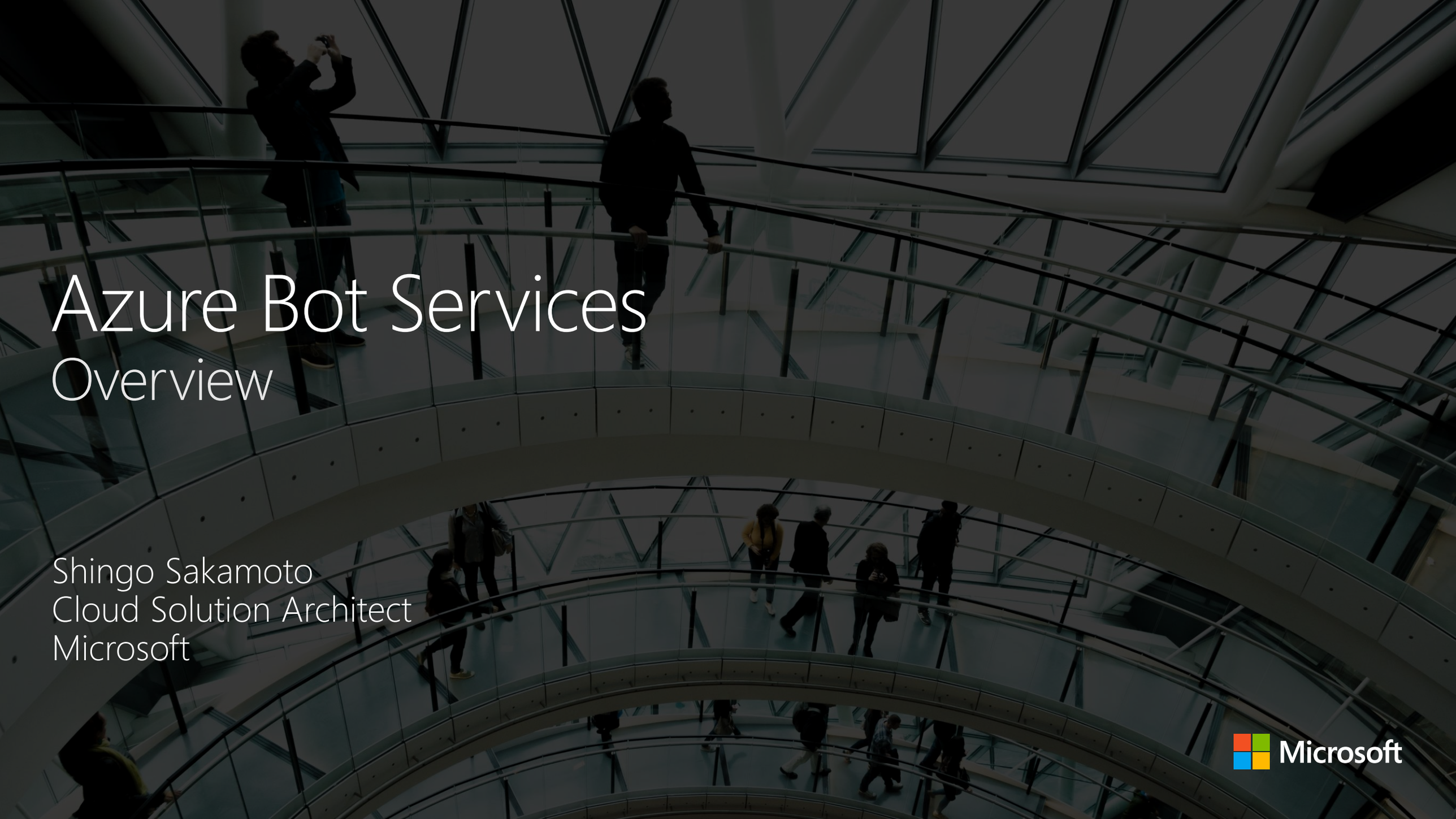


Azure Bot Services
Overview

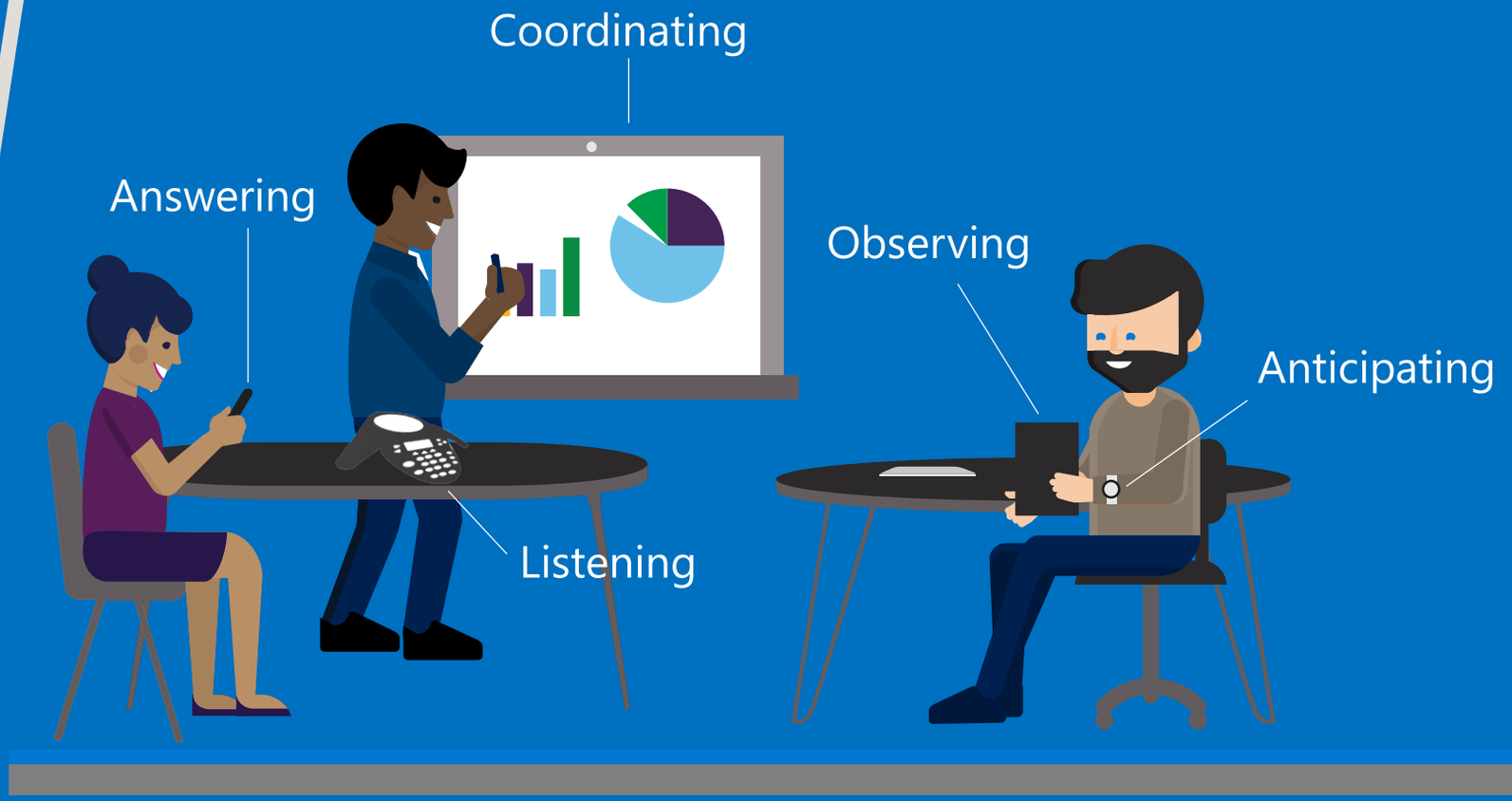
Shingo Sakamoto
Cloud Solution Architect
Microsoft

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”?

1980s: **PC**

- Desktop

1990s: **Internet**

- Search
- User “visits” websites

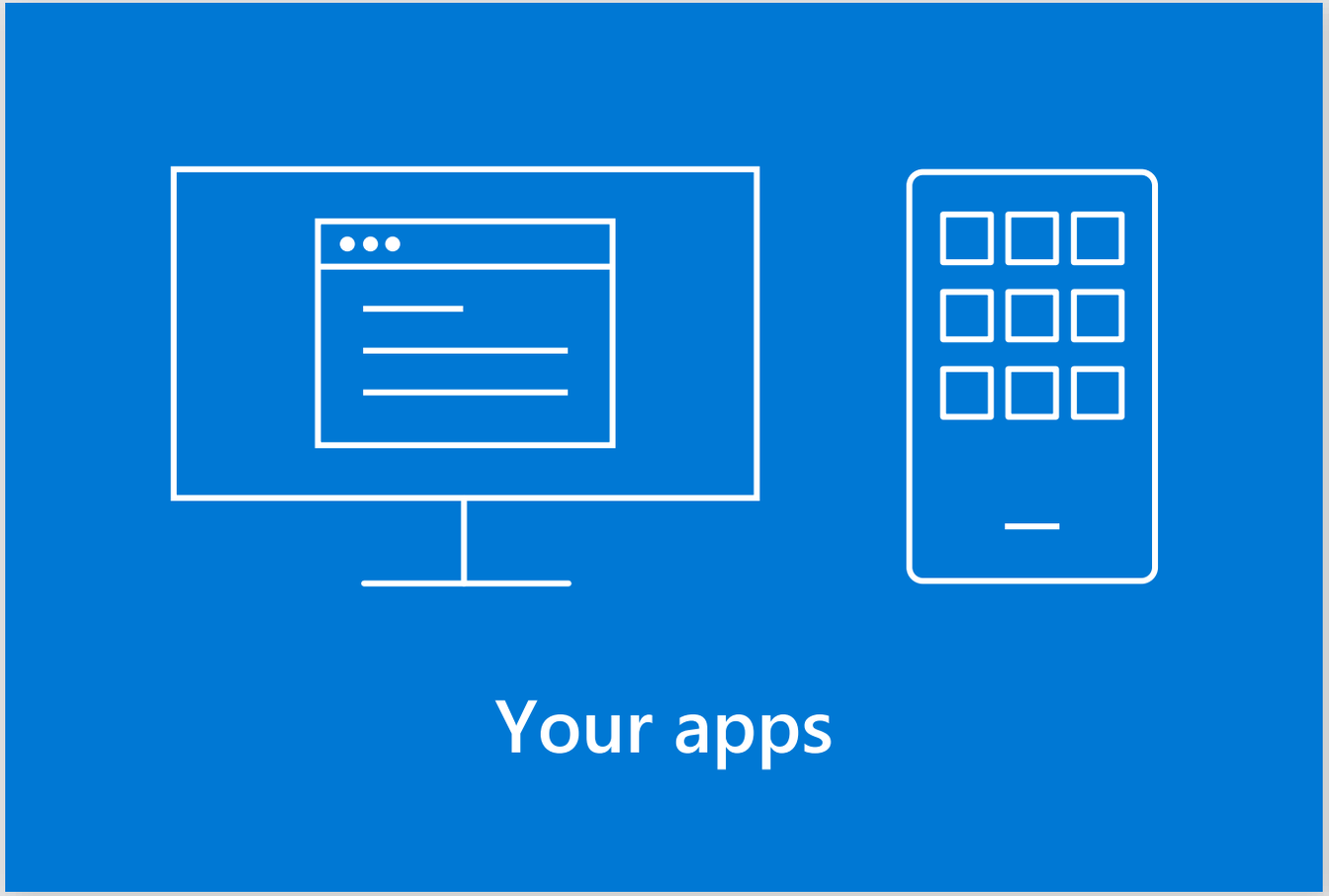
2000s: **Mobile**

- Social
- User download apps from App Stores

The future: **Conversations**

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

Building AI apps & agents



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

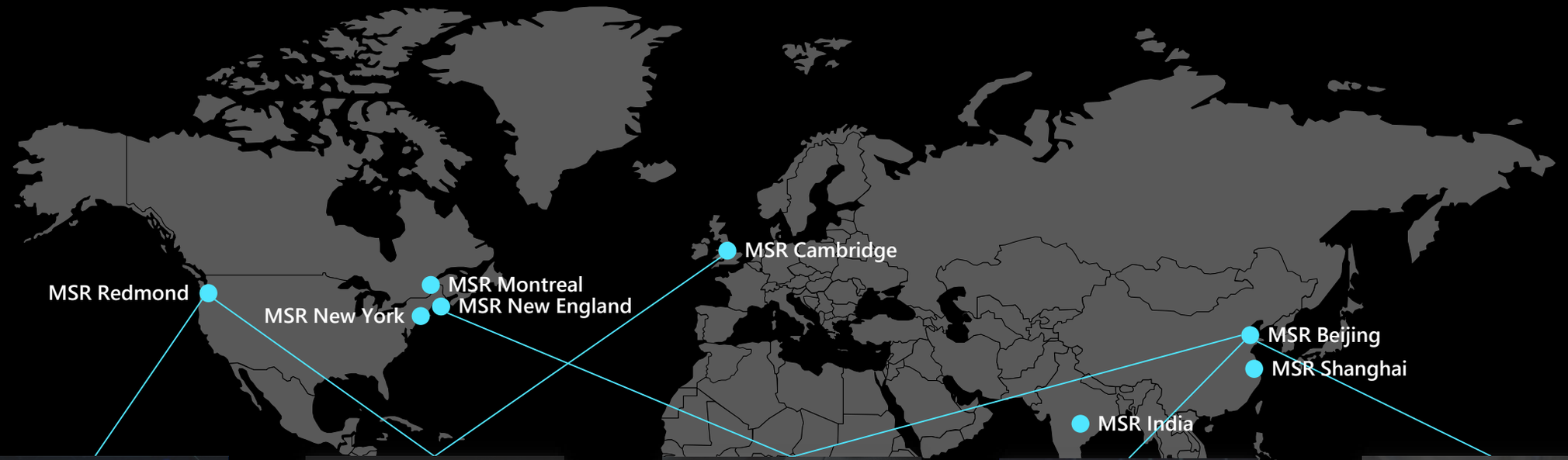
Bot service

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

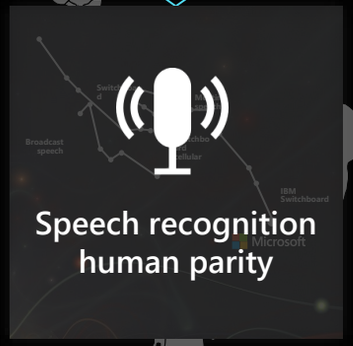
Engage your audience easily across multiple channels

Azure AI

Fueled by Microsoft breakthrough research



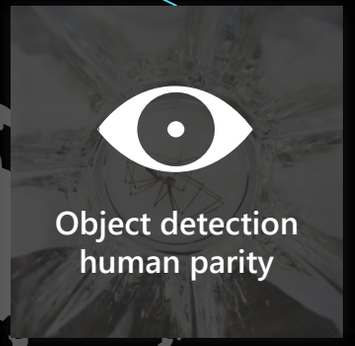
39.5 Teraflops with Intel Stratix 10



94.9% on Switchboard test

69.9% with MT Research system

89.4% on Stanford CoQA test

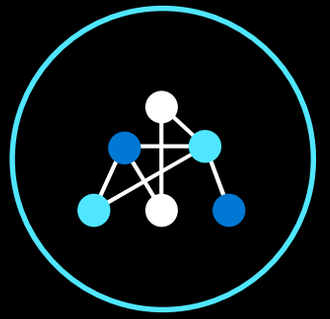


96% on RESNET vision test

Azure AI

AI apps & agents

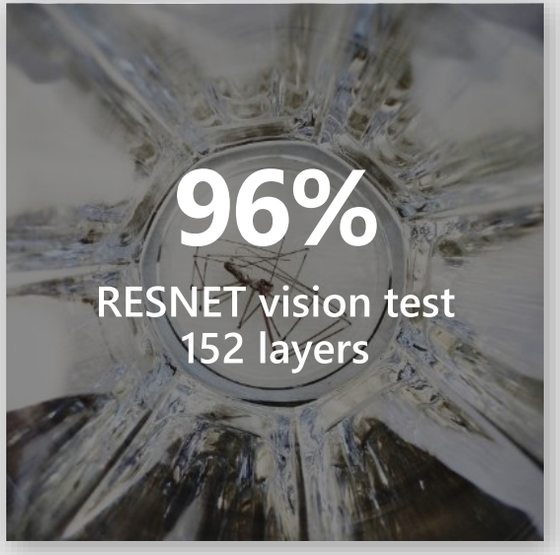
Knowledge mining



Machine learning

Microsoft AI breakthroughs

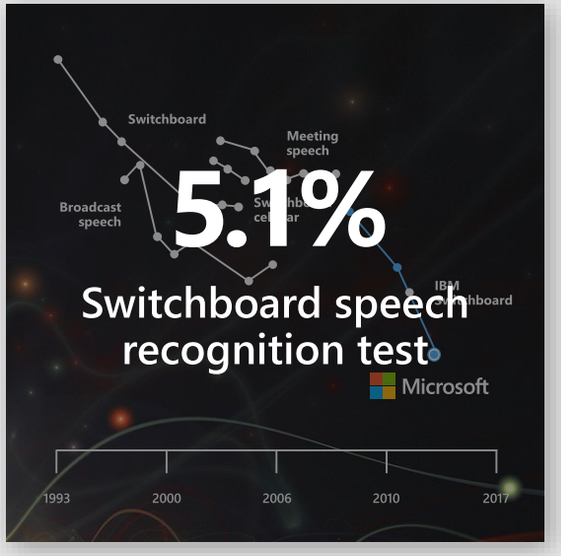
Vision



2016

Object recognition
Human parity

Speech



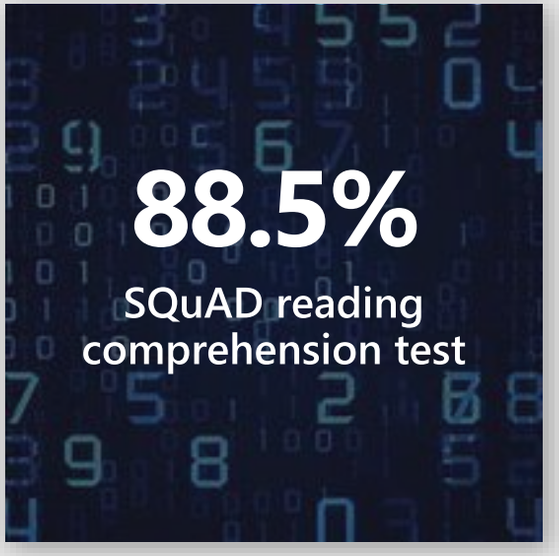
2017

Speech recognition
Human parity

Language

March 2018

Machine translation
Human parity



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

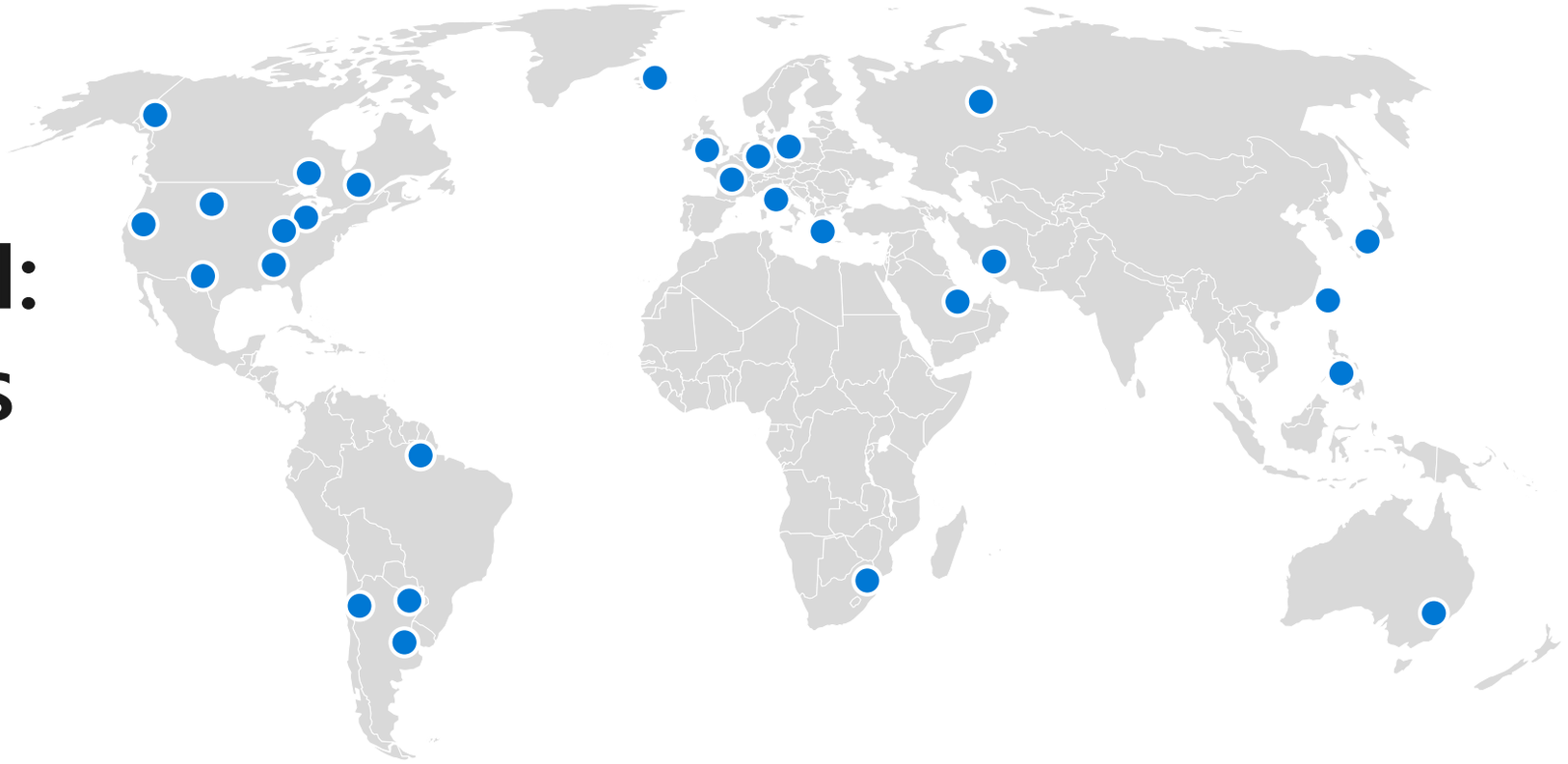
Account enquiry
Handle enquiries that require identification of the customer (i.e., account balance enquiry)

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

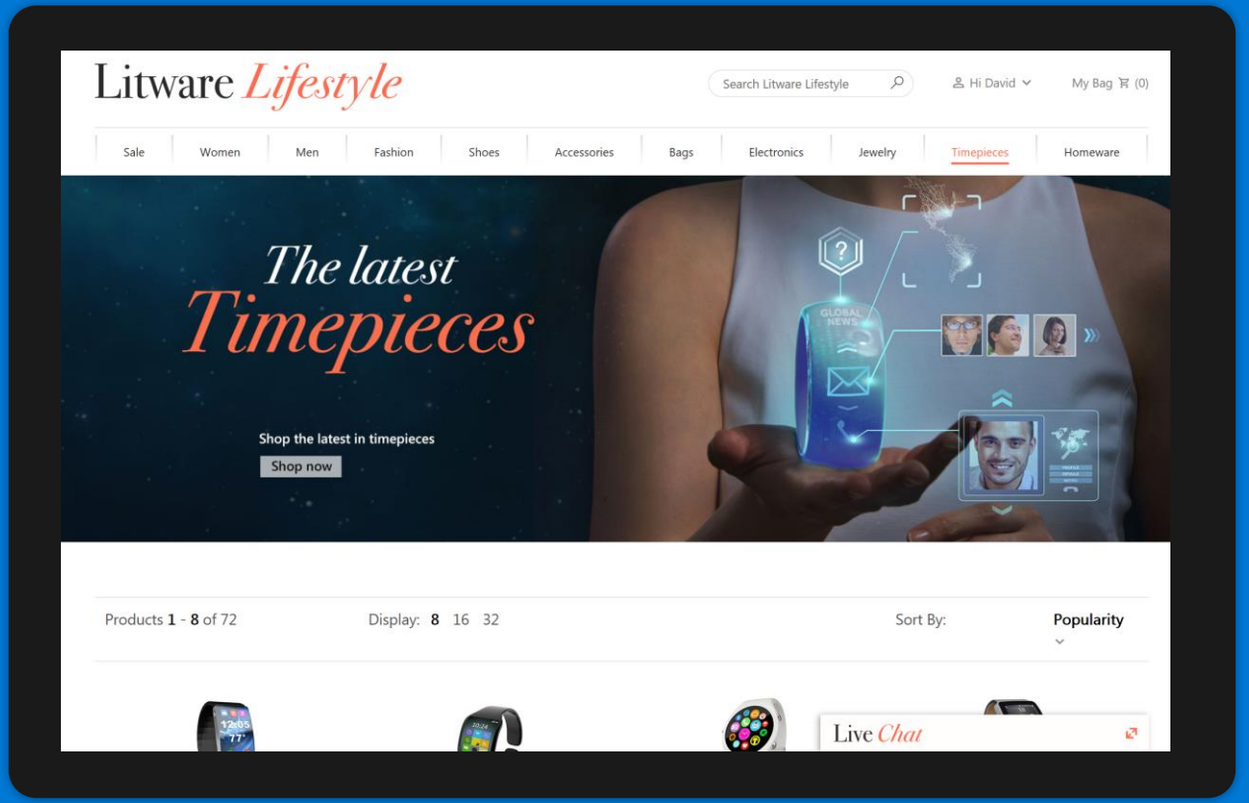
More details:
https://customers.microsoft.com



ups
Australian Government
Department of Human Services
VHV VERSICHERUNGEN
AMU American Public University System APU
Dixons Carphone
NEDBANK
MIRABEAU A Cognizant Digital Business
macy's
BancoCiudad De Buenos Aires
Sabre
PROGRESSIVE
stackoverflow
FIDUCIA GAD ZUKUNFTSERFAHREN
Telefónica
viaSPORT BRITISH COLUMBIA
hp
NAVITIME
USTGlobal Innovation • Information • Technology
audioburst

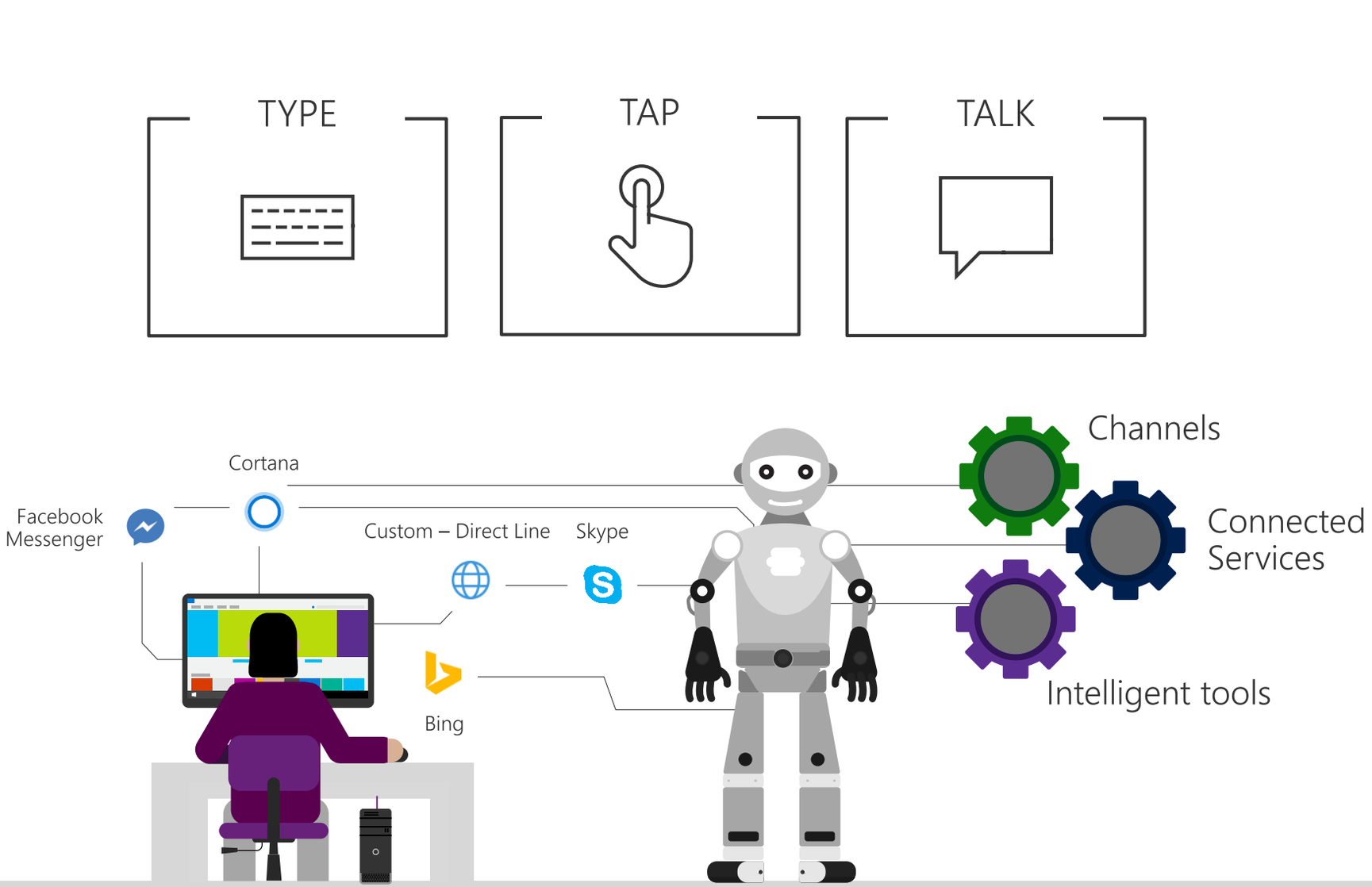
Intelligent Apps & Agents Demo

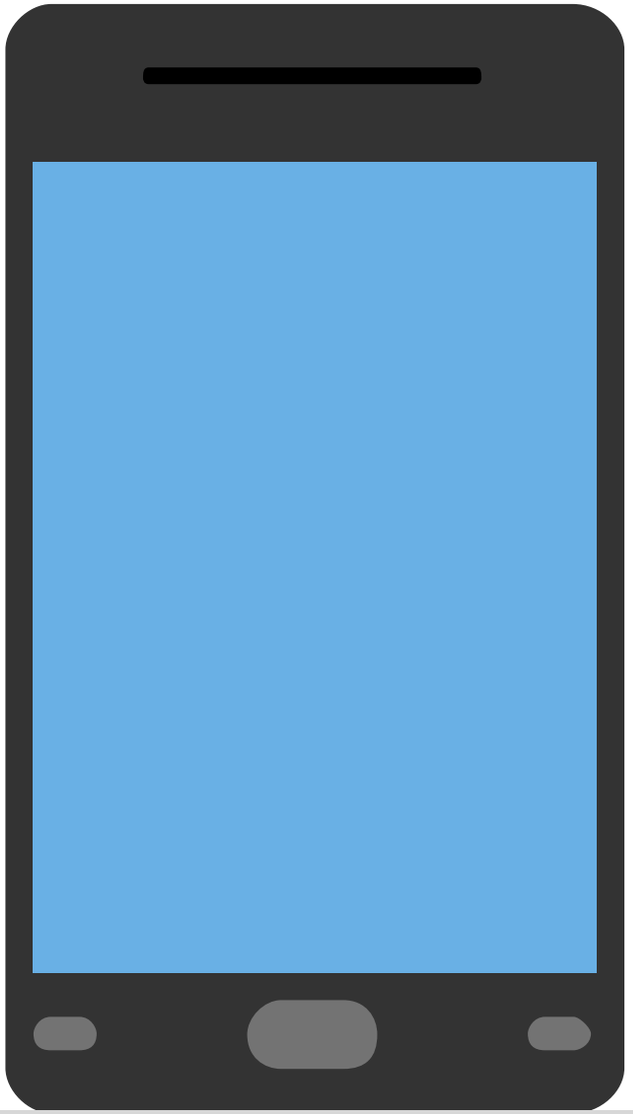
Health Bot Services



1. Overview of Platform

What is a Bot?


TYPE
TAP
TALK
Cortana
Facebook Messenger
Custom – Direct Line
Skype
Bing
Channels
Connected Services
Intelligent tools



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

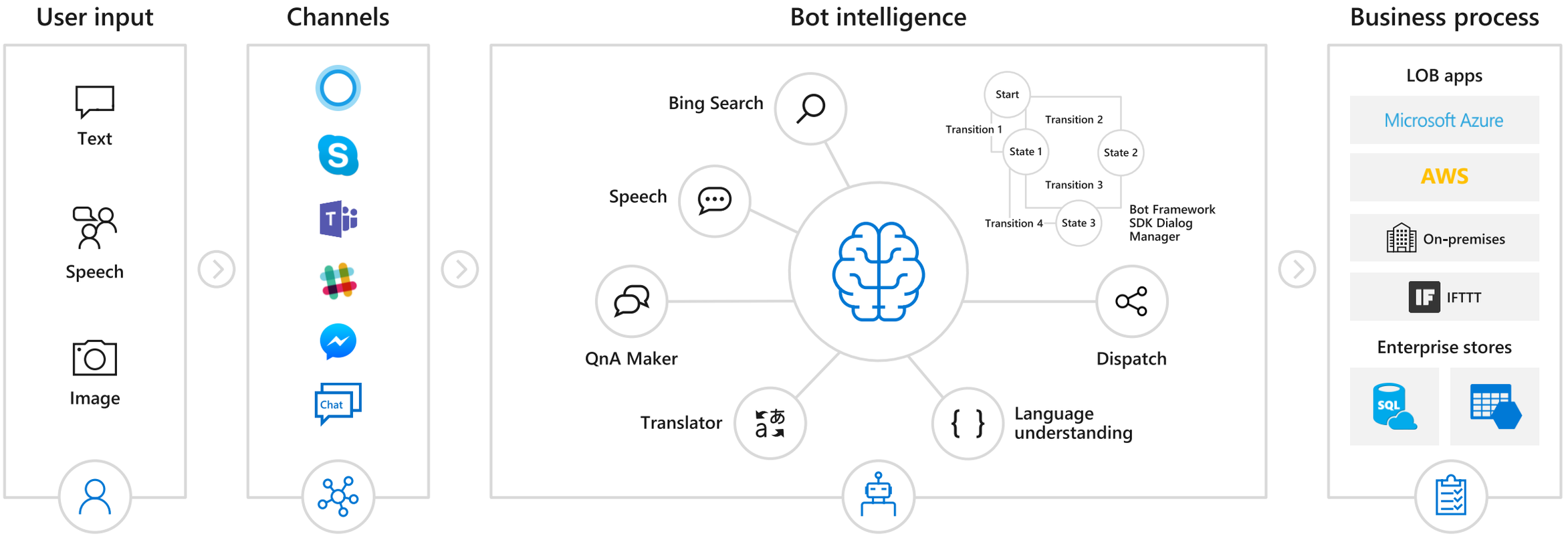
Speaker Recognition *Give your app the ability to know who's talking*

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

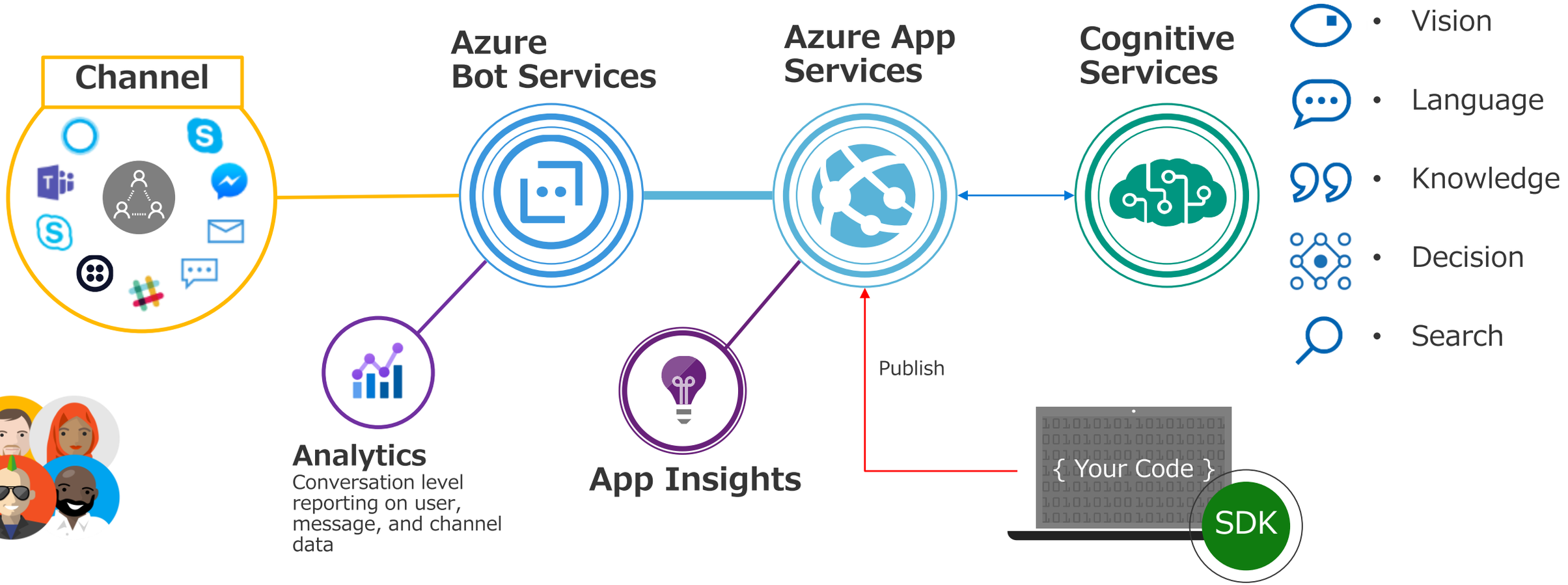
Framework + Azure Bot Service + Cognitive Services + Data Platform



Azure Tools | Security | Logging | Auditing | Machine Learning | Data Pipeline & Integration

Microsoft

Azure Bot Architecture



Channels

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Azure Bot service

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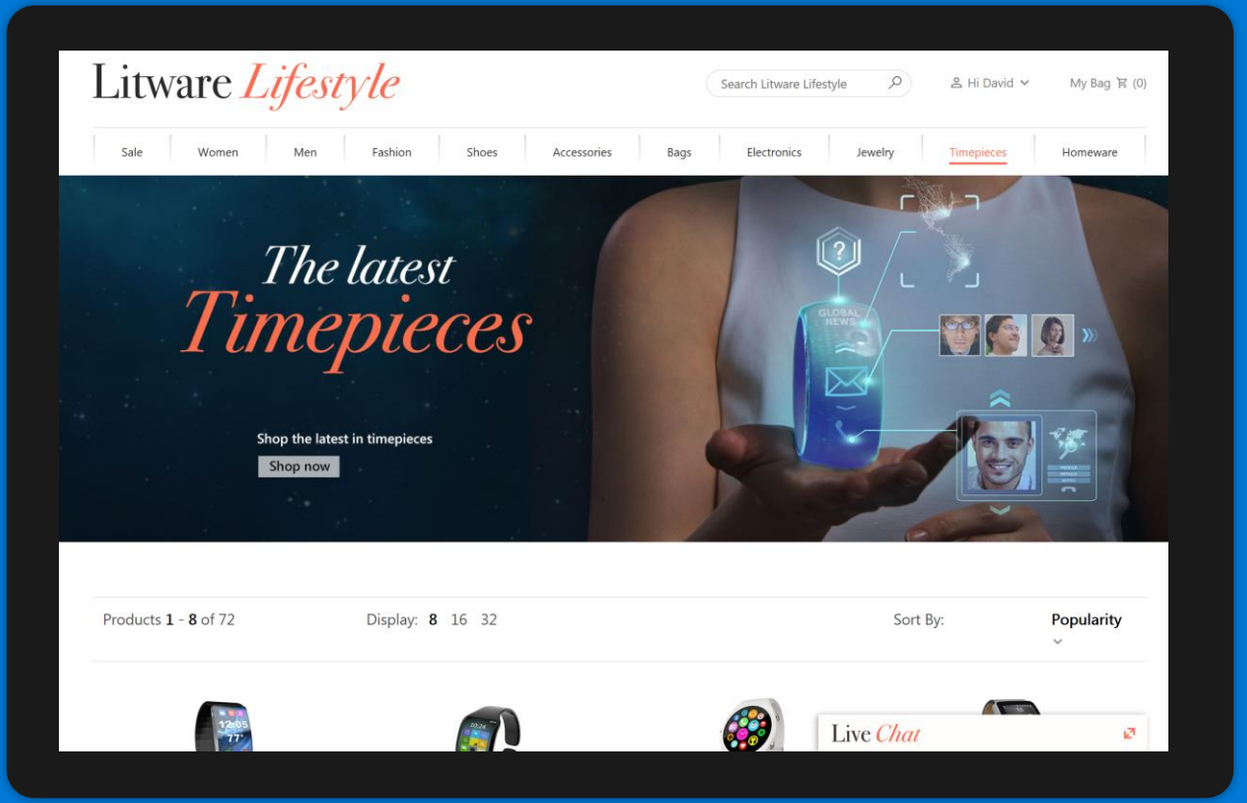
Azure Portal

Azure Bot Services



2. Learning Capabilities

Language Understanding Intelligent Service

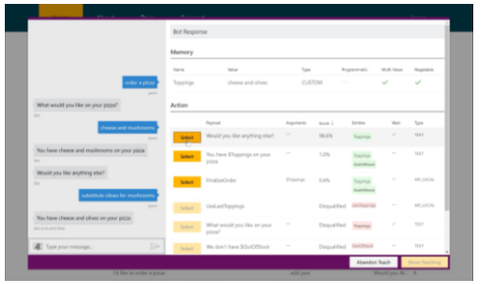
Understand what your users are saying

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

How does LUIS work with Bot Service

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

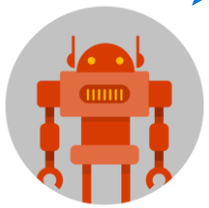
Handoff to a human

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

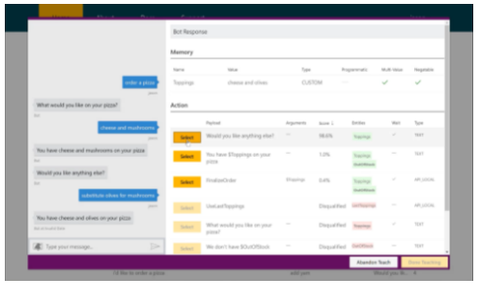
How does LUIS work with Bot Service

End User

I'm looking for the hospital near me



Azure Bot Services



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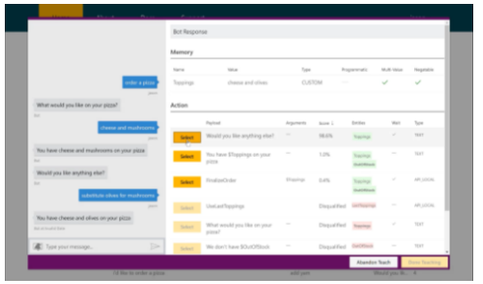
End User

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

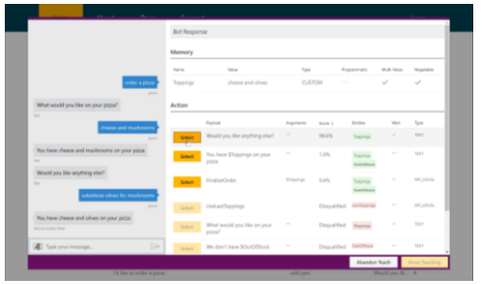
"I'm looking for the hospital at Seattle"

```
{
  “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

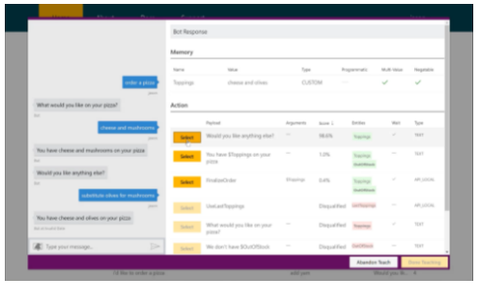


LUIS API

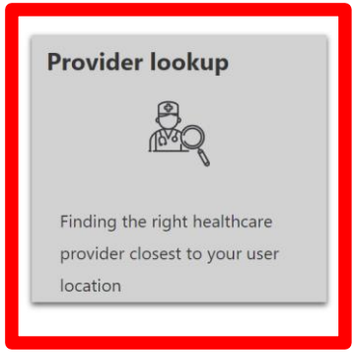
How does LUIS work with Bot Service

End User

Azure Bot Services



LUIS API



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?

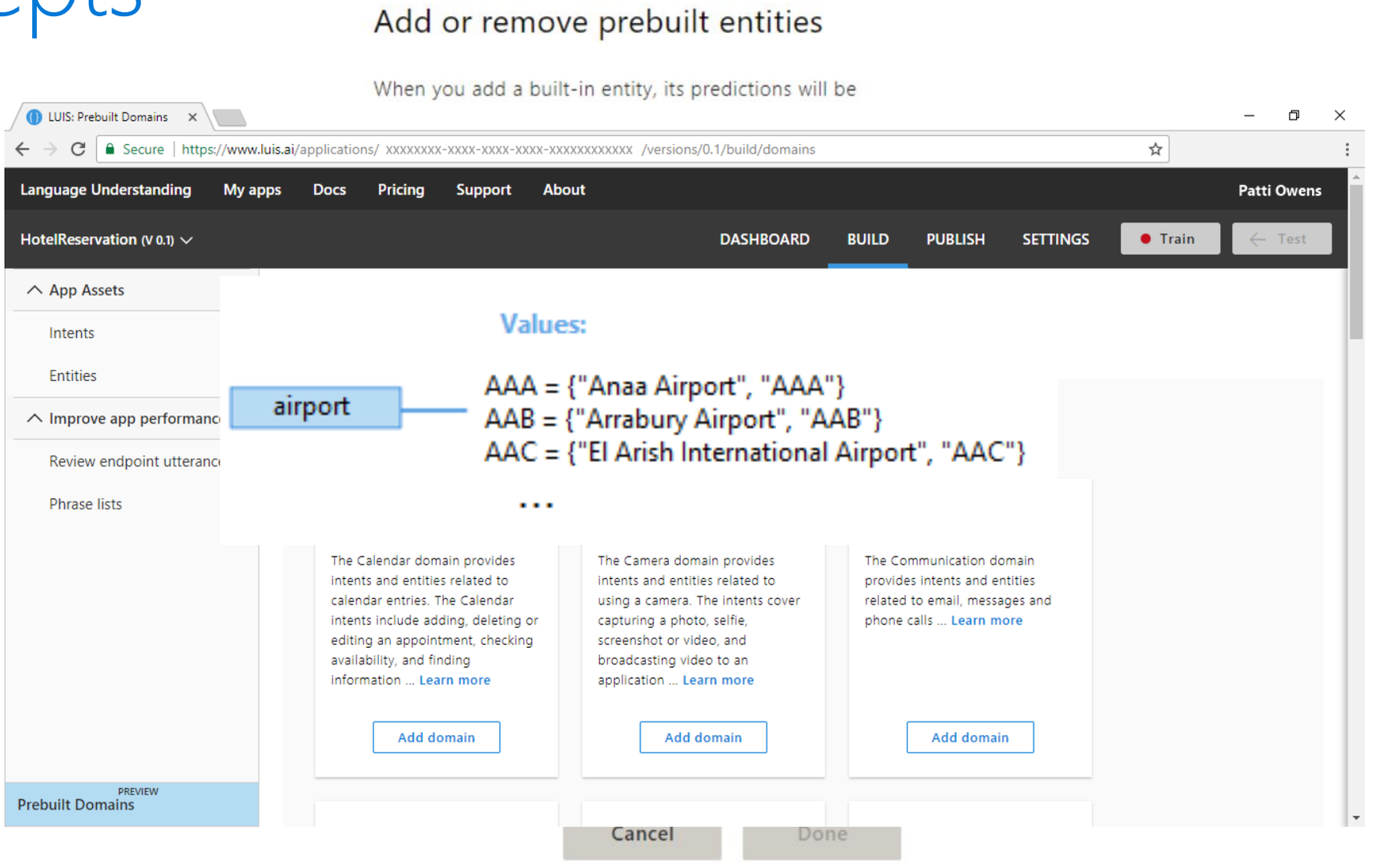
Key LUIS concepts

- 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

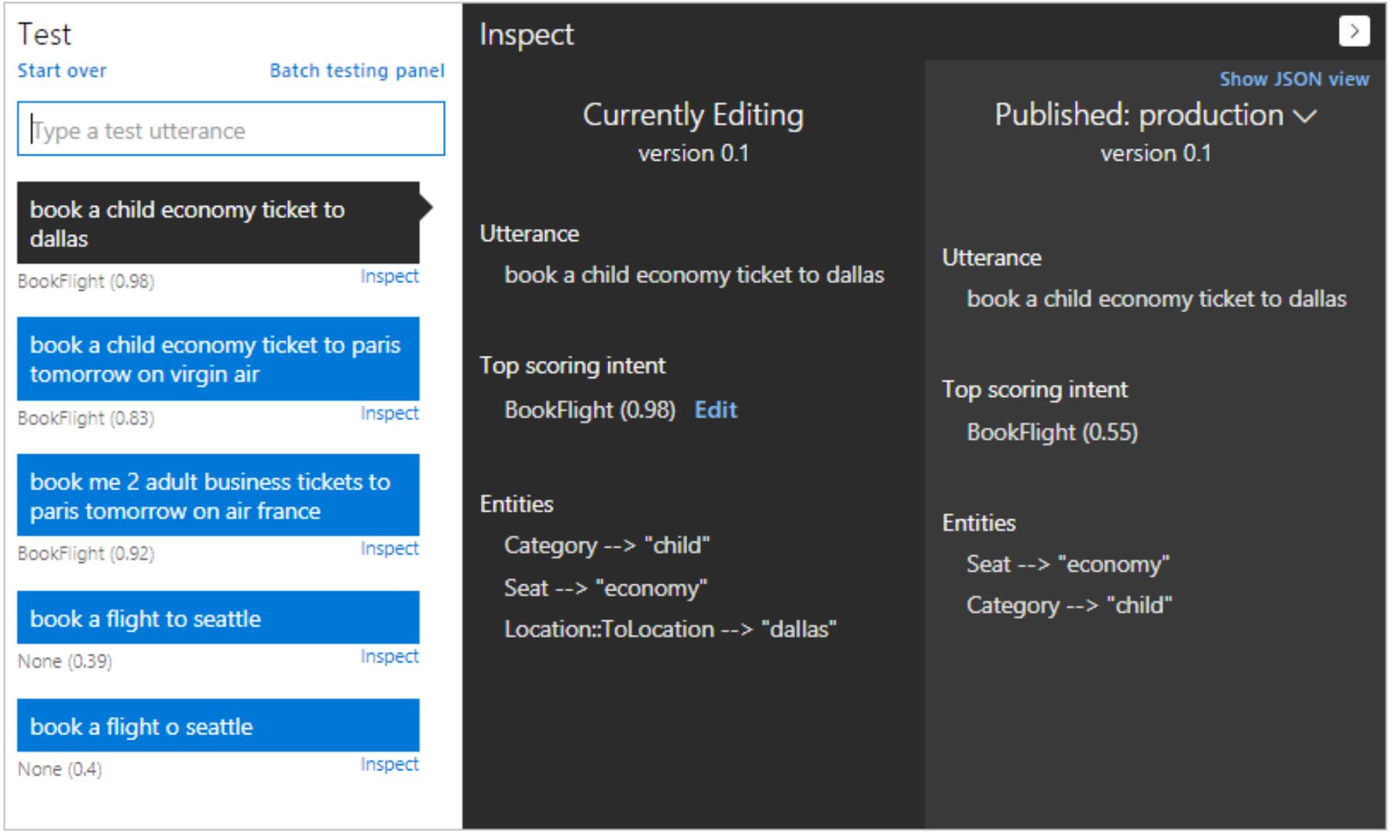
Intent	Sample user utterance	Entities
ProviderLookup	"I'm looking for the hospital at Los Angeles"	Los Angeles
StoreHoursAndLocation	"When does your store **open**?"	open
ScheduleMeeting	"Schedule a meeting at **1PM** with **Bob** in Distribution"	1PM, Bob

Key LUIS concepts

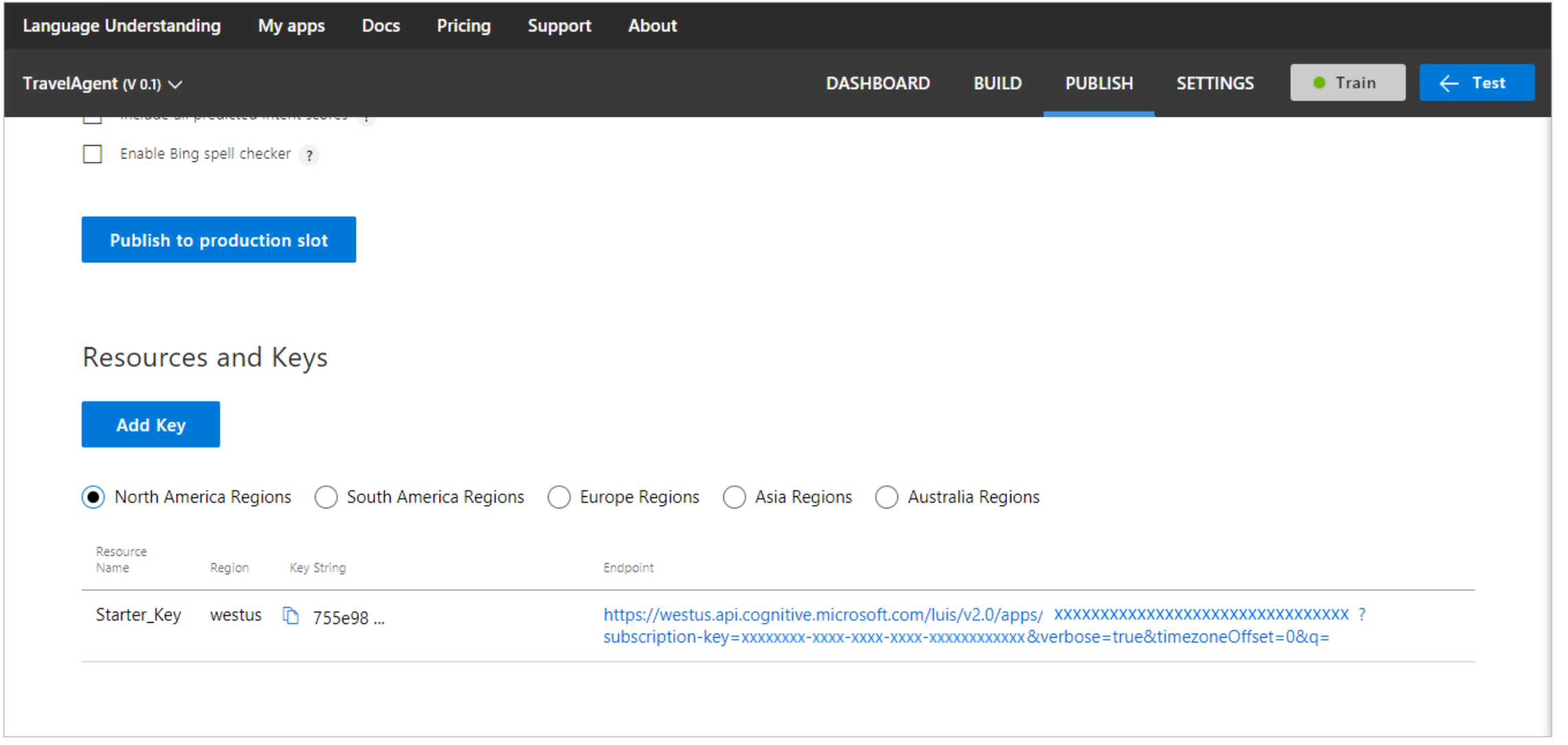
- Simple entities
- Hierarchical entities
- Composite entities
- Prebuilt entities
- List entities



Training and testing your model

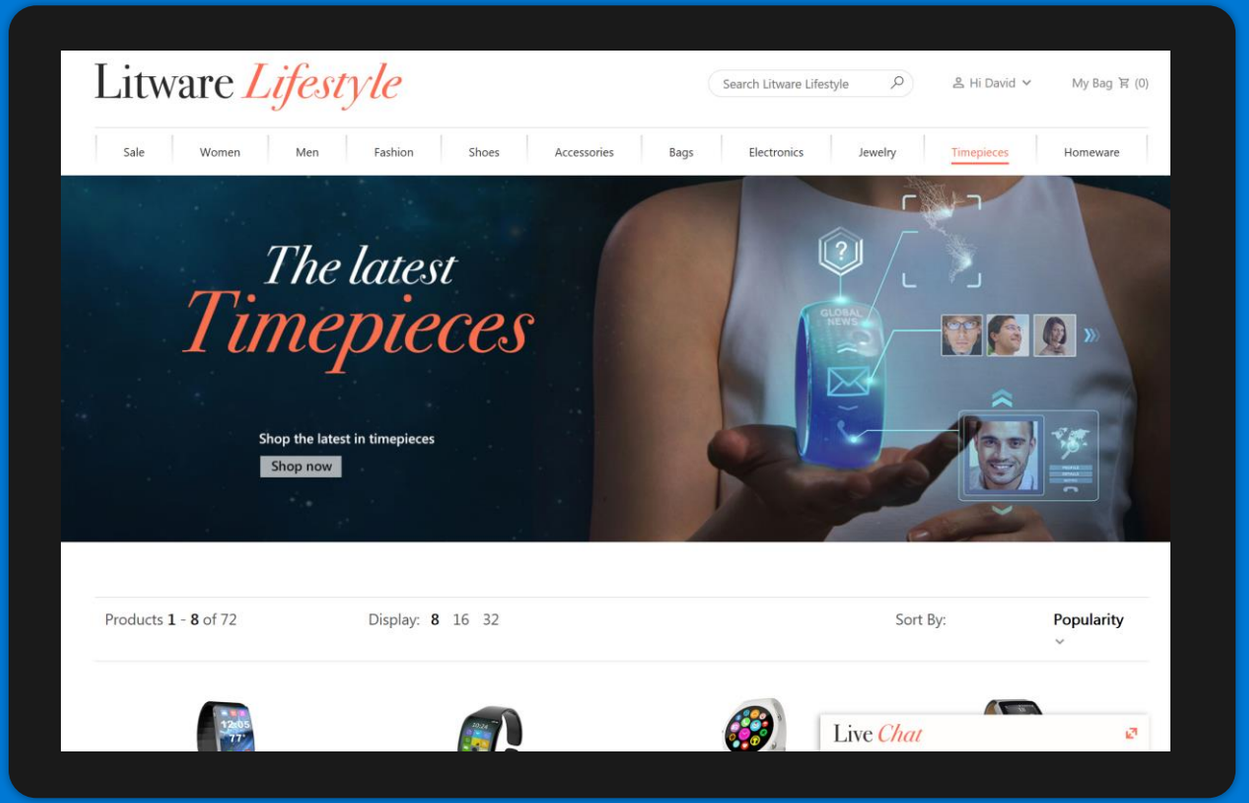


Publishing your model



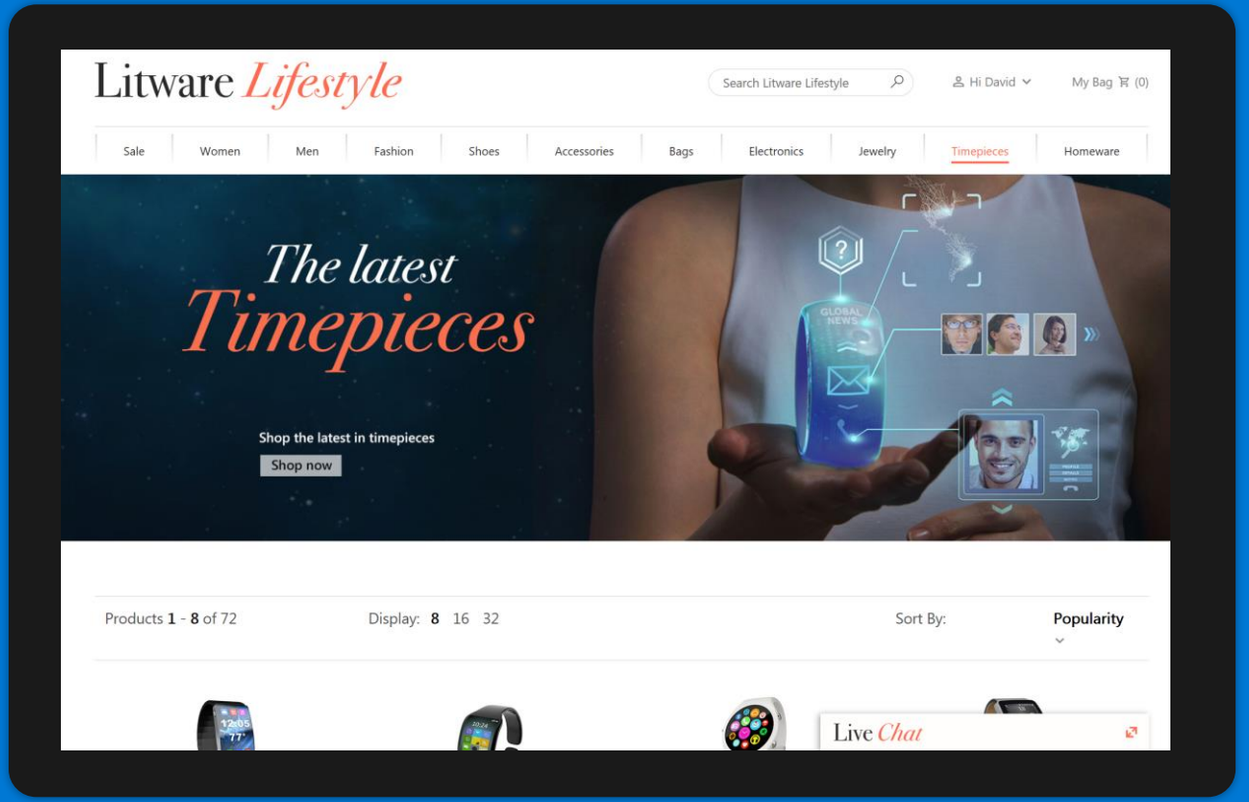
LUIS Portal

Cognitive Services



Health Bot Service

Conversation Flow Editor

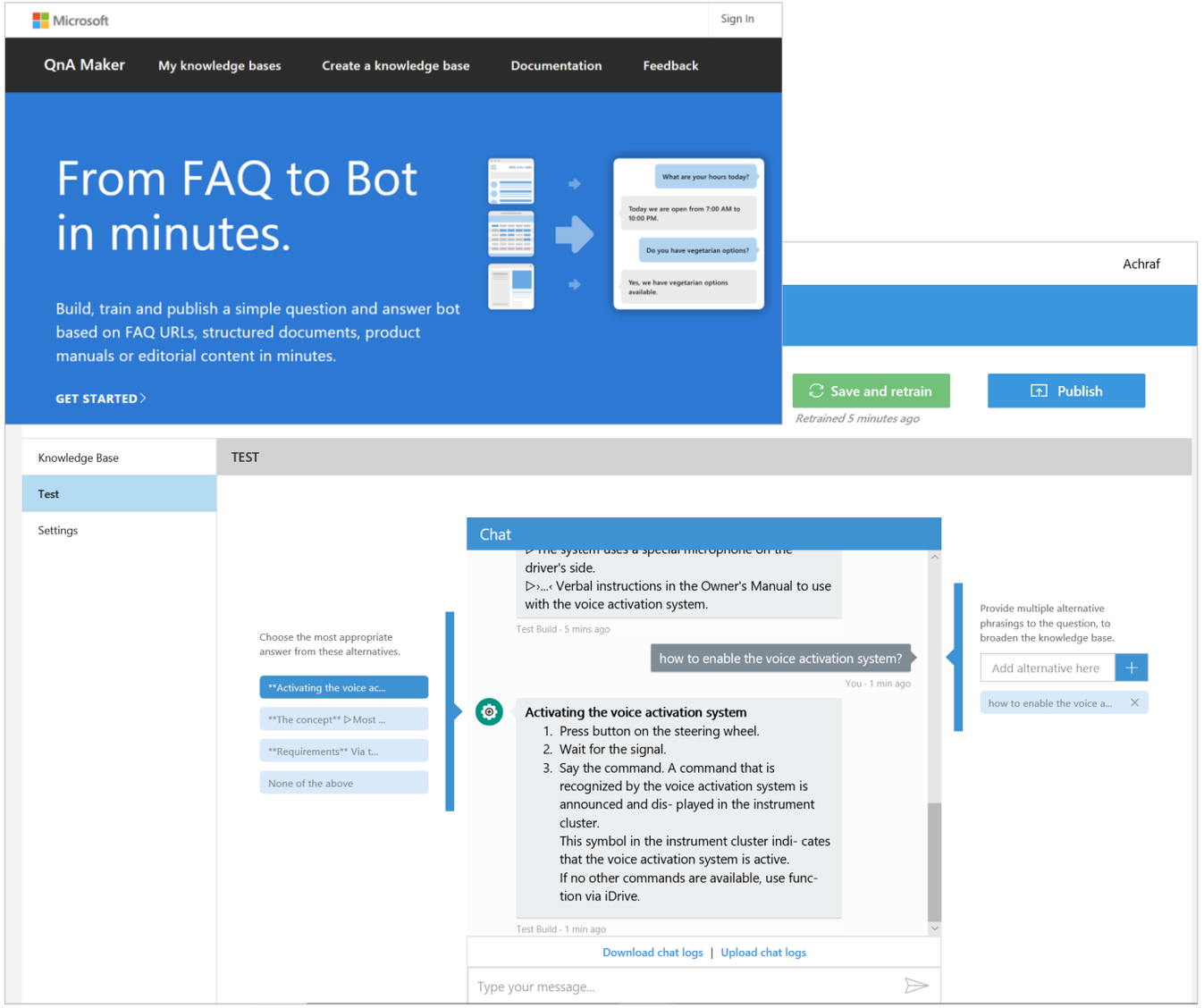


3. Experience / results using for service desk chat service

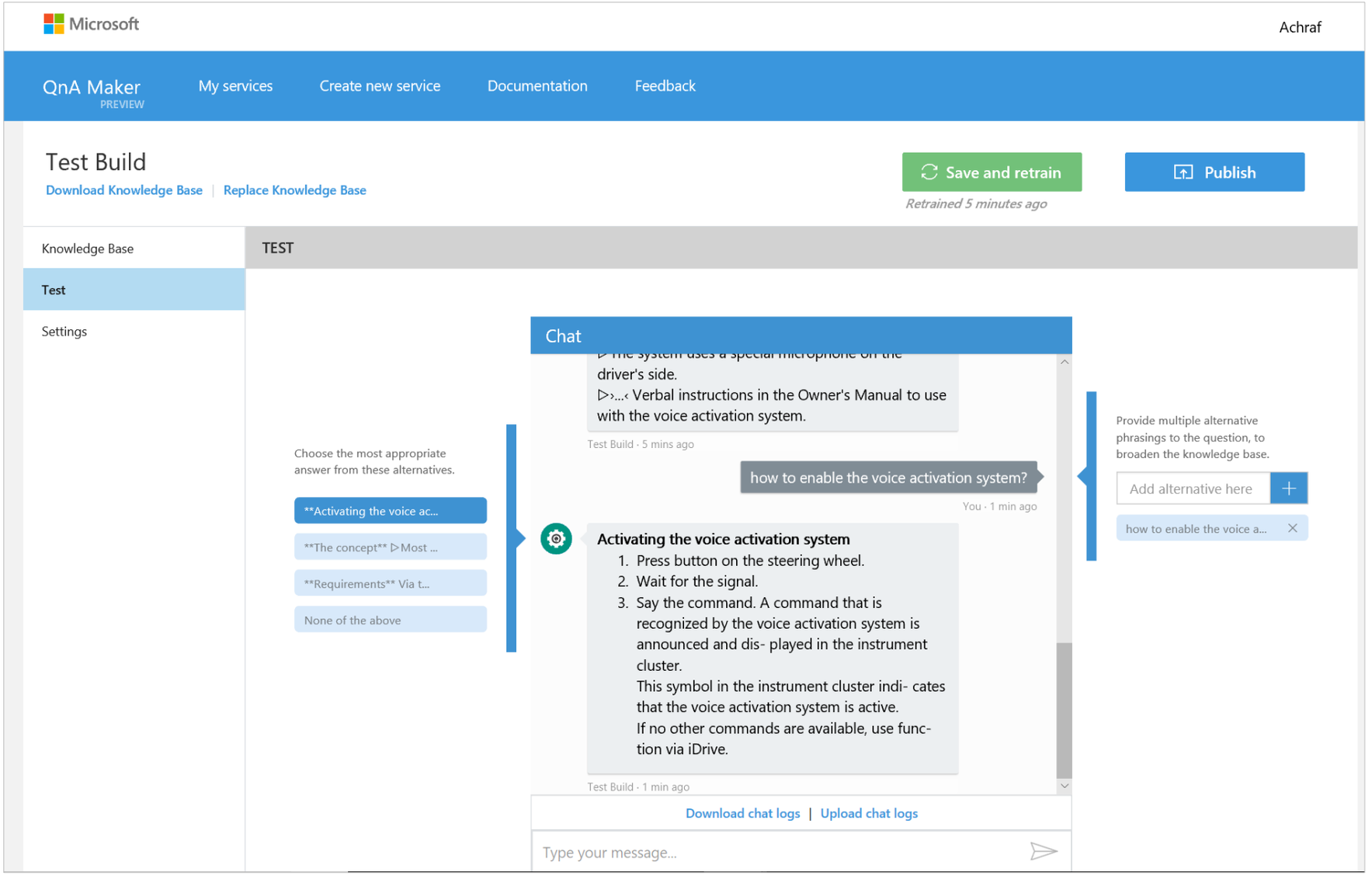
QnA Maker

Distill information into conversational, easy-to-navigate answers

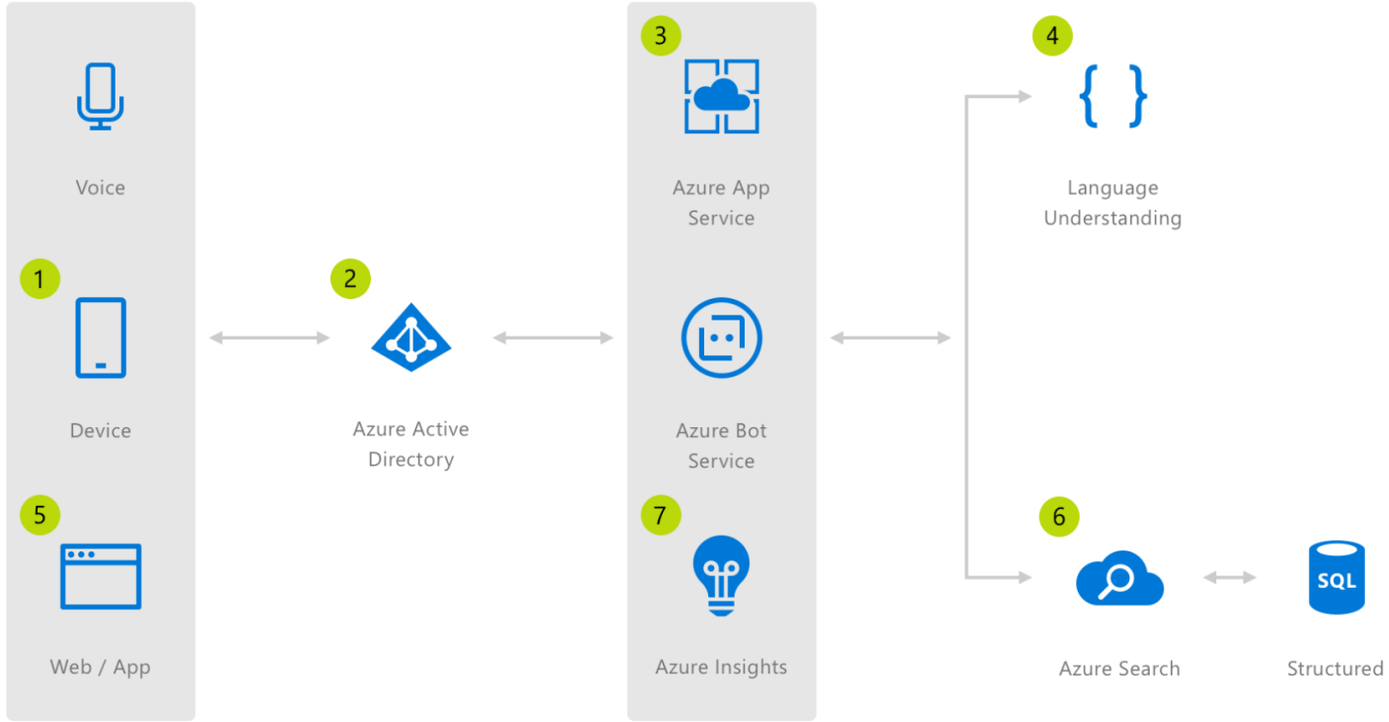
- **New architecture.** The data and runtime hosted in your Azure subscription.
- **No more throttling!**
- **Data privacy and compliance.** QnA data is hosted within your Azure compliance boundary.
- **Azure Application Insights integration.**



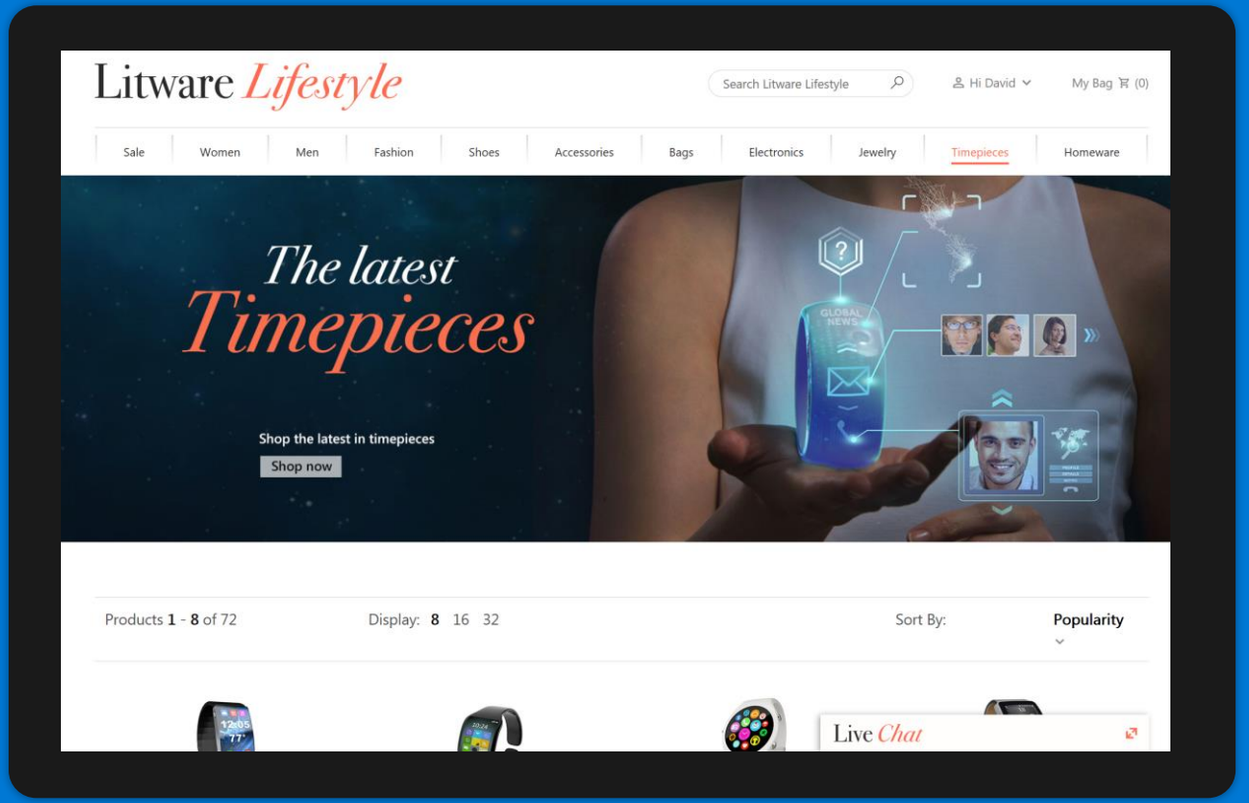
Building QnA Bot from Manuals



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