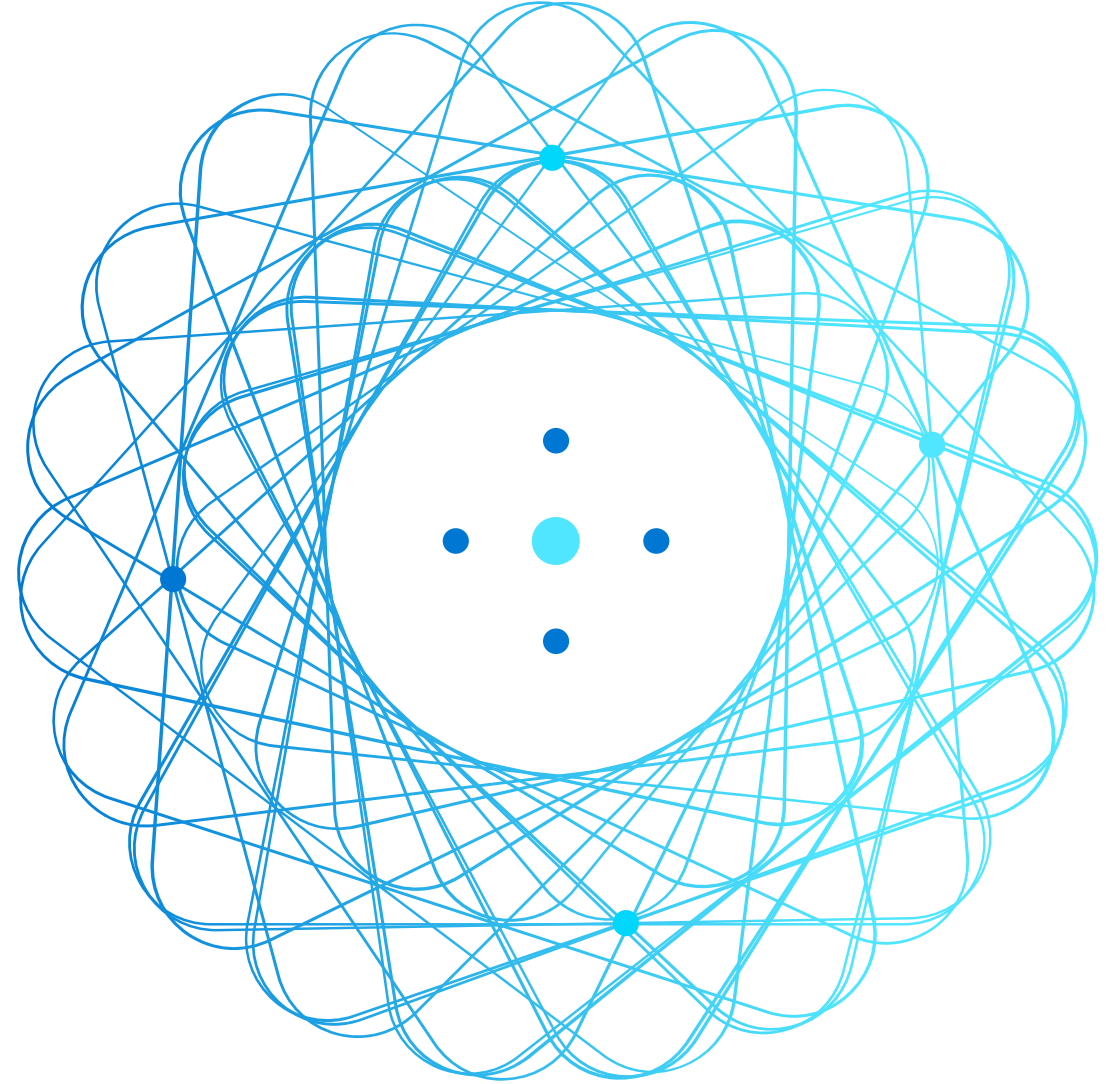


Explore Fundamentals of Natural Language Processing



Agenda



Introduction to Natural Language Processing



Building Natural Language Solutions in Azure

Introduction to Natural Language Processing



What is Natural Language Processing?



Text analysis and entity recognition



Sentiment analysis



Speech recognition and synthesis



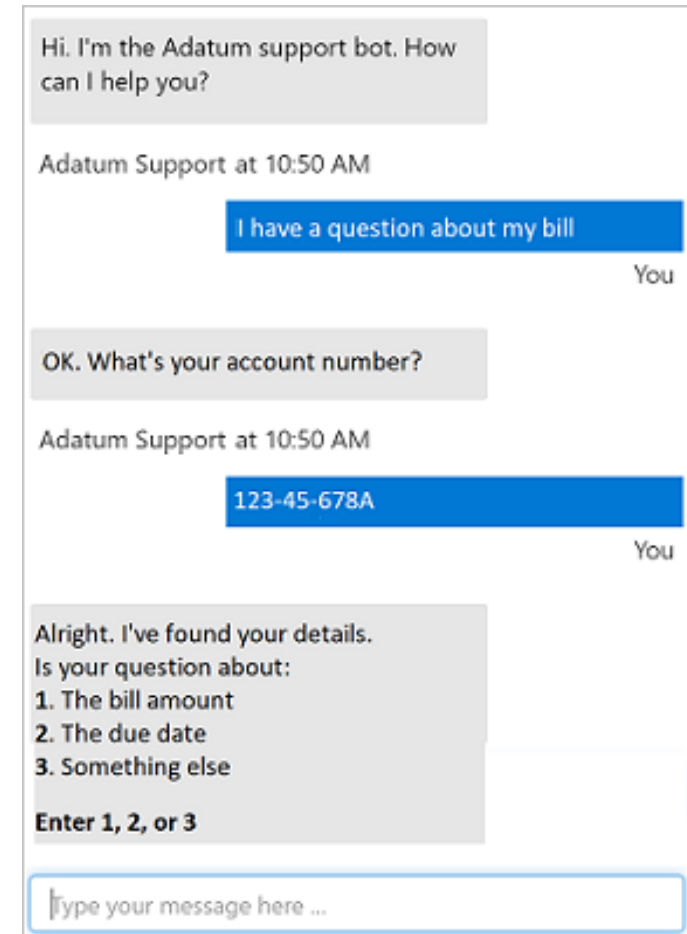
Machine translation



Semantic language modeling

What is Conversational AI?

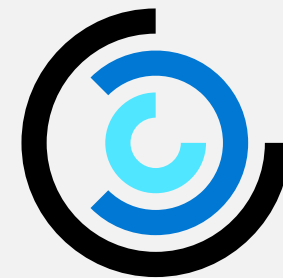
- A solution that enables a dialog between an AI agent and a human
- Generically, conversational AI agents are known as *bots*
- Bots can engage over multiple *channels*:
 - Web chat interfaces
 - Email
 - Social media platforms
 - Voice



Natural Language Processing and Conversational AI in Azure

Language	<ul style="list-style-type: none">• Language detection• Key phrase extraction• Entity detection• Sentiment analysis• Question answering• Conversational language understanding
Speech	<ul style="list-style-type: none">• Text to speech• Speech to text• Speech translation
Translator	<ul style="list-style-type: none">• Text translation
Azure Bot Service	<ul style="list-style-type: none">• Platform for conversational AI

Building Natural Language Solutions in Azure

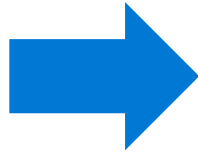
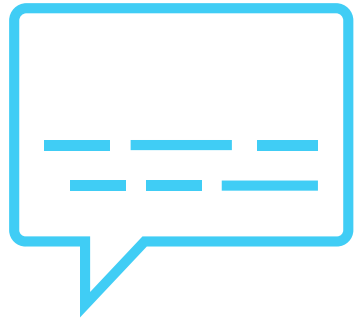


Analyzing Text

I had a wonderful vacation in France.

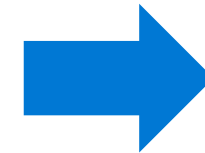
- **Predominant Language:** English
- **Sentiment:** 88% (positive)
- **Key Phrases:** "wonderful vacation"
- **Entities:** France

Speech Recognition and Synthesis

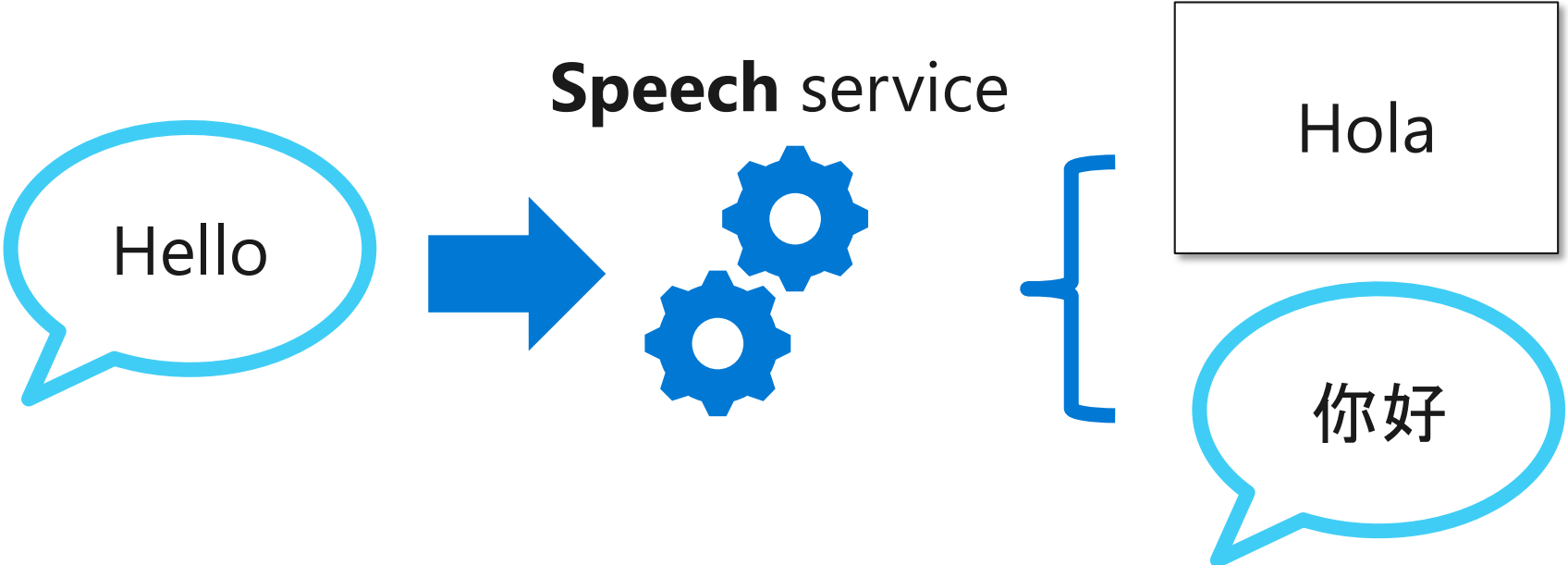


Use the *speech-to-text* capabilities of the **Speech** service to transcribe audible speech to text

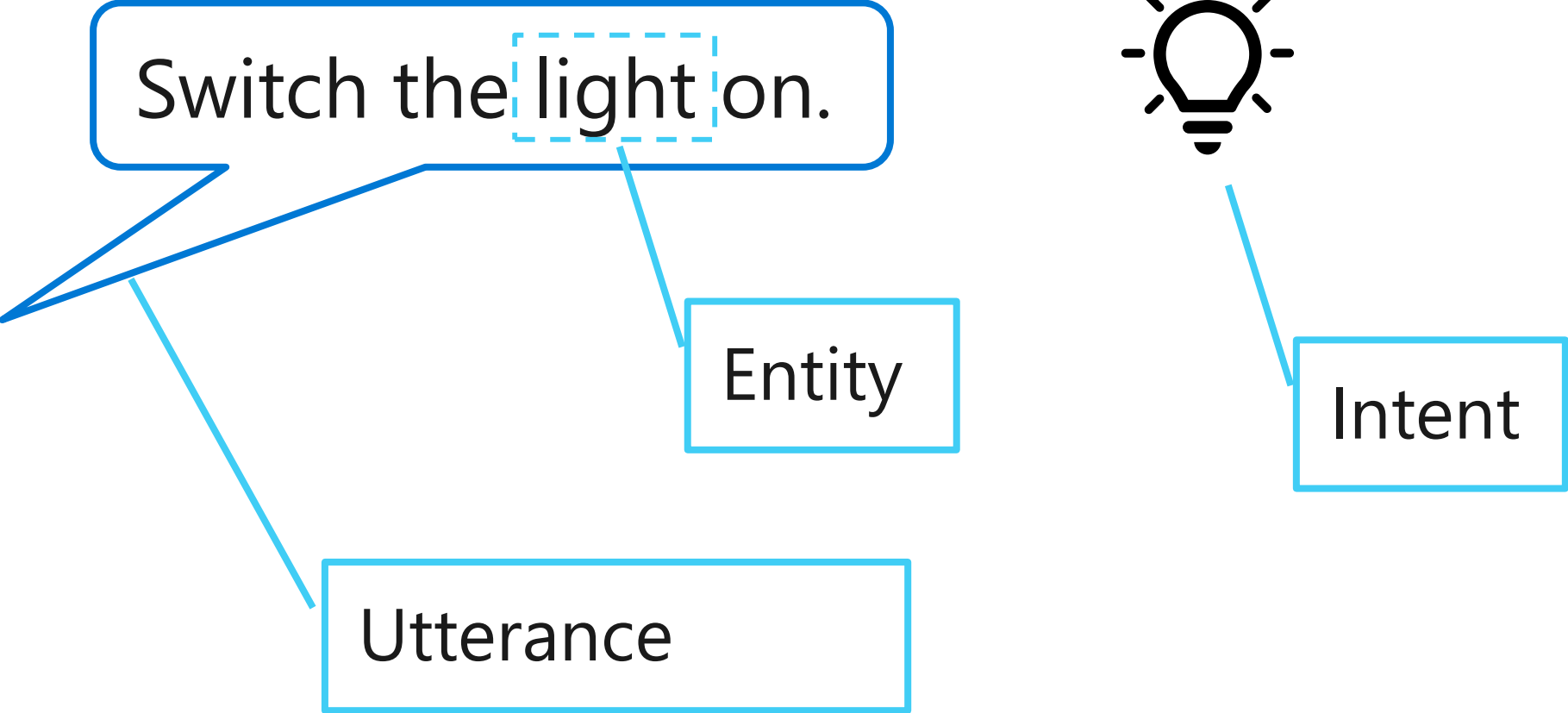
Use the *text-to-speech* capabilities of the **Speech** service to generate audible speech from text



Translation

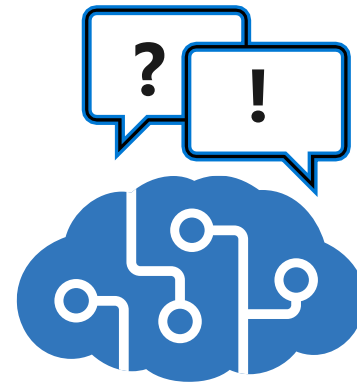


Conversational Language Understanding

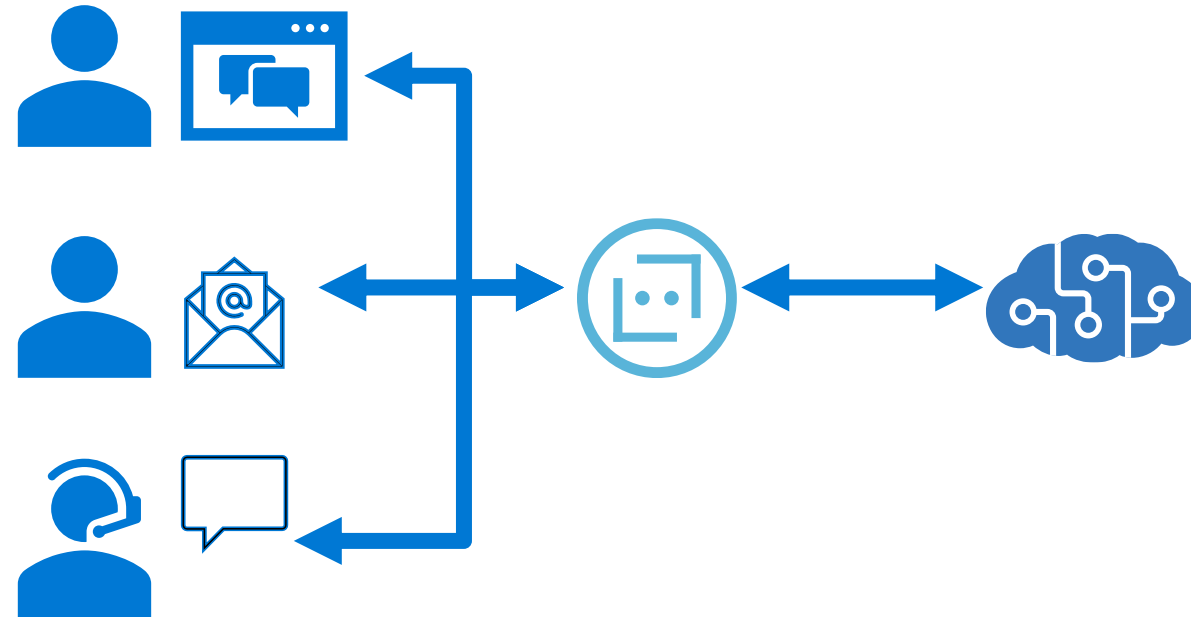


Question Answering

- Define a *knowledge base* of question and answer pairs:
 - By entering questions and answers
 - From an existing FAQ document
 - By using built-in *chit-chat*
- Consume the knowledge base from client apps, including bots



Azure Bot Service



- Cloud-based platform for developing and managing bots
- Integration with **Language** and other services
- Connectivity through multiple channels

Lab: Explore text analytics

In this lab, you will use the Language cognitive service to analyze text.

1. **Start the virtual machine for this lab**
or go to the exercise page at <https://aka.ms/ai900-text-lab>
2. **Follow the instructions to complete the exercise**
Use the Azure subscription provided for this lab



Review



What are some capabilities included in the Language service?

- Translation and Azure bot deployment
 - Speech recognition
 - Text analysis, custom question answering, conversational language understanding
-



You want to use the Language service to determine the key talking points in a text document. Which feature of the service should you use?

- Sentiment analysis
 - Key phrase extraction
 - Entity detection
-



You want to create a knowledge base for bots. What service would you use?

- Conversational Language Understanding with the Language service
- Question Answering with the Language service
- Azure Bot Service

Summary

Introduction to Natural Language Processing

- What is Natural Language Processing?
- What is Conversational AI?
- Natural Language Processing and Conversational AI in Azure

Building Natural Language Solutions in Azure

- Analyzing Text
- Speech Recognition and Synthesis
- Translation
- Conversational Language Understanding
- Question Answering
- Azure Bot Service



References

Explore Natural Language Processing

<https://aka.ms/explore-nlp>



