



AI Discovery Day

Hope Foley

Data & AI TSP

KC Munnings

Cloud Solution Architect

Warren Sifre

Principal Consultant



Event Agenda:

8:30AM – 9:00AM	Check-in
9:00AM – 10:00AM	Microsoft AI: Our Story – Introduction to the Microsoft AI platform
10:00AM – 12:00PM	Workshop: Build a solution with speech and text analytics
12:00PM – 1:00PM	Lunch
1:00PM – 2:30PM	Workshop: Build a solution with image or video services
2:30PM – 2:45PM	Break
2:45PM – 4:30PM	Workshop: Implementing solutions with Azure Databricks
4:30PM – 5:00PM	Chat with AI & Data Experts

Logistics/Prep Questions

1. Wifi info: msevent655on
2. Ready to roll in your Azure subscription?
3. Need free trial subscription?
<https://azure.microsoft.com/en-us/free/>
4. Workshop prep

1. <https://aka.ms/CincyAIDD>
2. Install Power BI Desktop - <https://powerbi.microsoft.com/en-us/desktop/>

What is AI?

What is AI?

1. Tech that will potentially kill me with cyborgs from the future and/or take my job?

What is AI?

1. Tech that will potentially kill me with cyborgs from the future and/or take my job?
2. Buzz word?

What is AI?

1. Tech that will potentially kill me with cyborgs from the future and/or take my job?
2. Buzz word?
3. Something my boss says we need to do now because of #2?



Artificial intelligence (AI) is the intelligence exhibited by machines or software - wikipedia



Reasoning

Learn and form conclusions with imperfect data



Understanding

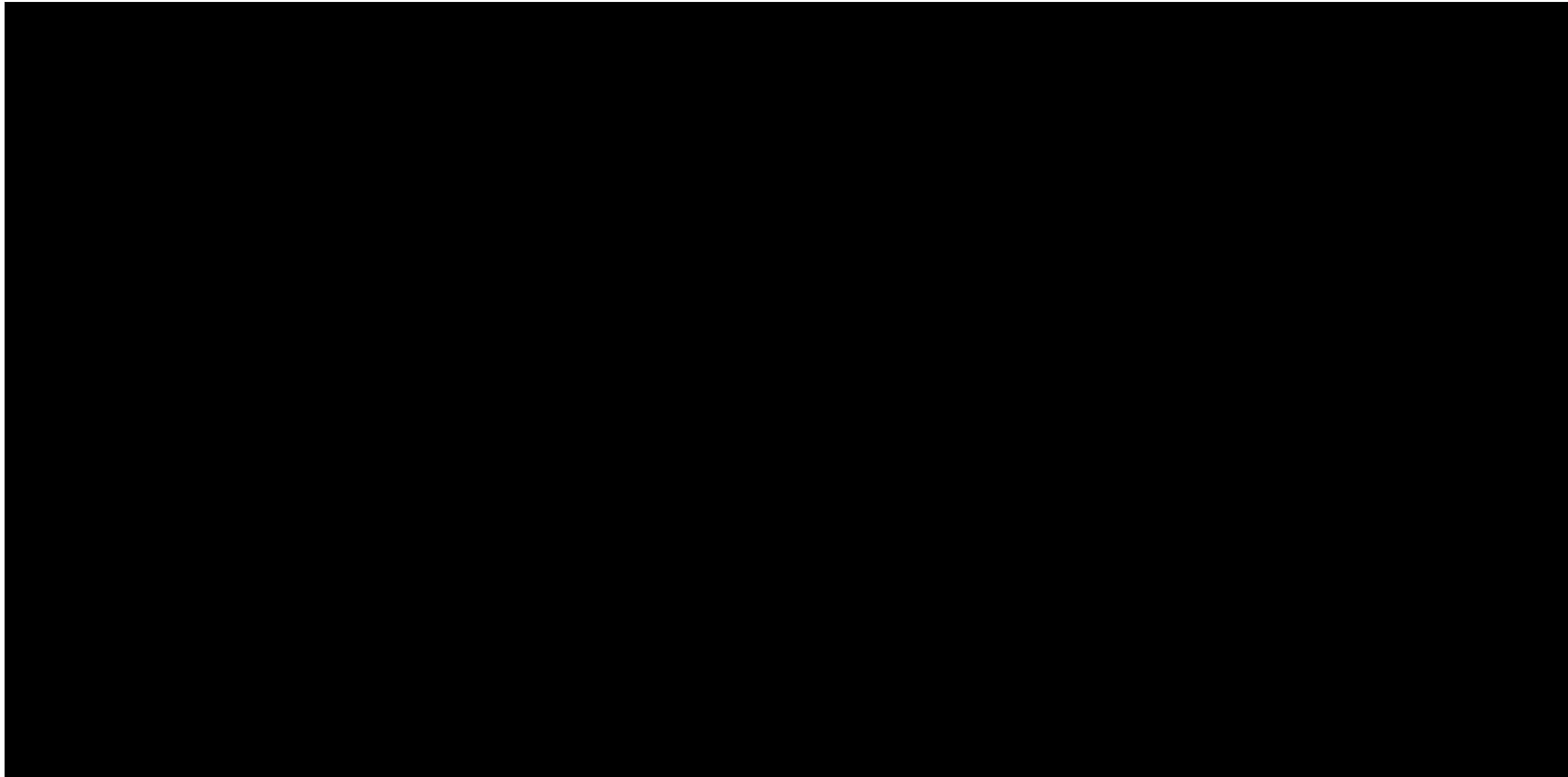
Interpret meaning of data including text, voice, images



Interacting

Interact with people in natural ways

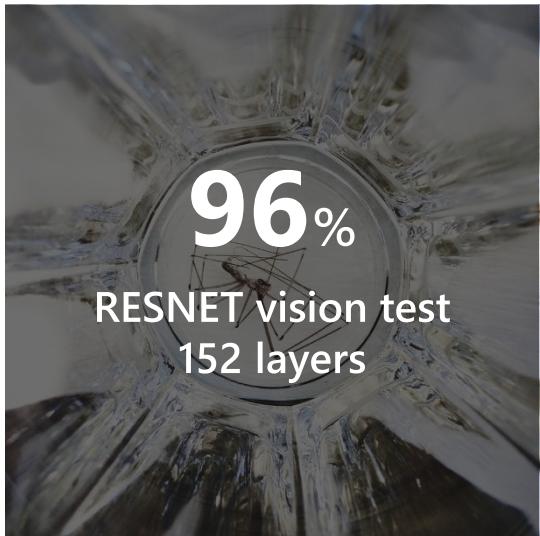
What does AI mean to Microsoft?



What does AI mean to Microsoft?

Microsoft AI breakthroughs

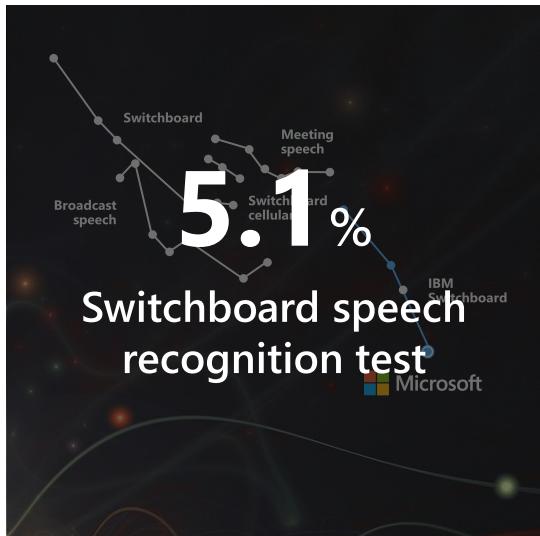
Vision



2016

Object recognition
Human parity

Speech



2017

Speech recognition
Human parity

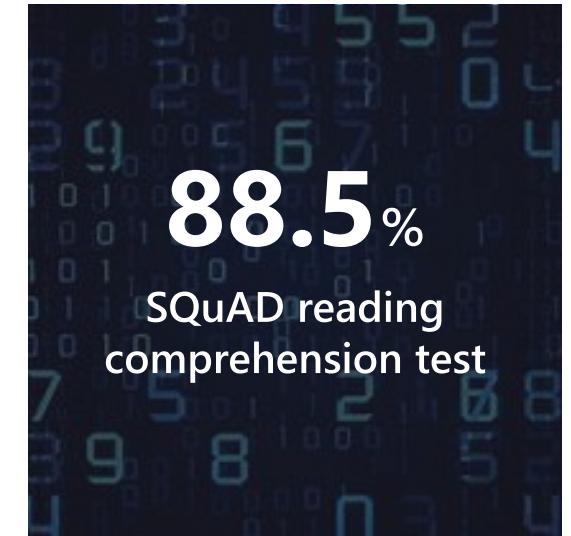
Language



March 2018

Machine translation
Human parity

Language



January 2018

Machine reading comprehension
Human parity

AI momentum

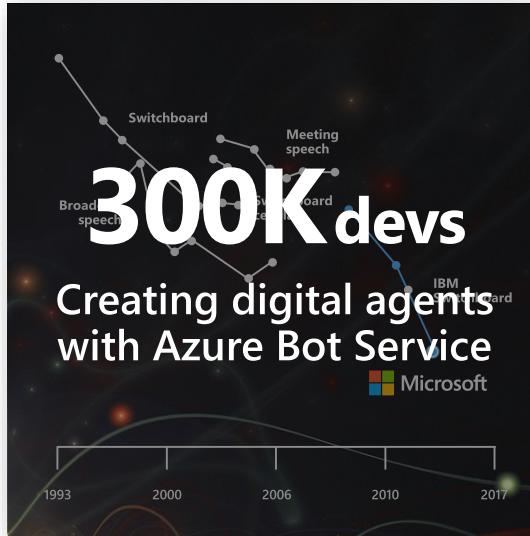
Vision



2016

Object recognition
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Speech



2017

Speech recognition
Human parity



March 2018

Machine translation
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Language



January 2018

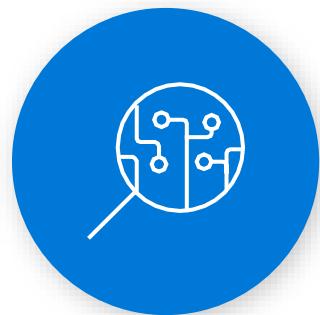
Machine reading comprehension
Human parity

Azure AI



AI apps & agents

Azure Bot Service
Azure Cognitive Services



Knowledge mining

Azure Cognitive Search



Machine learning

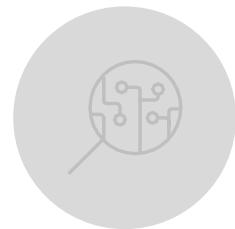
Azure Databricks
Azure Machine Learning
Azure AI Infrastructure

Azure AI



AI apps & agents

Azure Bot Service
Azure Cognitive Services



Knowledge mining

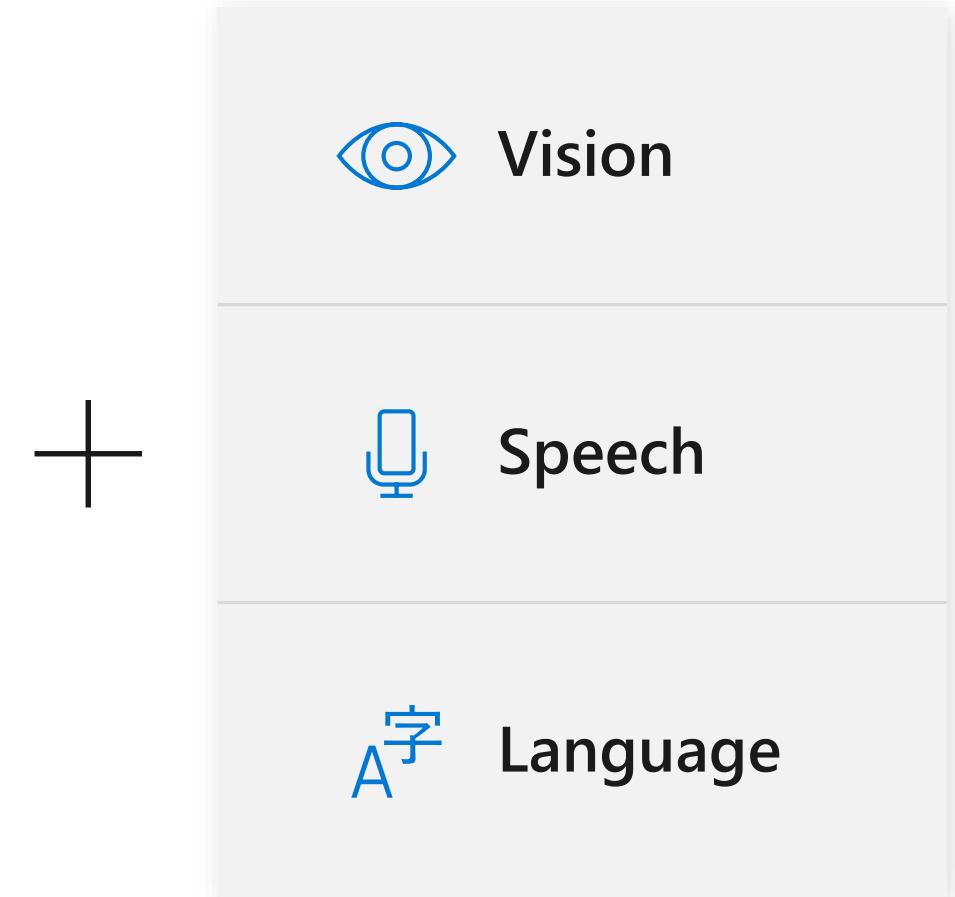
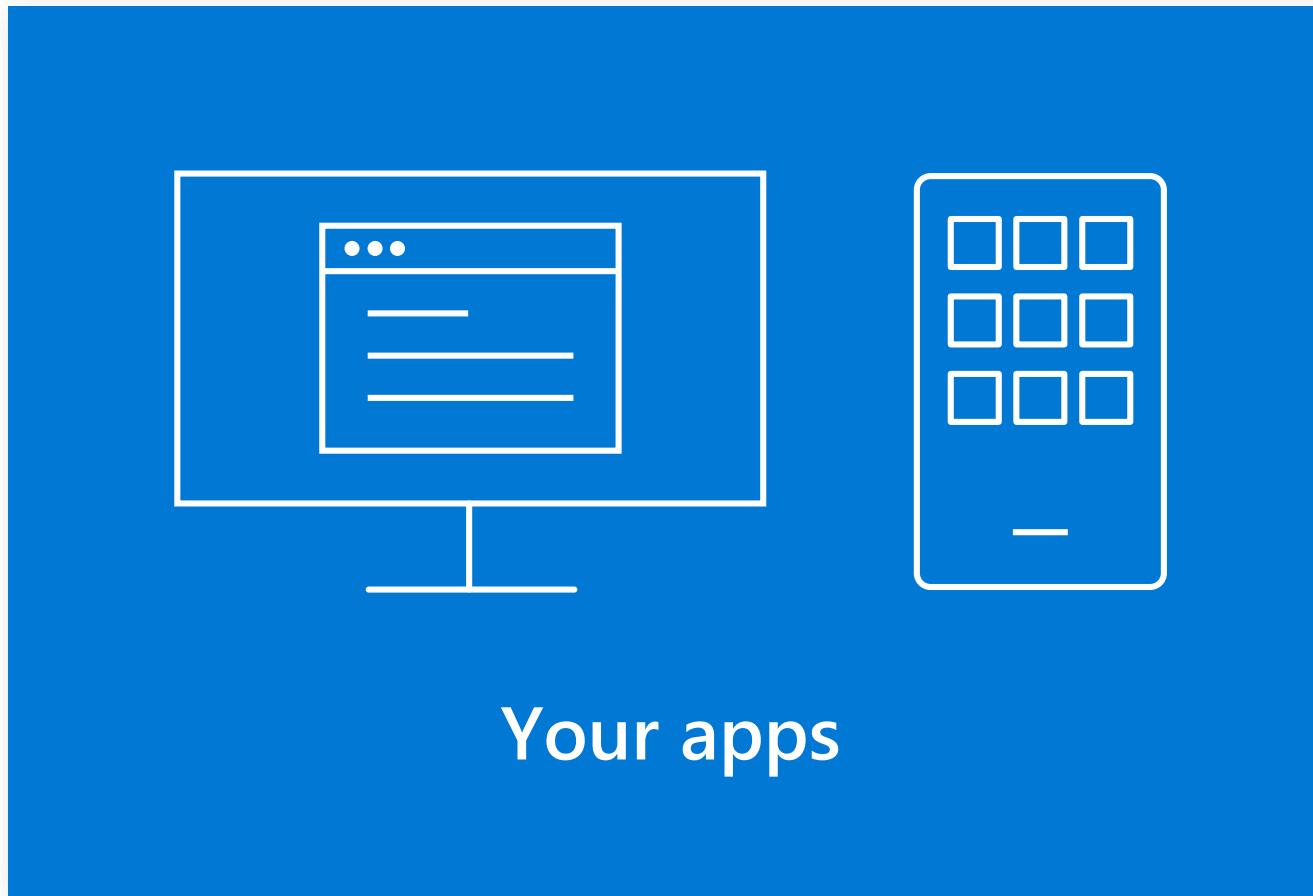
Azure Cognitive Search



Machine learning

Azure Databricks
Azure Machine Learning
Azure AI Infrastructure

Building AI apps & agents

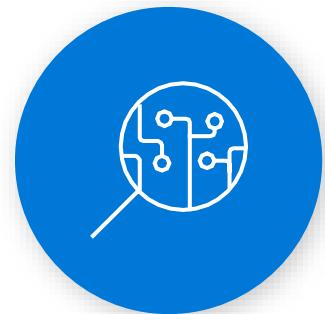


Azure AI



AI apps & agents

Azure Bot Service
Azure Cognitive Services



Knowledge mining

Azure Cognitive Search



Machine learning

Azure Databricks
Azure Machine Learning
Azure AI Infrastructure

What is knowledge mining?

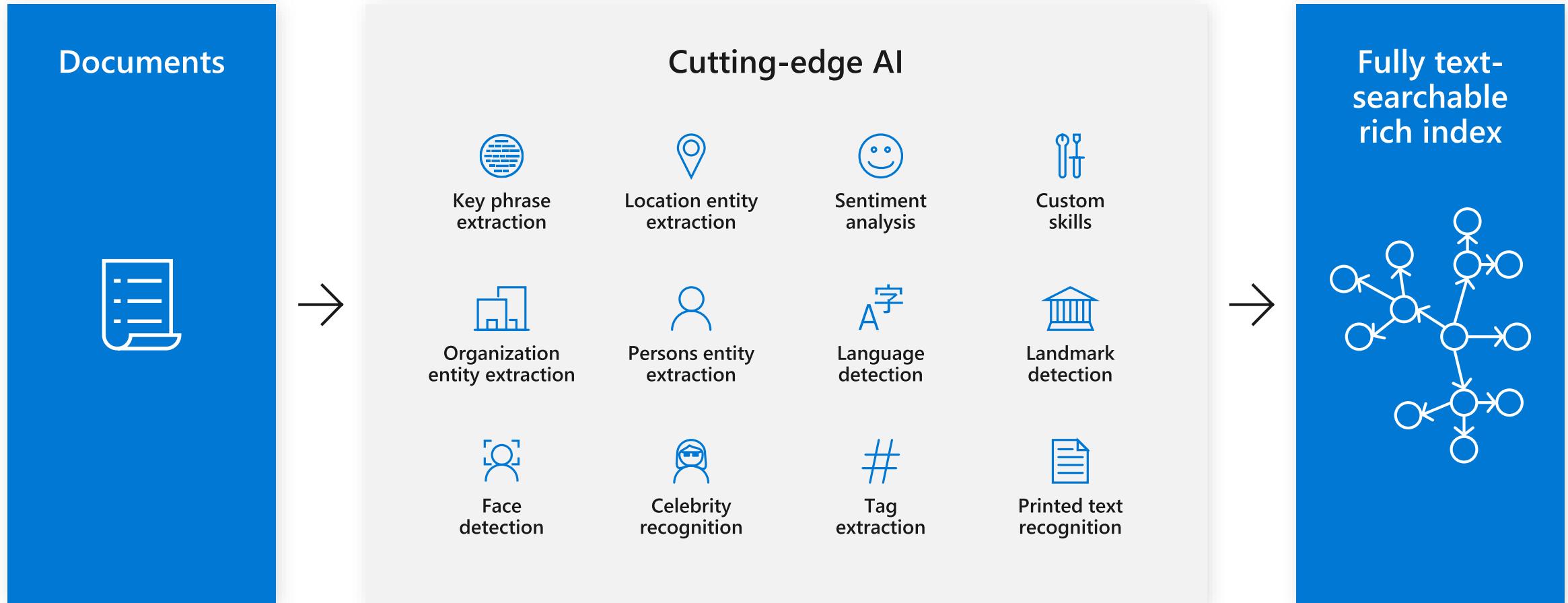


Your business documents



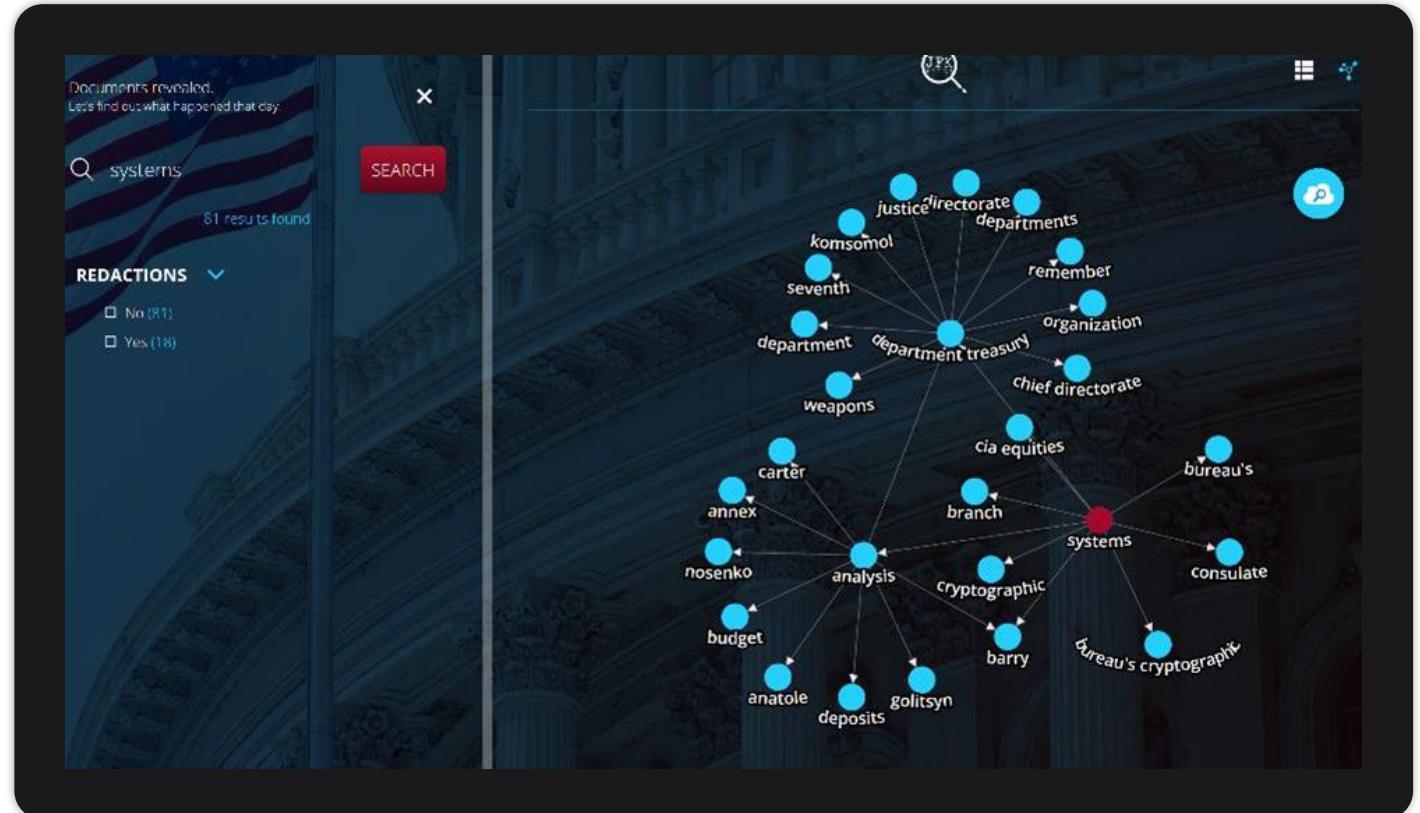
Unlock valuable
information
lying latent in
all your content

Knowledge mining with Azure Search

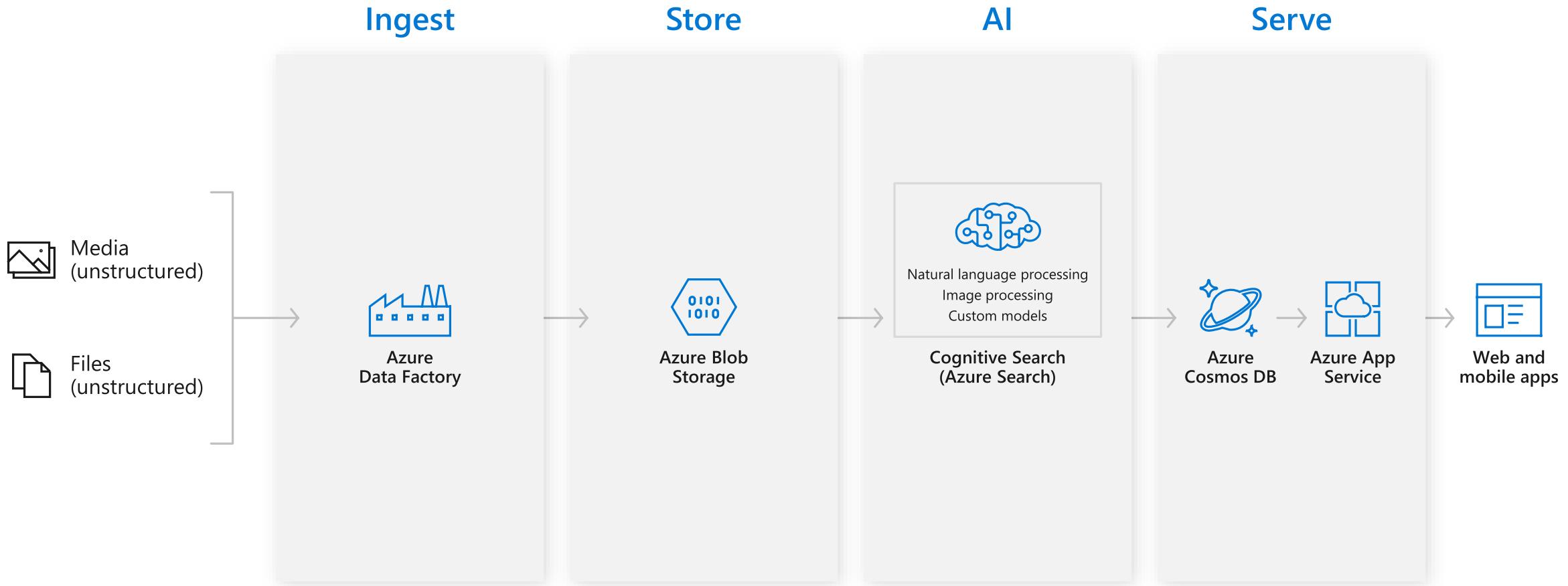


Demo: Knowledge mining

JFK Files



Knowledge mining: How the demo was built

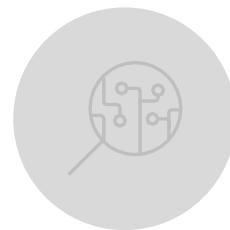


Azure AI



AI apps & agents

Azure Bot Service
Azure Cognitive Services



Knowledge mining

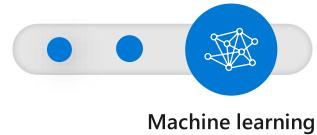
Azure Cognitive Search



Machine learning

Azure Databricks
Azure Machine Learning
Azure AI Infrastructure

Machine learning



Sophisticated pretrained models

To simplify solution development

Popular frameworks

To build advanced deep learning solutions

Productive services

To empower data science and development teams

Powerful infrastructure

To accelerate deep learning

Flexible deployment

To deploy, manage models on intelligent cloud & edge



Vision



Speech



Language



Search



Pytorch



TensorFlow



Keras



Onnx



Azure Databricks



Azure Machine Learning



Machine Learning VMs



CPU



GPU



FPGA



On-premises



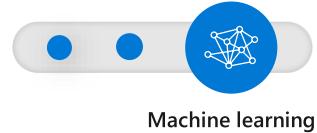
Cloud



Edge

Popular frameworks

Build advanced deep learning solutions



Use your favorite deep learning frameworks



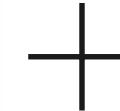
TensorFlow



PyTorch



Scikit-Learn



MXNet



Chainer



Keras

Without getting locked into one framework



ONNX

Community project created by Facebook and Microsoft

Use the best tool for the job. Train in one framework and transfer to another for inference



NVIDIA



Qualcomm



Windows



vespa



SOPHON



intel

skymizer

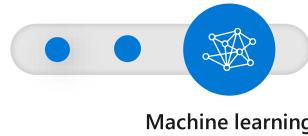
MathWorks

NETRON

Visual DL

Productive services

Empower data science and development teams



Azure Databricks



Azure Machine Learning



Machine Learning VMs

Integrated data science & data engineering teams

Desktop solutions not adequate

Need a unified big data & machine learning solution

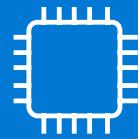
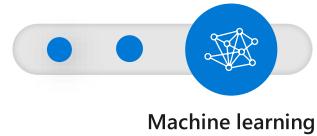
Individual data scientists

Desktop solutions adequate

Need cloud for sporadic compute needs

Powerful infrastructure

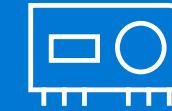
Accelerate deep learning



CPUs

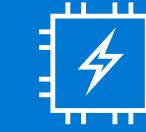
General purpose
machine learning

D, F, L, M, H Series



GPUs

Deep learning
N Series



FPGAs

Specialized hardware
accelerated deep learning

Project Brainwave

← Optimized for flexibility → Optimized for performance

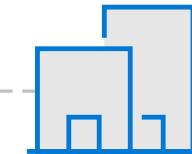
Flexible deployment

Deploy and manage models on intelligent cloud and edge

Train & deploy



Train & deploy

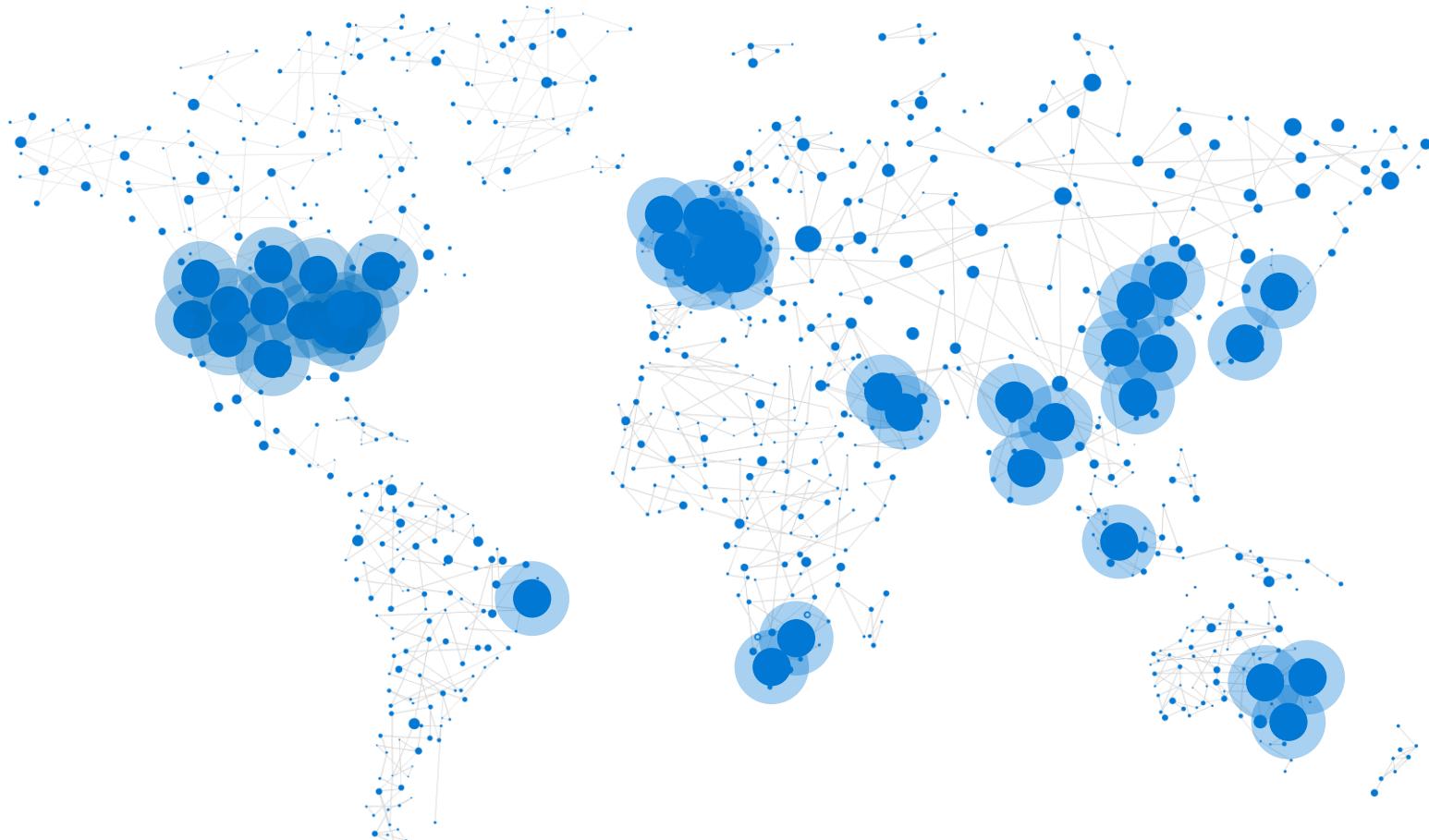


Track models in production
Capture model telemetry
Retrain models automatically



Deploy

Azure



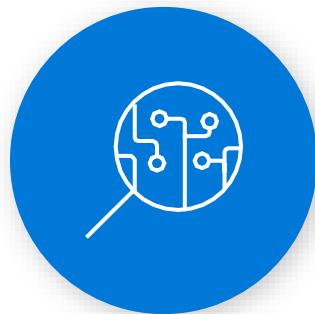
Productive | Hybrid | Intelligent | Trusted

Feedback/Questions



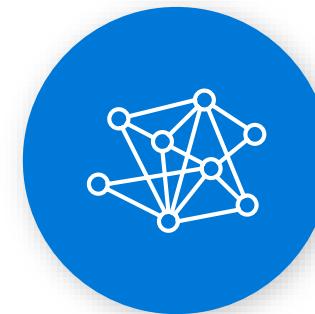
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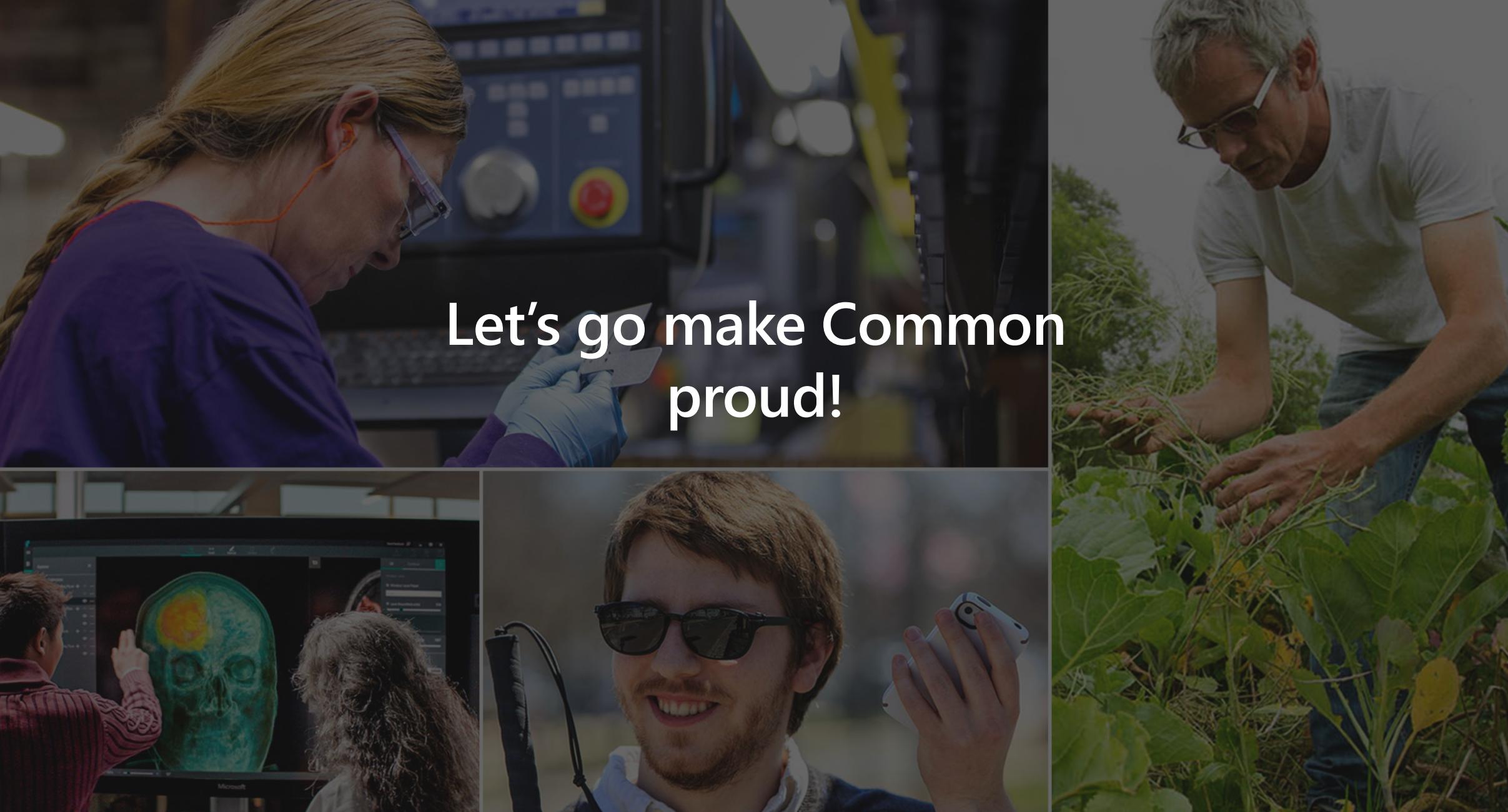
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Let's go make Common
proud!

Thank you

Azure

Data



Data modernization
on-premises



Data modernization
to Azure



Globally
distributed data



Cloud scale
analytics

AI



AI apps & agents



Knowledge mining



Machine learning



Self-service BI



On-premises BI



Apps with
intelligence

Customized language **Text-to-speech**
understanding Content moderation **Spell**
Speech translation check
Custom image classification
Speaker recognition Entity linking
Sentiment analysis, & augmentation
key phrase extraction **Image tagging**
Custom voice Object detection Text translation
OCR handwriting Intend analysis
Emotion detection
Video insights **recognition** Custom translation
Face identification Custom speech Assisted text moderation
Speech transcription

AI



Vision

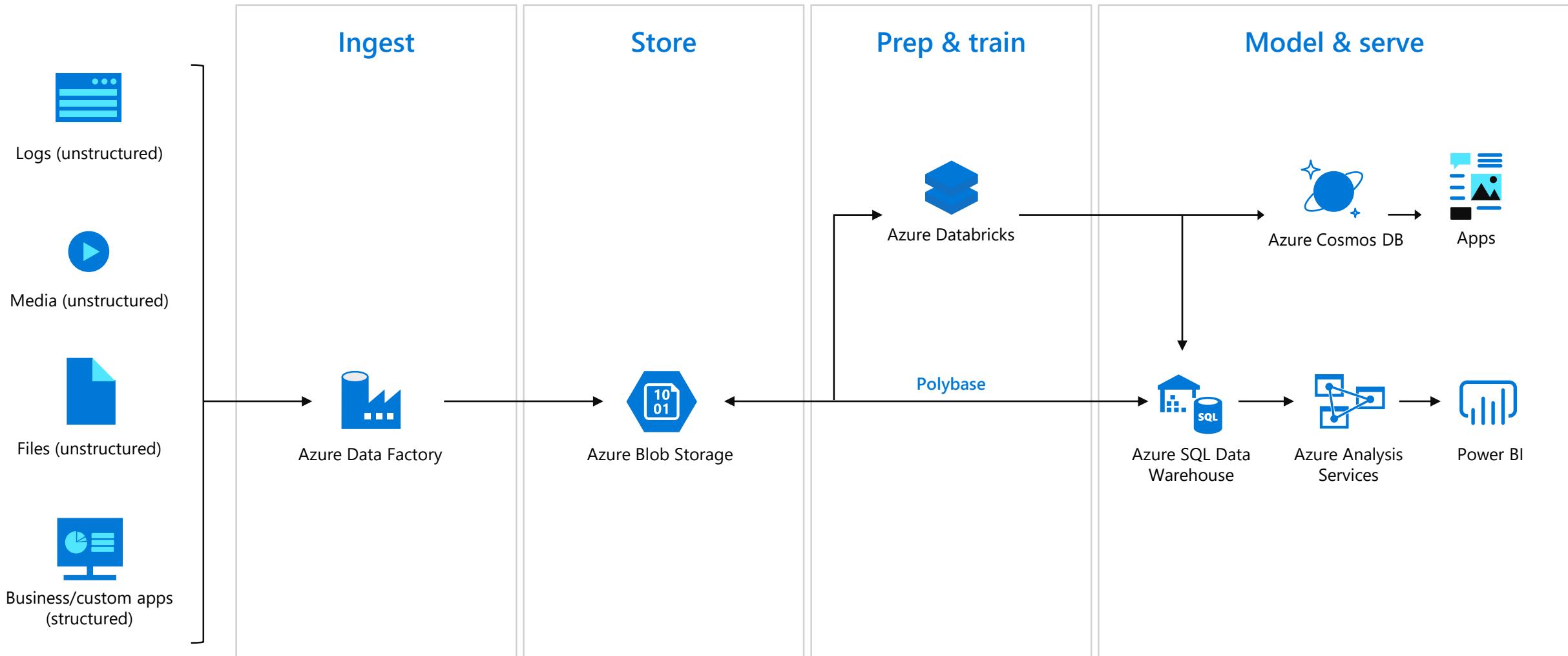


Speech



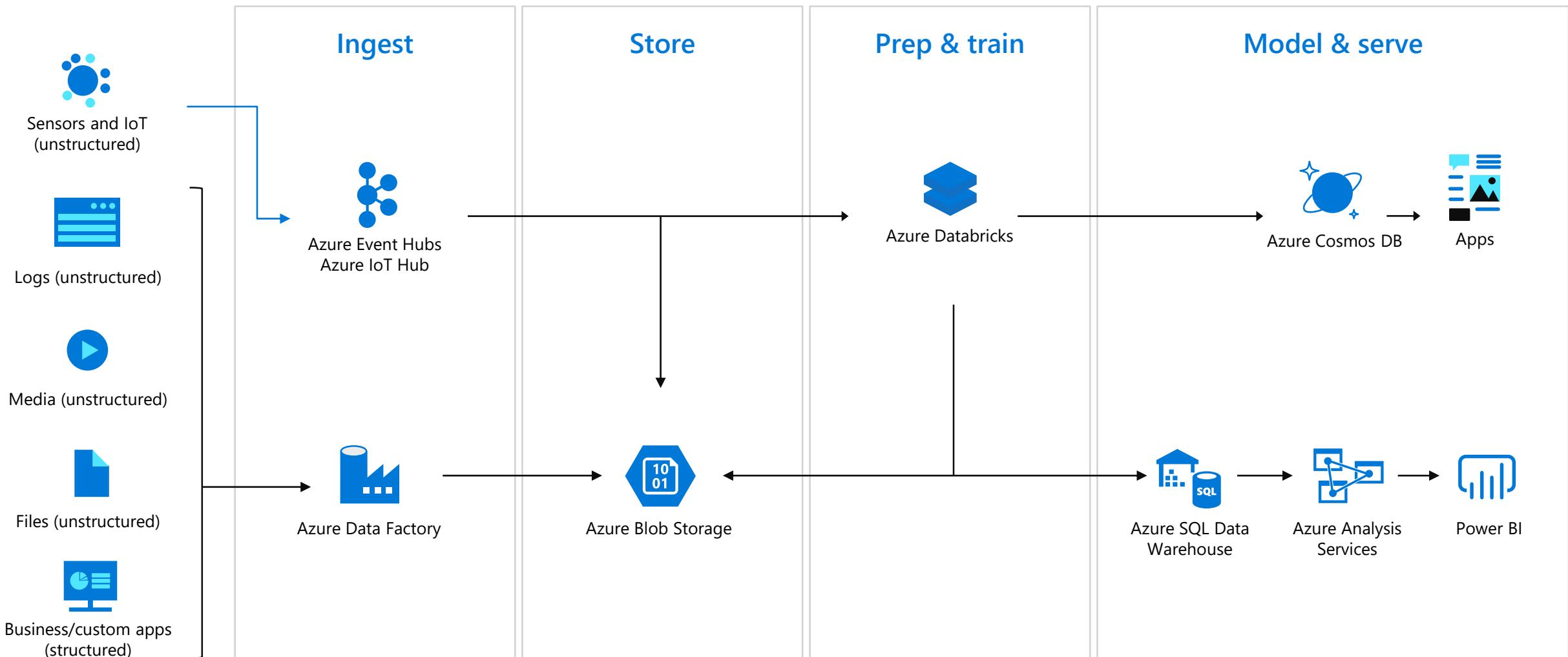
Language

Advanced analytics on big data



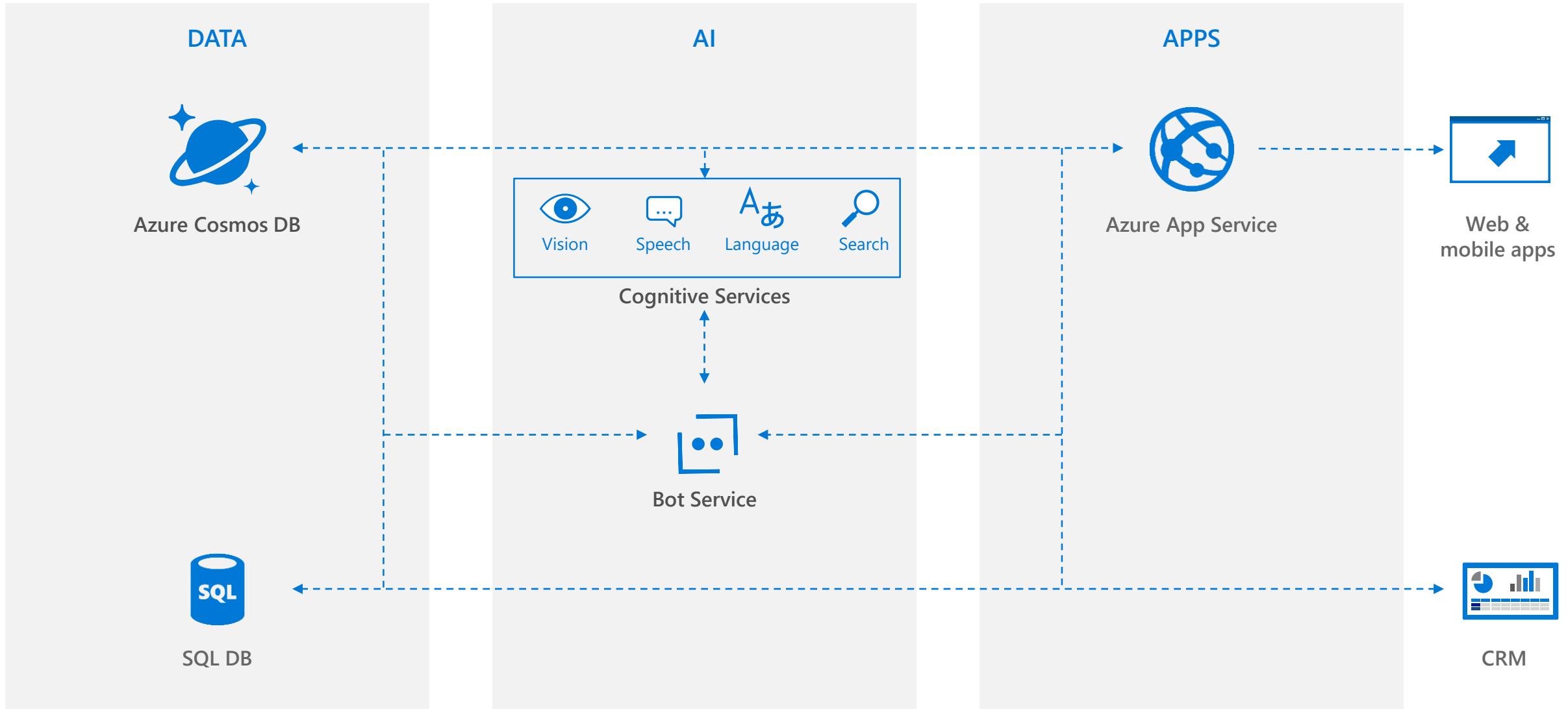
Microsoft Azure also supports other Big Data services like Azure HDInsight and Azure Data Lake to allow customers to tailor the above architecture to meet their unique needs.

Real-time analytics



Microsoft Azure also supports other Big Data services like Azure HDInsight and Azure Data Lake to allow customers to tailor the above architecture to meet their unique needs.

AI apps & agents: Reference Architecture





200,000 customers get information on shipments, rates, and UPS locations with the customer service chatbot



1.5 million requests are handled by TOBi monthly, with an **80% resolution rate**.



80% completion rate and **4% increase in views** achieved through automatic video recommendation based on article content



Canada's largest automobile search site drives seamless search experience

audioburst



Audio AI experts use cloud-based search platform to connect listeners to audio content



Prime property listings site powered by cloud-based search and analytics

asos



13M personalized experiences
with **33 orders/second**

Rockwell Automation



\$300k/day cost savings with
predictive maintenance

quarterspot



85% savings in risk calculation
and under-writing costs
50% lower loan defaults

Azure AI customer success

