Microsoft

Architecting Intelligent Apps with Azure

Generative AI
makes apps truly intelligent

Generative AI adoption is growing rapidly

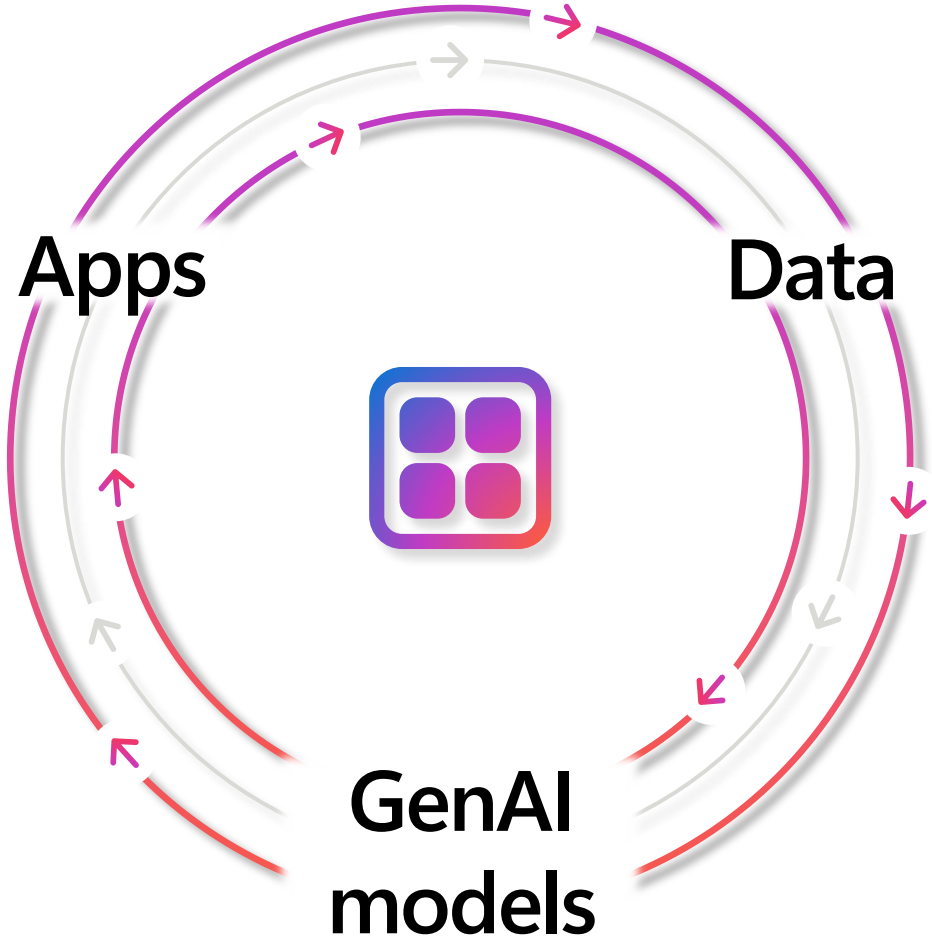
Respondents likely to redesign business processes with AI[1]

Leaders agree their company must adopt AI to stay competitive[2]

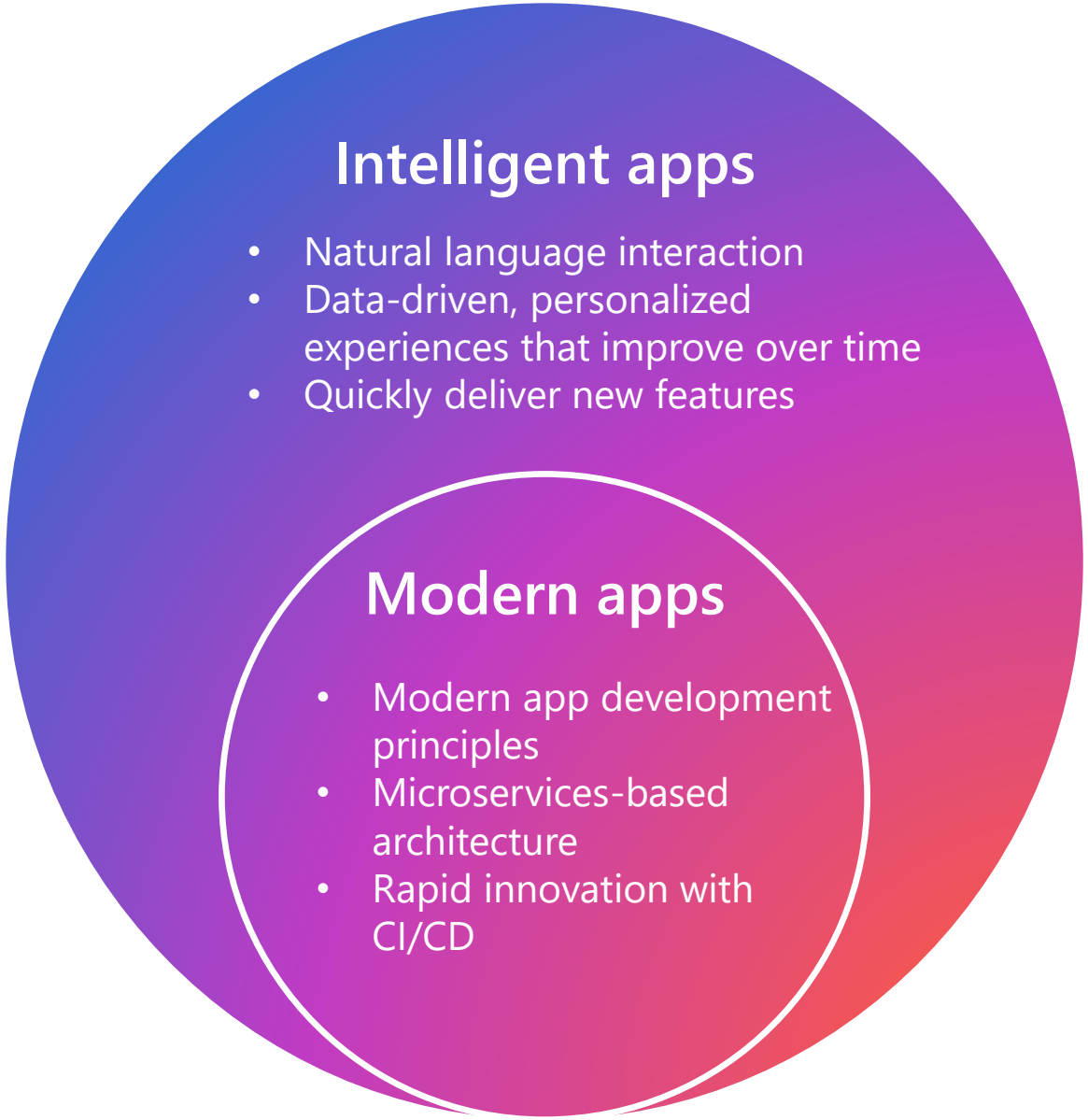
For every $1 a company invests in AI, it is realizing an average return of[3]

1. 2024 Work Trend Index Annual Report, Microsoft and LinkedIn
2. 2024 Work Trend Index Annual Report, Microsoft and LinkedIn
3. The Business Opportunity of AI, IDC, November 2024

In the age of AI,
every app should be
intelligent



Generative AI makes apps truly intelligent



Investments in intelligent apps continue to grow

New logical apps forecasted to be created by 2028[1]

"By 2026, more than **80% of enterprises will have used generative AI APIs, models and/or deployed GenAI-enabled applications** in production environments, up from less than 5% in 2023"[2]

Enterprises accelerating or maintaining application modernization investments over the next year[3]

1. https://www.idc.com/getdoc.jsp?containerId=US51953724
2. Gartner™: Top Strategic Technology Trends for 2024, 16 October 2023. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.
3. Unlock Competitive Advantage With Application Modernization - A commissioned study conducted by Forrester Consulting on behalf of Microsoft, 2024..

Deliver business value faster with intelligent apps on Azure

Challenges to fully realizing the benefits of Intelligent apps

- Shortage of skilled developers
- Legacy app and data architectures
- Long release cycles
- Growing security threats
- Aligning use cases to business outcomes

Develop intelligent apps faster on Azure

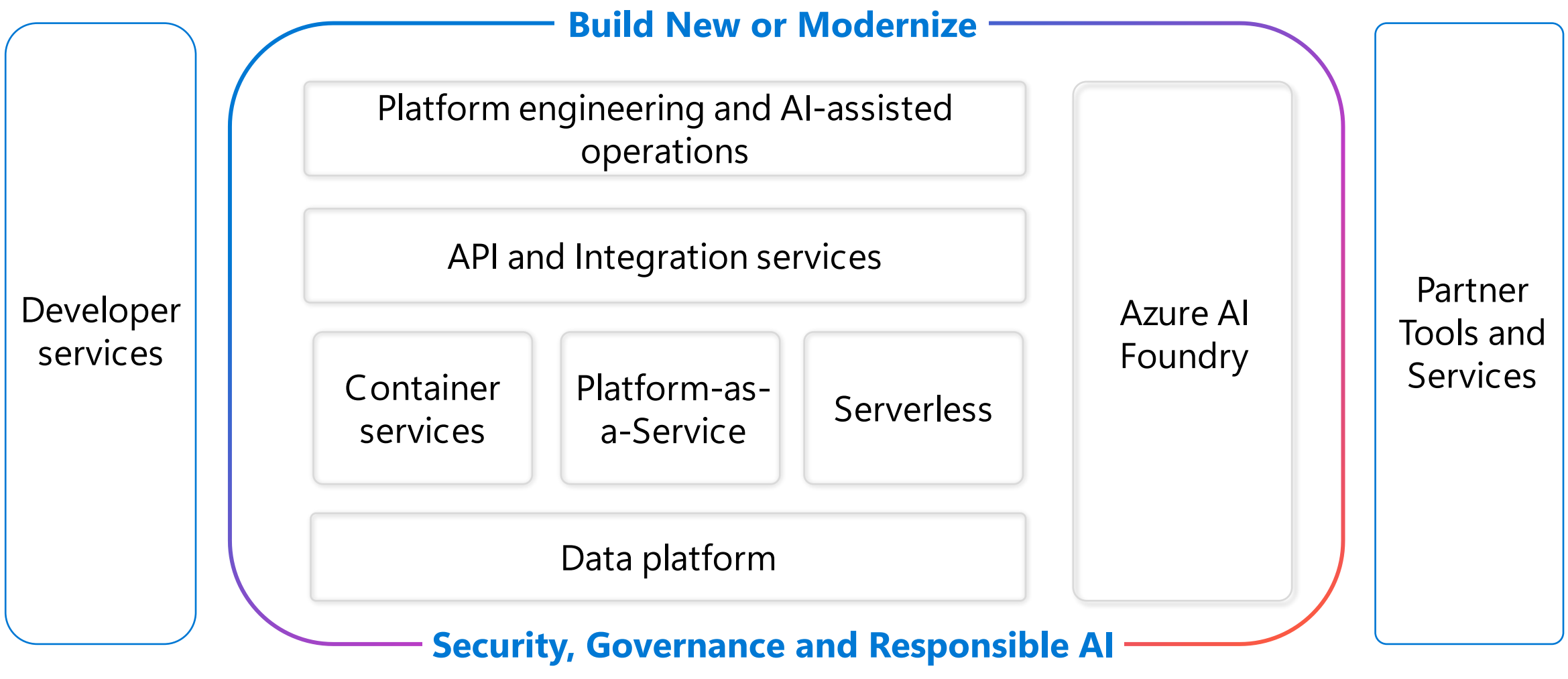
Less time in developing new applications[1]

Months faster to market for new apps[2]

Increase in work output due to Azure AI Foundry[3]

1. The Business Value of Migrating and Modernizing to Microsoft Azure – IDC
2. The Total Economic Impact™ Of Microsoft Azure App Innovation - A commissioned study by Forrester Consulting, 2024. Results are for a composite organization.
3. The Total Economic Impact™ Of Microsoft Azure AI - A commissioned study by Forrester Consulting, 2024. Results are for a composite organization.

With an integrated AI application platform



AI-assisted development | Any App, architecture and language

Microsoft Developer Tools

Empower developers with the most comprehensive development platform

Visual Studio

GitHub

Unified, complete developer toolchain

66%

decrease in time to market

Ready for all stages of modern DevOps and platform engineering adoption

30%

Increase in developer productivity

Enterprise security and governance

92%

reduction in time to remediate

Sources: The Total Economic Impact of GitHub Enterprise Cloud and Advanced Security, Nov 2022 | The Total Economic Impact of Microsoft Developer Tools and Cloud Services, Oct 2021

Azure application services

Comprehensive set of services to build and modernize intelligent apps


Azure Kubernetes Service


Azure App Service


Azure Container Apps


Azure API Management

Faster development

with managed services

50%

faster time to market

Enterprise grade

with built-in resiliency

65%

improved application stability

Open ecosystem

to leverage existing investments

70%

legacy environment cost savings

Focus on apps

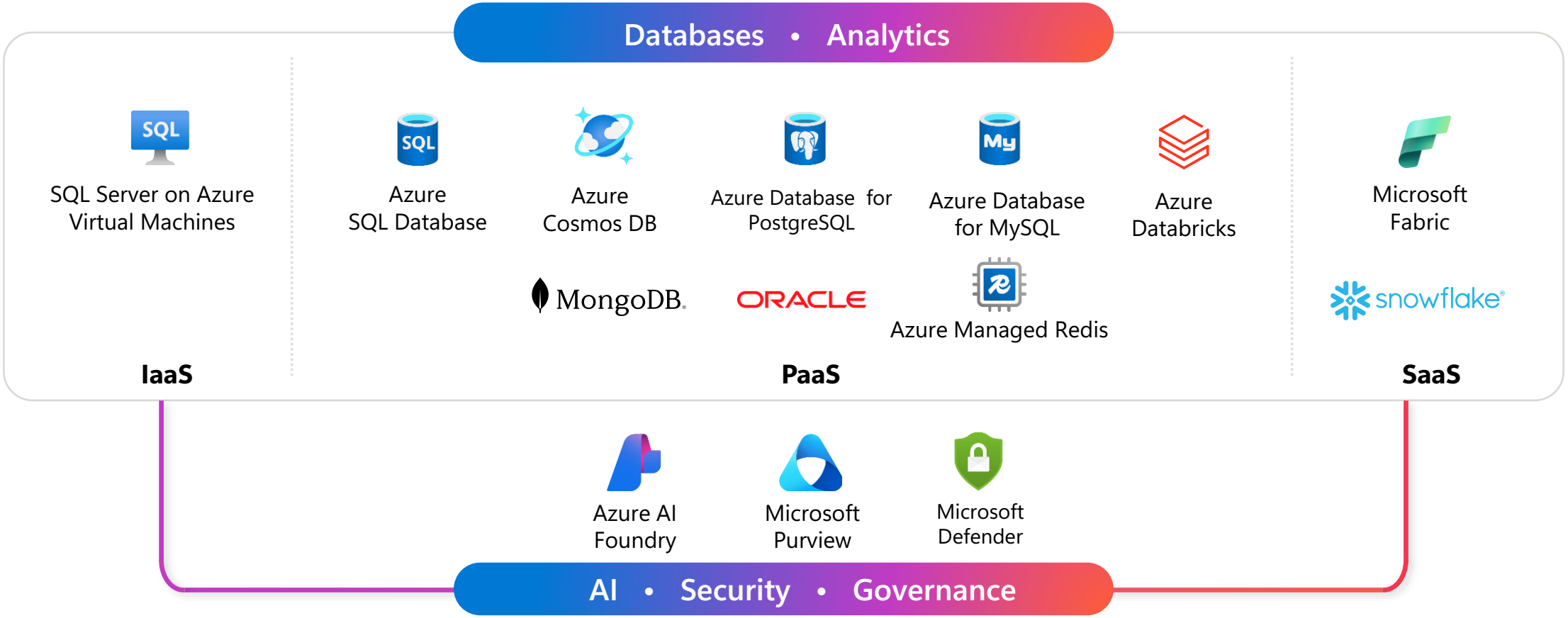
with less infrastructure management

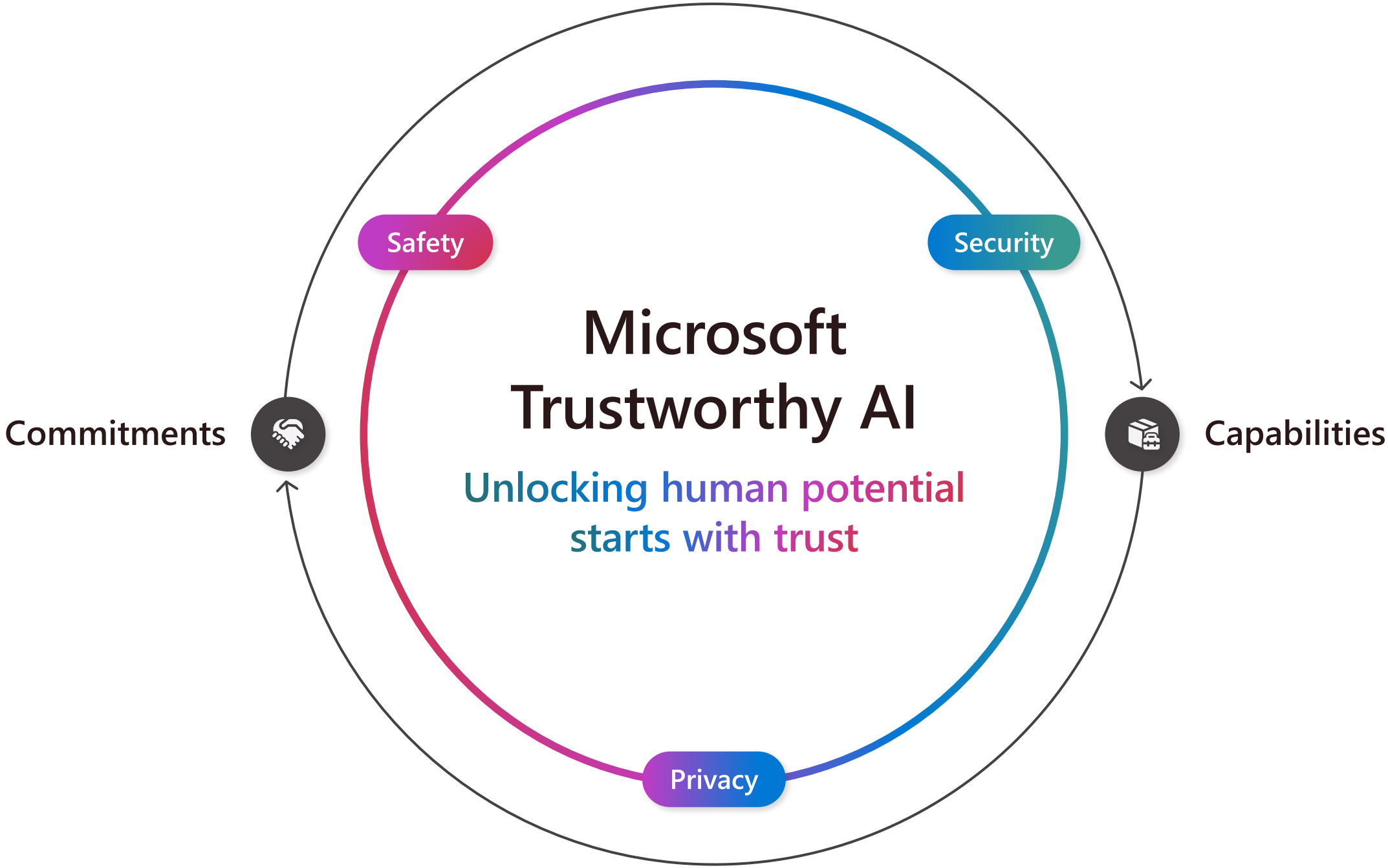
70%

decreased operational overhead

Sources: The Total Economic Impact of Microsoft Azure for Cloud-Native Applications PaaS, Aug 2023| The Total Economic Impact of Microsoft Azure PaaS, Nov 2022

Microsoft Intelligent Data Platform




Safety
Security
Microsoft
Trustworthy AI
Unlocking human potential
starts with trust
Commitments
Capabilities
Privacy

Azure AI Foundry

Everything you need to build unique GenAI experiences that scale

Innovate
with your best models

Select from a curated collection of cutting-edge models in the **Model Catalog**, where you can benchmark and evaluate with a unified API

Differentiate
with your own data

Seamlessly ground your apps in all types of data from any source and deliver high-performance with **Azure AI Search** for state-of-the-art retrieval

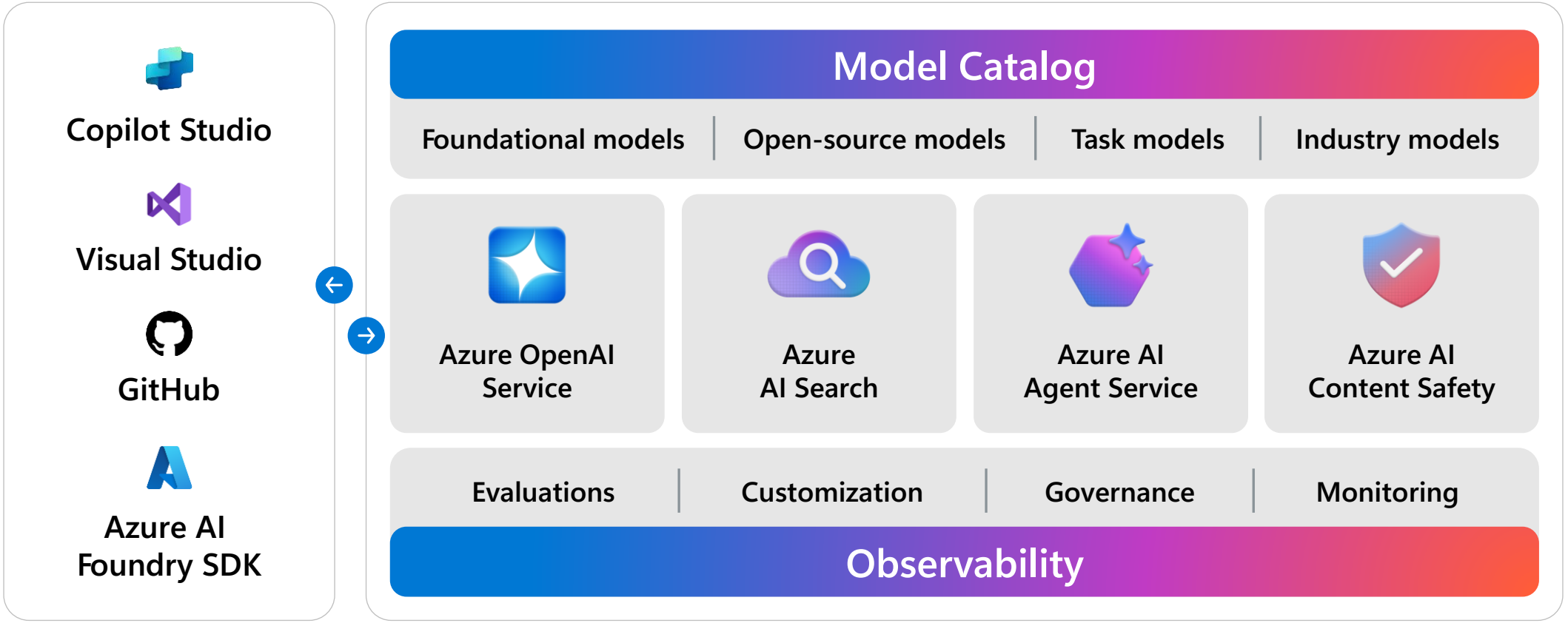
Safeguard
with responsible AI tools

Get in front of new threats like indirect prompt injections and jailbreaks with **Azure AI Content Safety**, protecting your apps from both input and output

Full-Lifecycle Management

Streamline the development process as models evolve with **Azure AI Foundry** providing a single hub for model discovery, customization, monitoring and ongoing iteration

Azure AI Foundry



Empowering you to find the best model for every use case.

Avoid model lock-in:

- Flexible model selection
- Curated for enterprise
- Explore, Compare and Swap models quickly

Azure AI Model Catalog

LLMs and SLMs

Flagship LLMs
- GPT-4
- Mistral Large
- Llama3 70b
- Llama 405B
- Command R, R+

Small Language
- Models
- Phi3
- Mistral OSS models
- Llama3 8b
- Ministral

Modalities, tasks and tools

Multi-modal
- GPT-4o, Phi3-vision

Image generation
- Dalle3, Stability AI

Embedding models
- Ada, Cohere

Function calling & JSON support

Regional and domain specific

Core42 JAIS Arabic language LLM

Mistral Large is focused on European languages

Nixtla TimeGEN-1 – Timeseries forecasting

Open and propriety

Premium models first on Azure: OpenAI, Mistral Large, Cohere Command R+

100s of Open models from Hugging Face

Open models from Meta, Databricks and Snowflake, Nvidia

Microsoft Phi | Azure OpenAI | Mistral AI | Meta AI | Databricks | Cohere | Hugging Face | NVIDIA | Deci AI | Nixtla | G42 | Snowflake

Intelligent apps use cases

Delivering on intelligent apps transformation requires

Identify intelligent app use cases aligned to business outcomes

Modernization of existing application and data estate for AI

Platform operations for intelligent app deployment

Reinvent customer experiences and accelerate innovation

Personalize customer experiences

Deliver tailored content, products, or services to specific users based on their behavior, preferences, and needs.

ASOS engages customers and presents fashion recommendations based on trend data

Accelerate content delivery

Create personalized marketing content across platforms, from social media posts to product descriptions.

JATO Dynamics helps dealerships quickly produce tailored content by combining market data and vehicle information, saving customers 32 hours per month.

Transform customer service

Provide personalized and interactive responses to answer customer questions and facilitate routine tasks.

Air India uses a generative AI-based virtual assistant, which handles 97% of queries with full automation and saves millions of dollars in customer support costs.

Create differentiated products

Build innovative products and services with AI capabilities to grow your business and enter new markets.

Docusign pioneered an entirely new category of agreement management designed to streamline workflows.

Personalize customer experiences

Use cases

Use Case Description

- Leverage AI models to present **personalized content, products, or services to users** based on multimodal user inputs from text, images, and speech, grounded on a deep understanding of customer profiles
- Product discovery is improved by searching for products semantically
- Personalized search and discovery **drives user engagement, customer satisfaction and retention**

Key Considerations

- Ability to integrate multiple data types (e.g., user profiles, real-time inventory data, store sales data, social data)
- Pre-trained AI models that can handle multi-modal inputs and can learn from user data to deliver personalized results
- Scale to meet variable user demand

Use Case Examples

- Conversational shopping interface
- Image search for products
- Product or service recommendations
- Customized content for each customer

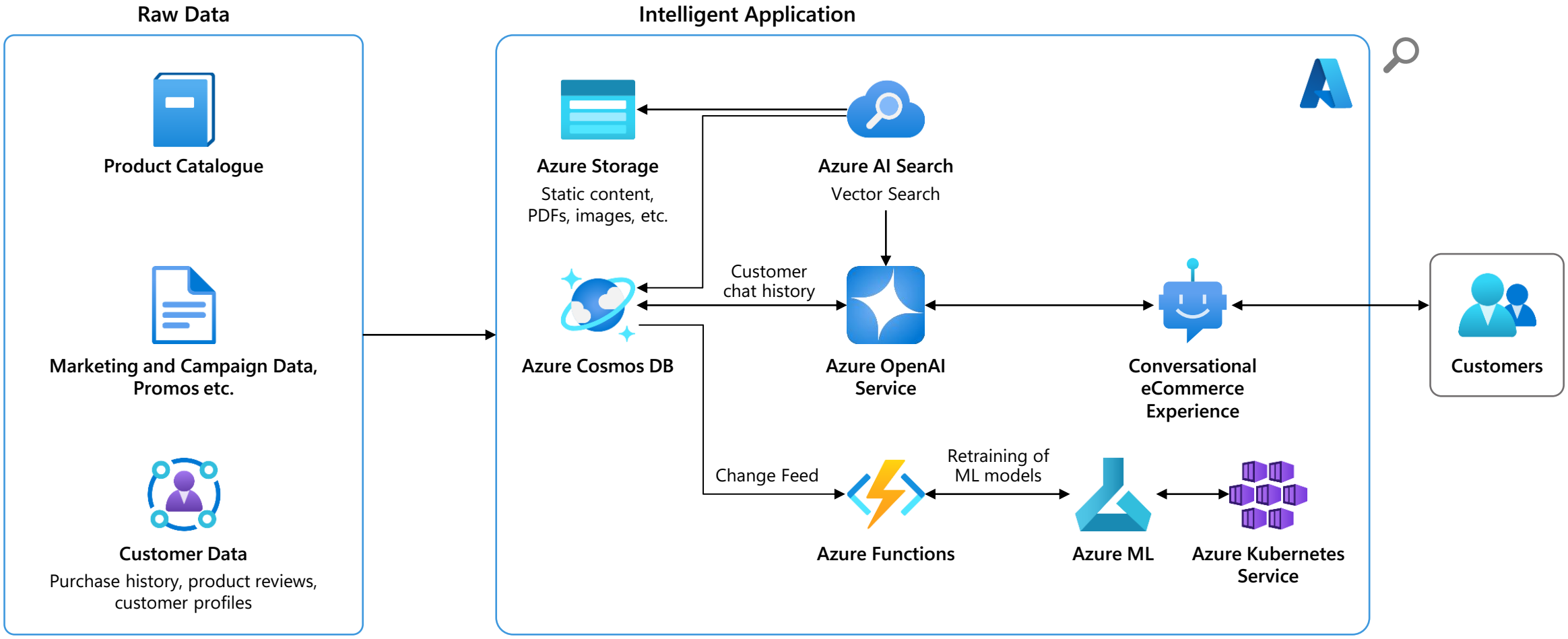
asos

"Having a conversational interface option gets us closer to our goals of fully engaging the customer and personalizing their experience by showing them the most relevant products at the most relevant time."

Cliff Cohen, Chief Technology Officer, Asos

Sample architecture: Personalization and product recommendations

Use cases



Accelerate content delivery

Use cases

Use Case Description

- Generates text or image content using generative AI.
- Automates the creation of web or mobile content, such as product descriptions for an online catalog or visual campaign assets based on marketing narratives, accelerating time to market.
- Enable faster iteration and A/B testing to identify the best descriptions that resonate with customers.

Key Considerations

- Integrate multiple data types (e.g. product information, reviews, user profiles etc.)
- Generative AI models that can generate text and images based on user profile and behavior
- Integration with marketing campaign or website content workflows

Use Case Examples

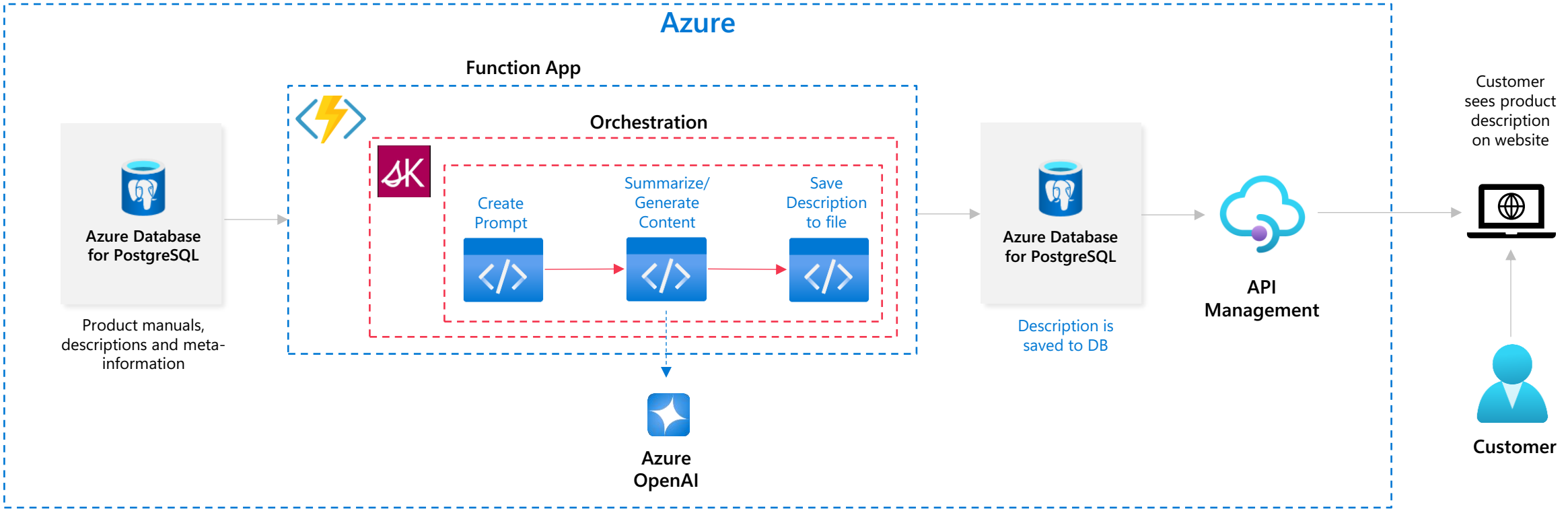
- Marketing campaign ideation and content drafting, automated translation
- Campaign or website message testing
- Automated summary of user reviews
- Marketplace product descriptions and image generation

"JATO is primarily a Microsoft development house, so we were confident working with Microsoft on this project."

Derek Varner, Head of Software Engineering, JATO Dynamics

Sample architecture: Product description generator

Use cases



Content Generation

This pattern generates text or image content based on conversational user input. It combines the capabilities of Image Generation and Text Generation. The content generated may be personalized to the user.

Data may be read from a variety of data sources, including Storage Account, Azure Cosmos DB, Azure Database for PostgreSQL, or Azure SQL

Transform customer service

Use cases

Use Case Description

- Offer self-service natural language chat interface for customers to resolve service issues faster
- Intelligently route and divert calls, allowing agents to focus on the most complex cases
- Enable customer service agents to quickly access contextual summary of prior interactions and offer real-time recommendations
- Enhance customer service agent productivity by automating repetitive tasks with AI such as logging interaction summaries

Key considerations

- Natural language processing to understand and interpret user queries
- AI models that can generate contextual summary based on customer interaction data such as transcriptions, chat queries and responses
- Dynamic scalability to handle increased data processing demands
- Continuous innovation and delivery to support updates to self service chatbots based on user and service agent feedback

Use Case Examples

- Self-service chatbots for customer support
- Real-time recommendations to agents for customer interactions
- Post call analysis and coaching for service agents
- Automated summary of customer interactions

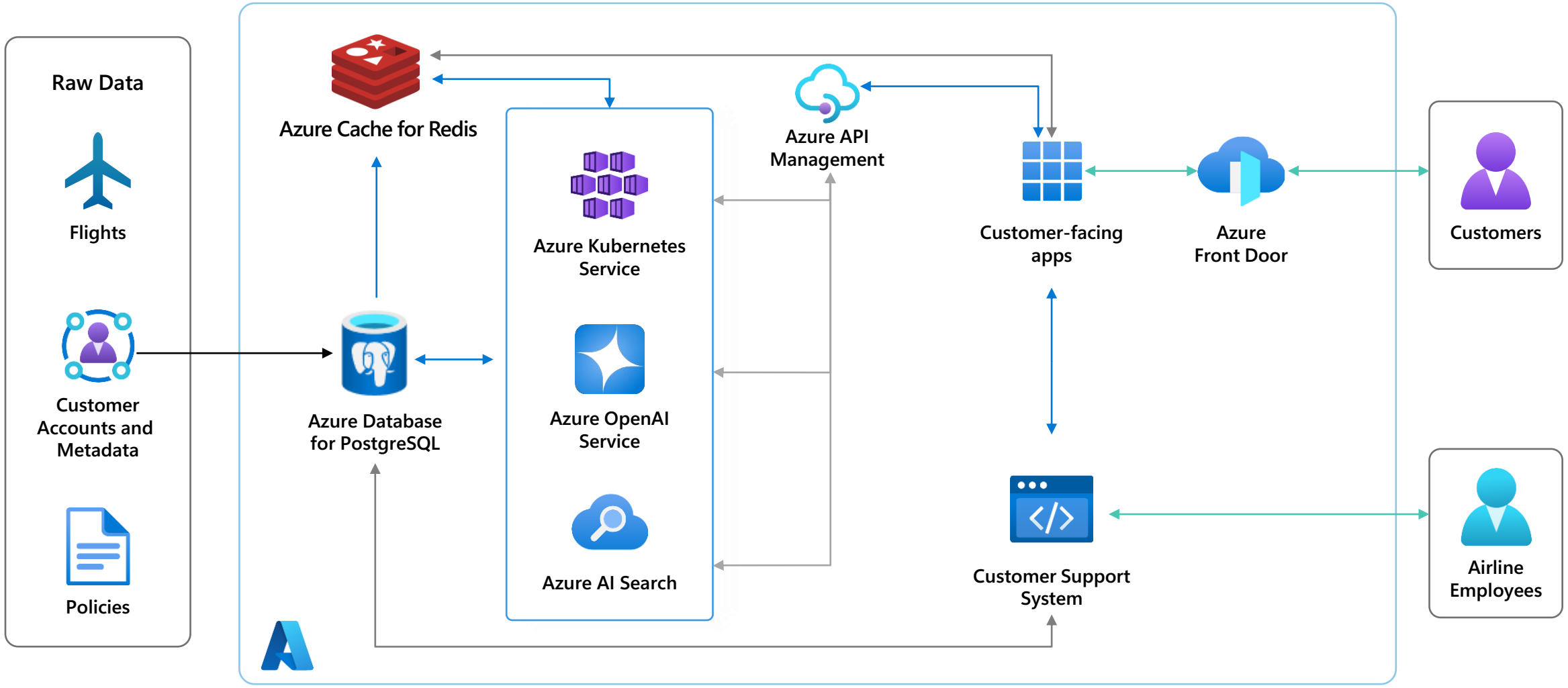
AIR INDIA

“We are on this mission of building a world-class airline with an Indian heart. To accomplish that goal, we are becoming an AI-infused company, and our collaboration with Microsoft is making that happen.”

Dr. Satya Ramaswamy, Chief Digital and Technology Officer, Air India

Airline customer service and support architecture

Use cases



Accelerate product innovation

Use cases

Use Case Description

- Provide enhanced services to customers through new or improved products – using AI to provide data-driven insights that facilitate **personalized or unique customer interactions**
- Enable customer access to a wider range of information, while leveraging AI capabilities to **improve search queries** and make **data more accessible**

Key Considerations

- Natural language processing to understand and interpret user queries
- Continuous innovation/delivery to continually enhance customer experience
- Dynamic scalability to handle increased data processing demands

Use Case Examples

- AI-enabled products and services
- AI-enabled automation
- Customer facing custom copilots

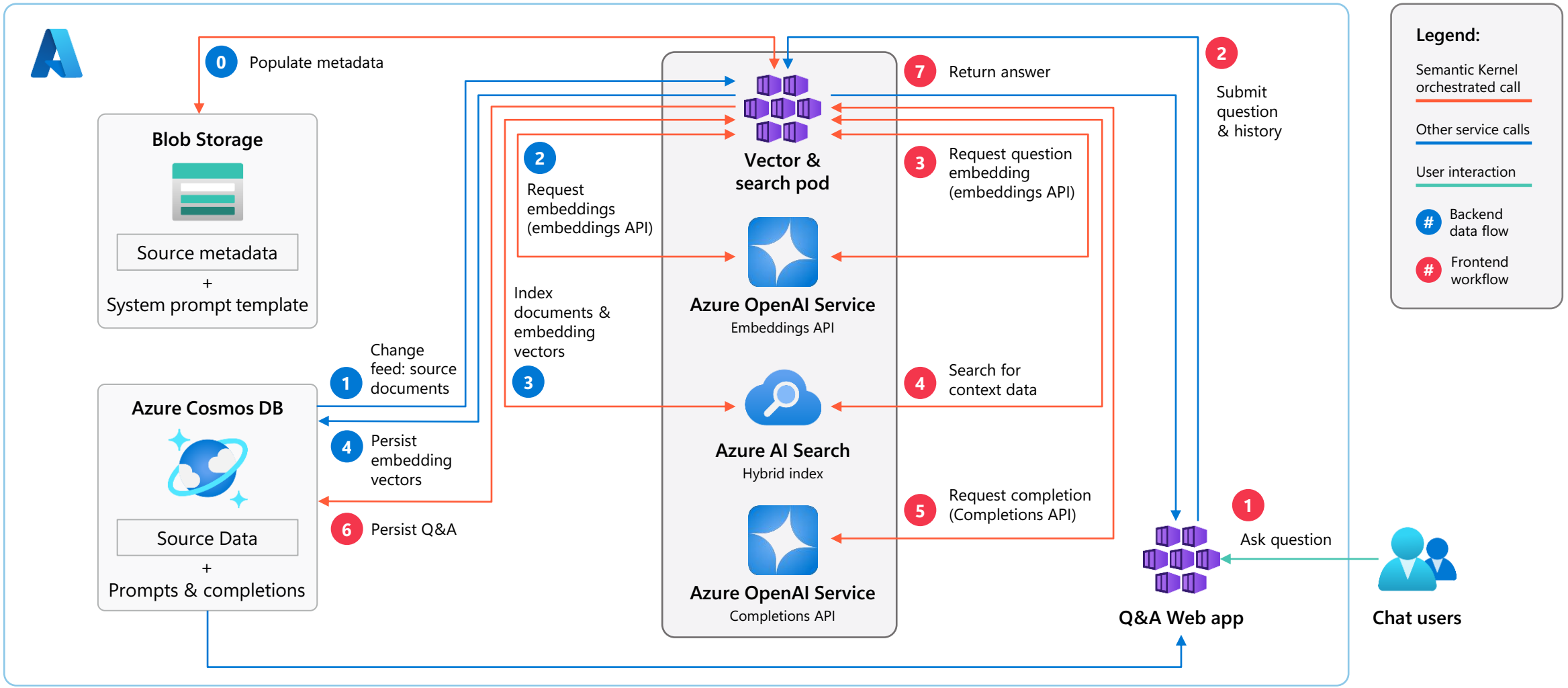
docusign

“We needed to transform how businesses worked with a new platform. With Docusign Intelligent Agreement Management, built with Microsoft Azure, we help our customers create, commit to, manage, and act on agreements in real time.”

Kunal Mukerjee, VP, Technology Strategy and Architecture, Docusign

Sample architecture: Build your own copilot

Use cases



GitHub repo

Enrich employees and reshape business processes

Optimize employee workflows

Empower people with rich knowledge when they need it and automate manual tasks to free up time for higher value work.

Medigold Health automates clinician processes, including report generation, leading to a 58% rise in clinician retention and greater job satisfaction.

MEDIGOLD HEALTH

Prevent fraud and detect anomalies

Handle high volumes of transactions reliably, and identify patterns, anomalies, or suspicious activity.

Kinectify detects 43% more suspicious activities and achieves 96% faster decisioning.

KINECTIFY

Unlock organizational knowledge

Surface insights from vast amounts of data and make it accessible through natural language interactions.

H&R Block tax professionals find detailed client history and sort through stacks of forms in seconds.

H&R BLOCK

Automate document processing

Classify, extract, summarize, and gain deeper insights from documents using natural language prompts.

Volvo Group streamlined invoice and claims processing, saving over 10,000 manual hours.

VOLVO

Optimize employee workflows

Use cases

Use Case Description

- Organizes unstructured data to streamline document management and information
- Leverages natural language processing to create a conversational search experience for employees
- Provides more contextual and useful information to employees to help them become more productive
- Summarizes data for analysis and improvement

Key Considerations

- Natural language processing to understand and interpret user queries
- Prompt engineering training improve employee queries
- Capability of integrating copilot with other internal workloads
- Continuous innovation/delivery to support new internal resources and optimize chatbot dialog

Use Case Examples

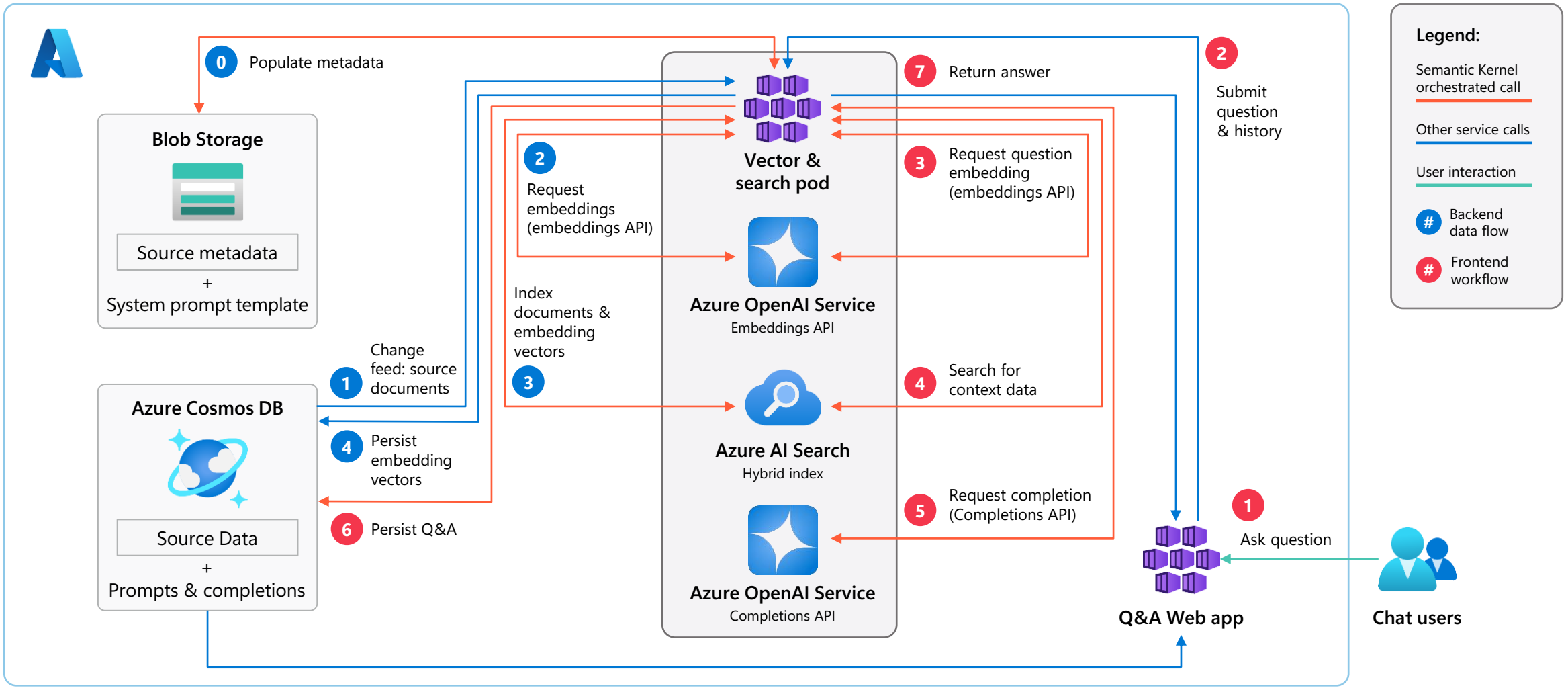
- Employee chatbot for HR / benefits
- Professional Services assistance (Legal/Tax/Audit)
- Analytics and reporting
- Contact center agent assistance
- Employee self-service and knowledge management (IT + HR)

“This is about making a tangible difference in the lives of people. We appreciate that Microsoft has a similar ethos as we continue to work together to innovate and set new standards for care.”

Alex Goldsmith, CEO, Medigold Health

Sample architecture: Build your own copilot

Use cases



GitHub repo

Prevent fraud and detect anomalies

Use cases

Use Case Description

- Use AI to identify patterns, anomalies, or suspicious activities that may indicate fraudulent transactions in real time
- Real-time monitoring of transactions and activities allows for immediate detection and response to fraudulent behavior.
- Analyzing user behavior and transaction patterns helps identify deviations from normal behavior, signaling potential fraud
- Minimize financial impact by quickly identifying fraudulent activity and taking immediate actions

Key Considerations

- Handle vast amounts of data and spot anomalies in real-time
- Leverage predictive models in ML and AI algorithms to identify patterns and anomalies associated with fraudulent behavior
- Continuously update applications to track fraud patterns as they evolve

Use Case Examples

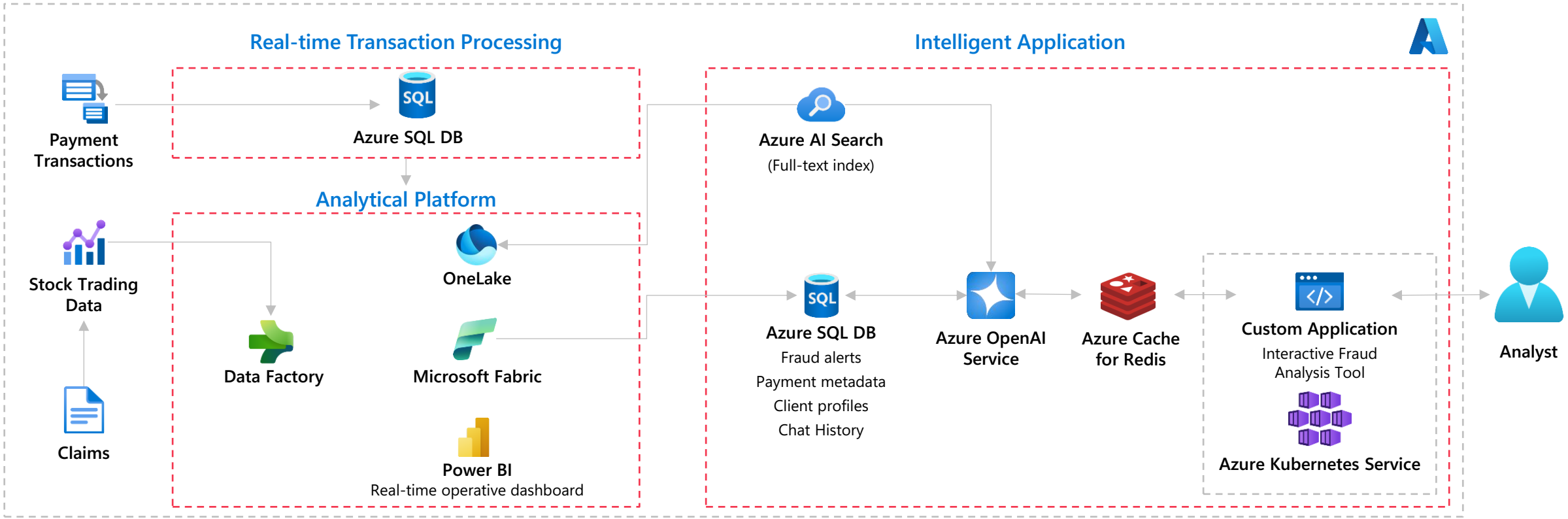
- Suspicious financial transactions
- False account chargebacks
- Fraudulent insurance claims
- Identify theft
- Unauthorized account access or account takeover
- Network intrusions or malware attacks
- Fake product or content reviews

“With Azure AI, we automate complex parts of the investigation and due diligence processes, enhancing our efficiency and accuracy in spotting potential threats."

Michael Calvin, Chief Technical Officer, Kinectify

Sample architecture: Interactive fraud analysis

Use cases



Fraud Detection | This technical pattern enables the identification of fraudulent transactions, combining transaction and meta information with the context provided by LLMs.

Unlock organizational knowledge

Use cases

Use Case Description

- Analyze conversations for keywords to **spot trends** and better **understand customers**
- Quickly find information to gain valuable **insights** and identify **patterns**
- Utilize information in downstream processes to improve **decision-making**

Key Considerations

- Capabilities to extract relevant information and make it available for further analysis
- Pretrained models for identifying patterns and making predictions

Use Case Examples

- Curated content summarization
- Knowledge extraction and organization
- Trend and sentiment analysis
- Automated report and research generation

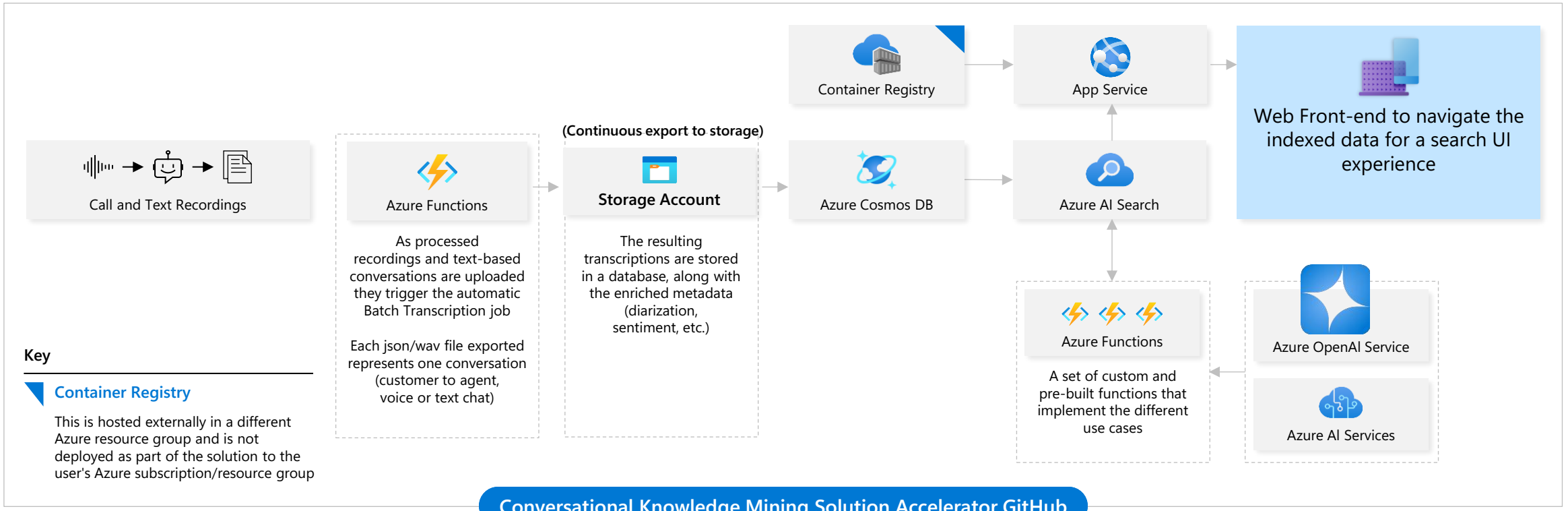
H&R BLOCK

"Machine learning frees up the precious time we have with the client to actually have richer conversations about their financial needs and aspirations, beyond the immediate task of ensuring the best tax outcome for the current year."

Aditya Thadani, Vice President, H&R Block

Sample architecture: Enterprise search and knowledge mining

Use cases



Conversational Knowledge Mining Solution Accelerator GitHub

Enterprise Search and Knowledge Mining

This technical pattern enables customers to conduct large scale knowledge mining to find information and gain valuable insights and patterns.

Automate document processing

Use cases

Use Case Description

- Classify, extract, summarize, and gain deeper insights from documents using **natural language prompts**
- Automate manual talks to enable workers to focus on **higher-value work**
- Expedite access to historical data to help employees **problem-solve**

Key Considerations

- Identification of tasks to be automated
- Refined downstream workloads to leverage summarized data
- Streamlined employee access to historical data

Use Case Examples

- Tax forms processing and analysis for insights
- Documentation of clinician-patient visit and entering summary into downstream systems
- Meeting summaries and notes

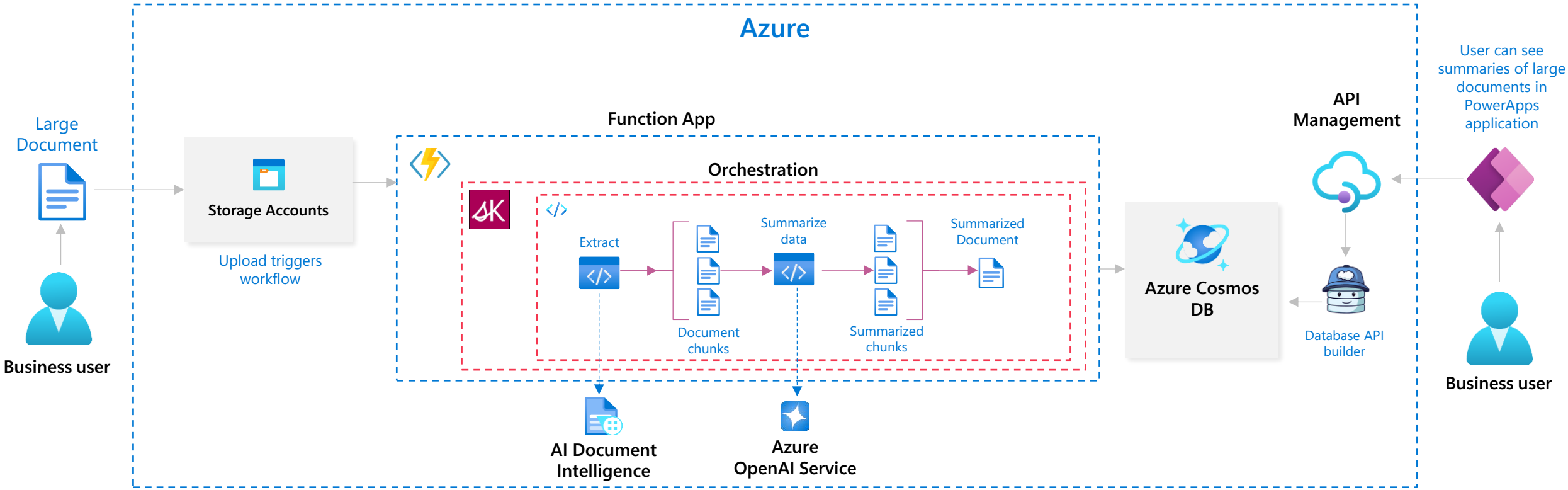
VOLVO

“We chose Microsoft Azure AI primarily because of the advanced capabilities offered, especially with AI Document Intelligence.”

Malladi Kumara Datta, RPA Product Owner, Volvo Group

Sample Architecture: Large document summarization

Use cases



Document summarization

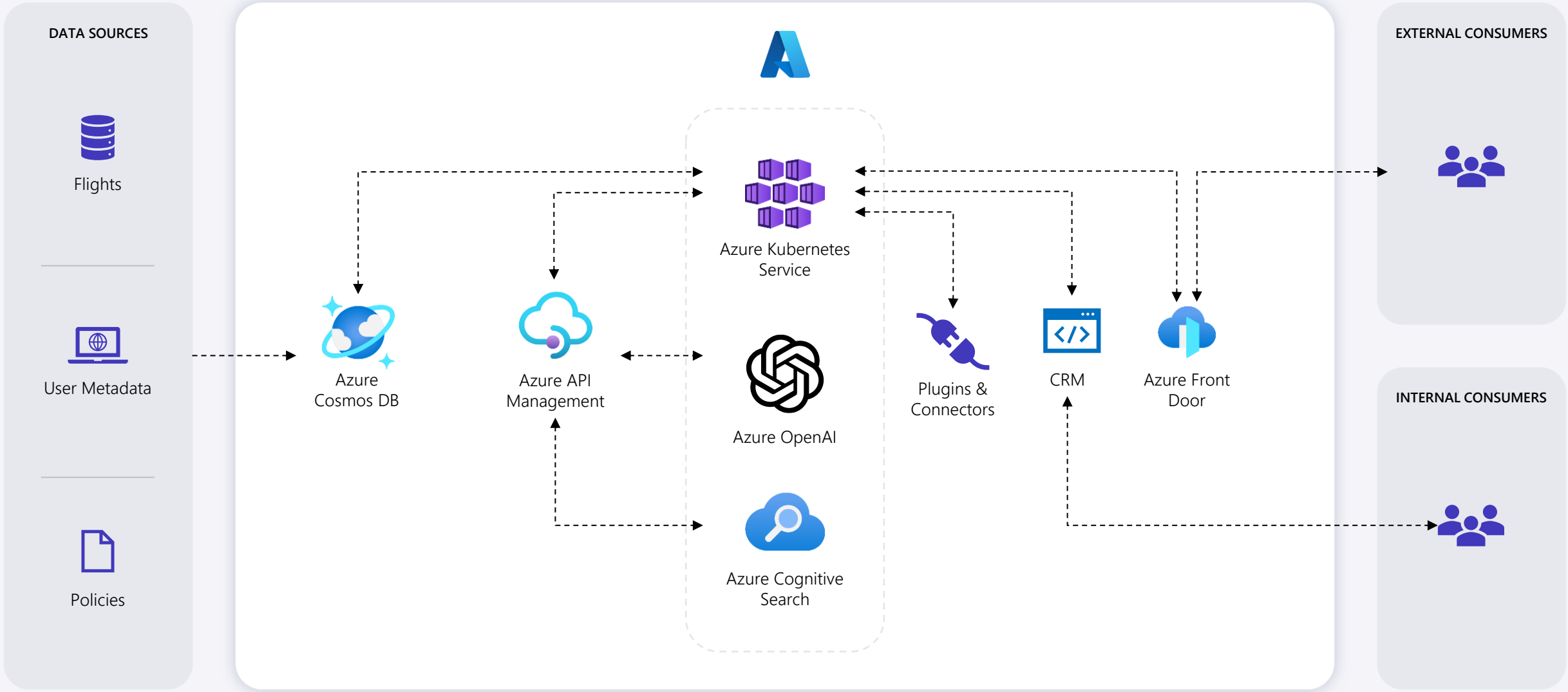
This technical pattern enables customers to conduct knowledge mining to gather information and gain valuable insights and patterns in aggregate over large repositories of documents

Data may be read from a variety of data sources, including Storage Account, Azure Cosmos DB, Azure Database for PostgreSQL, or Azure SQL

Demo – Airline service and support

Use case: Service & Support

ContosoWings

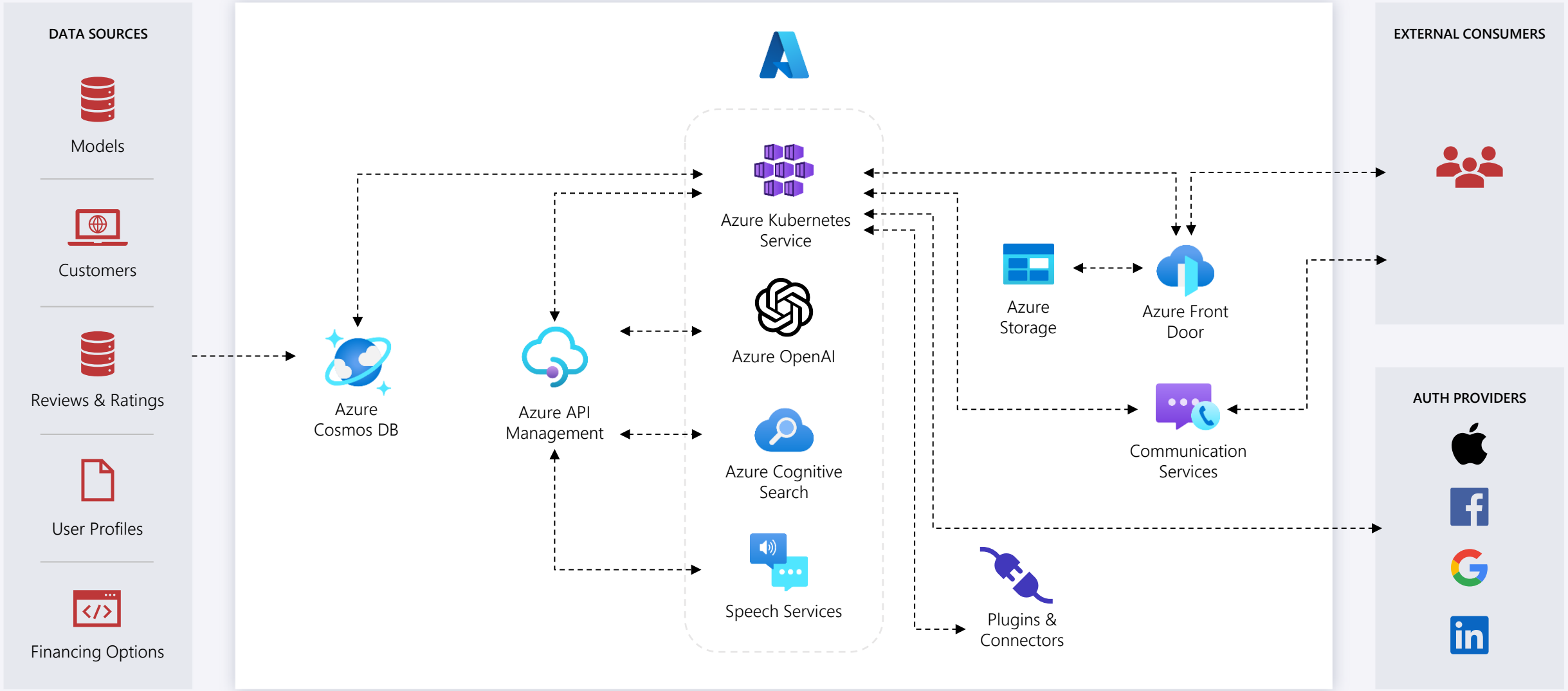


Demo site

Demo – Auto retail personalization

Use case: Personalization

CONTOSO AUTOMOTIVE



Demo site

Realize the power of AI apps for your business today

Follow the right steps to drive value for your business

Identify AI app use cases

Align your AI app uses cases business outcomes with technical patterns and case studies.

Assess your app landscape

Assess your current application landscape and develop a strategy to build new or modernize.

Leverage an integrated AI app platform

Build and modernize with an integrated AI app platform, scalable data services, and pretrained and responsible AI.

Optimize operations

Leverage operational best practices for enterprise-grade scale, performance and security.

Get started with Azure Innovate

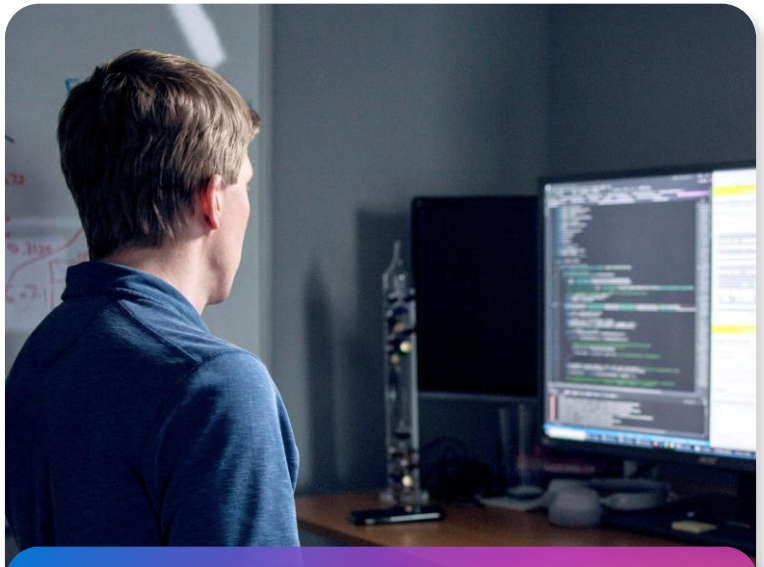
aka.ms/AzureInnovateOffering

Envisioning workshop

Connect your desired business outcomes with possible solutions

Proof of concept

Put your intelligent apps vision into action with a technical pilot



Move to production

Leverage funding and partners to move from pilot to production

Take advantage of extensive Azure resources

Offerings	Trials	Partners	Guidance	Skilling
Azure Innovate Build and modernize AI Apps	**Free services for AI apps** Get started with free amounts of Azure AI, app, and data services	**Azure Specializations** Certified Apps, Data, and AI partners	**Reference architectures** Leverage enterprise-grade best practices and Designated Engineering offers	**AI learning hub** Make the most of AI technologies with a personalized learning journey
Microsoft Unified Accelerate your success with expert-led support services	**AI application templates** Building blocks for developers to get started quickly	**Partner app Deployment** Funding for deployment through Azure partners	**Optimization guidance** Maximize your cloud investment	**Build Intelligent Apps on Azure** Learning plans available to effectively leverage AI in your applications

Microsoft

Thank you