



# Data in the Area of AI / Copilot

## Insights & Best Practices

SWICO Event 2023



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Sr. Advanced Analytics & AI Specialist EMEA  
Global Black Belt



Created with Microsoft Designer

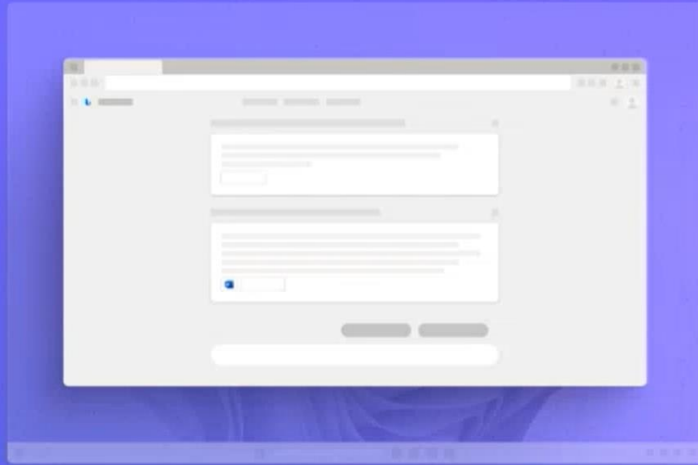
You must build a **great product**

**The model** is not your product

It's up to you to create **great experiences**

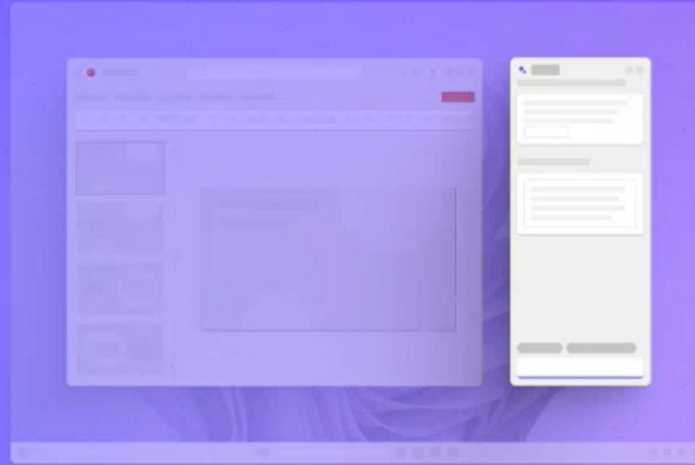
UX FRAMEWORK

# Productivity unfolds at different altitudes



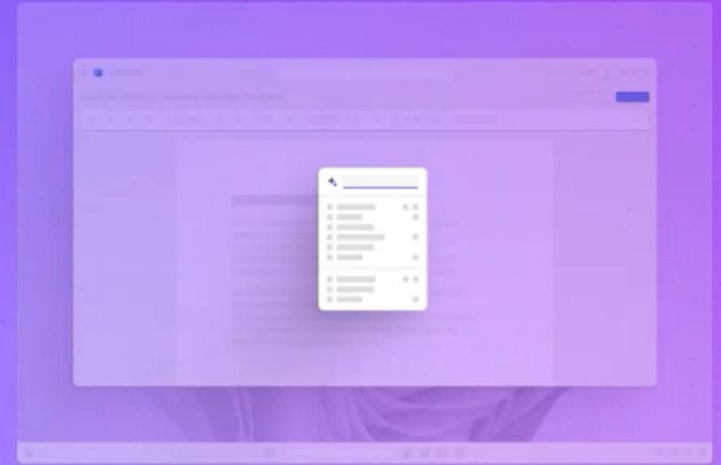
## Above

Immersive, connecting across experiences



## Beside

Assistive side panels with in-app focus



## Inside

Embedded with single-entity/task focus

# We partner at scale to drive innovation



OpenAI forms exclusive computing partnership with Microsoft to build new Azure AI supercomputing technologies

July 22, 2019 | Microsoft News Center



## Hugging Face Collaborates with Microsoft to Launch Hugging Face Endpoints on Azure

Published May 24, 2022.



## Meta selects Azure as strategic cloud provider to advance AI innovation and deepen PyTorch collaboration

Posted on May 25, 2022

[Eric Boyd](#), Corporate Vice President, AI Platform



## Azure Scales 530B Parameter GPT-3 Model with NVIDIA NeMo Megatron

Posted on October 24, 2022

[Rachel Pruitt](#), Product Marketing Manager, Azure Marketing, HPC + AI





# From Copilot to enterprise scale AI

## Built-in

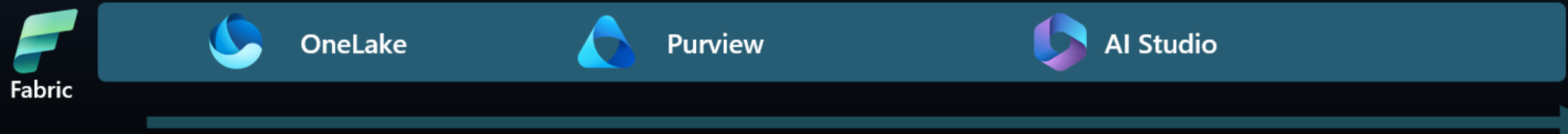
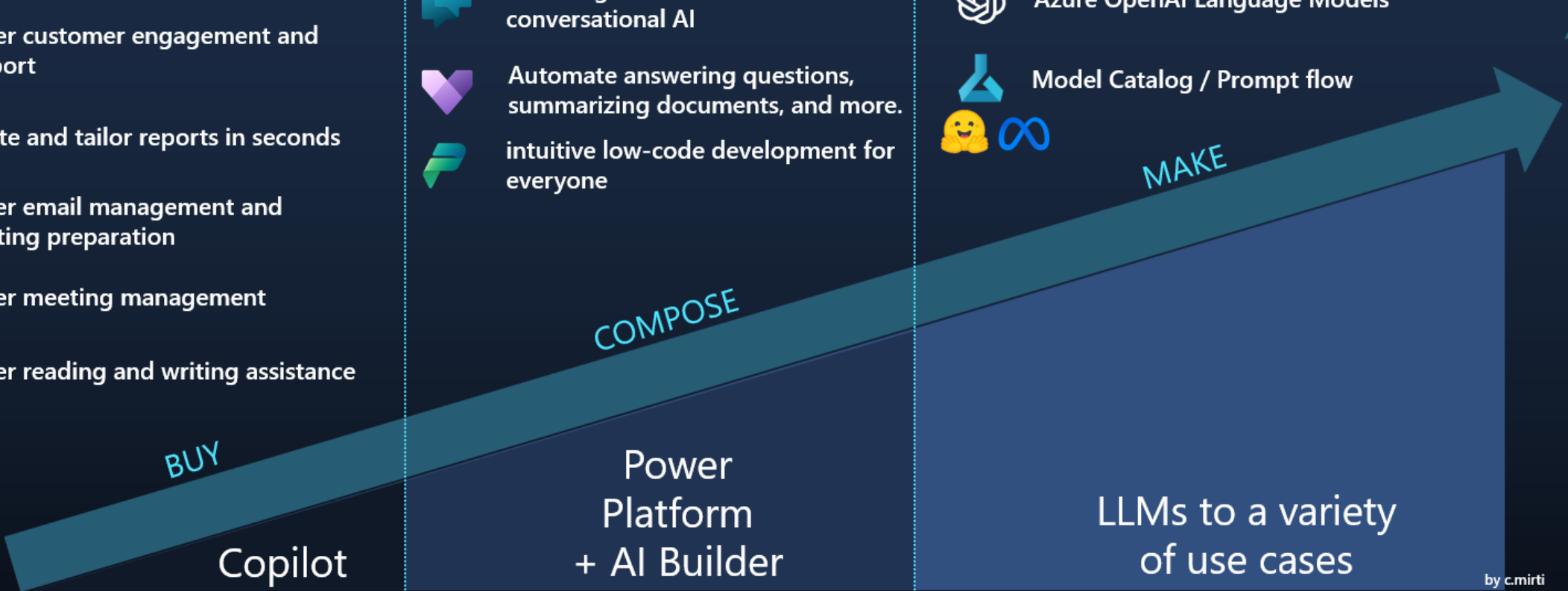
- Search and Q&A
- Better customer engagement and support
- Create and tailor reports in seconds
- Better email management and meeting preparation
- Better meeting management
- Better reading and writing assistance

## AI-Builder

- Enriching self-service with conversational AI
- Automate answering questions, summarizing documents, and more.
- intuitive low-code development for everyone

## AI-Models

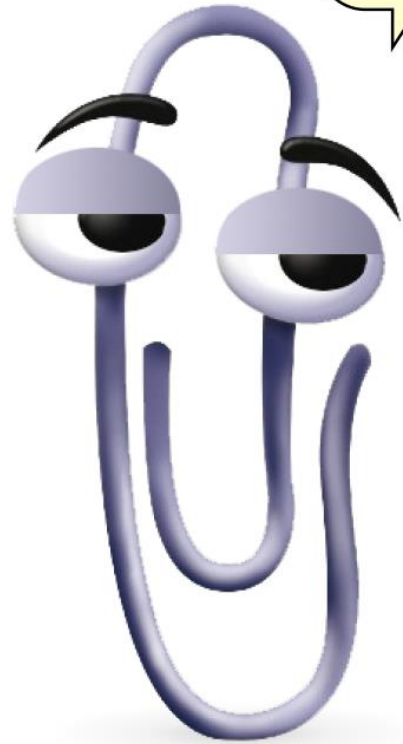
- Azure OpenAI Language Models
- Model Catalog / Prompt flow



Complexity

by c.mirti

Copilot, I am  
your father



# Azure AI

## Applications

Microsoft 365



Power BI



Power Apps

Microsoft Dynamics 365



Power Automate



Power Virtual Agents



ISV ecosystem



Customer Solutions



Partner Solutions

## Azure AI Services



Bot Service



Cognitive Search



Document Intelligence



Video Indexer



Metrics Advisor



Immersive Reader



Vision



Speech



Language



Decision



Azure Open AI

## Machine Learning Platform



Azure Machine Learning

## Data Platform



Fabric

## AI Infrastructure



Azure

Azure AI Studio

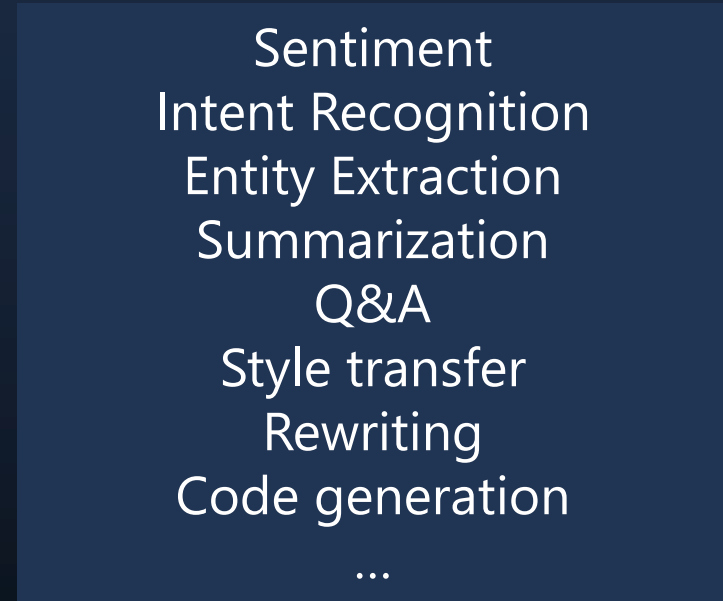
# Why is OpenAI different?

## Typical ML for NLP



One model per capability  
Lots of data to train  
Highly optimized for use case

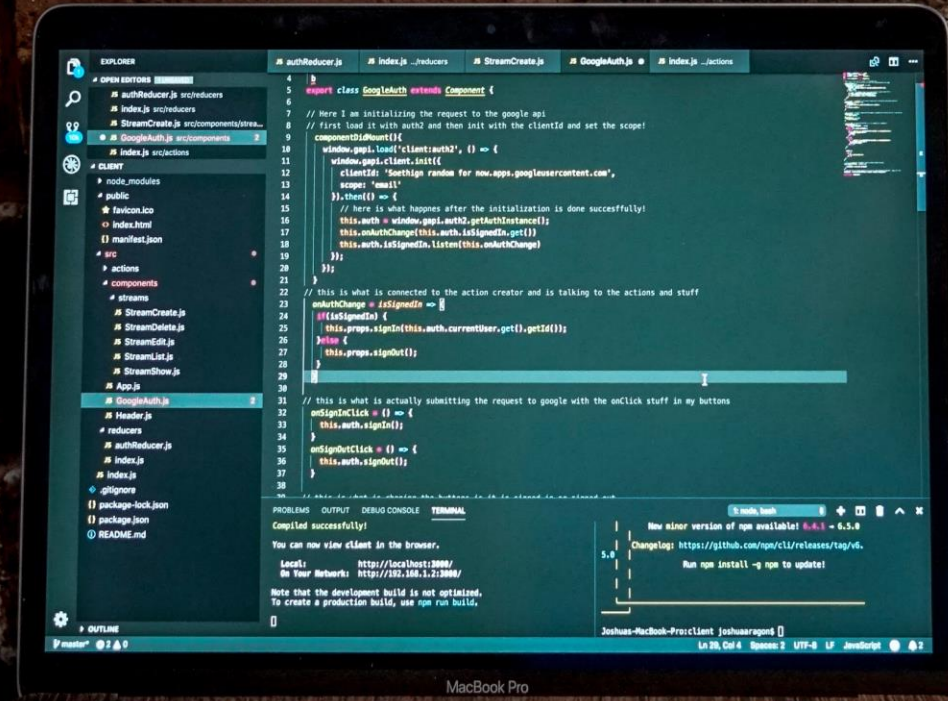
## OpenAI GPT-4



Single large model for all use cases  
Describe in «human language» what you  
want it to do



# CODE FIRST







# Azure AI Portfolio

## Azure AI Studio

Unified user interface (UI), SDK

### Azure AI Services

Vision  
Speech  
Language / Translation  
Document Intelligence  
Azure OpenAI Service  
Content Safety

### Azure AI Search

Retrieval Augmented  
Generation (RAG)  
Semantic  
Vector

### Azure Machine Learning

Ground  
Evaluate  
Deploy  
Monitor  
MLOps / LLMOps  
Responsible AI Dashboard

Turing  
Florence

GPT-4 and GPT 3.5 Turbo  
Whisper

DALL-E  
Embeddings

Meta Llama 2  
Hugging Face models

## Azure Infrastructure

One place to  
build and deploy  
AI solutions

Comprehensive  
model catalog

Production ready  
lifecycle

Safe and  
Responsible AI



Visual Studio



GitHub

# Welcome to Azure AI Studio

## Discover what you can do with AI

### Build your own copilot

Create an enterprise chat solution with an advanced LLM using your data to quickly help your customers with comprehension, tasks, and decisions.

[Build your own copilot](#)

Or [open in GitHub](#)

### Incorporate multimodality

Give your app the ability to see, hear, and speak by pairing Azure OpenAI Service with speech and vision models to enable richer interactions.

[Build multimodality into your app](#)

Or [open in GitHub](#)

### Azure AI SDK

Use your favorite frameworks and editors that allow you to work in your preferred code environments with direct access to Azure AI.

[Learn about the Azure AI SDK](#)

Or [open a sample](#)

## Recent projects

[View all](#)

Project	Azure AI resource	Description	Location	Created on
<a href="#">contoso-store</a>	<a href="#">contoso-outdoors</a>	Contoso Outdoors Sto...	eastus	Oct 25, 2023 12:03 PM
<a href="#">contoso-sales</a>	<a href="#">contoso-outdoors</a>	Contoso Outdoors cus...	eastus	Oct 24, 2023 7:08 PM
<a href="#">contoso-email</a>	<a href="#">contoso-outdoors</a>	Email creation using L...	eastus	Oct 24, 2023 6:54 PM
<a href="#">contoso-associate</a>	<a href="#">contoso-outdoors</a>	Contoso Outdoors Ass...	eastus	Oct 25, 2023 12:01 PM
<a href="#">aistudio_to_code</a>	<a href="#">e2e_demo</a>		eastus	Sep 1, 2023 7:48 AM

# Enterprise Chat with Multimodality

Select your chat model

## GPT-4

Azure OpenAI Resource

DEFAULT

## GPT-3.5-Turbo

Azure OpenAI Resource

## Llama 2

Facebook

## Model Catalog

OSS LLM Model offerings

## Fine-Tuned LLM

Any LLM in your collection you previously fine-tuned.

Add and index your data

## Import Data

Blob Storage, S3, GitHub, unstructured files

## Azure AI Search

Index, Semantic, Hybrid offerings

DEFAULT

## Fabric

Flow Connection Tool available

## MS Graph

Flow Connection Tool available

## External Vector Database

Calibrate your prompting logic

Customize System Prompt

Establish retrieval augmenting search connector

Add prompting examples

Add flow tools and plugins

Measure effectiveness with manual and metric evaluations

If additional calibration required, consider fine tuning your own model

Deploy and monitor usage

Implement Responsible AI mitigations before deployment

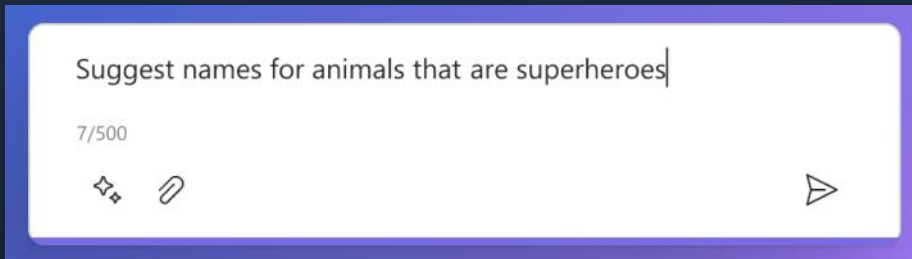
Deploy enterprise chat solution endpoint

Monitor token consumption and adjust solution parameters accordingly

Monitor compute and resource metric costs over time and optimize solution infrastructure as needed

# Prompt Design

The basic request to the model, usually in the form of an instruction or question.



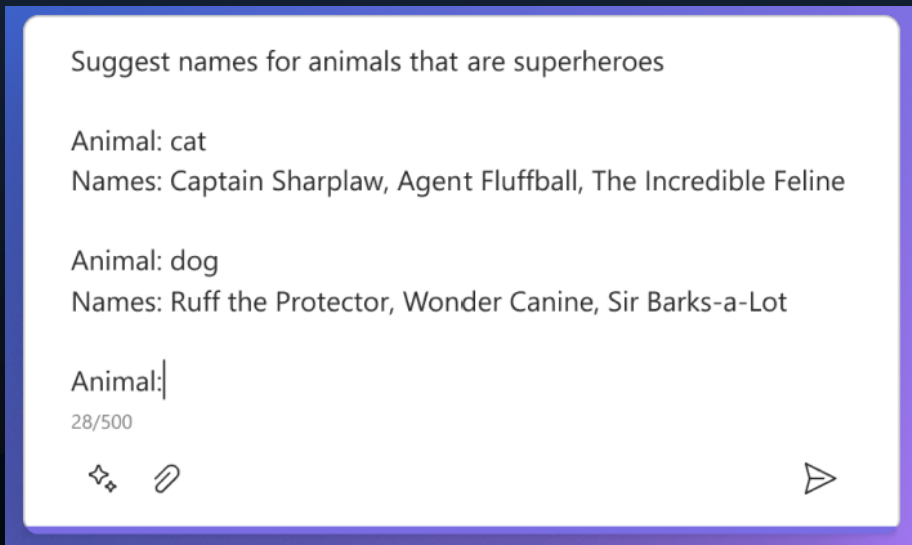
Suggest names for animals that are superheroes

7/500

✪ 📎 ➤

Zero shot

*One of the best ways to get meaningful outputs is to show the model what that output should look like*



Suggest names for animals that are superheroes

Animal: cat  
Names: Captain Sharplaw, Agent Fluffball, The Incredible Feline

Animal: dog  
Names: Ruff the Protector, Wonder Canine, Sir Barks-a-Lot

Animal:|

28/500

✪ 📎 ➤

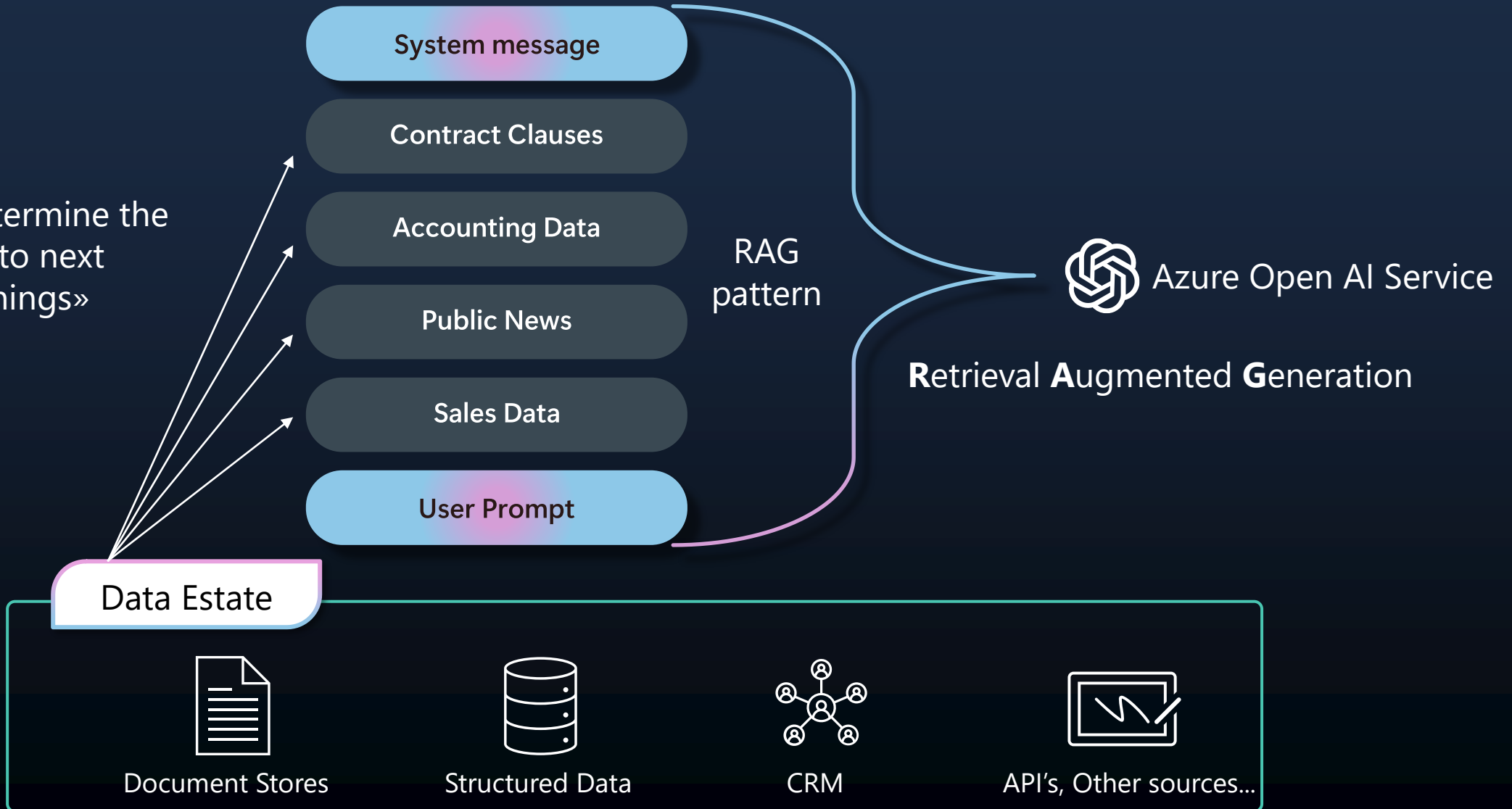
Few shot

# Prompt Engineering Builds on Data



User Prompt

«Help me determine the biggest risks to next quarter's earnings»







# Chat with your data

Ask anything or try an example

What is included in my Northwind Health Plus plan that is not in standard?

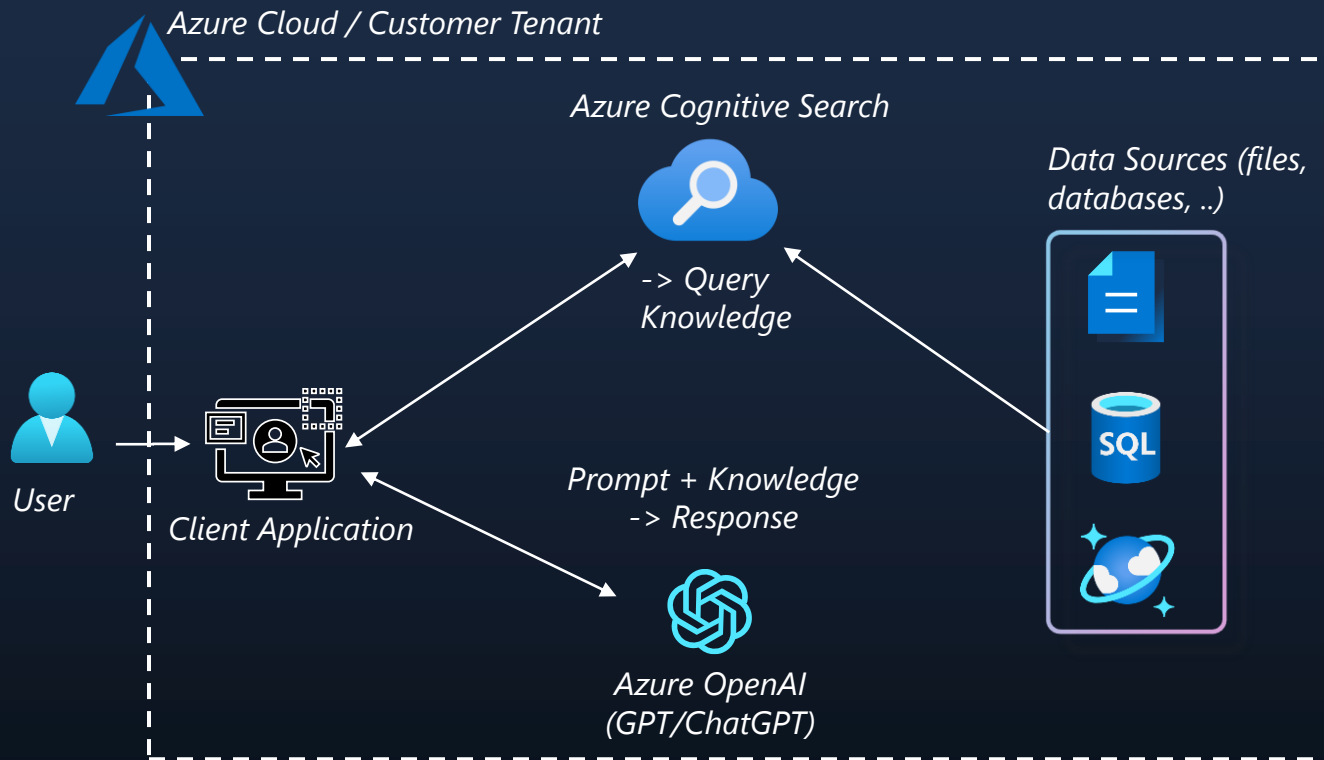
Can you tell me about performance reviews?

What does a Product Manager do?

Type a new question (e.g. does my plan cover annual eye exams?)



# Safety Systems



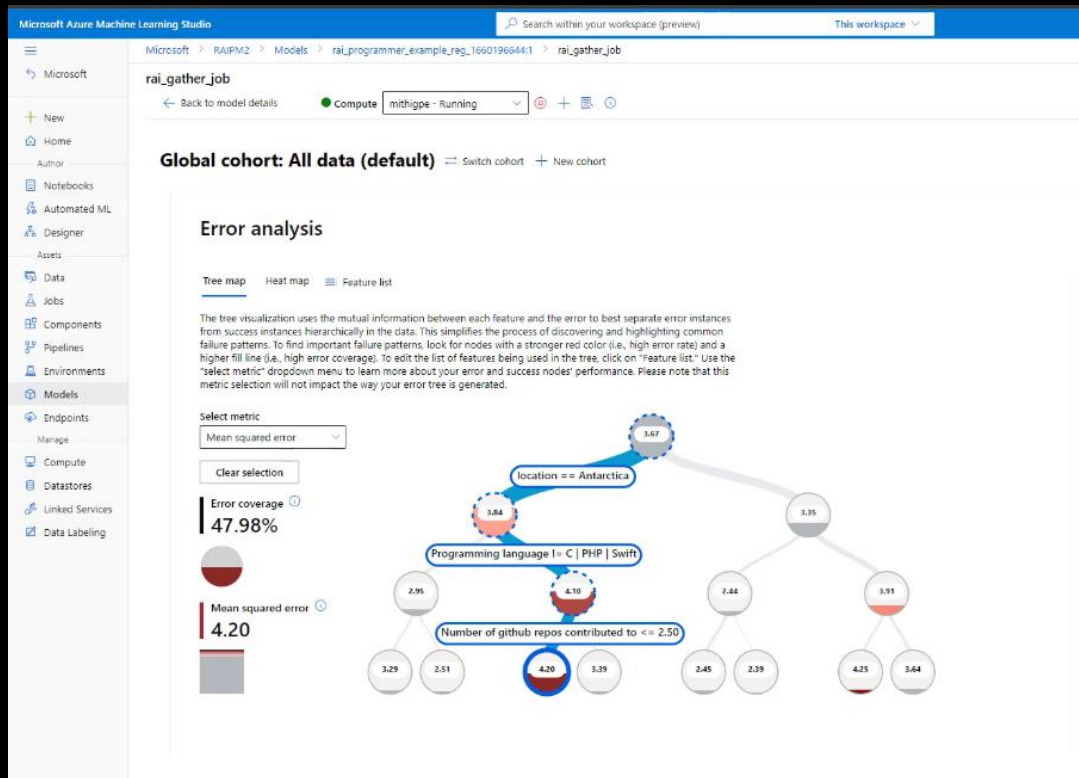
Deployed and secured in customer cloud environment and tied to their datasets and applications

Enterprise-grade security with role-based access control (RBAC) and private networks

Prompts and completions processed by Azure OpenAI are not used to train, retrain or improve the models.

# Responsible AI & Content filtering

## Responsible AI dashboard



## AI Content Safety

[Configure filters](#)

[Use blacklist](#)

[View code](#)

Set the severity thresholds for each category and select Run test to see how the results change.

[Reset to default](#)

Severity ⓘ



Violence ⓘ



Self-harm ⓘ



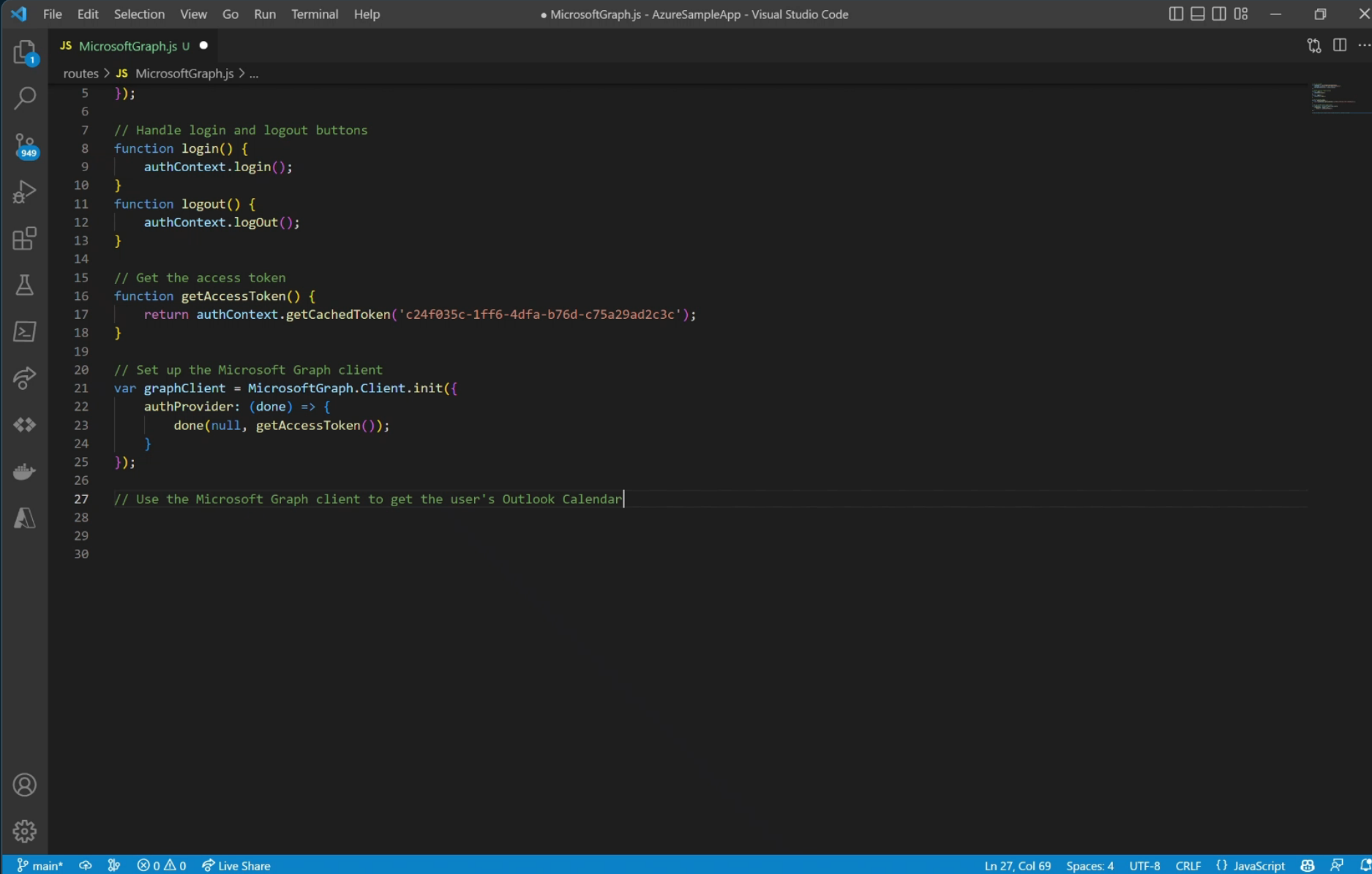
Sexual ⓘ



Hate ⓘ



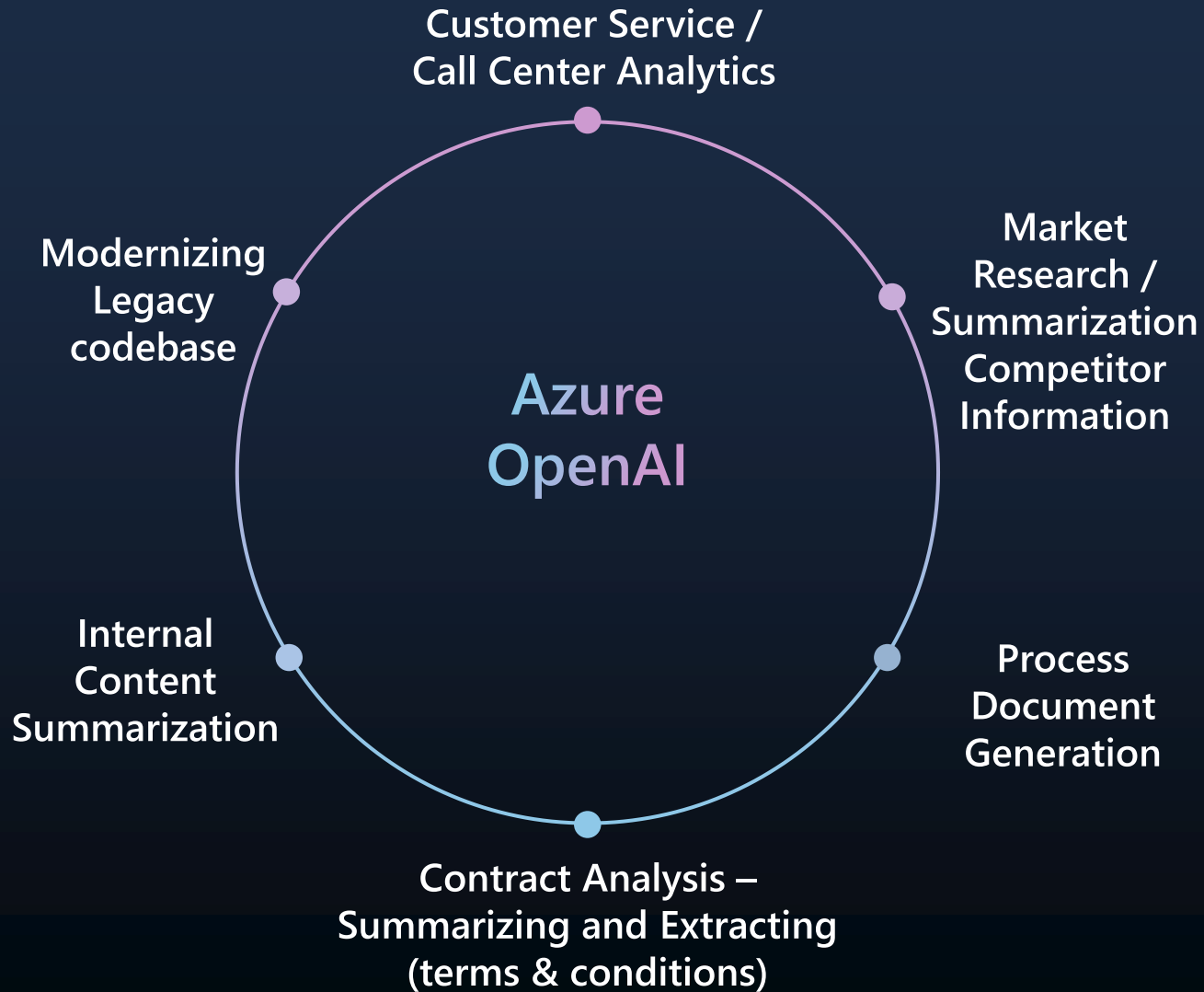
# GitHub Copilot



```
File Edit Selection View Go Run Terminal Help • MicrosoftGraph.js - AzureSampleApp - Visual Studio Code
JS MicrosoftGraph.js U
routes > JS MicrosoftGraph.js > ...
5 });
6
7 // Handle login and logout buttons
8 function login() {
9     authContext.login();
10 }
11 function logout() {
12     authContext.logout();
13 }
14
15 // Get the access token
16 function getAccessToken() {
17     return authContext.getCachedToken('c24f035c-1ff6-4dfa-b76d-c75a29ad2c3c');
18 }
19
20 // Set up the Microsoft Graph client
21 var graphClient = MicrosoftGraph.Client.init({
22     authProvider: (done) => {
23         done(null, getAccessToken());
24     }
25 });
26
27 // Use the Microsoft Graph client to get the user's Outlook Calendar
28
29
30
```

main\* 0 0 Live Share Ln 27, Col 69 Spaces: 4 UTF-8 CRLF {} JavaScript

# Use Cases



## The flow so far...



Optimization & Production



Prompt Engineering



My Data



Governance



# *LOW CODE*







# Microsoft Copilot Studio

## Build your own copilot

Create and publish a custom copilot for your organization using the intuitive building experience enhanced with large language models and generative AI

## Customize Microsoft Copilot

Extend and customize 1st party Microsoft Copilots with your own enterprise scenarios. Copilot Studio will be included with the Microsoft 365 Copilot SKU.

## Connected platform

Integrates and exposes various Microsoft's conversational AI technology stacks - integrated with Azure AI Studio, Azure Cognitive Services, Azure Bot Framework, Power Platforms AI models and more

## Manage copilot experiences

Governance and control features to monitor usage with full visibility of customizations, standalone copilots as well as who is building and customizing them.

The screenshot shows the Microsoft Copilot Studio interface for a solution named "Northwind Trader". The interface is divided into a left-hand navigation pane and a main content area. The navigation pane includes options like Home, Building blocks, GPTs (selected), Topics, Plugin actions, Prompts, Copilots, and Analytics. The main content area features a header for "Northwind Trader" with a "View solution" link. Below this is a prominent card titled "Boost your conversations (preview)" which includes a text input field for "Enter your website", a "Use generative answers" button, and an "Advanced options" link. Further down, there are three smaller cards: "Extend a Microsoft Copilot (preview)", "Add plugins for dynamic chaining (preview)", and "Meet people where they...". Each of these cards has a corresponding "Go to..." button.



Hello, I'm CLOUD-io, a virtual assistant. Just so you are aware, I sometimes use AI to answer your questions. How can I help?

5 minutes ago

Type your message

# CLOUD-io

[View Solution \(Common Data Services Default Solution\)](#)

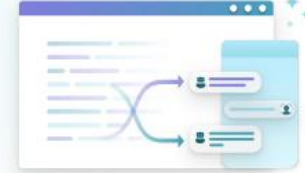


Share

## Set up your generative AI

Give your copilot knowledge to chat over. Point to websites, internal SharePoint, files, and more - and your copilot can instantly answer questions over your data. [Learn more](#)

Go to Generative AI



### Create custom topics

Build custom topics and workflows for your copilot to use.

Create topic



### Create Plugins & Actions

Connect to your enterprise data, call APIs, connectors, Flows and more - and expose them as plugins for your copilot to use.

Create plugin action



### Extend a Microsoft Copilot (preview)

Tailor your Microsoft Copilot for your enterprise needs with plugins.

Extend with conversational plugins

### Learn more

[Microsoft Copilot Studio documentation](#)

### Product videos

[Building copilots better together](#)

### Tell us what you think



Ask questions and learn from the community [Support community](#)

*NO CODE*





# A better meeting

Easily record and transcribe meetings

Surface key topics automatically with AI

Search and translate transcripts

Let AI help you have more effective sales calls

Follow-up effectively through sales-friendly action items

Use AI driven sentiment analysis to review the success of every conversation and call

The screenshot displays the Microsoft Teams interface during a meeting. The central focus is the 'Mentions' tab, which provides a summary of key topics discussed. This summary is categorized into several sections:

- Brands mentioned (2):** Includes 'salesforce (1)' and 'google (1)'. A dashed purple box highlights this section.
- Keywords mentioned (17):** Includes 'customer experience (1)', 'customer service department (1)', 'dynamics (2)', 'meeting request (1)', 'meeting (2)', 'nice day (1)', 'christian (1)', 'oracle (1)', 'google (1)', and 'customer service experience (1)'. A dashed purple box highlights this section.
- People (2):** Lists 'Chris (1)' and 'Christian (1)'. A dashed purple box highlights this section.
- Times (2):** Lists 'today (1)' and 'a year ago (1)'. A dashed purple box highlights this section.
- Questions asked by sellers (1):** Includes 'would that would that suit you? (1)'. A dashed purple box highlights this section.
- Questions asked by others (2):** Includes 'Then So what do you suggest we do from here? (1)' and 'So will you arrange for that meeting to be booked? (1)'. A dashed purple box highlights this section.

At the bottom of the interface, a 'Sentiment' analysis bar shows a timeline of the meeting with a legend for Positive (blue), Neutral (grey), and Negative (red). A purple circle highlights a specific point in time on the timeline, corresponding to a negative sentiment event. A dashed purple line connects this circle to the 'horrible experience' mentioned in the transcript on the right.

The transcript on the right shows the following conversation:

- Jesper Osgaard (00:00): Well.
- Jesper Osgaard (00:01): Hello **Christian**.
- Jesper Osgaard (00:04): I understand that the we have a few things to discuss, but let me start out by asking how are you **today**?
- Christian Koch-Bentzen (00:12): I guess, but uh, I'm fine. Thank you. It's been a long time since last. So happy to catch up and.
- Christian Koch-Bentzen (00:20): And share a bit of my my **latest experiences** with you so we can hopefully find a way forward from this.
- Jesper Osgaard (00:27): And I'm I'm happy to to listen. And yeah, I I understand that you you had a **customer experience** lately with our **customer service department** that you would like to share with me.
- Christian Koch-Bentzen (00:40): Yeah, I must admit that was simply a **horrible experience**. You know, I have, I I can't remember having been this





	A	B	C	D	E	F	G	H	I	J	K
1	Country	Customer	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS
2	France	VanArsdel	Biodegradable Cleaning Products	Low	4345	\$10	\$352	\$1,529,440	\$15,294	\$1,514,146	\$
3	USA	VanArsdel	Biodegradable Cleaning Products	Low	4245	\$10	\$352	\$1,494,240	\$14,942	\$1,479,298	\$
4	Australia	VanArsdel	Biodegradable Cleaning Products	None	4124	\$10	\$352	\$1,451,648	\$0	\$1,451,648	\$
5	Mexico	VanArsdel	Biodegradable Cleaning Products	Medium	3954	\$10	\$352	\$1,391,808	\$83,508	\$1,308,300	\$
6	France	Contoso Pharmaceuticals	Biodegradable Cleaning Products	Low	4952	\$10	\$127	\$628,904	\$6,289	\$622,615	\$
7	France	Contoso Pharmaceuticals	Recycled Can	Low	4903	\$5	\$127	\$622,681	\$6,227	\$616,454	\$
8	Canada	Proseware	Natural Personal Care Products	Low	1954	\$270	\$302	\$590,108	\$5,901	\$584,207	\$
9	Canada	Proseware	Biodegradable Cleaning Products	High	1990	\$220	\$302	\$600,980	\$84,137	\$516,843	\$
10	USA	VanArsdel	Compostable Food Packaging	Low	1254	\$3	\$380	\$476,520	\$4,765	\$471,755	\$
11	USA	Proseware	Natural Personal Care Products	Medium	1465	\$224	\$302	\$442,430	\$26,546	\$415,884	\$
12	USA	Proseware	Sustainable Snack Packaging	Medium	1410	\$120	\$302	\$425,820	\$25,549	\$400,271	\$
13	Australia	Proseware	Natural Personal Care Products	Medium	1369	\$224	\$302	\$413,438	\$24,806	\$388,632	\$
14	USA	VanArsdel	Compostable Food Packaging	Medium	1052	\$3	\$380	\$399,760	\$23,986	\$375,774	\$
15	Canada	VanArsdel	Compostable Food Packaging	Low	980	\$312	\$380	\$372,400	\$3,724	\$368,676	\$
16	Australia	Proseware	Sustainable Snack Packaging	Medium	1298	\$120	\$302	\$391,996	\$23,520	\$368,476	\$
17	Australia	VanArsdel	Compostable Food Packaging	None	954	\$3	\$380	\$362,520	\$0	\$362,520	\$
18	Canada	Contoso Pharmaceuticals	Biodegradable Cleaning Products	Low	2785	\$110	\$127	\$353,695	\$3,537	\$350,158	\$

# Enhancing the Data Experience

Natural Language to SQL

**Create content with Copilot** PREVIEW

Let's work together to create a report with meaningful insights. To get started, based on your data here are some suggested topics for your report. Select one or enter your own ideas.

Analyze trends in customer demographics    Compare customers from different regions

Create a dashboard for key customer metrics    Summarize customer KPIs by new vs returning c...

Help me build a report summarizing the profile of customers who visited our resort properties in the last 12 months. I want it to include the following:

- Summary of new vs returning customers and their demographics
- Where customers visit from and how long they stayed
- Types of customers and why they visited



```
SELECT COUNT(*) AS 'Total Customers',
SUM(CASE WHEN is_new_customer = 1 THEN
ELSE 0 END) AS 'New Customers', SUM(CASE
WHEN is_new_customer = ...
```



CRM Database

Search (Alt + Q)

Copilot

File View Reading view Mobile layout

## Customer Profile

Property Visited: All    Customer Source: All

**Total Customers**

45,195

**Return Rate**

11.7%

**New Customers**

39,906

**Repeat Customers**

5,289

**Average Days Booked**

3.9

**Average Customer Age**

56.0

**Customer Return Rate by Month**

**New vs Repeat Customers**

**Average Days Booked by Month**

**Age Breakdown**

**Customers by Country**

Australia	9.7K
Germany	9.5K
United States	7.6K
Canada	4.2K
Japan	2.3K
Netherlands	1.6K
China	1.5K
Russia	1.3K
France	1.2K
UK	0.9K
Unknown	0.3K

**New vs Repeat Customers by Month**

**New vs Repeat Customers by Group Type**

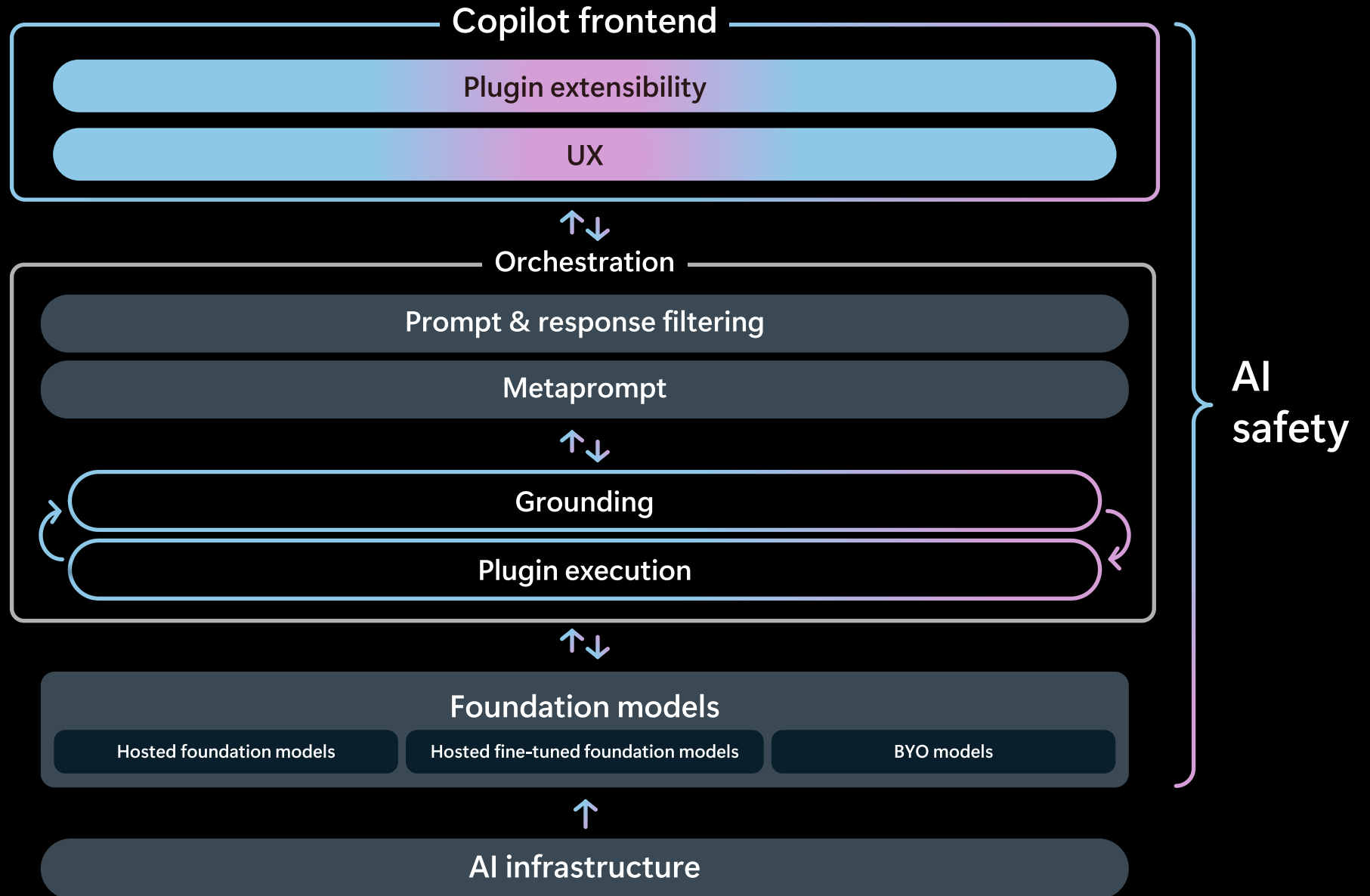
Couple	24K	3K
Single	11K	2K
Family	5K	

**Customers by Primary Interest**

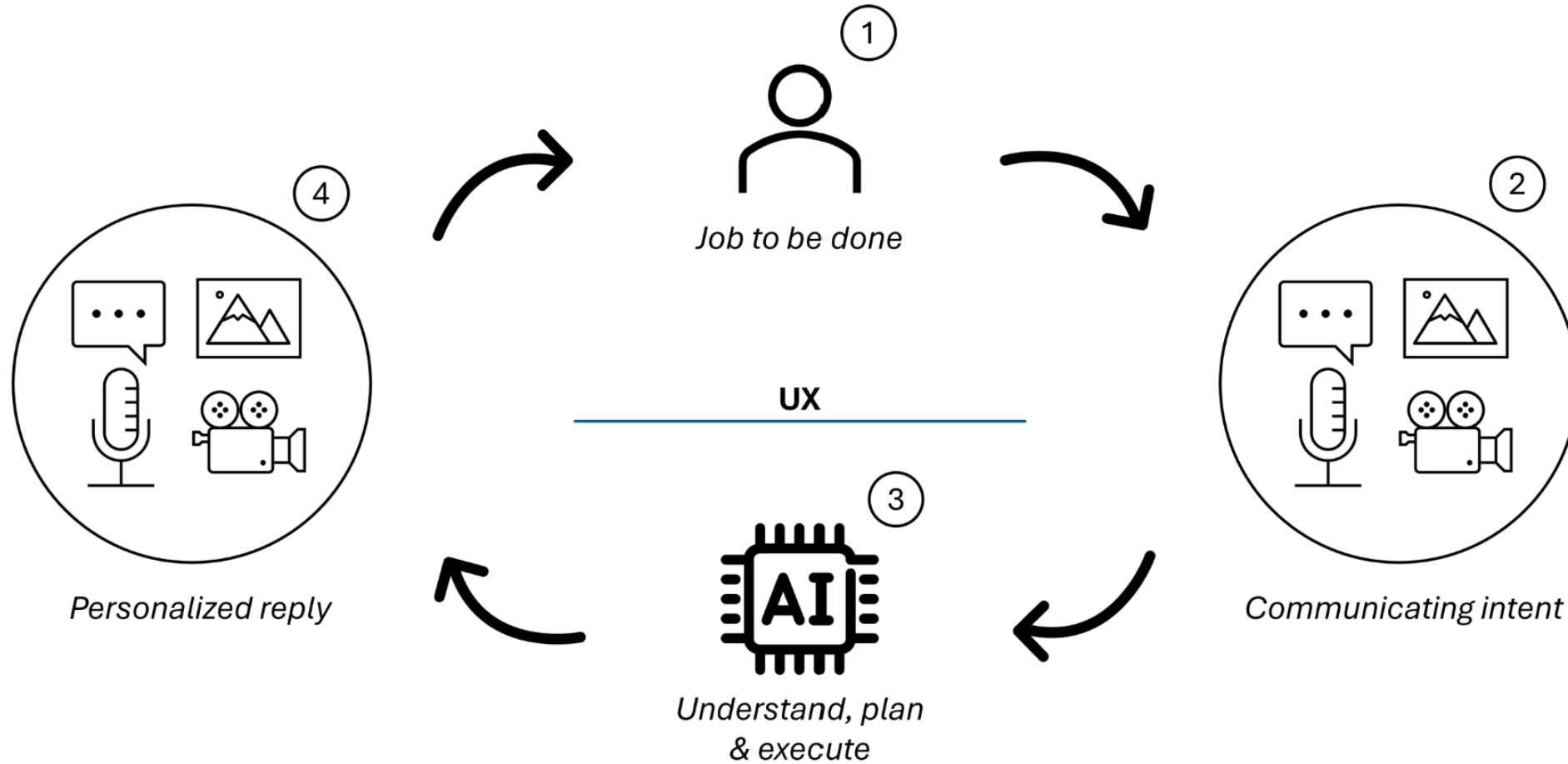
Sport activities	23K
Relaxation	13K
Honeymoon	7K
Sightseeing	2K



# Copilot stack



# UX and the new paradigm of interaction (Copilots)



Conceptual illustration of the new paradigm of interacting with Copilots

# Microsoft Cloud AI you can trust

Your data is your data

Your data is not used to train the OpenAI foundation models without permission

Your data is protected by the most comprehensive enterprise compliance and security controls

# Guidelines for Human AI Interaction

Learn More: <https://aka.ms/aiguideelines>



## INITIALLY

1  
Make clear what the system can do.

2  
Make clear how well the system can do what it can do.

## DURING INTERACTION

3  
Time services based on context.

4  
Show contextually relevant information.

5  
Match relevant social norms.

6  
Mitigate social biases.

## WHEN WRONG

7  
Support efficient invocation.

8  
Support efficient dismissal.

9  
Support efficient correction.

10  
Scope services when in doubt.

11  
Make clear why the system did what it did.

## OVER TIME

12  
Remember recent interactions.

13  
Learn from user behavior.

14  
Update and adapt cautiously.

15  
Encourage granular feedback.

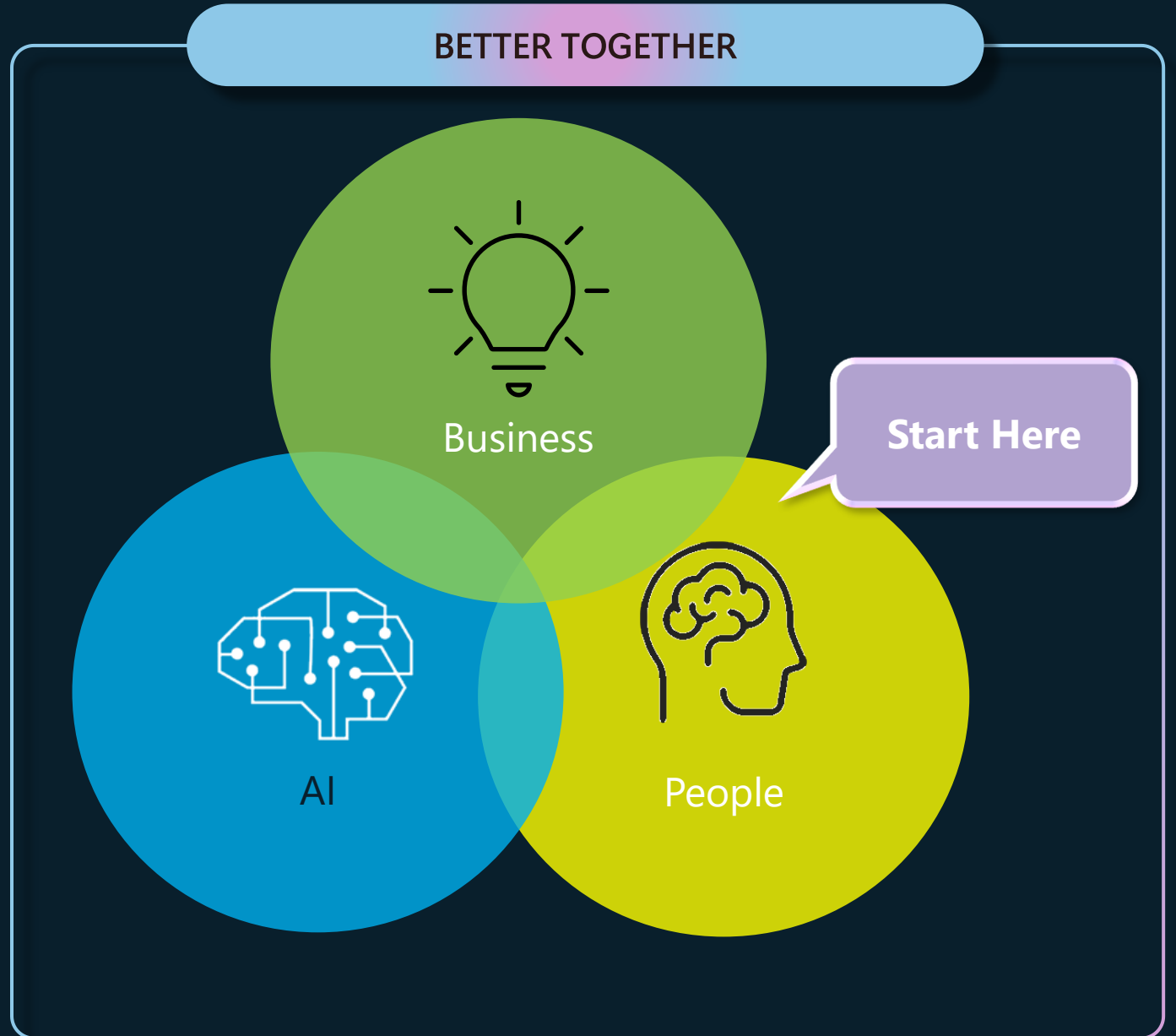
16  
Convey the consequences of user actions.

17  
Provide global controls.

18  
Notify users about changes.



Take a people-centered approach creating **great experiences** that matter



**THANK YOU.**



Claudio Mirti



# Advancing the state-of-the-art computer vision technologies

YbrigOut-20230416172252-20230416172319.mp4



Run a test

Run frame analysis

Run

Results

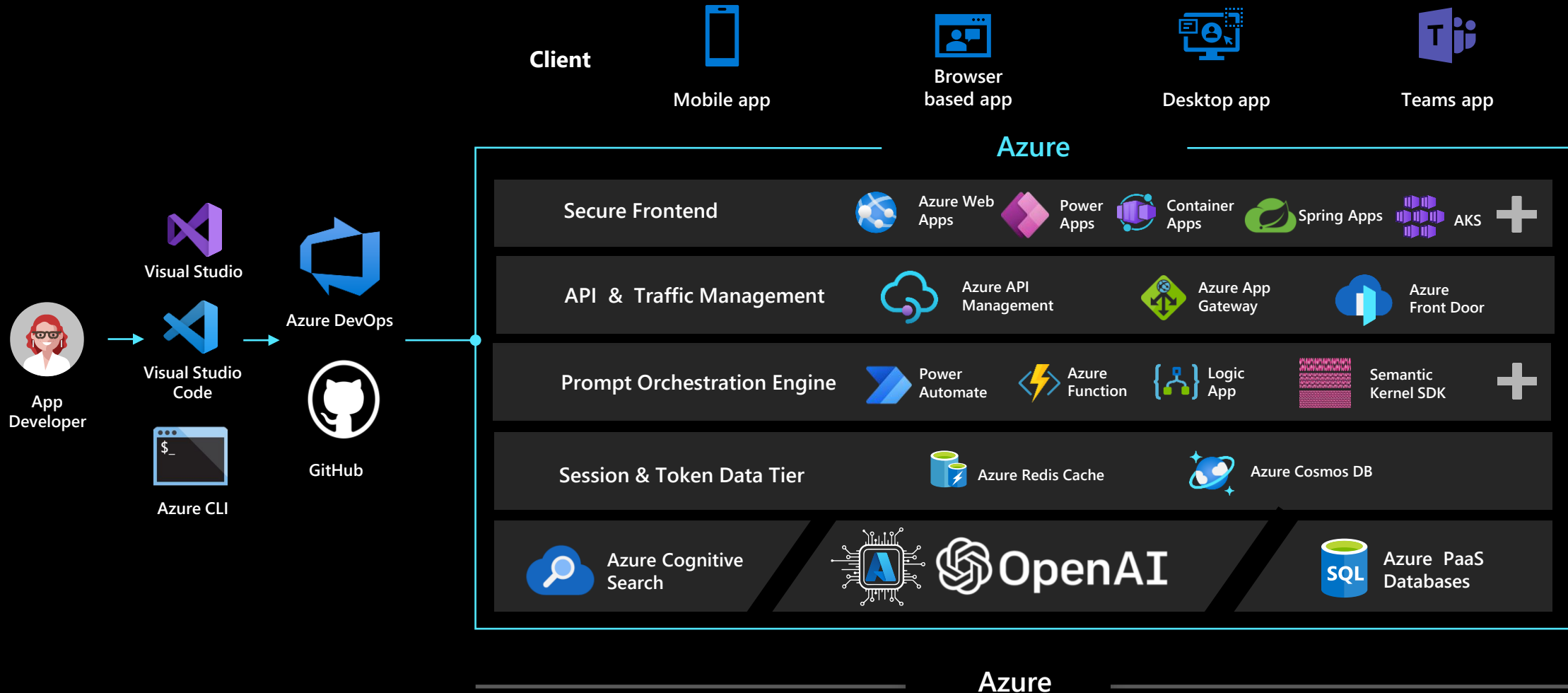
Results appear here.



[Project Florence \(AI\) - Microsoft Research](#)

# Azure Application Platform

Empowering the next generation of professional developers using serverless and cloud native technology



# Azure OpenAI Service customer momentum

accenture

Adobe

Albusters

ALERT  
INNOVATION

AON

arvato  
BERTELSMANN

AUTODESK.

avanade

BMW GROUP  
MINI

CARmax

CIBC

CIPIO.ai

clevertar

Coca-Cola

cognizant  
intuition engineered

copy.ai

coursera

Databook

DataRobot

DocuSign

Downer

ebay

ELSEVIER  
Health

Epic

EY

Farmlands  
co-operative

GENIE AI

grammarly

H&R  
BLOCK

Icertis

JLIFAD

IKEA

Inpris

inworld

Kepro  
Making healthcare work.

klaviyo

KPMG

LAWU

LSEG

MATTEL

MORNINGSTAR

MOODY'S

nationale  
nederlanden

NBA

ODP

Paramount

Providence

pwc

RTL+

SAP

Schroders

servicenow

Shell

snelstart

sogeti  
Part of Capgemini

soul  
machines

STRABAG

TreLent

Typeface

UNITEDHEALTH GROUP

VOLVO

wipro

WordLift

zammo