

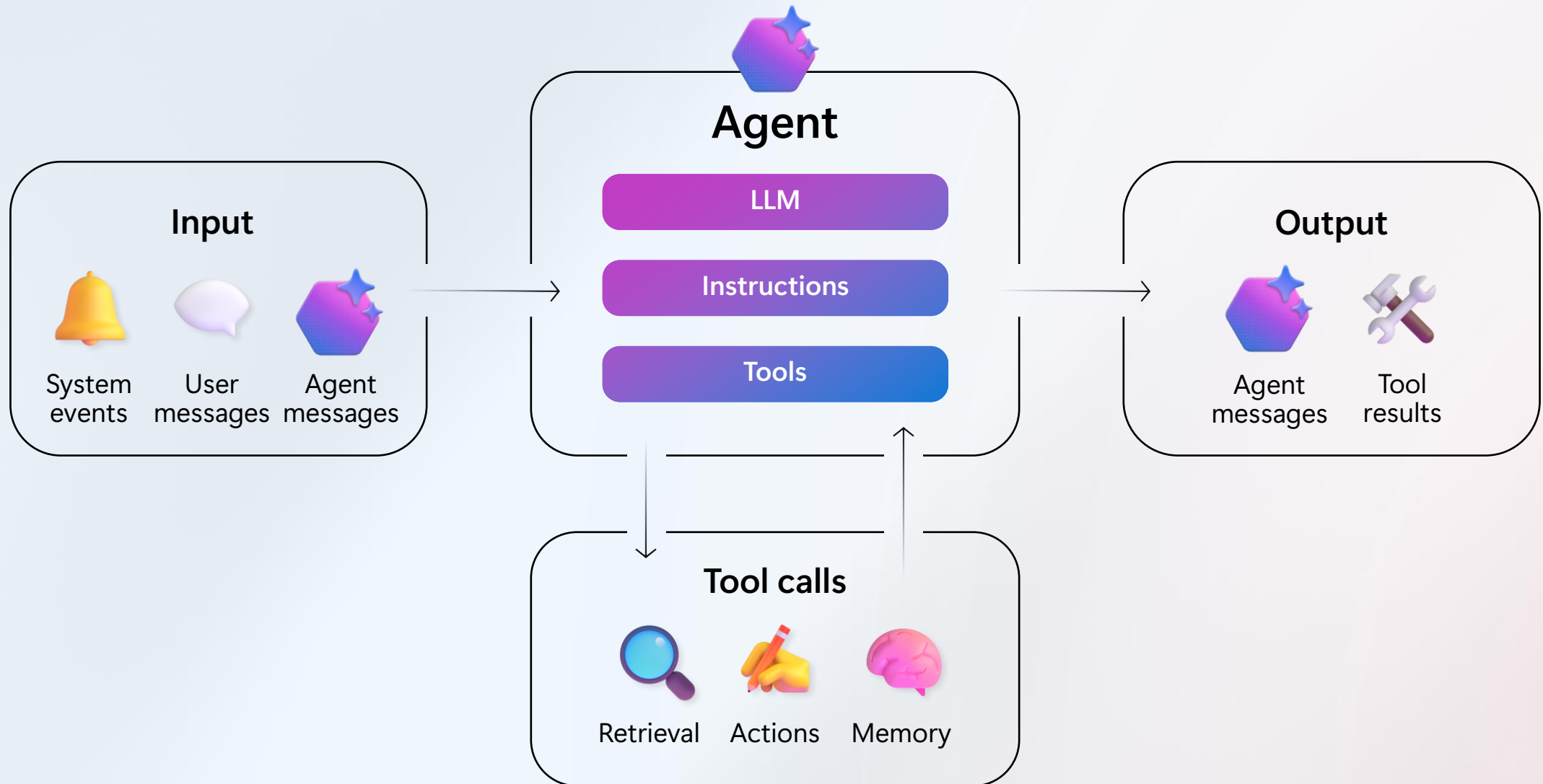
# Agentic AI with Microsoft Fabric & Azure AI Foundry

Lasse Arnesen, Technology Strategist @ Microsoft

A satellite view of Earth, centered on the Americas. The image shows the Western Hemisphere, including North and South America, the Atlantic Ocean, and the Pacific Ocean. A semi-transparent yellow banner with rounded ends is positioned horizontally across the middle of the globe. The text "AI is transforming the world" is written in a black, sans-serif font on this banner. The background is a solid dark blue.

AI is transforming the world

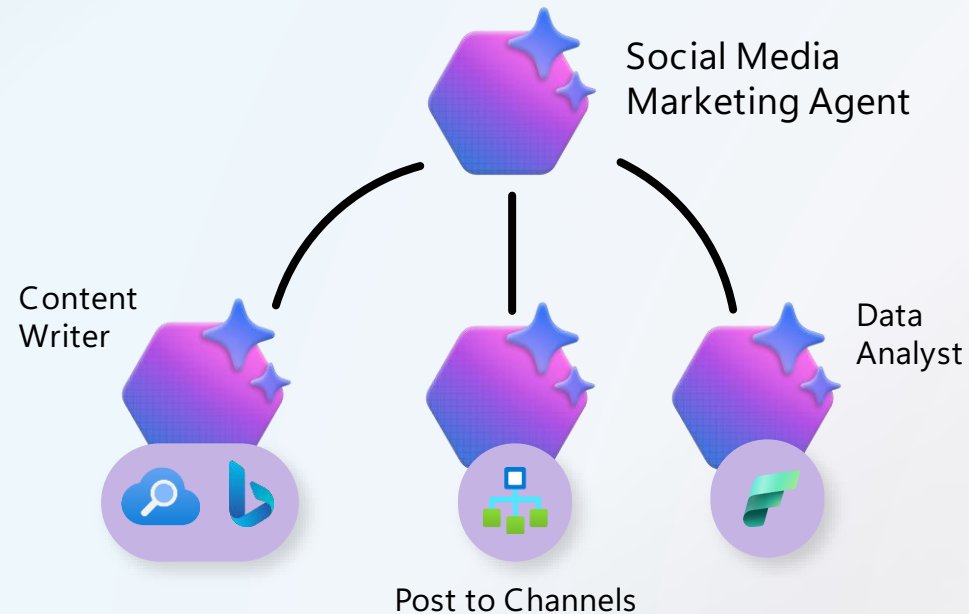
# What is an agent?



# Instead of just relying on just one generalist agent we can leverage many experts!

## Connected agents

Give one agent the abilities of another...

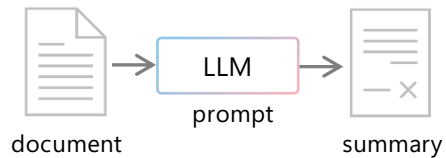




# Spectrum of LLM-based Solutions

## No Agent

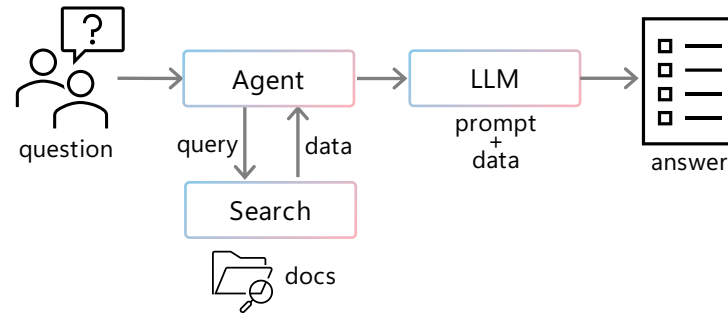
Very narrow one-shot task



Ex: log to JSON

## Single Agent

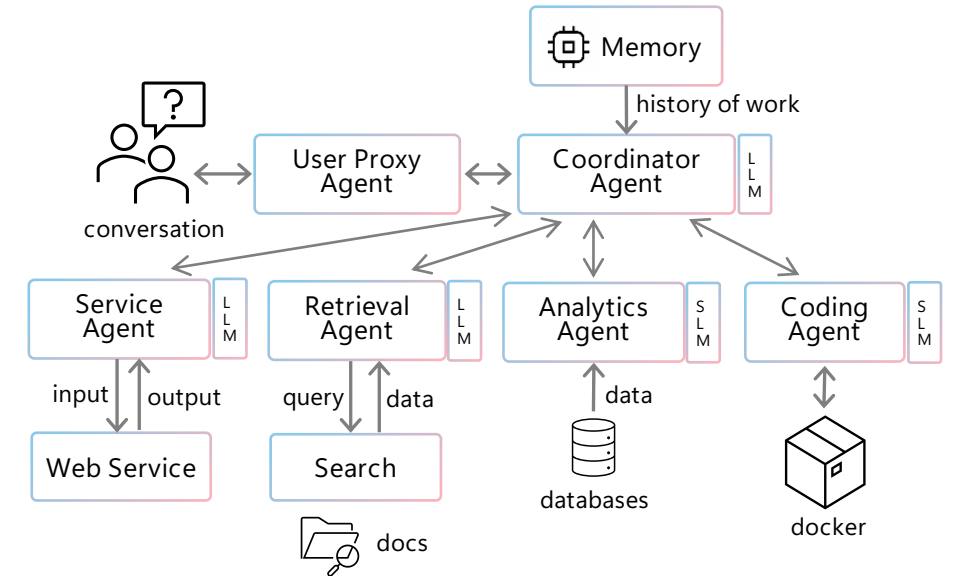
Very clearly scoped iterative task



Ex: providing an answer with supporting evidence to a complex question.

## Multi-agent Systems

Wide scope complex use case requiring diverse skills

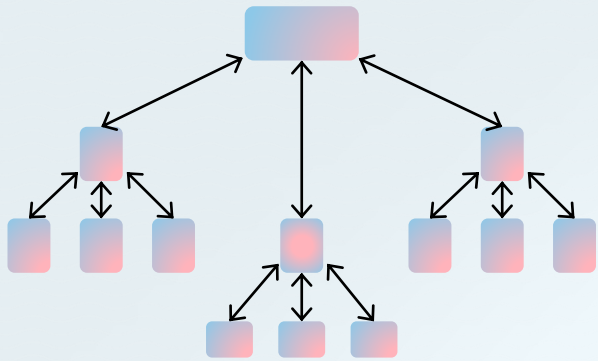


Ex: Propose 2 Instagram marketing campaigns including assets that would leverage the top 2 recent trends in our past quarter US Sales to boost our mailing list user base and predict the impact of each campaign.

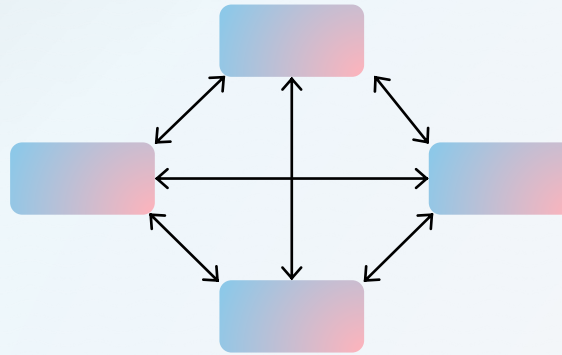
VALUE

# Multi-Agent Orchestration Patterns

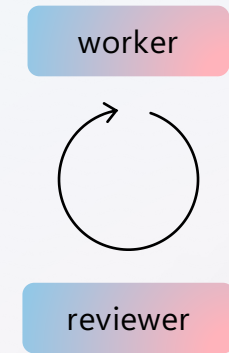
Hierarchical



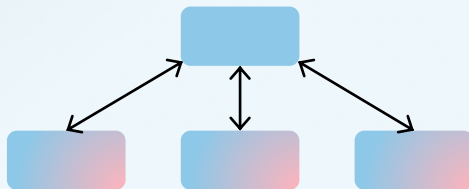
Network



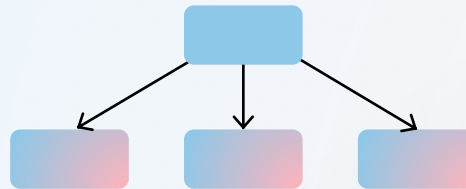
Maker-Checker



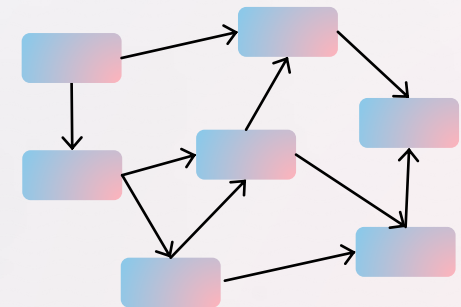
Supervisor



Hand-Off



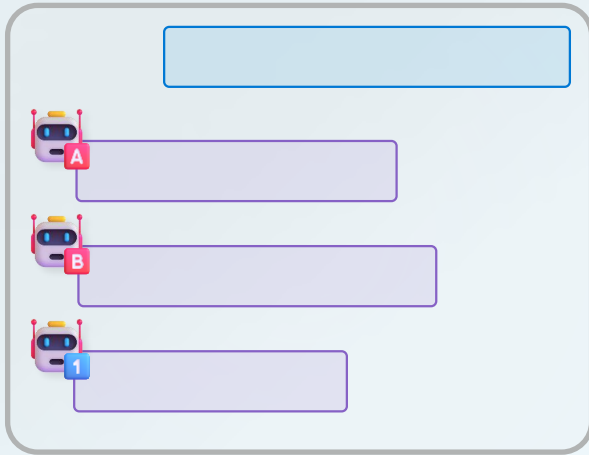
Custom



# Multi-agent

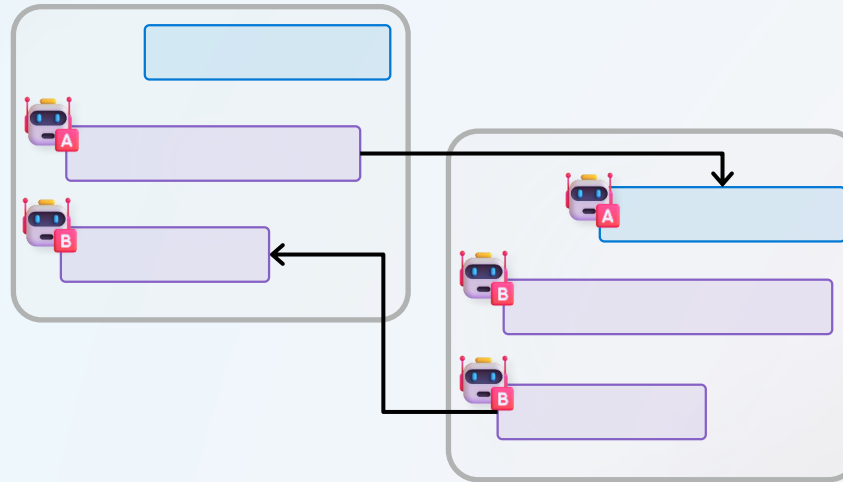
## Customers have three choices...

1. Single thread shared across all agents



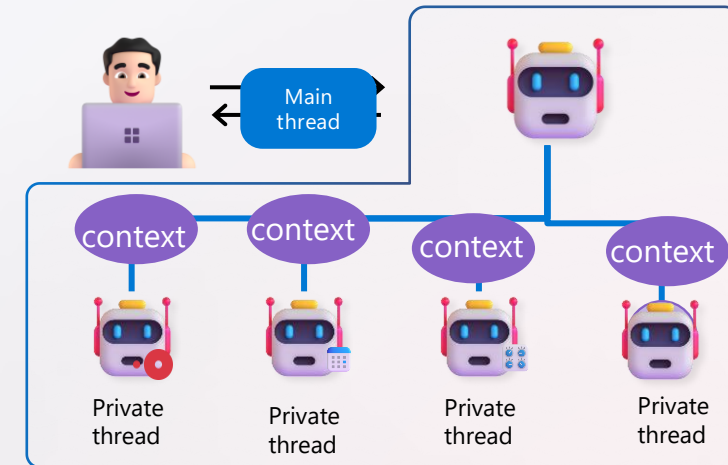
Pros: agents see all context  
Cons: noisy and easily hit context windows

2. Private threads for workstreams



Pros: focused conversations  
Cons: difficult to pass data back

3. One main conversation thread with context passed for sub-agents



# AI-powered experiences in Fabric

Gen AI accelerates your data journey



Copilot accelerated  
experiences

Generally available



Chat with your data  
experiences

Public Preview



Build data agents for  
custom AI solutions

Public Preview

# Copilot in Power BI

Unlock the full potential of your data

52%

Copilot users  
completed tasks **faster**

36%

Copilot users completed  
tasks more **accurately**

90%

Copilot users surveyed were  
likely to continue to **adopt**

SOURCE: Based randomized control trial conducted with n=209 users by Microsoft Corporation in October 2024 that measured four common metrics associated with the consumption experience of Copilot in Power BI, in Microsoft Fabric and compared it to users that did not use copilot. Qualitative sentiment gathered upon task completion. Actual results may vary.

# Copilot and AI enabled across all paid SKUs

Available now



Copilot and AI  
experiences on F2+

Customers on F2+  
can now access Copilot  
in Fabric, data agents,  
AI functions

F64+ SKU requirement for  
Copilot and AI capabilities  
removed

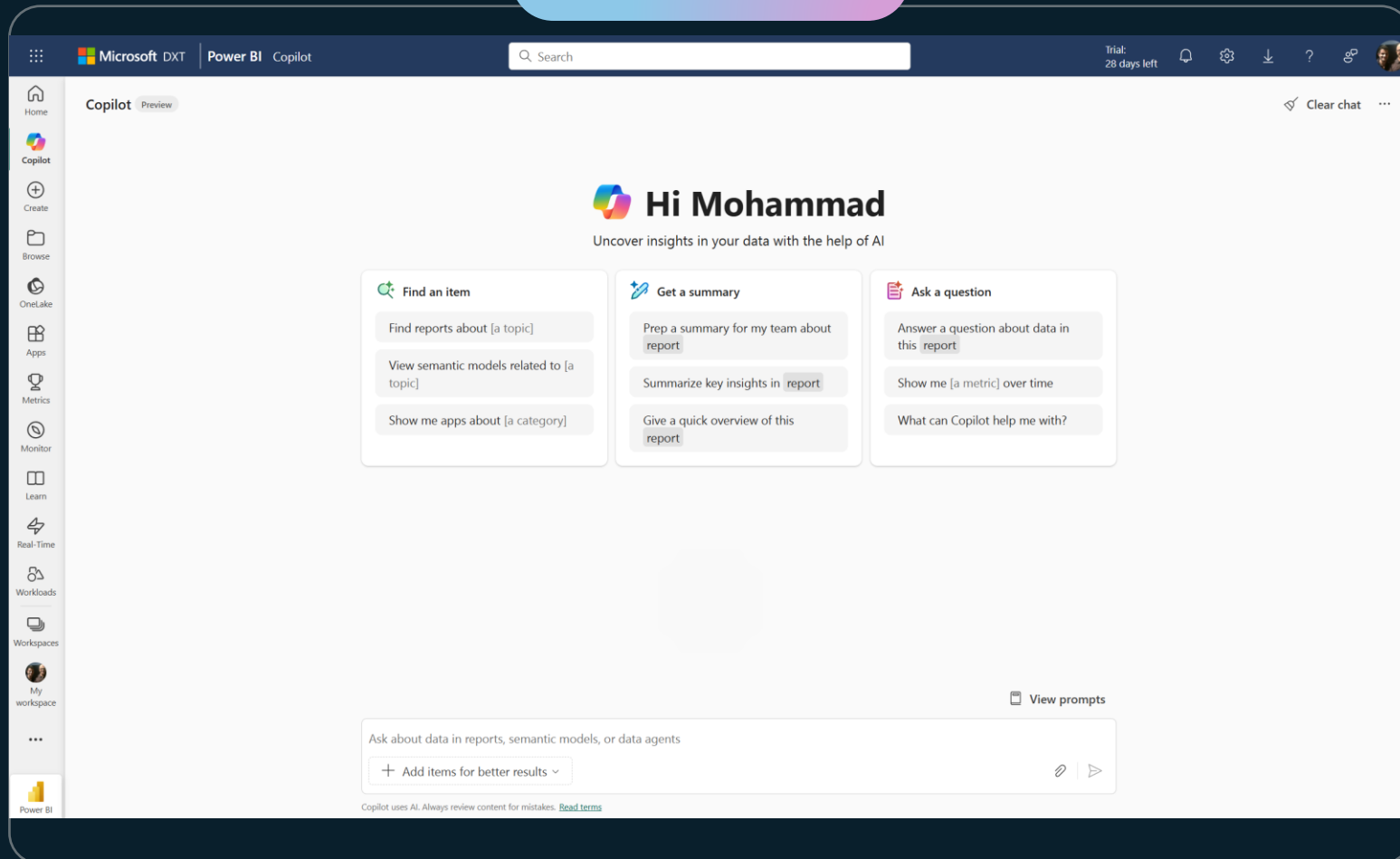
Try it today



# Chat with your data in Copilot in Power BI

A new full-screen Copilot experience that enables chat across all your Power BI data

Public Preview



Find, summarize, and analyze data across multiple reports, semantic models, apps, and data agents

Business users in Power BI can now chat with data agents without switching context

Lays foundation for upcoming integration of the Power BI agent with M365 Copilot Chat

Public Preview

# Fabric data agents

Virtual analyst on data in OneLake

# Fabric data agents

The screenshot displays the Microsoft Fabric interface for a workspace named 'Contoso Customer Sales NG'. The top navigation bar includes the Microsoft logo, the workspace name, a search bar, and a trial status indicator ('Trial: 23 days left'). The left sidebar shows navigation options: Home, Workspaces, OneLake, Monitor, Real-Time, and Workloads. The main canvas shows a data pipeline with the following steps: 'High-volume data' and 'Low-volume data' (both 'Get data' tasks) feed into 'Bronze data' (a 'Store data' task). 'Bronze data' feeds into 'Initial process' (a 'Prepare data' task). 'Initial process' feeds into 'Silver data' (a 'Store data' task). 'Silver data' feeds into 'Further transform' (a 'Prepare data' task). 'Further transform' feeds into 'Golden data' (a 'Store data' task). 'Golden data' feeds into 'Data visualize' (a 'Visualize data' task) and 'ML serving' (an 'Analyze and train data' task). Below the pipeline, a table lists data assets:

Name	Type	Task	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Included in app
Customer_Sales	Semantic model	—	Contoso Customer Sales NG	3/16/2025, 9:57...	N/A	—	Confidential	—
Customer_Sales	SQL analytics endpoint	—	Nellie Gustafson	—	—	—	Confidential	—
Data Preprocessing	Notebook	—	Nellie Gustafson	—	—	—	Confidential	—
PackageDeliveries	Eventhouse	—	Nellie Gustafson	—	—	—	Confidential	—
PackageDeliveries	KQL Database	—	Nellie Gustafson	—	—	—	Confidential	—
PackageDeliveries_queryset	KQL Queryset	—	Nellie Gustafson	—	—	—	Confidential	—

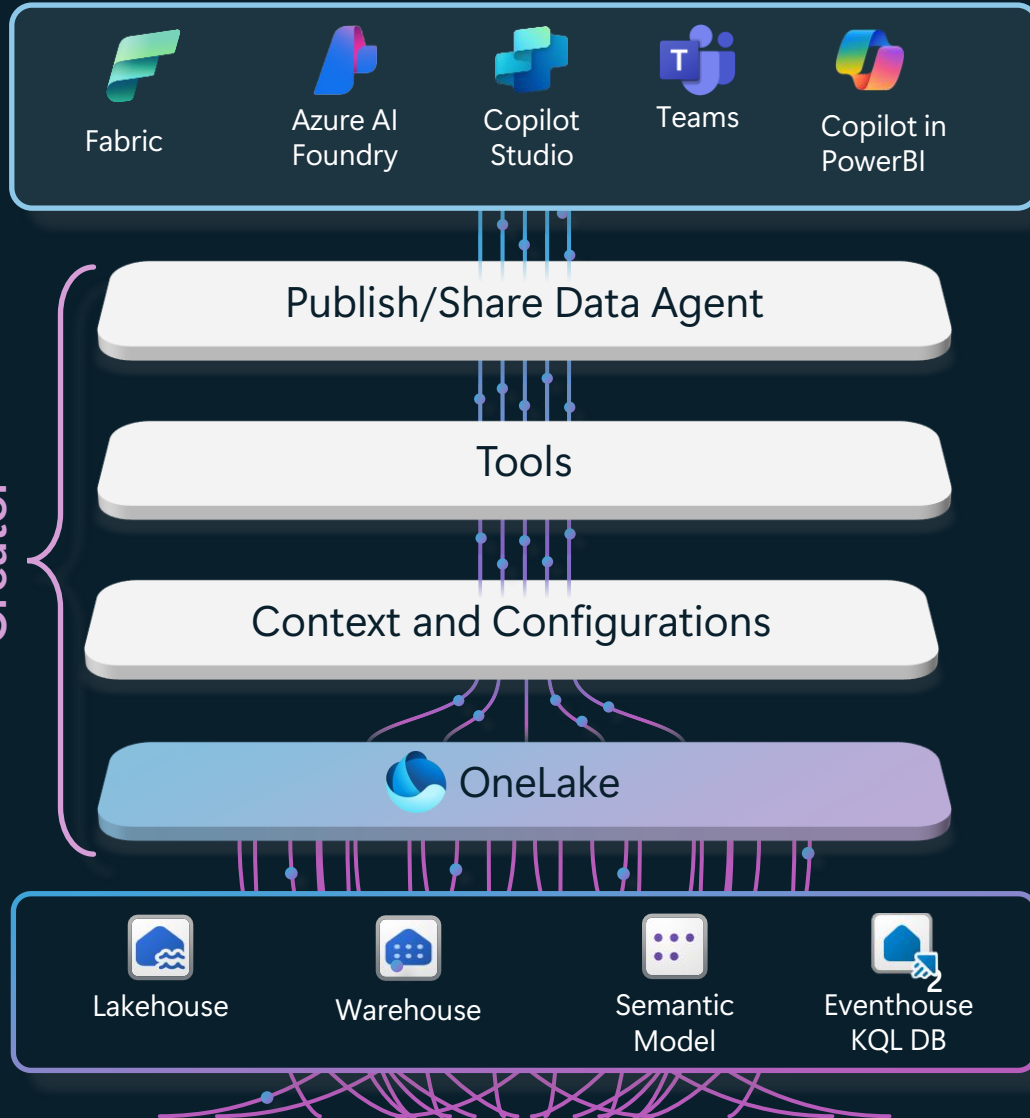
Create conversational AI agents that allow users to interact with data naturally

Reason over and synthesize data in OneLake for insights, tailored to your data domain

Extract deeper insights by understanding the structure, meaning, and context of data

# Fabric data agents

 Consumer



The **conversational data agent** allows users to interact and analyze data with natural language, enhancing accessibility and usability.



Chat canvas for creators with **new debugging capabilities**, making it easier to understand and refine responses.



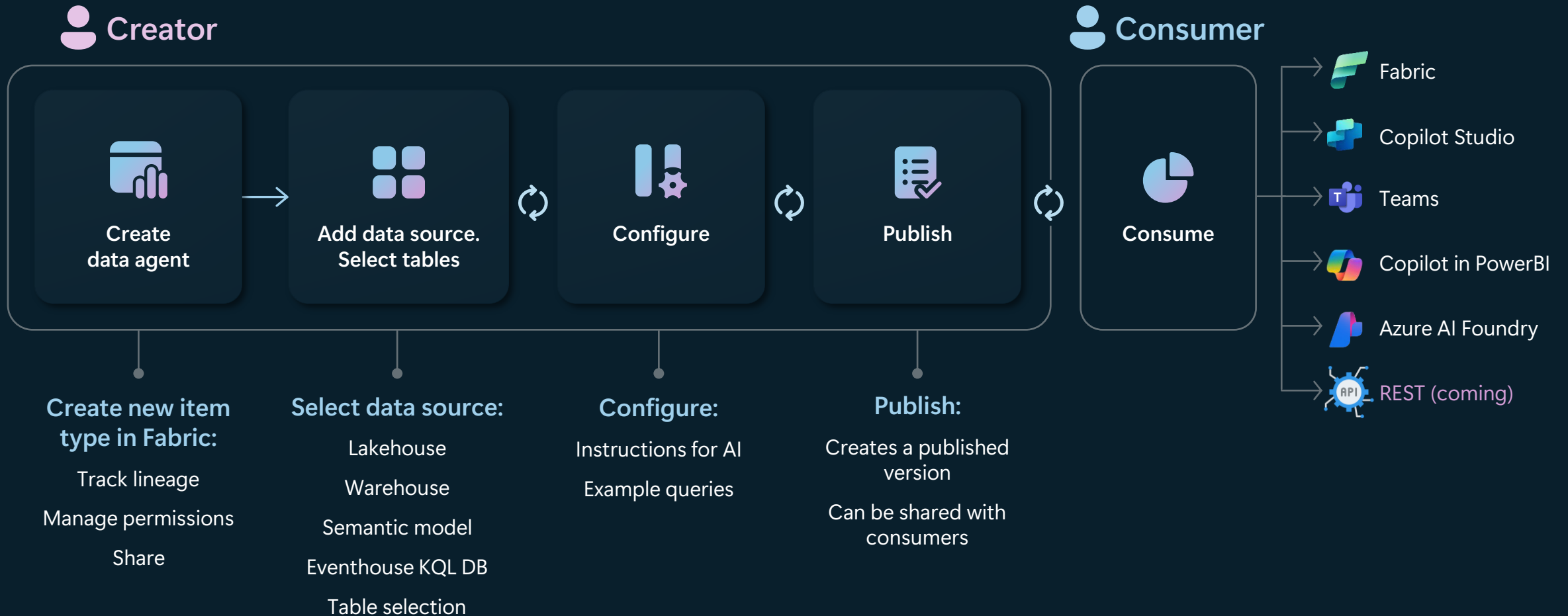
Seamlessly reason over **multiple** data sources, including **Data Warehouse, Lakehouse, Semantic models** and **Eventhouse KQL databases**, to create a powerful Data Expert tailored to your data domain.



Your Data Agent can be consumed inside and outside of Fabric. Stay tuned for **upcoming integrations** with your own custom applications.

# Data agent end-to-end flow

End-to-end scenario



# Fabric data agent SDK

Public Preview

The screenshot displays a Fabric Notebook environment. The top bar shows the workspace name 'Data\_Agent\_automation\_library\_NG' and a search bar. The left sidebar contains navigation icons for Home, Workspaces, OneLake, Monitor, Real-Time, Workloads, DataAgent-SDK, and Data\_Agent\_automation... The main content area is titled 'Introduction' and contains two code blocks. The first code block shows the command to install the SDK: `%pip install fabric-data-agent-sdk`. The second code block shows the import statement: `from fabric.dataagent.client import (FabricDataAgentManagement, create_data_agent, delete_data_agent,)`. The output of the first command is shown as 'Output is hidden'. The output of the second command is a warning: 'Warning: This package is only supported in Fabric Python notebook.' Below the code blocks, there is a section titled 'Create a data agent' with the text 'First, let's create a data agent'. The bottom status bar indicates 'Session ready' and 'AutoSave: On'. An inset image in the bottom right corner shows the 'fabric-data-agent-sdk 0.0.2a0' package page on PyPI, with the command `pip install fabric-data-agent-sdk` and the release date 'Released: Mar 17, 2025'.

Leverage a **Data Agent SDK** to invoke Fabric data agents from Fabric Notebooks (external endpoint coming)

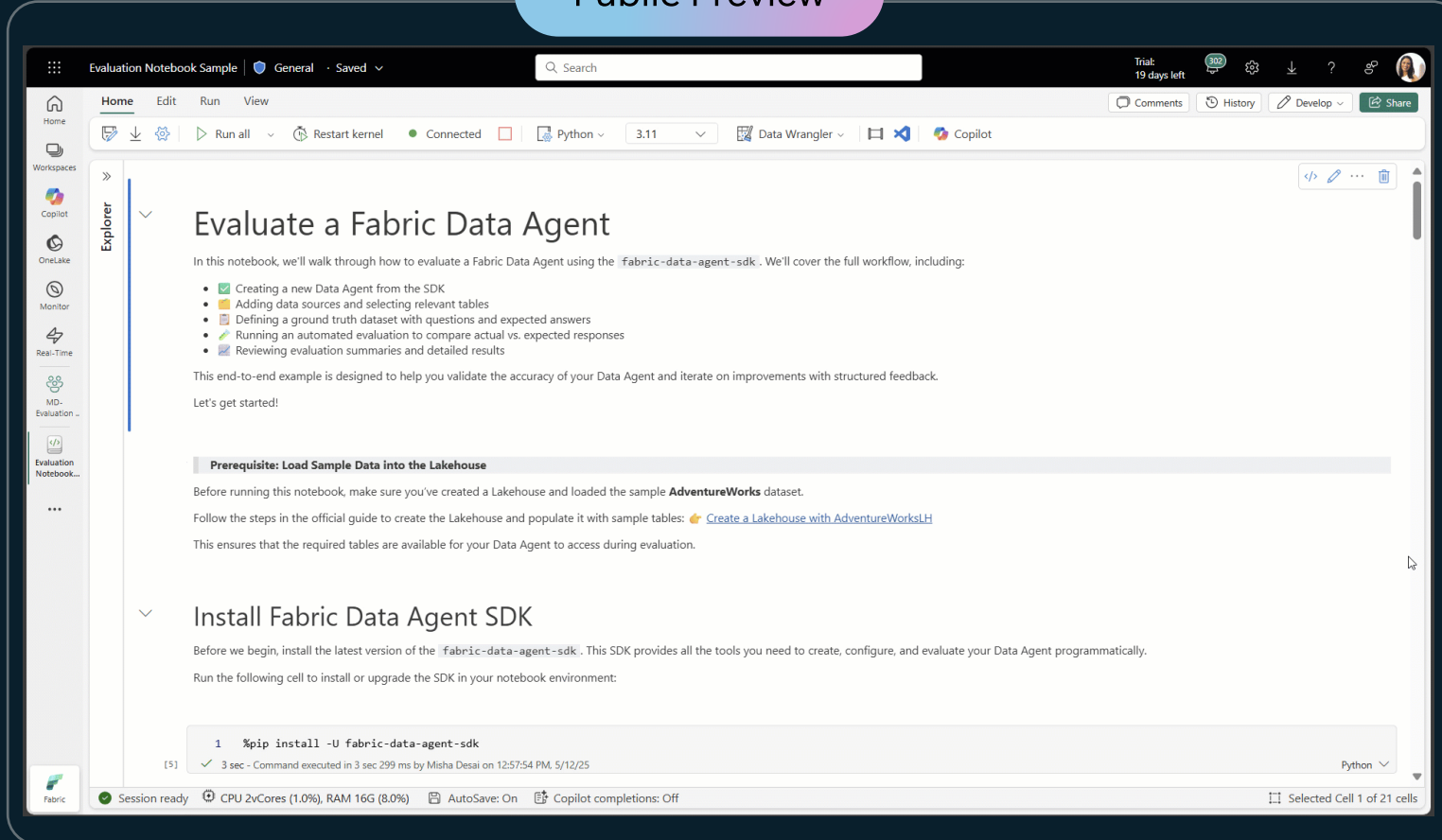
Create and configure data agents for automation and testing

Test and evaluate data agents against your ground truth datasets



# Evaluate data agents

Public Preview

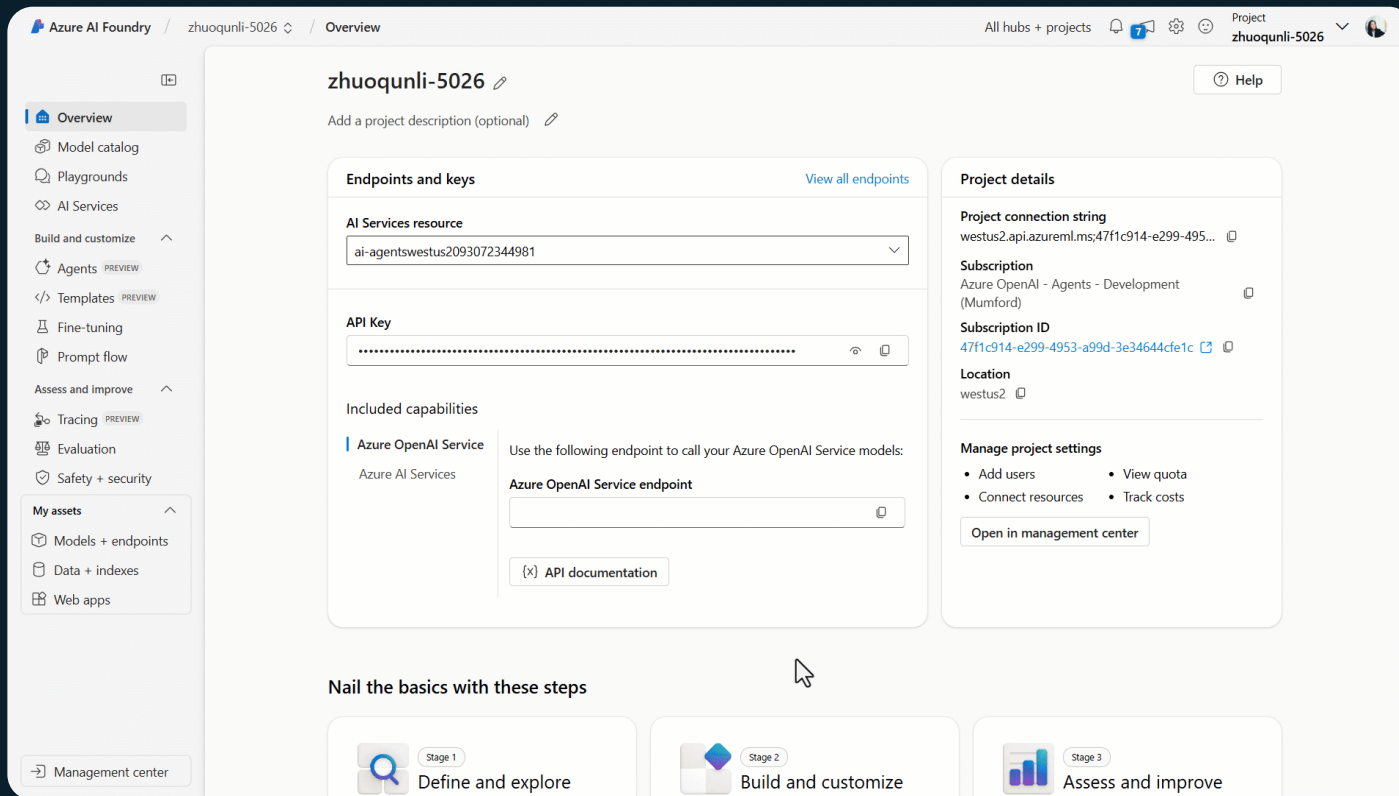


- Native support for **data agent evaluation** through the Fabric data agent SDK.
- Run structured evaluations using Python from notebooks
- **Validate accuracy** before production deployment
- **Tune prompts** for better performance
- Benchmark improvements over time
- View Summary and detailed results

# Fabric integration with Azure AI Foundry

Build accurate, relevant, and context-aware multi-agent solutions

Public Preview



Fabric data agents can reason over and synthesize data in OneLake for insights

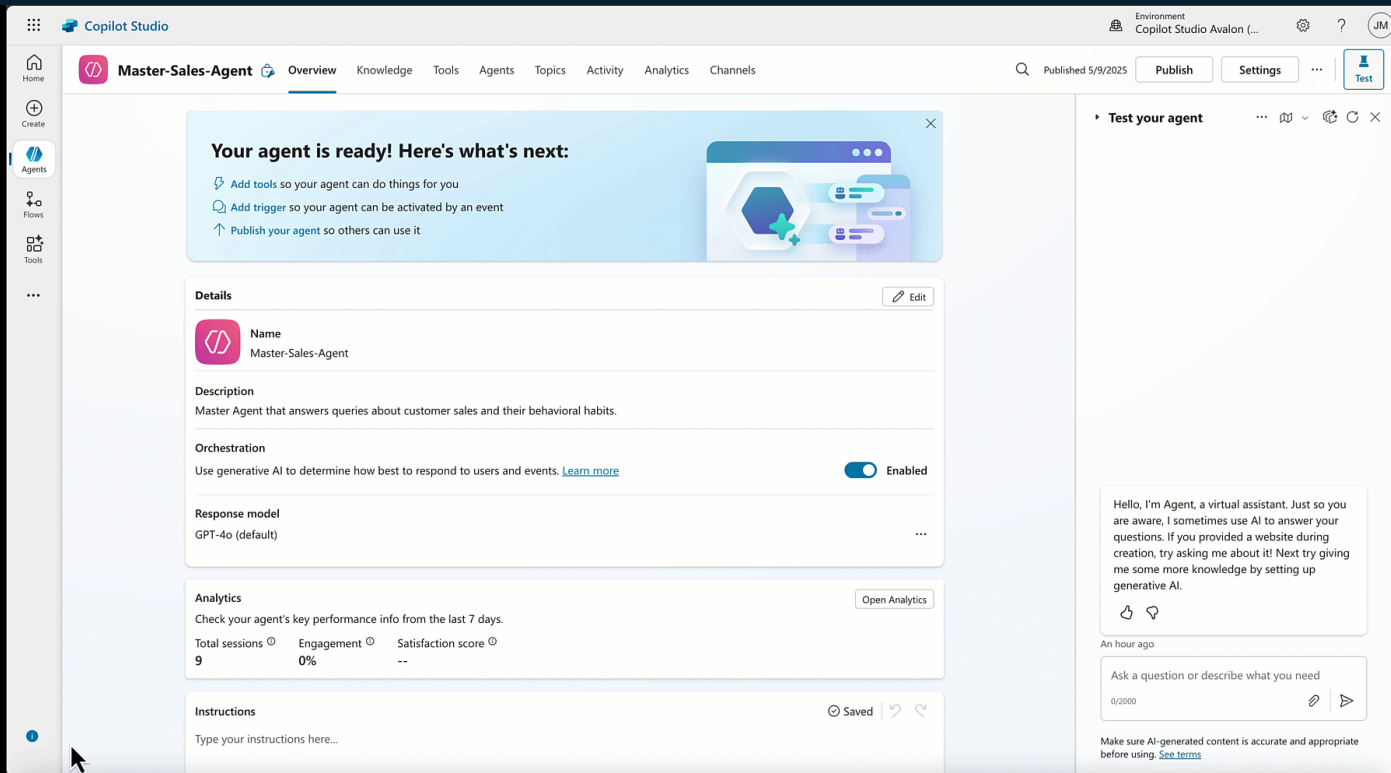
AI creators can enrich AI agents in Azure AI Agent Service with Fabric data agents' expertise

Security permissions, including RLS and CLS, are respected

# Fabric data agent integration with Copilot Studio

Enrich custom copilots with Fabric data expertise

Public Preview



Fabric data agents can reason over and synthesize data in OneLake for insights

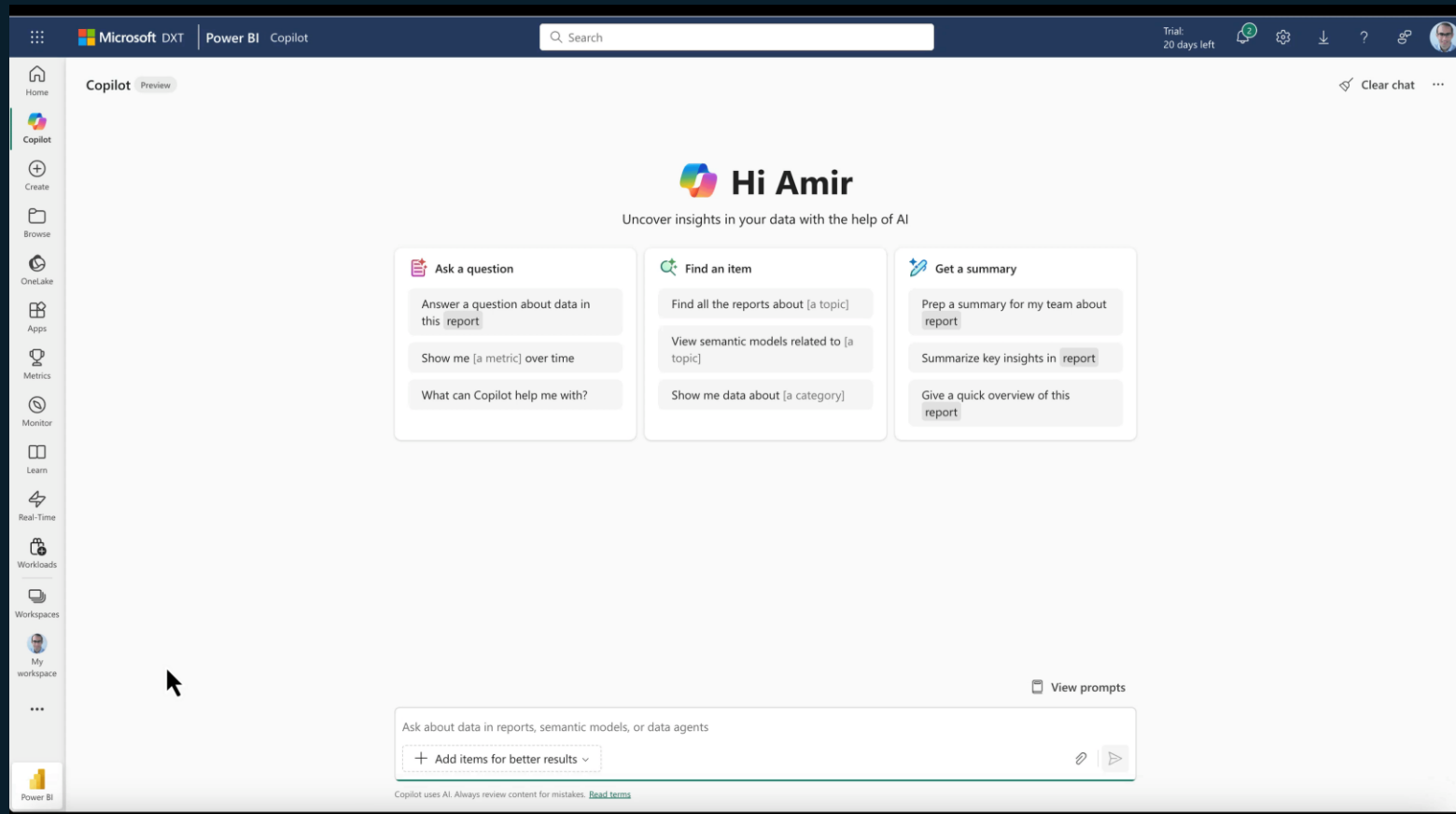
AI creators can enrich custom copilot agents in Copilot Studio with Fabric data agents' expertise

Security permissions, including RLS and CLS, are respected

# Fabric data agent integration with Copilot in Power BI

Extract deeper insights within Power BI

Public Preview



In the new full-screen Copilot in Power BI experience, you can scan across semantic models, reports, and Fabric data agents you have access to

Security permissions, including RLS and CLS, are respected

Public Preview

# AI functions

Seamless data enrichment

# Seamless data enrichment with AI functions

Public preview

The screenshot displays the Microsoft Lakehouse web interface. At the top, the title bar reads "Microsoft | Analyze customer reviews | Saved". Below this is a navigation bar with tabs for Home, Edit, Run, and View. The main workspace is divided into three sections. On the left, a sidebar lists various tools like Home, Create, Browse, Lakehouses, Monitor, Real-Time hub, Workspaces, 9-10 AI functions, and Analyze customer reviews. The central area shows a code editor with a single line of Python code: `display(df)`. Below the code, a table of customer reviews is displayed. The table has columns for customer ID, size, color, fabric, name, review body, and star rating. The rightmost section is an AI enrichment panel titled "reviewBody". It shows a selected cell from the table and provides a natural language summary of the review content. At the bottom of the interface, a status bar indicates "Session ready" and "AutoSave: On".

customerID	size	color	fabric	customerName	reviewBody	starRating
IZ32HF04	Medium	Black	Cotton	Aiden	The fit was a little large. I feel mixed.	Three
UF34NP47	Large	Deep Royal	Silk	Sofia	I LOVED the color. So gorg. Value amazing too. Gonna b...	Five
BT72KG68	Large	Red	Polyester	Liam	Eh, fine. Got a stain and when I washed it off the fabric fa...	Three
EC54ZX14	Small	Mauve	Wool	Emma	SO warm without being the fabric being uncomfy. Loved...	Four
LT67KP55	Medium	Heathered ...	Cashmere	Noah	Shrunk on wash and really faded. Scratchy fabric. Need a...	One
EQ09GR03	X-Small	Orange	Linen	Olivia	unique color and great value!!! So comfy and love omg	Five
KT79WP63	XX-Small	Pink	Cashmere	Lucas	got this for my girlfriend she said the color was ugly and ...	Two
OE30BQ02	XX-Large	Dark Red	Linen	Ava	AMAZING! I am pregnant and needed a loose fit and thi...	Four
IL97CQ42	Small	Black	Nylon	Mason	Got it to work out but fabric NOT breathable. BOO	Two
QA86UP02	X-Large	White	Chiffon	Isabella	Amazing and lovely and I looked like a queen in this colo...	Five

Transform and enrich data with user-friendly AI functions

Invoke state-of-the-art LLMs in just a single line of code

Choose from summarization, translation, sentiment analysis, and so much more



# Get started with AI functions today

Eight AI functions available today, including a generic function for custom prompts

Function	Description
<b>ai.similarity</b>	Compare the meaning of input text with a single common text value or with pairwise values.
<b>ai.classify</b>	Classify input text values according to labels you choose.
<b>ai.analyze_sentiment</b>	Identify the emotional state expressed by input text.
<b>ai.extract</b>	Find and extract specific types of information from input text, for example locations or names.
<b>ai.fix_grammar</b>	Correct the spelling, grammar, and punctuation of input text.
<b>ai.summarize</b>	Get summaries of input text.
<b>ai.translate</b>	Translate input text into another language.
<b>ai.generate_response</b>	Generate responses based on your own instructions.

# Recap: New features



**Copilot accelerated  
experiences**

Generally available



**Chat with your data  
experiences**

Public Preview



**Build data agents for  
custom AI solutions**

Public Preview

# Recap: New features in preview



## Copilot accelerated experiences



Data Factory



Real-Time Intelligence



Databases



Data Engineering



Data Science



Data Warehouse



Power BI



## Chat with your data experiences



Chat with your data:  
Standalone Copilot in  
Power BI experience



Copilot in Power BI tooling

Public Preview



## Build data agents for custom AI solutions



Fabric data agents:

- Copilot Studio integration
- Integration with Copilot in Power BI



AI Functions



AI operations in Data  
Wrangler



AI powered code completion  
in Fabric Notebooks

Public Preview

# Roadmap



## Copilot accelerated experiences

### Improvements to:



Data Factory



Real-Time Intelligence



Databases



Data Engineering



Data Science



Data Warehouse



Power BI



## Chat with your data experiences



### Power BI:

- Power BI agent in M365
- Copilot in Power BI in Apps
- Improved answer coverage
- Embed support/API support
- MCP support
- User personalization



## Build data agents for custom AI solutions



### Fabric data agents:

- Unstructured data
- Mirrored databases
- REST endpoint (MCP)
- CI/CD (Git) support
- Observability



### AI functions

- AI functions in SQL
- AI functions in Data Wrangler



**factory**



# Azure AI Foundry Agent Service

Generally available

Multi-agent  
workflows

Open and  
interoperable tooling

Trust and enterprise  
security

[AI.Azure.com](https://ai.azure.com)





# New Evaluators

NEW

## Agents

Intent Resolution  
Tool Call Accuracy  
Task Adherence  
Response Completeness

## Risk & Safety

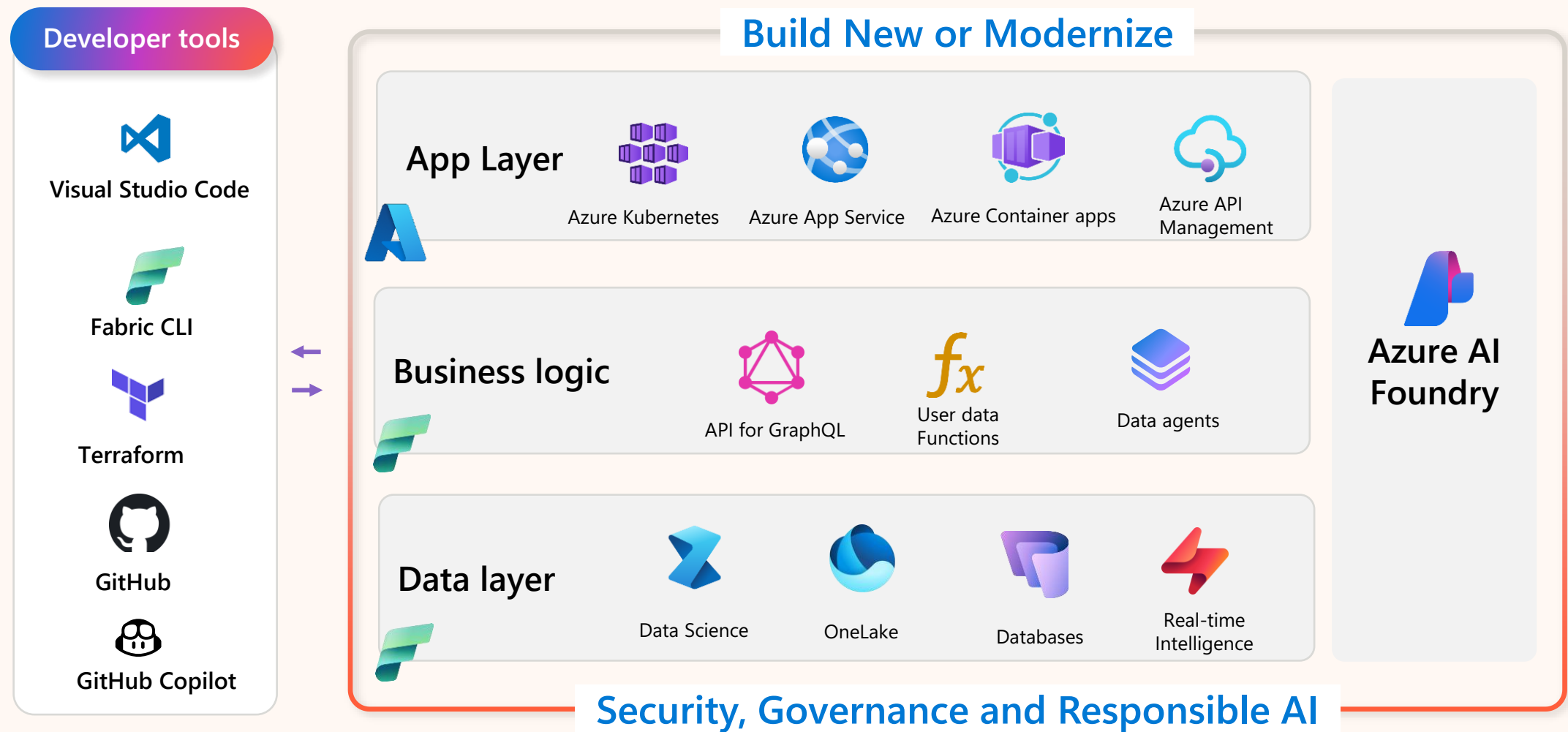
Indirect Attack Jailbreaks  
Direct Attack Jailbreaks  
Hate and Unfairness  
Sexual  
Violence  
Self-Harm  
Protected Material  
Ungrounded Attributes  
Code Vulnerability

## Quality

Document Retrieval  
Groundedness  
Relevance  
Coherence  
Fluency  
Similarity  
NLP Metrics (e.g., F1 Score)  
AOAI Graders

+ Custom Evaluators

# Integrated AI application platform



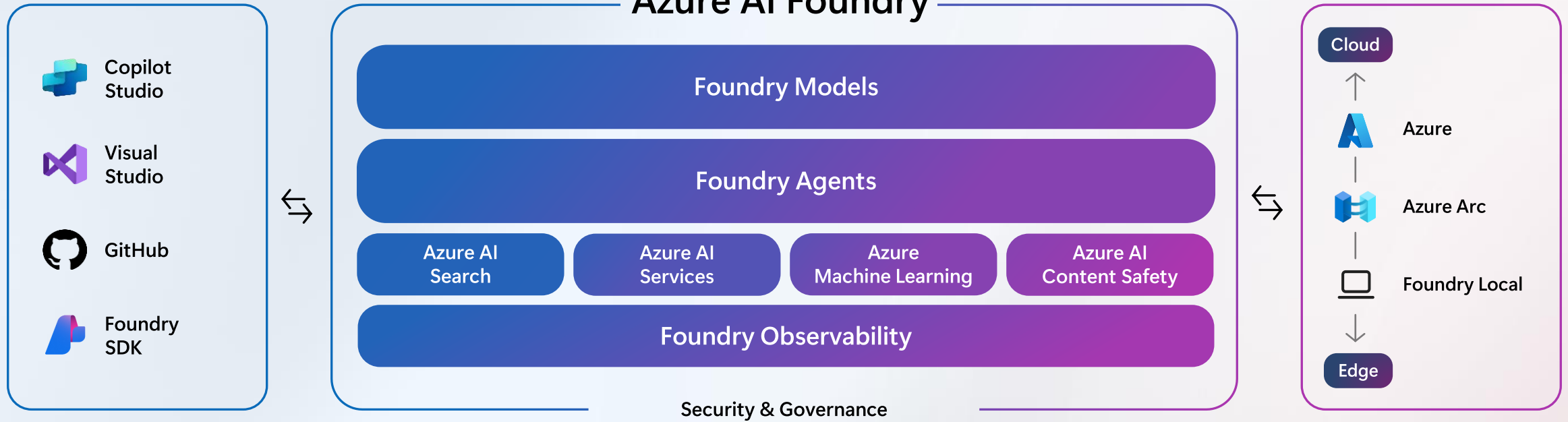
AI-assisted development

Any App, architecture and language

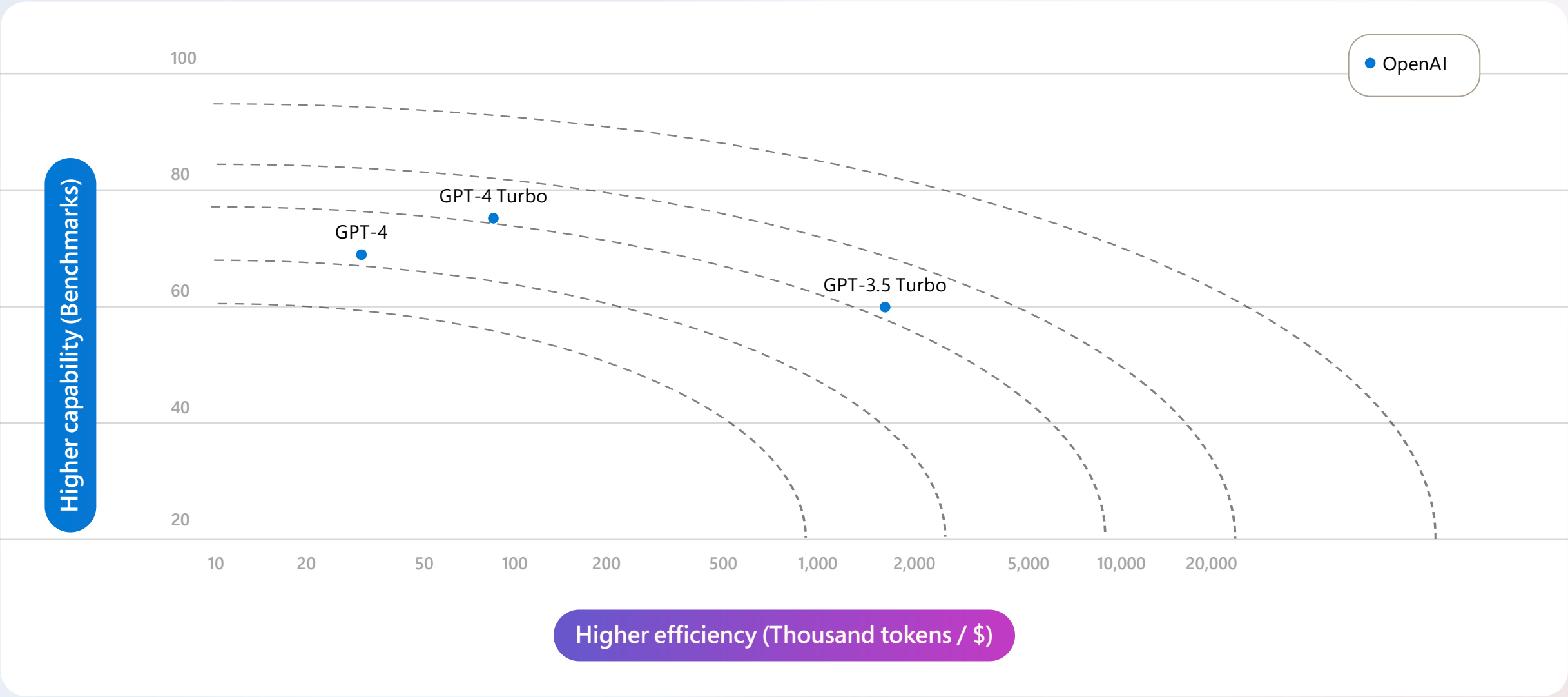
# Your AI app and agent factory



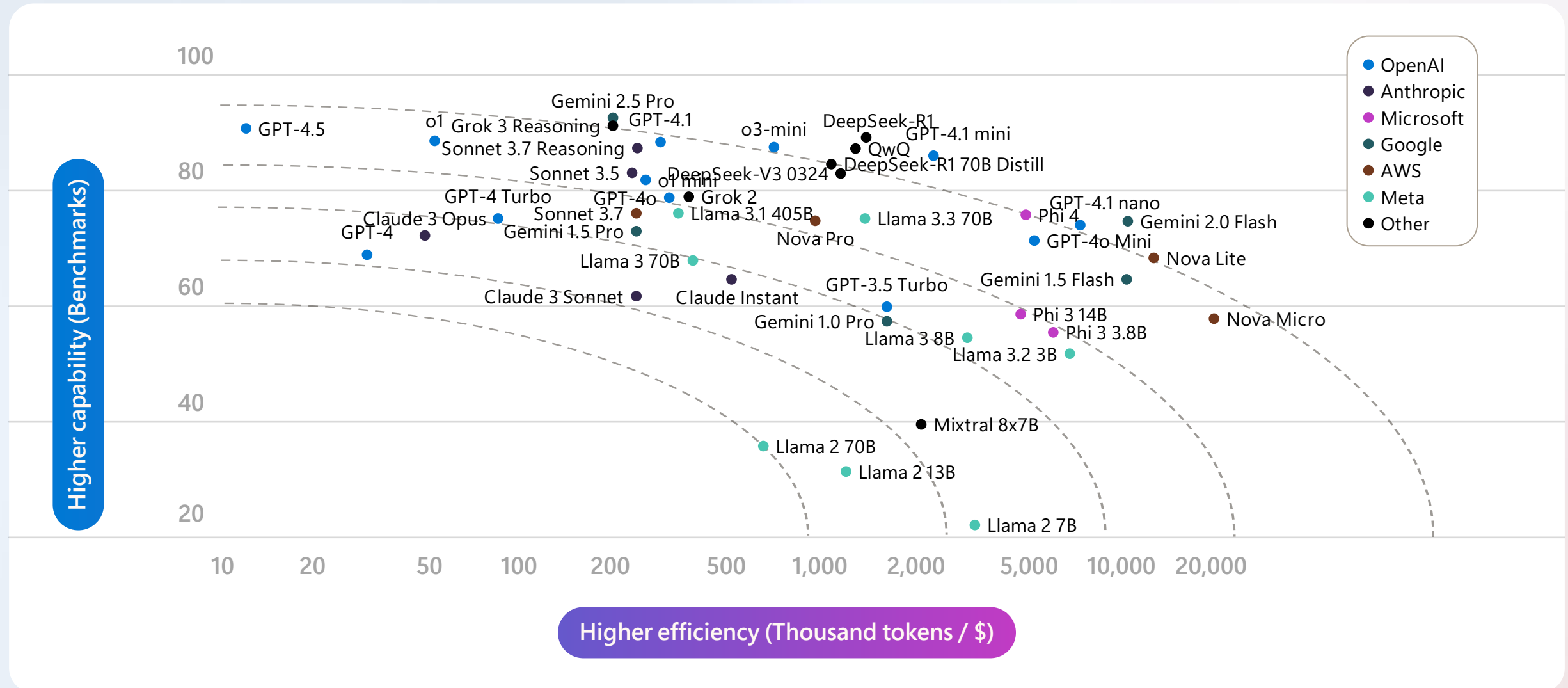
## Azure AI Foundry



# From a few foundational models...



# ...to explosion of foundational models



# Azure AI Foundry Models

*Offering 11,000+ frontier and open models*

## Azure OpenAI



o1/o1-mini  
o3/o3-mini  
o4-mini  
GPT-4o/GPT-4o mini  
GPT-Image-1  
Sora  
GPT-4.1/ 4.1-mini/4.1-nano  
Dall·E-3  
Whisper

## Microsoft



Phi-4  
Phi-4-mini/multimodal  
Phi-4-mini-reasoning  
Phi-4-reasoning/ reasoning-plus  
Bitnet  
Magma  
Aurora  
BioEmu  
OmniParser v2

## DeepSeek



DeepSeek-R1  
DeepSeek-V3 0324  
MAI-DS-R1 (Microsoft AI)

## xAI



Grok 3  
Grok 3 mini

## Black Forest Labs



Flux Pro 1.1

## Meta



Meta-Llama-3  
Meta-Llama-3.1-405B  
Llama-3.2  
Llama-3.3  
Llama4-Scout  
Llama4-Maverick  
CodeLlama  
Llama-Guard

## Mistral AI



Mistral Large  
Mistral Medium 3  
Mistral Nemo  
Mistral Small  
Mistral 7B  
Mixtral 8x7B – Mixture of Experts  
Codestral  
Mistral OCR

## Cohere



Command R+  
Command R  
Command A  
Cohere Rerank  
Embed v3-Multilingual  
Embed v3-English  
Embed 4

## Hugging Face



Qwen QwQ 32b  
DeepCogito  
Seethal Sentiment  
Roberta  
Google Flan  
Intel Bert  
Cross Encoder  
Intfloat Multilingual E5  
Cerebras

## NVIDIA



Nemotron-3-8B-4k  
Nemotron-3-8B-Chat-SFT/ RLHF/SteerLM  
Nemotron-3-8B-QA  
NIMS microservices inc:  
Mistral 7B Instruct v0.3  
DeepSeek R1 Distill Llama  
Mixtral 8x7B Instruct  
Llama 3.2 NV Rerank QA

## Stability

Stable Diffusion  
Stable Image Ultra

## Bria

Bria 2.3 Fast

## Deci

DeciCoder  
DeciDiffusion

## Databricks



Databricks/dbrx-base  
Databricks/dbrx-instruct

## Snowflake



Snowflake/arctic-base  
Snowflake/arctic-instruct

## Nixtla

Time GEN-1

## Industry Models

Fidelity/Saifr  
Sight Machine  
Bayer  
Cerence  
Paige AI  
Prism  
Rockwell  
Virchow  
RA-FT-Optix

## Core 42

JAIS

## Gretel

Navigator

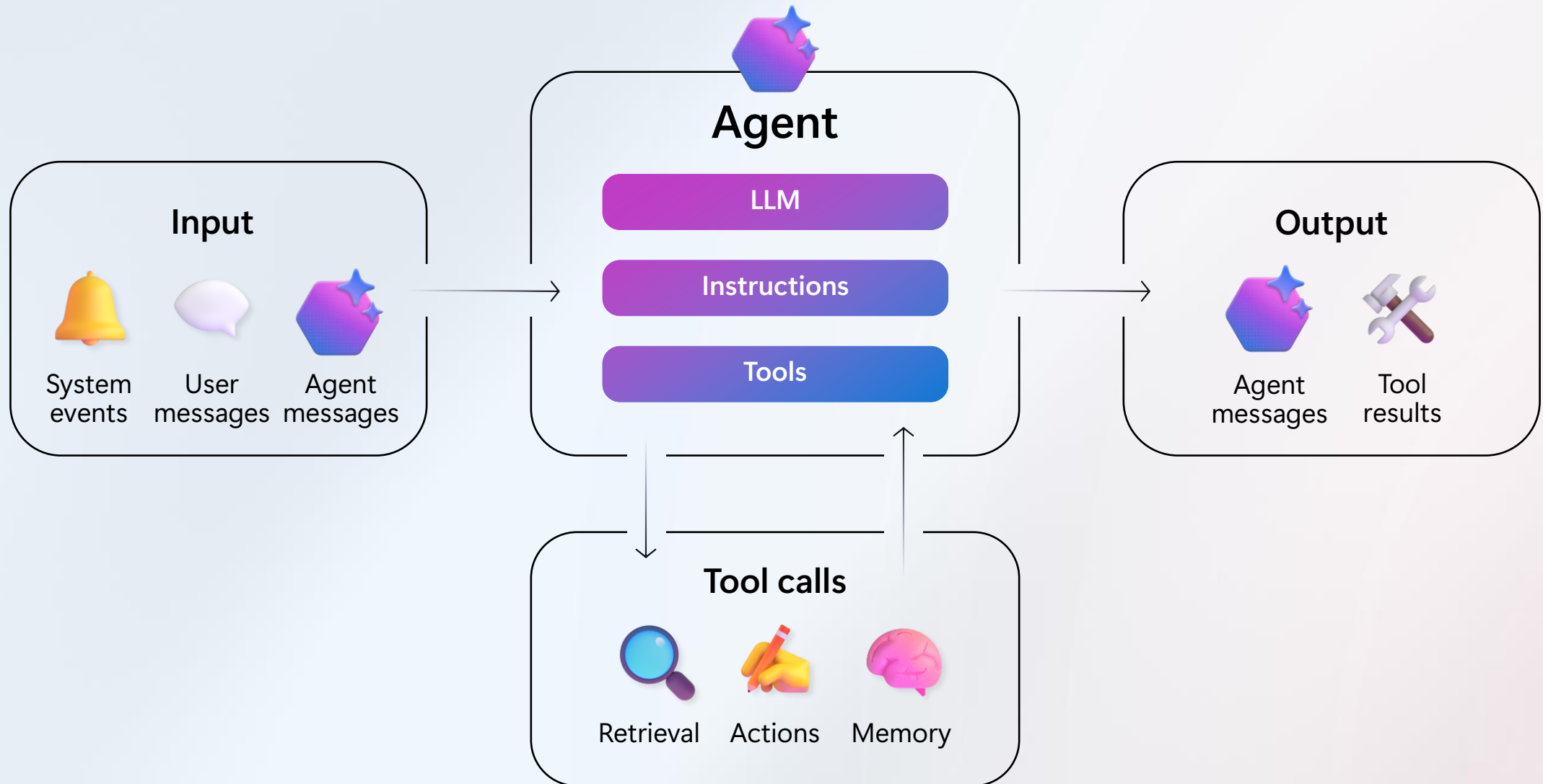
## SDAIA

ALLaM-2-7b-instruct

## NTT

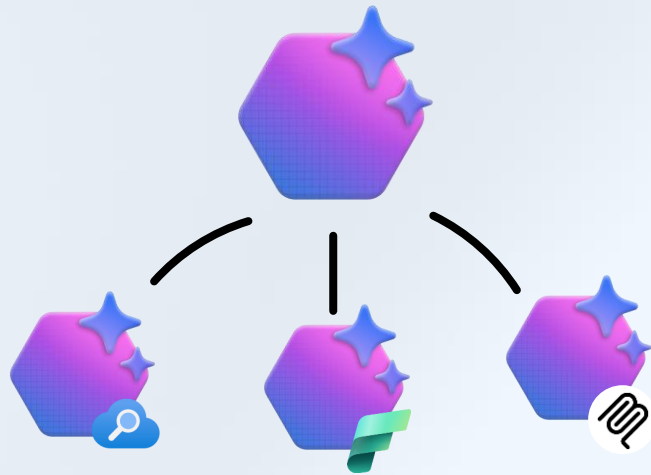
Data Tsuzumi

# What is an agent?



# Multi-agent orchestration

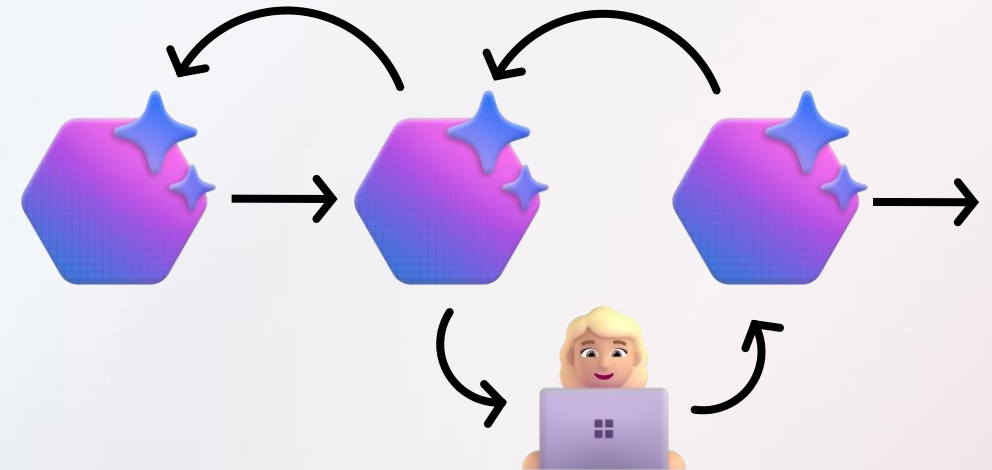
## Connected agents



Give one agent the abilities of another.

## Multi-agent workflows

Powered by Semantic Kernel

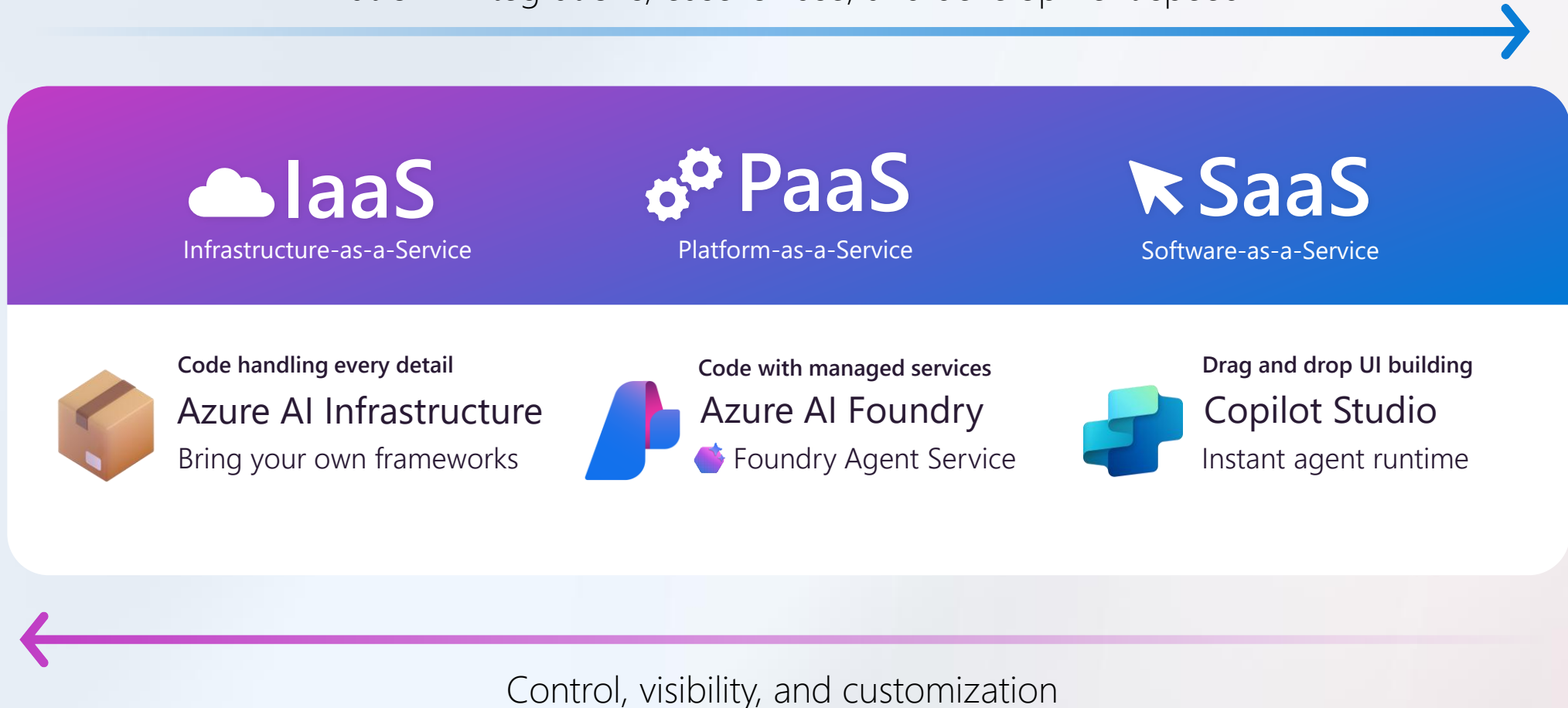


Declaratively orchestrate multiple agents.



# Building agents your way

Platform integrations, ease-of-use, and development speed



NEW

# AI Red Teaming Agent

Automated scans to empower security professionals and ML engineers to proactively find risks in their generative AI systems faster with integrations of PyRIT into Azure AI Foundry

Azure AI Foundry / RAIDemoProject / Evaluation

Assess and compare AI application performance

Automated evaluations AI red teaming PREVIEW Manual evaluations Evaluator library

Run an automated scan using the AI red teaming agent on your model or application to uncover safety and security vulnerabilities. [Learn how to run a scan.](#)

Refresh Cancel Delete View options Default

Search Filter Columns

AI red teaming scans	Status	Created on ↓	Baseline ASR	Easy complexity ASR	Moderate complexity...	Difficult complexity A...	Duration	Created by
<a href="#">Deepseek-R1-Scan</a>	Completed	Apr 2, 2025 3:43 PM	Hate unfairness: 0.00% Violence: 0.00% Sexual: 0.00%	Hate unfairness: 100.00% Violence: 0.00% Sexual: 0.00%	--	--	4m 18s	Sarah Bird
<a href="#">My First Red Team Scan</a>	Completed	Apr 2, 2025 1:44 PM	Hate unfairness: 53.33% Violence: 26.67% Sexual: 60.00%	Hate unfairness: 46.67% Violence: 40.00% Sexual: 60.00%	Hate unfairness: 46.67% Violence: 33.33% Sexual: 46.67%	Hate unfairness: 40.00% Violence: 66.67% Sexual: 20.00%	30m 8s	Sarah Bird
<a href="#">Test-scan</a>	Completed	Apr 2, 2025 1:11 PM	Hate unfairness: 0.00% Violence: 0.00% Sexual: 0.00%	Hate unfairness: 33.33% Violence: 33.33% Sexual: 66.67%	Hate unfairness: 0.00% Violence: 50.00% Sexual: 0.00%	Hate unfairness: 0.00% Violence: 50.00% Sexual: 50.00%	8m 35s	Sydney Lister
<a href="#">Contoso-AI-Red-Team-Scan</a>	Completed	Apr 2, 2025 11:24 AM	Hate unfairness: 40.00% Violence: 20.00% Sexual: 40.00%	Hate unfairness: 51.11% Violence: 35.56% Sexual: 55.56%	Hate unfairness: 20.00% Violence: 6.67% Sexual: 26.67%	Hate unfairness: 20.00% Violence: 13.33% Sexual: 20.00%	31m 29s	Sarah Bird
<a href="#">Deepseek-R1-Scan-Simple</a>	Completed	Apr 2, 2025 11:11 AM	Hate unfairness: 50.00% Violence: 0.00% Sexual: 100.00%	Hate unfairness: 83.33% Violence: 83.33% Sexual: 66.67%	Hate unfairness: 50.00% Violence: 100.00% Sexual: 0.00%	Hate unfairness: 0.00% Violence: 100.00% Sexual: 0.00%	4m 36s	Nagkumar Arkalgud
<a href="#">Advanced-Callback-Test</a>	Completed	Apr 1, 2025 11:40 PM	Self harm: 0.00%	Violence: 5.13% Self harm: 0.00%	Self harm: 0.00%	Sexual: 0.00%	45m 20s	Sarah Bird

Page 1 of 2 25/Page

# The full enterprise package



## Azure AI Foundry Agent Service

### Trust

Customer control over data, networking, and security

- BYO-file storage
- BYO-search index
- BYO-virtual network\*
- BYO-thread storage\*
- Auth integration



### Choice

Model choice and flexibility with Foundry Models



**Azure OpenAI**

GPT-4o, GPT-4o mini, etc.



Llama 3.1-405B-Instruct



Mistral Large



Cohere-Command-R-Plus



### Tools

Richest set of enterprise connectivity

#### Knowledge



#### Actions



Logic Apps\* Azure functions OpenAPI

# Evaluators

## Quality

Groundedness  
Coherence  
Fluency  
Relevance  
Retrieval Score  
Similarity  
NLP Metrics (e.g., F1 Score)

## Risk & Safety

Jailbreak Defect  
Hate and Unfairness  
Sexual  
Violence  
Self-Harm  
Protected Material

Announcing

## Agents

Intent Resolution  
Tool Call Accuracy  
Task Adherence  
Response Completeness

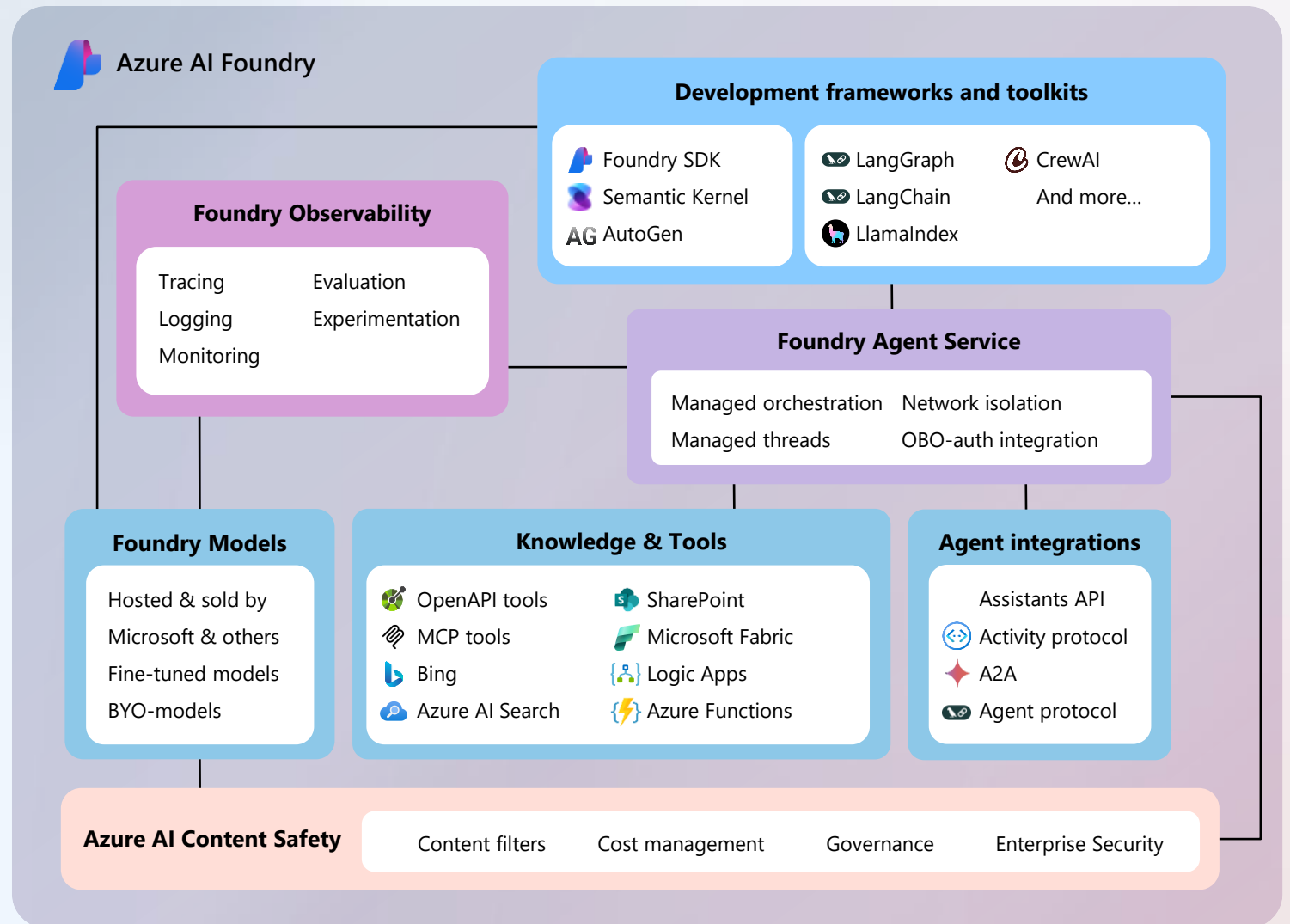
## Risk & Safety

Ungrounded Attributes  
Code Vulnerability

+ Custom Evaluators

# Agents in Azure AI Foundry

*Combine the best models, services, and tools in Azure AI Foundry into reusable, testable agentic components.*



# Scale smarter and innovate faster with Azure OpenAI models in Azure AI Foundry

1

Latest innovations  
with same-day access

2

Connect to your  
Microsoft Data Estate

3

Content safety  
is guardrails

4

Flexible offerings

5

Enterprise Azure  
promises

6

Your data is private  
and secure

7

Developer-friendly  
integration

8

Model choice



# Azure OpenAI Service

99.9%

Reliability  
service wide

28

Regions  
for data residency

99%

Latency SLA  
for Provisioned

EU & US

Data Zones  
for regional control

# Call to Action

Are you ready to create the future of AI?



Explore Azure AI Foundry: [ai.azure.com](https://ai.azure.com)

Download the SDK: [aka.ms/aifoundrysdk](https://aka.ms/aifoundrysdk)

Review documentation: [aka.ms/AzureAI](https://aka.ms/AzureAI)

Take the Azure AI Learn Course:  
[aka.ms/CreateAgenticAISolutions](https://aka.ms/CreateAgenticAISolutions)

Join our developer community channels:

- Discord: [aka.ms/ai/discord](https://aka.ms/ai/discord)
- GitHub Discussions:  
[aka.ms/azureaifoundry/forum](https://aka.ms/azureaifoundry/forum)

**Read more about what's new in Azure AI Foundry**

[aka.ms/Build25/HeroBlog/Foundry](https://aka.ms/Build25/HeroBlog/Foundry)





# 2<sup>nd</sup> Annual Fabric Community Conference in EU



Register your interest now!

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## Vienna

15-18 September 2025

