



Microsoft 365 Copilot Technical Fundamentals

March 2024

Artificial Intelligence Introduction

3 Key Copilot for Microsoft 365 AI concepts



01

Large Language Models and
Deep Learning concepts



02

How Copilot for Microsoft
365 works



03

With this context: why
prompt engineering is so
important

The world is changing



Industries are transforming rapidly

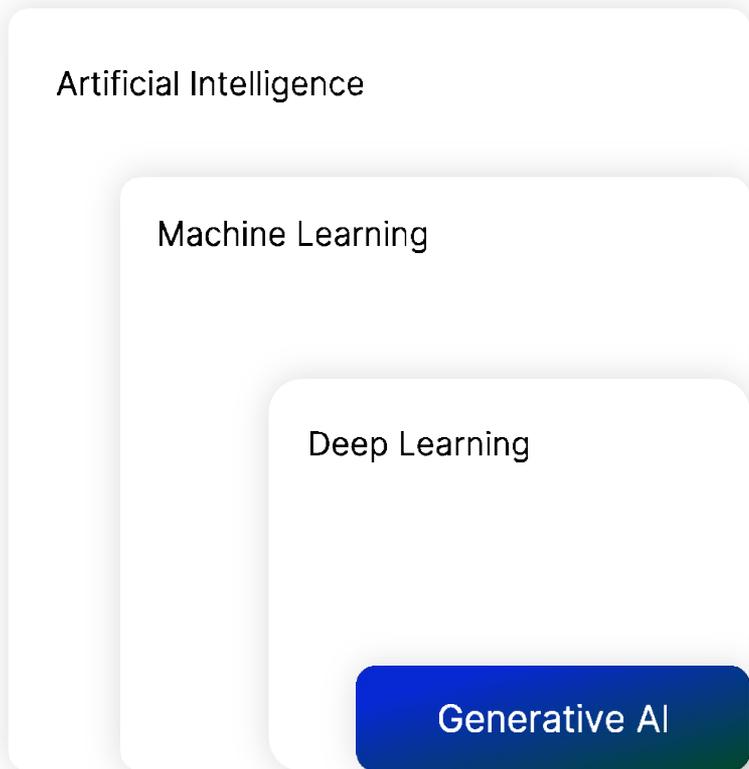


Drivers for economic growth are evolving



Technology is at an inflection point

A brief history of AI



1950s

Artificial Intelligence

The field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence.

1959

Machine Learning

A subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions.

2017

Deep Learning

A machine learning technique in which layers of neural networks are used to process data and make decisions.

2021

Generative AI

Create new written, visual, and auditory content given prompts or existing data.

What changed in AI?



Breakthroughs in generative AI in multiple domains



Human-like levels of performance and accuracy in multiple fields



Text → (output) → Text loop of improvement



Andrej Karpathy ✓
@karpathy

...

Nice read on reverse engineering of GitHub Copilot 🚀. Copilot has dramatically accelerated my coding, it's hard to imagine going back to "manual coding". Still learning to use it but it already writes ~80% of my code, ~80% accuracy. I don't even really code, I prompt. & edit.

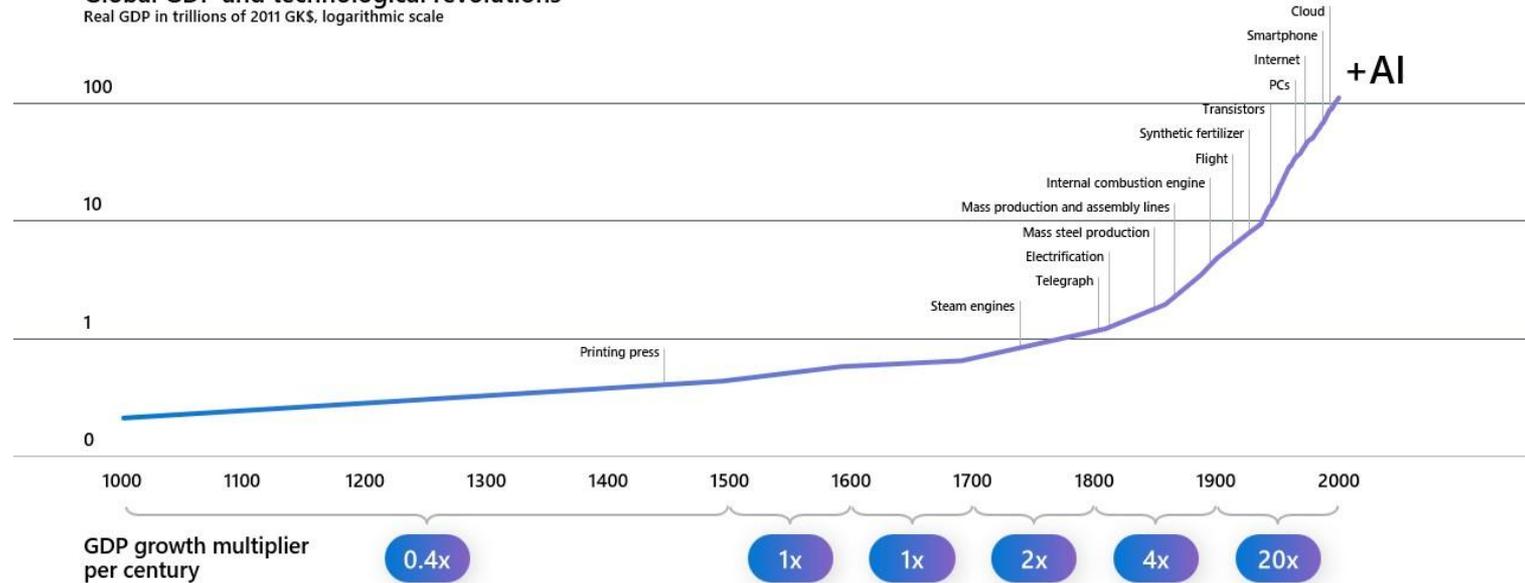
Generative AI technology is being adopted at an unprecedented rate



And the impact is **real**

Global GDP and technological revolutions

Real GDP in trillions of 2011 GK\$, logarithmic scale



Source: Maddison Project, [Ourworldindata](https://ourworldindata.org)

Open AI and Microsoft



“We formed our partnership with OpenAI around a shared ambition to responsibly advance cutting-edge AI research and democratize AI as a new technology platform,” said Satya Nadella, Chairman and CEO, Microsoft. “In this next phase of our partnership, developers and organizations across industries will have access to the best AI infrastructure, models, and toolchain with Azure to build and run their applications.”



Supercomputing
at scale



New AI
experiences



Provision of
cloud services

What is in a name?

Artificial Intelligence (AI)

A broad set of techniques used to train computers to complete tasks that would otherwise require human intelligence, such as answering questions, generating data, and recognizing objects.

Large Language Model (LLM)

Models trained on large amounts of text data that can perform a wide variety of language tasks, including text summarization, generation, and categorization. These models can perform generative tasks like text generation, and so, there is some overlap between LLMs and generative AI. *Example: GPT models*

Large Language Models (LLMs)



Prompts



Large Language Model

Here's a short sentence describing Microsoft 365. It's a collection of powerful tools to help you work, connect, and create.

What is Microsoft 365?
Tell me in one short sentence.

Prompt Engineering



Ask me anything...

The subtleties of prompting (prompt design)

Prompt

 Copy

Please give me the history of humans.

Prompt

 Copy

Please give me the history of humans in 3 sentences.

Why is prompt engineering important?

Prompt engineering is a critical skill for anyone working with LLM AI models

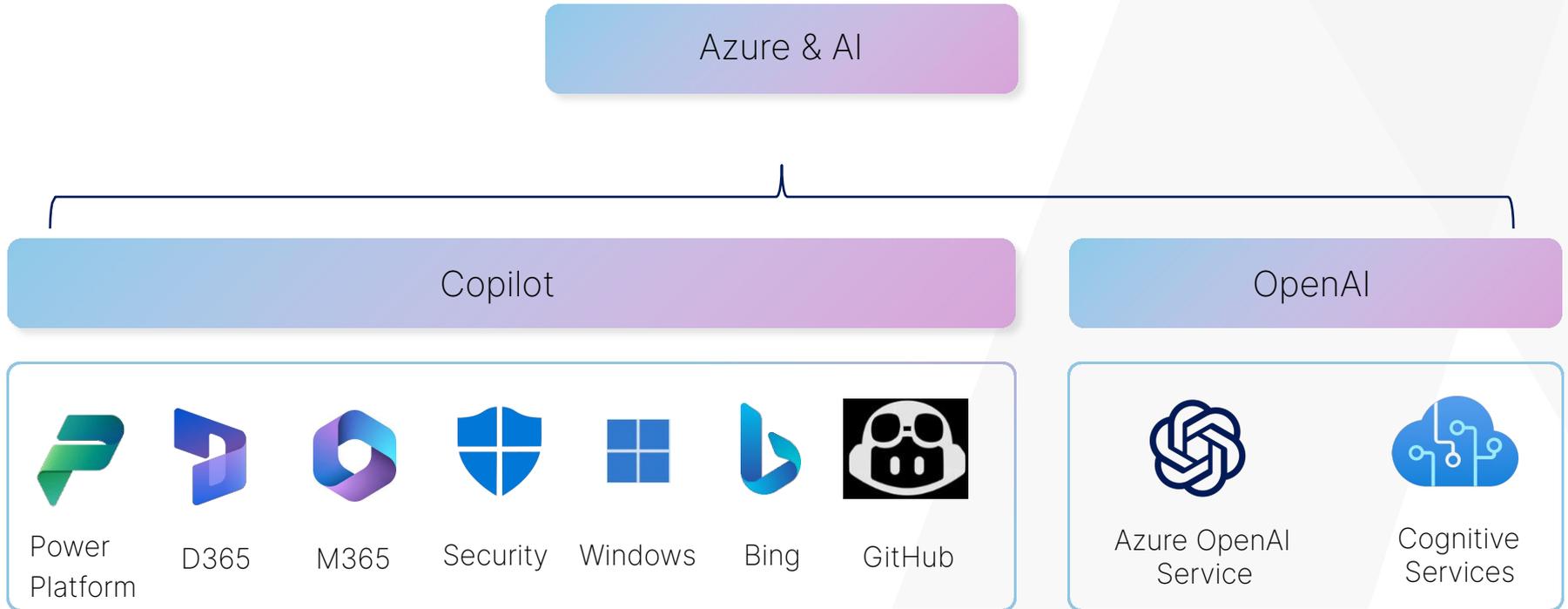
A good prompt produces the desired outputs

Improvements you can perform to make the results more predictable:

1. Make the prompt more specific
2. Add structure to the output with formatting
3. Provide examples with few-shot prompting
4. Tell the AI what to do to avoid doing something wrong
5. Provide context to the AI
6. Using message roles in chat completion prompts
7. Give your AI words of encouragement

Copilot for Microsoft 365 Overview

The Extended Copilot Family



Copilot for Microsoft 365 Architecture



Large Language Model

Retrieval Augmented Generation

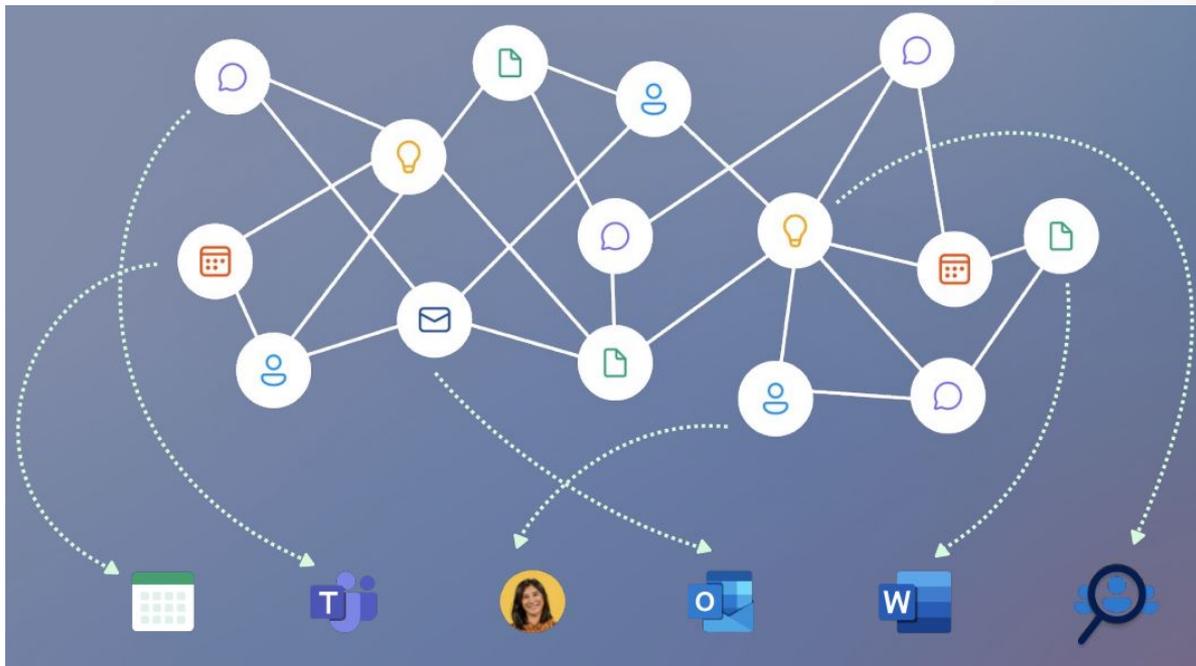
Search finds grounding data

We don't "train" on your tenant data



User prompt + Grounding data + Chat history + System prompt

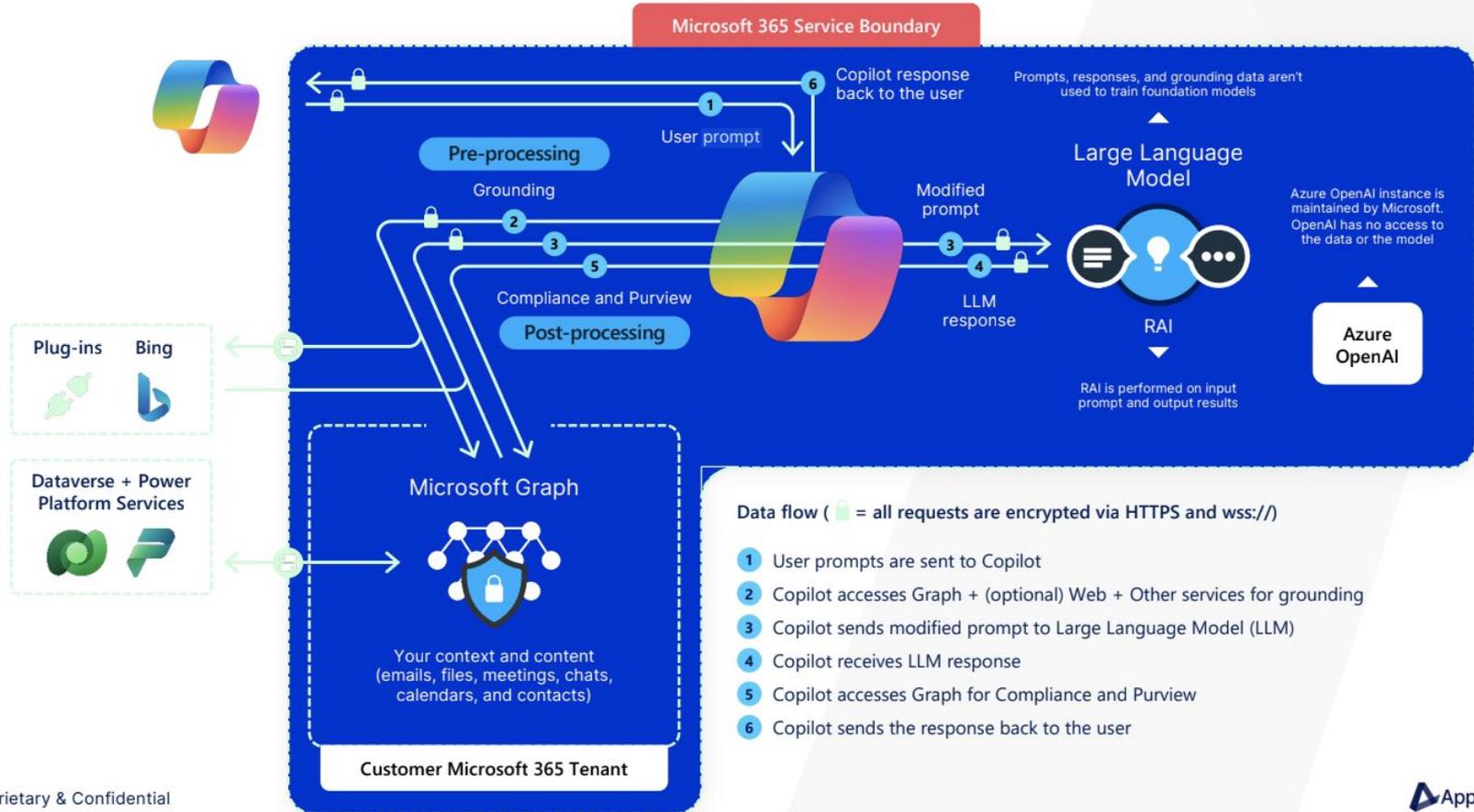
Microsoft Graph



Knowledge & Insights via Microsoft Search

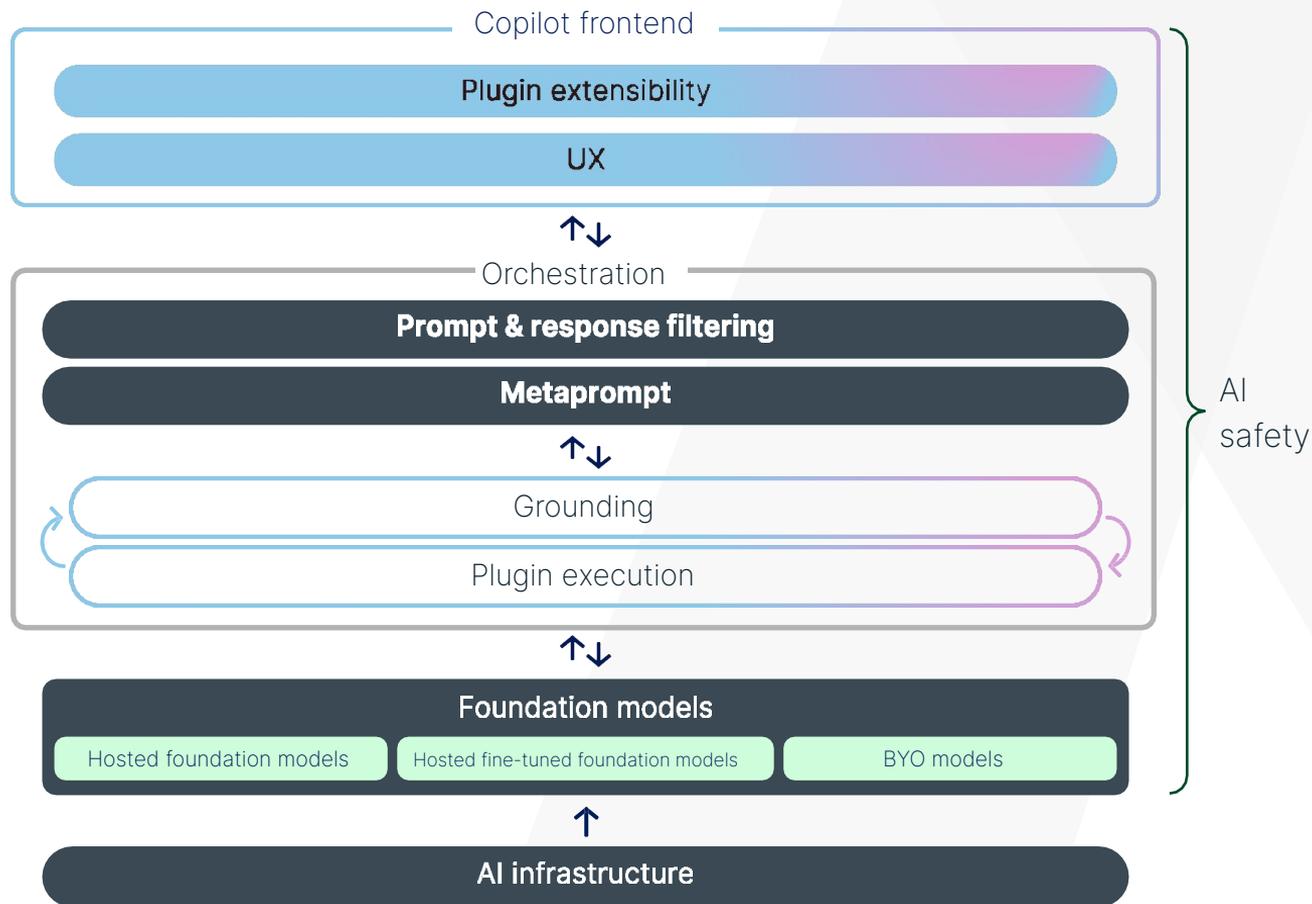
Embeddings for all Microsoft 365 entities

Microsoft Copilot for Microsoft 365 architecture

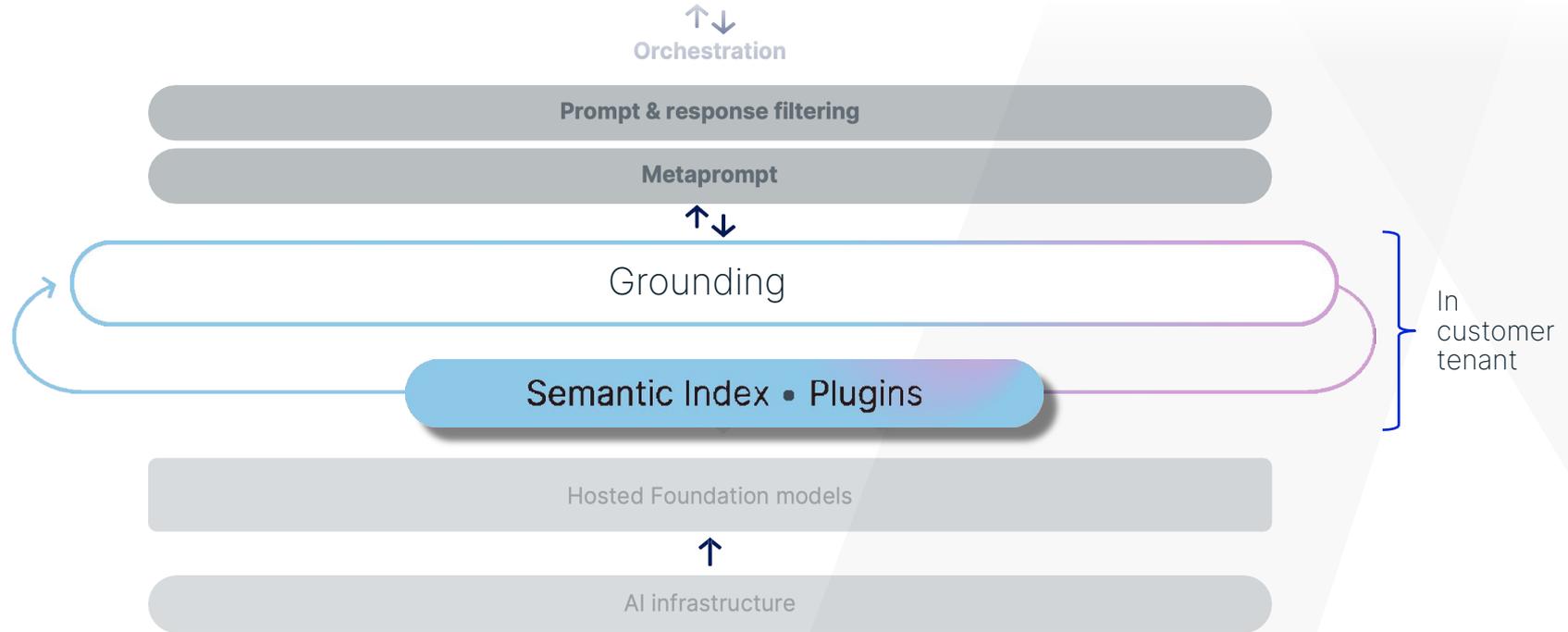


The Copilot stack

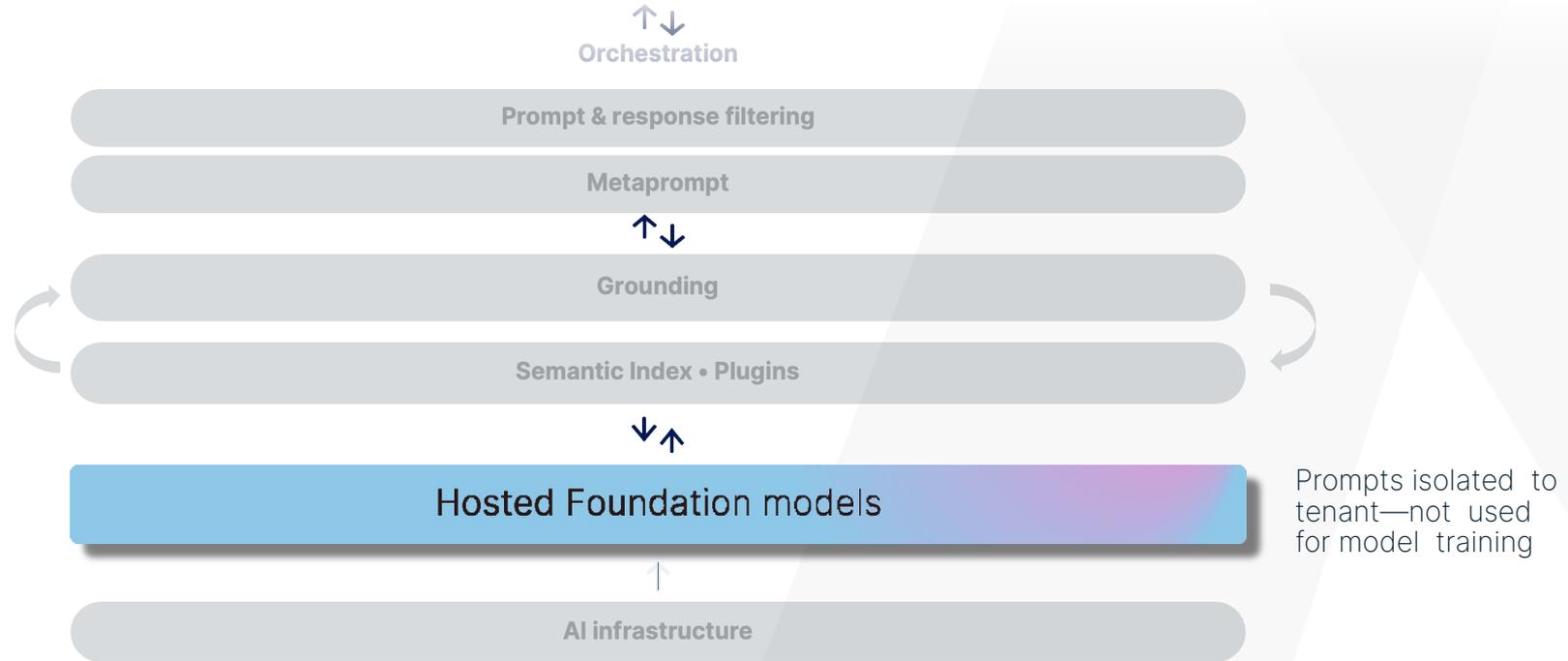
Copilot for Microsoft 365 stack



Retrieval Augmented Generation (RAG)



Natural language processing

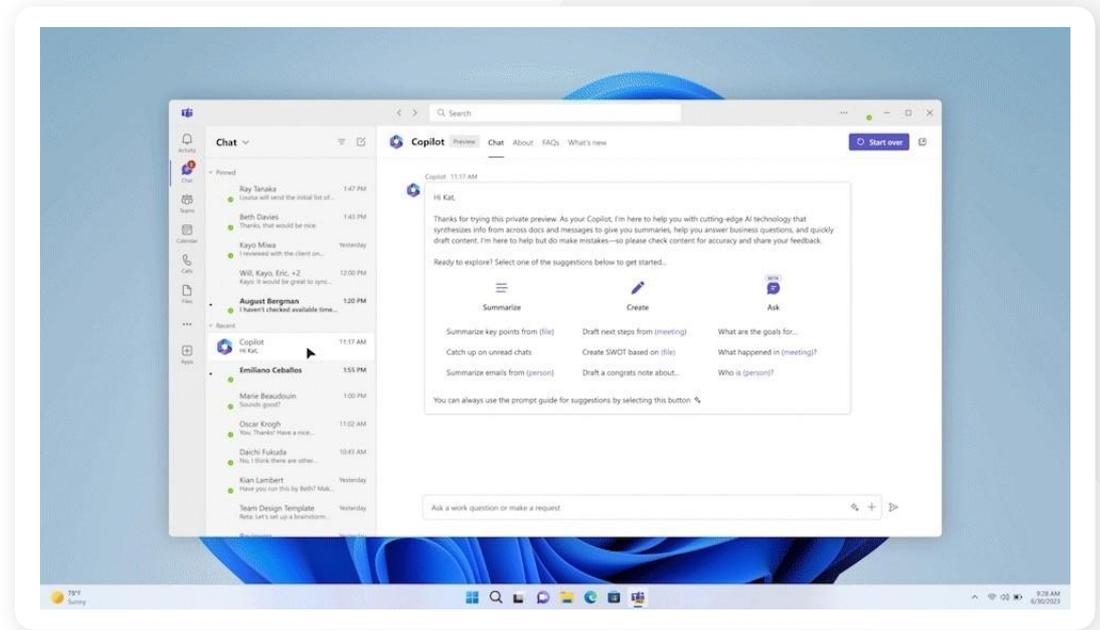


Semantic Index for Copilot

Semantic Index for Copilot for Microsoft 365

To help every customer get AI-ready, we're rolling out Semantic Index for Copilot:

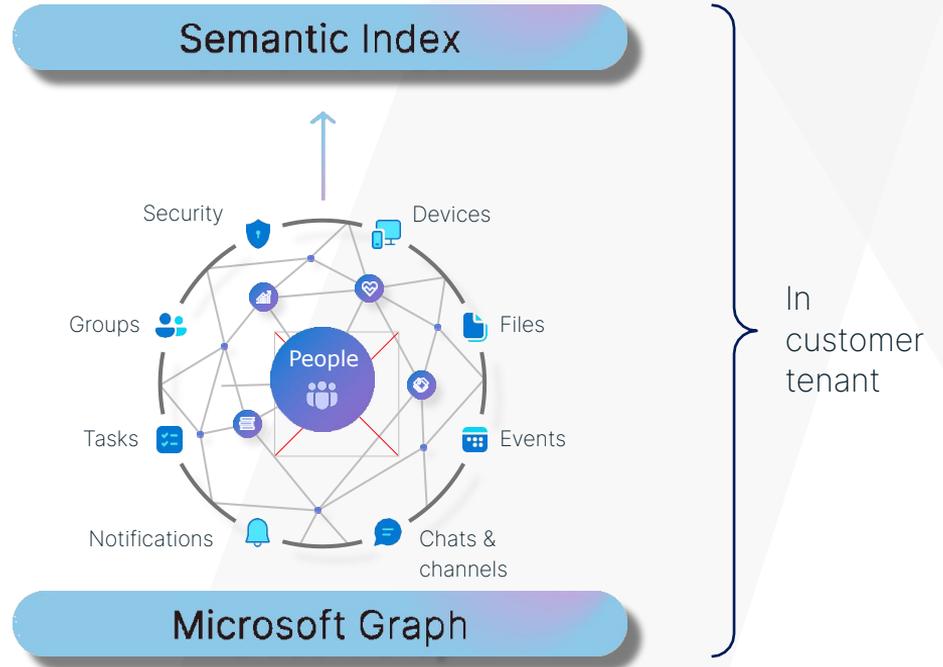
- The Semantic Index for Copilot creates a sophisticated map of your and your organizational data – identifying relationships and making important connections.
- It uses that conceptual understanding to determine your intent and help you find what you need
- The Semantic Index for Copilot enables Copilot for Microsoft 365 to deliver relevant, actionable responses to prompts – and do so in a secure, compliant, privacy-preserving way.



Copilot for Microsoft 365

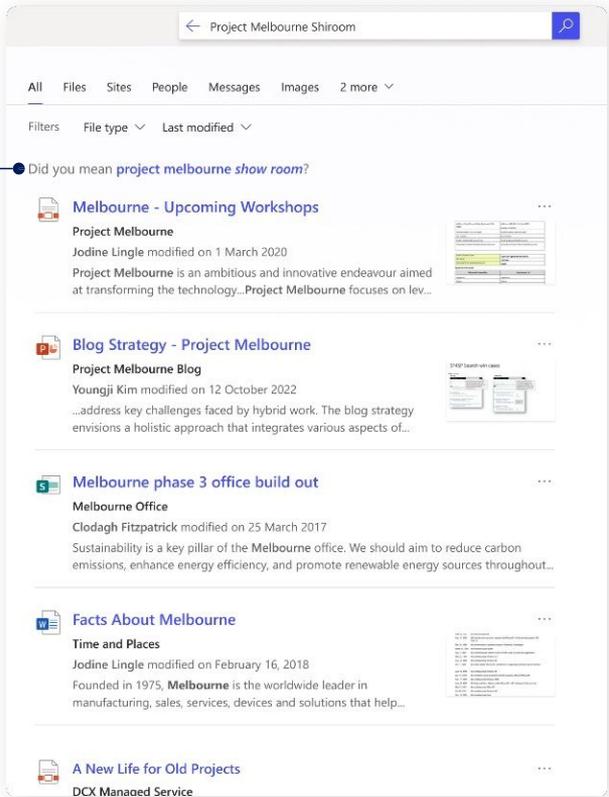
Semantic Index

- Tenant-wide and user-scoped vector indices
- User and tenant signals & relationships
- Semantics and similarities around content and users
- Ranking and relevance
- Security and permissions
- Across documents, chats, emails, people, projects, meetings, & more

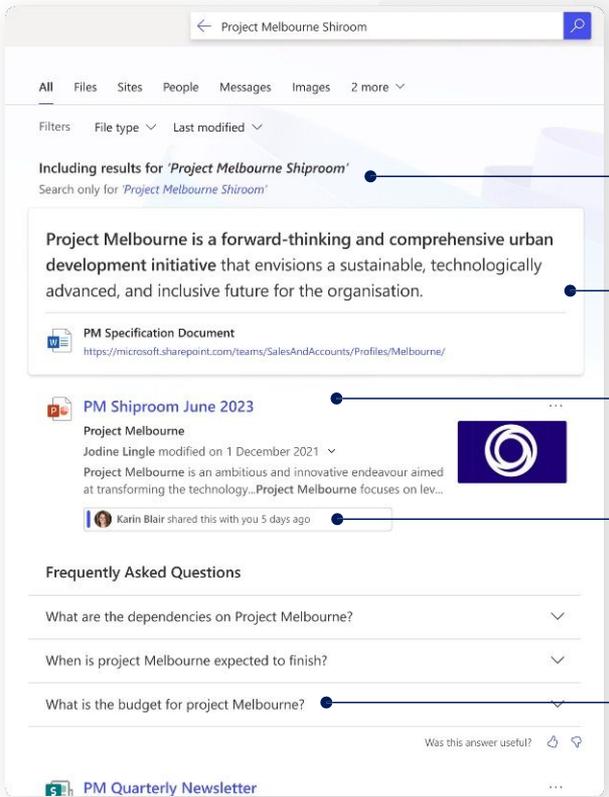


Semantic Index for Microsoft 365

keyword matched results & suggestions



autocorrected spelling of organizational jargon



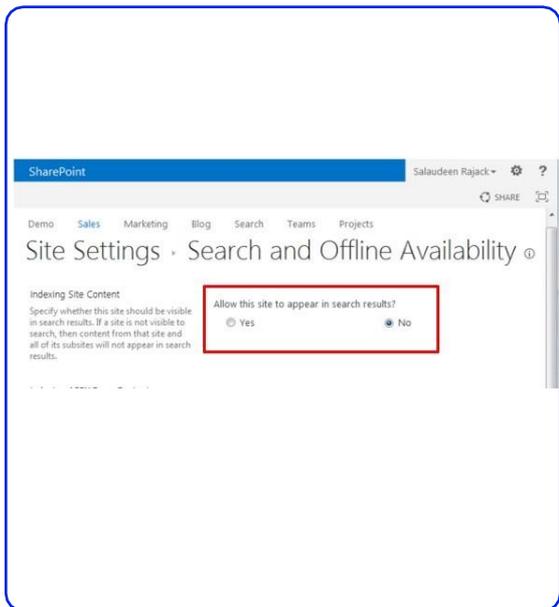
informative answers directly from documents

more relevant results, based on search intent

enhanced content sharing insights

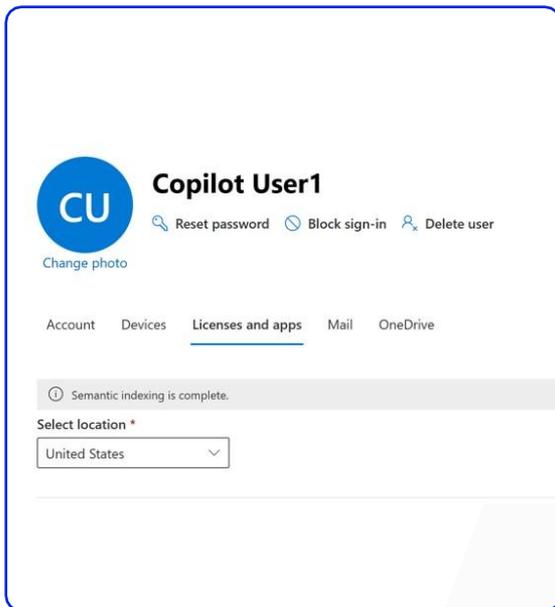
AI generated questions and answers on topic

Administrative Options



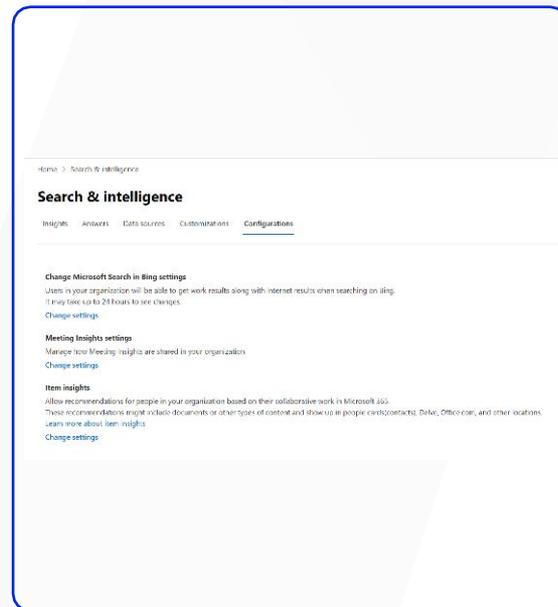
Excluding Content (SPO)

Exclude SharePoint Online files
Applies to Semantic Index & keyword search



Notifications (Admin Center)

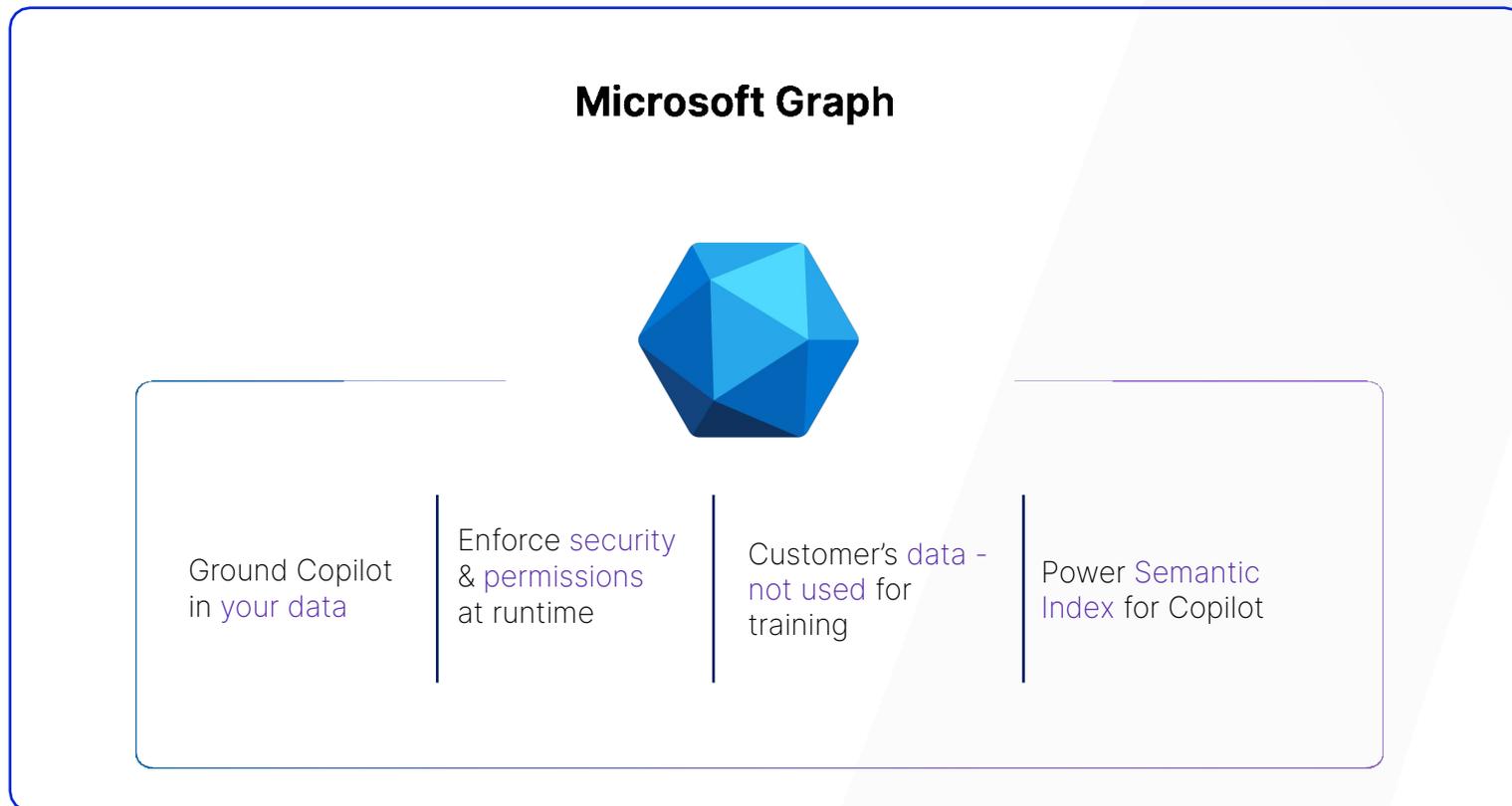
Per-user index status available
Tenant level status coming soon



Controls (Admin Center)

Item insights shows connections to people
Reduced experience if disabled
Affects user experience, not the index

Requirements for Semantic Index for Copilot



Copilot for Microsoft 365 Demos

- [Copilot for Microsoft 365 - Work On](#)
- [Copilot in Teams | Ask Better Questions](#)
- [Copilot in Teams | Discern Opinions Quickly](#)
- [Copilot in PowerPoint | Quickly generate ideas](#)
- [Copilot in PowerPoint | Create consistency](#)
- [Copilot in PowerPoint | Tell impactful stories](#)
- [Microsoft 365 Copilot | Get up to speed](#)
- [Microsoft 365 Copilot | Show up prepared – every time](#)
- [Microsoft 365 Copilot | Accomplish more in less time](#)
- [Copilot in Outlook | Translate an email](#)
- [Copilot in Outlook | Draft effective emails](#)
- [Copilot in Word | Request tailored edits](#)
- [Copilot in Word | Transform a document](#)
- [Microsoft 365 Copilot in Excel](#)
- [Copilot in Whiteboard | Brainstorming](#)
- [Microsoft 365 Copilot | Quickly align on next steps](#)
- [Semantic Index for Copilot: Explained by Microsoft](#)
- [The Copilot System: Explained by Microsoft](#)
- [Copilot Studios | Explained by Microsoft](#)
- [Microsoft Copilot Studio Demo – Microsoft Ignite 2023](#)
- Check more demo videos at: [Copilot for Microsoft 365 Playlist](#)

Thank You

