



OpenAI und ChatGPT: Neuer Support in der IT!



Agenda

Tag 1

Sprachmodelle

- Hello ChatGPT
- Wie funktionieren LLMs?
- Was kann ich damit machen?
- OpenAI API

Praktische Übungen mit OpenAI Account und Windows 11

Tag 2

Erweiterungen

- GPT 4
- OpenAI + Microsoft = Copilot
- Retrieval Augmented Generation (RAG)

Bing Copilot
+ Dallec

M365 Copilot

Azure Copilot

Github Copilot

Security Copilot

Custom Copilot

Übung: PowerShell Wrapper für OpenAI Models

siehe github.com/www42/openAI

```
$Key = 'sk-xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx'

$headers = @{
    "Authorization" = "Bearer $Key"
    "Content-Type" = "application/json"
}

$body = ConvertTo-Json @{
    "model" = 'text-davinci-003'
    "prompt" = "This is a test"
}

Invoke-WebRequest ` 
    -Uri "https://api.openai.com/v1/completions" ` 
    -Method POST ` 
    -Headers $headers ` 
    -Body $body
```



OpenAI und ChatGPT: Neuer Support in der IT!



Wie kann ChatGPT die moderne IT unterstützen?



Einführung

- ChatGPT, entwickelt von OpenAI, ist ein fortschrittliches Sprachmodell, das in der Lage ist, natürliche und interaktive Gespräche zu führen.
- Durch seine Fähigkeit, menschenähnliche Texte zu generieren, kann ChatGPT die moderne IT in verschiedenen Bereichen unterstützen.



Kundensupport und Helpdesk

- ChatGPT kann als virtueller Assistent eingesetzt werden, um Kunden bei technischen Fragen und Problemen zu unterstützen.
- Durch die Bereitstellung von genauen und relevanten Informationen kann ChatGPT die Effizienz des Kundensupports verbessern.



Fehlerbehebung und Diagnose

- Bei der Fehlerbehebung und Diagnose von IT-Problemen kann ChatGPT als Wissensbasis dienen.
- Es kann Fragen zu gängigen Problemen beantworten, Lösungen vorschlagen und den Benutzern bei der Behebung von Schwierigkeiten helfen.



Code-Snippets und Programmierung

- Entwickler können ChatGPT verwenden, um nach Code-Snippets, Beispielen oder Programmierhilfe zu fragen.
- Es kann dabei helfen, schnelle Lösungen und Syntaxvorschläge zu erhalten, um die Programmierarbeit effizienter zu gestalten.



Wissensmanagement

- ChatGPT kann als leistungsfähiges Werkzeug für das Wissensmanagement in IT-Unternehmen dienen.
- Es kann verwendet werden, um firmeninternes Wissen zu konsolidieren, FAQs zu erstellen und den Zugriff auf wichtige Informationen zu erleichtern.



Datenauswertung und -analyse

- ChatGPT kann bei der Datenauswertung und -analyse unterstützen.
- Es kann Fragen zu Dateninterpretation, Visualisierungsmethoden und statistischen Analysen beantworten und wertvolle Einblicke liefern.



IT-Sicherheit und Datenschutz

- ChatGPT kann Unternehmen dabei unterstützen, Sicherheitslücken zu erkennen und bewährte Verfahren im Bereich IT-Sicherheit und Datenschutz zu implementieren.
- Es kann Schulungen und Richtlinien für Mitarbeiter bereitstellen und bei der Sensibilisierung für Sicherheitsrisiken helfen.



Automatisierung und Prozessoptimierung

- Durch den Einsatz von ChatGPT können Unternehmen Prozesse automatisieren und optimieren.
- Es kann wiederkehrende Aufgaben übernehmen, wie z. B. das Generieren von Berichten, das Verfolgen von Projekten oder das Erstellen von Dokumentationen.



Forschung und Entwicklung

- In der IT-Forschung und -Entwicklung kann ChatGPT als kreativer Assistent dienen.
- Es kann Ideen für neue Technologien, Algorithmen oder Lösungsansätze liefern und bei der Entwicklung innovativer IT-Konzepte unterstützen.

Zusammenfassung

- ChatGPT bietet vielfältige Möglichkeiten, die moderne IT zu unterstützen.
- Von Kundensupport bis hin zur Prozessautomatisierung kann es Unternehmen helfen, effizienter zu arbeiten und bessere IT-Dienstleistungen anzubieten.



Stephen Wolfram
(Mathematica)

64 Regions mit 3DC
VM 199\$
Web 99\$
M365 59\$





*Ensure that artificial
general intelligence (AGI)
benefits humanity*



*Empower every person and
organization on the planet
to achieve more*

GPT-3.5 and GPT-4

Text

ChatGPT

Conversation

Codex

Code

DALL·E 2³

Images

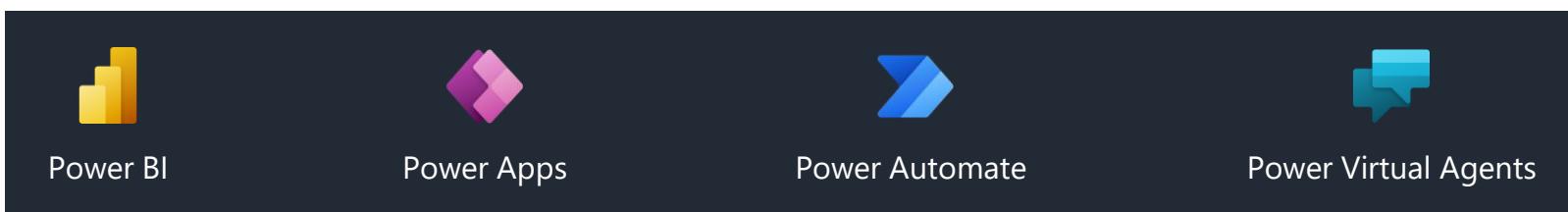
What is Azure OpenAI Service?

Applications



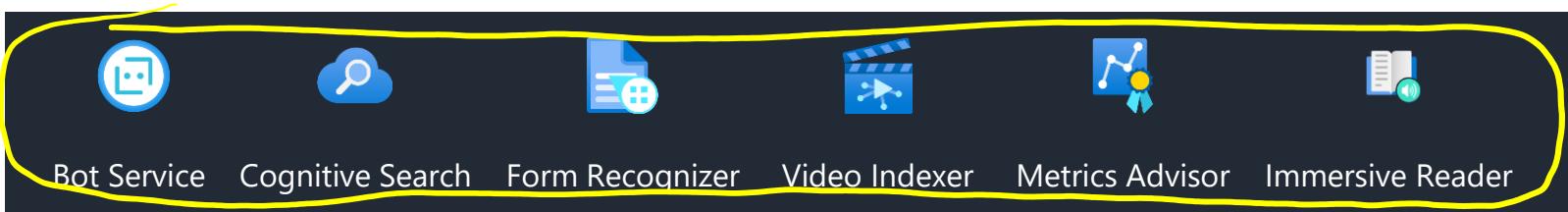
Application Platform

AI Builder



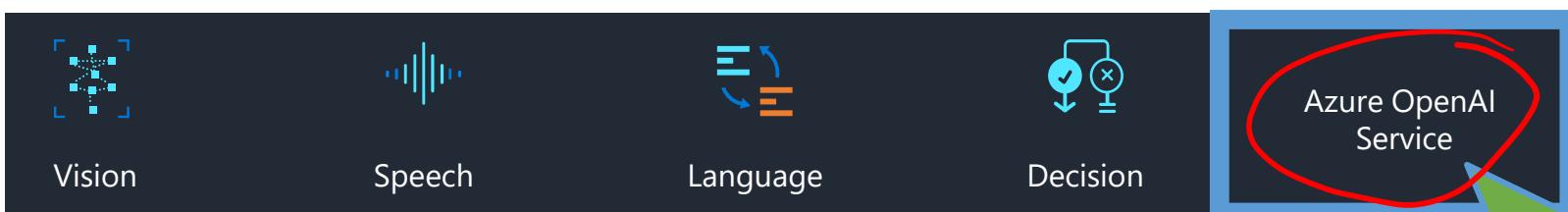
Scenario-Based Services

Applied AI Services



Customizable AI Models

Cognitive Services



ML Platform



Cutting-edge generative AI models from OpenAI
+
Scalability, interoperability, and data protection
of Azure

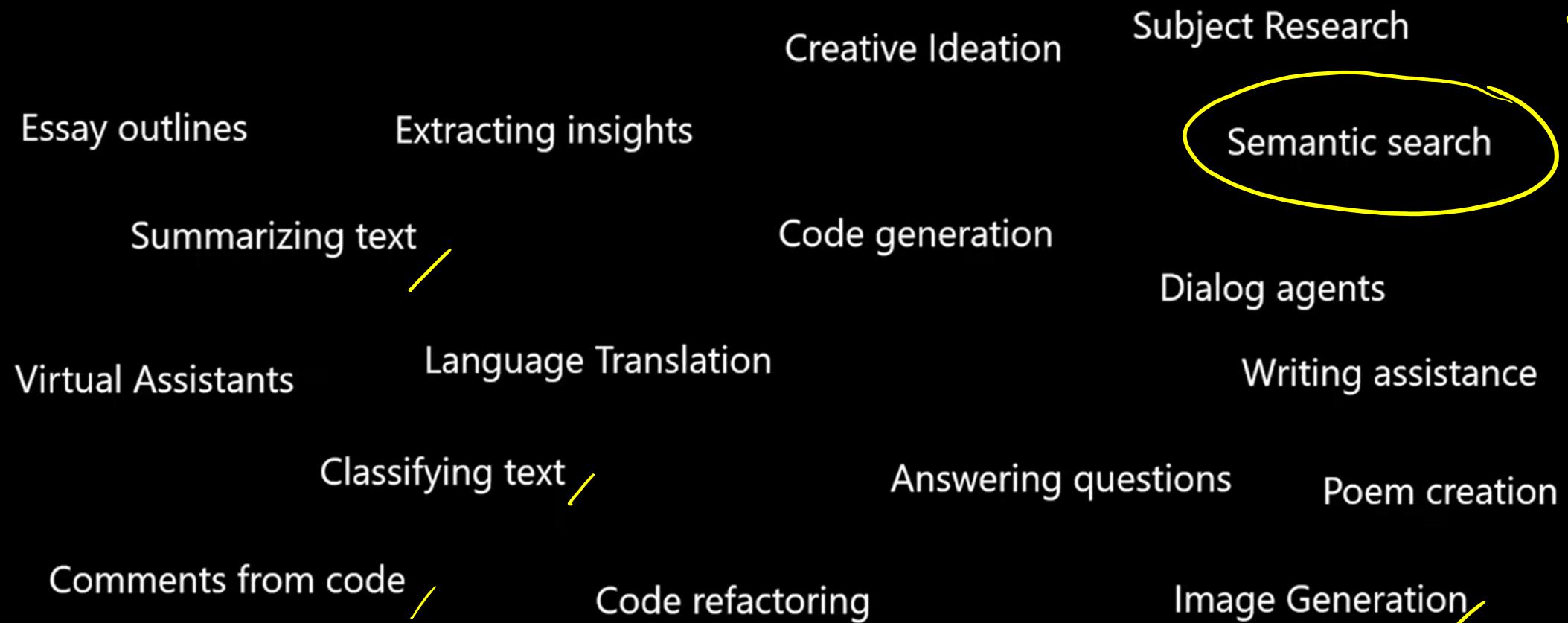


Azure OpenAI model capabilities

- The service include multiple models, optimized for specific tasks
- Models generate responses based on natural language *prompts*

	Language Generation	Code Generation	Image Generation
Prompt:	Write a haiku about marmalade	Write a Python function to add two numbers	Paint a pink fox in a field in the style of Monet
Output:	<i>Orange sunrise, sweet Spread on toast with morning tea A marmalade treat</i>	def add_two_numbers(a, b): return a + b	 A vibrant, colorful illustration of a fox walking through a field of pink and yellow flowers. The fox is pinkish-purple with a bushy tail, and the background is a soft-focus green and yellow.

Azure OpenAI Service Capabilities



Using prompts to get completions from models

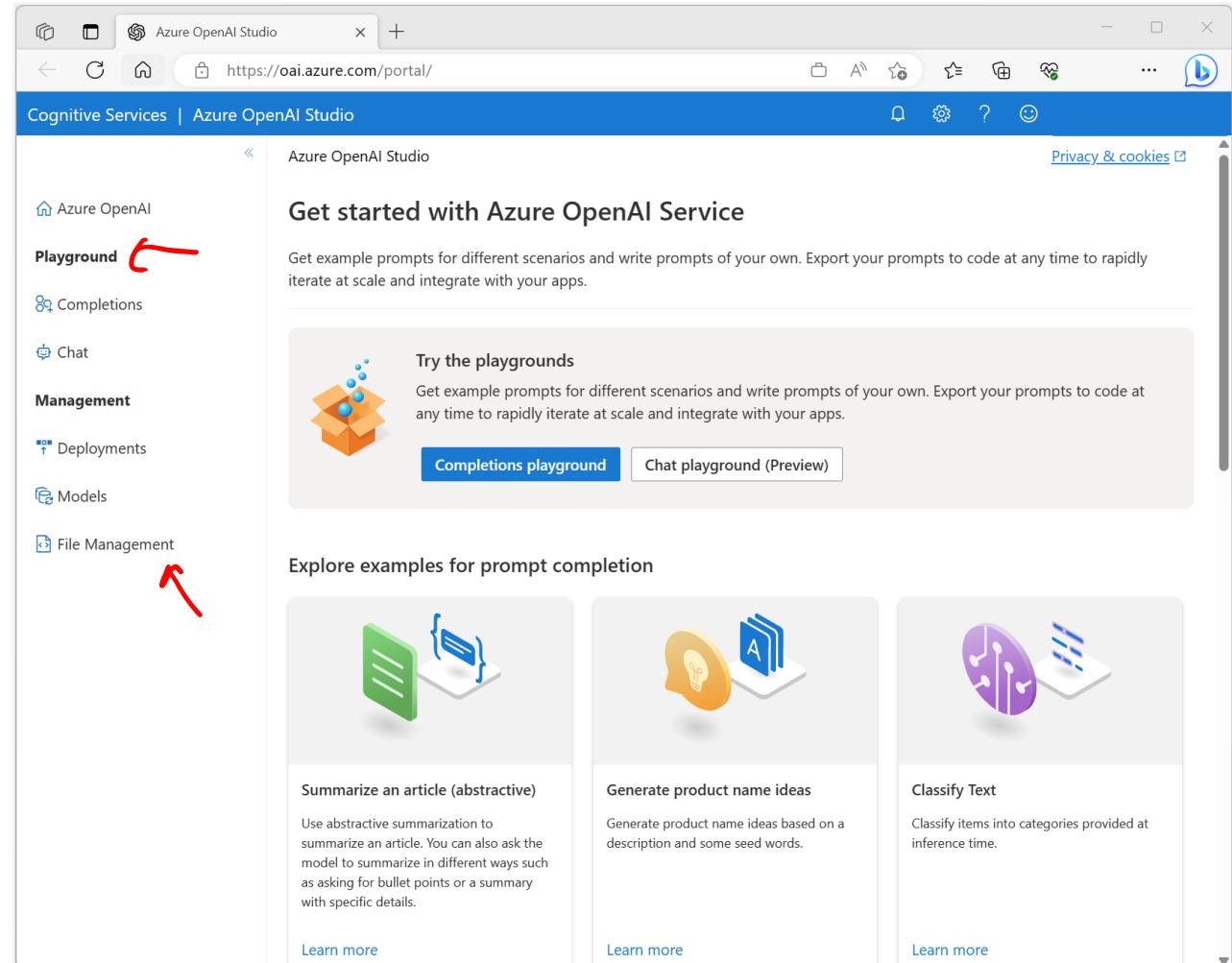
Task	Prompt	Completion
Classifying content	Tweet: I enjoyed the training course. Sentiment:	Positive
Generating new content	Write a poem about databases	Databases, oh databases, You keep our information safe, From the small to the large, You store our data in a place.
Transformation/Translation	English: Hello French:	Bonjour
Summarization	Scotland is [long description of Scotland...] Summarize the previous text	Scotland is [summarized description...]
Continuation	One way to grow tomatoes is to	start with seeds...
Question answering	How many moons does Earth have?	Earth has one moon.
Chat	Setup, followed by messages...	A sequence of relevant responses

| Azure OpenAI | GPT-3 Family of Models

Model	Request	Description, performance, cost	Use cases
Davinci	4,000 tokens	Most capable GPT-3 model. Can do any task the other models can do, often with <i>higher quality, longer output</i> and <i>better instruction-following</i> .	Complex intent, cause and effect, summarization for audience
Curie	2048 tokens	Very capable , but <i>faster</i> and <i>lower cost</i> than Davinci.	Language translation, complex classification, text sentiment, summarization
Babbage	2048 tokens	Capable of straightforward tasks, <i>very fast</i> , and <i>lower cost</i> .	Moderate classification, semantic search classification
Ada	2048 tokens	Capable of very simple tasks, usually the <i>fastest</i> model in the GPT-3 series, and <u><i>lowest cost</i></u> .	Parsing text, simple classification, address correction, keywords

Azure OpenAI Studio

- Web portal for working with Azure OpenAI models:
<https://oai.azure.com/>
- View and deploy base models
- Manage fine tuning and data files for custom models
- Test models in visual playgrounds:
 - **Completions** (GPT-3 and earlier models)
 - **Chat** (GPT-3.5-Turbo and later models)



Entfesseln Sie Ihre Produktivität und Kreativität mit Copilot

Microsoft Copilot in Edge, Ihr AI-Begleiter für das Web, hilft Ihnen, mehr zu erstellen, zu finden und zu tun, als Sie für möglich gehalten haben.

Schaffen Antworten erhalten Planung

Erstellen Sie eine Collage aus Himmelskörpern in Kombination mit Musiknoten



Probieren Sie es in Copilot aus

Erfahren Sie, wie Sie das Beste aus Copilot herausholen können:

Zusammenfassen und Suchen

Erstellen von Bildern

Verwalten Sie Ihren Browser

Schreiben wie ein Profi

Klicken Sie auf das um Ihre Stimme zu verwenden!

Willkommen bei Microsoft Edge

Microsoft Copilot in Edge

Weitere neue Funktionen

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Chat Compose Insights ⌂ ⌃ ⌄ ⌅ ⌆ ⌇ ⌈ ⌉ ⌊ ⌋ ⌊ ⌋

Untitled chat

Copilot
with Bing Chat

Choose a conversation style

More Creative More Balanced More Precise

Here are some things Copilot can help you do.
[Discover more.](#)

- Generate page summary
- Change my default homepage
- Write the outline of a book report to help me get started
- I'm looking for handmade furniture for my small apartment

Copilot is powered by AI, so surprises and mistakes are possible. [Terms of use](#) | [Privacy policy](#)

Sign in to ask more questions and have

The new Bing with images
Now you can chat with Bing using images!

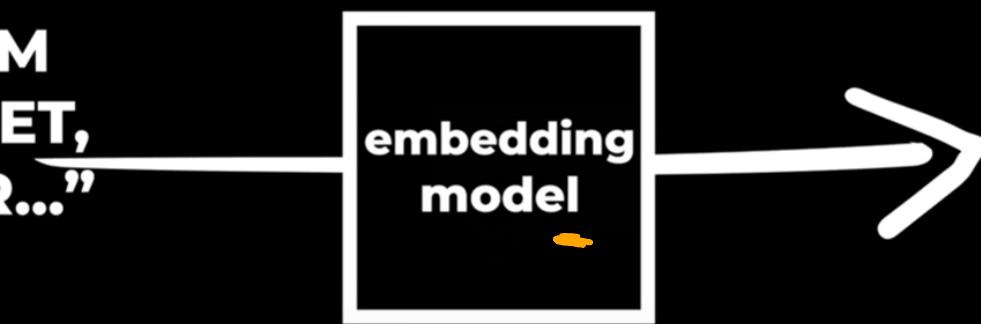
0/2000



Vector Search

"LOREM IPSUM
DOLOR SIT AMET,
CONSECTETUR..."

DATA



Semantic Search





Retrieval Augmented Generation (RAG)



ML Applications | Open Source

Retrieval Augmented Generation: Streamlining the creation of intelligent natural language processing models

September 28, 2020



Teaching computers to understand how humans write and speak, known as natural language processing (NLP), is one of the oldest challenges in AI research. There has been a marked change in approach over the past two years, however. Where research once focused on developing specific frameworks for specific tasks, today powerful general-purpose language models can be fine-tuned for a wide variety of different tasks.

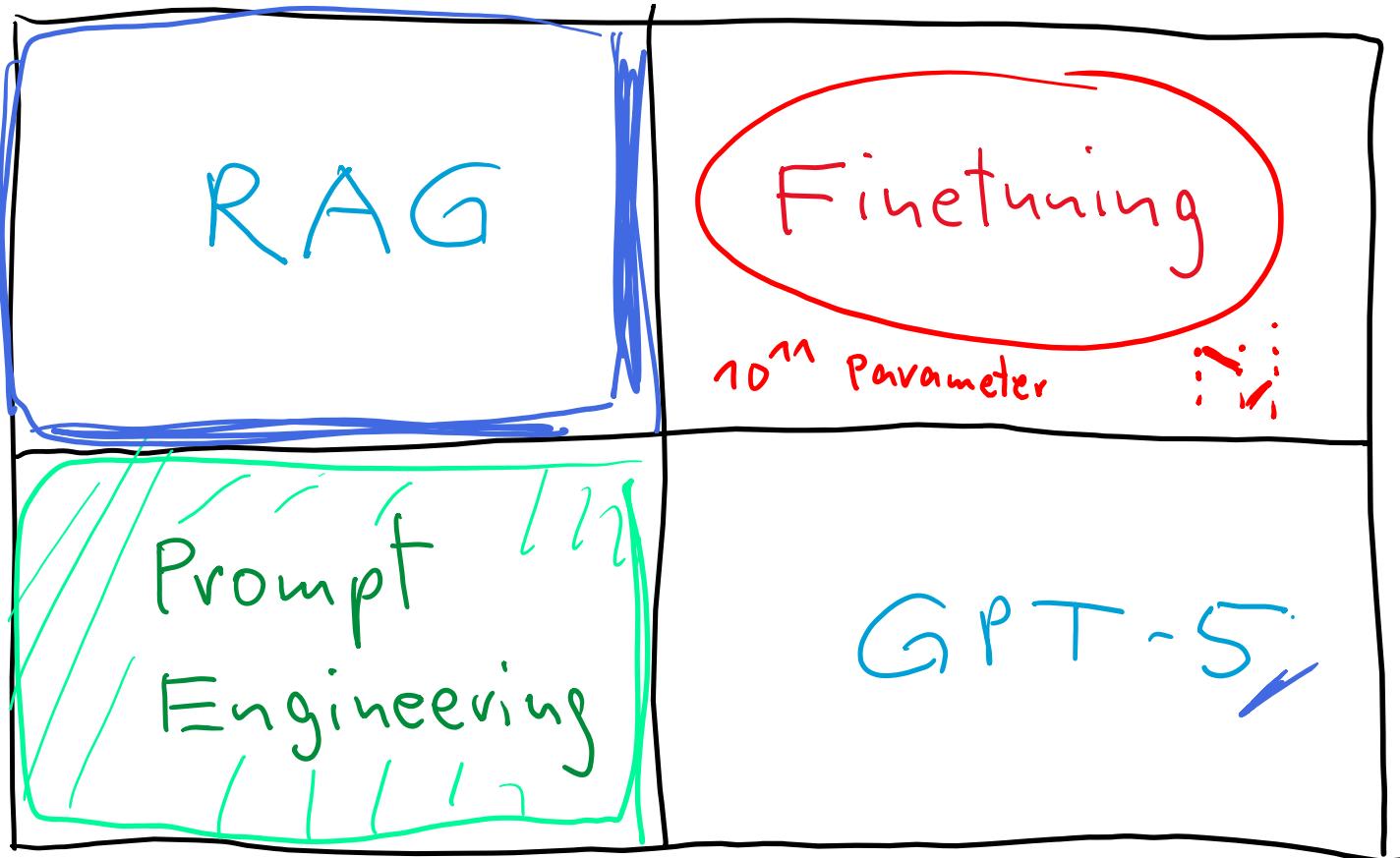
[eneration-of-intelligent-natural-language-processing-models/](#)

ExO
chat
DB
docs

externes
Fachwissen

No

Yes



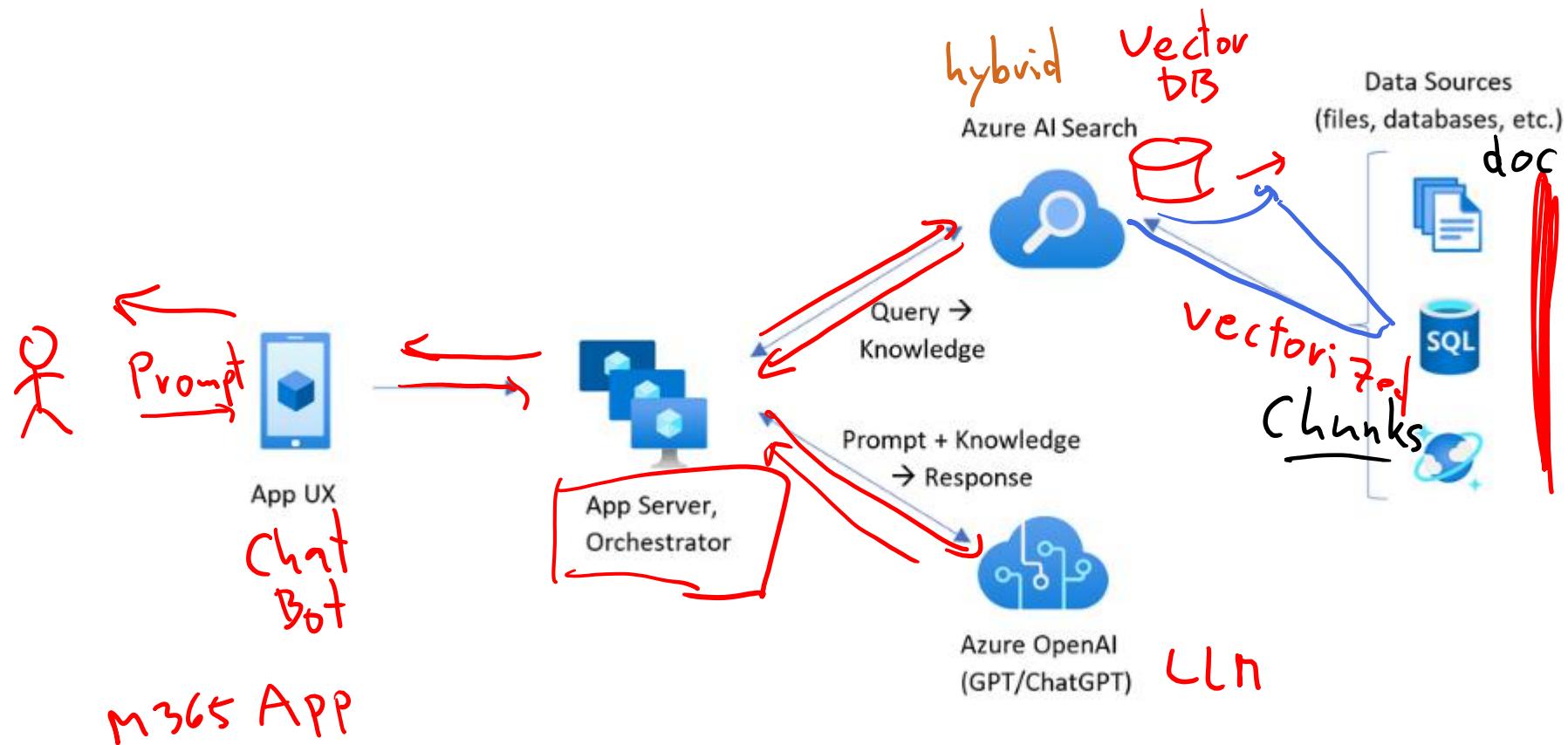
No
read only

Modell
Anpassung
LLM

yes

How does RAG work?

Exact Match
Stichworte



The AI-Powered Organization

The world is changing

Industries are transforming rapidly

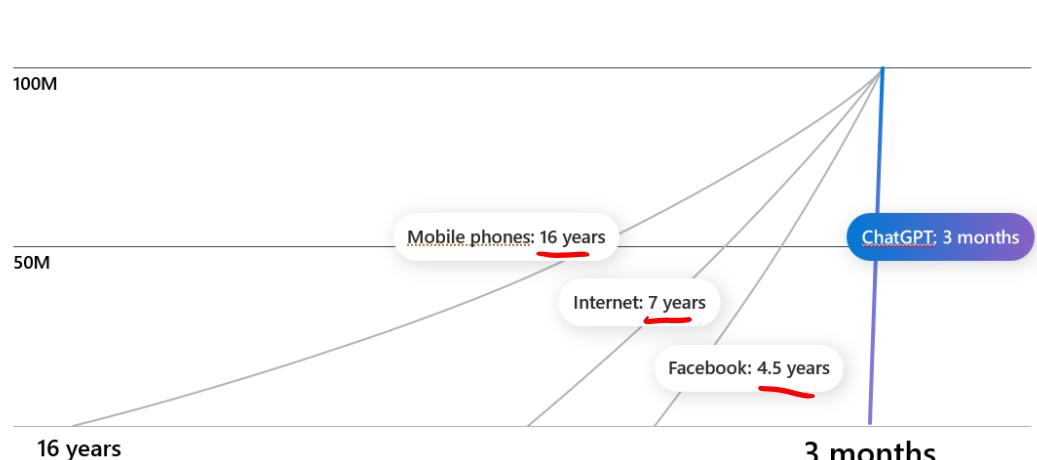
Drivers for economic growth are evolving

Technology is at an inflection point

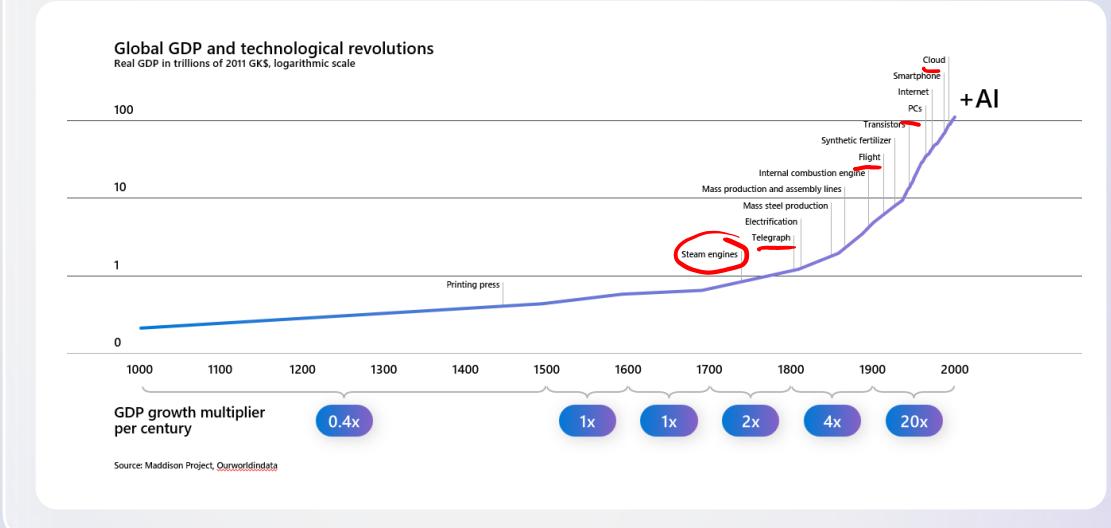
AI technology and impact

The AI technology is here

Time to reach 100M users



And the impact is **real**



Key Microsoft AI breakthroughs

- 2016 • Object and speech recognition
Human parity
- 2018 • Reading comprehension and machine translation
Human parity
- General language understanding
Human parity
- 2020 • Turing-NLG language models
- First AI supercomputer
- Exclusive license for OpenAI GPT-3 models
- Image captioning
Human parity
- 2021 • Natural Language Understanding
Human parity
- Commonsense Question Answering
Human parity
- Azure OpenAI Service preview
- 2022 • GitHub copilot general availability



"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

Generative AI capabilities

Extracting
insights

Creative
ideation

Subject
research

Dialog
agents

Essay
outlines

Summarizing
text

Virtual
assistants

Classifying
text

Code
generation

Answering
questions

Comments
from code

Semantic
search

Image
generation

Language
translation

Poem
creation

Code
refactoring

Writing
assistance

Limitless generation with
a few lines of input

Responsible AI



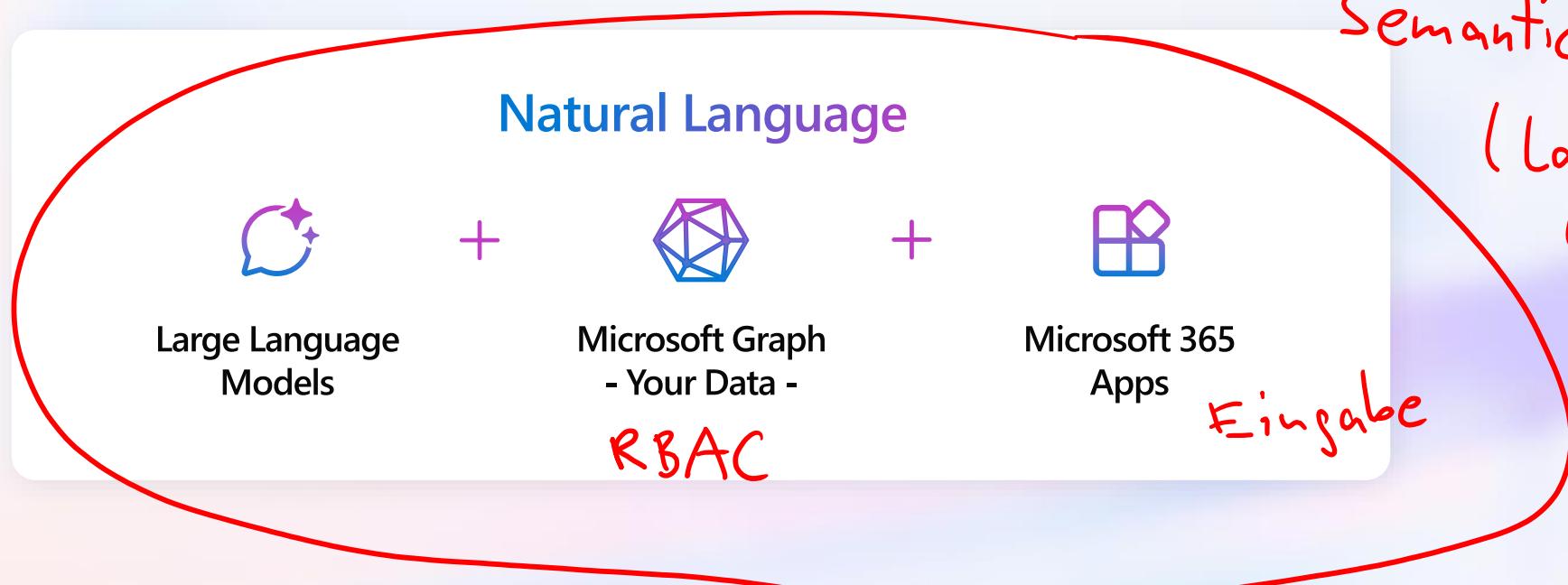
Microsoft 365 Copilot

Microsoft 365 Copilot

	RAG Grounded in your business data	Microsoft 365 Copilot has real-time access to both your content and context in <u>Microsoft Graph</u> .	RBAC <i>Purview</i>
	Comprehensive security, compliance, and privacy	Copilot inherits your security, compliance, and privacy policies set up in Microsoft 365.	 
	Architected to protect data	Your data never leaves its secure partition, and it is never used for training purposes.	
	Integrated into the apps you use every day	Word, Excel, PowerPoint, Outlook, Teams, and more.	
	Individual user and admin always in control	User decides what to use, modify, or discard.	
	Designed to learn new skills	As Copilot learns about processes, it can perform more sophisticated tasks and queries.	



Microsoft 365 Copilot





Microsoft 365 Copilot

Embedded across Microsoft 365 apps



TODO

Teams



Microsoft 365 Copilot

✓ Add on Lizenz

29 €

~ €5

Semantic Index



Tenant-wide and user-scoped
vector indices from Graph



Enable fast semantic search
across billions of vectors



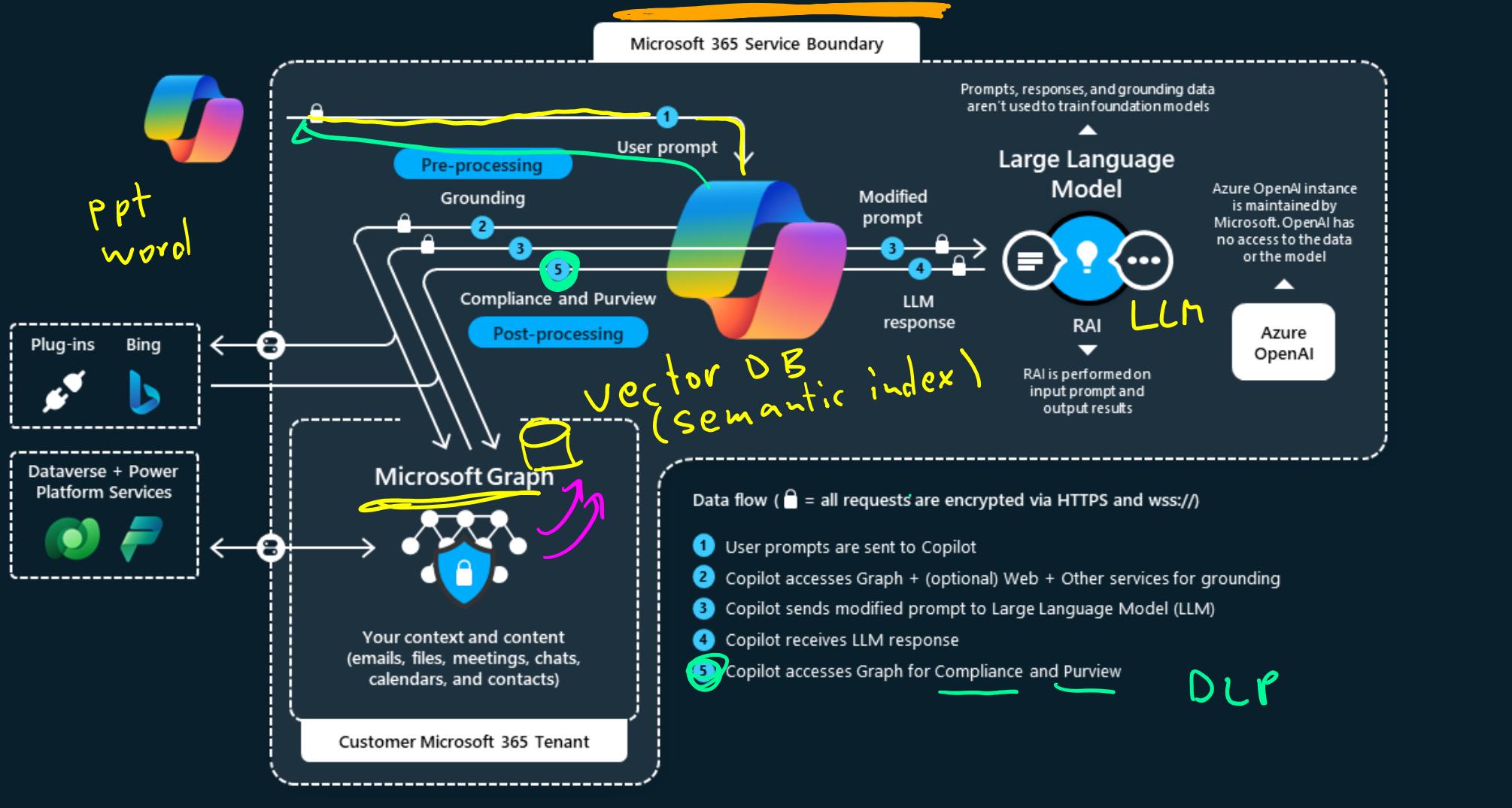
Identify semantics and similarities
around content and users

hybrid search



Bring your data into Semantic
Index with Graph Connectors

Microsoft Copilot for Microsoft 365 architecture



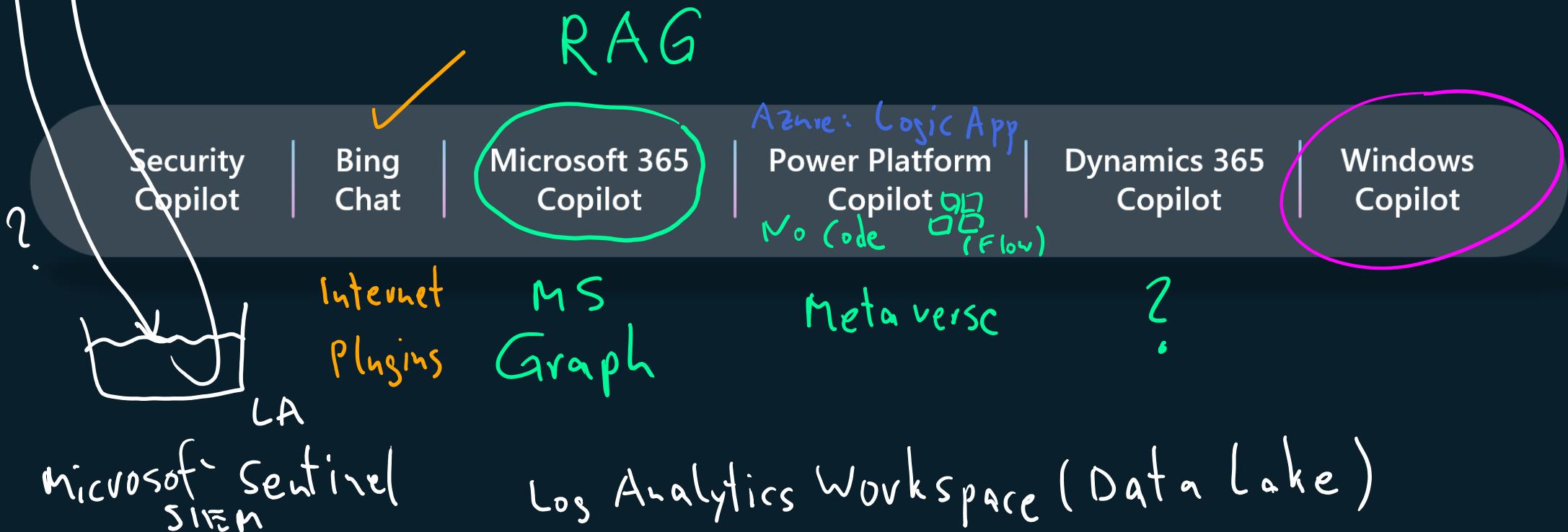


How it works:

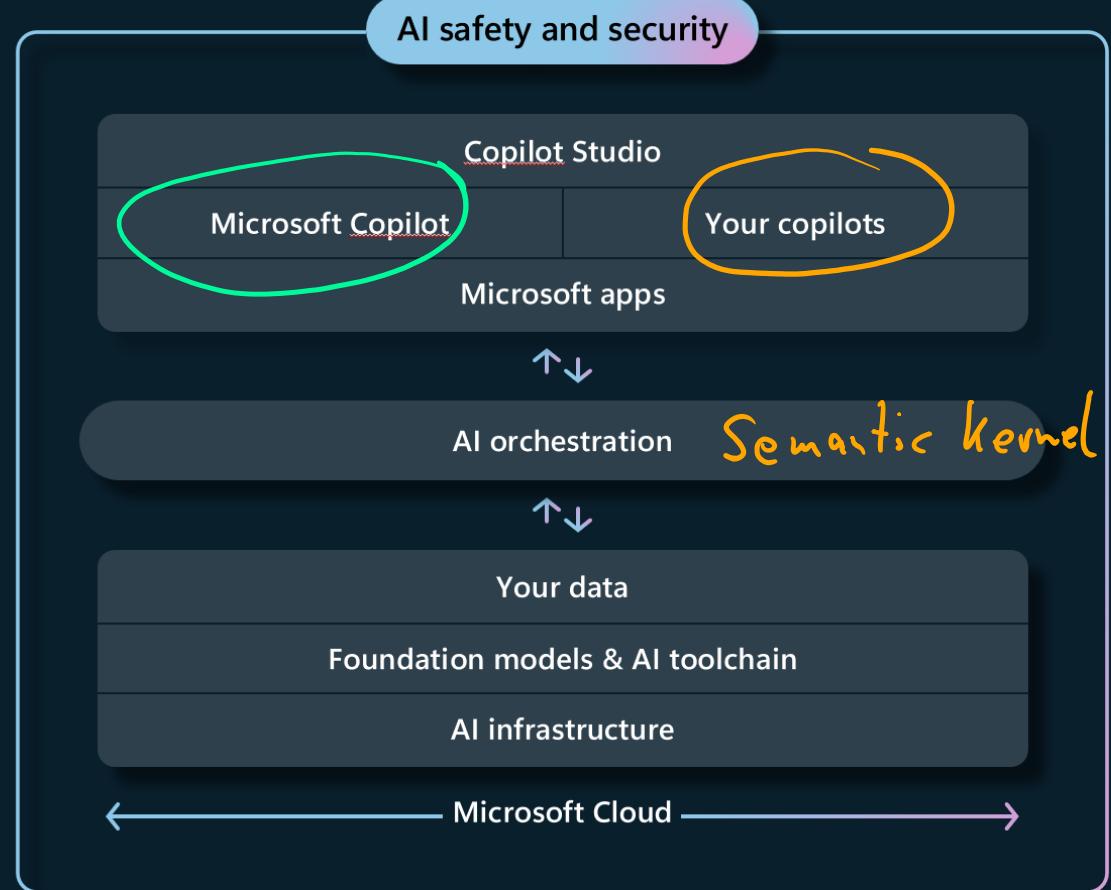
- Copilot receives an input prompt from a user in an app, such as Word or PowerPoint.
- Copilot then pre-processes the input prompt through an approach called grounding, which improves the specificity of the prompt, to help you get answers that are relevant and actionable to your specific task. The prompt can include text from input files or other content discovered by Copilot, and Copilot sends this prompt to the LLM for processing. Copilot only accesses data that an individual user has existing access to, based on, for example, existing Microsoft 365 role-based access controls.
- Copilot takes the response from the LLM and post-processes it. This post-processing includes other grounding calls to Microsoft Graph, responsible AI checks, security, compliance and privacy reviews, and command generation.
- Copilot returns the response to the app, where the user can review and assess the response.

Kusto Query Lang (KQL)

Microsoft's Copilots



Copilot Stack



Chat-GPT

Eine Bereicherung für die täglichen Aufgaben