

ADC



Accessing MLMs from .NET Backends

With Microsoft.Extensions.AI and .NET Aspire, by Kenny Pflug
Talk at the Advanced Developers Conference 2025, Regensburg, Germany



On today's menu

- The use case: Information Extraction from text, speech, and images
- The backend and its services, hosted by .NET Aspire
- Microsoft.Extensions.AI for accessing GPT-4o and Whisper
- Endpoint design and prompt management
- A small excursion into authentication and security

<https://github.com/feO2x/adc2025-mea-with-aspire>

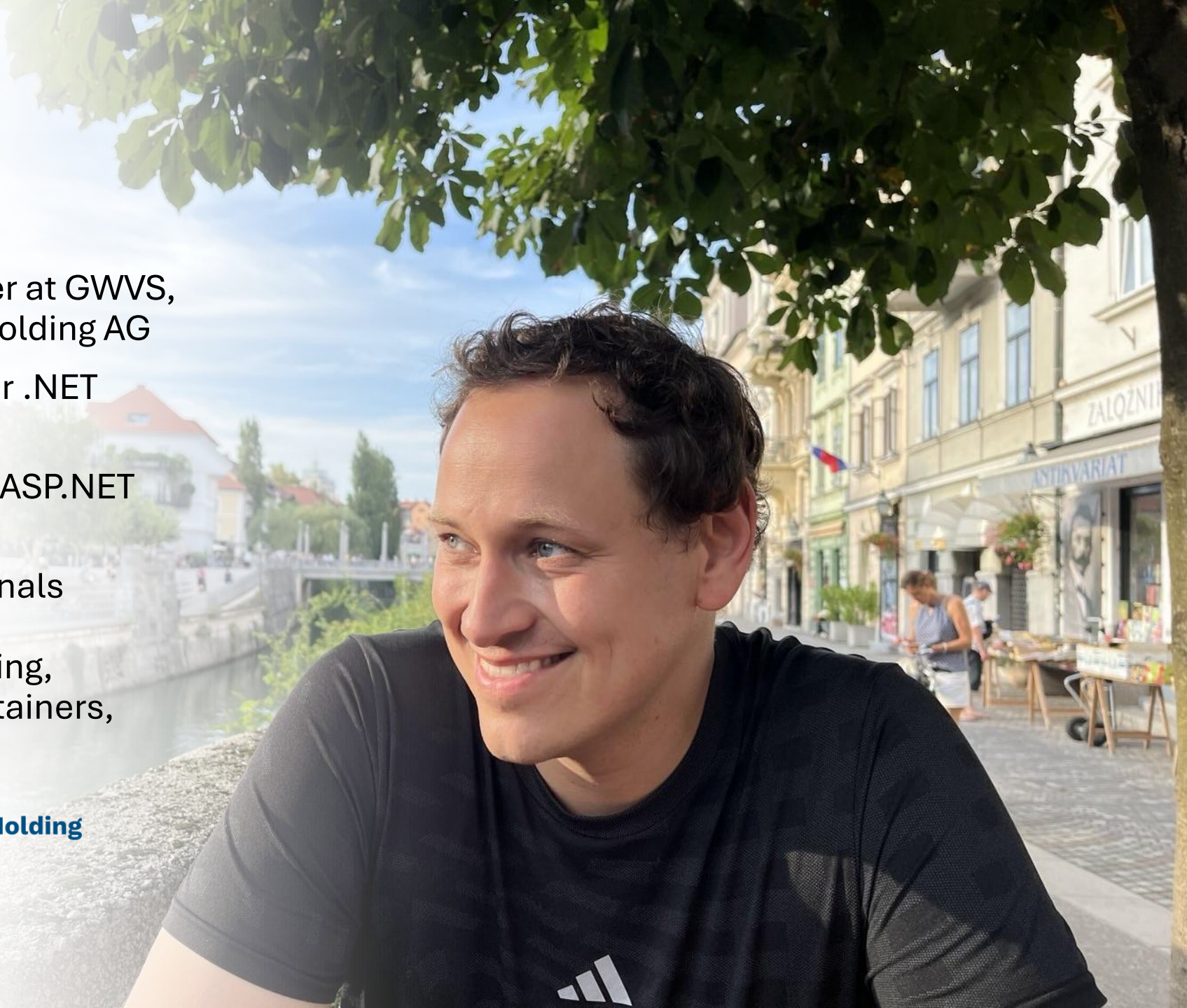


Kenny Pflug

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- Senior Software Developer at GWVS, TELIS FinancialServicesHolding AG
- Professional Developer for .NET since 2009
- Distributed Systems with ASP.NET (Core) since 2014
- CLR and Framework Internals (Memory Management, Asynchronous Programming, Threading, ORMs, DI Containers, Serializers, etc.)

TFSH TELIS FinancialServicesHolding
Aktiengesellschaft






The use case: filling out a complex form

Schadenmeldeformular

ADAC Versicherung AG · 81362 München



▼ **Mitgliedsnummer**

Schadenfall

in Deutschland ☐ im Ausland ☐

▼ Name / Vorname des Mitglieds

▼ PLZ / Ort

▼ Telefon tagsüber

▼ Mail / Fax

▼ Straße / Nr.

Angaben zum Schaden:

▼ Datum des Schadens

▼ Schadenland

▼ Aktueller Standort des Fahrzeugs

Wurde der ADAC bereits verständigt? ja ☐ nein ☐ Wenn nein

▼ Datum des Anrufs

▼ Uhrzeit

▼ PLZ / Ort des Schadens

▼ Zielort der Reise

▼ Grund:

▼ Uhrzeit

Panne ☐ Unfall ☐ Kfz-Diebstahl ☐ Sonst. ☐

▼ ca. Entfernung zum Wohnort

▼ Reisebeginn

Verständigung durch Polizei / Autobahnnotruf ja ☐ nein ☐

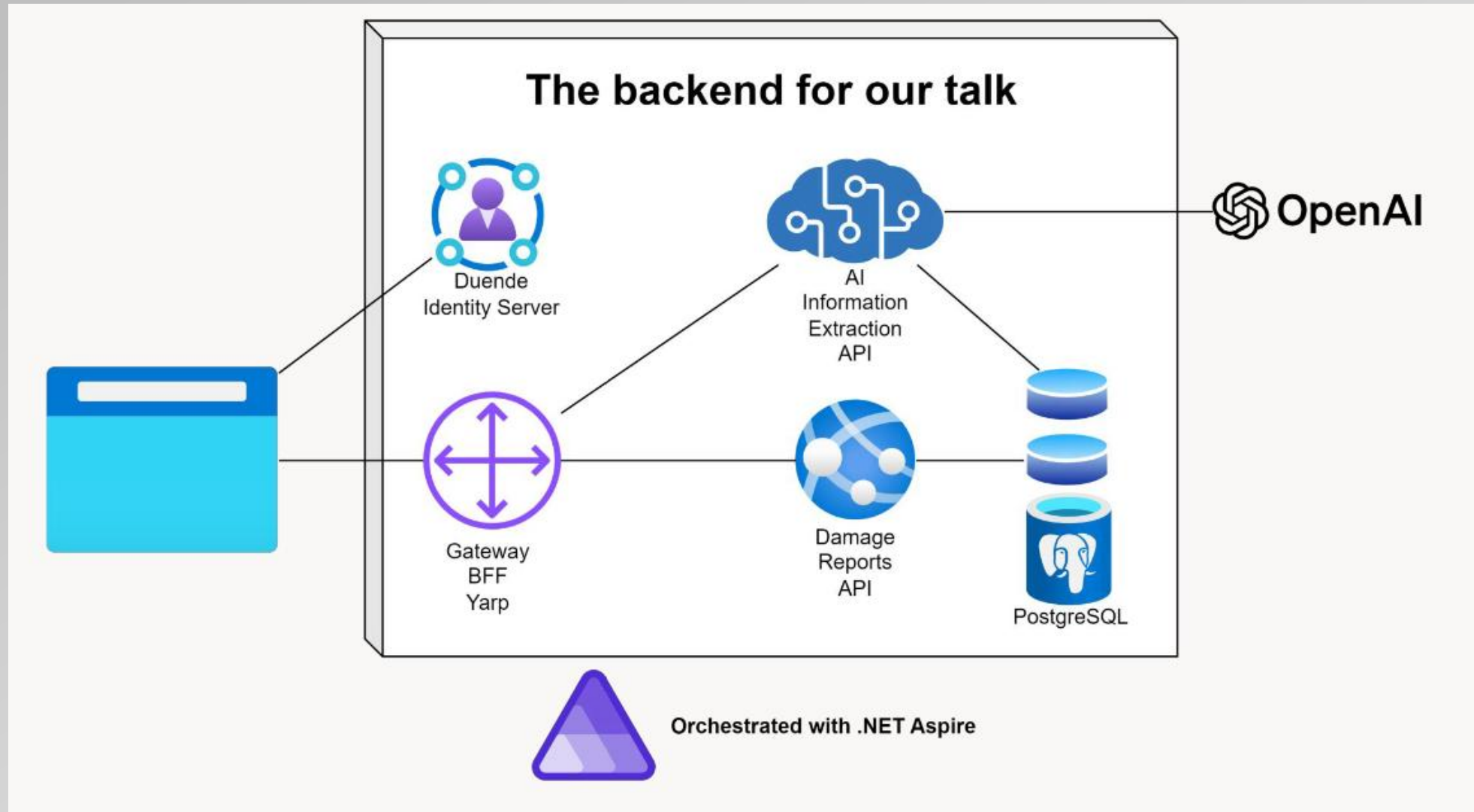
▼ Anz. d. Reisenden inkl. Fahrer

Können Sie die Mehrwertsteuer beim Finanzamt absetzen? ja ☐ nein ☐

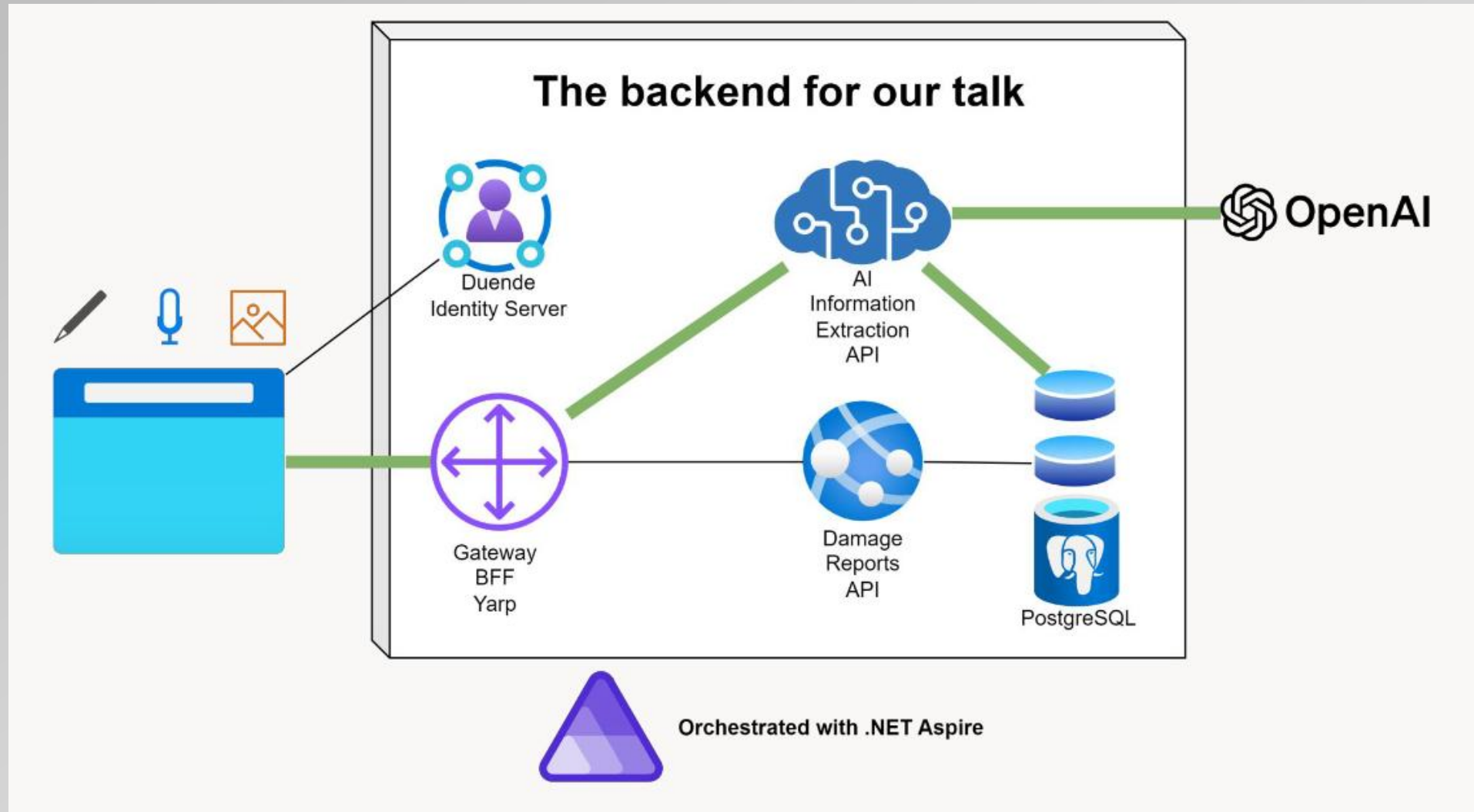
▼ geplante Rückreise



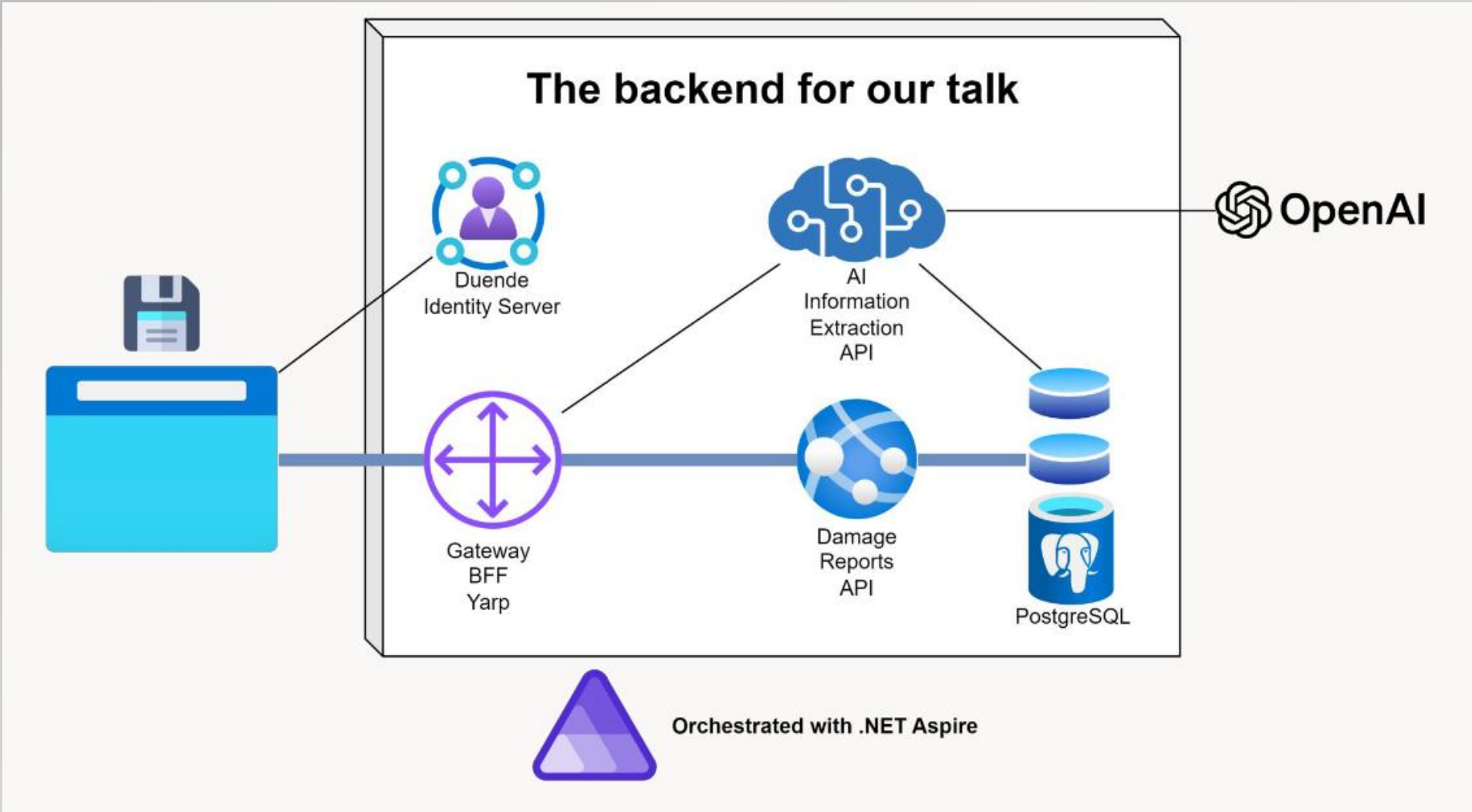
Backend Overview



While filling out the form

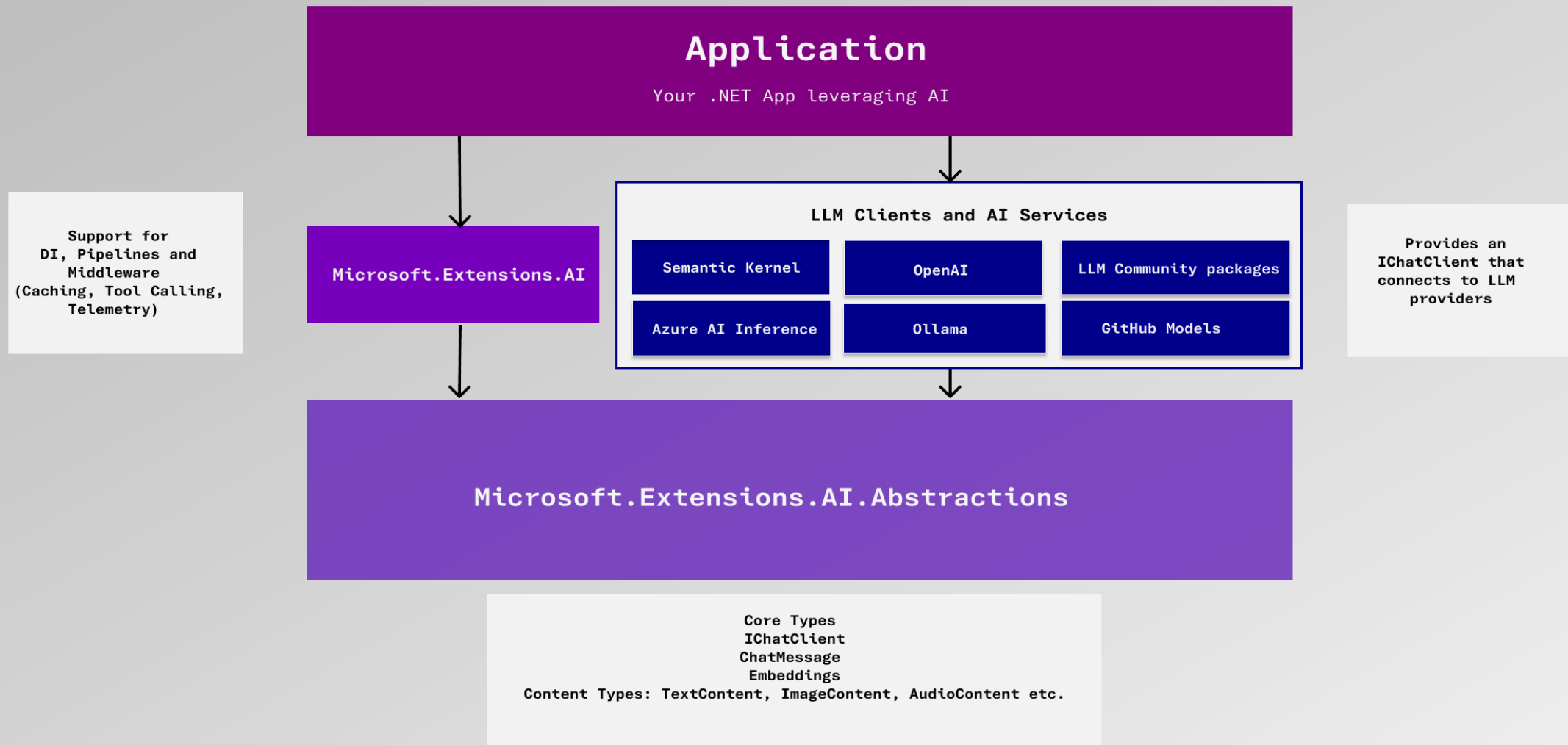


While reviewing and saving





How to write a data access layer for AI?



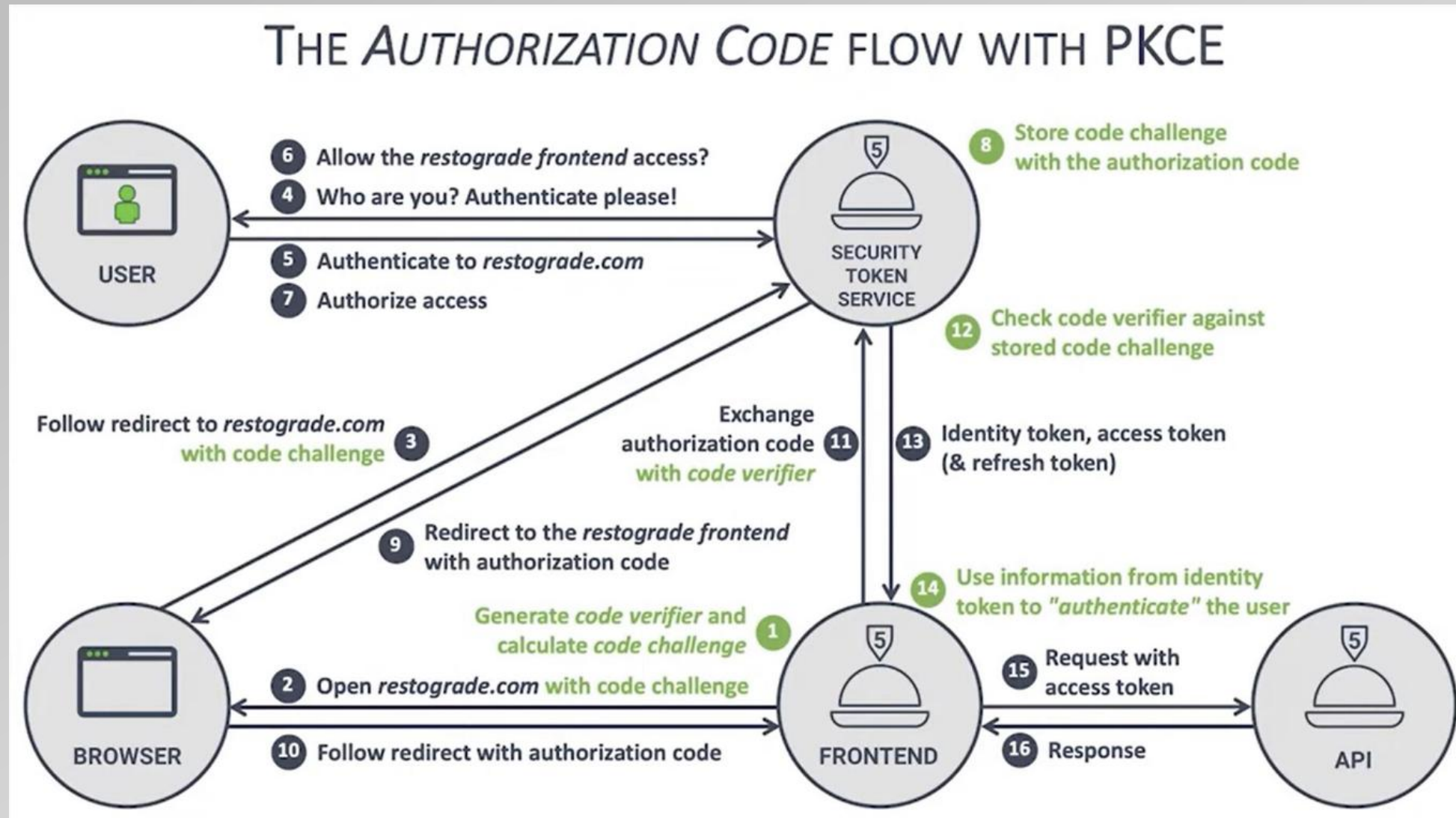


Demo Time!

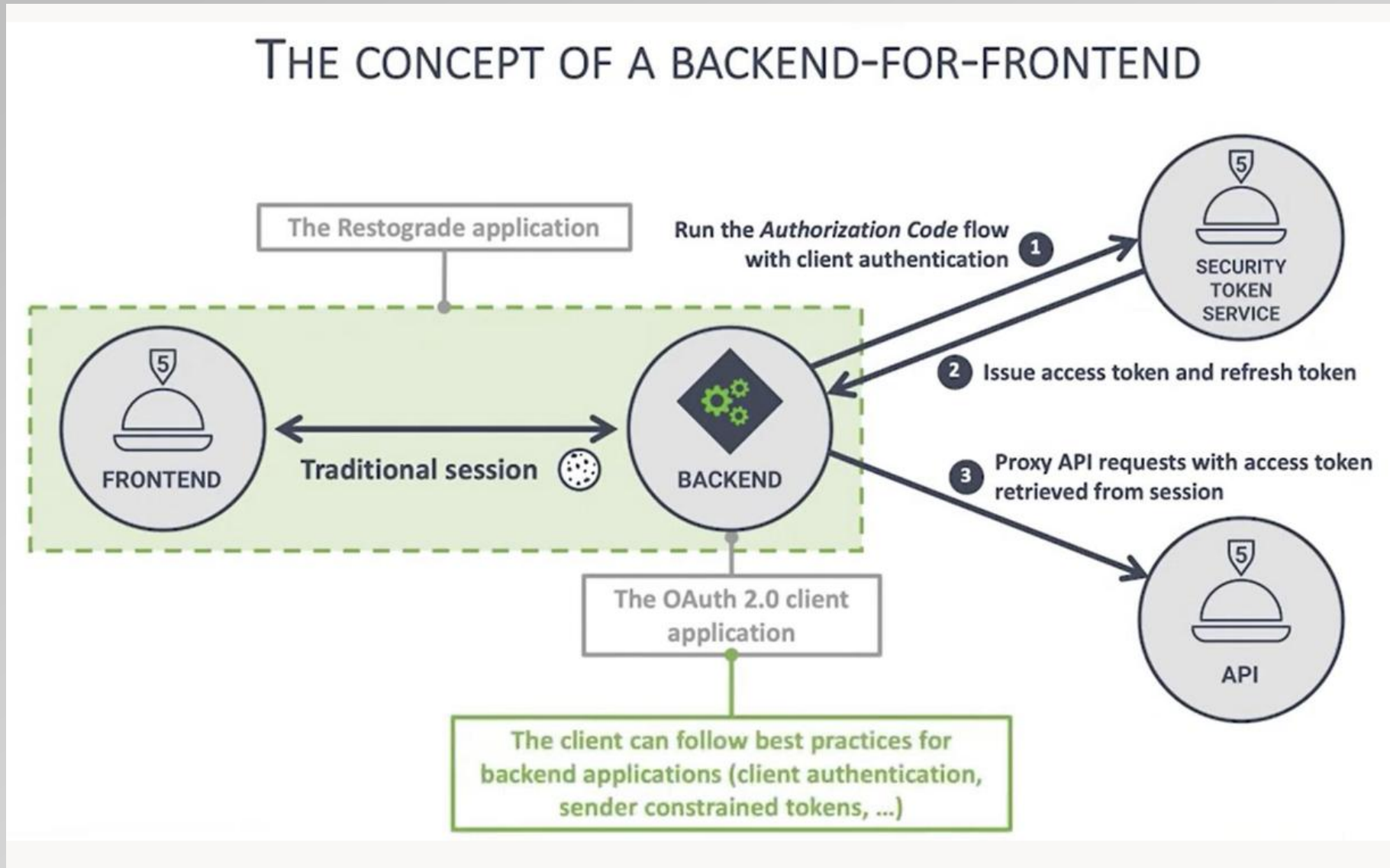
Let's see some code



OpenID Connect (OIDC) – the Authorization Code Flow



OpenID Connect (OIDC) – Backend for Frontend (BFF) manages tokens





Final thoughts on AI Information Extraction

- Provide scope: focus on parts of the problem so that the Multimodal Language Model (MLM) can provide better responses.
- Provide context: present the current values so that the MLM can derive information from it.
- Structured output: only accept JSON responses from the MLM so that your app can easily parse the results.
- Expect errors: the MLM might provide invalid responses – validate them via Human in the Loop (HITL)
- Try local models: [mistral-small3.1](#) and [speaches](#) might be all you need
- Secure your backend properly. Use authentication/authorization and adhere to security standards: BFF, Content Security Policies (CSPs), Demonstrated Proof of Possession (DPoP), Vulnerability Analysis, etc.





Sources

- [Microsoft.Extensions.AI libraries \(Preview\)](#) – Microsoft Learn
- [.NET Aspire Overview](#) – Microsoft Learn
- [The insecurity of Oauth 2.0 in frontends](#) – Phillipe de Ryck, NDC Security 2023
- [Securing SPAs and Blazor Applications using the BFF \(Backend for Frontend\) Pattern](#) – Dominick Baier, NDC Security 2023
- [Reading JSON and Binary Data from Multipart/Form data](#) – Andrew Lock's Blog



Thank you very much!
I'm looking forward to your feedback!

<https://forms.office.com/e/cUcbRJmzW>

Scan
me!

