inn0va community

Microsoft.Extensions.AI : una API per domarli tutti!!!

Massimo Bonanni

~~Technical Trainer~~ @ Microsoft
FUFFA STORYTELLER

altitudo

beanTech
IT moves your business

[stesi]
Powered by Innovation

CONSORZIO
UNIVERSITARIO
DI PORDENONE
MOLTIPLICATORE DI VALORE

Sponsor

CONSORZIO
UNIVERSITARIO
DI PORDENONE
MOLTIPLICATORE DI VALORE

altitudo

beanTech
IT moves your business

[stesi]
Powered by Innovation

What is Microsoft.Extensions.* ?

It provides abstractions for many of the building blocks commonly used in enterprise applications.

`Microsoft.Extensions.Logging → ILogger`

`Microsoft.Extensions.Caching.* → IMemoryCache, IDstributedCache, …`

`Microsoft.Extensions.DependencyInjection → IServiceCollection`

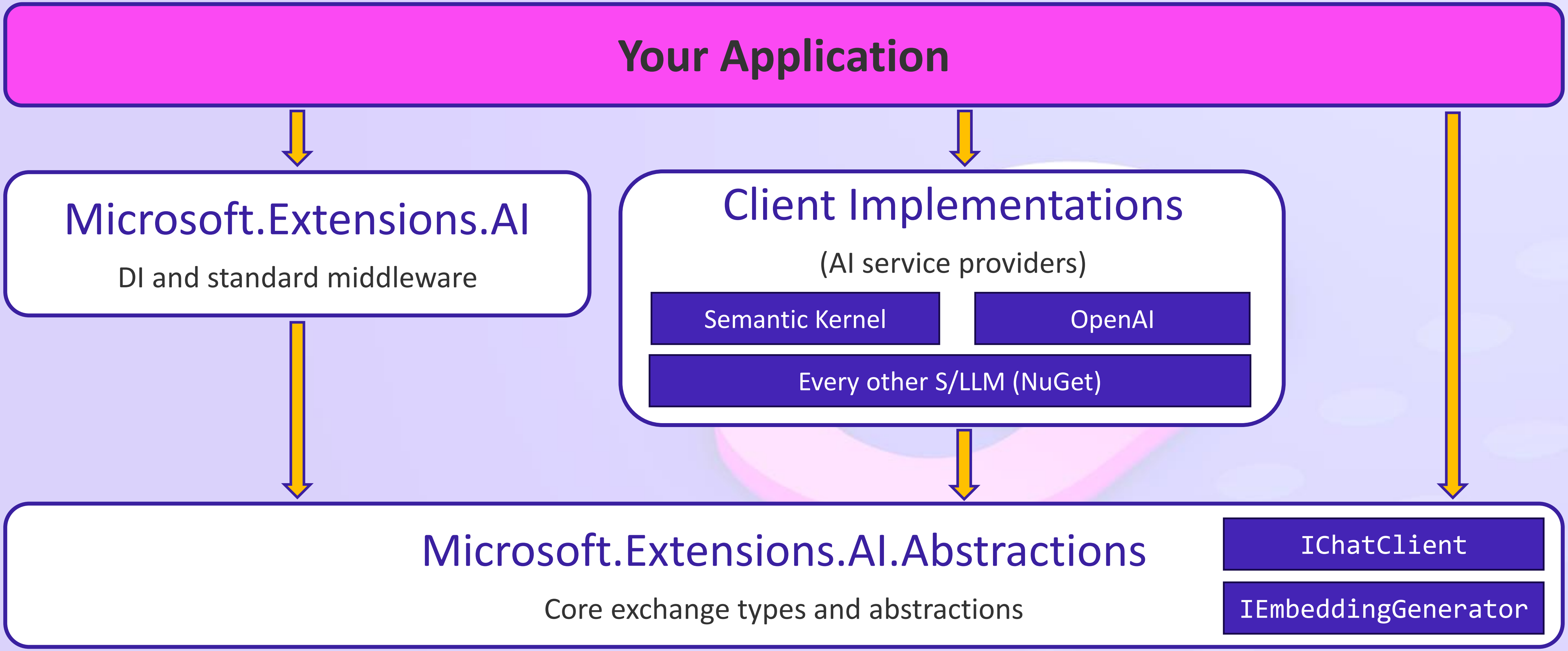
`Microsoft.Extensions.AI → IChatClient, IEmbeddingGenerator`

What is Microsoft.Extensions.AI?

Microsoft.Extensions.AI is a set of core .NET libraries developed in collaboration with developers across the .NET ecosystem, including Semantic Kernel.

These libraries provide a unified layer of abstractions for interacting with AI services, such as small and large language models (SLMs and LLMs), embeddings, and middleware.

Microsoft.Extensions.AI architecture



Your Application

Microsoft.Extensions.AI

DI and standard middleware

Client Implementations

(AI service providers)

Semantic Kernel

OpenAI

Every other S/LLM (NuGet)

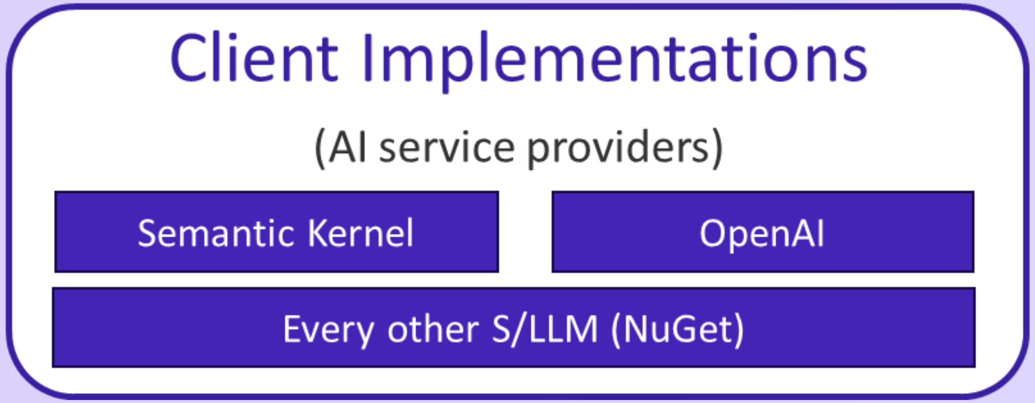
Microsoft.Extensions.AI.Abstractions

Core exchange types and abstractions

`IChatClient`

`IEmbeddingGenerator`

Client implementations


Client Implementations

(AI service providers)

Azure AI Inference (GitHub Models)

`Microsoft.Extensions.AI.AzureAIInference`

Azure OpenAI / OpenAI

`Microsoft.Extensions.AI.OpenAI`

Ollama

`Microsoft.Extensions.AI.Ollama`

Benefits of Microsoft.Extensions.AI

Unified API

Delivers a consistent set of APIs and conventions for integrating AI services into .NET applications.

Flexibility

Allows .NET library authors to use AI services without being tied to a specific provider, making it adaptable to any provider.

Ease of Use

Enables .NET developers to experiment with different packages using the same underlying abstractions, maintaining a single API throughout their application.

Componentization

Simplifies adding new capabilities and facilitates the componentization and testing of applications.

Demos

- Embedding
- Semantic Search
- Dependency Injection
- Middleware
- Functions
- Not Only Chat!!!

Start building with Microsoft.Extensions.AI

Library Developers

If you own libraries that provide clients for AI services, consider implementing the interfaces in your libraries.

Service Consumers Application Developers

Use the abstractions instead of hardcoding to a specific AI service.

This enables portability across models and services, facilitates testing and mocking, leverages middleware provided by the ecosystem, and maintains a consistent API throughout your app.

Ecosystem Contributors

Contribute to the ecosystem writing custom middleware components or clients.

20% discount code

AZURECOOKBOOK24

bit.ly/azurecookbook

Any Questions?

Massimo Bonanni

Technical Trainer @ Microsoft

massimo.bonanni@microsoft.com
@massimobonanni

aka.ms/maxlinkedin

References

- Introducing Microsoft.Extensions.AI Preview - Unified AI Building Blocks for .NET - .NET Blog
- Unified AI building blocks for .NET - .NET | Microsoft Learn
- Models · GitHub Marketplace
- AI Building Blocks - A new, unified AI layer (.NET Conf 2024)