



# Reactor

## Developing Windows Widgets with Generative AI

Peter Bull, Microsoft MVP - .NET & Windows Development



# About



## Peter Bull

*Microsoft MVP - .NET & Windows Development*

**Speaker Bio:** Developer with over three decades of personal experience & over two decades of professional experience for web, mobile & desktop

**Comentsys.com:** Websites, Packages & Software

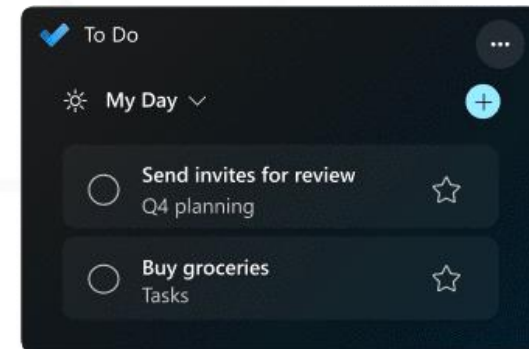
**RoguePlanetoid.com:** Posts, Articles & Podcast

**Tutorialr.com:** Tutorials, Talks & Workshops

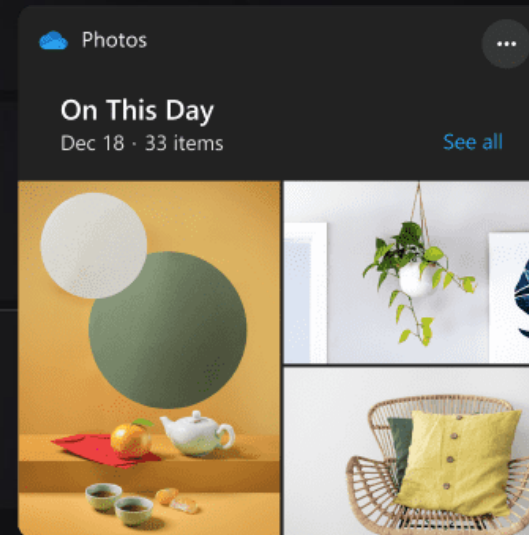


# Agenda

1	Windows Widgets
2	Widget Provider
3	Generative AI
4	Demo
5	Summary



# Windows Widgets



# Overview

## Windows Widgets



### Widgets

Quick access to information all from the click or swipe of the Widgets Board



### Adaptive Cards

Platform-agnostic JSON snippets for rich interactive content across platforms such as Widgets



# Widgets

## Windows Widgets

Windows 11 with Widgets Board enables quick-and-easy access to at-a-glance information including built-in & Microsoft Store Widgets

### Features:

- Organise & save time with the Widgets Board
- Customise & personalise what's important
- Interactive & dynamic text or images
- Designed using Adaptive Cards





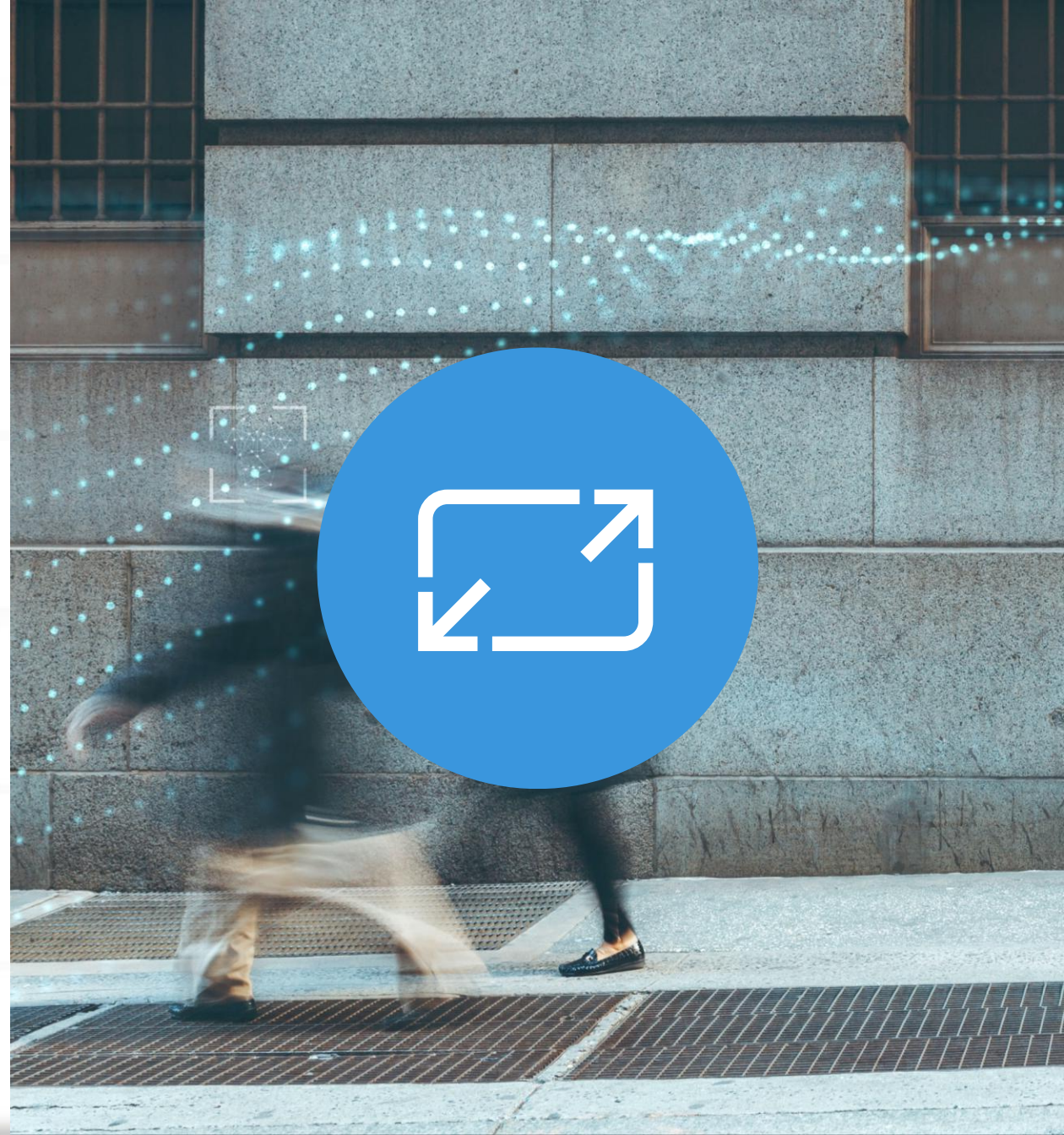
# Adaptive Cards

## Windows Widgets




Adaptive Cards are platform-agnostic UI snippets in JSON for rich interactive content across platforms or services such as Widgets


### Features

- Exchange at-a-glance content supporting text and images
- Create using JSON schema or drag-and-drop designer
- Update based on user actions or data changes
- [adaptivecards.io](https://adaptivecards.io)





# Widget Provider


 Design Widget  


 **Generative AI**

Generative AI creates new content like text, images, and music by learning from existing data.

 **Examples:**

 **Text:** Essays and poems.

 **Art:** Digital paintings.

 **Music:** Melodies and songs.

These technologies foster creativity and innovation.



# Windows App SDK

## Widget Provider

Windows App SDK to develop modern native Windows applications using WinUI 3 targeting from Windows 10 RS5 to latest Windows 11

### Features

- Decoupled from Windows & updated every six months via NuGet
- Develop applications using C++ with Win32 or C# with .NET
- Install Windows application development workload
- [aka.ms/winappsdk](https://aka.ms/winappsdk)



# Widget Provider

IWidgetProvider	IWidgetProvider2
ActivateWidget(WidgetContext)	OnCustomizationRequested(WidgetCustomizationRequestedArgs)
CreateWidget(WidgetContext)	
Deactivate(String)	
DeleteWidget(String, String)	
OnActionInvoked(WidgetActionInvokedArgs)	
OnWidgetContextChanged(WidgetContextChangedArgs)	

[aka.ms/widgetdevdocs](https://aka.ms/widgetdevdocs)




# Comentsys.WindowsAppSdk



WidgetProviderBase	WidgetBase
CreateWidget(WidgetContext)	SetState(state)
DeleteWidget(widgetId, customState)	CreateWidget(state)
OnActionInvoked(WidgetActionInvokedArgs)	Activate()
OnWidgetContextChanged(WidgetContextChangedEventArgs)	Deactivate()
OnCustomizationRequested(WidgetCustomizationRequestedArgs)	DeleteWidget(state)
Activate(WidgetContext)	OnActionInvoked(WidgetActionInvokedArgs)
Deactivate(widgetId)	OnWidgetContextChanged(WidgetContextChangedEventArgs)
UpdateWidget(widgetId, customState)	OnCustomizationRequested(WidgetCustomizationRequestedArgs)
AddWidget(widgetName, widgetCreateDelegate)	GetTemplateForWidget()
	GetDataForWidget()




[comentsys.com/packages/toolkits](https://comentsys.com/packages/toolkits)


# Generative AI

 Prompt Widget  

 **Generative AI for Windows Widgets** 

 Dive into dynamic widgets powered by AI:

1. **Envision** purpose and scope.
2. **Leverage** AI for adaptive content.
3. **Iterate** with user feedback.

 Craft captivating Windows Widgets with AI!





# Overview

## Generative AI

Reduce time and effort leveraging AI models to assist generating new ideas, automate content creation or format information efficiently

### Features:

- Leverage models trained on extensive datasets of various content
- Learn patterns and structures within data to grasp context
- Generate new content based on training
- Fine-tune output with prompts

# Azure OpenAI

## Generative AI

Provides access to powerful language models from OpenAI to be integrated into applications such as for content generation

### Features

- Create innovative and state-of-the-art intelligent applications
- Offers REST API access & integration with Azure AI Foundry
- Leverage full power & experiment with OpenAI models
- [azure.net](https://azure.net) & [github.com/marketplace/models](https://github.com/marketplace/models)

The screenshot displays the Azure OpenAI Service website. At the top, the header reads "Azure OpenAI Service" with the tagline "Build custom generative AI solutions with Azure OpenAI." Below this, there are two buttons: "Get started with Azure" and "Build with Azure AI Foundry". The main navigation bar includes links for Overview, Use cases, Security, Pricing, Related products, Customer stories, Resources, FAQ, and Next steps. The "Overview" section is active, featuring the heading "Discover the latest capabilities of Azure OpenAI" and a sub-section for "01-preview and 01-mini". A search bar and a sign-in button are also present. Below the navigation bar, there is a section titled "Enhance your workflow with extensions" with a search bar for Copilot extensions. The "Models" section is prominently displayed, showing a grid of available models with their respective logos and brief descriptions.

Model	Provider	Capability	Category	Sort
OpenAI o3-mini	OpenAI	o3-mini includes the o1 features with significant cost efficiencies for scenarios requiring high performance.	Model	Recently added
Phi-4	Microsoft	Phi-4 14B, a highly capable model for low latency scenarios.	Model	Recently added
OpenAI o1	OpenAI	Focused on advanced reasoning and solving complex problems, including math and science tasks. Ideal for applications that require...	Model	Recently added
Llama-3.3-70B-Instruct	Meta	Llama 3.3 70B Instruct offers enhanced reasoning, math, and instruction following with performance comparable to Llama 3.1 405B.	Model	Recently added
Minstral 3B	Microsoft	Minstral 3B is a state-of-the-art Small Language Model (SLM) optimized for edge computing and on-device applications. As it is...	Model	Recently added
DeepSeek-R1	DeepSeek	DeepSeek-R1 excels at reasoning tasks using a step-by-step training process, such as language, scientific reasoning, and coding tasks.	Model	Recently added
Codestral 25.01	Mistral AI	Codestral 25.01 by Mistral AI is designed for code generation, supporting 60+ programming languages, and optimized for tasks like...	Model	Recently added
Mistral Large 24.11	Mistral AI	Mistral Large 24.11 offers enhanced system prompts, advanced reasoning and function calling capabilities.	Model	Recently added
JAIS 30b Chat	JAIS	JAIS 30b Chat is an auto-regressive bilingual LLM for Arabic & English with state-of-the-art capabilities in Arabic.	Model	Recently added
Llama-3.2-90B-Vision-Instruct	Meta	Advanced image reasoning capabilities for visual understanding agentic apps.	Model	Recently added



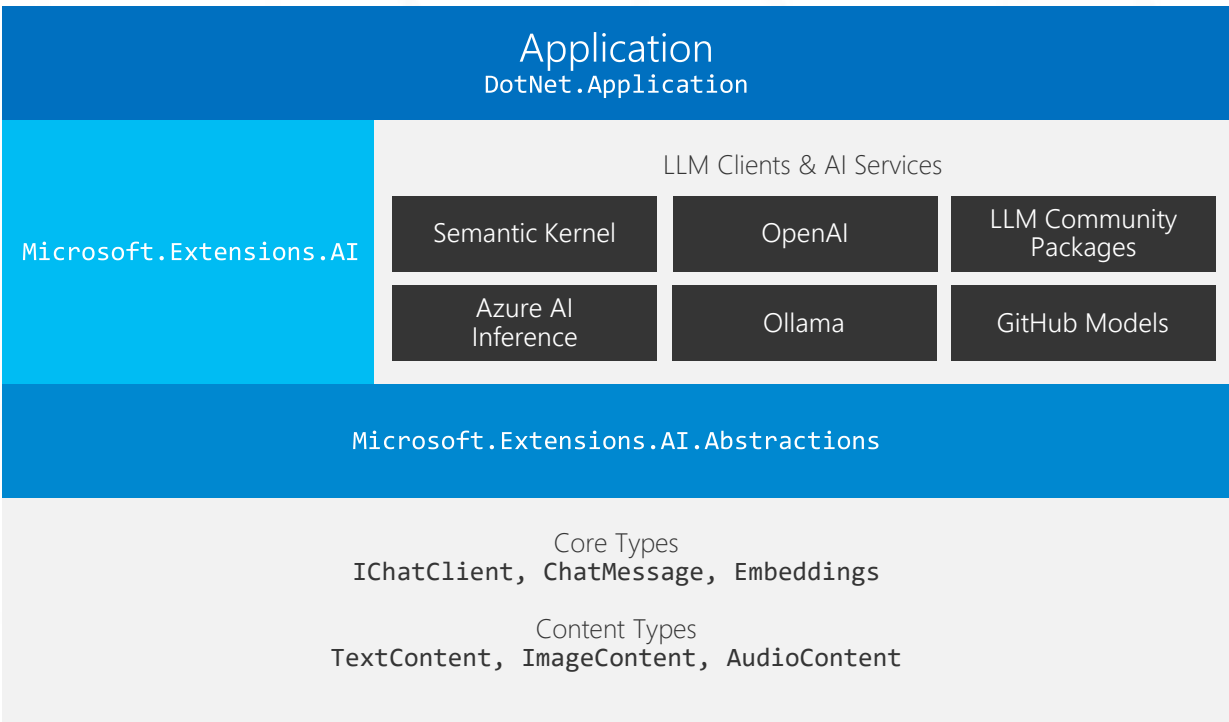
# Microsoft.Extensions.AI

## Generative AI

Simplifies AI integration for .NET applications by providing a unified set of abstractions for interacting with various AI services

### Features:

- Eases of integration of AI services across various providers
- Goal to provide implementations for common tasks
- Supports OpenAI, Azure AI Inference & Ollama
- Available from NuGet in Preview



# Demo

★ Prompt Widget



## 🌟 Generative AI for Windows Widgets 🌟

💡 Dive into dynamic widgets powered by AI:

1. **Envision** purpose and scope.
2. **Leverage** AI for adaptive content.
3. **Iterate** with user feedback.

🚀 Craft captivating Windows Widgets with AI!



# Summary

## Widgets

Widgets provide easy-to-use dynamic or interactive access to information at-a-glance using Adaptive Cards



## Adaptive Cards

Adaptive Cards delivered by a Widget Provider are created with JSON schema, designer or by using Generative AI



## Widget Provider

Widget Providers can be easily implemented in Windows App SDK and can be powered with Generative AI



## Generative AI

Generative AI can be easily used in applications with Microsoft.Extensions.AI implementations





# Reactor

Thank You!

Q&A



[github.com/rogueplanetoid/developingwindowswidgets](https://github.com/rogueplanetoid/developingwindowswidgets)



[linkedin.com/in/rogueplanetoid](https://linkedin.com/in/rogueplanetoid)

