
Code needs
builders

Microsoft

Build


Credentials
Microsoft Learn


ank you to our Premium Partners!
ckHouse
cohere
CONFLUENT
TADOG
JETBRAINS
Lucid
ON
new relic.
POSTMAN
flake
SPACEANDTIME
Syncfusion
Thank you to our Premium Partners!
ClickHouse
cohere
CONFLUENT
DATADOG
JETBRAINS
Lucid
NEON
new relic.
POSTMAN
snowflake
SPACEANDTIME
Syncfusion


various form factors that
developers use for software
various form factors that
developers use for software


The system around the model.
Whether evals or orchestrati
Azure AI Foundry
Copilot Studio
Visual Studio
GitHub
Foundry SDK
Foundry Models
Foundry Agent Service
Search
Azure AI Services
Machine Learning
Content Safety
Foundry Observability
Identity + Governance + Security
Cloud
Azure
Azure Arc
Foundry Local
Edge
Control
Azure Kubernetes Service
Azure App Service
Azure Container Apps
Azure Functions
Serverless


to tell us a little bit about
your

months and good reason for it.
It's

Announcing

MCP Support

First-party support | Optimized for enterprise agentic applications | Supporting open community

months and good reason for it.
It's

right now.
Wait to hear all of the

Our collaborators

allrecipes
ChicagoPublicMedia
common sense
delish
Dotdash meredith
elastic
eventbrite
HEARST magazines
inception
O'REILLY
serious eats
shopify
snowflake
Milvus
Tripadvisor
qdrant

right now.
Wait to hear all of the

So there is a fantastic talk at 4:30-5:30 today, how

BRK240

Turn your website into an AI app (NLWeb)

Monday, May 19
4:30 PM – 5:30 PM
Arch, 705 Pike, Level 6, Room 606

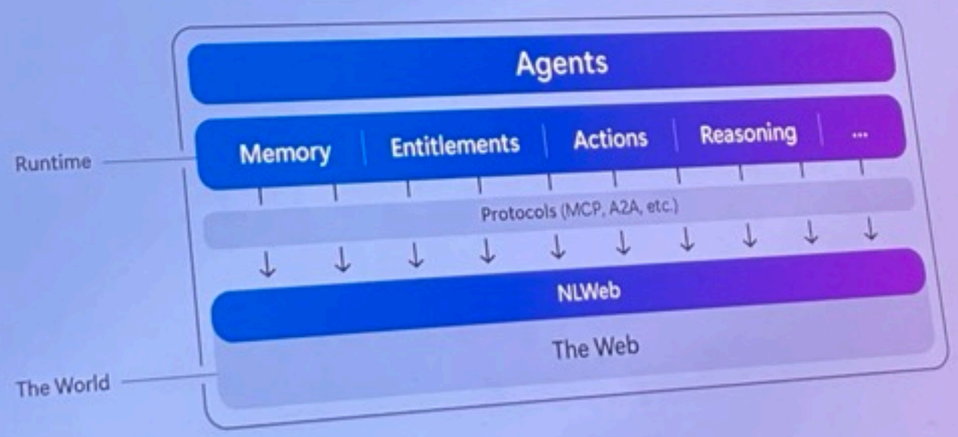
DEM5T5

Making Agent Memory Better and Agent Actions Faster with TypeAgent

Monday, May 19
1:45 PM – 2:00 PM
Arch, 705 Pike, Level 4, Hub, Theater B

Build and see you next year.
[Applause]

Building the open agentic web

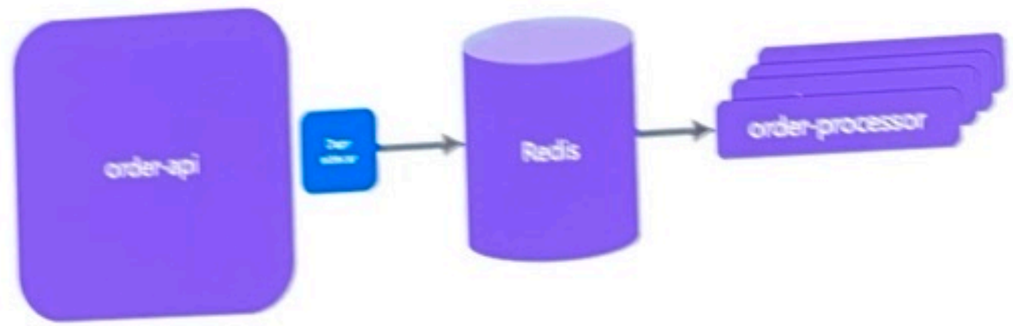


>> Let's roll the video.
>>

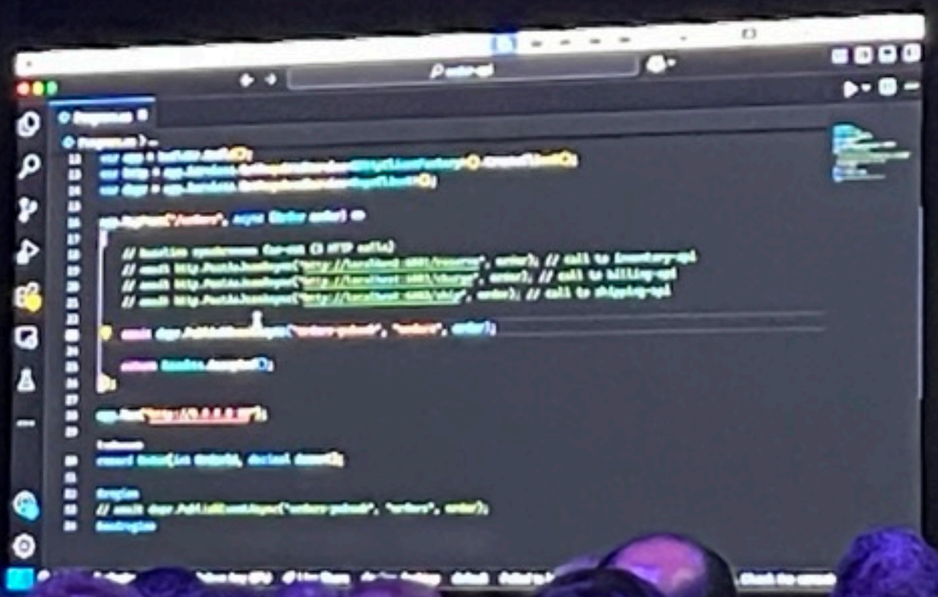
>> Let's roll the video.
>>

GIVE TO PICTURE THAT FOR EVERY MICROSERVICE
YOU COULD HAVE EFFECTIVELY RIDING

Sidecars + Redis



REPLACE ALL THAT CHAT WITH. INSTEAD,
JUST WRITE THAT ONE LINE OF



Code File Edit Selection View Go Run Terminal Window Help

order-api

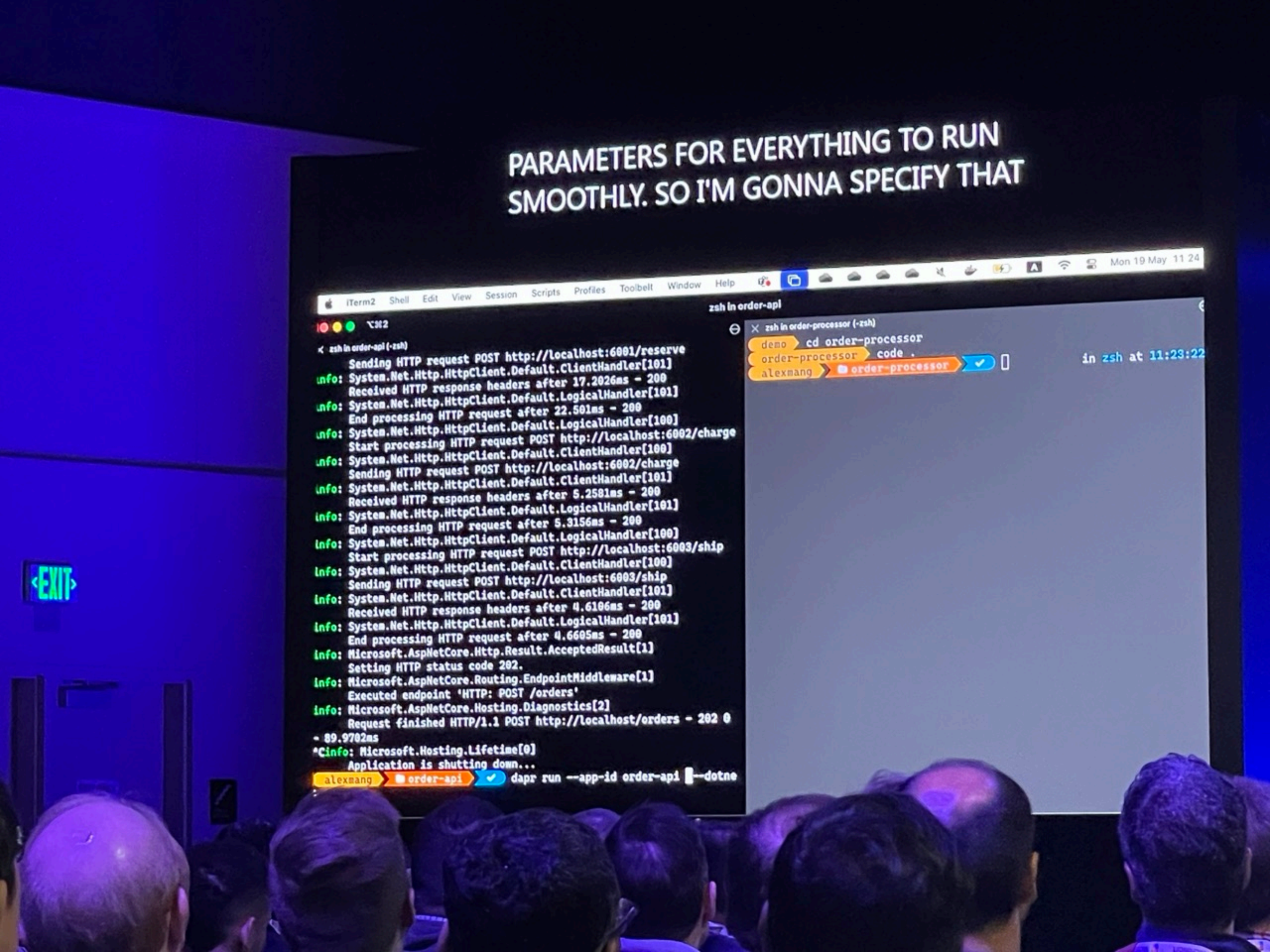
Program.cs

Program.cs > ...

```
12  var app = builder.Build();
13  var http = app.Services.GetRequiredService<IHttpClientFactory>().CreateClient();
14  var dapr = app.Services.GetRequiredService<DaprClient>();
15
16  app.MapPost("/orders", async (Order order) =>
17  {
18      // baseline synchronous fan-out (3 HTTP calls)
19      // await http.PostAsJsonAsync("http://localhost:6001/reserve", order); // call to inventory-api
20      // await http.PostAsJsonAsync("http://localhost:6002/charge", order); // call to billing-api
21      // await http.PostAsJsonAsync("http://localhost:6003/ship", order); // call to shipping-api
22
23      await dapr.PublishEventAsync("orders-pubsub", "orders", order);
24
25      return Results.Accepted();
26  });
27
28  app.Run("http://0.0.0.0:80");
29
    1 reference
30  record Order(int OrderId, decimal Amount);
31
32  #region
33  // await dapr.PublishEventAsync("orders-pubsub", "orders", order);
34  #endregion
```

Any CPU Live Share default Failed to

PARAMETERS FOR EVERYTHING TO RUN
SMOOTHLY. SO I'M GONNA SPECIFY THAT



THERE'S A TYPO SOMEWHERE, COMPONENTS
IT'S DEFINITELY A TYPO,

iTerm2 Shell Edit View Session Scripts Profiles Toolbelt Window Help

zsh in order-api

⌥⌘2

zsh in order-api (-zsh)

```
idresses that sidecar will listen to
      --enable-api-logging                Log API calls at INFO verbos
ity. Valid values are: true or false
      --enable-app-health-check           Enable health checks for the
application using the protocol defined with app-protocol
      --enable-profiling                  Enable pprof profiling via a
n HTTP endpoint
  -h, --help                              Print this help message
  -k, --kubernetes                        Run the multi-app run templa
te against Kubernetes environment.
      --log-level string                  The log verbosity. Valid val
ues are: debug, info, warn, error, fatal, or panic (default "info")
  -M, --metrics-port int                  The port of metrics on dapr
(default -1)
      --placement-host-address string     The address of the placement
service. Format is either <hostname> for default port or <hostname>:
<port> for custom port (default "localhost")
      --profile-port int                  The port for the profile ser
ver to listen on (default -1)
      --resources-path strings            The path for resources direc
tory
  -f, --run-file string                   Path to the run template fil
e for the list of apps to run
  -u, --unix-domain-socket string         Path to a unix domain socket
dir. If specified, Dapr API servers will use Unix Domain Sockets

Global Flags:
      --log-as-json           Log output in JSON format
      --runtime-path string   The path to the dapr runtime installati
on directory

unknown flag: --dotnet
```

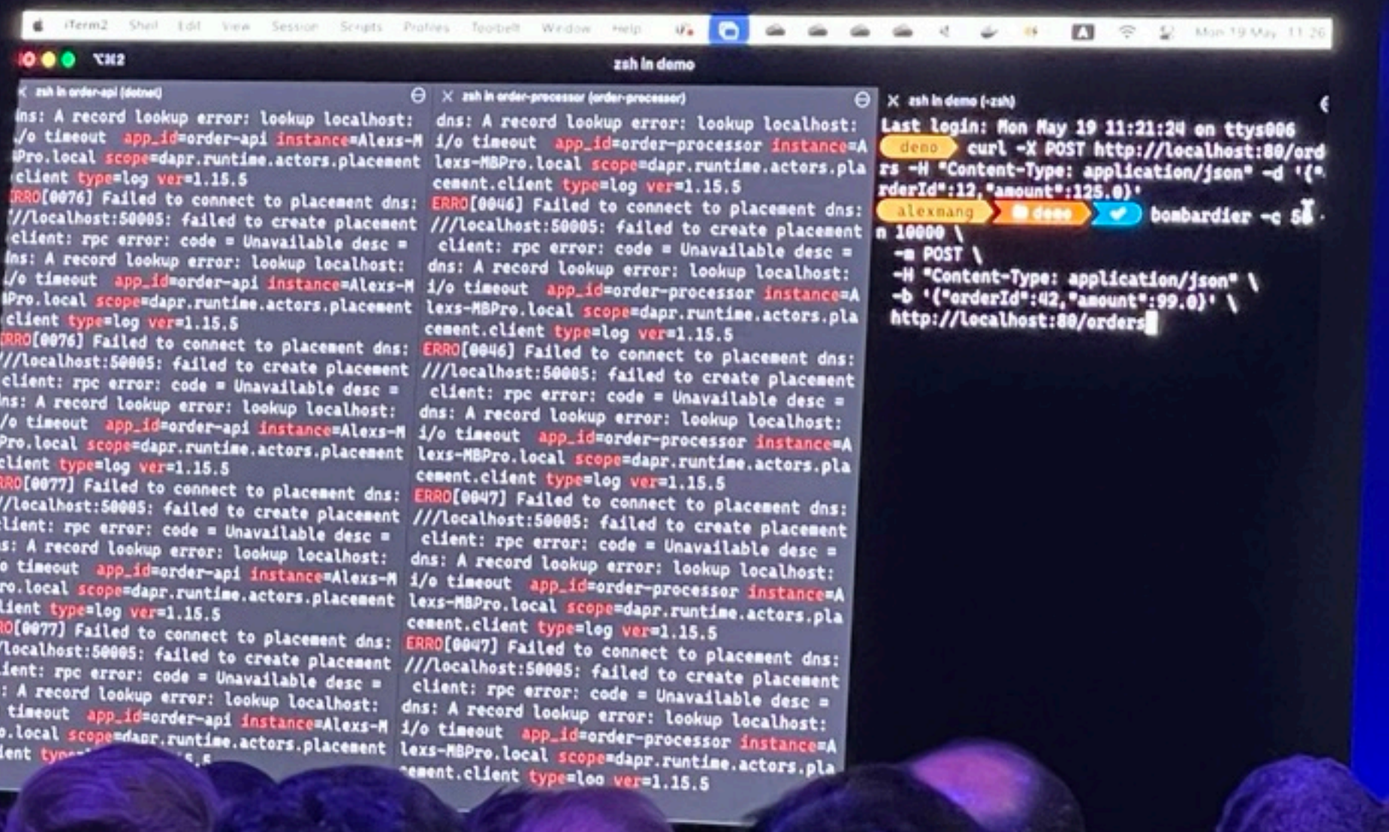
alexmang order-api M in zsh at 11:25:11

zsh in order-processor (-zsh)

```
demo cd order-processor
order-processor code .
alexmang order-processor ✔ []                    in zsh at
```


EXIT
alexmang
order-processor
--enable-app-health-check Enable health checks for the
application using the protocol defined with app-protocol
--enable-profiling Enable pprof profiling via a
HTTP endpoint
-h, --help Print this help message
-k, --kubernetes Run the multi-app run templa
te against Kubernetes environment.
--log-level string The log verbosity. Valid val
ues are: debug, info, warn, error, fatal, or panic (default "info")
-M, --metrics-port int The port of metrics on dapr
(default -1)
--placement-host-address string The address of the placement
service. Format is either <hostname> for default port or <hostname>:
<port> for custom port (default "localhost")
--profile-port int The port for the profile ser
ver to listen on (default -1)
--resources-path strings The path for resources direc
tory
-f, --run-file string Path to the run template fil
e for the list of apps to run
-u, --unix-domain-socket string Path to a unix domain socket
dir. If specified, Dapr API servers will use Unix Domain Sockets
Global Flags:
--log-as-json Log output in JSON format
--runtime-path string The path to the dapr runtime installati
on directory
unknown flag: --dotnet
order-api dapr run --app-id order-api --app-port 80 --resources-p
ath ../components --dotnet run
alexmang order-api
in zsh at 11:25:20
Microsoft

BOMBARDING THE APPLICATION AND CALLING
A LOT OF



TO YOUR HARDWARE LIKE THE BEST POSSIBLE
MODEL THAT WILL RUN ON IT, RIGHT.

Hello, Foundry Local

Explore. Build. Test. Ship... Locally.

Deliver the best model for your users' hardware

Foundry Local auto-selects the best model variant (CPU, GPU, NPU) for the user's device

Optimised runtimes (ONNX, WebGPU) ensure performance even on modest hardware

Optimized models for performance and quality

Supports advanced quantized ONNX models and device-optimised LLMs (e.g. Phi-4, Mistral)

Models are dynamically pulled from the Azure AI Foundry catalog—no bundling required

Built-in model and service management

Model management service handles download, versioning, and runtime loading

CLI and SDKs simplify integration and lifecycle management

Integrates into the tools and frameworks you love

Integrates with .NET Aspire, Azure OpenAI, Semantic Kernel, LangChain, and more.

OpenAI-compatible APIs for chat and generation streamline adoption.

.NET

```
using Microsoft.AI.Foundry.Local;
using OpenAI;
using OpenAI.Chat;
using System.ClientModel;

var alias = "qwen2.5-0.5b";
var manager = await FoundryManager.StartModelAsync(alias);
var model = await manager.GetModelInfoAsync(alias);

ApiKeyCredential key = new ApiKeyCredential(manager.ApiKey);
OpenAIClient client = new OpenAIClient(key, new OpenAIClientOptions
{
    Endpoint = manager.Endpoint
});

var chatClient = client.GetChatClient(model?.ModelId);

CollectionResult<StreamingChatCompletionUpdate> completionUpdates =
    chatClient.CompleteChatStreaming("Why is the sky blue'");

Console.Write($"[ASSISTANT]: ");
foreach (StreamingChatCompletionUpdate completionUpdate in completionUpdates)
{
    if (completionUpdate.ContentUpdate.Count > 0)
    {
        Console.Write(completionUpdate.ContentUpdate[0].Text);
    }
}
Console.WriteLine();
```

APPLICATION. SO THE CLIENT APPLICATION
RECEIVES THAT AND THEN PUTS THAT

Hello, Foundry Local

Explore. Build. Test. Ship.

Deliver the best model for your users' hardware

undry Local auto-selects the best model variant (CPU, GPU, NPU) for the er's device

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rates with .NET Aspire, Azure OpenAI, Semantic Kernel, LangChain, and

AI-compatible APIs for chat and generation streamline adoption.

❤️ .NET Aspire

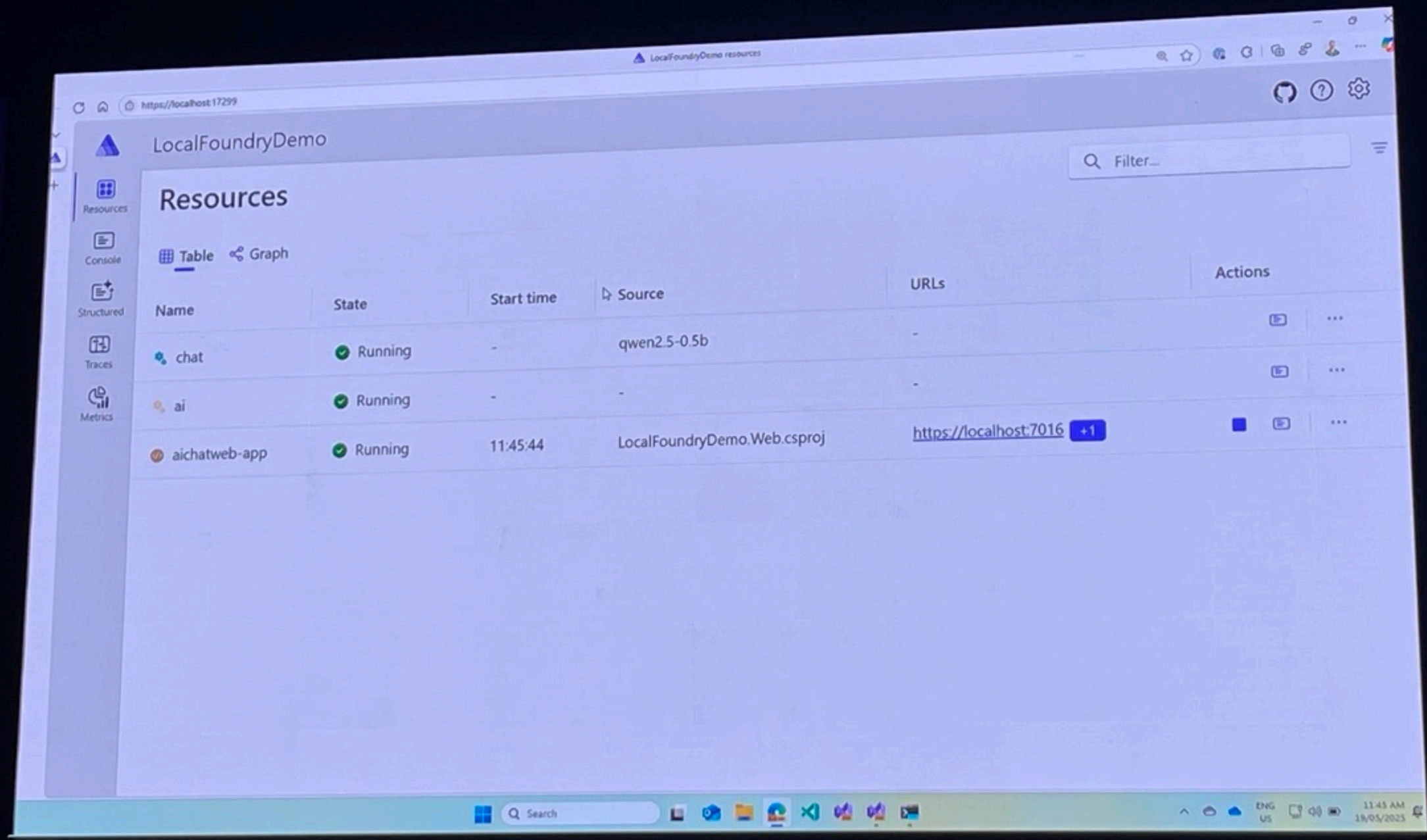
.NET Aspire app host

```
var builder = DistributedApplication.CreateBuilder(args);

var foundryLocal = builder.AddAzureAIFoundryLocalResource("ai");

var chatModel = foundryLocal.AddModel("chat", "qwen2.5-0.5b");

builder.AddProject<Projects.AIFoundryLocal_Web>("aifoundrylocal-web")
    .WithReference(chatModel)
    .WaitFor(chatModel);

builder.Build().Run();
```

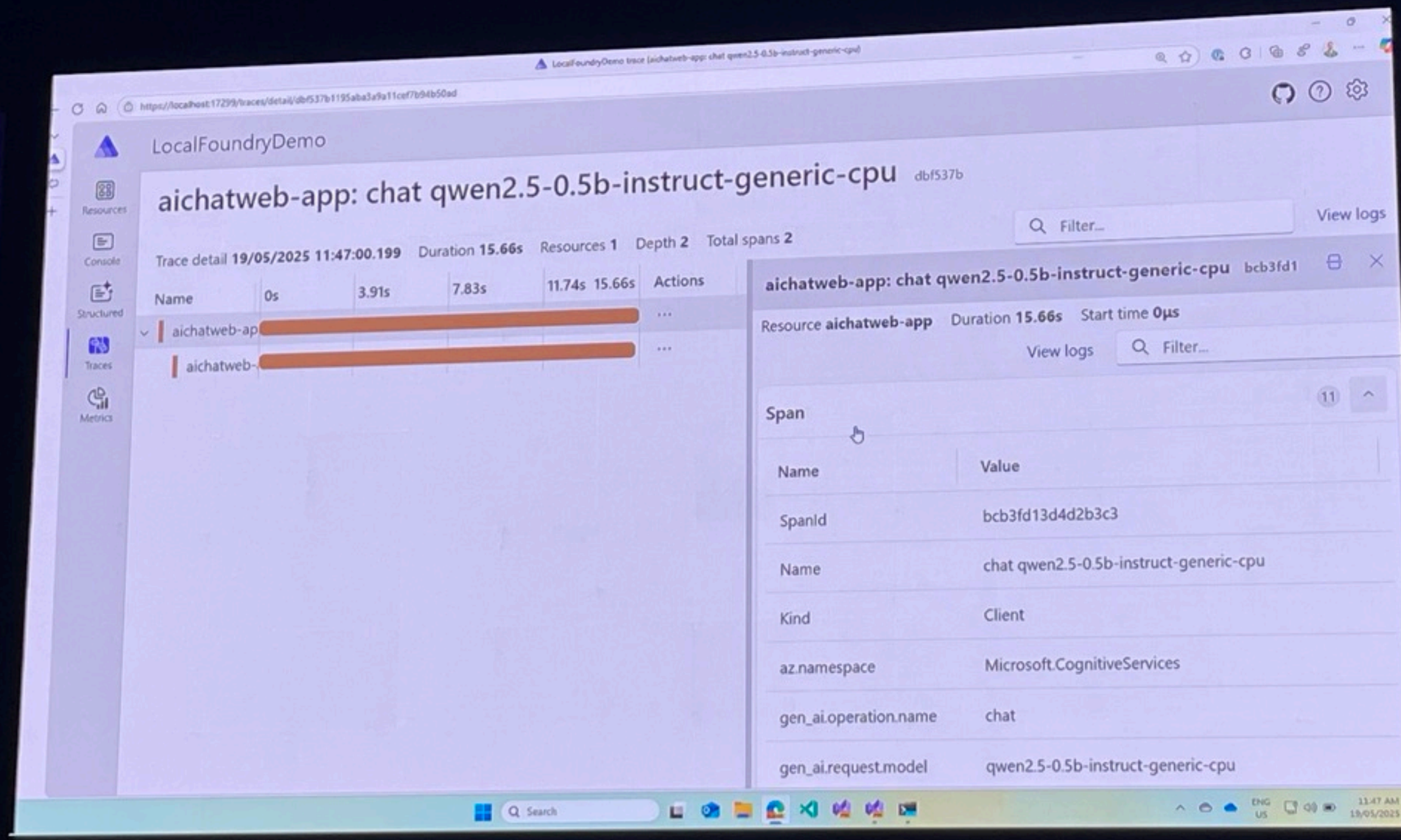
Client app

```
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddRazorComponents().AddInteractiveServerComponents();

builder.AddServiceDefaults();

builder.AddChatCompletionsClient("chat")
    .AddChatClient()
    .UseFunctionInvocation()
    .UseLogging();
```

NGU, BUT IT SHOULD BE ALL GOOD TO PULL DOWN A CP



ONE, WHICH IS THAT REQUEST THAT
I MADE TO THE CHAT RESOURCE AND



COOL SO JUST TO CLOSE OUT, WE HAVE QUITE A FEW SESSIONS

Closing out

Resources:

- GH: https://github.com/microsoft/Foundry-Local
- Docs: aka.ms/foundry-local-docs

Upcoming sessions on Foundry Local:

Code	Session Title	Type	Date/Time
BRK146	Bring AI Foundry to Local: Building cutting-edge on-device AI experiences	Breakout	5/19 1:30pm-2:30pm
DEM526	Build and ship cross platform apps on-device with AI Foundry and ONNX	Demo	5/19 4:45pm-5:00pm
LAB306	Integrating and Enhancing Applications with .NET Aspire	Lab	5/19 2:30pm-3:45pm 5/21 8:45am-10am
LAB307	Building GenAI Apps with C#	Lab	5/19 6pm -7.15pm 5/20 3.30pm-4:45pm

FUNCTION TO GENERATE EMBEDDINGS
BASED ON

```
USE AdventureWorksOnPrem;
GO
-- Create a new table to store embeddings
--
DROP TABLE IF EXISTS Production.ProductDescriptionEmbeddings;
GO
CREATE TABLE Production.ProductDescriptionEmbeddings
(
 ProductDescEmbeddingID INT IDENTITY NOT NULL PRIMARY KEY CLUSTERED,
 ProductID INT NOT NULL,
 ProductDescriptionID INT NOT NULL,
 ProductModelID INT NOT NULL,
 CultureID nchar(6) NOT NULL,
 Embedding vector(1024)
);

-- Populate rows with embeddings
-- Need to make sure and only get Products that have ProductModels
INSERT INTO Production.ProductDescriptionEmbeddings
SELECT p.ProductID, pmpdc.ProductDescriptionID, pmpdc.ProductModelID, pmpdc.CultureID,

AI_GENERATE_EMBEDDINGS(pd.Description MODEL MyOllamaEmbeddingModel) I

FROM Production.ProductModelProductDescriptionCulture pmpdc
JOIN Production.Product p
ON pmpdc.ProductModelID = p.ProductModelID
JOIN Production.ProductDescription pd
ON pd.ProductDescriptionID = pmpdc.ProductDescriptionID
ORDER BY p.ProductID;
GO

-- Create an alternate key using an ncl index
CREATE UNIQUE NONCLUSTERED INDEX [IX_ProductDescriptionEmbeddings_AlternateKey
ON [Production].[ProductDescriptionEmbeddings]
```

A VECTOR INDEX? WELL, GUESS WHAT?
WE'VE GOT THE ABILITY TO DEFINE

v Query Git Tools Extensions Window Help | Search | Solution1

New Query | Execute | Copilot

create_e...in (51)) | embeddi...in (88)) | create_v...in (96)) | find_rel...i

```
USE [AdventureWorksOnPrem];
GO
CREATE VECTOR INDEX product_vector_index
ON Production.ProductDescriptionEmbeddings (Embedding)
WITH (METRIC = 'cosine', TYPE = 'diskann', MAXDOP = 8);
GO
```

0.600.9 - sqladmin)

bases
apshots
orks
orksOnPrem
orksOpenAI

Availability

t (Agent XPs disabled)

ON THE MODEL I JUST DEFINED. ON TOP OF THAT, I WILL

Tools Extensions Window Help | Search | Solution1 | MAIN

Copilot

create_e...in (51)) | embeddi...in (88)) | create_v...in (96)) | find_rel...in (108)) | find_pro...n (110))

```
    @prompt nvarchar(max), -- NL prompt
    @stock smallint = 500, -- Only show product with stock level of >= 500. User can override
    @top int = 10, -- Only show top 10. User can override
    @min_similarity decimal(19,16) = 0.3 -- Similarity level that user can change but recommend to leave default
    AS
    IF (@prompt is null) RETURN;

    DECLARE @retval int, @vector vector(1024);

    SELECT @vector = AI_GENERATE_EMBEDDINGS(@prompt MODEL MyOllamaEmbeddingModel);

    IF (@retval != 0) RETURN;

    SELECT p.Name as ProductName, pd.Description as ProductDescription, p.SafetyStockLevel as StockLevel
    FROM vector_search(
        table = Production.ProductDescriptionEmbeddings as t,
        column = Embedding,
        similar_to = @vector,
        metric = 'cosine',
        top_n = @top
        ) as s
    JOIN Production.ProductDescriptionEmbeddings pe
    ON t.ProductDescEmbeddingID = pe.ProductDescEmbeddingID
    JOIN Production.Product p
    ON pe.ProductID = p.ProductID
    JOIN Production.ProductDescription pd
    ON pd.ProductDescriptionID = pe.ProductDescriptionID
    WHERE (1-s.distance) > @min_similarity
    AND p.SafetyStockLevel >= @stock
    ORDER by s.distance;
    GO
```

100 %

PASSING A SIMPLE PROMPT HERE IN ENGLISH, WHAT YOU CAN SEE IS I'M

ew Query Git Tools Extensions Window Help | Search - Solution1 MAIN

New Query | Execute | Copilot

create_e...in (51)) | embeddi...in (88)) | create_v...in (96)) | find_rel...in (108)) | find_pro...n (110))

```
USE [AdventureWorksOnPrem];
GO
EXEC find_relevant_products_vector_search
@prompt = N'Show me stuff for extreme outdoor sports',
@stock = 100,
@top = 20;
GO
```

7.0.600.9 - sqladmin)

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WorksOnPrem
WorksOpenAI

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er

Ln: 1 Ch: 1 TABS CRLF

100 %

Results | Messages

	ProductName	ProductDescription	StockLevel
1	Mountain-200 Silver, 38	Serious back-country riding. Perfect for all levels ...	100
2	Mountain-200 Silver, 42	Serious back-country riding. Perfect for all levels ...	100
3	Road-350-W Yellow, 40	Tout terrain, course ou promenade entre amis su...	100
4	Road-350-W Yellow, 42	Tout terrain, course ou promenade entre amis su...	100
5	Road-350-W Yellow, 44	Tout terrain, course ou promenade entre amis su...	100
6	Road-350-W Yellow, 48	Tout terrain, course ou promenade entre amis su...	100
7	Mountain-300 Black, 38	For true trail addicts. An extremely durable bike t...	100
8	Mountain-300 Black, 40	For true trail addicts. An extremely durable bike t...	100
9	Mountain-300 Black, 44	For true trail addicts. An extremely durable bike t...	100
10	Mountain-300 Black, 48	For true trail addicts. An extremely durable bike t...	100
11	Road-150 Red, 62	จักรยานคู่ใจของนักแข่งระดับแชมเปี้ยน ได้รับการพัฒนาโด...	100
12	Road-150 Red, 44	จักรยานคู่ใจของนักแข่งระดับแชมเปี้ยน ได้รับการพัฒนาโด...	100
13	Road-150 Red, 48	จักรยานคู่ใจของนักแข่งระดับแชมเปี้ยน ได้รับการพัฒนาโด...	
14	Road-150 Red, 52	จักรยานคู่ใจของนักแข่งระดับแชมเปี้ยน ได้รับการพัฒนาโ	

executed successfully. 00:00:01 20 rows

TO CHINESE LANGUAGE AND EXECUTE
THIS PROCEDURE, I'M GOING

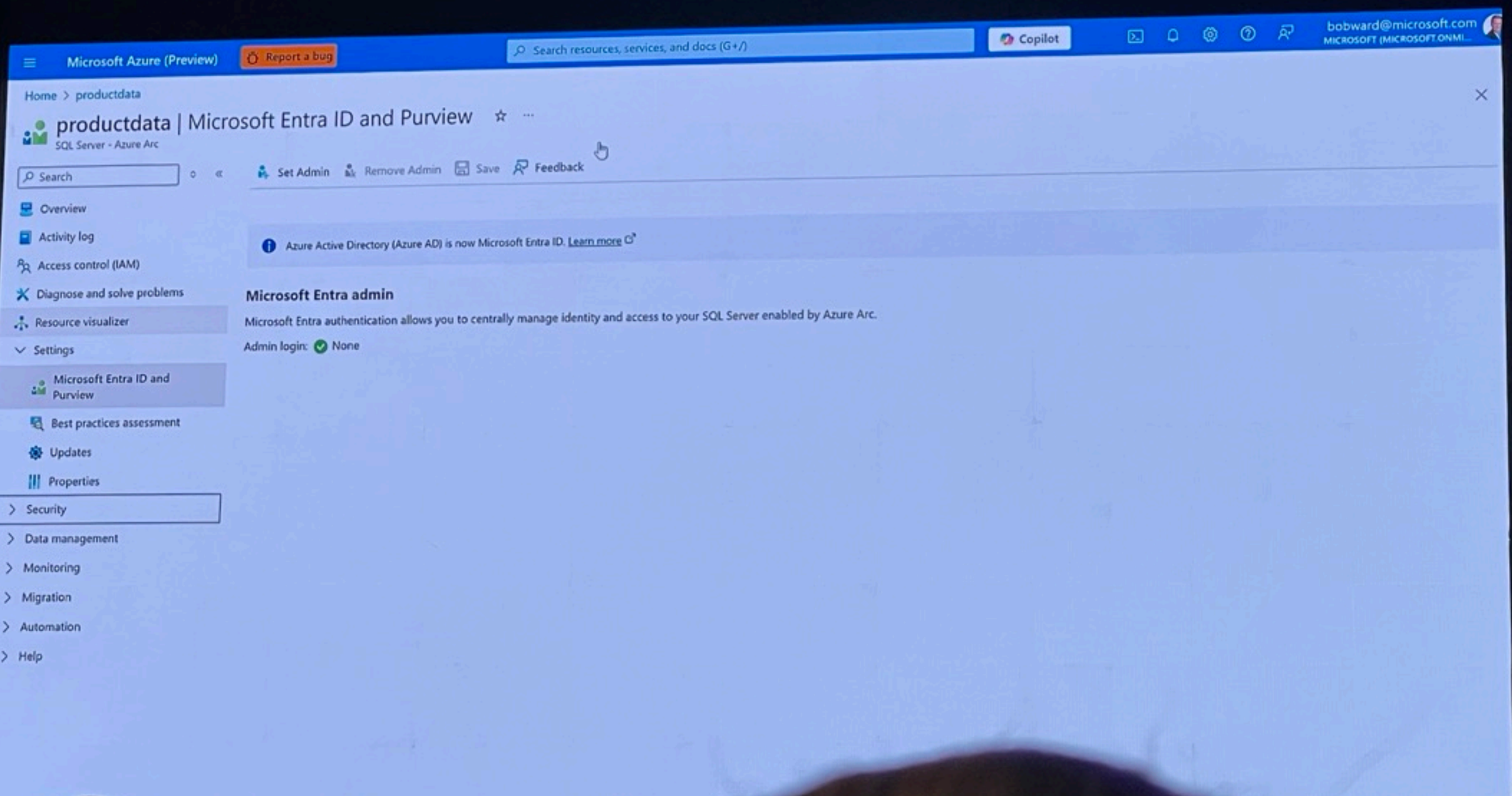
```
USE [AdventureWorks];
GO

EXEC find_relevant_products_vector_search
@prompt = N'Show me stuff for extreme outdoor sports',
@stock = 100,
@top = 20;
GO


-- Do the same prompt but in Chinese
EXEC find_relevant_products_vector_search
@prompt = N'请向我展示极限户外运动的装备',
@stock = 100,
@top = 20;
GO
```

	ProductName	ProductDescription	StockLevel
1	Mountain-300 Black, 38	适用于真正的越野车迷。此自行车极其耐用。无论身处何地、地形如何复杂、一切均在掌控之中。真正物超所值！	100
2	Mountain-300 Black, 40	适用于真正的越野车迷。此自行车极其耐用。无论身处何地、地形如何复杂、一切均在掌控之中。真正物超所值！	100
3	Road-450 Red, 58	真正的多项运动自行车。骑乘自如、设计新颖，符合空气动力学的设计给您带来专业车手的体验。稳健的传动装...	100
4	Road-450 Red, 60	真正的多项运动自行车。骑乘自如、设计新颖，符合空气动力学的设计给您带来专业车手的体验。稳健的传动装...	100
5	Mountain-200 Silver, 38	适用于环境恶劣的野外骑乘。可应对各种比赛的完美赛车，使用与 Mountain-100 相同的 HL 车架。	100
6	Mountain-200 Silver, 42	适用于环境恶劣的野外骑乘。可应对各种比赛的完美赛车，使用与 Mountain-100 相同的 HL 车架。	100
7	Mountain-400-W Silver, 38	此自行车具有优越的性价比，它灵敏且易于操控。越野骑乘也可轻松胜任。	100
8	Mountain-400-W Silver, 40	此自行车具有优越的性价比，它灵敏且易于操控。越野骑乘也可轻松胜任。	100
9	Mountain-400-W Silver, 46	此自行车具有优越的性价比，它灵敏且易于操控。越野骑乘也可轻松胜任。	100
10	HL Mountain Front Wheel	高性能的山地车备用轮。	500
11	HL Mountain Rear Wheel	高性能的山地车备用轮。	500
12	ML Crankset	高强度的曲臂。	500
13	Road-750 Black, 58	入门级成人自行车，确保越野旅行或公路骑乘的舒适，快拆式车毂和轮辋。	100
14	Road-750 Black, 44	入门级成人自行车，确保越野旅行或公路骑乘的舒适，快拆式车毂和轮辋。	100

AZURE RESOURCES. SO HOW DO YOU TYPICALLY
DO IT TODAY? LET'S START

```
USE [AdventureWorks];
GO

DROP EXTERNAL MODEL MyAzureOpenAIEmbeddingModel;
GO

-- Create the EXTERNAL MODEL
CREATE EXTERNAL MODEL MyAzureOpenAIEmbeddingModel
WITH (
      LOCATION = 'https://productsopenai.openai.azure.com/openai/deployments/text-embedding-ada-002/embeddings?api-version=2023-
      API_FORMAT = 'Azure OpenAI',
      MODEL_TYPE = EMBEDDINGS,
      MODEL = 'text-embedding-ada-002',
      CREDENTIAL = [https://productsopenai.openai.azure.com]
);
GO
```

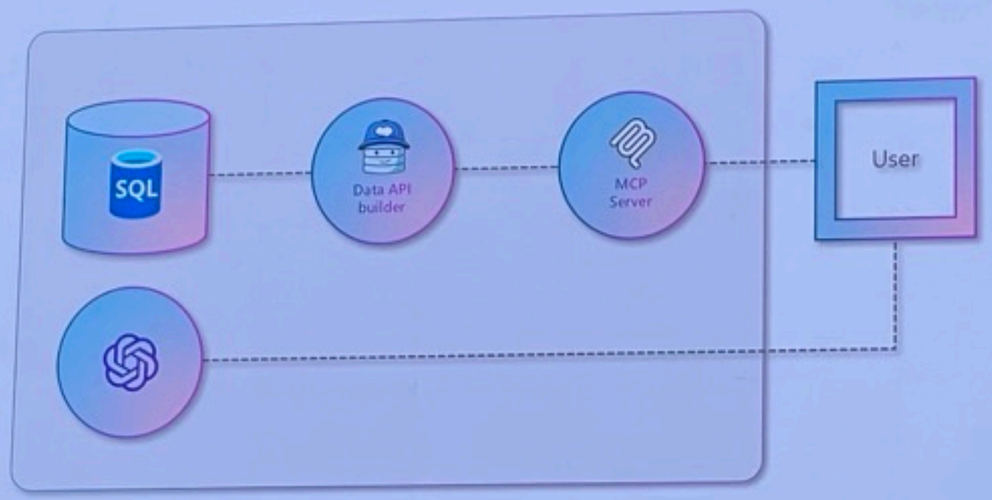
AZURE THAT USES MANAGED IDENTITIES.
A LOT MORE SECURE. HOW DO YOU SET



MODEL CONTEXT PROTOCOL, SERVER.
GIVE

```
 9      [McpServerTool, Description("""
10      Query the database to find claims data for customers.
11      Columns:
12        [Key] id (int): internal claim id
13        [ForeignKey: to customers.id] customer_id (int): customer id
14        claim_type (string): claim type (auto, home, life, health, e
15        claim_date (DateTime): claim date
16        details (string): details and notes about the claim added by
17      """)]
18      public static Claim[] GetClaims(
19          [Description("OData $filter string, e.g., claim_type eq 'a
20          CancellationToken? cancellationToken = null) =>
21          GetFiltered<Claim>("Claim", filter, cancellationToken);
22
23      [McpServerTool, Description("Upsert a Claim record; returns up
24      public static Claim UpsertClaim(
25      [Description("Claim ID (int)")] int id,
26      [Description("Customer ID (int)")] int customer_id,
27      [Description("Claim type (nvarchar(100))")] string claim_type,
        [Descri                    im date (datetime)")] DateTime cl
```

THESE CAPABILITIES AND MADE MINIMUM
APPLICATIONS CODE CHANGES, USE THE



- SQL Hyperscale
- VS Code MSSQL
- Data API builder
- JSON data type
- JSON index
- REGEX functions
- REST integration
- VECTOR data type
- VECTOR search
- MCP over DAB

https://aka.ms/dab
https://aka.ms/sql/vector
https://aka.ms/dab/mcp
https://aka.ms/SqlServer2025

DATABASE AI AND DEVELOPER EXPERIENCES TO BUILD THIS

- SQL Hyperscale
- VS Code MSSQL
- Data API builder
- JSON data type
- JSON index
- REGEX functions
- REST integration
- VECTOR data type
- VECTOR search
- MCP over DAB

https://aka.ms/dab
https://aka.ms/sql/vector
https://aka.ms/dab/mcp
https://aka.ms/SqlServer2025

TO HELP YOU GATHER MORE KNOWLEDGE
ABOUT ENTITIES. RANKING WILL HELP

Semantic Operators

azure_ai extension

generate()
Perform arbitrary ChatGPT-style generation

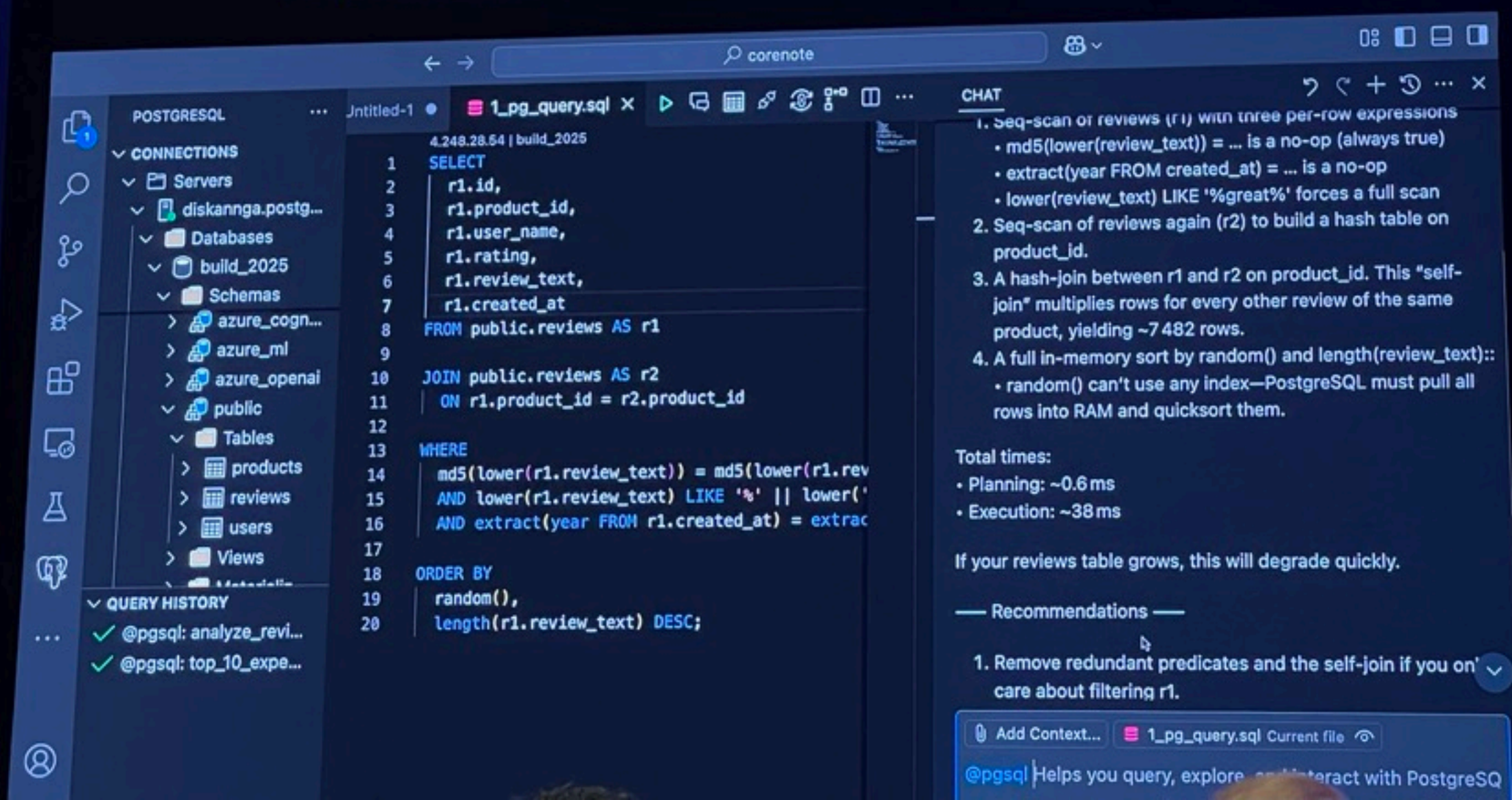
is_true()
Evaluate filter conditions and joins in natural language

extact()
Extract semantic relationships hidden in your data

rank()
Improve search accuracy with semantic reranking

```
1
2  SELECT azure_ai.generate('Summarize
   this feedback: ' || feedback_text)
3  FROM customer_feedback
4  WHERE created_at >
         now() - interval'7 days';
```

YOU ASKED AS WELL. COPILOT'S REALLY
PHENOMENAL



IT AGAIN, WE'LL GET THE SAME SET
OF STEPS EXPLAINING THE

corenote

POSTGRESQL

CONNECTIONS
Servers
diskannga.postg...
Databases
build_2025
Schemas
azure_cogn...
azure_ml
azure_openai
public
Tables
products
reviews
users
Views

QUERY HISTORY
@pgsql: analyze_sim...
@pgsql: analyze_revi...
@pgsql: top_10_expe...

Untitled-1 | 1_pg_query.sql

4.248.28.54 | build_2025

```
SELECT id, product_id, user_name, rating, revie
FROM public.reviews
WHERE lower(review_text) LIKE '%great%'
  AND product_id IN (
    SELECT product_id
    FROM public.reviews
    GROUP BY product_id
    HAVING COUNT(*) > 1
  )
ORDER BY random(), length(review_text) DESC;
```

PROBLEMS | POSTGRESQL QUERY RESULTS

Results | Messages | Open in New Tab

	id	product_id	user_name	ratin
1	1109	47	Michael Nelson	5
2	579	25	Megan Brown	3
3	947	40	Brian Hall	4
4	586	25	Brian Hunter	4
5	1162	50	Sarah Johnson	5
6	369	16	Linda Martinez	4
7	1256	53	Sofia Baker	4
8	876	37	Ursula Scott	4
9	1246	53	Jack Lopez	4
10	400	17	[illegible] Green	3

CHAT

pgsql

Connected to PMVM/build_2025 *(read/write)*

Here's what the EXPLAIN ANALYZE shows for the simplified query:

1. Two sequential scans
   - One to build a hash-aggregate of `product_id` with COUNT()>1 (<del>1.2 ms, 1 327 rows)
   - One to filter reviews by `lower(review_text) LIKE '%great%'` (</del>6.3 ms, 316 rows)
2. A hash-join on `product_id` (joining the 316 filtered rows to the ~56 "duplicate" product_ids) finishes in ~7.9 ms.
3. A quicksort of the 316 result-rows by `random()` and `length(review_text)` takes <0.1 ms.

Total: Planning ~0.8 ms, Execution ~8.5 ms.

Bottlenecks & Recommendations

1. Full table scans for both the LIKE filter and the grouping

Add Context... | 1_pg_query.sql Current file

@pgsql Helps you query, explore, and interact with PostgreSQ

Ask | o4-mini (Preview)


for building on some of a full stack
AI-Powered Tools
Agent Factory
Trust + Security
Cloud
Edge
Trust + Security

head over to VS code.
I'm going to introduce you to SE

File Edit Selection View Go Run ··· ← → semantic-operators

POSTGRESQL

CONNECTIONS
- BuildEvents
  - buildevents-postgresql
    - Databases
      - azure_maintenance
      - azure_sys
      - postgres
      - semantic
    - System Databases
    - Roles
    - Tablespaces

semantic-gen-1.sql × semantic-search-5.sql

semantic-gen-1.sql
buildevents-postgresql.postgres.database.azure.com:5432 | semantic

```
1  SELECT name,
2         azure_ai.generate('Generate description for the event: ' || name)
3  FROM events
4  LIMIT 5;
5
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POSTGRESQL QUERY RESULTS

Open in New Tab

Results Messages

	name	generate
1	GenAI Summit 2025	The GenAI Summit 2025 is a premier event bringing together industry leaders…
2	DataFest West	DataFest West is an exciting event focused on data science, analytics, and …
3	Cloud Innovators Day	Cloud Innovators Day is a dynamic event dedicated to exploring the latest a…
4	TechFusion Expo	TechFusion Expo is a premier technology event that brings together industry…
5	AI & Cloud Convergence	The AI & Cloud Convergence event explores the integration of artificial int…

QUERY HISTORY

TO CLOSE OFF AND ACTUALLY HOPE YOU
WILL ALL COME AT

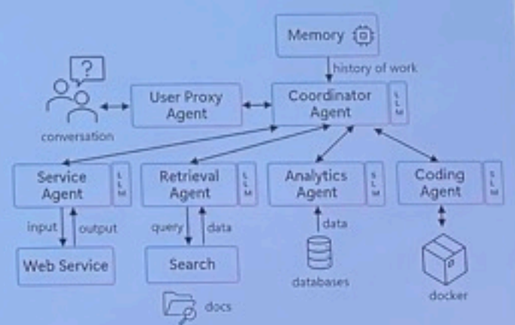
Thank you

https://aka.ms/BuildOpenHackResources

WHERE YOU HAVE MANY AGENTS. A

MICROSOFT

Spectrum of Agentic Solutions



No Tools Agent
Narrow one-shot task

Ex: summarize text

Single Agent
Clearly scoped iterative task

Ex: providing an answer with supporting evidence to a complex question

Multi-agent Systems
Wide scope complex use case requiring diverse skills

Ex: Propose 2 Instagram marketing campaigns including assets that would leverage the top 2 recent trends in our past quarter US Sales to boost our mailing list user base and predict the impact of each campaign

THE FOUNDRY. WHICH ALLOW YOU TO
USING YOUR MODEL ANDS

Microsoft has different ways of building agent systems

IaaS
Infrastructure-as-a-service

PaaS
Platform-as-a-service

SaaS
Software-as-a-service

Semantic Kernel
Agent framework

Azure AI Foundry
Agent service

Copilot Studio
Agents

Control, visibility, and customization

USING YOUR MODEL ANDS YOUR VECTOR
STORES AND TOOLS IN A PRO- CCODE

Azure AI Foundry

AI Agent Ecosystem

Authoring Tools

Visual Studio

GitHub

Knowledge

Microsoft Fabric

Azure Cosmos DB

SharePoint

Microsoft Graph

Azure AI Search

Microsoft Bing

Enterprise Trust

VNet deployments

OBO Auth

BYO-resources

Managed Identities

Agent catalog

Ready-made agents to kickstart your agent workforce

Agent frameworks

Client SDKs for enterprise and production agentic systems

Agent tools

Orchestration

Channels

Foundry Agent Service

Deploy and manage agents with fully-managed runtime

Multi-agent workflows

Built-in threads

Long-term memory

Evaluation

Tracing & Monitoring

Governance + Safety

Foundry Models

OpenAI

Llama

Grok

Flux

Mistral

Phi

Cohere

Paige

Stability

Hugging Face

Industry Models

Foundry Labs

Muse

Magentic-One

Aurora

OmniParser

Open Ecosystem

Protocols

A2A

MCP

OpenAPI

Connectors

Google VertexAI

Amazon Bedrock

CrewAI

LangChain

ElasticSearch

Pinecone

Logic Apps

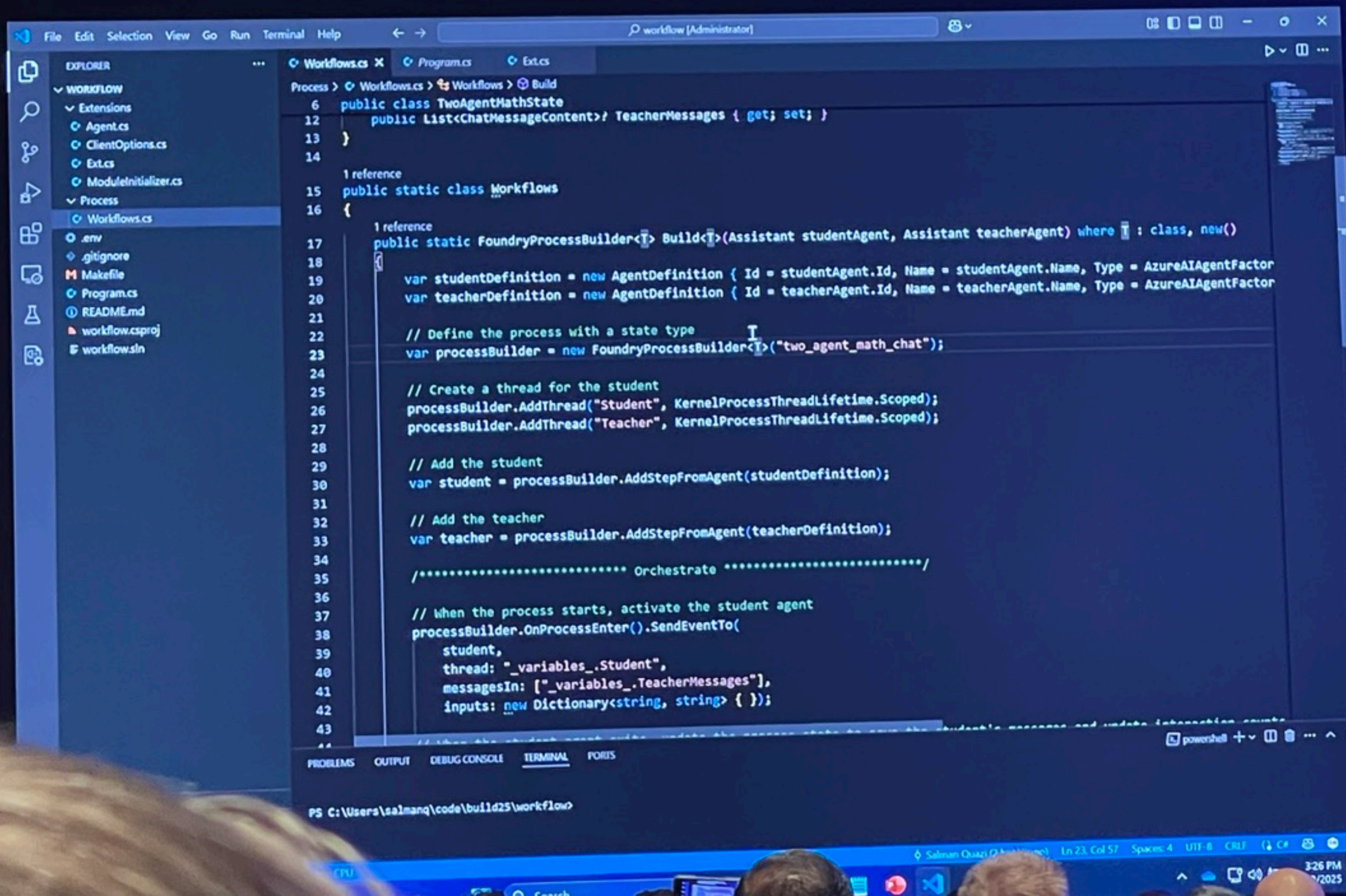
Azure Functions

EXIT

PIECE I'M USING THE PROCESS FRAMEWORK.
I'M USING

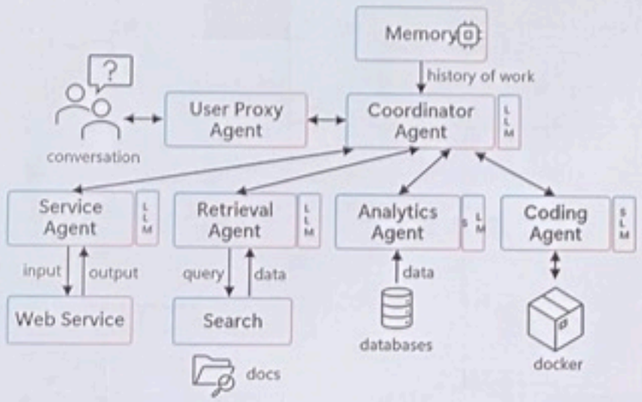
```
3   AssistantClient client = new Agent();
4
5   // create the single agents
6   var teacherAgent = await client.CreateAssistantAsync("gpt-4o", new()
7   {
8       Description = "A math teacher assistant",
9       Name = "Teacher",
10      Instructions = "You are a teacher that create pre-school math question for stu
11  });
12  Console.WriteLine($"Creating agent {teacherAgent.Value.Name} ({teacherAgent.Value.
13
14  var studentAgent = await client.CreateAssistantAsync("gpt-4o", new()
15  {
16      Description = "A student assistant",
17      Name = "Student",
18      Instructions = "You are a student that answer question from teacher, when teac
19  });
20
21  Console.WriteLine($"Creating agent {studentAgent.Value.Name} ({studentAgent.Value.
22
```

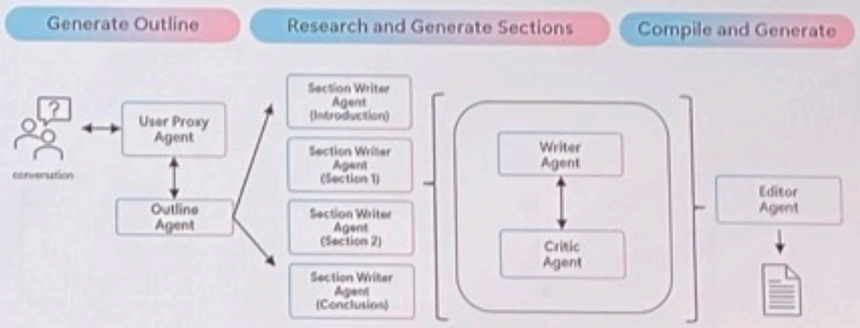
HANSELMAN'S TALK YESTERDAY HE USED THE SAME SDK WHERE HE AND



THE SAME CAPABILITIES THAT SALMAN TALKED ABOUT.

Agent systems with Semantic Kernel





Agent Framework

LLM-driven orchestration

Creative reasoning and decision-making

Ex: Propose 2 Instagram marketing campaigns including assets that would leverage the top 2 recent trends in our past quarter US Sales [illegible] mailing list user base and predict the impact [illegible] paign

Process Framework

Workflow-driven orchestration

Deterministic and predictable execution pattern

Ex: Execution the Deep Research process to generate a document outline, write and refine section and synthesize into final document

WE CAN WE CREATE OUR AGENT. WE CONNECT
IT TO

https://musical-carnival-67rp5rv9qjf549.github.dev

sk-build-agents-pr [Codespaces: musical carnival]

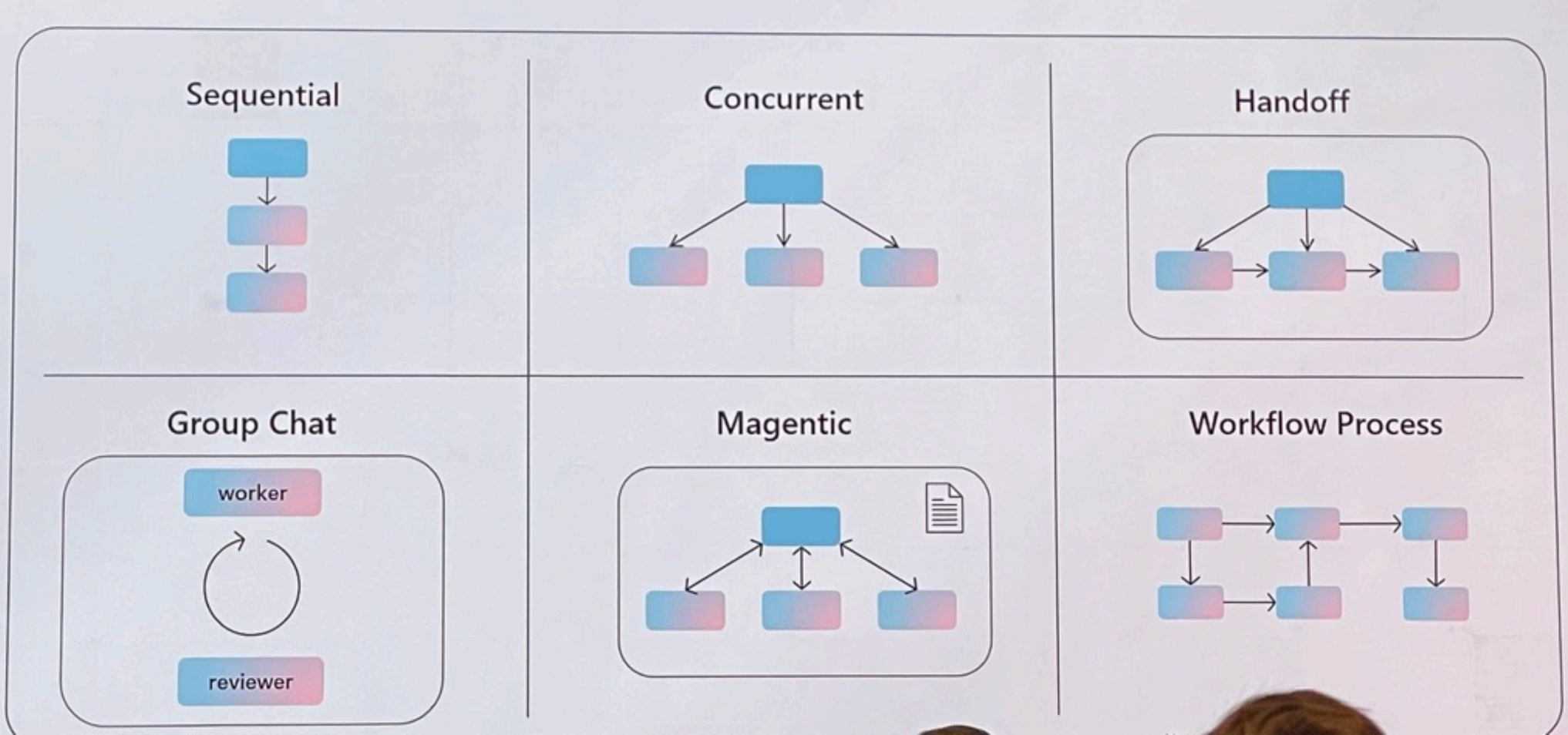
01_simple_agent.py | 02_agent_plugin.py | 02a_agent_mcp.py | 05_magentic.py (Working Tree) | 04_muti-agent.py | 03_agent_with_ui.py | 05_magen

sk-agents-py > 01_simple_agent.py > ...

```python
import asyncio
from semantic_kernel.agents import ChatCompletionAgent
from semantic_kernel.connectors.ai.open_ai import AzureChatCompletion

async def main():
    # Initialize a chat agent with basic instructions
    agent = ChatCompletionAgent( #or AzureAgent, CopilotAgent, ResponsesAgent, AutoGenAgent, BedrockAgent
        service=AzureChatCompletion(),
        name="SK-Assistant",
        instructions="You are a helpful assistant.",
    )

    # Get a response to a user message
    response = await agent.get_response(messages="Write a haiku about Semantic Kernel.")
    print(response.content)

asyncio.run(main())

# Output:
# Language's essence,
# Semantic threads intertwine,
# Meaning's core revealed.
```

SEQUENCE. CONCURRENT. ALL OF THE AGENTS WORKING IN PARALLEL

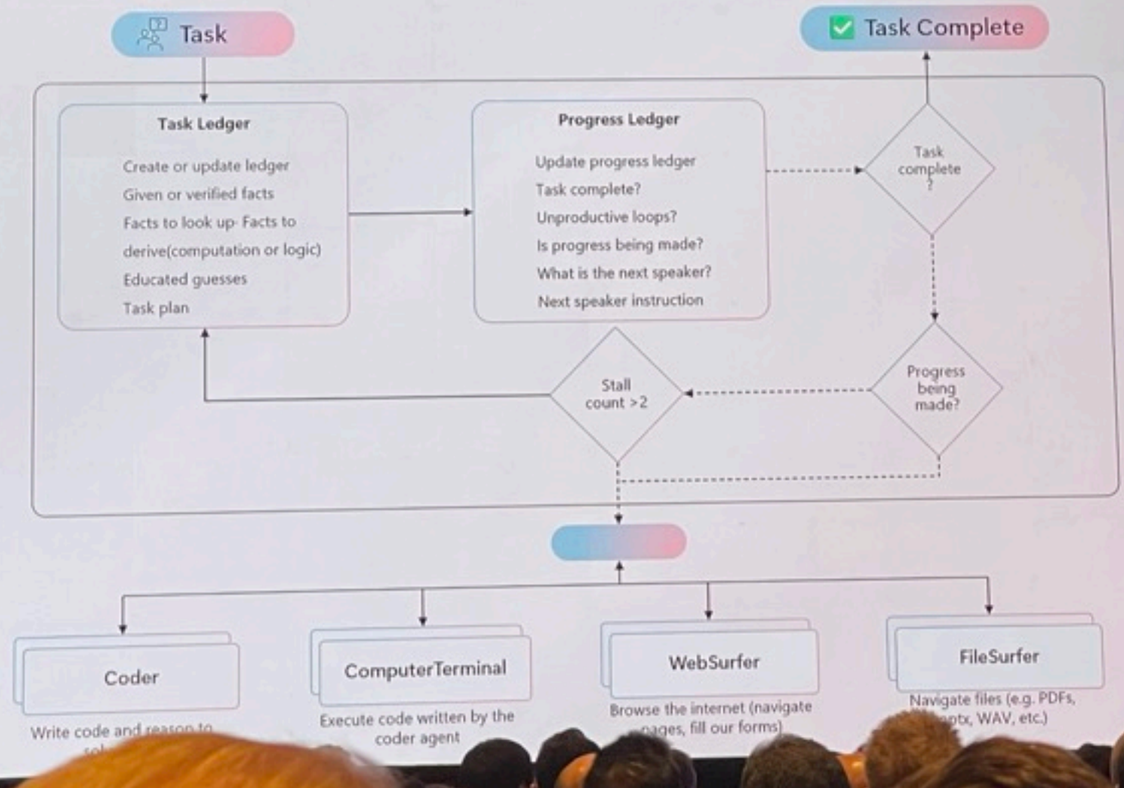
Multi-Agent Orchestration Patterns



TASK LEDGER AND CHECKS IF THE AGENTS
IS MAKING PROGRESS TOWARD THAT GOAL.

Magentic One

https://aka.ms/magentic-one



https://upgraded-fiesta-rvrx6r4qqg2p9q7.github.dev

SKPodcastDotnet [Codespaces: upgraded fiesta]

EXPLORER

SKPODCASTDOTNET [CODESPA...

- .vscode
- Agents
  - ContentAgent.cs
  - LinkVerificationAgent.cs
  - SummaryAgent.cs
  - VoiceAgent.cs
- bin
- Filters
- Helpers
- Models
- obj
- output
- Plugins
- Services
- .env
- .gitignore
- 881.txt
- podcast.process.yaml
- Program.cs
- README.md
- recording.mp3 M
- SKPodcastDotnet.csproj
- SKPodcastDotnet.sln
- TestRecording.mp3

OUTLINE

[Preview] README.md | Program.cs | podcast.process.yaml

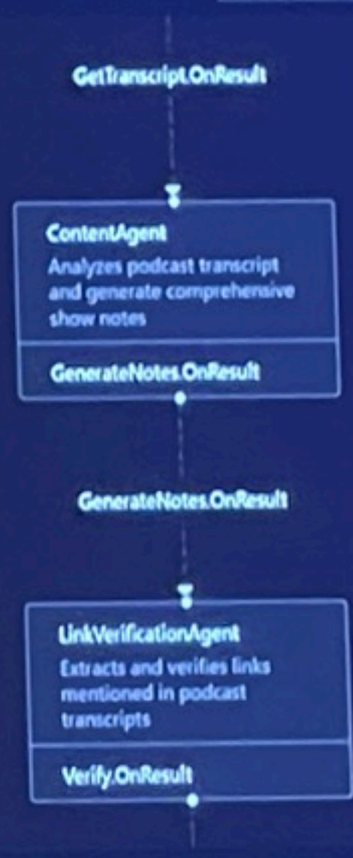
Program.cs > Program > Main

```
21    class Program
26        async static Task Main(string[] args)
83
84            process
85                .OnInputEvent("Start")
86                .SendEventTo(new ProcessFunctionTargetBuilder(getTranscript
87
88            getTranscriptStep
89                .OnFunctionResult()
90                .SendEventTo(new ProcessFunctionTargetBuilder(contentAgentS
91
92            contentAgentStep
93                .OnFunctionResult()
94                .SendEventTo(new ProcessFunctionTargetBuilder(linkVerificat
95
96            linkVerificationAgentStep
97                .OnFunctionResult()
98                .SendEventTo(new ProcessFunctionTargetBuilder(summaryAgentS
99
100           summaryAgentStep
101               .OnFunctionResult()
102               .StopProcess());
103
104           KernelProcess kernelProcess = process.Build();
```

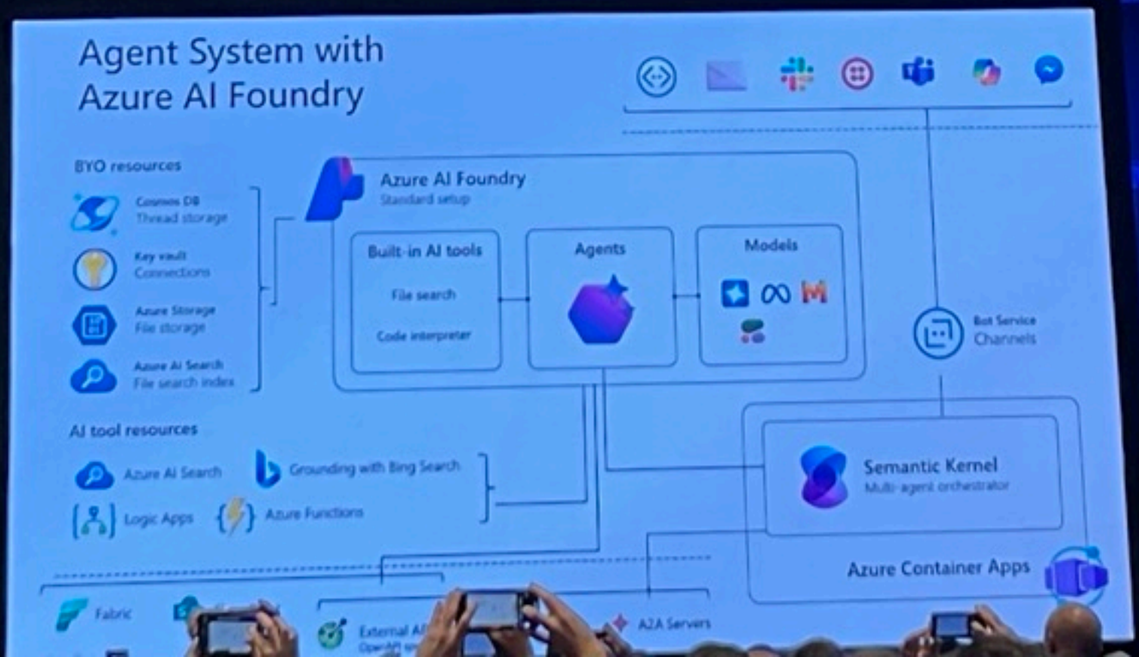
PROBLEMS 2 | OUTPUT | DEBUG CONSOLE | TERMINAL | PORTS | AZURE | POLYGLOT NOTEBOOK | SPELL CHECKER 2

```
@sphenry ➜ /workspaces/SKPodcastDotnet (main) $ dot net
bash: dot: command not found
@sphenry ➜ /workspaces/SKPodcastDotnet (main) $ dotnet run
🎧 Processing file: /workspaces/SKPodcastDotnet/recording.mp3
Operation/Trace ID: f806abc655417869ca8d9cd98307eaa7

🚀 Starting podcast processing pipeline...
```

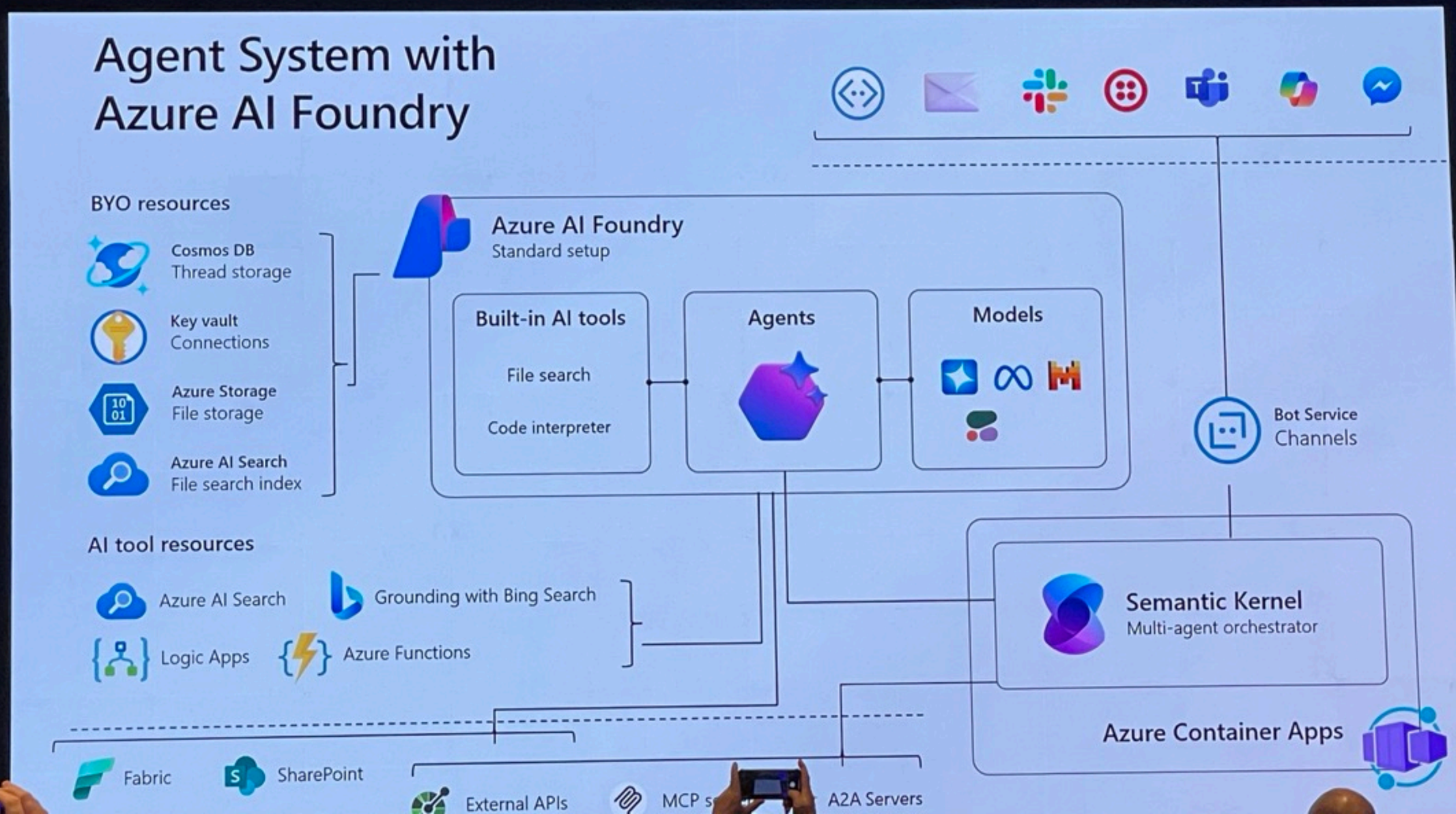
Preview podcast.process.yaml



A DEMO FAIL. SO TO BRING IT ALL
TOGETHER WE SAW AZURE AZURE AI



YOU CAN SELECT DIFFERENT AGENTS
AND TOOLS. YOU CAN STORE INCAS MOW



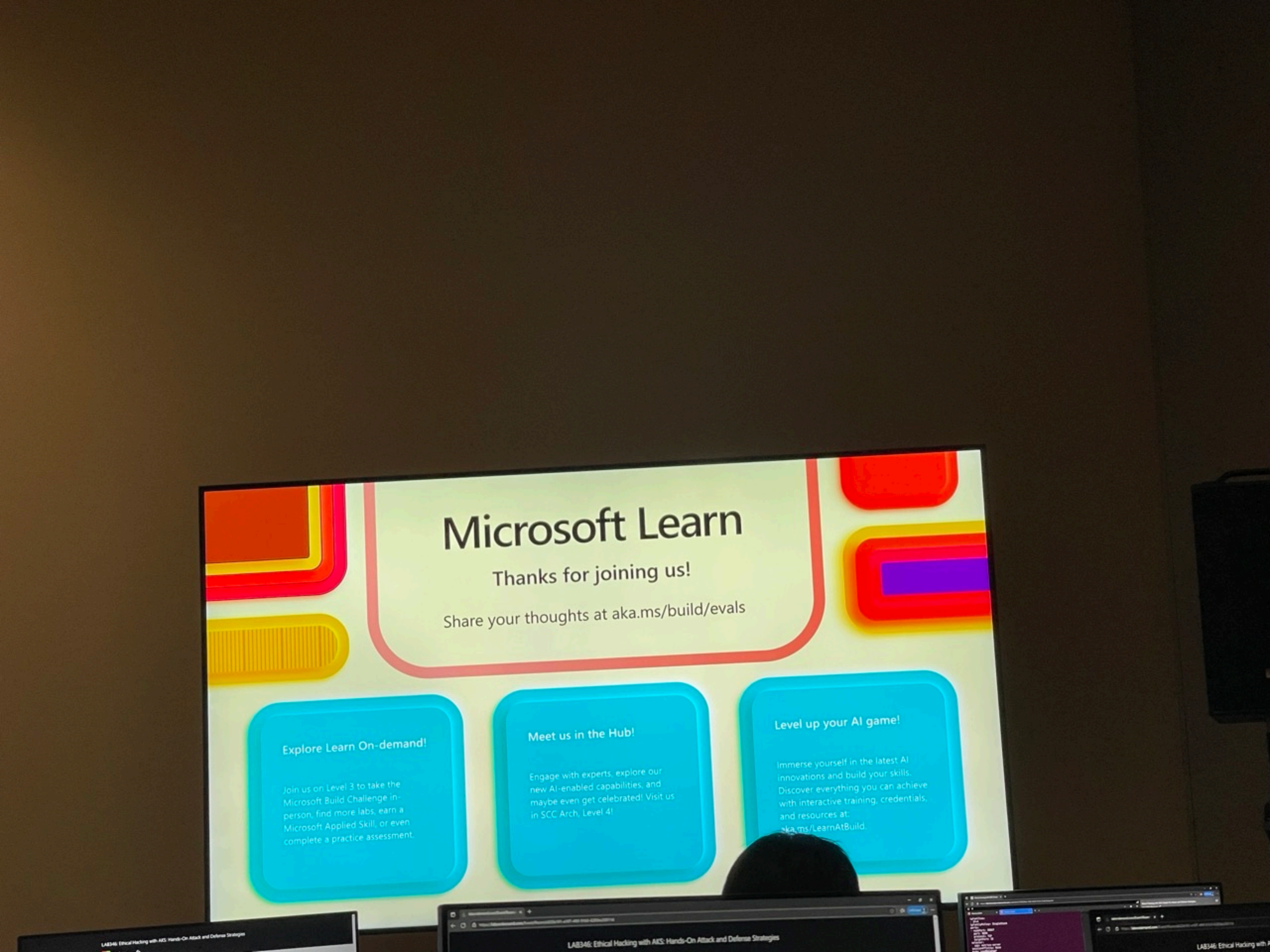
TO YOUR APS. NET CORE APPS. TO DO
THAT WE'LL ADD A BUNCH OF AUTHENTICATION

Authentication scaffolding

- Based on `dotnet scaffold`
- Update existing ASP.NET Core & Blazor Identity scaffolders
- Add ASP.NET Core Identity Endpoints
- Add Entra ID authentication
- Add authentication to Blazor Hybrid and .NET MAUI apps

```
Pick a scaffolding command:

  ASP.NET Core Identity (dotnet-scaffold-aspnet)
> Blazor Identity (dotnet-scaffold-aspnet)
```


LUMEN FIELD
SOUNDERS FC
EVENT LINEUP
GET TICKETS NOW


Microsoft Learn
Thanks for joining us!
Share your thoughts at aka.ms/build/evals
Explore Learn On-demand!
Join us on Level 3 to take the Microsoft Build Challenge in-person, find more labs, earn a Microsoft Applied Skill, or even complete a practice assessment.
Meet us in the Hub!
Engage with experts, explore our new AI-enabled capabilities, and maybe even get celebrated! Visit us in SCC Arch, Level 4!
Level up your AI game!
Immerse yourself in the latest AI innovations and build your skills. Discover everything you can achieve with interactive training, credentials, and resources at:
aka.ms/LearnAtBuild.
LAB346: Ethical Hacking with AKS: Hands-On Attack and Defense Strategies

talk in terms of robotics, if you
take away all robotics and

work into the boxes and lines. At
the heart of our system is