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#FABCONSQLCON2026

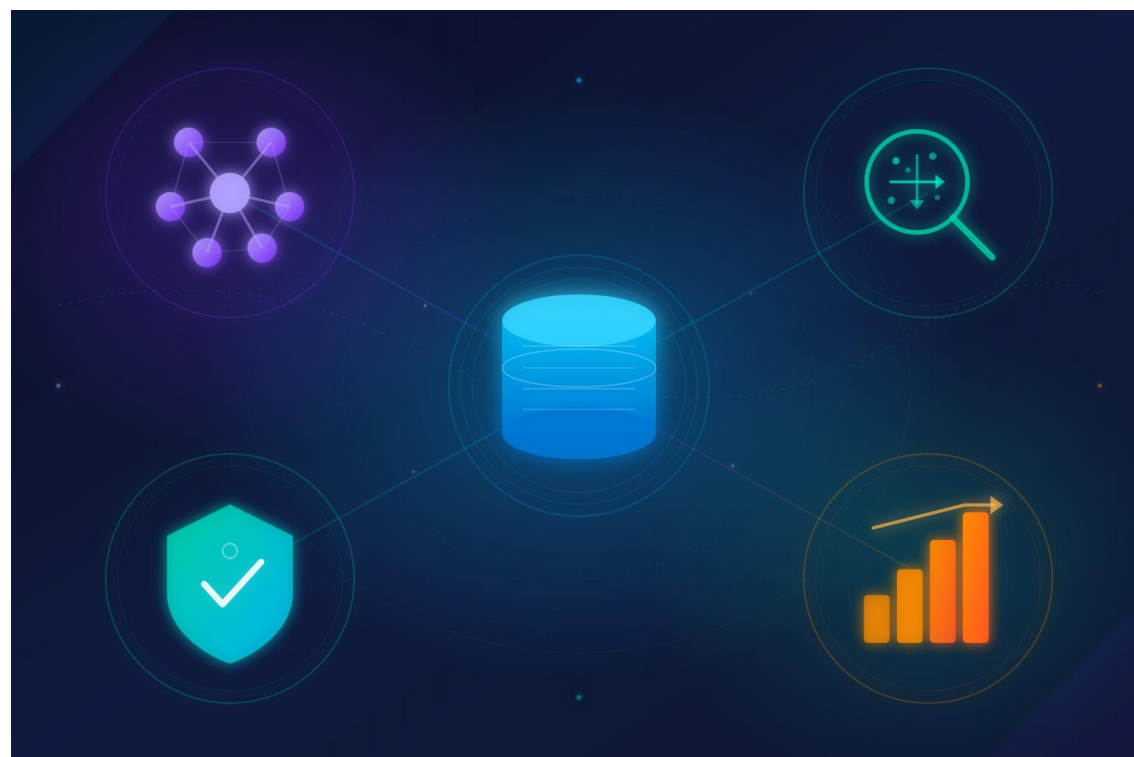
FABCON

Microsoft Fabric
COMMUNITY CONFERENCE

SQLCON

Microsoft SQL
COMMUNITY CONFERENCE

ATLANTA MARCH 16 - 20, 2026



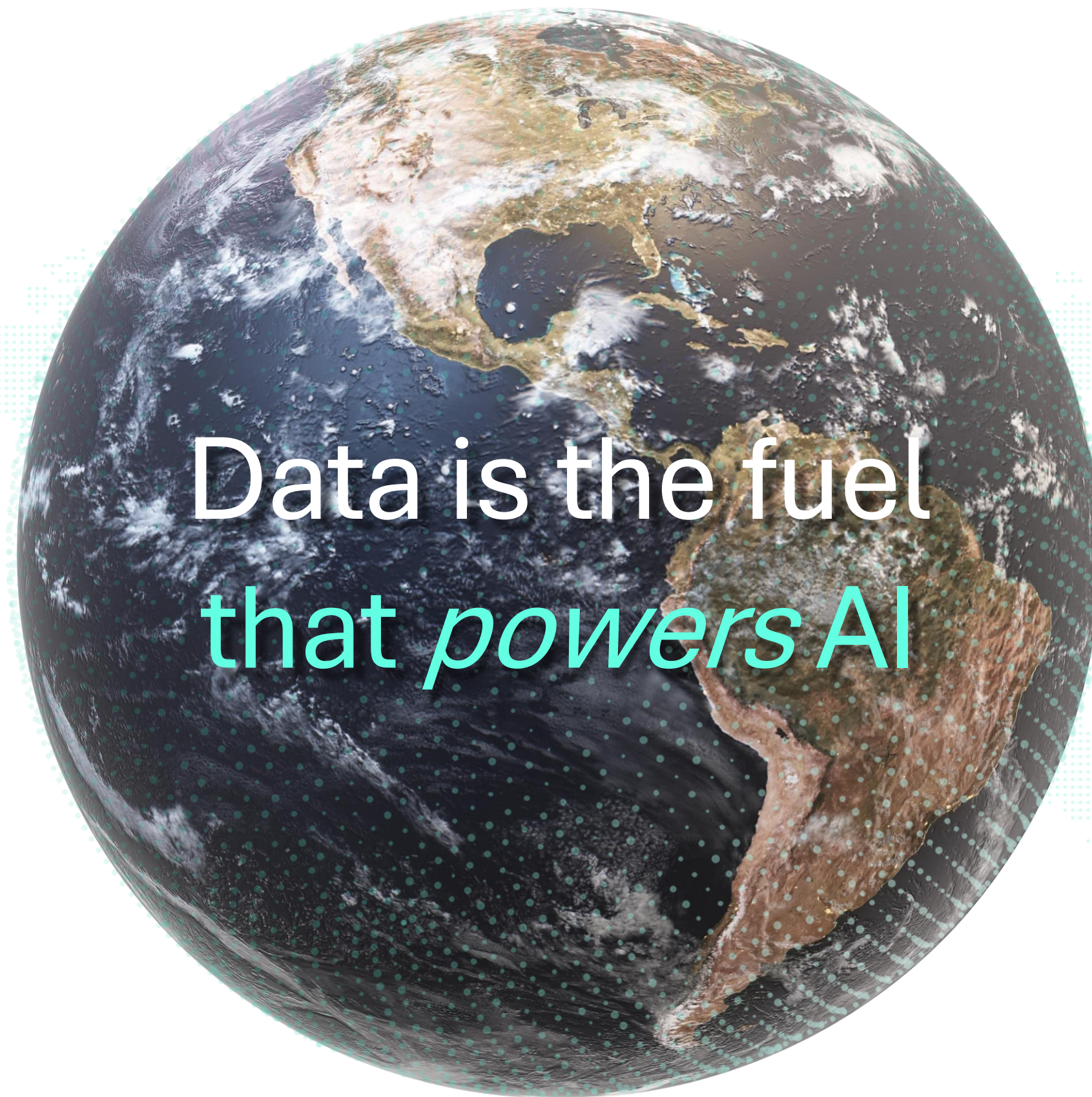
Build Secure, Scalable AI Applications with Azure **SQL** Database Hyperscale

**Aditya Badramraju &
Arvind Shyamsundar**

Microsoft SQL Product Management team



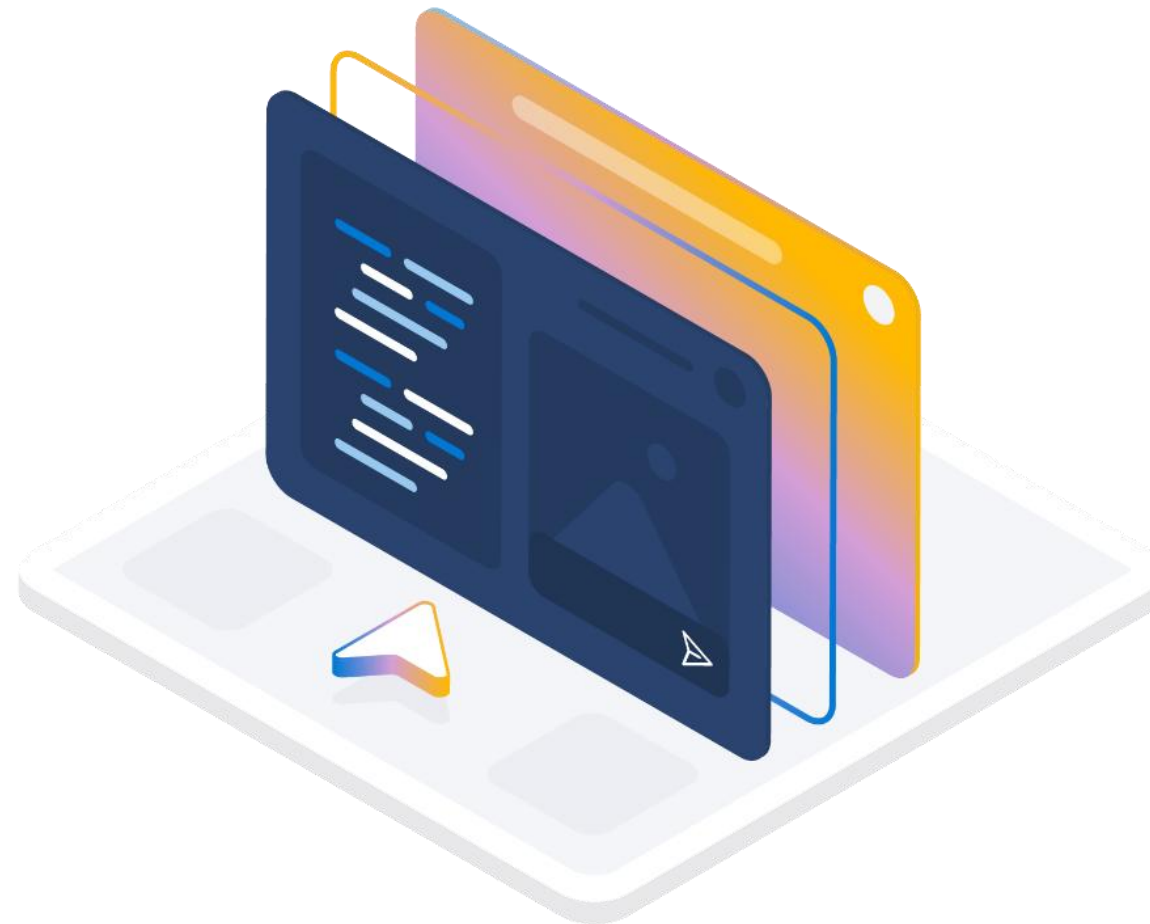
AI is
transforming the
world



Data is the fuel
that *powers* AI

Build DB-centric intelligent applications

- ✓ Vectors and native vector type/functions
- ✓ Integration with Langchain, EF Core, Semantic Kernel and Logic apps
- ✓ Azure OpenAI for building RAG apps
- ✓ Microsoft Foundry
- ✓



Azure Open AI
Service



Azure AI
Search



Azure AI
Foundry



LangChain



Semantic
Kernel & Agent
Framework



EF Core



Logic Apps

“Peace of mind” data architectures using Azure SQL Database Hyperscale



One Query To Rule Them All

Polyglot "Spaghetti" → Multimodal SQL | The Architecture That Ships

⚠️ THE POLYGLOT STACK

"Right Tool for the Job"

⚠️ Your App

PostgreSQLOLTP

MongoDBDocuments

Neo4jGraph

PineconeVectors

HyperLedgerAudit

ClickHouseAnalytics

glue_code.py

Your integration nightmare

pg = psycopg2.connect(..)

mgo = MongoClient(uri)

neo = GraphDatabase.driver()

pine = pinecone.Index('fraud')

hlf = HLFabric.connect(..)

ch = clickhouse_connect(..)

6 connections × 0 ACID

= ∞ failure modes

THE INTEGRATION TAX

✗ 6 databases × 6 query langs × 6 auth models

✗ 6 backup strategies × 6 monitoring dashboards

✗ No cross-system ACID — partial failures corrupt data

✗ 15ms+ network latency per request (1-5ms × hops)

✗ AI agents need 6 connectors, 6 schemas, 6 APIs

✗ Every new feature = weeks of integration glue code



⚡ MULTIMODAL SQL

One Engine. One Query.

⚡ Your App

▼

Azure SQL Hyperscale— Unified Query Engine · Single Transaction · One Security Model

Relational

JSON

Graph

VECTOR(n)

Ledger

Columnstore

fraud_check.sql

All 6 models, 1 query ↓

-- One query. Six data models. Zero glue code.

SELECT t.Amount, t.Status,

JSON_VALUE(d.Data, '\$.vpn') AS vpn,

suspect.Name, suspect.RiskScore,

VECTOR_DISTANCE('cosine',

p.Embedding, @txn) AS similarity,

a.LedgerVerified, cs.AvgAmount

FROM Txns t CROSS APPLY OPENJSON(..

MATCH(suspect-(k)->highrisk)

JOIN FraudPatterns .. Columnstore ..

✓ ACID across all 6 models in a single transaction

✓ 1 MCP endpoint — AI agents query everything natively

✓ Ship features in days · Deploy anywhere · Start free

LATENCY		ACID		SHIP TIME		AI AGENTS		SECURITY		OPS BURDEN	
15ms+ overhead	→ Sub-ms (same engine)	Per-DB only	→ Cross-model atomic	Weeks	→ Days	6 connectors	→ 1 MCP endpoint	6 × audits	→ 1 unified model	O(n) per DB	→ O(1) constant

Azure SQL Database Hyperscale

Build new, highly scalable AI applications for the price of commercial open-source databases

Highly scalable

Compute and storage scale independently

Auto-scales quickly up to 128TB

Supports up to 128 vCores

Consistent performance, regardless of operation size

High performance

Low latency, high throughput

Log throughput independent of compute

Read scale-out support with up to 30 named replicas

Snapshot-based backups

Rapid database restore

AI-ready

Native vector search

Support for Langchain, Semantic Kernel and more

Azure OpenAI and Azure AI Foundry integration

Copilot support

Cost management

Commercial open-source pricing

Pay only for what you use

Optimize costs with elastic pools

Reliable and secure

Multiple levels of redundancy

No single points of failure

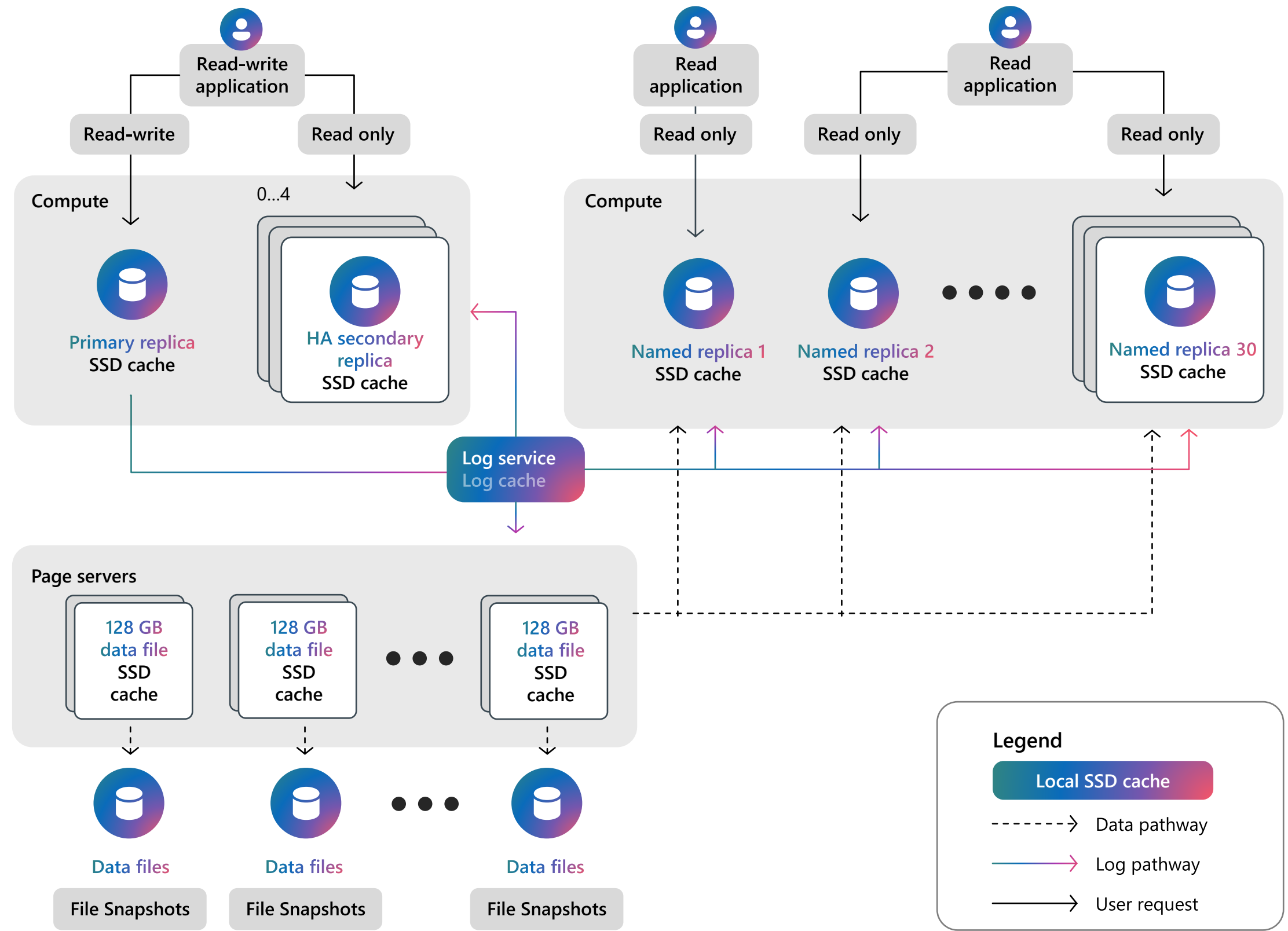
Tamper-evident ledger capability

99.995% availability SLA

Built-for-the cloud architecture enables near-limitless growth potential

Distributed, scale-out & resilient

- ✓ Separation of compute & storage
- ✓ Compute with smart SSD cache
- ✓ Externalized log service
- ✓ Paired page servers, fully covering SSD ("RBPEX") cache
- ✓ Redundant data and log in Azure Storage
- ✓ 0 to 4 secondary HA replicas
- ✓ 0-30 named replicas for read scale
- ✓ Fast Backup/Restore via storage snapshots



Industry leader for a reason!

CAPABILITY	AWS AURORA	GOOGLE ALLOYDB	HYPERSCALE
Max Storage	256 TB	128 TB	128 TB single DB 100 TB elastic pool
Compute	Up to ~128 vCPUs	Up to 128 vCPUs	Up to 192 vCores
Cache Tiers	Buffer Pool (+ Optimized Reads PG)	Buffer Pool + columnar engine	Buffer Pool + RBPEX + Page Server SSD
Log Architecture	Log to distributed storage (shared path)	WAL to storage layer (shared path)	Dedicated Log Service 150 MiB/s, own SSD
Read Replicas	Up to 15 (same size as primary)	Up to 20 nodes (load-balanced pool)	30 named + 4 HA each (independently sized)
HTAP	Zero-ETL to Redshift (separate service)	Columnar engine (PG workloads only)	Multi Modal and Fabric Mirroring
Vector Search	pgvector extension (PG only)	pgvector + ScaNN (PG only, extension)	Native VECTOR type + VECTOR_DISTANCE()
Serverless	Aurora Serverless v2	No serverless tier	Full Hyperscale Serverless
Elastic Pools	Not available	Not available	Hyperscale elastic pools (up to 100 TB)
Availability SLA	99.99%	99.99%	99.995%
Engine	MySQL / PostgreSQL	PostgreSQL only	SQL Server (T-SQL) broadest surface area

Zava Tax – a DB-centric intelligent app



Zava Tax - Personas



Tax Filer

Ask tax questions and get guidance
File and manage tax returns



Tax Professional

Manage client roster
Find similar cases
Browse knowledge base



Branch Manager

Monitor team performance
Review branch KPIs
Track operational throughput



Executive

Company-wide dashboards
Analytics and reporting
Trend summaries

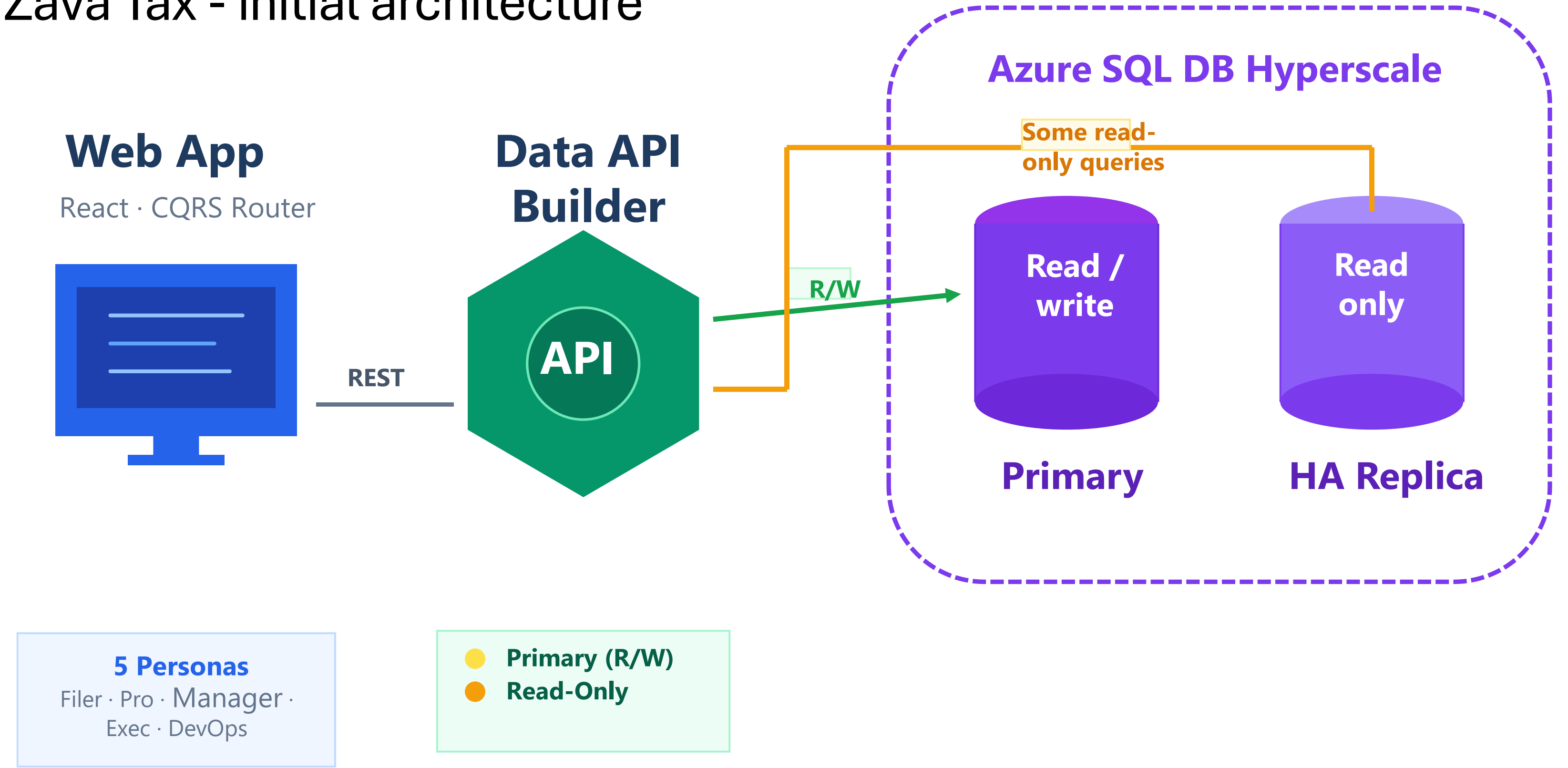


DevOps

Monitor and optimize price / perf
Review hyperscale metrics
Manage read-scale behavior

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Zava Tax - initial architecture



Tax Professional AI enriched scenarios – part 1



Tax Filer

Ask tax questions and get guidance
File and manage tax returns



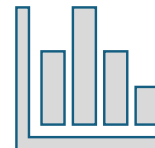
Tax Professional

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Branch Manager

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Professional Tax Preparation Made Simple

Get expert help with your tax filing. Our certified professionals ensure accuracy and maximize your refund.

- 

Secure & Confidential

Your data is protected
- 

Fast Processing

Quick turnaround times
- 

500+ Locations

Offices nationwide
- 

Expert Review

CPA verified returns

Select Demo Account

Choose a persona to experience the application



Sarah Johnson

Individual Tax Filer

sarah.johnson@outlook.com



Michael Chen

Senior Tax Preparer

mchen@zavatax.com



Amanda Rodriguez

Branch Manager

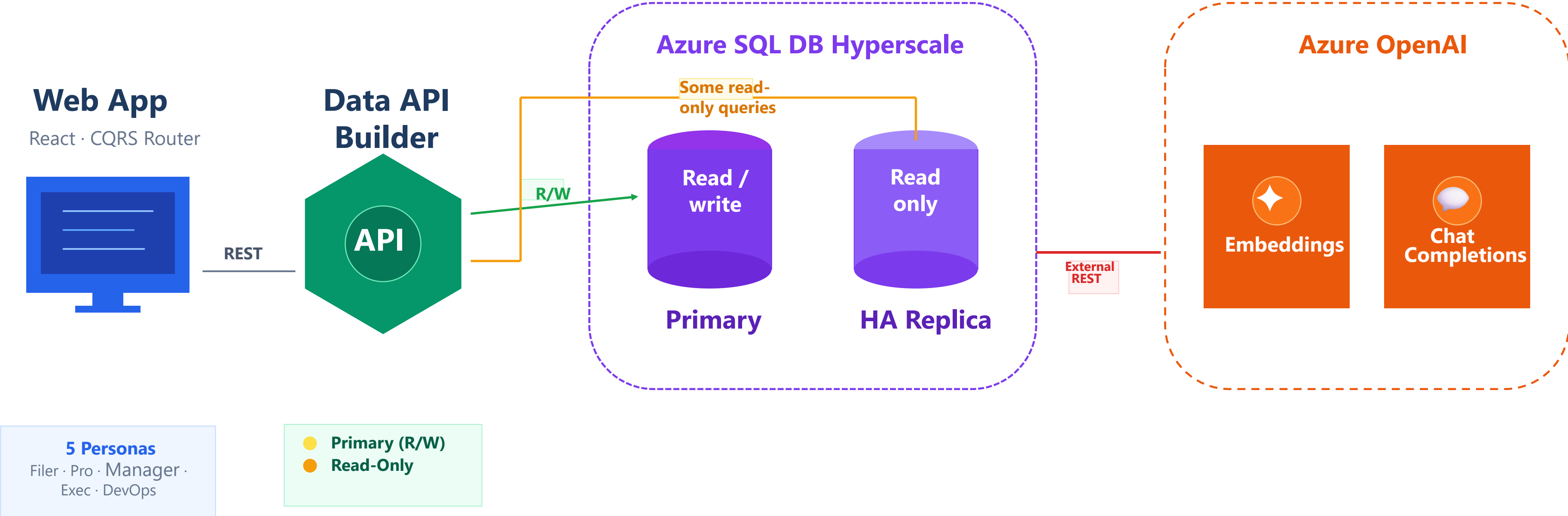
arodriguez@zavatax.com

Back

Sign In

Demo mode: Simulating Microsoft Entra ID authentication

Zava Tax – AI-enriched architecture



Knowledge base - sources

https://www.irs.gov/publications

An official website of the United States government [Here's how you know](#) ▾

IRS

Help | News | English ▾

File | Pay | Refunds | Credits & Deductions | Forms | Report Fraud

Search

Home / Publications

Publications Online

Title	Publication in HTML
Publication 3 (2025), Armed Forces' Tax Guide	Publication 3 (2025)
Publication 15 (2026), (Circular E), Employer's Tax Guide	Publication 15 (2026)
Publication 15-A (2026), Employer's Supplemental Tax Guide	Publication 15-A (2026)
Publication 15-B (2026), Employer's Tax Guide to Fringe Benefits	Publication 15-B (2026)
Publicación 15 (2025), Guía Tributaria para Empleadores (Circular E)	Publicación 15 (2025)
Publication 15-T (2026), Federal Income Tax Withholding Methods	Publication 15-T (2026)
Publication 17 (2025), Your Federal Income Tax	Publication 17 (2025)

IRS

SEARCH | SIGN IN | MENU

- [Get a transcript of your return.](#)
- [Tax Pro Account.](#)
- [Using direct deposit.](#)
- [Reporting and resolving your tax-related identity theft issues.](#)
- [Ways to check on the status of your refund.](#)
- [Making a tax payment.](#)
- [What if I can't pay now?](#)
- [Filing an amended return.](#)
- [Checking the status of your amended return.](#)
- [Understanding an IRS notice or letter you've received.](#)
- [IRS Document Upload Tool.](#)
- [Schedule LEP.](#)
- [Contacting your local TAC.](#)
- [The Taxpayer Advocate Service \(TAS\) Is Here To Help You](#)
 - [What Is the Taxpayer Advocate Service?](#)
 - [How Can TAS Help Me?](#)
 - [How Do I Contact TAS?](#)
 - [What Are My Rights as a Taxpayer?](#)
- [Where To File](#)

Publication 17 (2025), Your Federal Income Tax

For Individuals

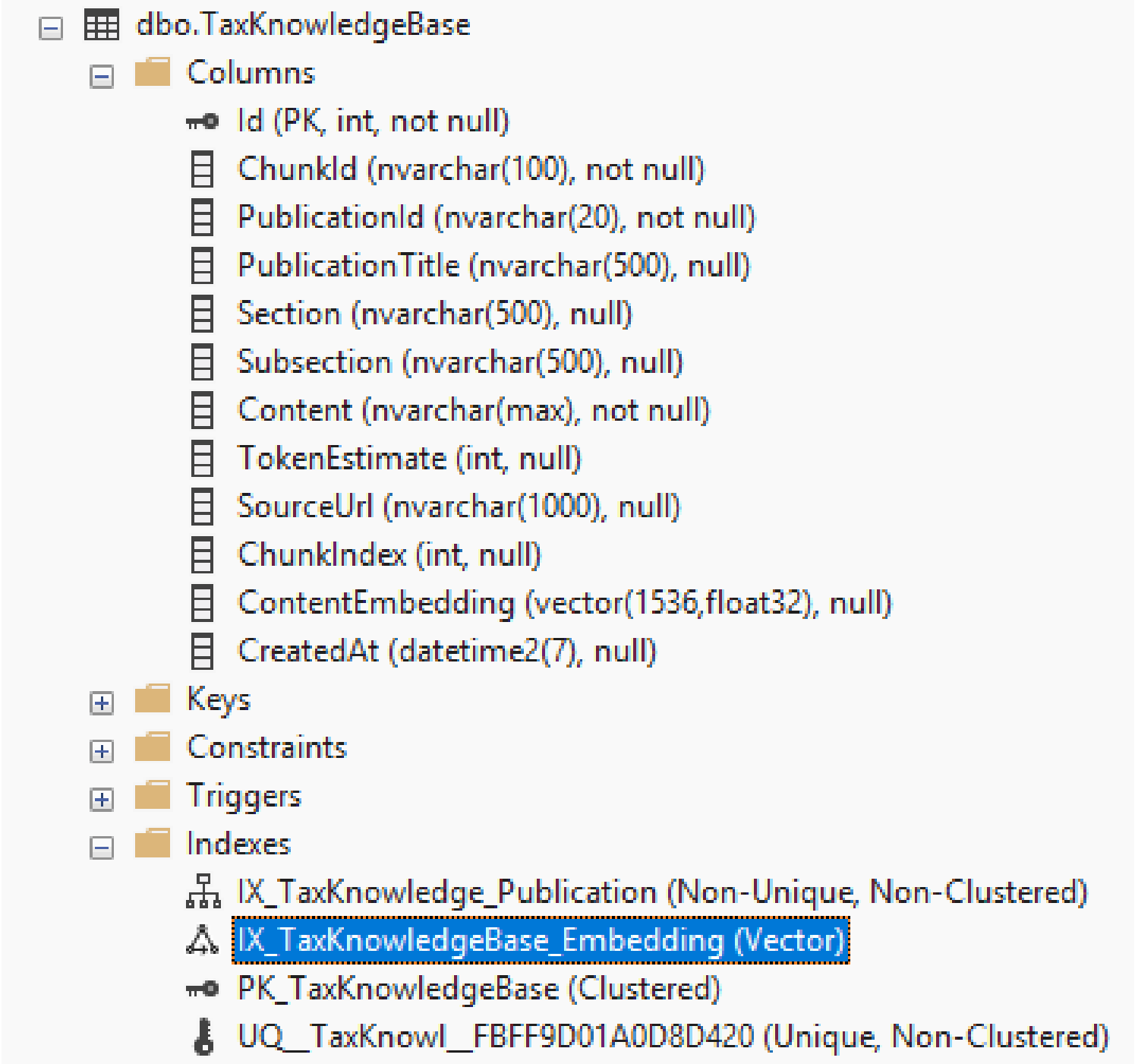
For use in preparing 2025 Returns

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Knowledge base schema

```
CREATE TABLE [dbo].[TaxKnowledgeBase](
  [Id] [int] IDENTITY(1,1) NOT NULL,
  [ChunkId] [nvarchar](100) NOT NULL,
  [PublicationId] [nvarchar](20) NOT NULL,
  [PublicationTitle] [nvarchar](500) NULL,
  [Section] [nvarchar](500) NULL,
  ...
  [ChunkIndex] [int] NULL,
  [ContentEmbedding] [vector](1536, float32) NULL,
  [CreatedAt] [datetime2](7) NULL,
  CONSTRAINT [PK_TaxKnowledgeBase] PRIMARY KEY CLUSTERED
    ([Id] ASC),
  UNIQUE NONCLUSTERED ([ChunkId] ASC))
GO

CREATE VECTOR INDEX [IX_TaxKnowledgeBase_Embedding] ON
  [dbo].[TaxKnowledgeBase]
  ([ContentEmbedding]) WITH (METRIC = 'COSINE', TYPE =
  'DiskANN');
GO
```



dbo.TaxKnowledgeBase
Columns
Id (PK, int, not null)
ChunkId (nvarchar(100), not null)
PublicationId (nvarchar(20), not null)
PublicationTitle (nvarchar(500), null)
Section (nvarchar(500), null)
Subsection (nvarchar(500), null)
Content (nvarchar(max), not null)
TokenEstimate (int, null)
SourceUrl (nvarchar(1000), null)
ChunkIndex (int, null)
ContentEmbedding (vector(1536,float32), null)
CreatedAt (datetime2(7), null)
Keys
Constraints
Triggers
Indexes
IX_TaxKnowledge_Publication (Non-Unique, Non-Clustered)
IX_TaxKnowledgeBase_Embedding (Vector)
PK_TaxKnowledgeBase (Clustered)
UQ_TaxKnowl__FBFF9D01A0D8D420 (Unique, Non-Clustered)

Working with embeddings in SQL – external model definition

```
CREATE DATABASE SCOPED CREDENTIAL [https://your-openai-resource.openai.azure.com/]
WITH IDENTITY = 'Managed Identity',
SECRET = '{"resourceid": "https://cognitiveservices.azure.com"}';
GO
```

```
CREATE EXTERNAL MODEL AzureOpenAI_Embeddings
WITH (
    LOCATION = 'https://your-openai-resource.openai.azure.com/openai/deployments/text-embedding-3-small/embeddings?api-version=2024-02-01',
    API_FORMAT = 'Azure OpenAI',
    MODEL_TYPE = EMBEDDINGS,
    MODEL = 'text-embedding-3-small',
    CREDENTIAL = [https://your-openai-resource.openai.azure.com/]
);
```

Try the new Microsoft Foundry experience

Build and manage agents and workflows with access to a rich catalog of MCP server tools and enterprise knowledge sources. [Learn more](#)

Start building →

- Chat
- Assistants PREVIEW
- Video PREVIEW
- Audio PREVIEW
- Images
- Tools ^
- Fine-tuning
- Azure
- OpenAI PREVIEW
- Evaluation
- Stored completions PREVIEW
- Batch jobs
- Monitoring
- Shared resources ^
- Deployments**
- Quota
- Guardrails + Controls
- Risks + alerts PREVIEW
- Data files

Model deployments

?

Model deployments App deployments Service endpoints

+ Deploy model ▾

Refresh

Edit

Delete

Open in playground

Reset view

	Name	Model name	Model version	State	Model retirement date	Content filter
☐	gpt-5.2-chat	gpt-4o	2024-08-06	Succeeded	Mar 30, 2026 5:00 PM	DefaultV2 ⓘ
	text-embedding-3-small	text-embedding-3-small	1	Succeeded	Apr 14, 2027 5:00 PM	DefaultV2 ⓘ

Knowledge base search using embeddings and vector search

```
-- Knowledge base search using AI embeddings
-- Uses AI_GENERATE_EMBEDDINGS with CREATE EXTERNAL MODEL for Azure SQL + Azure OpenAI
CREATE OR ALTER PROCEDURE AskTaxQuestion
    @Question NVARCHAR(MAX),
    @TopK INT = 5
AS
BEGIN
    DECLARE @embedding VECTOR(1536);
    -- Generate embedding using Azure OpenAI external model
    SELECT @embedding = AI_GENERATE_EMBEDDINGS(@Question USE MODEL AzureOpenAI_Embeddings);
    -- Perform vector search using VECTOR_SEARCH
    SELECT TOP (@TopK)
        t.Section AS Title, t.Content AS Answer, t.PublicationTitle AS Source, t.PublicationId AS Category, s.distance AS SimilarityScore
    FROM
        VECTOR_SEARCH(
            table = TaxKnowledgeBase AS t,
            column = ContentEmbedding,
            similar_to = @embedding,
            metric = 'cosine', top_n = @TopK ) AS s
    ORDER BY s.distance;
END;
GO
```

"bitcoin and ethereum sales"

[-0.03745347, -0.02661756...]

Output from AskTaxQuestion

5 EXEC AskTaxQuestion'bitcoin and ethereum sales'

75 % No issues found Ln: 5, Ch: 49 (48 chars, 1 lines) TABS CRLF Windows 12

Results Messages Execution plan

	Title	Answer	Source	Category	SimilarityScore
1	4. Sales and Trades of Investment Property	This section explains what is a sale or trade. It also ...	Investment Income and Expenses	p550	0.632996916770935
2	Publication 537 - Main Contents	Section 483 generally applies to an installment sal...	Installment Sales	p537	0.677616477012634
3	Publication 525 - Main Contents	You include the cash payment in income in the yea...	Taxable and Nontaxable Income	p525	0.680528044700623
4	Introduction	New Gross Profit Percentage“Selling Price Redu...	Installment Sales	p537	0.681468605995178
5	4. Sales and Trades of Investment Property	This chapter explains the tax treatment of sales an...	Investment Income and Expenses	p550	0.682813048362732

Tax Professional AI enriched scenarios – part 2



Tax Filer

Ask tax questions and get guidance
File and manage tax returns



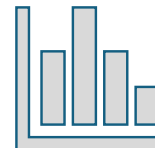
Tax Professional

Manage client roster
Find similar cases
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Monitor team performance
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Company-wide dashboards
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Trend summaries



DevOps

Monitor and optimize price / perf
Review hyperscale metrics
Manage read-scale behavior

Z

Zava Tax

Tax Services

CLIENT SERVICES

Dashboard

My Clients

Similar Cases

Knowledge Base

M

Michael Chen

mchen@zavatax.c...

Tax Professional

+ New Return

Dashboard

Welcome back! Here's your workload overview.

100

Active Clients

0

Returns in Progress

100

Completed (2025)

2

Needs Review

Needs Attention

2 items

Client #1234804

2025 Return • Owes \$6,752

\$6,752 owed

Client #3436100

2025 Return • Owes \$6,806

\$6,806 owed

Recently Completed

View All

Client #9099390

2025 • Filed 12/28/2026

+\$1,584

Client #7443741

2025 • Filed 12/28/2026

+\$5,364

Client #5789953

2025 • Filed 12/28/2026

+\$1,881

Client #1531228

2025 • Filed 12/28/2026

+\$3,073

Client #3168207

+\$1,951

Quick Actions

My Clients

100 clients

Similar Cases

AI-powered search

Knowledge Base

Tax regulations

2025 Summary

Total Returns

Completed

In Progress

Total Refunds

100

100

0

\$574,194

Key Dates

FABCON

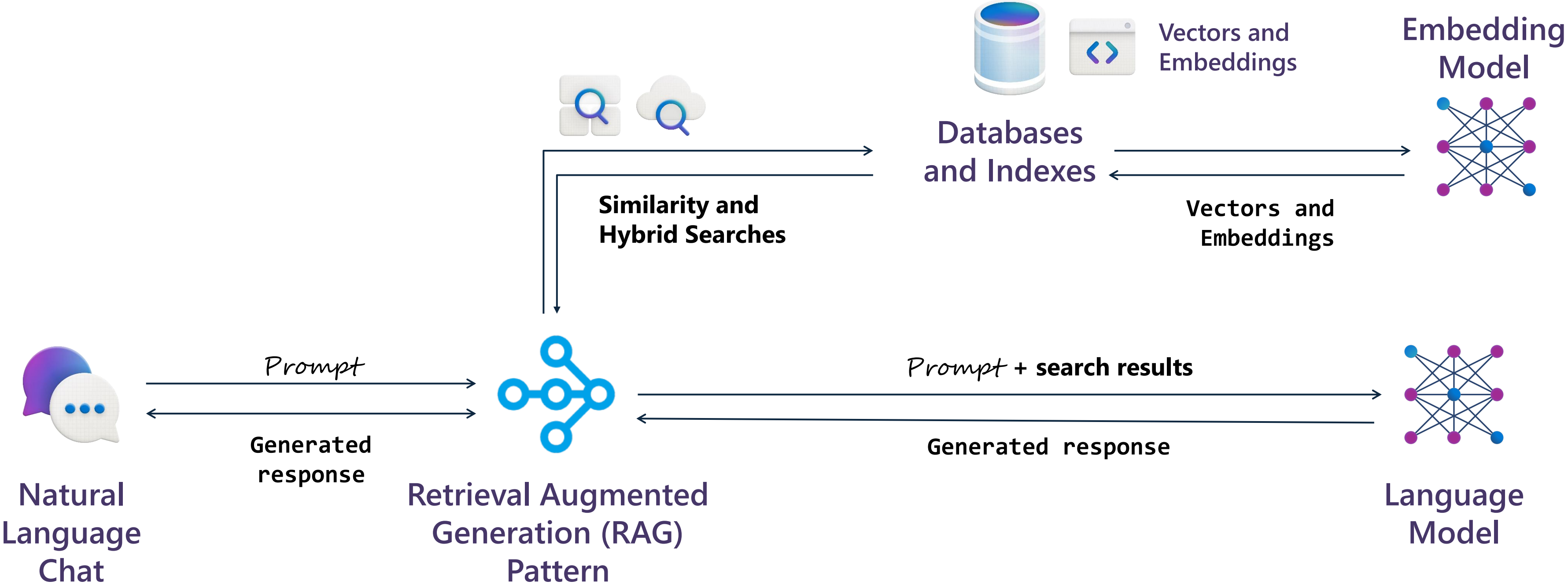
SQLCON

ATLANTA26

JOIN THE CONVERSATION

#FABCONSQLCON26

The RAG pattern



Tax scenarios table

```
CREATE TABLE TaxScenarios (  
    Id INT IDENTITY(1,1) NOT NULL,  
    ScenarioId NVARCHAR(50) NOT NULL UNIQUE,  
    TaxYear INT NOT NULL,  
    ScenarioType NVARCHAR(50) NOT NULL,  
    -- Taxpayer Profile (JSON)  
    TaxpayerProfile JSON,  
    ...  
    -- Narrative (for embedding)  
    ScenarioSummary NVARCHAR(MAX),  
    -- Vector Embedding  
    ScenarioEmbedding VECTOR(1536),  
    ...  
);
```

```
CREATE VECTOR INDEX IX_TaxScenarios_Embedding  
ON TaxScenarios(ScenarioEmbedding)  
WITH (METRIC = 'cosine', TYPE = 'DISKANN');  
GO
```

dbo.TaxScenarios
Columns
Id (PK, int, not null)
ScenarioId (nvarchar(50), not null)
TaxYear (int, not null)
ScenarioType (nvarchar(50), not null)
TaxpayerProfile (json, null)
FilingStatus (Computed, nvarchar(50), null)
IncomeSources (json, null)
Deductions (json, null)
Credits (json, null)
SpecialSituations (json, null)
TaxOutcome (json, null)
TotalIncome (Computed, int, null)
RefundAmount (Computed, int, null)
AmountOwed (Computed, int, null)
ComplexityScore (int, null)
KeyCharacteristics (json, null)
ScenarioSummary (nvarchar(max), null)
ResolutionNotes (nvarchar(max), null)
ScenarioEmbedding (vector(1536,float32), null)
CreatedAt (datetime2(7), null)
Keys
Constraints
Triggers
Indexes
IX_TaxScenarios_Embedding (Vector)
IX_TaxScenarios_FilingStatus (Non-Unique, Non-Clustered)
IX_TaxScenarios_TaxYear (Non-Unique, Non-Clustered)
IX_TaxScenarios_Type (Non-Unique, Non-Clustered)
PK_TaxScenarios (Clustered)
UQ_TaxScenarios_ScenarioId (Unique, Non-Clustered)

Tax scenarios – source data in Azure Storage

Dashboard > zava-tax-demo-rg > oai-zavatax-dev > zava-tax-demo-rg > zavataxdevdata

zavataxdevdata | Storage browser

Storage account

Search

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage browser

Storage Mover

Partner solutions

Resource visualizer

Data storage

Security + networking

Data management

Settings

zavataxdevdata

Favorites

Recently viewed

Blob containers

csvdata

View all

File shares

Queues

Tables

+ Add Directory

↑ Upload

🔒 Change access level

🔄 Refresh

🗑️ Delete

📄 Copy

📄 Paste

⋮

Blob containers > csvdata

Authentication method: Microsoft Entra user account (Switch to Access key)

Add filter

Search blobs by prefix (case-sensitive)

Only show active blobs

Showing all 8 items

	Name	Last modified	Access tier	Blob type
☐	branches.csv	2/5/2026, 1:01:48 PM	Hot (Inferred)	Block blob
☐	customers.csv	2/5/2026, 1:01:49 PM	Hot (Inferred)	Block blob
☐	knowledge_base_chunks.json	2/4/2026, 9:28:40 PM	Hot (Inferred)	Block blob
☐	knowledge_base_embedded.json	2/5/2026, 1:01:50 PM	Hot (Inferred)	Block blob
☐	tax_professionals.csv	2/5/2026, 1:01:50 PM	Hot (Inferred)	Block blob
☐	tax_returns_fact.csv	2/5/2026, 1:01:50 PM	Hot (Inferred)	Block blob
☐	tax_scenarios.json	2/5/2026, 1:01:51 PM	Hot (Inferred)	Block blob
☐	tax_scenarios_embedded.json	2/5/2026, 1:01:54 PM	Hot (Inferred)	Block blob

Tax scenarios - sample source data

```
{
  "scenario_id": "SCN-2025-00001",
  "tax_year": 2025,
  "scenario_type": "self_employed",
  "taxpayer_profile": {
    "filing_status": "Single",
    "dependents": 0,
    "state": "Michigan",
    "state_abbr": "MI",
    "state_has_income_tax": true,
    "occupation": "Event Planner"
  },
  "income_sources": [
    {
      "type": "1099-NEC",
      "description": "Event Planner",
      "amount": 129369,
      "client_count": 4
    }
  ],
  "deductions": {
    "method": "Itemized",
    "standard_available": 14600,
    "itemized_total": 34941,
    "itemized_breakdown": [
      {
        "type": "SALT",
        "amount": 10000
      },
      {
        "type": "Mortgage Interest",
        "amount": 22232
      },
      {
        "type": "Charitable Contributions",
        "amount": 2709
      }
    ]
  },
  "deduction_amount": 34941
}
```

```
],
"tax_outcome": {
  "total_income": 129369,
  "adjusted_gross_income": 119473,
  "taxable_income": 84532,
  "tax_liability": 13650,
  "self_employment_tax": 18279,
  "total_tax": 31929,
  "credits_applied": 1504,
  "tax_after_credits": 30425,
  "withholding": 0,
  "estimated_payments": 17907,
  "refund_amount": 0,
  "amount_owed": 12518,
  "effective_tax_rate": 23.5
},
"complexity_score": 5,
"key_characteristics": [
  "1099_income",
  "charitable_giving",
  "itemized_deductions",
  "self_employed",
  "mortgage_interest",
  "education_credit"
],
"scenario_summary": "Single filer, self-employed event planner",
"resolution_notes": {
  "summary": "Filed Form 1040, Schedule C, Schedule SE, Sched",
  "key_decisions": [
    {
      "decision": "Deduction method",
      "choice": "Itemized",
      "rationale": "Itemized (34,941) exceeded standard (14,600)"
    }
  ]
},
"forms_filed": [
  "Form 1040",
  "Schedule C",
  "Schedule SE",

```

```
},
"embedding": [
  0.04110950231552124,
  0.010142791084945202,
  0.042259588837623596,
  0.04717804864048958,
  -0.035652704536914825,
  0.005153981503099203,
  -0.007922143675386906,
  0.06097909435629845,
  0.0009849151829257607,
  -0.0023399381898343563,
  0.028703240677714348,
  -0.014608555473387241,
  0.046884406358003616,
  -0.006080780643969774,
  0.044094834476709366,
  0.04644395038485527,
  0.020346757024526596,
  0.0005478973034769297,
  -0.02159472368657589,
  0.03829545900225639,
  0.0318843349814415,
  0.010840184055268764,
  -0.008356484584510326,
  -0.05750436335802078,
  0.03849121928215027,
  0.02055475115776062,
  -0.07238208502531052,
  -0.045220453292131424,
  0.01271213497966528,
  0.020040882751345634,
  0.008209665305912495,
  -0.0073776873759925365,
  0.030220378190279007,
  -0.032300323247909546,
  -0.03553035482764244,
  0.05354023352265358,
  -0.032863132655620575,
  0.02282148802280426
]
```

Populating the tax scenarios table – part 2

```
CREATE EXTERNAL DATA SOURCE [{datasource_name}]
    WITH (TYPE = BLOB_STORAGE, LOCATION = '{blob_endpoint}', CREDENTIAL = [{credential_name}])

GO

INSERT INTO TaxScenarios (ScenarioId, TaxYear, ScenarioType, TaxpayerProfile,
    IncomeSources, Deductions, Credits, SpecialSituations,
    ScenarioSummary, ScenarioEmbedding)
SELECT
    JSON_VALUE(j.value, '$.scenario_id'),
    COALESCE(TRY_CAST(JSON_VALUE(j.value, '$.tax_year') AS INT), 2025),
    JSON_VALUE(j.value, '$.scenario_type'),
    JSON_QUERY(j.value, '$.taxpayer_profile'),
    JSON_QUERY(j.value, '$.income_sources'),
    JSON_QUERY(j.value, '$.deductions'),
    JSON_QUERY(j.value, '$.credits'),
    JSON_QUERY(j.value, '$.special_situations'),
    JSON_VALUE(j.value, '$.summary'),
    CAST(JSON_QUERY(j.value, '$.embedding') AS VECTOR(1536))
FROM OPENROWSET(
    BULK 'tax_scenarios_embedded.json',
    DATA_SOURCE = '{datasource}',
    SINGLE_CLOB
) AS raw
CROSS APPLY OPENJSON(raw.BulkColumn) AS j
```

TaxScenarios – content in Hyperscale

```
7 SELECT TOP 100 ScenarioId,  
8 TaxpayerProfile,  
9 IncomeSources,  
10 Deductions,  
11 Credits,  
12 SpecialSituations,  
13 ScenarioEmbedding  
14 FROM TaxScenarios
```

[-0.03745347,
-0.02661756...]

1 %

No issues found

Ln: 14, Ch: 18

ResultsMessagesExecution plan

ScenarioId	TaxpayerProfile	IncomeSources	Deductions	Credits	SpecialSituations	ScenarioEmbedding
SCN-2025-000...	[{"filing_status":"Single","dependents":2,"state":"W...}]	[{"type":"1099-NEC","description":"Personal Traine...}]	[{"method":"Itemized","standard_available":14600...}]	[{"type":"Child Tax Credit","amount":2000}]	[{"Self-employment tax","Quarterly estimated taxes","...}]	[2.5140697e-002,2.0816093e-002,4.3876443e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Ar...}]	[{"type":"1099-NEC","description":"Social Media ...}]	[{"method":"Standard","standard_available":14600...}]	[]	[{"Home office deduction","Vehicle expenses"}]	[3.8824793e-002,1.6864372e-002,3.9749194e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"1099-NEC","description":"Etsy Seller","a...}]	[{"method":"Standard","standard_available":29200...}]	[{"type":"American Opportunity Credit","amount":...}]	[{"Business expenses","Self-employment tax","401(k) c...}]	[2.5145637e-002,2.5983825e-002,5.3979300e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Accountant","amoun...}]	[{"method":"Standard","standard_available":29200...}]	[{"type":"American Opportunity Credit","amount":...}]	[{"Both spouses working","Combined W-2 income","AL...}]	[1.1835543e-002,2.1662936e-002,5.6127839e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Customer Service Re...}]	[{"method":"Standard","standard_available":29200...}]	[{"type":"Child Tax Credit","amount":4000},{"type":...}]	[{"Multiple exchanges","Form 8949 required","Educato...}]	[3.4518065e-003,8.6113140e-003,3.5424866e-0...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"N...}]	[{"type":"W-2","description":"Customer Service Re...}]	[{"method":"Standard","standard_available":14600...}]	[]	[{"Form 8949 required","Crypto cost basis tracking"}]	[8.8974508e-003,1.2189879e-003,4.9855445e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Pe...}]	[{"type":"W-2","description":"Sales Manager","am...}]	[{"method":"Standard","standard_available":14600...}]	[{"type":"Earned Income Credit","amount":2192}]	[{"First-time filer","Standard deduction only","401(k) c...}]	[1.9446675e-002,3.0776277e-002,3.2902721e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Te...}]	[{"type":"W-2","description":"Marketing Specialist"...}]	[{"method":"Itemized","standard_available":14600...}]	[{"type":"Residential Energy Credit","amount":184...}]	[]	[2.1881782e-002,1.9535422e-002,4.5292653e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"M...}]	[{"type":"W-2","description":"Administrative Assist...}]	[{"method":"Itemized","standard_available":14600...}]	[]	[{"Combined W-2 income","Both spouses working","H...}]	[1.2081143e-002,1.1805991e-002,4.3717358e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Operations Manager...}]	[{"method":"Standard","standard_available":29200...}]	[{"type":"Child Tax Credit","amount":4000},{"type":...}]	[{"Schedule E","Depreciation deduction","HSA contribu...}]	[3.1475648e-002,4.6998579e-002,4.9526744e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Administrative Assist...}]	[{"method":"Itemized","standard_available":29200...}]	[{"type":"Child Tax Credit","amount":4000}]	[{"Form 8949","Dividend income"}]	[1.3029959e-002,2.6557880e-002,4.5761269e-00...
SCN-2025-000...	[{"filing_status":"Head of Household","dependents...}]	[{"type":"W-2","description":"Firefighter","amount":...}]	[{"method":"Standard","standard_available":21900...}]	[{"type":"Child Tax Credit","amount":4000},{"type":...}]	[{"First-time filer","Standard deduction only"}]	[3.2719143e-002,2.6193864e-003,3.2599468e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Financial Analyst","a...}]	[{"method":"Standard","standard_available":29200...}]	[]	[{"Standard deduction only","First-time filer","401(k) c...}]	[1.0199258e-003,4.1172873e-002,4.6628643e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":1,"state":"W...}]	[{"type":"W-2","description":"Project Manager","a...}]	[{"method":"Itemized","standard_available":14600...}]	[{"type":"Child Tax Credit","amount":2000},{"type":...}]	[{"Standard deduction only","First-time filer","IRA cont...}]	[7.3258695e-003,4.1946512e-002,3.4407955e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Illi...}]	[{"type":"W-2","description":"Warehouse Worker"}]	[{"method":"Itemized","standard_available":14600...}]	[{"type":"Earned Income Credit","amount":2218}]	[{"Complex situation","Multiple states"}]	[2.1190548e-002,1.8549860e-002,3.1141909e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"N...}]	[{"type":"1099-NEC","description":"Social Media ...}]	[{"method":"Standard","standard_available":14600...}]	[]	[{"Quarterly estimated taxes","Self-employment tax"}]	[4.7829956e-002,1.7118577e-002,3.6463961e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Sales Manager","am...}]	[{"method":"Standard","standard_available":29200...}]	[]	[{"Depreciation deduction","Schedule E","Alimony (pre...}]	[2.4002064e-002,4.3118529e-002,6.3337386e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"N...}]	[{"type":"1099-NEC","description":"Life Coach","a...}]	[{"method":"Itemized","standard_available":14600...}]	[]	[{"Business use of home","Home office deduction"}]	[2.4752652e-002,4.3304898e-003,5.0974302e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Software Engineer","...}]	[{"method":"Itemized","standard_available":29200...}]	[{"type":"Residential Energy Credit","amount":285...}]	[{"Crypto cost basis tracking","Multiple exchanges"}]	[9.1549649e-004,2.8871311e-002,3.4735795e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Ar...}]	[{"type":"1099-NEC","description":"Personal Traine...}]	[{"method":"Standard","standard_available":14600...}]	[]	[{"Self-employment tax","Quarterly estimated taxes"}]	[3.8710602e-002,2.0190280e-002,5.7335295e-00...
SCN-2025-000...	[{"filing_status":"Head of Household","dependents...}]	[{"type":"1099-NEC","description":"Event Planner"}]	[{"method":"Itemized","standard_available":21900...}]	[{"type":"Child Tax Credit","amount":4000}]	[{"Quarterly estimated taxes","Self-employment tax","...}]	[3.1434566e-002,1.4170307e-002,3.6607657e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Te...}]	[{"type":"W-2","description":"Electrician","amount":...}]	[{"method":"Standard","standard_available":14600...}]	[{"type":"Earned Income Credit","amount":829}]	[{"Dividend income","Form 8949"}]	[3.7481789e-002,1.8530453e-002,2.5533445e-00...
SCN-2025-000...	[{"filing_status":"Married Filing Jointly","dependen...}]	[{"type":"W-2","description":"Plumber","amount":1...}]	[{"method":"Itemized","standard_available":29200...}]	[{"type":"Child Tax Credit","amount":1000}]	[{"Combined W-2 income","Both spouses working"}]	[3.1537747e-003,4.0158704e-002,3.2362137e-00...
SCN-2025-000...	[{"filing_status":"Single","dependents":0,"state":"Illi...}]	[{"type":"W-2","description":"Human Resources M...}]	[{"method":"Itemized","standard_available":14600...}]	[{"type":"American Opportunity Credit","amount":...}]	[{"Depreciation deduction","Rental expenses"}]	[2.3485644e-002,4.6971288e-002,4.7863908e-00...

Part 1: Searching for similar cases (tax scenarios)

-- Similar case search using AI embeddings

-- Uses VECTOR_SEARCH() TVF for DiskANN-accelerated approximate nearest neighbor search

```
CREATE OR ALTER PROCEDURE [dbo].[SearchSimilarCases]
```

```
    @Query NVARCHAR(MAX),
```

```
    @FilingStatus NVARCHAR(50) = NULL, @TopK INT = 10
```

"bitcoin and ethereum sales"

```
AS
```

```
BEGIN
```

```
    DECLARE @QueryVector VECTOR(1536);
```

-- Generate embedding using Azure OpenAI external model

```
    SELECT @QueryVector = AI_GENERATE_EMBEDDINGS(@Query USE MODEL AzureOpenAI_Embeddings);
```

-- Use VECTOR_SEARCH TVF for DiskANN-accelerated search

```
    SELECT
```

```
        t.Id, t.ScenarioId,
```

```
        ...
```

```
        t.SpecialSituations, t.ScenarioSummary, s.distance AS SimilarityScore
```

[-0.03745347, -0.02661756...]

```
FROM VECTOR_SEARCH(
```

```
    table = TaxScenarios AS t, column = ScenarioEmbedding,
```

```
    similar_to = @QueryVector, metric = 'cosine', top_n = @TopK
```

```
) AS s
```

```
WHERE (@FilingStatus IS NULL OR JSON_VALUE(t.TaxpayerProfile, '$.filing_status') = @FilingStatus)
```

```
ORDER BY s.distance;
```

```
END;
```

Output of SearchSimilarCases

```
5 EXEC [SearchSimilarCases] 'bitcoin and ethereum sales'
```

%

No issues found

Ln: 5, Ch: 56 (55 chars, 1 lines) TABS CRLF Window:

Results	Messages	Execution plan						
	Id	ScenarioId	TaxYear	ScenarioType	TaxpayerProfile	IncomeSources	Deductions	Credits
	4345	SCN-2025-04345	2025	cryptocurrency	{"filing_status":"Single","dependents":1,"state":...	[{"type":"W-2","description":"Sales Manager","amo...	{"method":"Itemized","standard_available":14600,...	[{"type":"Cr
	1300	SCN-2025-01300	2025	cryptocurrency	{"filing_status":"Single","dependents":0,"state":...	[{"type":"W-2","description":"Customer Service Re...	{"method":"Itemized","standard_available":14600,...	[]
	402	SCN-2025-00402	2025	cryptocurrency	{"filing_status":"Married Filing Jointly","depen...	[{"type":"W-2","description":"Sales Manager","amo...	{"method":"Standard","standard_available":29200,...	[{"type":"Ar
	4479	SCN-2025-04479	2025	cryptocurrency	{"filing_status":"Married Filing Jointly","depen...	[{"type":"W-2","description":"Sales Manager","amo...	{"method":"Standard","standard_available":29200,...	[]
	3818	SCN-2025-03818	2025	cryptocurrency	{"filing_status":"Single","dependents":0,"state":...	[{"type":"W-2","description":"Customer Service Re...	{"method":"Itemized","standard_available":14600,...	[{"type":"Ar
	96	SCN-2025-00096	2025	cryptocurrency	{"filing_status":"Single","dependents":2,"state":...	[{"type":"W-2","description":"Marketing Specialist"...	{"method":"Itemized","standard_available":14600,...	[{"type":"Cr
	4264	SCN-2025-04264	2025	cryptocurrency	{"filing_status":"Single","dependents":2,"state":...	[{"type":"W-2","description":"Customer Service Re...	{"method":"Itemized","standard_available":14600,...	[{"type":"Cr
	2521	SCN-2025-02521	2025	cryptocurrency	{"filing_status":"Married Filing Jointly","depen...	[{"type":"W-2","description":"Sales Manager","amo...	{"method":"Standard","standard_available":29200,...	[{"type":"Cr
	2651	SCN-2025-02651	2025	cryptocurrency	{"filing_status":"Single","dependents":0,"state":...	[{"type":"W-2","description":"Marketing Specialist"...	{"method":"Standard","standard_available":14600,...	[]
	3954	SCN-2025-03954	2025	cryptocurrency	{"filing_status":"Single","dependents":0,"state":...	[{"type":"W-2","description":"Electrician","amount"...	{"method":"Itemized","standard_available":14600,...	[{"type":"Li

Using RAG to enrich specific case details – step 1

```
CREATE PROCEDURE AskTaxAssistant
```

```
    @Question NVARCHAR(MAX),
```

```
    @Context NVARCHAR(MAX) = NULL, -- Optional: current form step context
```

```
    @TopK INT = 3
```

```
AS
```

```
BEGIN
```

```
    ...
```

```
    -- Step 1: Retrieve relevant knowledge base content via vector search
```

```
    IF EXISTS (SELECT * FROM sys.external_models WHERE name = 'AzureOpenAI_Embeddings')
```

```
    BEGIN
```

```
        BEGIN TRY
```

```
            DECLARE @embedding VECTOR(1536);
```

```
            SELECT @embedding = AI_GENERATE_EMBEDDINGS(@Question USE MODEL AzureOpenAI_Embeddings)
```

```
            IF @embedding IS NOT NULL
```

```
            BEGIN
```

```
                SELECT @KBContent = @KBContent +
```

```
                    '--- ' + t.Section + ' ---' + CHAR(10) +
```

```
                    LEFT(t.Content, 500) + CHAR(10) + CHAR(10)
```

```
                FROM VECTOR_SEARCH(
```

```
                    table = TaxKnowledgeBase AS t,
```

```
                    column = ContentEmbedding,
```

```
                    similar_to = @embedding,
```

```
                    metric = 'cosine', top_n = @TopK ) AS s
```

```
                ORDER BY s.distance;
```

```
            END
```

```
        END TRY
```

```
    END
```

As a tax professional reviewing this historical case, provide a comprehensive analysis including:

1. ****Case Overview**** - Brief summary of the taxpayer's situation
2. ****Key Income Analysis**** - Notable income sources and their tax implications

...

Analyze this tax case:

Tax Year: 2025

Scenario Type: rental_property

Taxpayer Profile: {

"filing_status": "Married Filing Jointly",

"dependents": 2,

"state": "California",

"state_abbr": "CA",

"state_has_income_tax": true,

"occupation": "Software Engineer"

}

Income Sources: [

{

"type": "W-2",

"description": "Software Engineer",

"amount": 145000

},

{

"type": "Rental Income",

"description": "Single-family rental property",

...

}

] ...

Using RAG to enrich specific case details – step 2

...

-- Step 2: Build prompts for LLM

```
SET @SystemPrompt = N'You are a helpful tax assistant for Zava Tax, guiding users through their tax return. You provide accurate, concise tax advice based on the IRS knowledge base. Always be helpful and explain tax concepts in simple terms. If you are not sure about something, recommend consulting a tax professional. Keep responses concise (2-3 paragraphs max).';
```

```
IF @Context IS NOT NULL
```

```
    SET @SystemPrompt = @SystemPrompt + ' Current context: ' + @Context;
```

```
SET @UserPrompt = @Question;
```

```
IF LEN(@KBContent) > 50
```

```
    SET @UserPrompt = @UserPrompt + CHAR(10) + CHAR(10) +
```

```
    'Reference the following IRS knowledge base information in your answer:' + CHAR(10) +  
    @KBContent;
```

Using RAG to enrich specific case details – step 3

```
...
-- Step 3: Call Azure OpenAI Chat API via REST endpoint
SET @SystemPrompt = STRING_ESCAPE(@SystemPrompt, 'json');
SET @UserPrompt = STRING_ESCAPE(@UserPrompt, 'json');

SET @JsonPayload = N'{
    "messages": [
        {"role": "system", "content": '' + @SystemPrompt + ''},
        {"role": "user", "content": '' + @UserPrompt + ''}
    ],
    "max_completion_tokens": 2000
}';

BEGIN TRY
    -- Azure SQL Hyperscale uses Managed Identity credential for Azure OpenAI
    EXEC @RetVal = sp_invoke_external_rest_endpoint
        @url = N'https://<your-openai-resource>.openai.azure.com/openai/deployments/<your-chat-
deployment>/chat/completions?api-version=2024-02-01',
        @method = 'POST',
        @credential = [https://<your-openai-resource>.openai.azure.com/],
        @payload = @JsonPayload,
        @response = @ResponseJson OUTPUT;
```

Using RAG to enrich specific case details – step 4

...

```
IF @RetVal = 0 AND @ResponseJson IS NOT NULL
```

```
BEGIN
```

```
    SELECT @Response = JSON_VALUE(@ResponseJson, '$.result.choices[0].message.content');
```

```
    IF @Response IS NOT NULL AND LEN(@Response) > 0
```

```
    BEGIN
```

```
        SELECT
```

```
            @Response AS Answer, @KBContent AS SourceContent, 1 AS IsLLMAugmented;
```

```
        RETURN;
```

```
    END
```

```
    ELSE
```

```
    BEGIN
```

```
        DECLARE @ErrorMsg NVARCHAR(MAX) = JSON_VALUE(@ResponseJson, '$.result.error.message');
```

```
        IF @ErrorMsg IS NOT NULL
```

```
        BEGIN
```

```
            SELECT
```

```
                'Error from AI service: ' + @ErrorMsg AS Answer, @KBContent AS SourceContent, 0 AS IsLLMAugmented;
```

```
            RETURN;
```

```
        END
```

```
    END
```

```
END
```

...

Summary of AI features used

✓ Reference your favorite embedding model

CREATE EXTERNAL MODEL

✓ Create Embeddings

AI_GENERATE_EMBEDDINGS

✓ Store vectors

VECTOR Data type

✓ Calculate vector distances and do vector search:

VECTOR_DISTANCE

CREATE VECTOR INDEX &
VECTOR_SEARCH

✓ Call any AI models (chat completion, multimodel embeddings)

sp_invoke_external_rest_endpoint

✓ Manipulate AI results

JSON native data type and functions

✓ Modern REST / GraphQL / MCP endpoints

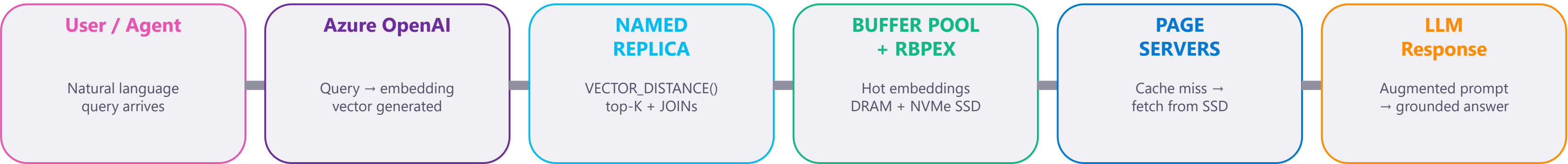
Data API Builder

AI workflow with Hyperscale

① EMBEDDING INGEST PATH (Write)



② AI QUERY PATH (Read — on a read scale replica)



What Hyperscale brings to the AI workflow

Write path (ingest)

Dedicated Log Service → 150 MiB/s commit. Embedding ingest doesn't slow down even with billions of vectors.

Read path (search)

Read scale replica with its own Buffer Pool + RBPEX SSD → hot embeddings served from local cache, sub-millisecond.

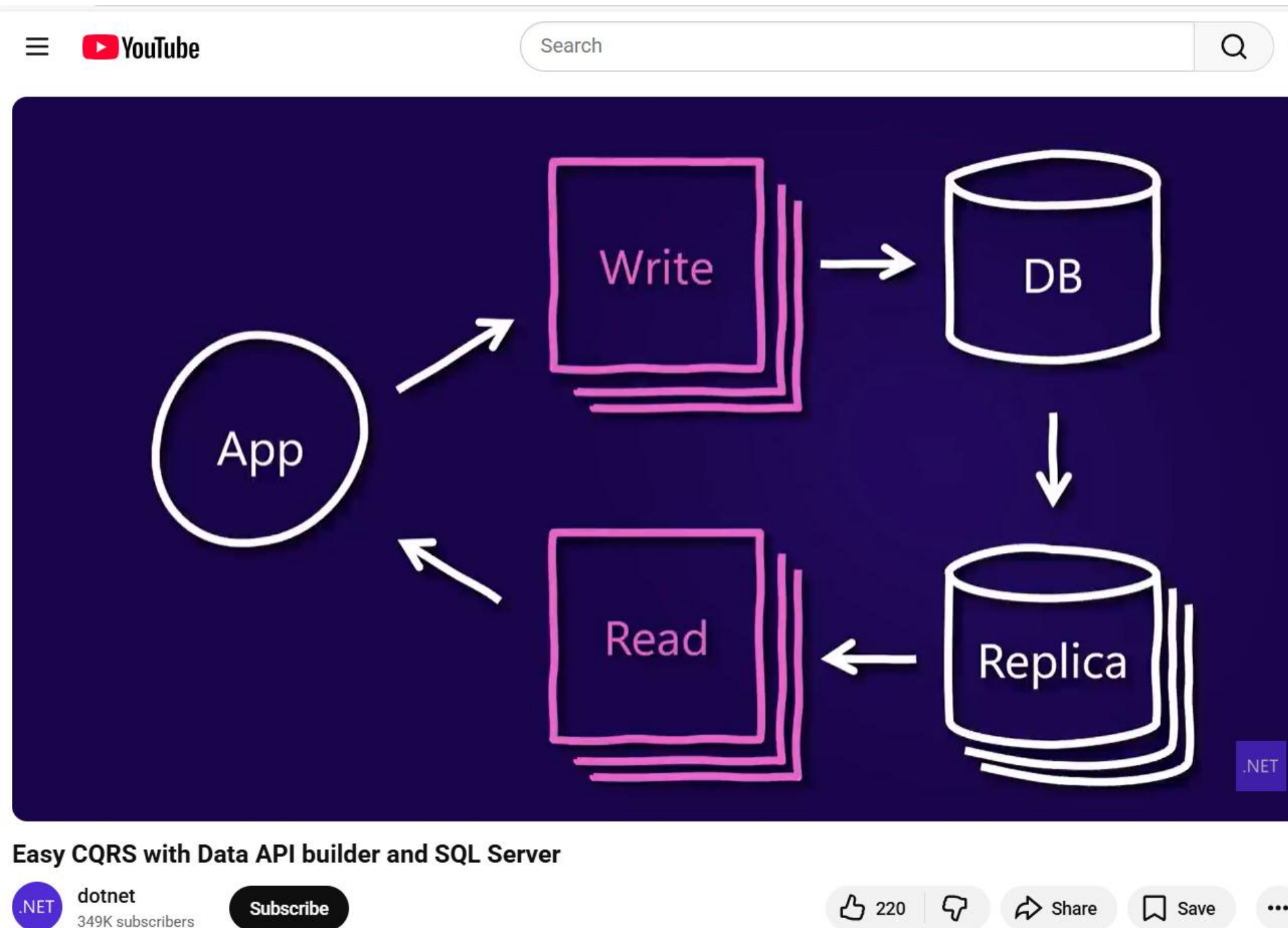
Isolation

AI search on read scale replica — completely isolated from OLTP primary. Zero contention, zero impact on transactions.

Scale

Add replicas as AI traffic grows. Each independently sized. Serverless auto-scale for burst inference workloads.

More details on using Hyperscale for CQRS



<https://aka.ms/HS-CQRS> &
<https://aka.ms/HS-CQRS/DAB>

Walkthrough: HTAP in Hyperscale



Zava Tax - Business Analytics scenario



Tax Filer

Ask tax questions and get guidance
File and manage tax returns



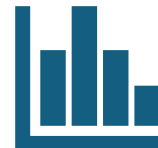
Tax Professional

Manage client roster
Find similar cases
Browse knowledge base



Branch Manager

Monitor team performance
Review branch KPIs
Track operational throughput



Executive

Company-wide dashboards
Analytics and reporting
Trend summaries



DevOps

Monitor and optimize price / perf
Review hyperscale metrics
Manage read-scale behavior

Professional Tax Preparation Made Simple

Get expert help with your tax filing. Our certified professionals ensure accuracy and maximize your refund.

- 

Secure & Confidential

Your data is protected
- 

Fast Processing

Quick turnaround times
- 

500+ Locations

Offices nationwide
- 

Expert Review

CPA verified returns

Z

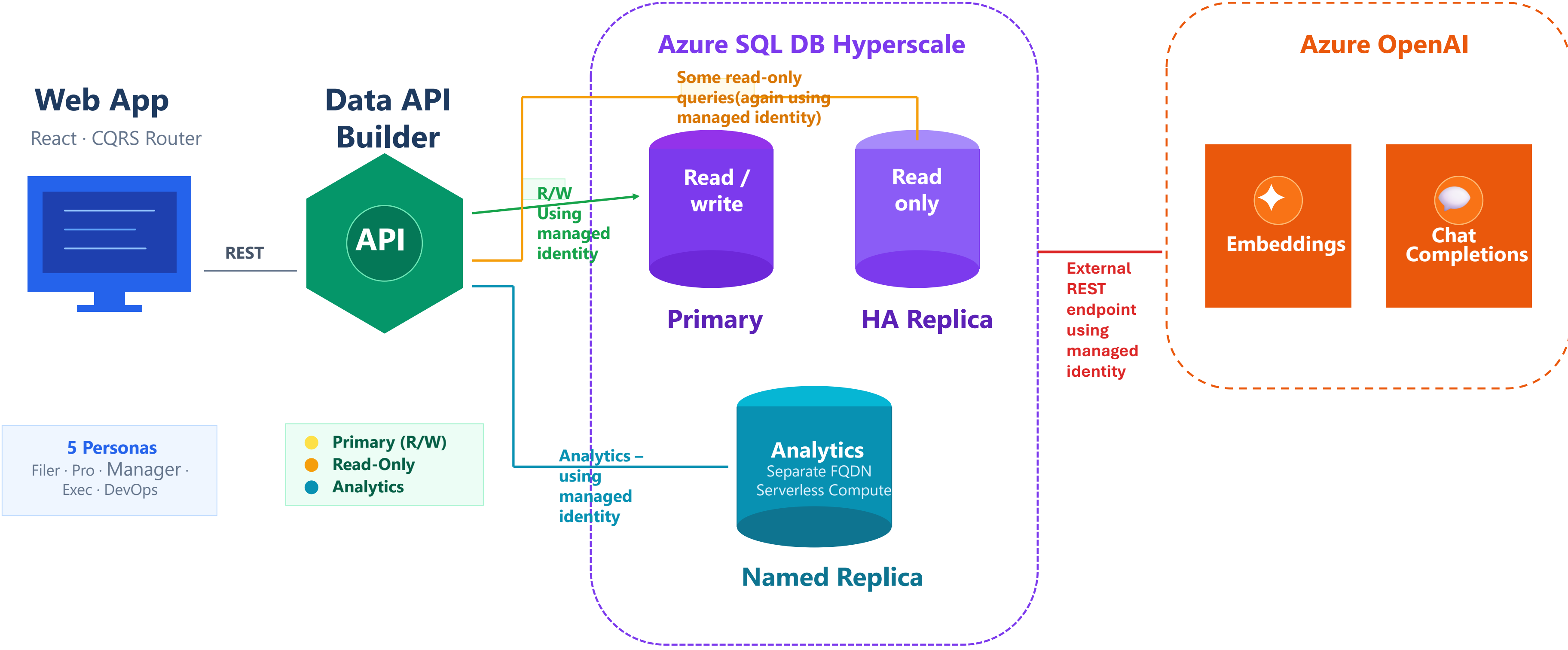
Welcome Back

Sign in to access your account

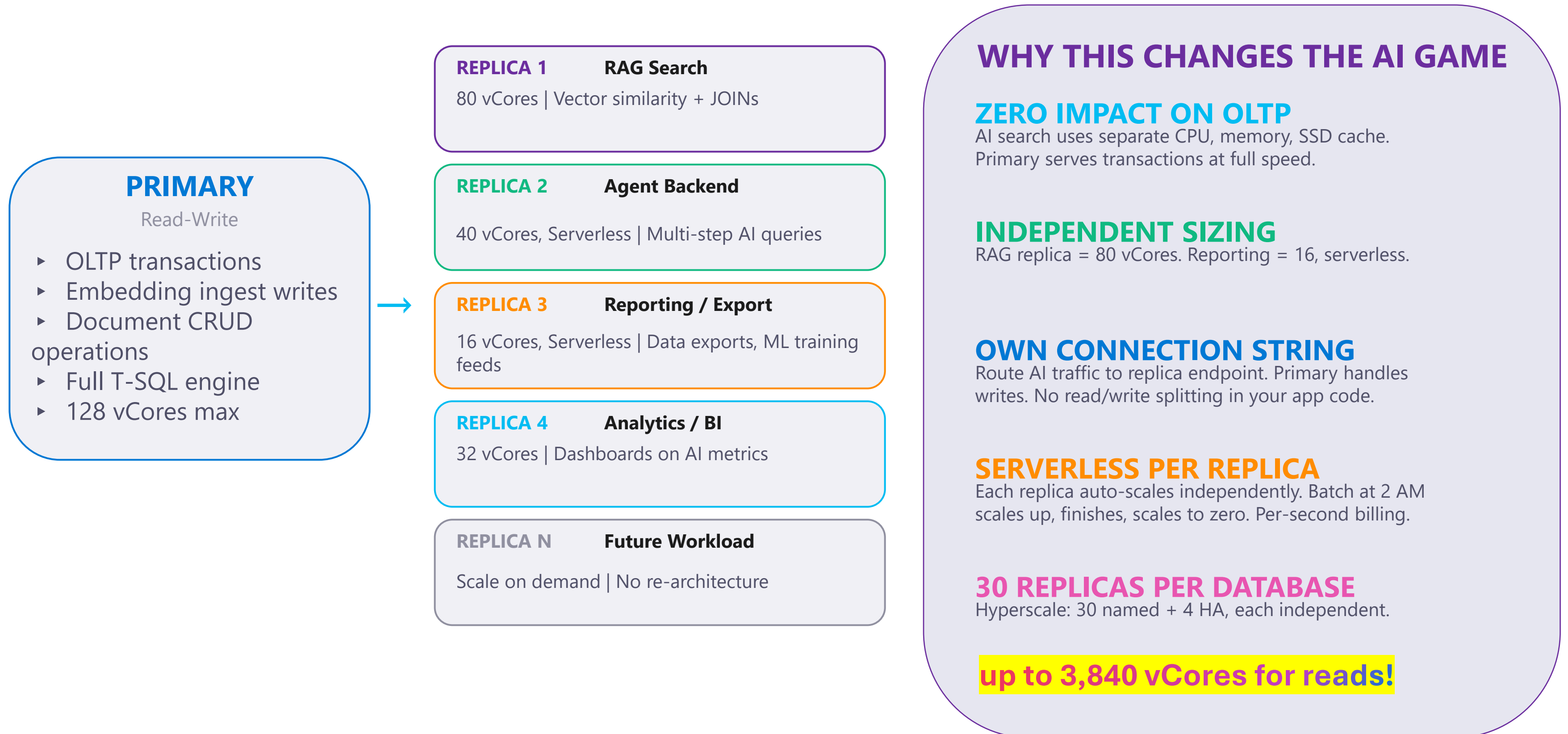
 Sign in with Microsoft Entra ID

By signing in, you agree to our [Terms](#) and [Privacy Policy](#)

Zava Tax - final architecture

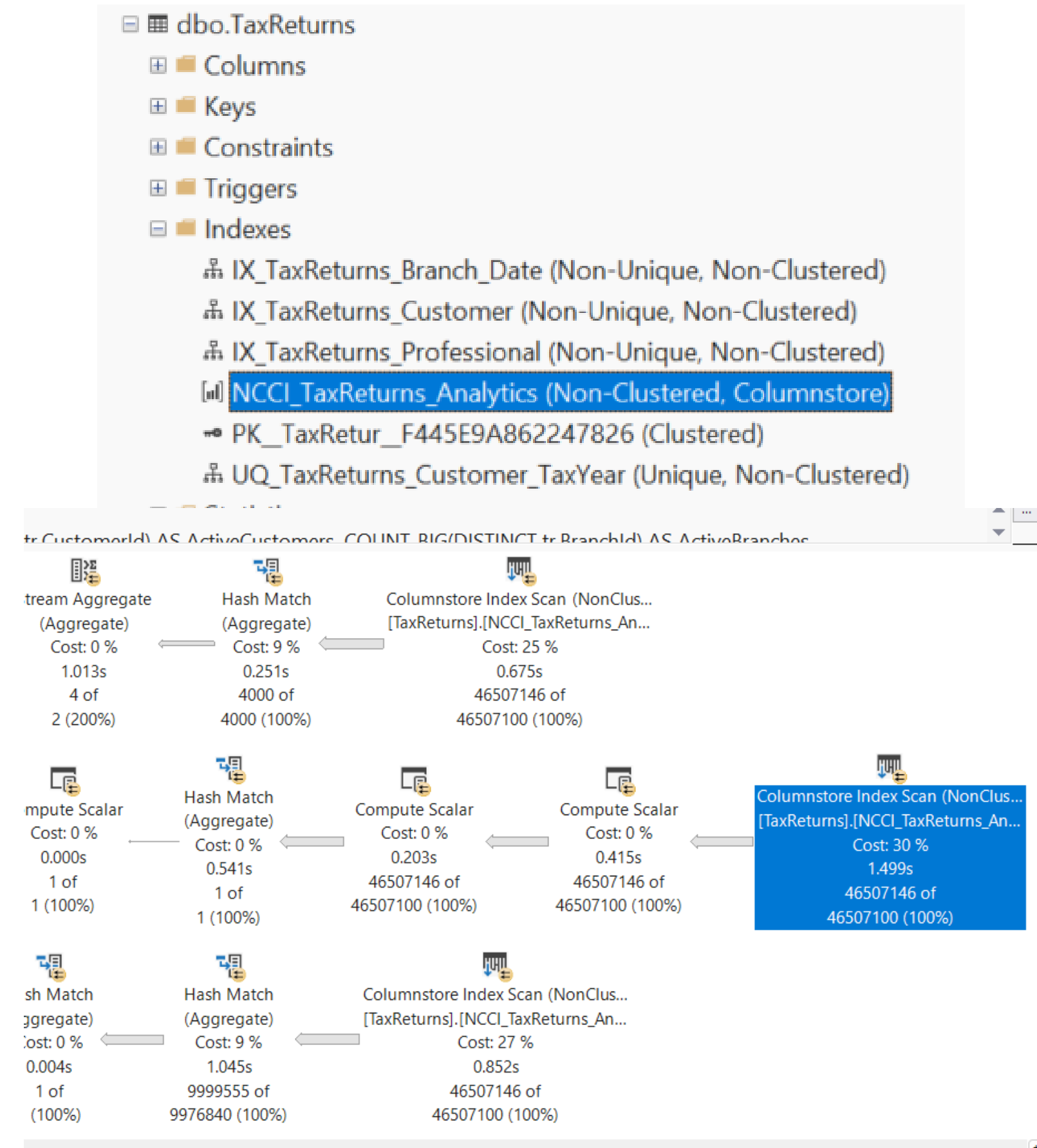


Hyperscale Named Replicas – ideal for “inference” scenarios



Analytical queries – behind the scenes

```
CREATE PROCEDURE [dbo].[GetExecutiveKPIs]
AS
BEGIN
    SELECT
        COUNT_BIG(tr.ReturnId) AS TotalReturns,
        COUNT_BIG(DISTINCT tr.CustomerId) AS ActiveCustomers,
        COUNT_BIG(DISTINCT tr.BranchId) AS ActiveBranches,
        SUM(CAST(tr.GrossIncome AS DECIMAL(19,2))) AS
TotalIncomeProcessed,
        AVG(CAST(tr.GrossIncome AS DECIMAL(19,2))) AS
AvgIncomePerReturn,
        ...
        COUNT_BIG(CASE WHEN tr.Status = 'Draft' THEN 1 END) AS
DraftReturns,
        COUNT_BIG(CASE WHEN tr.FilingDate >= DATEADD(DAY, -30,
SYSUTCDATETIME()) THEN 1 END) AS ReturnsLast30Days,
        SUM(CASE
            WHEN tr.FilingDate >= DATEADD(DAY, -30, SYSUTCDATETIME())
THEN CAST(tr.GrossIncome AS DECIMAL(19,2))
            ELSE CAST(0 AS DECIMAL(19,2))
        END) AS IncomeLast30Days
    FROM TaxReturns tr;
END
```



```
PS C:\workarea\ZavaTax\load-simulator> C:\Users\arvindsh\env314\Scripts\Activate.ps1
(env314) PS C:\workarea\ZavaTax\load-simulator> cd C:\workarea\ZavaTax\load-simulator\ && python .\analytics_load_test.py --s
erver zavatax-dev-sql-28855506.database.windows.net --database zavataxdb-analytics --connections 50 --executive-heavy
```

🚀 Starting analytics load test
Server: zavatax-dev-sql-28855506.database.windows.net
Database: zavataxdb-analytics
Connections: 50
Duration: 300s
Think time: 100ms
Branch ID range: 1-4000

📊 Query Mix:

GetExecutiveKPIs	35.0%	- Executive KPIs (full CCI scan)
GetTopBranches	25.0%	- Top performing branches
GetFilingStatusDistribution	10.0%	- Filing status breakdown
GetBranchAnalytics	15.0%	- Branch performance analytics (NCCI scan)
GetBranchLeaderboard	10.0%	- Branch professional leaderboard
GetReturnsByYear	5.0%	- Multi-year trend analysis

=====

Elapsed: 15.6s | Queries: 45 | QPS: 2.88 | Errors: 0 (0.0%)

=====

Query	Count	Avg (ms)	Errors
GetBranchAnalytics	4	285.95	0
GetBranchLeaderboard	3	645.85	0
GetExecutiveKPIs	12	1669.29	0
GetFilingStatusDistribution	9	375.23	0
GetReturnsByYear	1	1204.60	0
GetTopBranches	16	969.97	0

=====

zavataxdb-analytics (zavatax-dev-sql-28855506/zavataxdb-analytics) | Metrics

☆

...

Can I get alerted based on live metrics? +2

×

SQL database

- Search

⏏

⏪
- ✕ Diagnose and solve problems

🔧 Query editor (preview)

🔄 Mirror database in Fabric (preview)

📊 Resource visualizer

⌵ Settings

🟢 Compute + storage

🔗 Connection strings

🔧 Maintenance

📊 Properties

🔒 Locks

➤ Data management

➤ Integrations

➤ Power Platform

➤ Security

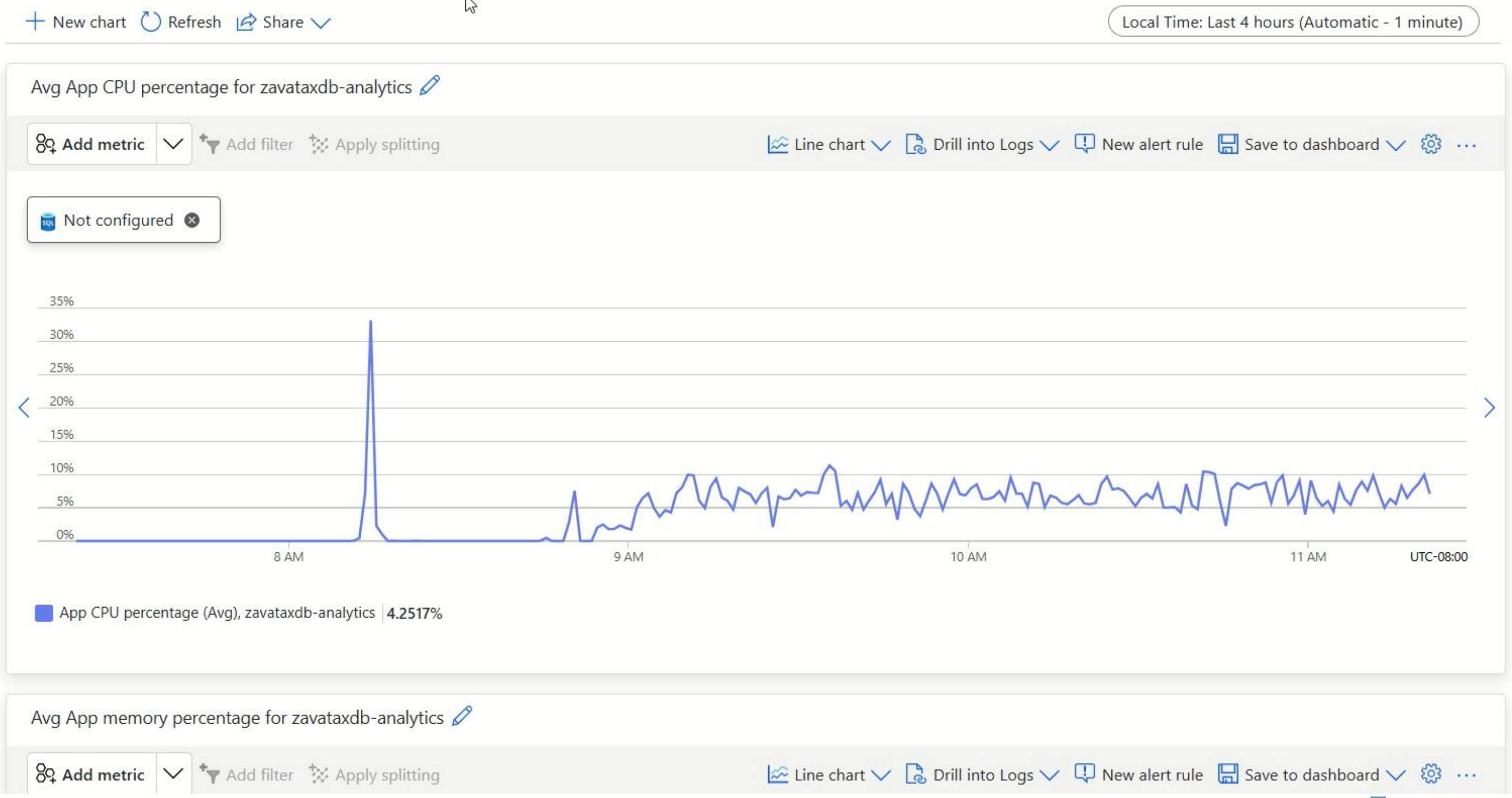
➤ Intelligent performance

⌵ Monitoring

🟢 Alerts

📊 Metrics

Add or remove favorites by pressing Ctrl+Shift+F



Give Feedback

Zava Tax – Optimization using Hyperscale elastic pools



Tax Filer

Ask tax questions and get guidance
File and manage tax returns



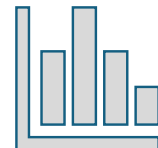
Tax Professional

Manage client roster
Find similar cases
Browse knowledge base



Branch Manager

Monitor team performance
Review branch KPIs
Track operational throughput



Executive

Company-wide dashboards
Analytics and reporting
Trend summaries

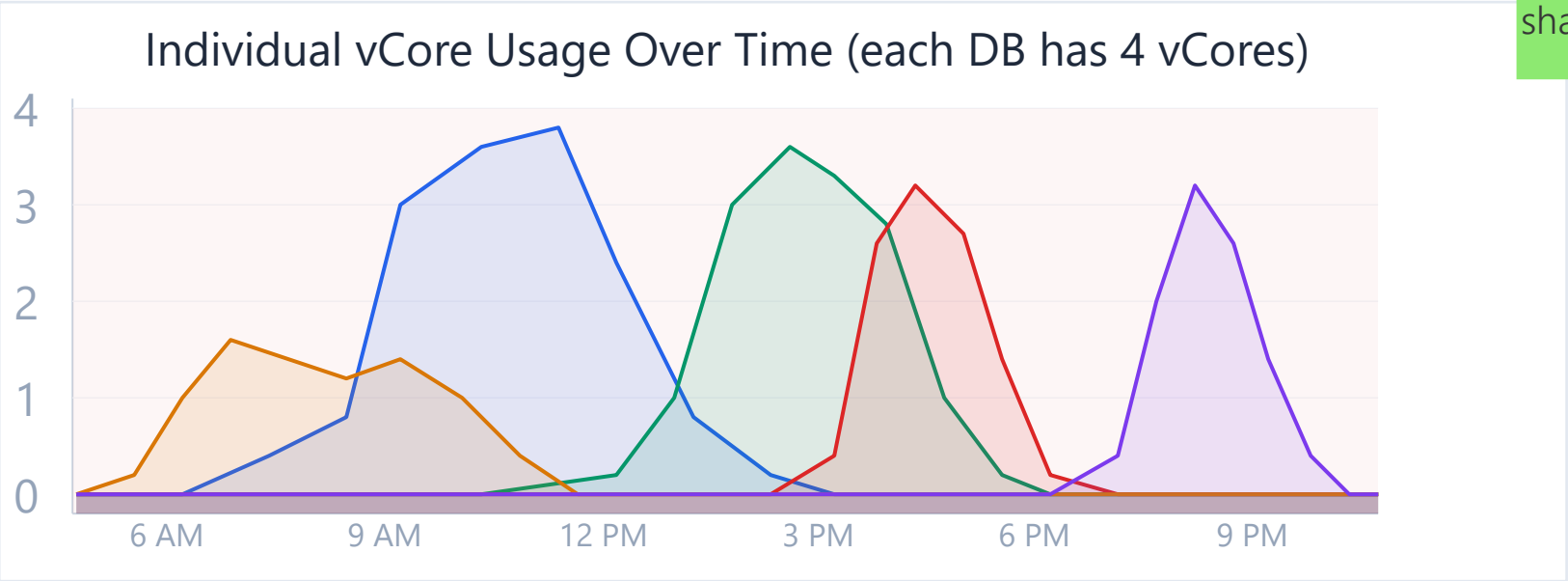


DevOps

Monitor and optimize price / perf
Review hyperscale metrics
Manage read-scale behavior

Price-perf optimization with Hyperscale elastic pools

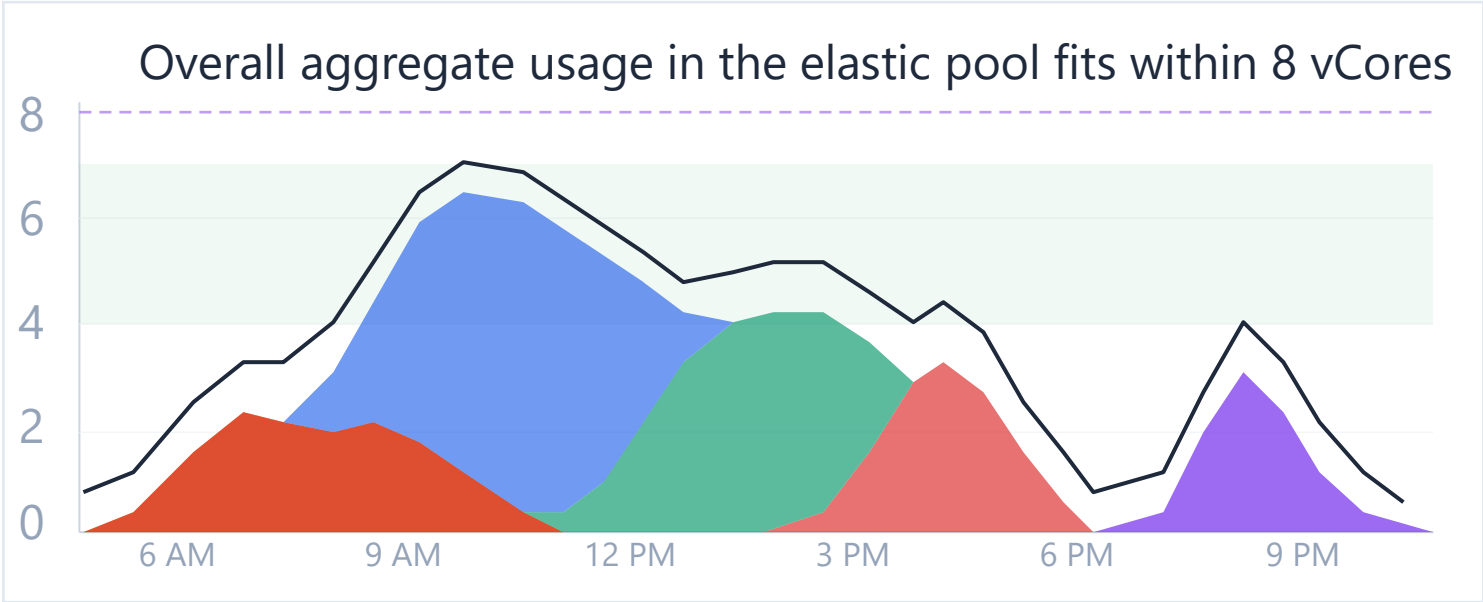
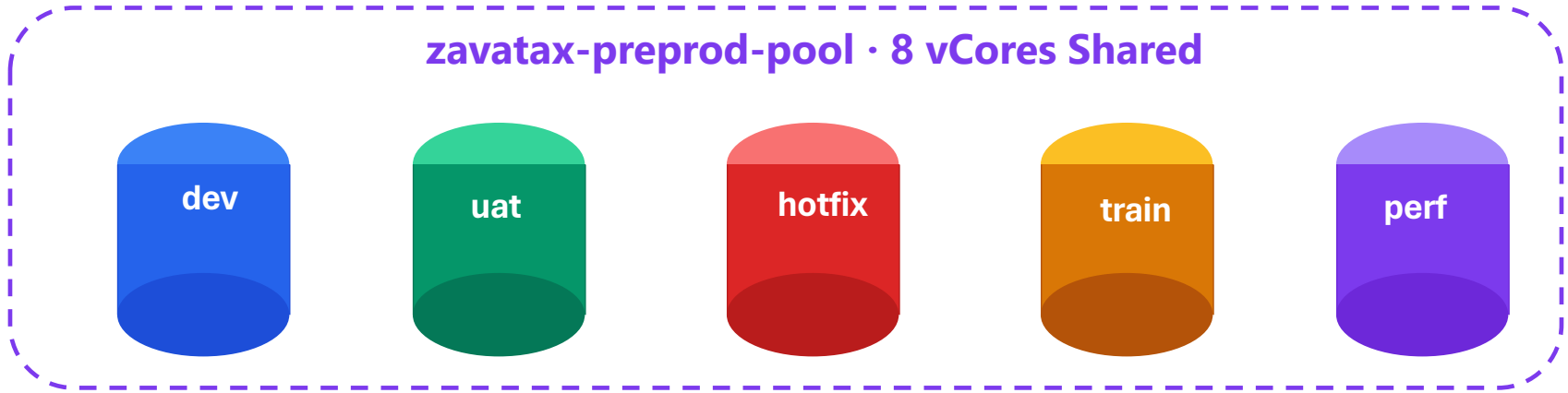
5 standalone databases · 4 vCores each · 20 vCores total



Cost = $\sum$ (Max for each DB)
= 5 databases * 4 vCores
~ \$2,792 / month

share resources

zavatax-preprod-pool · 8 vCores Shared



Cost = Max ($\sum$ (DB resource used at any given time))
= 1 elastic pool with 8 vCores
= \$1,726 / month
38% savings

Real-world customer success with Hyperscale



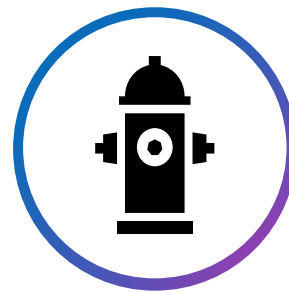
“A global leader in digital reality solutions, combining sensors, software, and autonomous technologies to drive efficiency, productivity, and sustainability across industries”



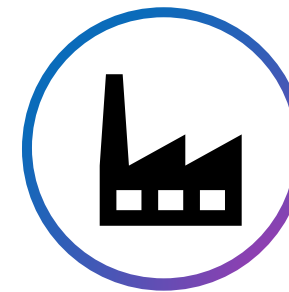
Our Customer Industries



Energy



Utilities



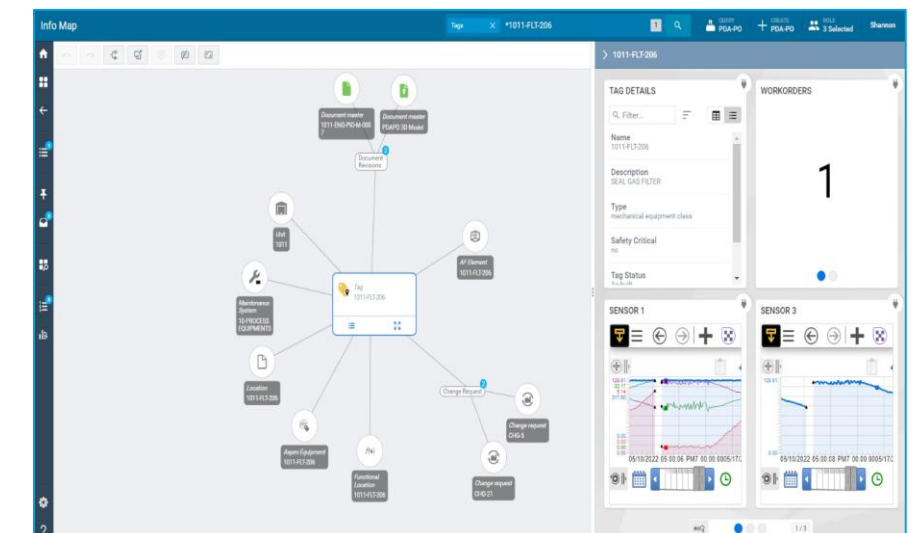
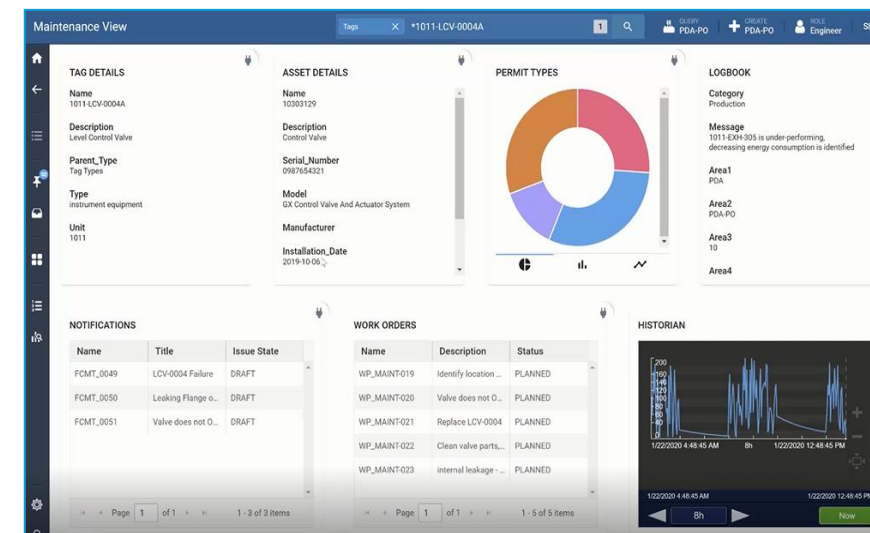
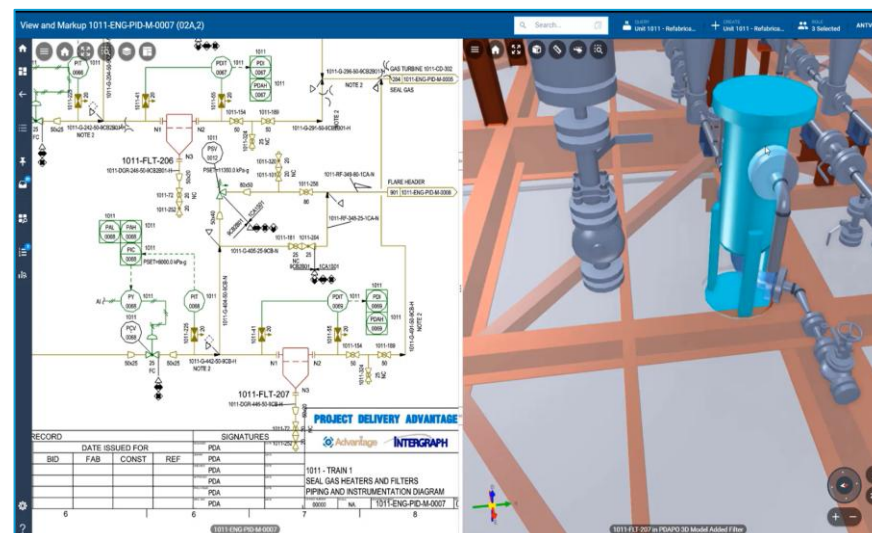
Manufacturing



Pharmaceutical

Introducing HxGN SDx2

HxGN SDx2
Unleashing the Future



FABCON **SQLCON**

ATLANTA26

JOIN THE
CONVERSATION

#FABCONSQLCON26

Why Hexagon chose Azure SQL Database Hyperscale

Challenges

Large customer datasets

Resource utilisation

Performance issues

Cost efficiency



Automatic
Storage Expansion

Elastic
by-design

Hyperscale tier utilises
high-performance
data processing
infrastructure,

Elastic
pools

Azure SQL Database Hyperscale

BlackRock – scenario

Problem Statement

Segment a critical intraday business process to provide high performance and availability and avoid contagion risk from other workloads

Business Challenge

Critical and performance sensitive business function with tight SLAs and high availability requirements in support of real time trading activities

Best in class price / performance

Technical Challenge

- Transactional relational system required
- High availability - RTO and RPO of <1 minute
- Support for existing CI/CD pipelines
- Future forward platform

How Azure SQL Database Hyperscale helped solve it

Capability

Enables

High Performance Vertical and Horizontally Scalable Platform



Scale up and down as required

Familiar SQL Server API and Feature Set



Seamless integration with existing monitoring and deployment pipelines

No license requirements



Improved price/performance and simplified management

Vector and JSON support



AI-ready platform

Leverages existing developer and operational expertise



Better DX and faster time to market

End-to-end Encryption and Integrated Auditing



Secure by default

No Single Points of Failure



No impact from VM or Zone outages

Advanced Metrics Support



Robust monitoring and performance tuning integrated with existing stack

Scale to Zero



Adapt to workload requirements

Built-in HA and DR replication



Supports our RTO/RPO SLOs

Azure SQL Database Hyperscale: The best SQL platform for your AI applications



Familiarity



AI



Security



Scalability

Learn more



AI and
Azure SQL

Intelligent applications with Azure SQL Database: <https://aka.ms/sqlai>
and aka.ms/sqlaisamples

Generative AI with Azure SQL hands-on lab:

<https://github.com/AzureSQLDB/GenAILab>

Zava Tax source code: <http://aka.ms/ZavaTax>



Azure SQL
DB
Hyperscale

Hyperscale overview: aka.ms/HS

Hyperscale serverless: aka.ms/SQLDBserverless

Hyperscale elastic pools: aka.ms/hyperscalepools



Azure SQL
blogs &
videos

aka.ms/AzureSQLBlog

aka.ms/AzureSQLDevBlog

aka.ms/AzureSQLyt

Sound off.
The mic is all yours.
Influence the product roadmap.

Join the Fabric User Panel



Share your feedback directly with our
Fabric product group and researchers.

<https://aka.ms/JoinFabricUserPanel>

Join the SQL User Panel



Influence our SQL roadmap and ensure
it meets your real-life needs

<https://aka.ms/JoinSQLUserPanel>

How was the session?



Complete Session Surveys in
Whova for your chance to WIN
PRIZES!

