



AZURE DAY ROME 2025



Le Novità di Azure SQL Server



Alberto Acerbis

INTR3 25



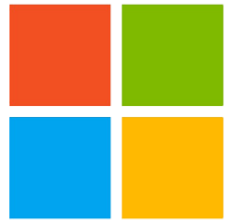
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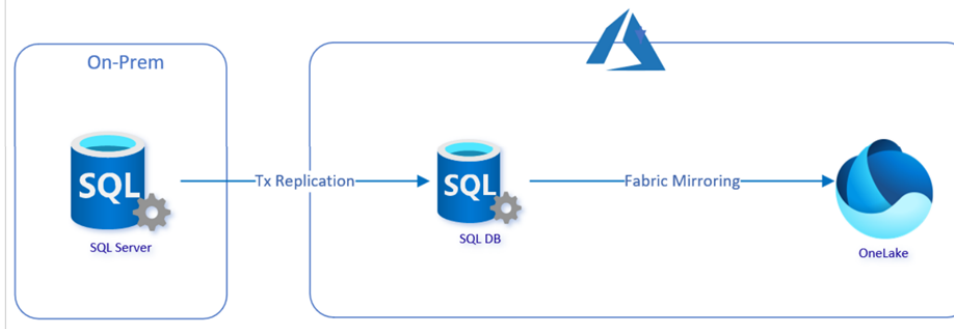
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Le Novità di Azure SQL Server



AI powered by your SQL data





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AI

New feature or update	Details
Copilot in SQL Server Management Studio	Ask questions. Get answers from your data.
Vector data type	Store vector data optimized for operations such as similarity search and machine learning applications. Vectors are stored in an optimized binary format but are exposed as JSON arrays for convenience. Each element of the vector is stored as a single-precision (4-byte) floating-point value.
Vector functions	New scalar functions perform operations on vectors in binary format, allowing applications to store and manipulate vectors in the SQL Database Engine.
Vector index	Create and manage approximate vector index to quickly and efficiently find similar vectors to a given reference vector.
Manage external AI models	Manage external AI model objects for embedding tasks (creating vector arrays) accessing REST AI inference endpoints.



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AI



Davide Mauri ✓ • 1°

Principal Product Manager - Azure SQL, DEV+AI

17 ore • Modificato • 🌐

...

🚀 Big news today! I'm super happy to announce the General Availability (GA) of native vector type and functions in Azure SQL! 🎉
With this release, Azure SQL (both DB and MI 🤖) supports:

- 🧠 Vector search scenarios natively, with efficient similarity comparisons
- 🚀 A dedicated VECTOR data type, designed for high-performance ML and AI workloads
- ⚡ Built-in VECTOR_DISTANCE functions for cosine, dot product, and Euclidean metrics
- 🔒 Full integration with SQL security, optimizer, and T-SQL programmability

This means you can now build intelligent applications—like hybrid search, semantic ranking, and RAG (Retrieval Augmented Generation)—directly in your database, with no need for additional infrastructure (well, you still need an AI model, of course 😊 🤖)

It's a major step forward in making AI-native databases a reality. Read the full announcement here 👉 <https://lnkd.in/gHAjSn8H> and start to bring AI to your data right away!

If you want to get inspired and see what you can do when you apply AI to your data, take a look at this website here: <https://lnkd.in/g3hm3CB6> . Have fun!

[#AzureSQL](#) [#VectorSearch](#) [#AI](#) [#MachineLearning](#) [#SQL](#) [#Microsoft](#) [#GA](#)
[#DataPlatform](#)



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Fabric

New feature or update	Details
Mirroring in Fabric	Continuously replicate data to Microsoft Fabric from SQL Server 2025 on-premises, as well as SQL Server 2025 on VMs. Microsoft Fabric already includes mirroring from a variety of sources, including Azure SQL Database and Azure SQL Managed Instance. For more information on SQL Server 2025 database mirroring to Fabric, see Mirrored SQL Server databases in Microsoft Fabric .



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Developer



JSON data in SQL Server



External REST endpoint invocation

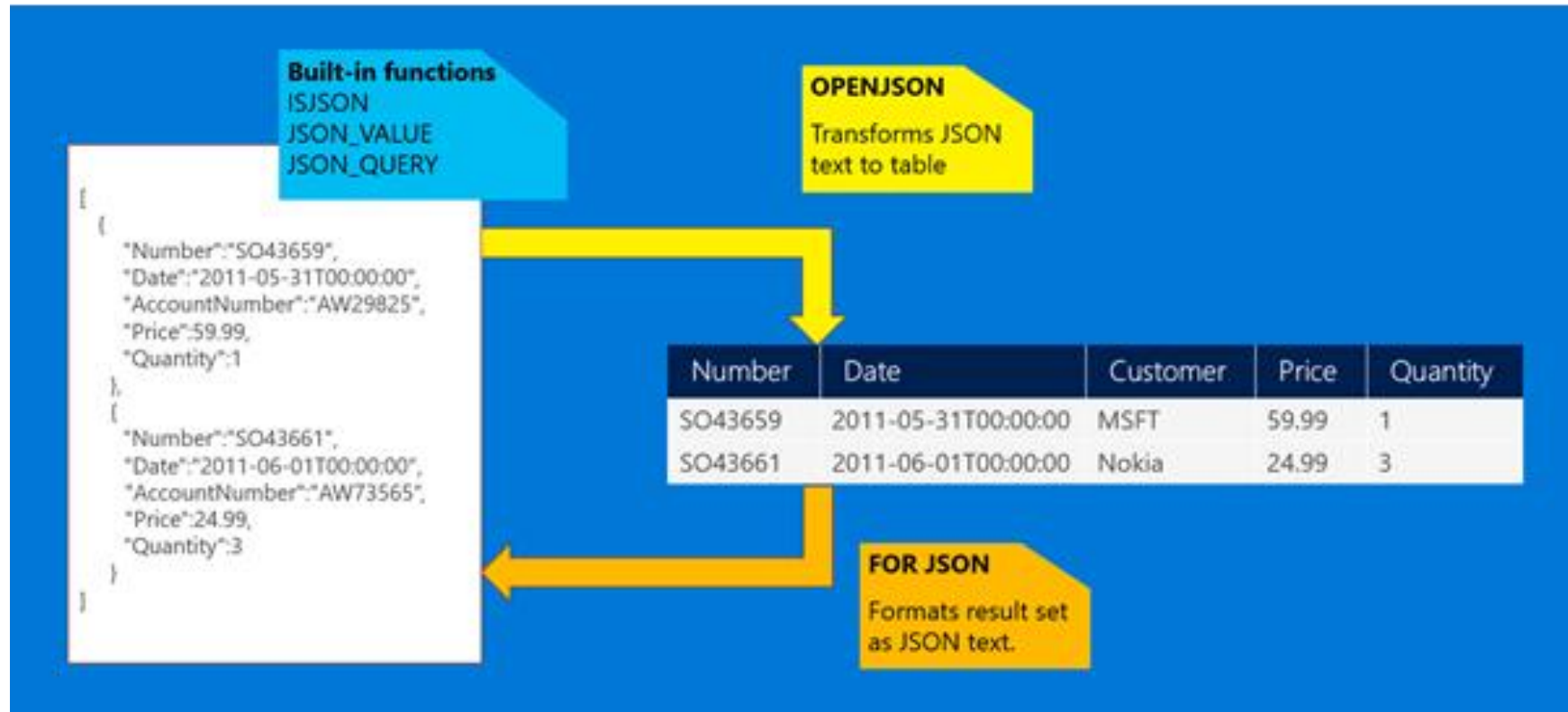


Change Event Streaming



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Working with JSON





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Funzione	Descrizione
ISJSON	Verifica se una stringa include contenuto JSON valido.
JSON_ARRAY	Costruisce il testo della matrice JSON da zero o più espressioni.
JSON_ARRAYAGG	Costruisce una matrice JSON da un'aggregazione di dati o colonne SQL.
JSON_MODIFY	Aggiorna il valore di una proprietà in una stringa JSON e restituisce la stringa JSON aggiornata.
JSON_OBJECT	Costruisce il testo dell'oggetto JSON da zero o più espressioni.
JSON_OBJECTAGG	Costruisce un oggetto JSON da un'aggregazione di dati o colonne SQL.
JSON_PATH_EXISTS	Verifica se esiste un percorso SQL/JSON specificato nella stringa JSON di input.
JSON_QUERY	Estrae un oggetto o una matrice da una stringa JSON.
JSON_VALUE	Estrae un valore scalare da una stringa JSON.
OPENJSON	Analizza il testo JSON e restituisce gli oggetti e le proprietà dell'input JSON come righe e colonne.



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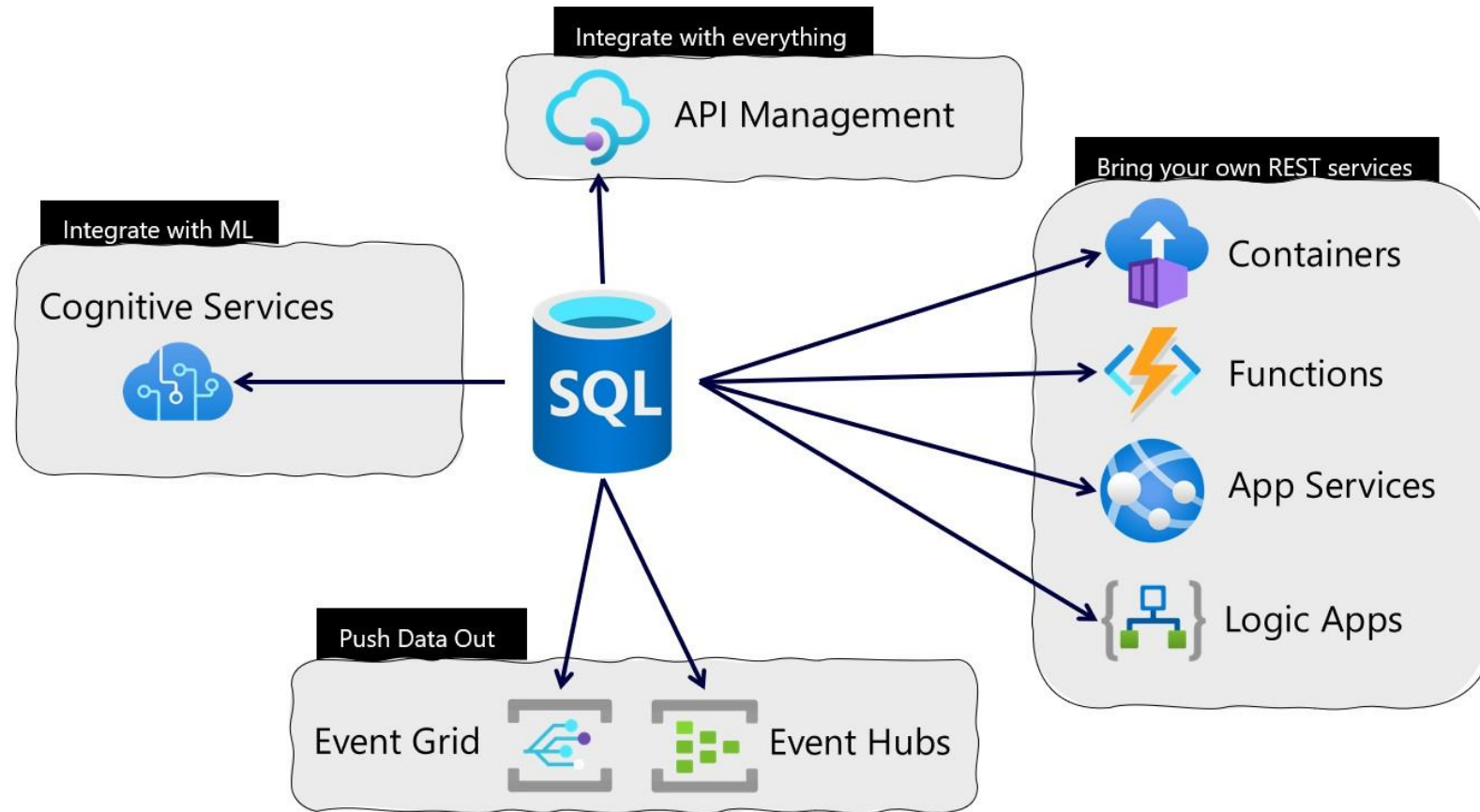


Demo: JSON Support



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External endpoint





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External endpoint



Disable by default!



```
EXECUTE sp_configure 'external rest endpoint enabled', 1;
```



`sp_invoke_external_rest_endpoint` is enabled by default in Azure SQL Database and SQL database in Fabric



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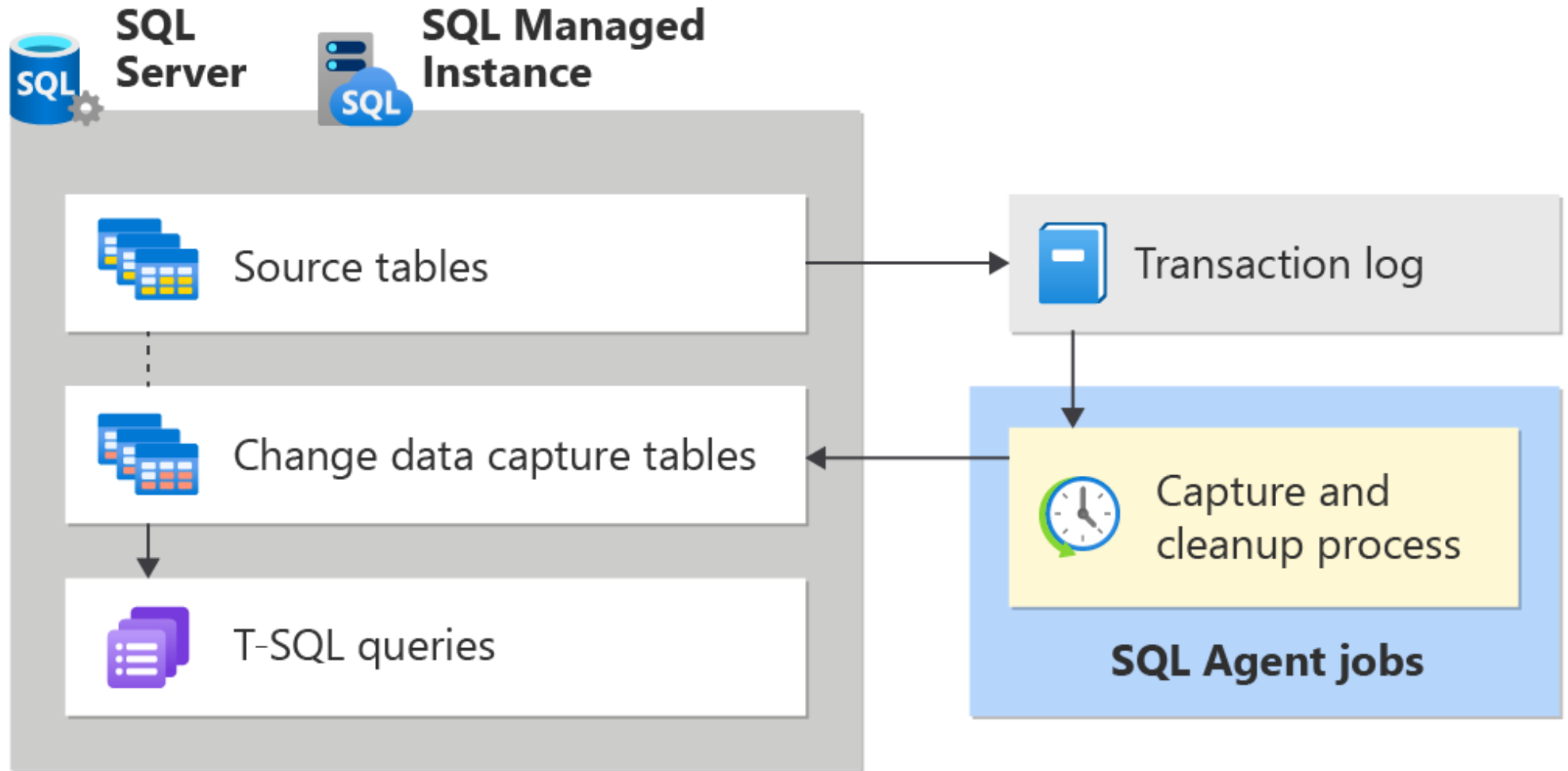


Demo: External endpoint



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Change-Data-Capture





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CDC – Change Data Capture



Abilita l'acquisizione dei dati delle modifiche per la tabella di origine specificata nel database corrente



Quando una tabella viene abilitata per Change Data Capture, un record di ogni operazione DML (Data Manipulation Language) applicata alla tabella viene scritto nel log delle transazioni.



Il processo Change Data Capture recupera queste informazioni dal log e le scrive nelle tabelle delle modifiche accessibili mediante un set di funzioni.



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Demo: Change Data Capture



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It's a preview!!!

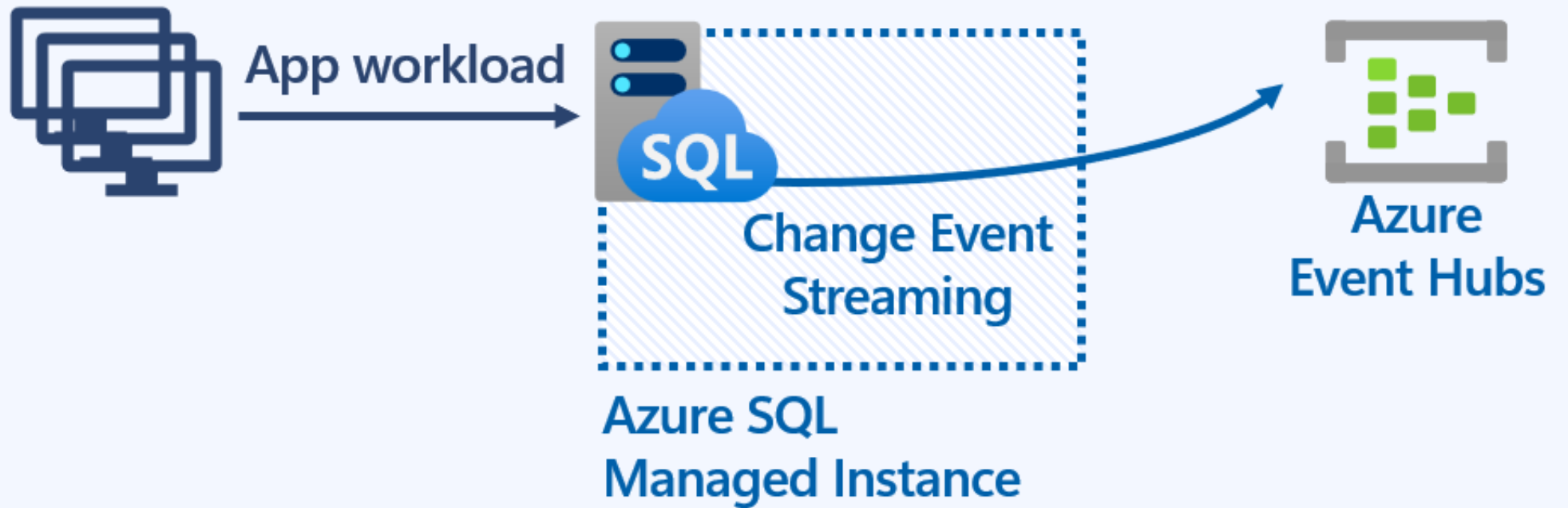


- Le modifiche sono all'ordine del giorno!
- Alcune funzionalità vanno espressamente richieste
- Persino il nome potrebbe cambiare.



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Change Event Streaming





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CES – Change Event Streaming



Abilita lo streaming real-time dei cambiamenti del database
Direttamente dal log delle transazioni.



Simile a CDC, ma pensato per lo streaming di eventi ad alta velocità,
ordinato, perfetto per architetture event-driven.

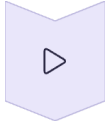


Supporta nativamente consumers multipli.
Adatto per scenari con elevato volume di dati.
Rimuove il ricorso manuale a processi ETL.

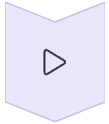


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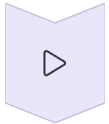
Change Event Streaming Limitations



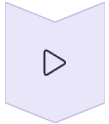
Non è supportato su SQL Server 2025 per Linux e SQL Server Express Edition



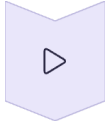
Emette eventi per INSERT, UPDATE, DELETE



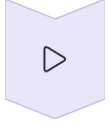
Non emette eventi per operazioni DDL (modifica schema)



Attenzione ai messaggi troppo grandi!!!



Dev'essere abilitato il Full-Recovery-Model



Non tutti i tipi sono supportati. (JSON, Image, Text, SQL_Variant, Geometry, ...)




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Change Event Streaming

JSON message example - insert

JSON

 Copy

```
{
  "specversion": "1.0",
  "type": "com.microsoft.SQL.CES.DML.V1",
  "source": "\/",
  "id": "d43f09a6-d13b-4902-86d4-17bdb5edb872",
  "logicalid": "9c8d4ad2-bf54-4f10-a96f-038af496997f:0000002C00000300017C:00000000000000000001",
  "time": "2025-03-14T16:45:20.650Z",
  "datacontenttype": "application/json",
  "operation": "INS",
  "splitindex": 0,
  "splittotalcnt": 0,
  "data": "{\n  \"eventsource\": {\n    \"db\": \"db1\",\n    \"schema\": \"dbo\",\n    \"tbl\": \"Purchases\"
  }
}
```



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Change Event Streaming

Data attribute format

Data is a JSON object wrapped in string attribute that contains two attributes:

- `eventSource`
- `eventRow`

JSON

 Copy

```
"data": "{ \"eventsource\": {<eventSource>}, \"eventdata\": {<eventData>}}"
```

[Message Format](#)



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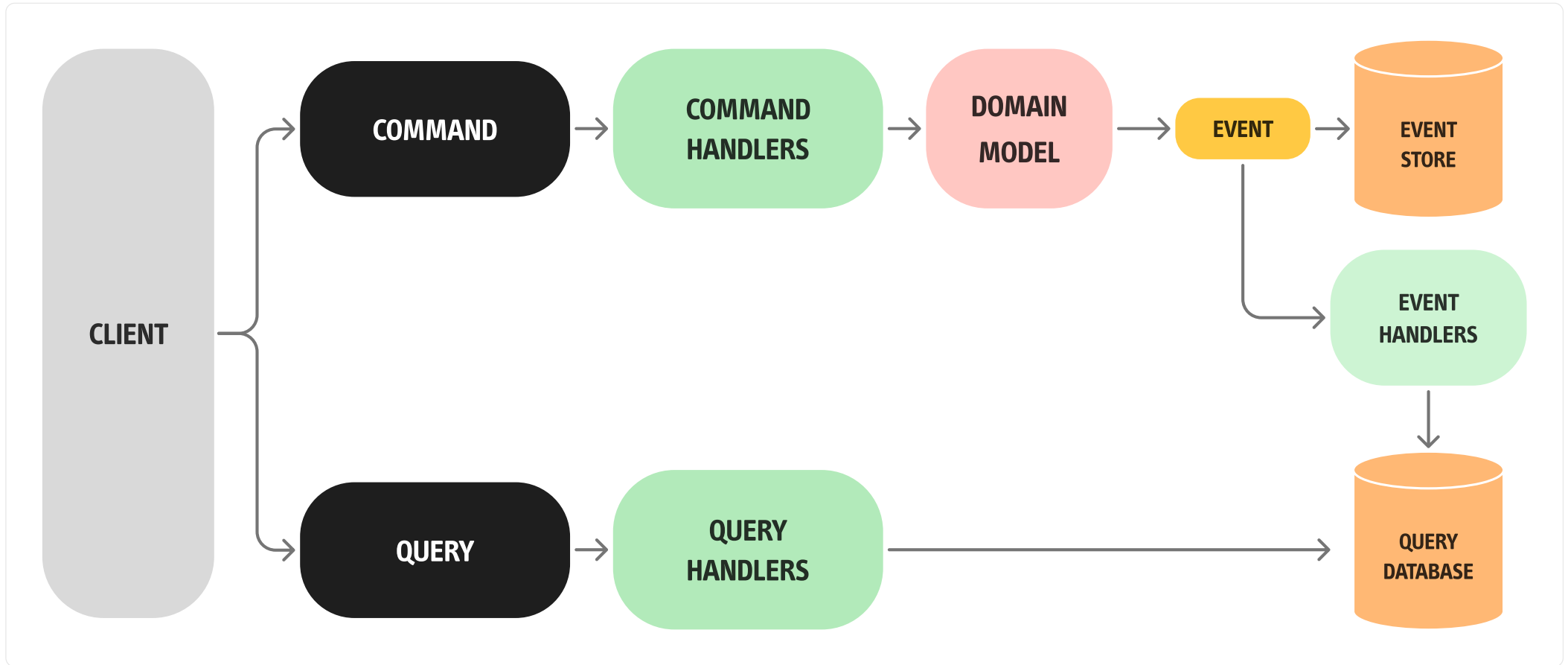


Demo: Change Event Streaming



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One DB Fits All!





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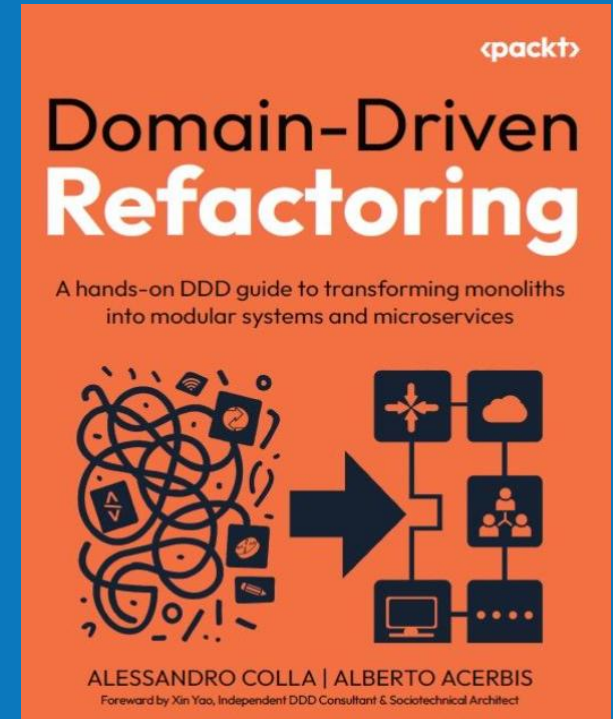
<https://github.com/Ace68/AzureDayRome-2025>



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THANK YOU!!!