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ATLANTA MARCH 16 - 20, 2026

Fabric SQL Database: Simplifying OLTP and Real-Time Analytics

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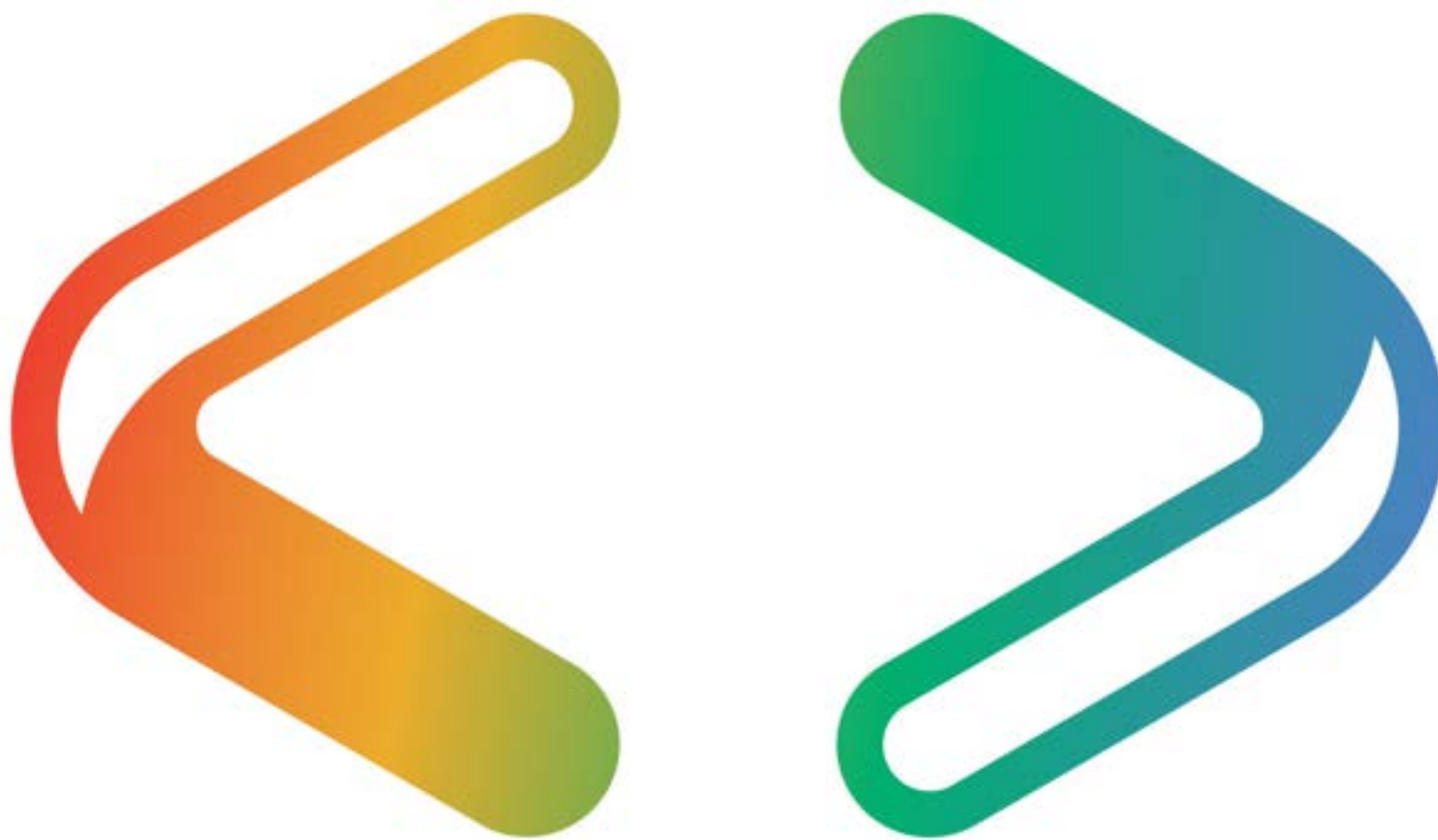
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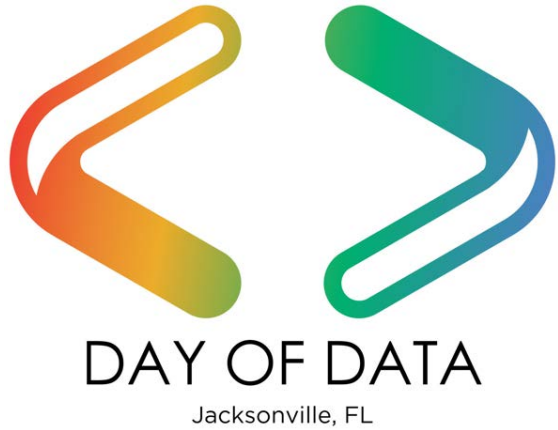
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Fabric SQL Database: Simplifying OLTP and Real-Time Analytics

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Introduction to Microsoft Fabric SQL Database

- **Overview:** Developer-friendly transactional database based on Azure SQL Database.
- **Integration:** Easily integrates with development frameworks and analytics.
- **Replication:** Automatic data replication (mirroring) into OneLake for analytics.
- **Performance:** Intelligent performance features like automatic index creation.



Key Features of Microsoft Fabric SQL Database

- **OLTP Workloads:** Home for OLTP workloads, easy to configure and manage. Most of the same features you know and use in SQL Server.
- **Analytics Setup:** Automatically replicates (mirrors) data into OneLake in near real-time.
- **Development Tools:** Supports SQL Server Management Studio (SSMS), Visual Studio Code, and a web-based editor in the Fabric portal.
- **Intelligent Performance:** Features like automatic tuning and index creation.
- **Ready for AI:** RAG, Vectors, Embeddings, Vector Search



Analytical Endpoint

- **Paired Endpoint:** Each Fabric SQL database has a paired SQL analytics endpoint. (Available after web UI refresh)
- **Reporting Queries:** Run reporting queries against the OneLake copy of the data. No overhead on OLTP database.
- **Access Methods:** Accessible via the Fabric portal, SSMS, Visual Studio Code, PowerBI Desktop, and TDS (Tabular Data Stream).

Connecting to the Database

- **Web-Based Editor:** Use the web-based editor in the Fabric portal.
- **SSMS:** Connect using SQL Server Management Studio, browse (SSMS 22) or direct.
- **Connection Strings:** Provided for various tools, including ADO.NET, JDBC, ODBC, PHP, and Go.
- **Visual Studio:** Connection string
- **Visual Studio Code:** MSSQL extension, connection string



Semantic Model

- **Custom Models:** Ability to create multiple models from one database.
- **Integration:** Integrated with PowerBI for visualizations and analysis.





Cross-Database Queries

- **Querying Across Databases:** Write cross-database queries joining data from other SQL databases, mirrored databases, warehouses, and the SQL analytics endpoint.





Azure SQL vs. Fabric SQL Database

- **Common Code Base:** Both share a common code base with the latest stable version of the Microsoft SQL Database Engine.

Differences

- **Always Encrypted:** Supported in Azure SQL but not in Fabric SQL.
- **Change Data Capture (CDC):** Supported in Azure SQL but not in Fabric SQL.
- **Elastic Pools:** Available in Azure SQL but not in Fabric SQL.
- **Provisioning Control:** Detailed control in Azure SQL, autonomous management in Fabric SQL.
- **Integration:** Fabric SQL is fully integrated with other workloads in the Microsoft Fabric platform by default
- **No EXECUTE AS:** Supported in Azure SQL, not Fabric SQL



Azure SQL vs. Fabric SQL Database

- **Common Code Base:** Both share a common code base with the latest stable version of the Microsoft SQL Database Engine.

Differences

- **Full Text Search:** Azure SQL third-party work breakers aren't supported, Fabric SQL is not supported at all.
- **SQL Users:** Azure SQL Supports, Fabric SQL does not. (MFA, Service Principal only)
- **Server-level roles:** Azure Supports, Fabric SQL does not.
- **TDE:** Azure SQL supports, but Fabric SQL does not, but it uses storage encryption with service-managed keys. Customer-managed keys are not supported.
- **Active geo-replication:** Azure SQL, not Fabric SQL



Azure SQL vs. Fabric SQL Database

Azure SQL Database

- **Compute Tiers:** Provisioned or serverless.
- **Hardware Configurations:** Gen5 (balanced), Fsv2 (compute optimized), DC (confidential computing).
- **Elastic Pools:** Yes.
- **Maximum Resource Limits:** Higher limits for vCores, DTUs, and storage.

Fabric SQL Database

- **Compute Tiers:** Serverless.
- **Hardware Configurations:** Latest configurations.
- **Elastic Pools:** No.
- **Maximum Resource Limits:** Lower limits compared to Azure SQL Database.



Azure SQL vs. Fabric SQL Database

Feature	Azure SQL Database	Fabric SQL Database
Integration	Standard	Integrated with Fabric ecosystem
Analytics	Standard	Includes SQL analytics endpoint
Cross-Database Queries	Limited	Extensive support

Resource	Azure SQL Database
vCores	Up to 128
Memory	Up to 625 GB
Storage	Up to 100 TB
Max Concurrent Workers	Up to 32,767
Max Concurrent Sessions	Up to 32,767

Category	Fabric SQL database limit
Compute size	Up to 32 vCores
Storage size	Up to 4 TB
Tempdb size	Up to 1,024 GB
Log write throughput	Up to 50 MB/s



Azure SQL vs. Fabric SQL Database Backups

Azure SQL

- Full backups every week.
- Differential backups every 12 or 24 hours.
- Transaction log backups are approximately every 10 minutes.
- Backups can be - Locally redundant storage (LRS), Zone-redundant storage (ZRS), or Geo-redundant storage (GRS) with a retention period of 7 days by default.
- Retention can be adjusted up to 10 years
- Database encryption with TDE, backups are encrypted at rest.

Fabric SQL

- Full backups every week
- Differential backups every 12 hours
- Transaction log backups are approximately every 10 minutes
- Backups Zone-redundant (ZRS) automatic backups with 7 days retention period (enabled by default).
- Retention can be adjusted to 1-35 days
- Data Encrypted at rest
- First full backup is within 30 minutes of creation



Azure SQL vs. Fabric SQL Database Backups

Limitations

- You cannot control the frequency of backups in SQL database in Fabric.
- You can only restore database backups from the live SQL databases.
- You can only restore database backups within the same workspace. Cross-workspace PITR is not supported.
- If you delete a workspace, all databases on that workspace are also deleted and can't be recovered.
- All backups are stored in a single region replicated across different Azure availability zones. There are no geo-replicated backups.
- Only short-term retention backups are supported. No long-term retention backups support.
- Backups can be restored only through Fabric portal. Currently, there's no REST API, Azure PowerShell, or Command Line Interface (CLI) commands enabled.



Azure SQL vs. Fabric SQL Database Restores

Limitations

- Retention of backups is seven days for a live database.
- Restoring backups from dropped databases isn't currently possible after the retention period of seven days.
- Cross-workspace restore isn't supported.
- Cross-region restore isn't supported.
- If you delete the database during the restore, the restore operation is canceled. You can't recover the data from the deleted database.



Source Control

- Fabric SQL DB integrates with git
- Commit directly from Fabric web UI
- Enable Git integration in tenant settings
- Repo connection is at the workspace level
- Database must exist before committing to source control



Fabric SQL Database

Mirroring APIs

- **Stop and Start Mirroring:** Use API's to start and stop mirroring.
- **Fabric SQL:** <https://learn.microsoft.com/en-us/rest/api/fabric/sqldatabase/mirroring>
- **Azure SQL:** <https://learn.microsoft.com/en-us/rest/api/fabric/mirroredatabase/mirroring>

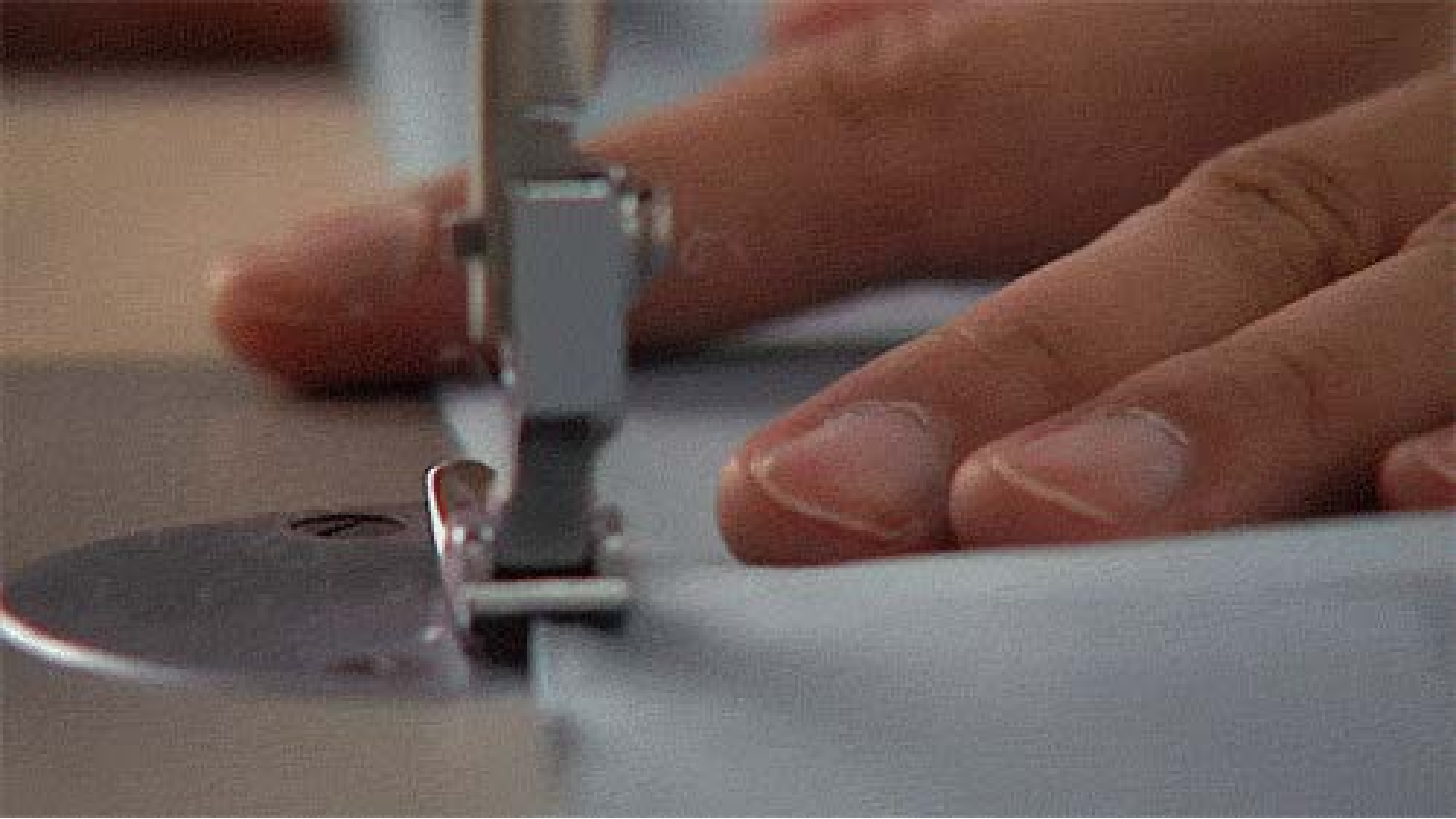




Demo

Create a SQL database in the Fabric portal





Demo

Use SQL Analytics Endpoint





Demo

Connect to the Database - SSMS





Demo

Semantic Model





Best Use Cases

Microsoft's Recommendations

- **Reverse ETL:** Have data available in near real-time for operational consumption, by applications or APIs.
- **Operational Data Store (ODS):** near-real-time, integrated data store to consolidate multiple operational systems for reporting.
- **Translytical Applications:** Perform both transactional and analytical workloads.



Resources



<https://learn.microsoft.com/en-us/fabric/database/sql/overview>

<https://learn.microsoft.com/en-us/shows/data-exposed/sql-integration-with-microsoft-fabric-data-exposed>

<https://learn.microsoft.com/en-us/fabric/data-warehouse/tutorial-sql-cross-warehouse-query-editor>

<https://learn.microsoft.com/en-us/fabric/database/sql/mirroring-limitations>

<https://learn.microsoft.com/en-us/fabric/database/sql/limitations>

<https://learn.microsoft.com/en-us/rest/api/fabric/sql/database/mirroring>

<https://learn.microsoft.com/en-us/rest/api/fabric/mirroredatabase/mirroring>



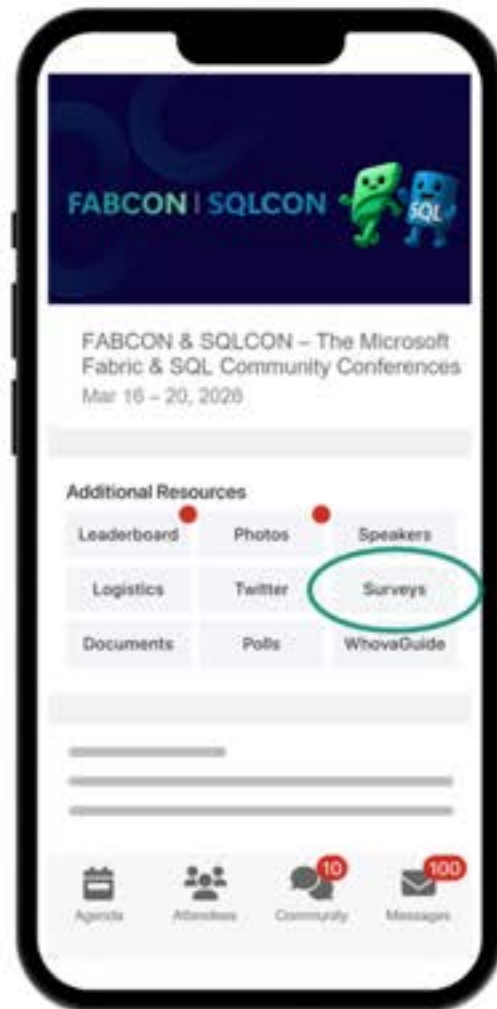
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Thank you!



Thank you for attending my session today.
If you have any additional questions, please don't hesitate to reach out.

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<https://jefftaylor.io/blog>



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How was the session?