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DATA EXPOSED SPECIAL

Around the Clock with Azure SQL and Azure Data Factory

Americas
February 3, 2021
09:00 – 17:00 PT

Asia
February 4, 2021
09:00 – 17:00 SGT

16 Sessions | 2 Ask the Expert Panels | 1 Hackathon

HOSTED BY
Wee Hyong Tok & Anna Hoffman

SQL Data Sync - Intro

Easily synchronize data across multiple Azure SQL, SQL Server on-prem, and SQL on IaaS VM DBs.

Sync Group = Hub DB + Member DB(s)

The properties of a Sync Group include:

- **Sync Schema**

- **Sync Direction**

- **Sync Frequency**

- **Conflict Resolving Policy**

SQL Data Sync – Topology

SQL Data Sync supports a **hub-spoke topology** within a Sync Group. The Member DBs only sync with the Hub DBs. Changes from the Hub are downloaded to the Member and then changes from the Member are uploaded to the Hub.
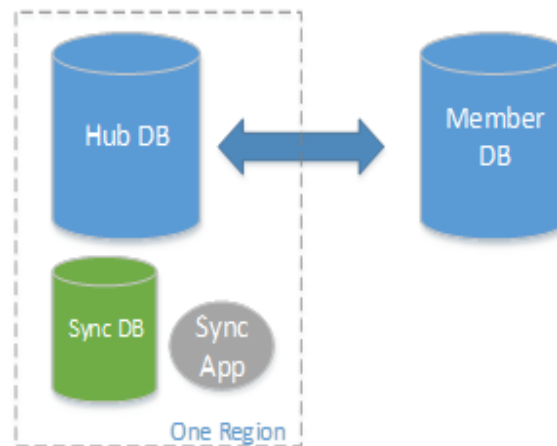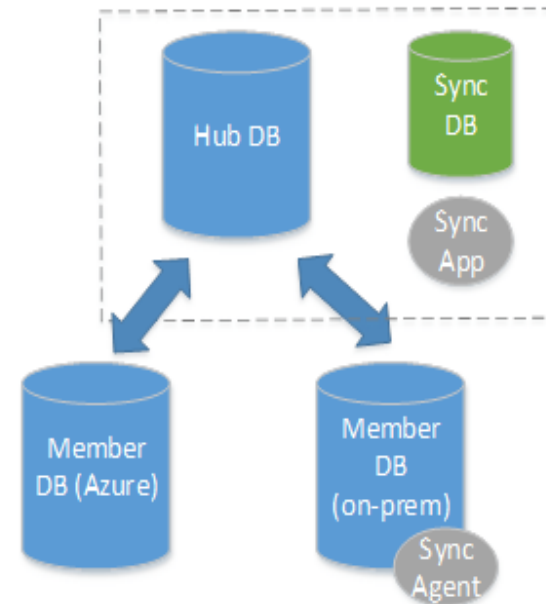

Figure 1. Sync Between 2 Databases

Figure 2. Sync Between 3 or more Databases

SQL Data Sync – Use Cases

Hybrid Data Synchronization

Keep data synchronized between your databases in SQL Server and Azure SQL Database.

Distributed Applications

Synchronize data across databases that store different workloads

Global Synchronization

Keep databases in regions across the world synchronized.

SQL Data Sync Use Cases in Context of Other Replication Technologies

Scenario	Solution
Synchronizing distributed applications / workloads and globally distributed data	SQL Data Sync Change Data Capture Change Tracking
Ensuring disaster recovery and business continuity	Active geo-replication Geo-redundant backups
Scaling out read-only workloads	Active geo-replication (only in Azure) Read scale-out feature (available on Premium, Business Critical , Hyperscale)
Keeping data synchronized when migrating	DMS Online Migrations – sync during migration SQL Data Sync – sync post migration

SQL Data Sync – Private Link (Preview)

Choose a **Service Managed Private Endpoint** to establish a secure connection between the Sync service and the Member and Hub Databases during data synchronization.

The Member and Hub databases must be hosted in Azure, in the same cloud type (e.g. both in Public Cloud or both in Government Cloud).
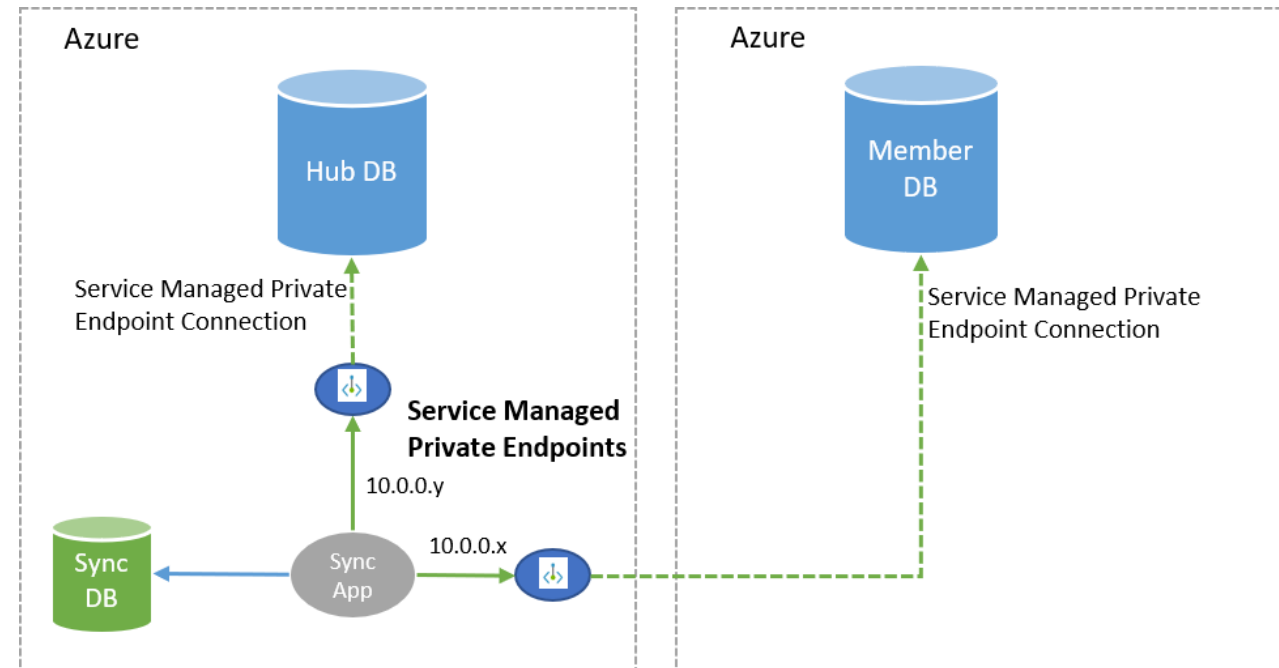
SQL Data Sync – The Sync Agent

To ensure data security, SQL Data Sync uses the client agent to communicate with any member databases on SQL Server. This way, direct communication with databases behind a firewall is prevented.

SQL Data Sync – Additional Considerations

Performance Impact

Side tables are created in the user's database and they have an impact on the user's workload. Must ensure the right service tier is selected.

Eventual Consistency

Transactional consistency is not guaranteed, but all the changes are eventually made and SWL Data Sync does not cause any data losses.

Limitations

To be added to sync groups, tables must have PK; AAD auth not supported; several data types not supported; service and DB dimensions limitations.

Demo – SQL Data Sync
Synchronize 2 Azure SQL DBs across US and Asia

SyncDemo_US (demous/SyncDemo_US) | Query editor (preview)

SQL database

Login   + New Query   ↑ Open query   ♡ Feedback

Search (Ctrl+/)

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Quick start
- Query editor (preview)

Power Platform

- Power BI (preview)
- Power Apps (preview)
- Power Automate (preview)

Settings

- Configure
- Geo-Replication

SyncDemo_US (test)

ⓘ Showing limited object explorer here. For full capability please open SSDT.

∨ ▭ Tables
    > ▦ dbo.FruitsInventory ⋯
∨ ▭ Views
∨ ▭ Stored Procedures

Query 1 ✕

▷ Run   ☐ Cancel query   ↓ Save query   ↓ Export data as ∨   ▦ Show only Editor

1

Results   Messages

🔍 Search to filter items...

Ready

Thank you!

Mara-Florina Steiu | @MSteiu