

#FABCONSQLCON2026

FABCON

Microsoft Fabric
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SQLCON

Microsoft SQL
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ATLANTA MARCH 16 - 20, 2026



From On-Prem to Next Gen: Simplifying SQL Server Migrations

Rob Carrol

Principal Consultant, Coeo

rob.carrol@coeo.com

<https://www.linkedin.com/in/rob-carrol-sql/>



SQL MI Next-Gen GP



Why migrate?



Migration tools



Lessons learned

Azure SQL



SQL Server
on Azure Virtual Machines

Best for: *Migrating (“lift and shift”) 3rd party apps* to customer-managed Azure virtual machines.



Azure SQL
Managed Instance

Best for: *Migrating custom apps at-scale* to a Microsoft-managed, SQL Server-compatible instance.



Azure SQL
Database

Best for: *Developing highly-scalable, AI-ready applications* with SQL’s reliability and security at commercial open-source database costs.

Migration

Innovation



Azure SQL Managed Instance

Modernize SQL Server to a fully managed platform as a service

Optimize performance for mission critical workloads

Evergreen compute and storage technologies

Optimized automatically through ML-based tuning

Lower cost compared to competitors

Increase DBA productivity

Fully managed and always up to date service

Performs time-consuming tasks on your behalf

Accelerates deployment and scaling

Keep your data secure and available

Industry-leading, multi-layered protection

Built-in high availability and SLA up to 99.995%

Built-in controls and leading compliance

Enable hybrid flexibility for SQL data stored anywhere

Cloud connectivity and Azure innovation extended to on-premises

Migration options on your terms

Unified management across environments

Modernize with AI

Support for native vector data type and functions

Fast, accurate vector indexing and search with DiskANN

Real time analytics with zero ETL using Fabric mirroring

SQL Managed Instance Next-gen General Purpose

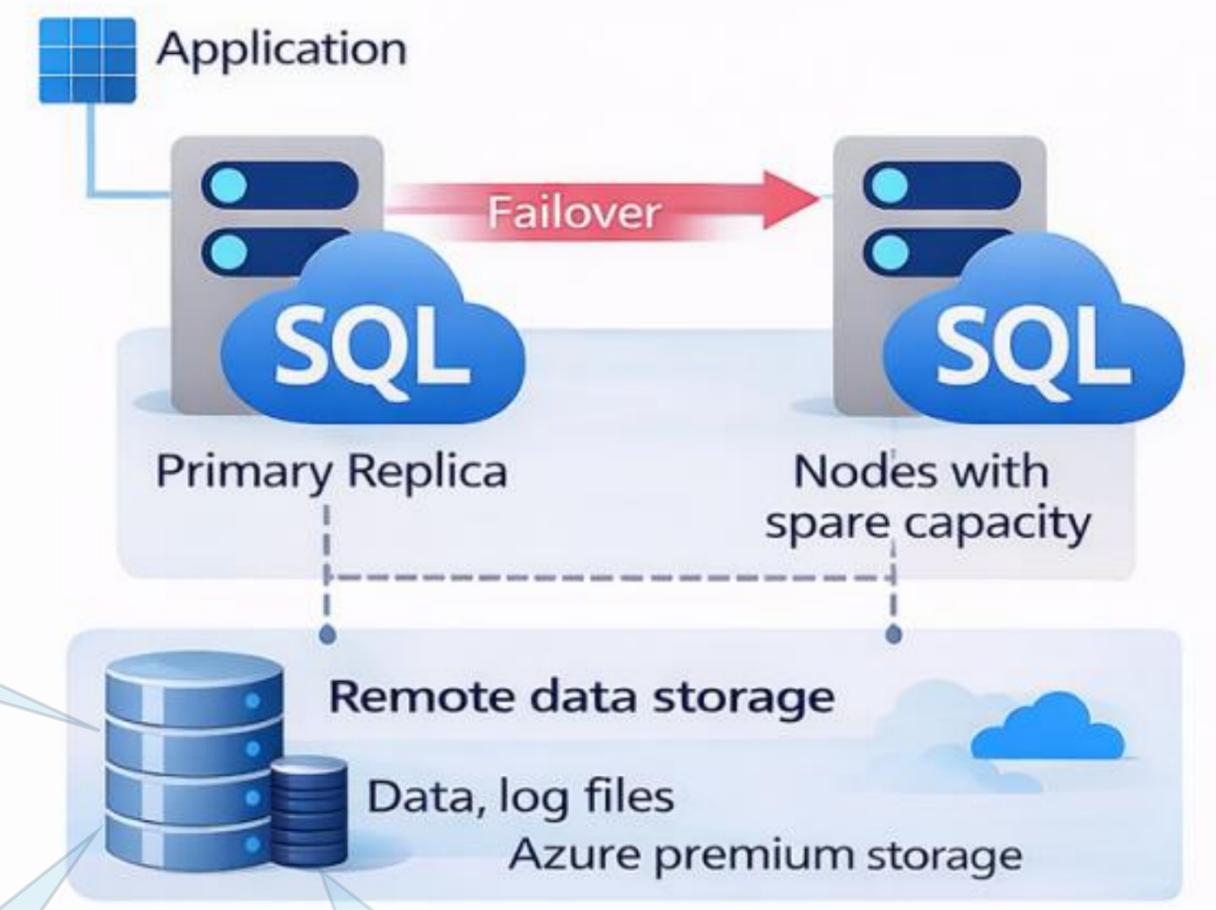




SQL Managed Instance architecture model

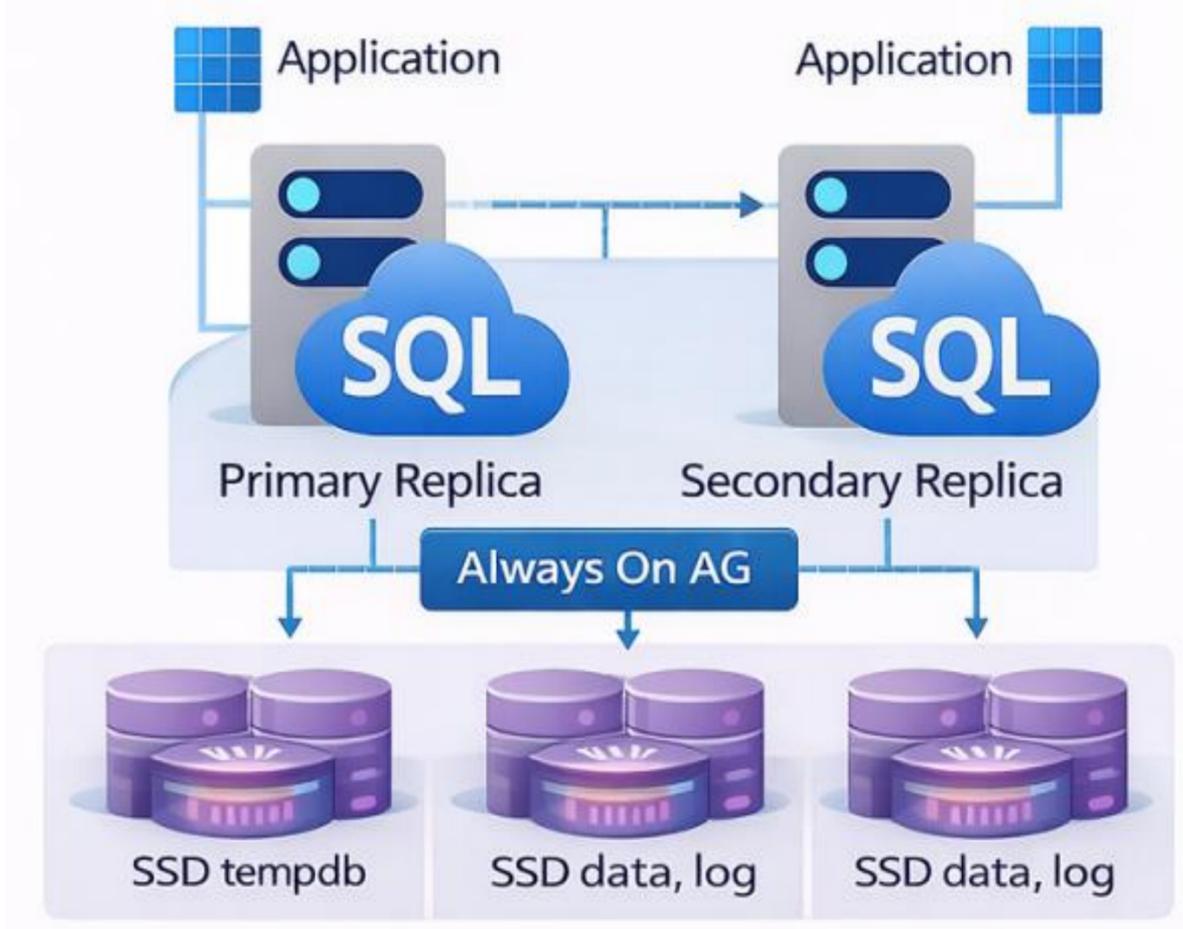
General Purpose (GP) service tier

Based on WSFC



Business Critical (BC) service tier

Based on Always On AGs



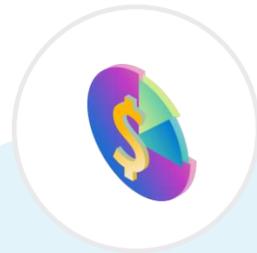


Performance, scale and improved TCO



Enjoy better performance and scale

5x performance, 2x storage, and 5x more databases



Configure for peak efficiency

Maximize efficiency to match unique workload demands



Flexible compute, storage and memory options

Enhance ROI with configurable IOPS and memory slider

What's included



Scale up to 128 vCores
Up to 870 GB of memory



Up to 32 TB of storage
Up to 500 DBs per instance



Maximize efficiency with configurable IOPS and memory/vCore ratio

Same base cost as “classic” General Purpose

sqlmi-demo-gp - Microsoft Azure

https://ms.portal.azure.com/...

Microsoft Azure (Preview) Copilot

Home > sqlmi-demo-gp

sqlmi-demo-gp | Compute + storage

SQL managed instance

Service menu Feedback

Select from the latest vCore service tiers available for Azure SQL Managed Instance including General Purpose and Business Critical. [Learn more](#)

Service tier

- General Purpose (4-80 vCores, 32 GB-16 TB storage capacity, Fast storage) - for most production workloads
- Business Critical (4-128 vCores, 32 GB-16 TB storage capacity, Super fast storage) - for IO-intensive and compute-intensive workloads

Next-gen General Purpose (preview)

i Next-gen General Purpose tier is currently in preview. By using this set of preview features, you confirm that you agree that your use of these features is subject to the preview terms in the agreement under which you obtained Microsoft Azure Services. [Learn more](#)

Compute Hardware

Configure compute hardware that will run your Azure SQL Managed Instance. [Learn more](#)

Hardware generation

- Standard-series (Gen 5) - Intel Broadwell, 5,1 GB RAM/vCore, up to 408 GB
- Premium-series - Intel Ice Lake, 7 GB RAM/vCore, up to 560 GB
- Premium-series - memory optimized - Intel Ice Lake, 13,6 GB RAM/vCore, up to 870.4 GB

vCores 8

Storage in GB 4096

sqlmi-demo-he - Microsoft Azure

https://ms.portal.azure.com/...

Microsoft Azure (Preview) Copilot

Home > sqlmi-demo-he

sqlmi-demo-he | Compute + storage

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vCores 8

Storage in GB 4096

sqlmi-demo-bc - Microsoft Azure

https://ms.portal.azure.com/...

Microsoft Azure (Preview) Copilot

Home > sqlmi-demo-bc

sqlmi-demo-bc | Compute + storage

SQL managed instance

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vCores 8

Storage in GB 2048

Zone redundancy

! This managed instance is deployed in the region that does not support zone redundancy. If you want to run your managed instance in zone redundant configuration, create new instance in another region



SQL MI Next-gen GP vs classic GP and BC

Category	Item	Classic GP	Next-gen GP	BC
Storage model	Performance limits	Per-file	Per-instance	Per-instance
Storage performance	Average I/O latency	5-10 ms	3-4 ms	1 ms
	Max data IOPS	<50k IOPS (*)	80k IOPS (*)	320k IOPS
	Max data throughput	~500 MB/s (*)	1200 MB/s (*)	Unlimited
	Max log rate	120 MB/s	192 MB/s	192 MB/s
Storage scalability	Max storage	16 TB	32 TB	16 TB
	Max DBs/instance	100 DBs	500 DBs	100 DBs
	Max files/instance	230 files	32k files	32k files
	IOPS slider	No	Yes	No
Compute scalability	Min vCores	4 vCores	4 vCores	4 vCores
	Max vCores	80 vCores	128 vCores	128 vCores
	Num. of vCore sizes	8 click stops	16 click stops	16 click stops
	Memory slider	No	Yes	No

Next-gen GP and BC offer optimal customer experience

BC provides the best storage performance

Next-gen GP provides the best storage scalability

Next-gen GP and BC offer resource flexibility

(*) subject to VM-level network limits – more pronounced for smaller instances



Portal user experience

Service tier

Select from the latest vCore service tiers available for Azure SQL Managed Instance including General Purpose and Business Critical. [Learn more](#)

Service tier ⓘ

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- Business Critical (4-128 vCores, 32 GB-16 TB storage capacity, Super fast storage) - for IO-intensive and compute-intensive workloads

Next-gen General Purpose

Enabled Disabled

Compute Hardware

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Hardware generation ⓘ

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- Premium-series - Intel Ice Lake, 7 to 12 GB RAM/vCore, up to 560 GB
- Premium-series - memory optimized - Intel Ice Lake, 13,6 GB RAM/vCore, up to 870.4 GB

vCores ⓘ



Memory in GB ⓘ



Storage in GB ⓘ



IOPS ⓘ



When the user selects "Enabled" for Next-gen GP, the UX is **updated to reflect the new limits and new capabilities** enabled by the Next-gen tech.

Existing sliders are **updated with new limits**:

- vCore slider can go from 4 to 128
- vCore slider has more interim values
- Storage slider can go all the way to 32 TB

New sliders are added for additional **IOPS** and **memory**:

- Baseline values for IOPS and memory are free of charge
- Customers **can go beyond the default** (extra charge)

managedinstance-wwi4 - Microsoft

https://ms.portal.azure.com/#@microsoft.onmicrosoft.com/resource/subscriptio...

Microsoft Azure (Preview) Search resources, services, and docs (G+) Copilot

Home > managedinstance-wwi4

managedinstance-wwi4 | Compute + storage

SQL managed instance

Search Feedback

Service tier

- General Purpose (4-128 vCores, 32 GB-32 TB storage capacity, Fast storage) - for most production workloads
- Business Critical (4-128 vCores, 32 GB-5.5 TB storage capacity, Super fast storage) - for IO-intensive and compute-intensive workloads

Next-gen General Purpose (preview) **Enabled** Disabled

Next-gen General Purpose tier is currently in preview. By using this set of preview features, you confirm that you agree that your use of these features is subject to the preview terms in the agreement under which you obtained Microsoft Azure Services. [Learn more](#)

Compute + storage

Connection strings

Distributed Transaction Coordinator

Maintenance and updates

Start/Stop Schedule

Microsoft Entra ID

Properties

Locks

Data management

Security

Monitoring

Automation

Help

Compute Hardware

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vCores 8

Memory in GB 56

Storage in GB 1024

IOPS 3072

Apply Cancel

Add or remove favorites by pressing Ctrl+Shift+F

eahe-testvm - 20.255.56.144:3389 - Remote Desktop Connection

HammerDB

File Edit Options Help

Benchmark Script Editor Virtual User Output Transaction Counter Metrics Autopilot

SQL Server

- TPROC-C
- Schema
- Driver Script
- Options
- Load
- Virtual User
- Options
- Create
- Run
- Autopilot
- Transactions
- Metrics
- Mode
- Datagen
- Jobs

Oracle

Db2

MySQL

PostgreSQL

MariaDB

Virtual User 1-MONITOR

Virtual User 2

Virtual User 3

Virtual User 4

Virtual User 9

Virtual User 10

Virtual User 11

Virtual User 12

Virtual User 17

Virtual User 18

Virtual User 19

Virtual User 20

Virtual User	Iterations	Complete	Status
56	1	0	🔧
57	1	0	🔧
58	1	0	🔧
59	1	0	🔧
60	1	0	🔧
61	1	0	🔧
62	1	0	🔧
63	1	0	🔧
64	1	0	🔧
65	1	0	🔧



Scenario

- 1 Datacenter exit
- 2 PaaS-first approach
- 3 Inefficient hardware
- 4 Maintenance/supportability issues



Challenges

- 1 1,100+ databases across 12 SQL Server 2016 FCIs
- 2 ~30TB of SQL Server data, max 1 hour migration window
- 3 Batch processing throughout the day & night (~4 hours)
- 4 Legacy applications and code



Solution

- 1 12 x SQL Managed Instance Next-Gen GP with Failover Groups
- 2 Database Watcher for performance Monitoring and right-sizing
- 3 PaaS first approach - backups, HA, Microsoft Defender for SQL
- 4 Dev/Test subscription and START/STOP policies for non-prod environments



SQL MI migration options

Native backup and restore	Easiest and simplest method as it doesn't require any specialist tools. Only supports restoring full backups - downtime required.
Database Migration Service	Near-zero downtime option; guided migration Supports a variety of sources and offline and online migration. Requires DMS setup; extra service dependency.
Azure SQL Migration Extension	Assessment + right-sizing; supports at-scale migrations; DMS-backed. Requires DMS setup; extra service dependency.
Log Replay Service	More control; supports multiple DBs and instances, minimal downtime. DBs in restoring mode; migrations can be interrupted by updates/failovers. 30-day limit to complete migration.
Managed Instance Link	Minimum downtime; near real-time replication; read-only access during migration; flexible cutover; not affected by failovers. Requires network connectivity and ports; setup complexity.



The Log Replay Service (LRS)



Free-of-charge cloud service to migrate SQL Server databases to Azure SQL Managed Instance (SQL MI).



Uses log-shipping technology to synchronise on-premises databases.



Enables a seamless migration of databases with minimal downtime.



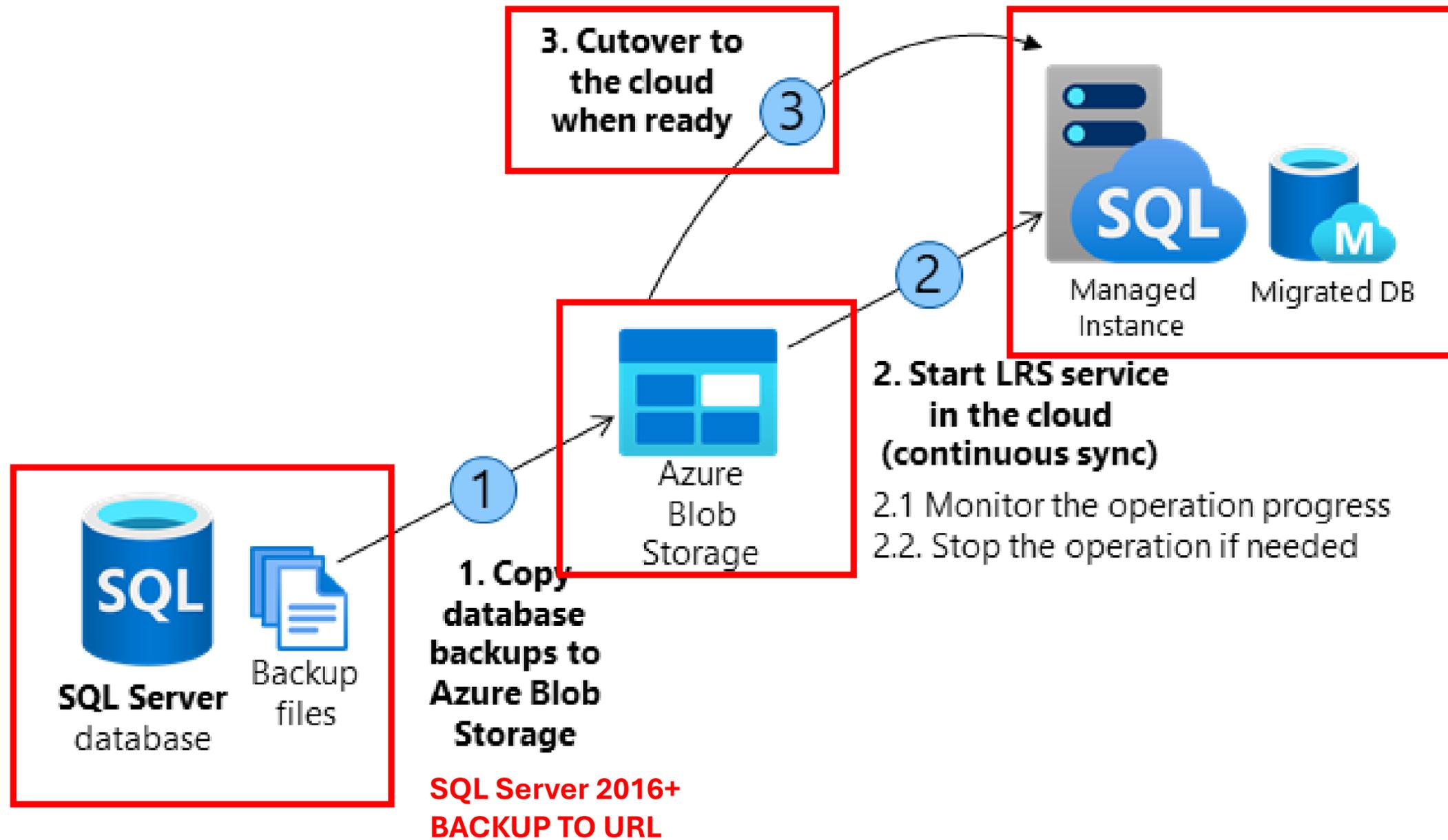
Provides monitoring to track the progress of migrations.



Gives users granular control over migrations.



LRS Migration workflow





Migration approach



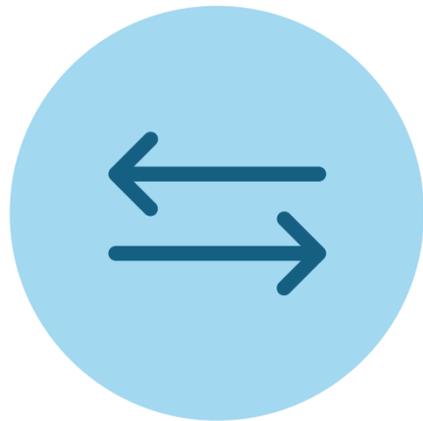
Assess

Get-AzDataMigrationAssessment
Get-AzDataMigrationPerformanceDataCollection
Get-AzDataMigrationSkuRecommendation



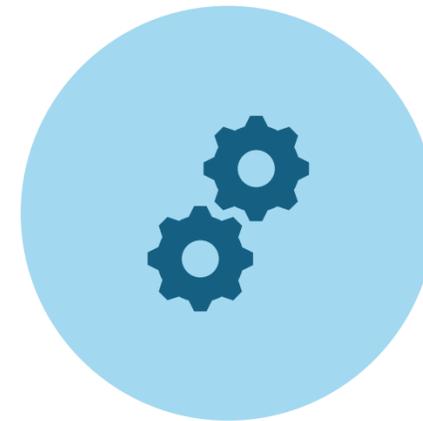
Plan

Logins and connections strings
Agent Jobs
Legacy apps and code
TLS versions



Migrate

DBATools PowerShell module
Log Replay Service



Monitor & Optimize

Azure Database Watcher
IOPS, Memory and CPU adjustments



Automated LRS migrations with PowerShell



Use PowerShell to directly orchestrate database migrations.



PowerShell Az.SQL module version 4.0.0 or later



LRS runs as a background PowerShell job

-AsJob
Start-Job



Start the migration

Start-AzSqlInstanceDatabaseLogReplay



Monitor progress

Get-AzSqlInstanceDatabaseLogReplay



Complete the migration

Complete-AzSqlInstanceDatabaseLogReplay

Object Explorer

- Connect
- SQL2019 (SQL Server 13.0.7050.2 - vm-lrs-test)
 - Databases
 - Security
 - Server Objects
 - Replication
 - PolyBase
 - Always On High Availability
 - Management
 - SQL Server Agent
 - XEvent Profiler
- SQLMI Next-Gen GP (SQL Server 12.0.2000.8 -)
 - Databases
 - Security
 - Server Objects
 - Replication
 - Always On High Availability
 - Management
 - SQL Server Agent
 - XEvent Profiler

```

1      WITH MostRecentBackups
2      AS(
3      SELECT
4          database_name AS [Database],
5          MAX(bus.backup_finish_date) AS LastBackupTime,
6          CASE bus.type
7              WHEN 'D' THEN 'Full'
8              WHEN 'I' THEN 'Differential'
9              WHEN 'L' THEN 'Transaction Log'
10         END AS Type
11     FROM msdb.dbo.backupset bus
12     WHERE bus.type <> 'F'
13     GROUP BY bus.database_name,bus.type
14     ),
15     BackupsWithSize
16     AS(
17         SELECT mrb.*, (SELECT TOP 1 CONVERT(DECIMAL(10,4), b.backup_size/1024/1024/1024) AS backup_size
18         FROM msdb.dbo.backupset b WHERE [Database] = b.database_name AND LastBackupTime = b.backup_finish_date) AS [Backup Size],
19         (select CAST((CAST(DATEDIFF(s, b.backup_start_date, b.backup_finish_date) AS int))/3600 AS varchar) + ' hours, '
20         + CAST((CAST(DATEDIFF(s, b.backup_start_date, b.backup_finish_date) AS int))/60 AS varchar)+ ' minutes, '
21         + CAST((CAST(DATEDIFF(s, b.backup_start_date, b.backup_finish_date) AS int))%60 AS varchar)+ ' seconds'
22         AS [Total Time]
23     FROM msdb.dbo.backupset b WHERE [Database] = b.database_name AND LastBackupTime = b.backup_finish_date) as [Total Time]
24     FROM MostRecentBackups mrb
25     )
26
27     SELECT
28         SERVERPROPERTY('ServerName') AS Instance,
29         d.name AS [Database],
30         d.state_desc AS State,
31         d.recovery_model_desc AS [Recovery Model],
32         bf.LastBackupTime AS [Last Full],
33         DATEDIFF(DAY,bf.LastBackupTime,GETDATE()) AS [Time Since Last Full (in Days)],
34         bf.[Backup Size] AS [Full Backup Size],
35         bd.LastBackupTime AS [Last Differential],
36         DATEDIFF(DAY,bd.LastBackupTime,GETDATE()) AS [Time Since Last Differential (in Days)],

```



SQL Server migration experience in Azure Arc



Streamlined, Azure Copilot assisted **end-to-end** migration journey



Real-time replication

Powered by Managed
Instance Link

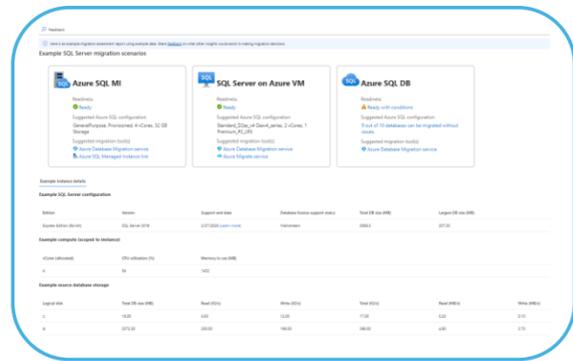


Migrate & modernize your data estate with no downtime



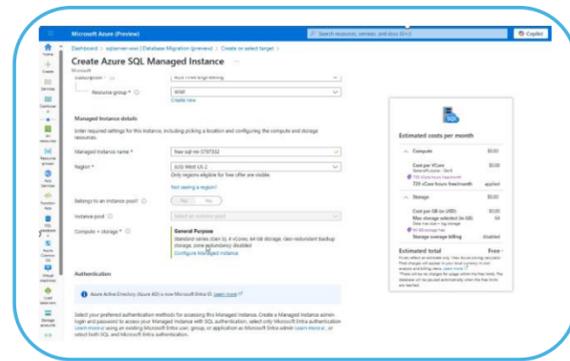
Migrate from the Azure Portal

Continuous Assessment



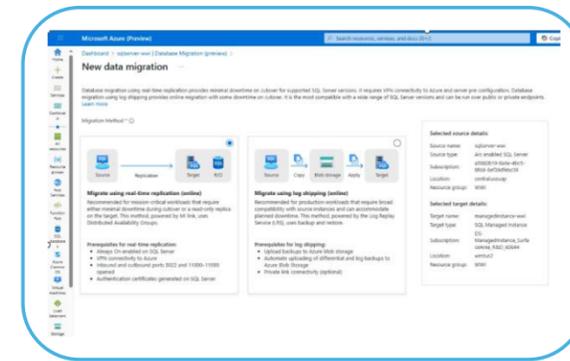
Built-in and Automatic Readiness and progress dashboards
Get right-sized SKU recommendations

Simplified Provision



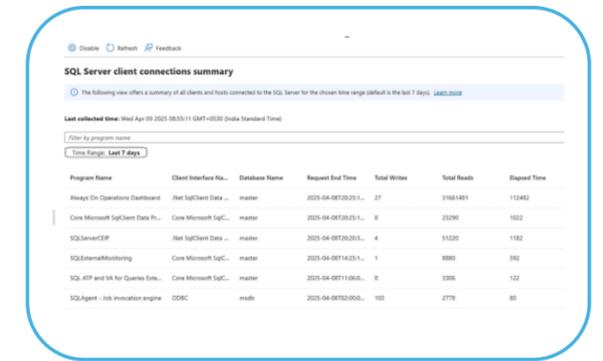
Provision recommended Managed Instance target inline
Built-in cost estimates

“No downtime” migrations



Real-time replication, powered by Managed Instance Link
Validate the target instance as a read-only replica

Confident Cutover



View and assess inbound client connections
Ensure all clients transition to the new target
Cutover with a simple click!

Automate migration at scale with APIs and scripts

Object Explorer

- Connect
- sqlserver-wwi (SQL Server 16.0.1160.1 - sqlserver-w
- Databases
 - System Databases
 - Database Snapshots
 - WideWorldImporters
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - Graph Tables
 - dw.DimCustomer
 - dw.DimDate
 - dw.DimProduct
 - dw.DimPromotion
 - dw.DimStore
 - dw.SalesFact
 - Dropped Ledger Tables
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Query Store
 - Service Broker
 - Storage
 - Security
 - Security
 - Server Objects
 - Replication
 - Always On High Availability
 - Availability Groups
 - Management
 - Integration Services Catalogs
 - SQL Server Agent (Agent XPs disabled)
 - XEvent Profiler- managedinstance-wwi.b19886c87564.database.win

```
Drop dead - remov...-wwi\cloudSA (72)) SQLQuery5.sql - sq...r-wwi\cloudSA (83))*  
select * from msdb.dbo.SQLServerAzureArcProperties
```

85 %

Results Messages

	id	version	AzureResourceId
1	1	1	subscriptions/a5082b19-8a6e-4bc5-8fdd-8ef39dfebc39/resourceGroups/WWI/providers/Microsoft.AzureArcData/sqlServerInstances/sqlserver-wwi



Migration tips

Plan and test

- Assess current environment for compatibility and SKU recommendations
- Conduct test migrations prior to go-live

Verify

- Subscription limits
 - Subscription was capped at 160 concurrent create operations
 - LRS database migrations above this limit were failing
 - Raised a support case to increase to 1,000 for the duration of migrations
- Collations and timezones of SQL MIs
 - These can't be changed after deployment
- Maintenance windows and update policies

Automate

- Use automation to scale as much as possible
- Use SQL Server Migration Experience in Azure Arc

Monitor

- Monitor performance using Database Watcher
 - IOPS, log rate throughput, memory usage
 - Right-size instances post-migration



Try it for free...

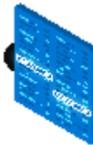
What's included



Up to two instances per Azure subscription
4 or 8 vCores of general-purpose compute
720 vCore hours per month.



32 GB data storage +
32 GB backup storage.



Intel® Xeon® Scalable 2.8 GHz processors



<https://aka.ms/freesqlMI>



Use it for 12 months

Use this free offer to support your migration proof of concepts for 12 months.



Azure SQL Managed Instance

Platform as a service

Migrate on-premises instances and databases to a fully managed SQL environment with minimal changes to your applications.

- Near 100% compatibility with SQL Server Enterprise Edition
- Automated backups, patching, monitoring, and maintenance
- Integrates with Azure services like Defender for SQL and Azure Monitor for enhanced protection and insights

Show options

Try for free

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



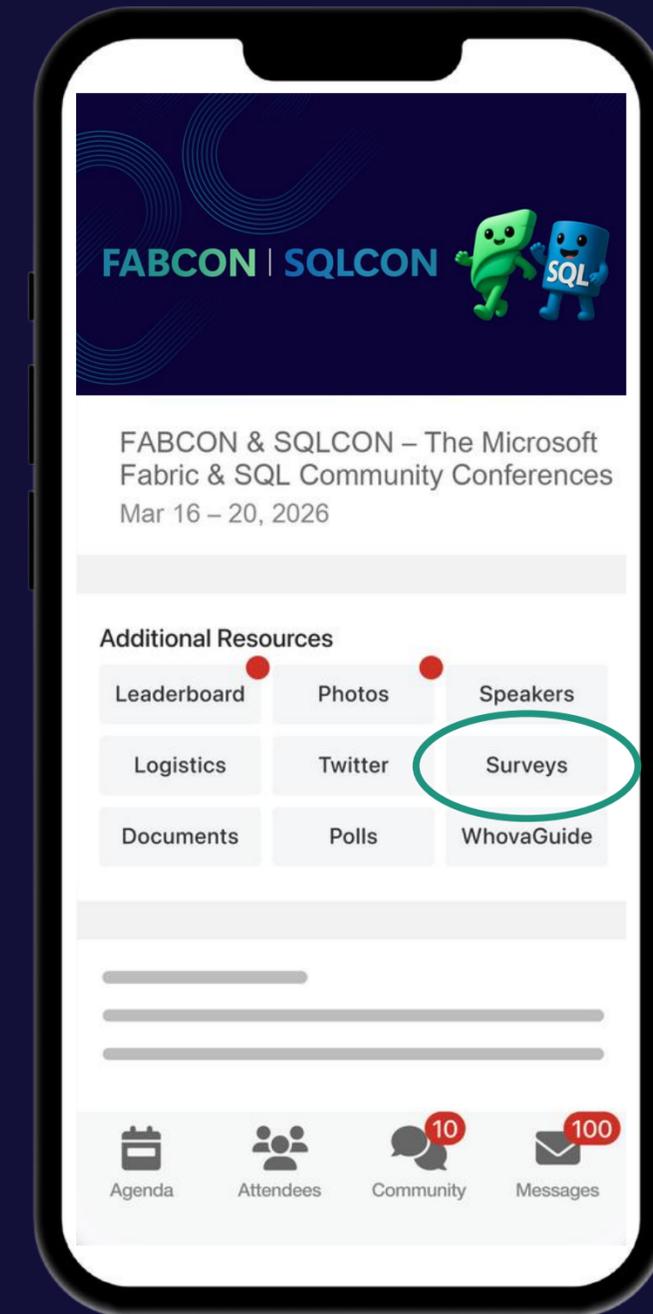
Influence our SQL roadmap and ensure it meets your real-life needs

<https://aka.ms/JoinSQLUserPanel>

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