

Microsoft SQL Server on AZURE optimized via Intel Optimized Cloud Stack

The Challenge

Companies continue to go through capacity and system constraints; increasing demand amplifies these challenges enterprises face.

SQL Server Overview + Benefits

The mass proliferation of data means that businesses have the information they need to make smarter business decisions—if they can analyze that data quickly and turn those insights into action. Whether databases are small, large, or somewhere in the middle, the latest memory-optimized Microsoft Azure E96ds instance enabled by 3rd gen Intel® Xeon® processors can improve data warehousing performance over older 2nd gen Intel® Xeon® processors.³

SQL Server Value Props

Data Virtualization

Query across data stored in Oracle, Teradata, multiple SQL Server versions, Azure SQL Database, Azure Synapse Analytics (formerly SQL Data Warehouse), Azure Cosmos DB, Cloudera, Azure Data Lake Storage, and HDFS, without moving or replicating data.

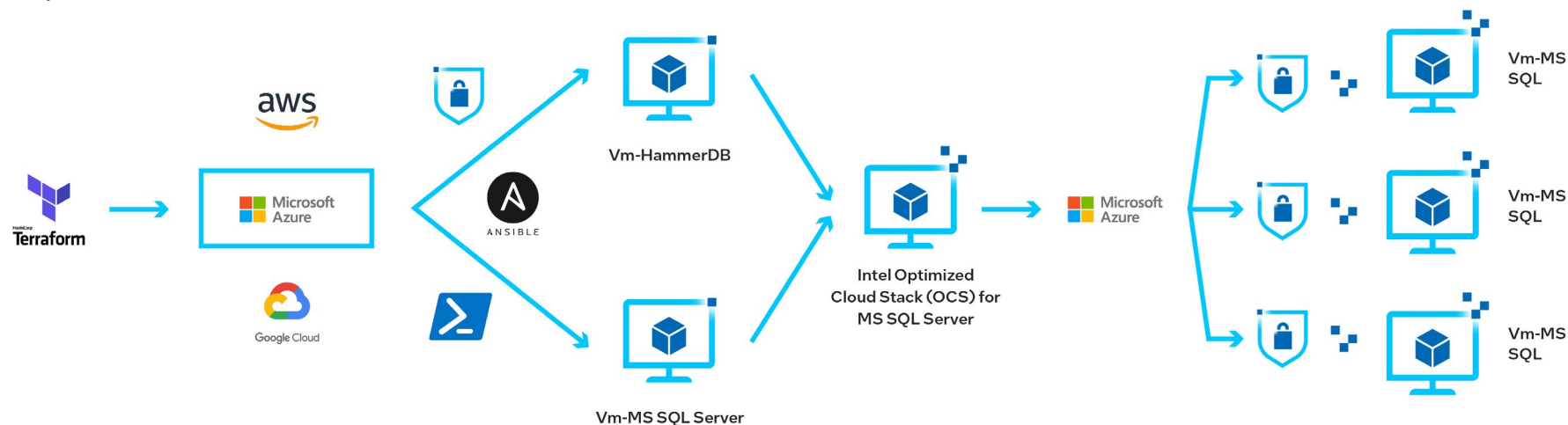
Intelligent Database

Improve query performance with no application changes, using intelligent query processing.

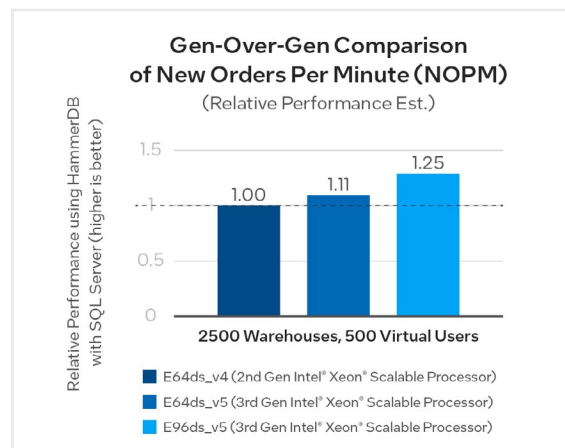
Turn Key Solution

Intel® Optimized Cloud Stack uses ready-to-use Azure images to save workload runtime and cloud costs, helping end customers reduce customization complexity and accelerate time to deployment.

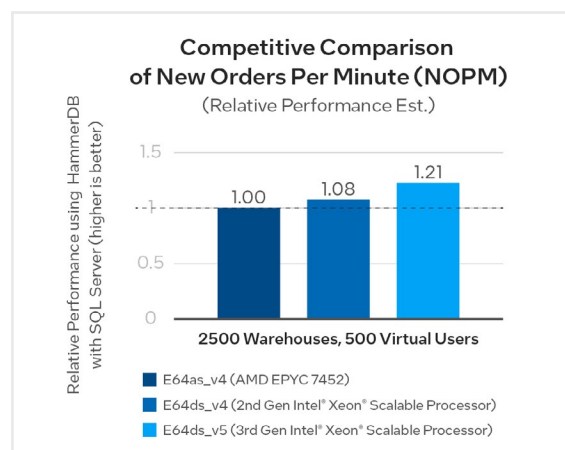
Intel Optimized Cloud Stack Overview



Proof Points



- For indexing intensive, medium search workloads, E64ds_v5 Azure Virtual Machine instances have 1.11x better performance and performance to price than Intel Xeon Platinum 8260L processors²
- For search intensive, medium indexing workloads, E96ds_v5 Azure Virtual Machine instances have 1.25x better performance and 1.03x performance to price³



- 3rd gen Intel Xeon Scalable processors outperform AMD EPYC 7452 by 1.21x and have 1.20x better performance to price value⁴
- E64ds_v5 Azure Virtual Machine instance of Intel Xeon Scalable processors gets a performance gain of 1.08x and 1.07x better performance to price value when compared to competition⁵

Why Intel for SQL Server

Secured Data Platform

SQL Database is encrypted in Azure with [Intel Software Guard Extensions \(Intel SGX\)](#). Intel SGX is a hardware-based trusted execution environment technology supported in databases that use the [DC-series](#) hardware configuration.

SQL Server uses Intel SGX enclaves and requires Microsoft Azure Attestation. This can identify potential incidents, compromised systems, or both by monitoring for vulnerabilities that can lead to breaches.

Fast Operations

SQL Server on Azure provides near real-time insights across the application development cycle and allows you to add new use cases quickly by deploying data warehousing solutions in minutes. Harness more data with less hassle by using 3rd Gen Intel Xeon Scalable processors for SQL Server deployments. SQL Server 2022 will use the [Intel QuickAssist Technology \(Intel QAT\)](#) feature to improve compression and backup performance.



Up to 2.3x
speedup in
database
backup time¹



Up to 6%
reduction in
backup storage
capacity¹

Total Cost of Ownership

Preserve infrastructure footprint and maintain costs with Intel architecture on Azure Cloud.

Flexible Storage Options

Leverage Intel technology to run SQL Server on your infrastructure platform choice, on-premises, or Azure Cloud.

Want More Information?

Contact your SQL Server or Intel account executive to learn how we can help to optimize your Microsoft SQL server performance.

- Test by Intel as of 10/26/2021. 1-node, 2x Intel Xeon Platinum 8358 Processor on Wilson City (ref. platform), 32 cores with 1024 GB (16 slots/64GB/3200[3200]) total DDR4 memory, ucode 0xD000323, HT on, Turbo on, with Intel QuickAssist Adapter 8970, 1.70.16.4 driver version, Windows Server 2019.10.0.17763.1999, [Hyper-V VM], 1x Intel Ethernet Converged Network Adapter X550, SQL Server 2022 CTP1.1 private test build, 525GB Database, Database Backup with Compression.
- Comparing 1-VM, E64ds_v5 instance with 64x vCPU, Intel Xeon Platinum 8370C, 512 GB total DDR4 memory, test by Intel on 8/31/2021 versus 1-VM, E64ds_v4 instance with 64x vCPU, Intel Xeon Platinum 8272CL CPU @ 2.60GHz, 504 GB total DDR4 memory, test by Intel on 8/30/2021. Microsoft Azure Cloud Services, Windows Server 2019 Datacenter, Version (1809) 17763.1757, Direct Attached storage, 30,000 Mbps network, Microsoft SQL Server Enterprise 15.0.4102.2, Windows HammerDB 4.0, ODBC Driver 17 for SQL Server.
- Comparing 1-VM, E96ds_v5 instance with 96x vCPU, Intel Xeon Platinum 8370C Processor, 672 GB total DDR4 memory, test by Intel on 8/31/2021 versus 1-VM, E64ds_v4 instance with 64x vCPU, Intel Xeon Platinum 8272CL CPU @ 2.60GHz, 504 GB total DDR4 memory, test by Intel on 8/30/2021. Microsoft Azure Cloud Services, Windows Server 2019 Datacenter, Version (1809) 17763.1757, Direct Attached storage, 30,000 Mbps network, Microsoft SQL Server Enterprise 15.0.4102.2, Windows HammerDB 4.0, ODBC Driver 17 for SQL Server.
- Comparing 1-VM, E64ds_v5 instance with 64x vCPU, Intel Xeon Platinum 8370C Processor, 512 GB total DDR4 memory, 30,000 Mbps network, test by Intel on 8/31/2021 versus 1-VM, E64as_v4 instance with 64x vCPU, AMD EPYC 7452 2.35Ghz, 512 GB total DDR4 memory, 25,600 Mbps network, test by Intel on 8/30/2021. Microsoft Azure Cloud Services, Windows Server 2019 Datacenter, Version (1809) 17763.1757, Direct Attached storage, Microsoft SQL Server Enterprise 15.0.4102.2, Windows HammerDB 4.0, ODBC Driver 17 for SQL Server.
- Comparing 1-VM, E64ds_v4 instance with 64x vCPU, Intel Xeon Platinum 8272CL CPU @ 2.60GHz, 504 GB total DDR4 memory, 30,000 Mbps network versus 1-VM, E64as_v4 instance with 64x vCPU, AMD EPYC 7452 2.35Ghz, 512 GB total DDR4 memory, 25,600 Mbps network. Microsoft Azure Cloud Services, Windows Server 2019 Datacenter, Version (1809) 17763.1757, Direct Attached storage, Microsoft SQL Server Enterprise 15.0.4102.2, Windows HammerDB 4.0, ODBC Driver 17 for SQL Server, test by Intel on 8/30/2021.

Performance varies by use, configuration, and other factors. Learn more at www.intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

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