SQL Server 2025 Top New Features

Comparing SQL Server 2025 to previous versions

Organizations are under pressure to modernize their data platforms while managing increasing complexity. Customers need to adopt AI, reduce architectural sprawl, gain faster insights from operational data, and scale performance—without adding new systems, increasing risk, or fragmenting their environments. SQL Server 2025 addresses these challenges by enabling analytics and AI workloads to run directly where operational data already resides, simplifying data architectures and reducing operational overhead. Delivered on Lenovo infrastructure, this approach allows customers to modernize with confidence while maintaining performance, security, and control across hybrid environments.

AI & Machine Learning

SQL Server 2025 Benefit Summary: Native AI Capabilities enable vector search, embeddings, and AI-driven apps directly inside SQL Server.
Why it matters: Simplifies architecture and enables AI workloads to run where the data already resides.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
ML Services (R)[6,7,8]	◔	◑	◕	◕
ML Services (Python)[7,8]	—	✓	✓	✓
Native VECTOR data type[1,2]	—	—	—	✓
Vector search & similarity[1,2]	—	—	—	✓
Vector indexing (DiskANN)[2]	—	—	—	✓
Embedding generation[1]	—	—	—	✓
External model integration[2]	—	—	—	✓

— Not available	✓ Consistently available
◔ Featured Introduced or early implementation	◕ Major enhancement, broader adoption, or automation
◑ Meaningful enhancement or expanded capability	● Mature, optimized, and broadly usable capability

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Hybrid & Cloud

SQL Server 2025 Benefit Summary: Consistent deployment and management across environments.
Why it matters: Preserves flexibility while avoiding operational fragmentation.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Linux support[6,7,8]	◗	◗	◕	◕
Containers[7,8]	✓	✓	✓	✓
Kubernetes support[8]	◗	◗	✓	✓
Azure Arc integration[1,8]	—	—	✓	✓

Analytics

SQL Server 2025 Benefit Summary: Near real-time insights directly from operational data.
Why it matters: Reduces latency between transactions and analytics.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Operational analytics[6,7,8]	✓	✓	✓	✓
Change Event Streaming[5]	—	—	—	✓
Azure Synapse Link[8]	—	—	✓	✓
Big Data Clusters[7,8]	—	✓	Deprecated	—

Security

SQL Server 2025 Benefit Summary: Enterprise-grade security extended to hybrid and AI-enabled workloads.
Why it matters: Maintains governance and compliance as workloads evolve.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Always Encrypted[6,7,8]	◔	◗	◕	●
Secure enclaves[7,8]	—	✓	✓	✓
Row-level security[6,7,8]	✓	✓	✓	✓
Dynamic data masking[6,7,8]	✓	✓	✓	✓
Transparent Data Encryption (TDE)[6,7,8]	✓	✓	✓	✓

Performance & Scalability

SQL Server 2025 Benefit Summary: Improved query intelligence and concurrency for mixed workloads.
Why it matters: Delivers consistent performance with reduced tuning effort.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Intelligent Query Processing[1,7,8]	◔	◑	◕	●
Batch mode on rowstore[7,8]	—	✓	✓	✓
Memory grant feedback[7,8]	—	◑	◕	●
Optimized locking & concurrency[7,8]	◑	✓	✓	✓
Parallel buffer pool scan[8]	—	—	✓	✓

High Availability & Disaster Recovery

SQL Server 2025 Benefit Summary: Proven reliability for mission-critical workloads.
Why it matters: Ensures uptime as workloads scale and diversify.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Always On availability groups[6,7,8]	✓	✓	✓	✓
Failover clustering[6,7,8]	✓	✓	✓	✓
Accelerated database recovery[7,8]	—	✓	✓	✓

Development & Programmability

SQL Server 2025 Benefit Summary: Modern SQL features simplify application development.
Why it matters: Reduces development time and skills friction.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Scalar UDF inlining[7,8]	—	✓	✓	✓
Temporal tables[6,7,8]	✓	✓	✓	✓
Native REGEXP_* functions[4]	—	—	—	✓

Core Database Capabilities

SQL Server 2025 Benefit Summary: Extends a proven relational engine to support modern intelligent application workloads.
Why it matters: Allows new workloads without replacing existing database platforms.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Relational database engine[6,7,8]	✓	✓	✓	✓
In-memory OLTP[6,7,8]	◗	◕	◕	●
Columnstore indexes[6,7,8]	✓	✓	✓	✓
Graph data support[6,7,8]	◗	◕	◕	●
JSON support[6,7,8]	✓	✓	✓	✓
UTF-8 support[6,7,8]	✓	✓	✓	✓
External model integration[6,7,8]	✓	✓	✓	✓

Editions & Limits

SQL Server 2025 Benefit Summary: More capability at lower cost with higher edition limits.
Why it matters: Enables broader workloads without licensing upgrades.

Feature	SQL Server 2017	SQL Server 2019	SQL Server 2022	SQL Server 2025
Enterprise edition[6,7,8]	✓	✓	✓	✓
Standard edition[6,7,8]	✓	✓	✓	✓
Web edition[3]	✓	✓	✓	Discontinued
Developer edition[6,7,8]	✓	✓	✓	✓
Express DB size limit[3]	10 GB	10 GB	10 GB	50 GB
Standard edition memory limit[3]	~128 GB	~128 GB	~128 GB	256 GB

Microsoft SQL Server 2025

The AI-ready enterprise database from ground to cloud

Sources:
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[3] https://learn.microsoft.com/en-us/sql/sql-server/editions-and-components-of-sql-server-2025
[4] https://learn.microsoft.com/en-us/sql/sql-server/regex-functions-transact-sql
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