

## SQL Server 2025 GA: What's New and What DBAs Can Expect Next

Source: <https://www.linkedin.com/pulse/sql-server-2025-ga-jackson-andrew-yxhmf/>

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Category	Feature / Update	Description / Benefit for DBAs
<b>AI-Driven Query Optimization</b>	Adaptive QI 2.0	<ul style="list-style-type: none"> <li>- Real-time feedback loops for query execution</li> <li>- Automatic detection of problematic query patterns</li> <li>- Smarter cardinality estimation using workload history</li> <li>- AI-assisted parameter sniffing mitigation</li> <li>- Predictable performance during peak loads, less manual tuning</li> </ul>
<b>Intelligent Performance</b>	Dynamic CPU & Memory Scaling	<ul style="list-style-type: none"> <li>- Optimizes resource usage for modern multi-core servers</li> </ul>
	TempDB Contention Handling	<ul style="list-style-type: none"> <li>- Reduces contention, improves parallel processing</li> </ul>
	Parallel Plan Stabilization	<ul style="list-style-type: none"> <li>- Ensures consistent query behavior across plan recompilations</li> </ul>
	Faster Index Maintenance	<ul style="list-style-type: none"> <li>- Reduces downtime and resource usage during large index operations</li> </ul>
<b>High Availability &amp; Always On</b>	Automatic Failover	<ul style="list-style-type: none"> <li>- More resilient failover handling</li> </ul>
	Sync-Commit Performance	<ul style="list-style-type: none"> <li>- Improved log sync performance</li> </ul>
	Cross-Platform Replica Monitoring	<ul style="list-style-type: none"> <li>- Better monitoring and diagnostics for replicas</li> </ul>
	Health Diagnostics	<ul style="list-style-type: none"> <li>- Transparent health checks for replicas</li> </ul>
<b>Security Enhancements</b>	Zero-Trust & Encryption	<ul style="list-style-type: none"> <li>- Improved certificate management APIs</li> <li>- Stronger Always Encrypted implementation</li> <li>- Granular audit controls</li> <li>- Adaptive anomaly detection for logins, queries, and access changes</li> </ul>
<b>Observability &amp; Telemetry</b>	Query Store & Telemetry	<ul style="list-style-type: none"> <li>- Better wait-based analytics</li> <li>- Near real-time telemetry for CPU, I/O, memory grants</li> <li>- Expanded Query Store tracking operators and timestamped regressions</li> <li>- System-versioned insight snapshots for historical analysis</li> </ul>
<b>Storage Engine Enhancements</b>	Page & Log Management	<ul style="list-style-type: none"> <li>- Optimized page handling</li> <li>- Improved log writing algorithms for high-throughput workloads</li> <li>- Faster recovery after crashes- Smarter allocation tracking for large databases</li> </ul>
<b>Hybrid &amp; Cloud Consistency</b>	Azure & Arc Integration	<ul style="list-style-type: none"> <li>- Uniform T-SQL across on-prem and cloud</li> <li>- Azure Arc compatibility</li> <li>- Simplified data movement and syncing</li> <li>- Backup automation tooling for hybrid environments</li> </ul>
<b>Future DBA Expectations</b>	AI Integration	<ul style="list-style-type: none"> <li>- Automatic performance regression analysis</li> <li>- Predictive failure analytics- Intelligent index recommendations</li> <li>- Smart alert tuning based on historical behavior</li> </ul>
	Unified Hybrid Management	<ul style="list-style-type: none"> <li>- Feature parity with Azure SQL</li> <li>- Centralized policy-based management</li> <li>- Governance via Azure Arc-enabled SQL</li> </ul>

Category	Feature / Update	Description / Benefit for DBAs
	Modern Hardware Support	<ul style="list-style-type: none"><li>- Optimizations for higher core counts- Improved NUMA management</li><li>- Native support for persistent memory</li></ul>
	Disaster Recovery Enhancements	<ul style="list-style-type: none"><li>- Faster restore operations- Improved backup compression</li><li>- Granular point-in-time restore insights</li><li>- Cross-environment DR automation</li></ul>
	Observability & Diagnostics	<ul style="list-style-type: none"><li>- Capture granular execution details</li><li>- Historical trend insights- AI-based diagnostic timelines</li></ul>

<https://www.sqlbachamps.com/>

### Compact DBA runbook.

Category	Feature / Update	Key Benefits / DBA Impact
<b>AI &amp; Query Optimization</b>	Adaptive QI 2.0	<ul style="list-style-type: none"> <li>- Real-time query feedback</li> <li>- Automatic detection of problematic queries</li> <li>- Smarter cardinality estimation</li> <li>- AI-assisted parameter sniffing mitigation</li> </ul>
<b>Performance &amp; Scaling</b>	Dynamic CPU & Memory Scaling	<ul style="list-style-type: none"> <li>- Efficient resource usage on multi-core servers</li> </ul>
	TempDB Contention Handling	<ul style="list-style-type: none"> <li>- Reduced contention, improved parallel query processing</li> </ul>
	Parallel Plan Stabilization	<ul style="list-style-type: none"> <li>- Consistent plan behavior across recompilations</li> </ul>
	Faster Index Maintenance	<ul style="list-style-type: none"> <li>- Reduced downtime for large tables</li> </ul>
<b>High Availability / Always On</b>	Automatic Failover	<ul style="list-style-type: none"> <li>- More resilient failovers</li> </ul>
	Sync-Commit Performance	<ul style="list-style-type: none"> <li>- Faster log synchronization</li> </ul>
	Replica Monitoring	<ul style="list-style-type: none"> <li>- Better cross-platform monitoring and diagnostics</li> </ul>
	Health Diagnostics	<ul style="list-style-type: none"> <li>- Transparent replica health checks</li> </ul>
<b>Security Enhancements</b>	Zero-Trust & Encryption	<ul style="list-style-type: none"> <li>- Improved certificate APIs</li> <li>- Stronger Always Encrypted implementation</li> <li>- Granular audit controls</li> <li>- Adaptive anomaly detection</li> </ul>
<b>Observability &amp; Telemetry</b>	Query Store & Telemetry	<ul style="list-style-type: none"> <li>- Wait-based analytics</li> <li>- Near real-time CPU, I/O, memory telemetry</li> <li>- Expanded Query Store tracking</li> <li>- Historical insight snapshots</li> </ul>
<b>Storage Engine Enhancements</b>	Page & Log Management	<ul style="list-style-type: none"> <li>- Optimized page handling</li> <li>- Faster log writing</li> <li>- Enhanced crash recovery</li> <li>- Smarter allocation tracking</li> </ul>
<b>Hybrid &amp; Cloud Consistency</b>	Azure & Arc Integration	<ul style="list-style-type: none"> <li>- Uniform T-SQL across on-prem &amp; cloud</li> <li>- Simplified data movement &amp; backup automation</li> </ul>
<b>Future DBA Capabilities</b>	AI Integration	<ul style="list-style-type: none"> <li>- Automatic regression analysis</li> <li>- Predictive failure analytics</li> <li>- Smart alert tuning</li> <li>- Index recommendations</li> </ul>
	Unified Hybrid Management	<ul style="list-style-type: none"> <li>- Centralized hybrid policies</li> <li>- Azure Arc governance</li> <li>- Cloud-like observability</li> </ul>
	Modern Hardware Support	<ul style="list-style-type: none"> <li>- Higher core count optimization</li> <li>- Improved NUMA management</li> <li>- Persistent memory support</li> </ul>
	Disaster Recovery Enhancements	<ul style="list-style-type: none"> <li>- Faster restores</li> <li>- Improved backup compression</li> <li>- Granular PIT restores</li> <li>- Cross-environment automation</li> </ul>
	Observability & Diagnostics	<ul style="list-style-type: none"> <li>- Granular execution detail capture</li> <li>- Historical trend insights</li> <li>- AI-driven diagnostic timelines</li> </ul>