

SQL Server Migration and Lenovo ThinkSystem SR950

Article

SQL Server 2008 End of Support

Close to 50% of SQL customers are running SQL Server 2008 or 2008 R2. Extended support for SQL Server 2008 and 2008 R2 is ending on July 9, 2019. This date is 10 years after the release of SQL Server 2008 and almost 9 years after the release of SQL Server 2008 R2.

When Mainstream Support ended in 2014, Microsoft stopped providing software upgrades but continued to provide bug fixes and security updates. When Extended Support ends, no additional bug fixes or security updates will be provided.

This has major implications:

- No security updates means no access to critical security updates opening the potential for business interruptions and can also mean higher maintenance costs
- Maintaining legacy servers, firewalls, intrusion systems, and other related systems becomes expensive quickly
- When support ends, it is likely the SQL applications will fail to meet regulatory compliance

Advantages of SQL Server 2017

In addition to SQL Server 2008 going EOS, Microsoft SQL Server 2017 offers many compelling reasons to upgrade.

SQL Server 2017 advantages include:

- Cross-Platform Compatibility
- Improved Cost of Ownership
- Best in Class Security
- Improved Statistical and Data Science Analysis Services
- Linux Support
- Cross Platform Visual Studio

SQL Server 2017 Incremental features include:

- In Memory OLTP
- In Memory ColumnStore
- Real Time Operational Analytics
- Buffer Pool extension to SSD
- Adaptive Query Processing
- Several Availability features
- Several Security features
- Several Cloud-readiness features
- Several Management and programmability features
- Several BI and analytics features

[Read the full list of SQL Server 2017 enhancements](#)

SQL Database Solutions on ThinkSystem SR950

The rapid growth of technology means the ability to collect vast amounts of data and support high rate online transactions. As the volume and velocity of data increases, extracting meaningful insight in a timely manner or supporting online transactions has become more complex.

Lenovo SR950 Database Solutions for Microsoft SQL Server brings together the right mix of hardware infrastructure, software, and services to optimize a wide range of data warehouse and transactional database use cases. The configurations integrate the Lenovo SR950 servers combined with the capabilities of Microsoft SQL Server 2017.

The solution benefits help reduce time to value with pretested ThinkSystem SR950 hardware configurations with Microsoft Certification and detailed performance data. This provides a reduced TCO through better performance, rapid deployment, and advanced hardware.

Data Warehouse Fast Track (DWFT) configuration

The Microsoft Data Warehouse Fast Track (DWFT) configuration for SQL Server 2017 improves time-to-value for data warehousing needs with a new scalable architecture. This solution uses the Lenovo ThinkSystem SR950 server combined with Lenovo NVMe Enterprise Mainstream Flash Adapters to solve SQL database warehouse needs up to 90 TB in size.

Data warehouse use case examples:

- Production strategies: Tune business decisions by comparing quarterly and yearly customer trends
- Customer analysis: Analyze customer behavior, buying preferences, budget cycles, etc.
- Operation Analysis: Analyze customer relationships, business operations, etc.

Read the [Lenovo Solution Brief for Microsoft SQL Server DWFT – 200TB](#) .

Online Transaction Processing (OLTP) configuration

The Microsoft Online Transaction Processing (OLTP) configuration for SQL Server 2017 improves time-to-value for transactional needs with a new scalable architecture. This high performance solution in the Lenovo portfolio uses the Lenovo ThinkSystem SR950 server combined with Lenovo ThinkSystem NVMe Enterprise Mainstream Flash Adapter storage to solve SQL database transactional needs of up to 60 TB in size and 10 million transactions per minute (TPM) based on Hammerdb TPC-C testing results.

Online transaction processing (OLTP) examples:

- Order entry
- Retail sales
- Financial transactions

SQL Server and ThinkSystem SR950 Solution Benefits

DWFT and OLTP for SQL Server 2017 for Lenovo solution offerings are methodically tested and tuned to save you months of configuration, setup, testing, and tuning to complete the following tasks:

- Buy all the hardware that you need from only one vendor including servers, storage, and networking
- Pre-optimized system tuned and tested with Microsoft certification and deploy with confidence for your demanding transactional database performance needs
- Select from different levels of performance, scalability, and price to suit your business needs
- Run mission-critical transactional workloads with small random IOPs with low latency requirements
- Eliminate bottlenecks with optimized rapid data reads and query aggregations

Why the ThinkSystem SR950?



Figure 1. Lenovo ThinkSystem SR950

Performance

The Lenovo ThinkSystem SR950 continues its dominance of data center performance by increasing the total #1 World Record benchmarks to 77 (as of September 14, 2018). This outstanding performance is achieved with configurations ranging from 3S, 4S, 6S and 8S and a variety of workloads ranging from Big Data Analytics to Infrastructure Virtualization.

Read more in the article [ThinkSystem SR950 Performance Leadership Continues](#)

Usability

In the data center, a server's usability is very important to support installation, maintenance, and upgrade activities. The Lenovo ThinkSystem SR950 provides a high level of usability in the system design. The overall design of the Lenovo ThinkSystem SR950 is based on a modular service model where access is from the front and rear only. This means that nearly all parts can be removed from the front or rear of the system, even parts that are located in the center of the machine (e.g., fans, memory DIMMs, and processors)

Read about the [Usability in the Design of the SR950](#).

Configuration Flexibility

The SR950 can be configured from 2S to 8S, from 24 DIMM slots to 96 DIMMs slots and from three PCIe slots on the main system board to up to 14 PCIe slots with risers. Some configurations support a max of 12 storage bays and six NVMe while others support a maximum of 24 storage bays and 12 NVMe. The SR950 supports three series of Intel Scalable Processors (5100 Series, 6100 Series and 8100 Series) each of which provides varying levels of capabilities and performance.

Read about the [SR950 Server Configurations](#).

Reliability

Server downtime is very costly to enterprises, especially business or mission-critical workloads. Always-on has become a global requirement and affects almost every aspect of our lives. The Lenovo ThinkSystem SR950 contains multiple levels of RAS capabilities to ensure the servers maintain the highest level of Reliability, Availability and Serviceability (RAS).

Read about the [RAS Features of the Lenovo ThinkSystem Intel Servers](#).

Conclusion

With industry-leading performance, leading reliability, and a Lenovo portfolio that spans the entire range of customer needs, SQL Server customers can benefit greatly by running their workloads on Lenovo servers. Lenovo has worked with Microsoft to create SQL Server solutions — such as those for data warehousing and online transaction processing (OLTP). These balanced, pre-tested configurations accelerate deployment and lower the risk and cost of any implementation.

Further reading

For further reading, see these resources

- [SR950 product web page](#)
- [SR950 Product Guide](#)

This article is one in a series on the ThinkSystem SR950 and SR850 servers:

- [Five Highlights of the ThinkSystem SR950](#)
- [Five Highlights of the ThinkSystem SR850](#)
- [Choosing between Lenovo ThinkSystem SR850 and SR950](#)
- [Workloads for 4-Socket and 8-Socket Servers](#)
- [Usability in the Design of the ThinkSystem SR950](#)
- [The Value of Refreshing Your 4-Socket Servers with the ThinkSystem SR950](#)
- [ThinkSystem SR950 Memory Decisions](#)
- [ThinkSystem SR950 Server Configurations](#)
- [The Value of Refreshing Your 8-Socket Servers with the ThinkSystem SR950](#)
- [Lenovo ThinkSystem SR950 New Options and Features - December 2017](#)
- [ThinkSystem SR950 Performance Leadership](#)
- [Lenovo Servers for Mission Critical Workloads](#)
- [Microsoft and Lenovo ThinkSystem SR950 – A Perfect Match](#)
- [Accelerate Your 4- and 8-Socket Server Refresh Cycle](#)
- [SAP Business Process Applications and Lenovo ThinkSystem SR950 – A Perfect Match](#)
- [ThinkSystem SR950 New Options - March 2018](#)
- [SAP HANA and Lenovo ThinkSystem SR950 – A Perfect Match](#)
- [ThinkSystem SR950 Performance Leadership Continues](#)
- [New Solution for SAP HANA - Lenovo ThinkAgile HX](#)
- [The Advantages of Keeping Mission Critical Workloads On-Premises vs Going to the Cloud](#)
- **[SQL Server Migration and Lenovo ThinkSystem SR950](#)**

About the author

Randall Lundin is a Senior Product Manager in the Lenovo Infrastructure Solution Group. He is responsible for planning and managing ThinkSystem servers. Randall has also authored and contributed to numerous Lenovo Press publications on ThinkSystem products.

Related product families

Product families related to this document are the following:

- [Microsoft SQL Server](#)
- [ThinkSystem SR950 Server](#)

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