Advance your data strategy — and healthcare outcomes

Empower healthcare professionals with agile access to information and insight with Microsoft data platform and Dell Technologies solutions

Today's healthcare market is experiencing incredible change. The industry is pulsing with exciting medical advancements, working furiously to solve today's health challenges, and driving improvements in care delivery models. Healthcare professionals work passionately to accelerate patient care through innovations in telemedicine and virtual care. And they continually adapt to address evolving regulations and compliance mandates.

Whether you operate in the research, clinical or business realm, data is critical to your success. The information derived from electronic medical records (EMRs), electronic health records (EHRs) and research is the cornerstone for developing new vaccines, treatment models and more accurate diagnoses. It is essential to collect and access massive amounts of structured and unstructured data, store it effectively and tap into it in ways that generate valuable insights.

But data agility doesn't come easily — especially with today's disparate data silos. Data is increasingly segregated by vendor, workload, application or location, which is why healthcare organizations look to simplify and remove these barriers to process data in a secure and timely fashion.

The good news is that Microsoft® SQL Server® is forging a new information era — one that removes the boundaries caused by siloed data. Leveraging advancements in data virtualization, SQL Server helps healthcare organizations make significant improvements today while allowing for future advancements tomorrow.

Likewise, Dell Technologies provides a proven foundation with products, solutions and services that support your investment in SQL Server. Whether you run bare metal, a virtualized environment, converged/hyperconverged infrastructure (CI/HCI), or cloud, Dell Technologies can meet you where you are and take you where you want to go without the traditional forklift overhaul.
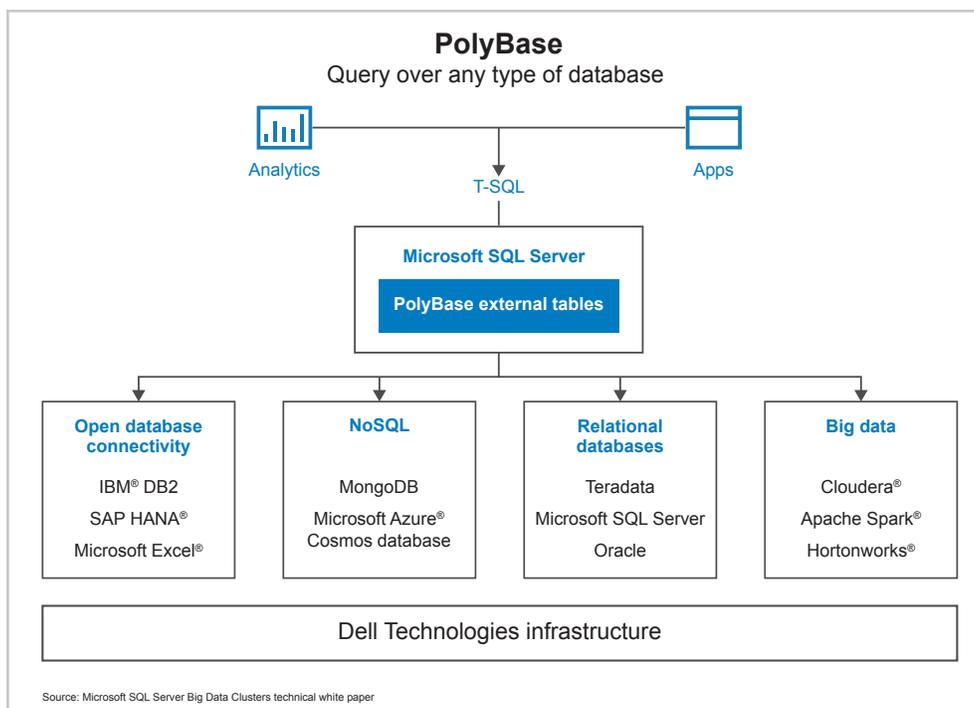
Gain intelligence over all data with Microsoft SQL Server 2019 powered by Dell Technologies

Microsoft SQL Server, of course, is not new to healthcare. Many organizations are already using SQL in some capacity to support their applications, including Epic® Clarity® and Caboodle®. Over the years, these organizations have deployed multiple versions, many of which may still be in use due to application requirements and dependencies.

Microsoft SQL Server 2019 bridges the gap between previous SQL Server versions. It enables you to ingest data from legacy versions of SQL Server and other data sources — such as Oracle®, Teradata®, MySQL® and Apache® Hadoop® — and uses data virtualization to access disparate and siloed information without forcing you to use inefficient extract, transform and load (ETL) processes.

Data virtualization is the process of abstracting data — rather than copying or moving it — from different sources, locations and formats into a single layer utilizing pushdown compute and pushdown WHERE clause (filtering) predicates. Microsoft SQL Server is at the forefront of this shift.

SQL Server PolyBase technology enables users to query that information in near real time — all from SQL Server — creating a unified data management platform. It helps you tackle issues associated with data gravity, different languages and versions, and relational and unstructured data. It provides analytics, resources and insight over **all data** from a common interface. Essentially, it's changing the way healthcare organizations access, manage and analyze information.

PolyBase
Query over any type of database

Analytics — T-SQL — Apps

Microsoft SQL Server

PolyBase external tables

Open database connectivity	NoSQL	Relational databases	Big data
IBM® DB2	MongoDB	Teradata	Cloudera®
SAP HANA®	Microsoft Azure® Cosmos database	Microsoft SQL Server	Apache Spark®
Microsoft Excel®		Oracle	Hortonworks®

Dell Technologies infrastructure

Source: Microsoft SQL Server Big Data Clusters technical white paper

As data sets grow larger, it becomes expensive to copy or move them around, which is why accessing data where it's located is often the best option. **SQL Server 2019 Big Data Clusters (BDC)** is a unified data platform that combines SQL Server, Spark and Hadoop Distributed File System (HDFS) across a cluster of Kubernetes® nodes. This data analytics architecture includes support for Linux® OSs, database containerization and PolyBase technology.

While you may not be using containers as part of your current data strategy, that could quickly change. Analysts predict that more than 75% of global organizations will be running containerized applications by 2022.[1] The good news is that, even if your healthcare organization is not using containers today, these and other advanced capabilities will be available when you're ready to turn them on.

SQL Server 2019 also expands upon previous versions, with powerful business intelligence capabilities and comprehensive advanced analytics tools to help you draw actionable insights from your data. It's virtually "creating" data sets for combinatorial analytics, utilizing all possible data sources for a given population.

[1] Gartner, "6 Best Practices for Creating a Container Platform Strategy," Smarter with Gartner, April 23, 2019.

Design on a modern data foundation that evolves with your organization

Dell Technologies has invested in developing an infrastructure platform optimized to support your SQL Server workloads and drive your healthcare IT data transformation strategy as healthcare needs evolve. Every organization is unique. Your organization might be transforming from a traditional SAN-based infrastructure to CI, HCI, hybrid cloud or anything in between. You might be on the virtualization or bare metal path. You might be operating commercial-off-the-shelf (COTS) applications, using traditional toolsets or moving toward containerization.

The great news is that it doesn't matter. Dell Technologies solutions can meet you where you are in your digital transformation while helping to evolve your data strategy and accelerate healthcare outcomes.

In the end, it's about what makes sense for your organization, your environment, existing skills and the patients you serve. Your data strategy and technology evolution are a journey. Our goal is to unlock the power of your data with an adaptable and modern infrastructure that stands the test of time.

Dell Technologies has the compute, storage, networking and data protection solutions optimized to run SQL Server and the consulting services to make it happen. More importantly, they are designed to support your technology environment and organization needs today and well into the future.

- The **Dell EMC PowerEdge server family** is the bedrock of the modern data center. Highly adaptable for seamless scaling and equipped to meet real-time analytics and business intelligence demands, PowerEdge delivers an optimal experience without excessive overhead. Every PowerEdge server includes end-to-end security spanning the IT security lifecycle from the firmware/hardware level. PowerEdge servers with Intel® Optane™ Persistent Memory can help reduce latency and accelerate insights from the massive amounts of data healthcare organizations manage today — improving the overall customer and researcher experience. PowerEdge servers also utilize Intel Trusted Execution Technology (Intel TXT), which further enhances the built-in securities capabilities by helping to protect against software-based attacks and preserve the confidentiality and integrity of data.
- **Dell EMC storage solutions,** which leverage Intel Xeon® Scalable processors and Dual Port Intel Optane SSDs, can be right-sized for performance and capacity at initial deployment — and scale to meet future needs. This includes inline data efficiencies and integrated copy data management, which provides orchestration and self-service for DBAs.
- **Dell EMC Data Protection solutions** eliminate the complexity of traditional backup software. This makes it easier for SQL Server administrators to protect data and manage backup requirements on their own terms, leveraging the most trusted backup storage software and infrastructure on the market today.
- **Dell EMC Open Networking solutions,** powered by Intel Xeon Scalable processors, are designed for highly distributed SQL Server environments. Our full line of Ethernet switches and software delivers the performance, flexibility, scalability and connectivity required to help enhance the customer experience and enable the collection of data distributed across the data estate — from edge to core to cloud — enabling organizations to query SQL instances from any location.

When supported by a Dell Technologies infrastructure, optimized for SQL Server and BDC, healthcare organizations like yours can deploy scalable Kubernetes clusters utilizing Apache Spark, HDFS containers with Kubernetes, and SQL Server. You can deliver secure, isolated virtualized containers quickly and easily. You can provision, manage and orchestrate container storage via Dell EMC Container Storage Interface (CSI) plugins for Kubernetes. The CSI connections for block and file storage systems allow extensible, secure and reliable data service persistency for big data workloads on containers.

We offer the flexibility and choice to design a solution that aligns with your strategy — whether that's bare metal, a virtualized or containerized environment, on-premises, or as a hybrid cloud. And, with an eye to the future, our solutions are designed to scale as your organization grows and enable you to take advantage of technology enhancements down the road.

You're never alone with Microsoft, Intel and Dell Technologies

Take your understanding of information to the next level. Leverage your data simply, quickly, accurately and in ways that push the envelope further in healthcare.

You do not have to embark on your SQL Server modernization journey alone. Dell Technologies and Microsoft have partnered for over 30 years — from joint development to solution validation to customer support. We have the breadth and depth — from edge to core to cloud — with the services expertise needed to support you every step of the way.

Together Intel and Dell Technologies are driving innovation and next-generation capabilities with the broadest portfolio of trusted client and enterprise solutions for cloud and data management — enabling businesses to move faster, innovate more and operate efficiently.

Dell Technologies Consulting Services and data-centric specialty teams can help you plan a solid, foundational set of goals and develop a roadmap for modernization. Our industry experts offer strategic guidance and proven practical capabilities to help you accelerate time to value of your SQL Server objectives. Our team can help your organization meet its full potential with a data strategy designed to meet you where you are, on any platform, with the tools and languages of your choice.

Contact us today

Dell Technologies and Microsoft solutions accelerate insights that move your research forward. These solutions can help you make better point-of-care decisions, effectively meet compliance mandates, modernize your foundation and set you up for the future.

Discover the advantages of SQL Server 2019 and how Dell Technologies solutions can move you closer to a data strategy that benefits your organization and the patients you serve.
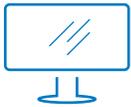
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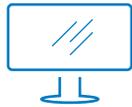
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