# The Best Rx for Insight-Driven Healthcare is Modern Infrastructure

Healthcare organizations face integration and interoperability challenges resulting from the volume and variety of healthcare data. Modern computing, network, and storage infrastructure is key.

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AS HEALTHCARE EVOLVES toward a delivery model that rewards improved patient outcomes, reduces costs, and eliminates waste and abuse, data convergence is emerging at the epicenter of the transformation. As a result, healthcare organizations must modernize existing infrastructure and fully leverage analytics and artificial intelligence (AI) to turn data insights into action that will deliver a higher standard of proactive care.

Healthcare providers, under pressure to deliver, face an array of challenges. Patients are demanding consumer-like experiences with expectations for transparency into pricing, easy access to procedure and personal health information, and telehealth services. A new class of "payviders" is emerging — the result of payer/provider partnerships designed to meet common goals, including reduced financial risk, increased profitability, and high-quality medical care.

Likewise, the need to manage chronic diseases is ongoing and accounts for approximately 75%[1] of the nation's aggregate healthcare spending. The emergence of COVID-19 has forced provider organizations to pivot quickly to meet new clinical and business challenges, including a surge in demand for telehealth services.

During this changing healthcare landscape, data continues its exponential growth, fed by wearables, remote monitors, genomics information, physician notes, images, patient records, electronic health records (EHR), telehealth, and social/chatbots.

According to IDC, the healthcare data explosion will approach the 4ZB level and exceed 10ZB by 2025. Although healthcare and life science organizations currently manage on average 21PB of data (i.e., 25% less than the industry average), they retain data almost 20% longer.

The health-related data bounty is the key to delivering real-time insights that can benefit providers' business, research, and clinical areas. This data will be the feeder for streaming information to help manage clinical trials, reduce process run times for real-world patient data analysis, deliver patient and physician 360-degree evaluations, fuel population health applications, and ensure value-based care.

To capitalize on the possibilities, however, organizations face significant integration and interoperability challenges resulting from the sheer volume and variety of healthcare data. The ability to securely handle real-time data and predictive insights at scale requires a modern computing, network, and storage infrastructure. Without that foundation, organizations risk the health of their operations and put patient outcomes at risk. They also jeopardize

1  National Association of Chronic Disease Directors, "Why Public Health Is Necessary to Improve Healthcare"

opportunities for innovation when they are unable to parlay data intelligence into new products and services that elevate the standard of care.

"Organizations are under stress trying to gain access to the right information needed to make proactive healthcare decisions and provide value-based health care," says Cindy Maike, vice president of industry solutions at Cloudera. "COVID has pushed the need for the digitization of health care records … and created new data sources, hence the need for more robust infrastructure."

## What's possible with modern infrastructure for healthcare

The ability to leverage AI and predictive analytics is one of the most promising and transformative ways the healthcare industry can shift to more informed decision-making. Armed with the right insights, clinicians can more quickly diagnose and treat medical conditions and proactively help patients manage chronic disease. With a data-driven, 360-degree view, physicians can identify ideal patients for new procedures and clinical trials.

Caregivers' ability to capture and analyze data in real time allows them to create proactive, personalized wellness and treatment plans that can be continuously monitored and modified based on a patient's vitals. Integrating data from diverse and disparate sources creates a complete, accurate picture of patients, conditions, and trends, fueling a range of population health applications.

The combination of high-performance computing (HPC) and AI enables precision medicine, empowering initiatives such as molecular imaging, genomics analytics, and molecular dynamics. By digitizing and storing everything from tissue sample slides to additional information in the EHR, healthcare providers gain a holistic patient view. This, in turn, optimizes treatment and wellness plans and minimizes the need for acute care.

Data also has financial ramifications for providers: Data-driven insights can help create value-based care platforms that drive down the total cost of care and deliver the best health outcomes. A modern infrastructure ensures accurate billing and coding for submission of Medicare and Medicaid claims, facilitates assessment of current performance, and unifies revenue cycle processes across the care continuum.

At the same time, healthcare plans have a lot to gain by modernizing infrastructure to fully exploit data-driven analytics. By integrating and analyzing data across providers, clinics, and hospitals, health plans can deliver high-quality, value-focused care while maintaining financial sustainability.

For example, plans can use data to steer patients to care within the network, thus preventing patient runoff. Data also enables provider benchmarking studies to determine which providers are high performers and identify areas for improvement. Real-time fraud analytics and pre- and post-adjudication claims analysis can improve alignment of reimbursements and care outcomes and avoid overpayment. Data insights can guide accurate payments to providers that fall within contractual guidelines and help detect, monitor, assess, mitigate, and prevent risk.

## What Cloudera, Dell, and Intel bring to the table

Cloudera helps healthcare organizations deliver better health outcomes, lower the total cost of care, and identify better targets for drug discovery and development. Healthcare data comes from a variety of sources — such as bedside monitors, medical devices, medical images, and wearables — and enters the data ecosystem from disparate providers, facilities, and organizations. The Cloudera Data Platform, including the Shared Data Experience (SDX), drives data optimization from the bedside through complex machine learning and AI, delivering actionable intelligence back to the point of care.

Dell EMC's latest infrastructure provides storage and networking at scale to accommodate the data surge. In addition to maximum scalability and performance, Dell EMC platforms deliver virtual provisioning for improved capacity utilization, integrated data protection at the storage processor level, and reduced ownership costs.

Intel's Xeon Scalable processors establish a leap forward in data center agility and scalability, combining computing, storage, memory, networking, and security to optimize high-performance data management and AI-infused, real-time analytics. As part of data center infrastructure, Intel's persistent memory technology introduces affordable, scalable memory capacity and low-latency access to the mix. In addition, Intel and Cloudera have collaborated on software optimization, creating a library that accelerates math processing and neural network routines to increase application performance.

## The bottom line

The healthcare ecosystem's data explosion presents unfettered opportunity along with unprecedented challenges. By modernizing existing infrastructure, players can fully exploit the promise of AI for more informed decision-making that raises the bar in proactive care while optimizing financial performance.

**To learn more about the Cloudera Data Platform, Dell, and Intel, visit  Delltechnologies.com/AI.**