

OEM Solutions

Powering the Future of Healthcare with Dell Technologies and Intel®

We salute the work of medical researchers and clinicians who transform ideas into breakthrough discoveries and medicines that help save and improve millions of lives. However, while positive for society, increased life expectancy and an aging population can also bring challenges, including greater incidence of chronic disease and disability as well as higher expenditure in health and long-term care.

Today, 9% of the world's population is over 65¹, while around one in three of all adults live with multiple chronic conditions.² There are also major inequities in healthcare access across locations and demographics. In addition, the World Health Organization estimates a shortfall of 15 million healthcare staff by 2030.³ These and other challenges, continue to exert pressure on an already taxed healthcare system, demanding innovative solutions to help clinicians better address the growing needs of patients.

New Models of Care

In response, Dell Technologies and Intel® are helping companies advance innovation to address healthcare challenges through technology. Developments in telemedicine, remote monitoring and diagnostics, edge analytics for clinical trials and research, AI-assisted disease detection, and virtual and augmented reality are all examples of how digital transformation is transforming patient outcomes, enhancing clinical workflow efficiency, and accelerating data-driven decisions and operations.

Data – Healthcare's Greatest Resource

As a result of this increased investment in digitalization, healthcare is gathering, tracking, analyzing, and storing huge volumes of data. While approximately 30% of the world's data is generated by healthcare,⁶ 97% goes unutilized.⁷ It is vital that healthcare providers unlock this potential. This is the data that can help speed up diagnosis, identify pathways in disease transmission, predict outcomes, and increase the effectiveness of treatments. Digital transformation can manage this data deluge and generate actionable healthcare insights.

This increased data generation has also made healthcare systems more vulnerable to cyber-attacks. Attacks on healthcare providers doubled between 2016 and 2021, leaving 42 million patients' data vulnerable.⁸ Dell Technologies delivers secure, transformative solutions powered by Intel®. Customers gain edge-to-cloud optimization with comprehensive hardware and software portfolios including features and accelerators that enable smart healthcare systems of the future.

Transformative Solutions – Built with Security in Mind

Dell Technologies can deliver more secure, transformative solutions, powered by Intel® for the smart healthcare system of the future.



Storage: Dell PowerScale is a scalable unstructured data storage solution, available in all-flash, hybrid and archive configurations with cyber security capabilities and deployments supporting access to medical images, digital pathology files, Vendor Neutral Archive (VNA) functionality, management of departmental PACS (Picture Archiving and Communication System) and next-generation sequencing workloads.



Server: Dell PowerEdge servers provide a secure, scalable high-performance infrastructure, supporting tasks such as processing and render image optimization.



Client: The Dell OptiPlex XE4 and Edge Gateways are ideal for embedding into and powering medical diagnostic solutions and laboratory use cases. When displays and user interaction are needed for PACS Image Viewing, the Precision 5820 Tower is an ideal solution. The OptiPlex 7000 in its micro size is a great fit for Connected Health solutions, while the Precision 7820 Tower can be utilized for the AI aspects of the diagnostic process, analytics, visualization, and robotics.

Macro Trends in Healthcare

- 97% of all data produced annually by hospitals goes unused.⁴
- Research indicates most patients prefer to use digital channels to communicate with healthcare providers.
- 41.4% of health and life science IT leaders expect to continue to invest in digital transformation.⁵

Intel® Technology Solution Building Blocks

Intel® optimizes Dell Technologies' solutions by providing the hardware and software technology building blocks that power the digital transformation journey toward a more connected, insightful, and automated healthcare environment. Intel® works closely with leaders of the healthcare and life sciences ecosystem to transform the industry with next-generation systems and applications.

Hardware Technologies:

- The latest 4th Gen Intel® Xeon® Scalable processors feature built-in accelerators and advanced security technologies for the most in-demand workload requirements. Accelerate deep learning training and inference with Intel® Advanced Matrix Extensions (Intel® AMX), and enhance data protection with Intel® Software Guard Extensions (Intel® SGX) and Intel® Trust Domain Extensions (Intel® TDX).
- The latest 13th Gen Intel® Core™ processors advance performance hybrid architecture with up to eight Performance-cores (P-core) and up to 16 Efficient-cores (E-core), combined with workloads intelligently routed by Intel® Thread Director.
- Intel® Data Center GPU Flex Series is flexible, robust, and the industry's most open GPU solution for the intelligent edge, network, and cloud supporting a diverse range of workloads including AI visual inference, virtual desktop infrastructure, and media streaming workloads.

Software Technologies:

- Intel® Smart Edge is a Kubernetes-based portfolio of edge software solutions that enable highly optimized edge platforms to manage applications and network functions with cloud-like agility across any type of network.
- Intel® hardware-enabled security technologies deliver advanced, interoperable hardware-rooted security to help protect against today's most sophisticated cybersecurity threats.



Customer Use Case:

Enabling Early Detection of Lung Disease

Japanese multinational, Konica Minolta knew that early detection of lung disease was vital to patient survival. However, it was key to see the lungs expanding and contracting with each breath and the blood circulating to spot the signs of diseases early. Yet, this was not possible with conventional, static X-ray technology.

In response, Konica Minolta developed a digital X-ray video recording software system, powered by AI. Known as Kinosis, the system generates video by continuously time-lapsing X-rays of patient lungs, enabling clinicians to check the movement of lung tissue and to confirm physiological information associated with breathing. However, to launch Kinosis, the company needed a technology partner and a robust, scalable hardware platform to run its software. In addition, the platform would need to connect seamlessly to legacy X-ray systems and picture archiving and communications systems (PACS).

Konica Minolta successfully leveraged Intel®-powered Dell Technologies OEM Solutions' products and services to bring Kinosis to the global market. Thanks to this development, clinicians can now diagnose lung disease more easily, helping to achieve faster treatment and better patient outcomes.

Intel® Accelerates AI and Intelligent Disease Detection

Intel® software technologies accelerate the development and deployment of AI-driven medical imaging, diagnostic, and monitoring solutions across a diverse range of processors and accelerators.

- Intel® Distribution of OpenVINO™ toolkit streamlines development, optimization, and deployment of high-performance deep learning inference workloads including AI-enabled disease detection.
- The Intel® Geti™ platform makes AI model development intuitive, accessible, and agile — even empowering clinicians to train AI models for early disease detection.
- Intel® oneAPI is an open, cross-architecture programming model that frees developers to use a single code base across multiple architectures. The result is accelerated compute without vendor lock-in.
- Habana® Gaudi® AI accelerators maximize training throughput and efficiency, while providing developers with optimized software and tools that scale to many workloads and systems.

Dell Technologies OEM Solutions in Healthcare

OEM Solutions has the technology and expertise to help you design and deliver innovative healthcare solutions, powered by Intel® and built on Tier 1 infrastructure. For over 20 years, we have helped customers design technology platforms for critical infrastructure environments.

We leverage cutting-edge technologies, such as AI, ML, software-defined solutions, and cyber resilience and provide real-time monitoring, advanced analytics, robust security, and intelligence for distributed assets at the edge. We offer planning and consulting services, off-the-shelf, tailor-made products, extended life platforms, and customized solutions, including branding.

Driving Human Progress

Our work in healthcare aligns with our company values. We believe that technology is key to overcoming many of the world's biggest societal challenges. A data-driven, outcomes-oriented approach in healthcare helps reduce security risks, delivers time and cost efficiencies, drives productivity, and reduces the workload of overburdened staff — freeing them up to do what they do best, saving lives and caring for patients.

We have the opportunity to leverage science and technology to help transform healthcare practices, increase access for underserved communities, and reduce hospitalization through preventive care. Together, we can advance healthcare and positively impact millions of lives.

Learn more about our capabilities at [Dell Technologies OEM Solutions](#)

¹ United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Ageing 2019: Highlights (ST/ESA/SER.A/430).

² The global burden of multiple chronic conditions: A narrative review (Preventative Medicine Reports): ncbi.nlm.nih.gov/pmc/articles/PMC6214883/

³ World Health Organization: Health Workforce (June 2022): who.int/health-topics/health-workforce#tab=tab_1

⁴ https://www.weforum.org/agenda/2019/12/four-ways-data-is-improving-healthcare

⁵ 2/2021 Establishing Uncompromising Data Availability for Healthcare Organizations: delltechnologies.com/asset/en-us/solutions/industry-solutions/industry-market/idc-establishing-uncompromising-data-availability-for-healthcare-organizations.pdf

⁶ The Healthcare Data Explosion (February 2022): rbccm.com/en/gib/healthcare/episode/the_healthcare_data_explosion

⁷ weforum.org/agenda/2019/12/four-ways-data-is-improving-healthcare

⁸ Jama Health Forum https://jamanetwork.com/journals/jama-health-forum/fullarticle/2799961?utm_source=silverchair&utm_campaign=jhf&utm_medium=email&utm_content=new-this-week&utm_term=122922

⁹ Global Share based on 2021 Revenue, VDC Research, Worldwide OEM Solutions Provider. Veeva claim ID: CLM-004910