DELL Technologies

Edge and IoT solutions

A new vision for Healthcare and Life Sciences

Where we are now

DEMOGRAPHICS ARE CHANGING

73 years
global life expectancy, up 5.5 years 2000-2019[1]

1 in 6
people over 65 by 2050[2]

75%
of older developed world adults present with multiple chronic conditions[3]. Growing need for personalized information and complex long-term treatments. Younger generations seek new concierge and subscription healthcare models.

MEDICAL PROFESSIONALS UNDER PRESSURE

>50%
of the world's population lacks access to essential health care[4]

18,000,000
projected shortfall of healthcare workers by 2030[5]

44%
of US physicians report burnout[6]

59%
of US physicians cite 'too many bureaucratic tasks' as biggest contributor to burnout[6]

MEDICAL AND LIFE SCIENCES DATA GROWING EXPONENTIALLY

36%
compound annual growth rate (CAGR) for healthcare by 2025[7]

10-15
average number of connected devices per U.S. hospital bed[8]

3,000,000
data points generated by average clinical trial[9]

8.41 PB
average data managed by healthcare providers in 2018[10]

30%
of all global stored data is from healthcare and life sciences[10]

SECURITY CHALLENGES

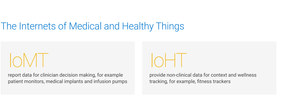
$355
average healthcare security breach cost per record cf. $158 for other industries[11]

41,200,000
healthcare records exposed, stolen or illegally disclosed by breach in 2019[12]

505
healthcare breaches 2019[12]

89%
of healthcare executives have suffered a breach through the adoption of IoT devices[13]

The opportunities

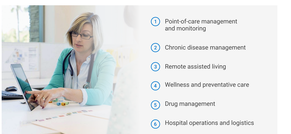


Reduce routine and non-remunerated workloads

Reduce physician burnout

Improve outcomes through technology

Secure patient data and privacy with Edge and IoT solutions



More personalized care delivery

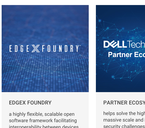
Growth of telemedicine with new reimbursement models for Edge and IoT devices in the home

Data-driven preventative and predictive medicine

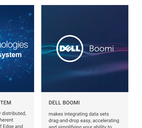
New clinical trials for insights from companion app data

The technologies

Computer vision



AI and Machine Learning deliver faster, more accurate results from tests and scans



Visual data can enable automation of

- drug compliance management
- emergency room visual triage
- pain assessment
- patient turning schedules

The Internets of Medical and Healthy Things

IoMT
report data for clinician decision making, for example patient monitors, medical implants and infusion pumps

IoHT
provide non-clinical data for content and wellness tracking, for example, fitness trackers

SIX USE CASES

- Point-of-care management and monitoring
- Chronic disease management
- Remote assisted living
- Wellness and preventative care
- Drug management
- Hospital operations and logistics

Edge analytics

75%
of data will be generated at the Edge by 2025[14]

Immediacy
is essential in time-critical applications for example closed-loop intensive care systems

Collaboration
edge computing enables machine learning fusion of diverse data feeds from multiple departments and sites

Interoperability: three answers to the challenge

EDGEX FOUNDRY
a highly flexible, scalable open software framework facilitating interoperability between devices and applications at the IoT Edge.

PARTNER ECOSYSTEM
helps solve the highly distributed, massive scale and inherent security challenges of Edge and IoT systems.

DELL BOOMI
makes integrating data sets drag-and-drop easy, accelerating and simplifying your ability to combine data.

Solutions built for healthcare and life sciences

SIMPLIFIED COMPUTER VISION SOLUTIONS FROM DELL TECHNOLOGIES

We help you innovate, delivering new capabilities quickly and cost effectively to respond to changing demands. Improve organizational agility, clinical outcomes and professional staff effectiveness through Edge and IoT, software, and insights powered by data.

- Pre-tested
- Pre-validated
- Deliver impact fast
- End-to-end security protects patient data
- Solutions scale to every organization size
- Create the foundation for your digital future, with flexibility to add in new capabilities

In healthcare and life sciences today, you need vision. What's yours?

Digital Transformation is the key to achieving an new vision for patient care. Find out how Dell Technologies Edge Solutions for Healthcare and Life Sciences can help transform your organization.

For more information, visit:
DellTechnologies.com/Edge **DellTechnologies.com/Healthcare**

DELL Technologies intel

1 https://www.who.int/gho/mortality_burden_disease/life_table/situation_trends_text/en/
2 population.un.org/wup/
3 Marengoni, A, Angleman, S, Melis, R, et al Aging with multimorbidity: a systematic review of the literature. Ageing Res Rev2011;10:430-39 doi:10.1016/j.arr.2011.03.003
4 https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-and-health-emergencies
5 https://www.who.int/news-room/fact-sheets/detail/health-workforce
6 Medscape's 2019 National Physicians Burnout & Depression Report cited
7 https://www.statista.com/statistics/381468/healthcare-data/
8 Kaiser X Broker https://cardiac-kaiser.org/cover-story-examines-costs-hospital-beds
9 Institute of Medicine (US) Roundtable on Research and Development of Drugs, Biologics, and Medical Devices https://www.ncbi.nlm.nih.gov/books/ NBK224576
10 IDC Health Insights, Worldwide Data Management Services, 2019
11 https://www.healthcareitnews.com/news/average-cost-healthcare-data-breach-$355-per-record-study-finds
12 https://www.ncsl.org/research/telecommunications-and-information/cyber-security-training-for-state-employees.aspx
13 https://www.ncsl.org/ncsl-in-washington/cybersecurity-training-for-state-employees.aspx
14 https://www.gartner.com/smarterwithgartner/what-edge-computing-means-for-infrastructure-and-operations-leaders/