



Real-Time Health Analytics to Accelerate Precision Medicine

Dell EMC and Intel collaborate to simplify deployment of the SAP® Connected Health platform on validated, high-performance technologies



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Empowered Patients and Big Data: Driving a Revolution

A health-related revolution is transforming industries such as healthcare, life sciences, higher education, consumer products, and the public sector. Empowered by automated diagnosis and treatment options, along with better access to information, patients are taking charge of their healthcare experience like never before. Today's activist health consumers expect medical decisions and products to be tailored to their specific needs and goals, so they can live full and healthy lives.

Advances in big data analytics provide powerful new ways to meet these demands. Using the SAP Connected Health platform, built on SAP HANA®, organizations can combine and analyze traditional data sources and vital patient data—clinical, research, personal medical, social information, and more. Armed with fresh analytic insights, organizations can accelerate their development of personalized, patient-centered treatments and innovations, including drugs, therapies, devices, and diagnostic tests. These insights can also help deepen understanding of the patient and expand patient involvement, to improve prevention, diagnosis, treatment, and patient care.

SAP Connected Health Platform: Turning Big Data into Smart Data

The SAP Connected Health platform is at the heart of this transformation. An industry-leading analytics platform for precision medicine applications, the SAP Connected Health platform breaks down data silos and enables real-time analysis of vast volumes of medical data from diverse sources—in a single system. The SAP Connected Health platform brings together:

- Clinical and personal data from electronic medical records and other sources, including unstructured information such as clinical case notes
- Genomic and other biological data
- Data from the Internet of Things (IoT) generated by medical devices, personal health devices, and more

The SAP Connected Health platform implements patient privacy protections while supporting secure collaboration and information sharing. It offers an open platform for a rising number of applications, whether from SAP, third-party innovators, or your own custom software. A growing portfolio of connected health products includes SAP Medical Research Insights to improve patient outcomes and SAP Health Engagement to drive connected care.

Powerful Platforms for Reliable Enterprise Performance

SAP HANA® and the SAP Connected Health platform are optimized for and exclusively powered by Intel® processor-based platforms, providing a powerful platform for deriving value from rapidly expanding volumes of health-related data. Intel® Xeon® processors are tuned for SAP workloads. Intel and SAP have worked together to optimize SAP HANA for Intel® processors since 2006.



CLINICAL DATA
EMRs



BIOLOGICAL DATA
Omics Data
and Annotations



IOT DATA
from Personal
and Medical
Devices



SAP® Connected Health Platform

SAP platform for personalized-medicine applications by enabling processing and real-time analysis of big medical data from various sources, in a single system, powered by SAP HANA.



Dell® EMC Reference Architecture

Standardized SAP HANA infrastructure based on Dell EMC's most powerful servers for worldwide deployment, rapid setup and provisioning in an optimized way.



Intel Inside®

Intel® Xeon® processor E7 family and Intel® Solid State Drives delivering outstanding performance, scalability, and reliability for real-time health analytics.

High-Performance Technologies for Big Data

Reference Architecture

To accelerate success for organizations using the SAP Connected Health platform, Dell EMC, SAP, and Intel have created a robust reference architecture optimized for the SAP Connected Health platform and SAP HANA. Built to handle the variety, velocity, and volumes of big data analytics, the architecture delivers outstanding scalability, performance, and reliability for high-impact health analytics and enterprise data centers:

- The Dell® EMC PowerEdge™ R930, Dell EMC's most powerful enterprise server platform, is built for speed and scalability while offering value-added features that enhance management and reliability. With 96 DIMM slots and 24 hard drives, the system scales to handle the most demanding workloads.
- The Intel® Xeon® processor E7 family, Intel's high-end server processors, combines large memory capacities with leading performance and reliability capabilities to provide a responsive experience for SAP's in-memory database analytics and large, complex data sets.

System Performance Benchmarking

For system performance benchmarking we used SAP Medical Research Insights to visualize patient cohorts regarding their cardiovascular risk factors. The benchmark was based on 2 million patients' datasets with information about their smoking habits and blood pressure—a total of 800 million measurements. We measured the end-to-end response time of all analytic service requests and arrived at an average response time of 1.68 seconds (min. 0.83 sec./max. 2.30 sec.). These results showed the ability to deliver real-time analysis on structured clinical data.¹

Both the hardware and software elements of the reference architecture have been verified, enabling organizations to implement the SAP Connected Health platform quickly, with confidence that their solution will perform as expected.

Resources to Accelerate Deployment

In addition to a validated reference architecture, the Dell EMC Global SAP Center of Excellence offers resources to help organizations speed time-to-value for their health analytics. Located near SAP's worldwide headquarters in Walldorf, Germany, the Dell EMC Global SAP Center of Excellence can be accessed through scheduled engagements virtually or on site. Using the Center of Excellence, IT leaders can consult with experts, explore demonstrations of the SAP Connected Health platform, and access test systems to size their analytics projects. These activities help reduce project risks and build analytic success.

The SAP Connected Health platform with the Dell EMC Global SAP Center of Excellence

Gain more value from health data, including clinical, biological, research, personal medical, and social information

• Relevant industries

- Healthcare
- Life Sciences
- Public Sector
- Higher Education
- Insurance/Payers
- Consumer Products

• Health and business impacts

- Accelerate time to analytic insights
- Improve prevention, diagnosis, treatment, and care
- Speed development of new drugs, therapies, diagnostic tests, and devices
- Strengthen relationships with consumers and patients
- Improve operational excellence

• IT impacts

- Simplify and speed deployment of the SAP Connected Health platform
- Increase confidence by deploying on validated high-performance platforms
- Reduce IT costs and complexity

Taking Advantage of Collaboration by SAP, Dell EMC, and Intel

The collaboration among SAP, Dell EMC, and Intel offers a clear path to analytics value and personalized medicine for organizations in health, life science, and other industries.

By using the reference architecture and working with the Dell EMC Global SAP Center of Excellence, organizations around the world can streamline their deployment of the SAP Connected Health platform. They can move forward with confidence on trusted, high-performance platforms, eliminating infrastructure complexity and implementing their powerful SAP analytics solution more rapidly. They reduce IT's need to focus on infrastructure and deployment details, and give clinicians, researchers, and other professionals more time to gain value from data. They position their organizations to lead and thrive in the dynamic world of precision medicine.



Learn More

Find out more. Call your SAP, Dell EMC, or Intel representative.
Contact the Dell Global SAP Center of Excellence
at GSCOE@dell.com.

Or visit:

SAP® Connected Health platform:

help.sap.com/platform_health

Dell® EMC PowerEdge™ R930:

www.dell.to/23KD6uG

Intel® Xeon processor E7 family:

www.intel.com/content/www/us/en/processors/xeon/xeon-processor-e7-family.html

Intel® Solid State Drives for Data Centers:

www-ssl.intel.com/content/www/us/en/solid-state-drives/data-center-family.html

¹ The analytic scenario we emulated was:

1. Identify persons with elevated blood pressure (pre-hypertension, hypertension grade I, hypertension grade II)
2. Stratify persons by their smoking habit (smokers, non-smokers)
3. Stratify into populations by age at point of blood pressure measurement (50-59, 60-69, 70-80 years old)
4. Compute a yearly blood pressure average for persons providing at least 10 blood pressure measurements in a year (data quality requirement/check)

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