Intel Solution Brief — Montefiore Creates Data Analytics to Advance Patient Care

Addressing value-based healthcare with Intel® Xeon® processors and Franz AllegroGraph

Challenge

Like all healthcare organizations, Montefiore faces complex challenges from government pressures to reduce costs and stringent regulatory guidelines to diverse patient populations and disruptive technologies. A focus and investment in precision medicine has brought the nation's and industry's attention to expanding the breadth of patient data in order to personalize treatment for individuals and historically underrepresented groups. Further, understanding patients requires information on a complex array of factors, some of which may not even be known during a clinical interaction,

such as the home and work environment, nutrition, and genetics.

Solution

To optimize healthcare based on advanced data analytics and make sure clinicians have the right information available in time to impact patient outcomes, Montefiore has deployed Semantic Data Lake*, a solution that brings together varied and vast amounts of raw data for deeper analysis to flag patients who are at risk or help clinicians identify optimal treatment plans. Drawing on extensive experience in patient care and medical research, this innovative solution enables relevant data to directly inform and impact patient care.

The platform integrates both structured and unstructured data ranging from basic science, clinician records, and population demographics to community, environmental, behavioral, and wellness research data. By assessing a holistic and realistic profile of patients—along with relevant science, clinical population histories, drug information, and medical imaging—Semantic Data Lake has the capability to improve care, identify at-risk patients, and personalize medicine, while reducing error and inefficiency.

Technical Details

Semantic Data Lake is built on Intel® architecture with Cloudera's Hadoop* distribution and Franz's AllegroGraph, a high-performance semantic graph database enabling analytics based on industry standards. The data lake includes data from Montefiore's own institutions, as well as from sources such as the PharmGKB databank (which correlates genetic variations and drug responses), the National Institute of Health's Unified Medical Language System (UMLS), and the Online Mendelian Inheritance in Man, a continuously updated catalog of the human genome and genetic disorders.

> "AllegroGraph allows Montefiore to extract sophisticated decision insights and predictive analytics from highly complex, distributed data in a way that is not possible using conventional databases."

THE SEMANTIC DATA LAKE
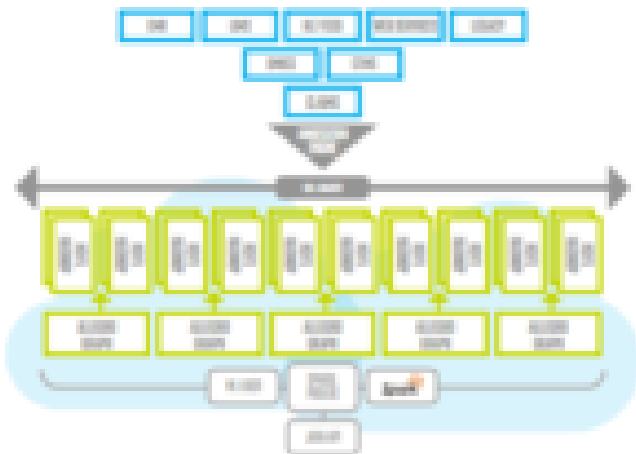
Solution Ingredients

- Montefiore's Semantic Data Lake
- Intel Xeon E5-2600 v3 processors
- Franz distributed AllegroGraph

Semantic Data Lake architecture enables open-ended queries with integrated responses from multiple data sources

Read the [Full Brief](#) on Intel's Website.