Data volumes are increasing at unprecedented rates across nearly all business sectors and research disciplines. While protecting and securing that data is a challenge, the bigger challenge, and the ultimate reward, lies in finding the insights buried in those vast, complex data sets.

Ayasdi’s software applications, running on powerful server clusters based on Intel® Xeon processors and the Intel® Solid State Drive Data Center Family (Intel® SSDs), make finding operational value from data simple and automatic. End users are not required to develop complex algorithms, queries, and models. Ayasdi combines topological data analysis (TDA) with machine learning to illuminate the internal structures of data. Groupings, patterns, and relationships stand out as striking visual features and data navigation is fast and intuitive. Everyone from data scientists to line-of-business owners can extract insights and make smarter, data-driven decisions.

“Ayasdi offers a radical shift in data analytics. Our unique approach of integrating Topological Data Analysis with Machine Learning Algorithms is enhanced by running on powerful Intel server platforms”
— Lawrence Spracklen, VP of Engineering at Ayasdi

Ayasdi’s software applications perform 65 percent faster on the Intel® Xeon® processor E5 v3 family and the Intel® Solid-State Drive Data Center Family, delivering critical intelligence faster to leading enterprises and government entities.

Solve Your Most Intractable Data Challenges
Ayasdi works closely with customers to build targeted solutions that solve critical challenges and integrate with existing business processes. Ayasdi Care, for example, allows healthcare providers to easily combine EMR and financial data to derive data-driven clinical pathways based on their own patient data. Ayasdi is also working with a number of government agencies and with customers in various industries, including financial services, energy, and fraud-waste-and-abuse management.

Fast Analytics at Any Scale
The Ayasdi Core application applies more than 250 machine-learning algorithms to identify meaningful data structures. Ayasdi plans to integrate at least 750 more algorithms within the next year, making Intel’s advances in compute capability central to delivering superior algorithmic-reach. Fortunately, Ayasdi’s algorithms scale efficiently across large numbers of processors, cores, and servers. That makes the Intel® Xeon® processor E5 v3 family a perfect fit. Each two-socket server provides up to 36 cores, 72 threads, and 90 MB of cache, and customers can scale almost without limit by adding additional server nodes to a cluster.

Ayasdi Core was able to identify several distinct subgroups of patients with Type II Diabetes.
The Intel Xeon processor E5 v3 family also supports Intel® Advanced Vector Extensions 2.0 (Intel® AVX2), which accelerates vector computations. Ayasdi engineers worked closely with Intel to optimize their code for Intel AVX2, and estimate that it has improved performance by up to 20 percent.1 Ayasdi also takes advantage of the Intel® Math Kernel Library and Intel® Compilers to deliver high-performing code faster and with less effort.

Higher Performance for Growing Workloads

Recent tests by Ayasdi engineers demonstrate the value of Intel hardware innovation. A four-node cluster of servers based on the Intel Xeon processor E5 v3 family delivered 65 percent higher performance than a similarly configured cluster based on the previous-generation Intel Xeon processor E5 v2 family.2 According to Lawrence Spracklen, VP of Engineering at Ayasdi, “Intel hardware innovations and software tools continue to keep pace with our demanding compute needs. The power and affordability of the computing platform is an essential foundation for the value we deliver to our customers.”

Ayasdi uses Intel SSD Data Center Family products in its server clusters and is confident in the new Intel® DC P3700 SSD Series will deliver valuable benefits for many Ayasdi workloads. This powerful SSD fits into standard server PCIe slots, provides up to 2 terabytes of storage per SSD, and delivers up to 6 times the performance of previous-generation Intel SSDs.3 According to Spracklen, “Intel SSDs make it possible for us to achieve much higher data capacity per server without sacrificing performance. We see them as an increasingly essential resource going forward.”

**Higher Performance for Ayasdi Software Applications**

![Higher Performance for Ayasdi Software Applications](image)

Servers based on the Intel® Xeon® processor E5 v3 family improve performance for Ayasdi’s software applications by up to 63 percent versus previous-generation servers based on the Intel® Xeon® processor E5 v2 family.

**Speed Discovery with Simpler, Faster, and Deeper Analytics**

With Ayasdi applications, the Intel Xeon processor E5 v3 family, and the Intel SSD Data Center Family, you can automatically illuminate the internal structures of your data and extract new insights with unprecedented speed. Big data analytics will never be the same.

**Learn More**

- Ayasdi Applications: [www.ayasdi.com](http://www.ayasdi.com)

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1 Ayasdi internal estimates as of August 22, 2014.
2 Source: Ayasdi performance tests, August 2014. Tests were conducted using a modified version of the standard benchmark that Ayasdi uses to qualify new software releases (scaled down for the four-node test clusters). A load generator on a separate client machine emulated a configurable number of users performing a variety of analyses on a variety of datasets. Results were based on the overall number of end-to-end analyses that could be performed on the cluster with acceptable latencies. Baseline Configuration and Benchmark Score: Cluster of four Intel production servers, each with 2 x Intel® Xeon® processor E5-2697 v2 (2.7 GHz), 128GB DDR3 @ 1600 MHz memory, 1TB 7200 RPM SAS for OS, 3 x 600 GB Intel 5320 SSD for data, 1 GbE networking, CentOS 6.3 64-bit OS. Score: 16 concurrent users. New Configuration and Benchmark Score: Cluster of four Intel pre-production servers, each with 2 x Intel® Xeon® processor E5-2699 v3 (2.3 GHz), 128GB DDR4 memory @ 2133 MHz memory, 1TB 7200 RPM SAS for OS, 3 x 600 GB Intel 5320 SSD for data, CentOS 6.5 64-bit OS. Score: 26 concurrent users.
3 Results have been estimated based on internal Intel analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance.

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