Case Study
Intel® Xeon® Processor E5 Family
Intel® Solid-State Drives
Cloud Computing
Virtualization
Performance

Look Inside.™

Robust Cloud Computing with Intel® Xeon® Processors

Envision Technology Advisors uses the Intel® Xeon® processor E5 v2 family for its InFlight Cloud Platform* and supports three times as many customers on each server compared with previous servers

Envision
Technology Advisors, LLC

Envision Technology Advisors launched its InFlight Cloud Platform* to enable organizations to quickly and easily access robust technology from local facilities, backed by personalized support and services. In building the cloud infrastructure, Envision selected Dell PowerEdge* blade servers with the Intel® Xeon® processor E5 v2 family plus Tintri* storage, which uses Intel Xeon processors, Intel® Solid-State Drives (Intel® SSDs), and 10 Gigabit Intel® Ethernet Converged Network Adapter. The cloud environment delivers outstanding performance that often exceeds what organizations can achieve in-house. Its infrastructure density helps Envision control costs and keep pricing competitive.

Challenges

- **Deliver outstanding performance.** Provide strong performance and reduce latency for a wide range of customer applications.
- **Maximize density and efficiency.** Control costs by increasing the density of the infrastructure and improving energy efficiency.

Solutions

- **Dell PowerEdge M620 blade servers with the Intel Xeon processor E5 v2 family.** Envision deployed Dell PowerEdge M620 blade servers equipped with the Intel Xeon processor E5-2600 v2 product family and 10 Gigabit Intel® Ethernet Mezzanine Adapter X520. The environment is virtualized with VMware vCloud Director* software.
- **Tintri VMstore* storage with Intel® processors, 10 Gigabit Intel Ethernet Converged Network Adapter, and Intel SSDs.** The company deployed Tintri storage, which uses the Intel Xeon processor E5 v2 family, 10 Gigabit Intel® Ethernet Converged Network Adapter X520, and Intel SSD DC S3500 Series.

Technology Results

- **High performance, low latency.** Envision created a high-performance, low-latency environment that eclipses the performance of previous-generation systems.
- **Greater density, lower costs.** Envision can support approximately three times as many customer workloads on each server compared with previous systems. Greater density drives down costs for the company and holds down prices for customers.

Business Value

- **Expanded customer base.** The new cloud platform enables Envision to serve a wide range of small and medium-sized businesses that want to improve application performance or expand capacity while avoiding large capital expenditures.
- **Competitive edge.** Exceptional performance provides an edge in a competitive field.

> "Selecting the latest Intel® technologies for servers and storage has helped our InFlight Cloud Platform* outperform typical in-house deployments, as well as services offered by many competing cloud providers."
>
> *– Jeff Wilhelm, Chief Technology Officer, Envision Technology Advisors*

In business for more than 15 years, Envision was an early adopter of virtualization and cloud technologies. Today, Envision differentiates itself from competitors by combining expert consulting with localized IT resources and personalized service and support. Envision's cloud, managed service, and virtualization offerings are particularly appealing to small and medium-sized businesses that want to improve application performance, outsource IT management, and meet rigorous compliance objectives while controlling costs.

The company recently launched its InFlight Cloud Platform, which provides cloud-based virtual servers, fully managed private clouds, and managed replication resources in conjunction with monitoring and management services. In selecting technology for the new infrastructure, performance was a top priority. "Our goal is to deliver the best performance and lowest latency for a full range of customer workloads," says Jeff Wilhelm, chief technology officer at Envision. "Whether customers are conducting complex financial analyses or accessing hospital billing

records, we want to provide performance that is the same or better than what they might experience with an in-house environment."

Maximizing infrastructure density and energy efficiency are also crucial. "Because we use a co-location facility, we are always thinking about ways to reduce power, cooling, and real estate," says Wilhelm. "Greater infrastructure density can help us control costs and enable us to offer more competitive pricing."

Building a High-Performance, Dense Cloud with Intel Xeon Processors

Extensive testing led Envision to select Dell PowerEdge servers equipped with the Intel Xeon processor E5 v2 family. "When we started building the InFlight Cloud Platform, we tested two Dell servers: one with an Intel processor and another with a different company's processor. We measured CPU ready time, CPU wait time, and CPU utilization—key metrics for predicting performance in a multitenant virtualized environment," says Wilhelm. "Our tests suggested that the Intel processors would deliver better performance at scale, when hosts are loaded with multiple virtual machines."

According to the Envision team, the Intel Xeon processors also provided the best choice for maximizing infrastructure density. "Intel® Hyper-Threading Technology [Intel® HT Technology] helps us run significantly more user workloads on each server," says Wilhelm. "Using Intel processors with large memory capacity lets us support numerous workloads on a single, half-height Dell blade."

Currently, the company uses Dell PowerEdge M1000e blade enclosures with Dell PowerEdge M620 blade servers, which are equipped with the Intel Xeon processor E5-2600 v2 product family. The servers also use 10 Gigabit Intel Ethernet Mezzanine Adapter X520, powered by the 10 Gigabit Intel Ethernet Controller 82599, which provide 60 Gbps of throughput per blade. The environment is virtualized with VMware vCloud Director software.

Accelerating Data Access

Envision uses Tintri storage with Intel SSDs to speed data access. "We're able to deliver a very high number of IOPS [input/output operations per second] from a very dense storage system, largely because of the Intel SSDs," says Wilhelm. "The Intel SSDs combine excellent performance with strong reliability."

The Tintri storage also uses the small-form-factor pluggable (SFP+) 10 Gigabit Intel Ethernet Converged Network Adapter X520. "The 10 Gigabit Intel Ethernet Converged Network Adapter has the right combination of robust performance and a strong track record in the industry," says Wilhelm. "While competing adapters have had problems, the Intel Server Adapters have been rock solid."

Boosting Application Performance

Envision customers report significant performance gains when moving to the InFlight Cloud Platform. "One of our customers experienced a performance improvement of more than 300 percent after moving from an in-house environment to our cloud," says Wilhelm. "With better application performance and lower latency, our customers can run their processes more efficiently and can ultimately be more productive."

Better performance gives Envision an edge. "Our customers scrutinize performance along with cost when evaluating cloud providers—and we often come out ahead," says Wilhelm. "Selecting the latest Intel® technologies for servers and storage has helped our InFlight Cloud Platform outperform typical in-house deployments, as well as services offered by many competing cloud providers."

Increasing Density and Controlling Costs

Choosing the Intel Xeon processor E5 v2 family has helped Envision create a dense, efficient cloud environment. "Customers moving to our platform from in-house environments can see significant changes in their footprint," says Wilhelm. "One customer moved from seven 42U cabinets using servers with previous-generation Intel Xeon processors to just 10 blades in our InFlight Cloud Platform. This customer was able to reduce costs substantially by outsourcing IT and using a denser environment."

Infrastructure density helps Envision control costs as well. "Compared with our prior servers, which used previous-generation Intel Xeon processors, we are able to host approximately three times as many customer workloads per server with our current platform," says Wilhelm. "As a result, we can better accommodate customer growth while keeping power, cooling, and real estate costs under control."

Applying Insights to In-House Environments

Envision plans to expand its InFlight Cloud Platform, adding new blade servers based on Intel Xeon processors as well as new storage systems, also equipped with Intel technologies. Meanwhile, Envision consultants are recommending similar solutions for customers' in-house infrastructures. Says Wilhelm, "Whether customers choose our InFlight Cloud Platform or work with our engineers to build smaller, in-house infrastructures, we want them to experience the impressive performance, density, reliability, and scalability that Intel technology–based systems can deliver."

Find the solution that's right for your organization. Contact your Intel representative, visit Intel's **Business Success Stories for IT Managers,** and check out **IT Center**, Intel's resource for the IT industry.

Lessons Learned

"From our initial evaluation of the Intel® Xeon® processor E5 v2 family, we developed some reasonable expectations for performance and density," says Jeff Wilhelm, chief technology officer at Envision. "When we started running customer workloads in production, we were blown away with the improvements. Moving to the latest technology can deliver dramatically better results."

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