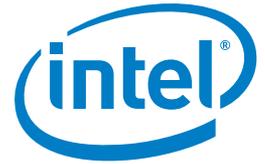


CASE STUDY

Intel® Xeon® processor 5600 series
Enterprise Server
Security in the Cloud
Mission-Critical Computing



Building a cloud for healthcare

GNAX builds a dense, secure private and hybrid cloud for healthcare customers with Intel® Xeon® processors

Global Net Access (GNAX) provides a range of colocation and Infrastructure-as-a-Service (IaaS) solutions with a special focus on healthcare. With demand for services growing, the GNAX team decided to build a multi-tenant cloud environment that could provide the flexibility and security that healthcare customers require while delivering the density GNAX needed to support efficient growth. GNAX selected Intel® Xeon® processors as the platform for the new environment. Built-in security capabilities help GNAX provide a multilayer approach to security without sacrificing performance. At the same time, the processors help GNAX maximize server density to support rapidly growing environments while controlling power, cooling, and real estate costs.



CHALLENGES

- **Launch new cloud services.** Offer new, multi-tenant cloud services to meet growing demand from healthcare organizations for flexible, cost-effective outsourced IT.
- **Ensure tight security.** Provide a trusted compute environment by implementing a multilayer approach to security that helps healthcare providers protect confidential patient information and comply with regulations.
- **Maximize density.** Create a dense infrastructure that can support customer growth while controlling power, cooling, and real estate costs.

SOLUTION

- **Cloud computing infrastructure based on Intel® Xeon® processors.** GNAX launched new cloud services with HP ProLiant BL460c G6* blade servers equipped with the Intel Xeon processor 5600 series and based on VMware vCloud Director* software. Built-in Intel® security technologies help create a secure cloud for healthcare customers.

IMPACT

- **Prepared for growth.** GNAX was supporting more than 200 new customers for its cloud services within weeks of its launch.
- **Improved security performance.** Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) technology helps accelerate data encryption by 50 percent without sacrificing performance.
- **Increased density.** By adopting HP blade servers with the Intel Xeon processor 5600 series, GNAX has increased physical server density 75 percent compared with previous environments, enabling continued growth while controlling data center requirements.



"The fact that Intel and VMware have such a close relationship made it easy to select Intel® Xeon® processors. We knew we could go to market faster with our secure cloud offering, with fewer integration issues, by selecting the Intel platform."

– Matt Mong,
Vice President,
Marketing,
GNAX

GNAX serves organizations in a range of industries with a focus on healthcare. The company provides colocation, hosting, and virtual private data center services for major hospitals and related healthcare organizations in the southeastern United States. The healthcare focus begins at the facility level: the primary GNAX data center taps into two distinct power grids to help ensure availability for mission-critical healthcare applications even in the event of power issues. GNAX also develops applications, such as its health information exchange and electronic health record applications, designed to meet the specific needs of healthcare organizations.

Facing increased budget constraints, an increasing number of healthcare organizations are outsourcing IT. "Among our healthcare clients, demand for application hosting and management is growing," says Matt Mong, vice president of marketing at GNAX. "We expanded the virtual private data center infrastructure used by several of our healthcare clients, but we also saw an opportunity to provide public cloud solutions now that cloud technologies have matured and become truly enterprise-ready. We expected that we could reach new customers, including those who wanted to move from RISC environments, and migrate



Securing the cloud with Intel® technologies

applications for existing customers, who were using virtual private data centers, to these more flexible, cost-effective multi-tenant environments.”

As a VMware technology alliance partner in healthcare and VMware service provider, GNAX decided to base the new cloud infrastructure on VMware vCloud Director—a software platform built on VMware vSphere* virtualization software that is designed to facilitate on-demand cloud computing deployments. The company needed a hardware platform that would deliver the performance and reliability to support mission-critical healthcare applications while also helping to ensure strong support for vCloud Director.

Security was another key priority. “Healthcare providers must ensure protection of confidential patient information to comply with government regulations,” says Janakan Rajendran, chief information officer at GNAX. “We needed a hardware platform that would help us deliver the security healthcare organizations need within a public cloud environment.”

The GNAX team also needed to maximize server density. “As we build out our infrastructure, we are always conscious of the density and energy efficiency of the systems we deploy,” says Mong. “We need to support continued growth while controlling costs.”

Building the cloud foundation with Intel Xeon processors

After evaluating other processors, the GNAX team decided to build its cloud computing environment on the Intel Xeon processor 5600 series. “The fact that Intel and VMware have such a close relationship made it easy to select Intel Xeon processors,” says Mong. “We knew we could go to market faster with our secure cloud offering, with fewer integration issues, by selecting the Intel platform.”

Built-in security capabilities were another key advantage for the Intel Xeon processor 5600 series. “By partnering with leading vendors, such as Intel, VMware, and HP, we

can implement a multilayer security solution our customers require to protect patient information and comply with government regulations,” says Mariano Maluf, chief technology officer at GNAX.

Having used Intel processors for its virtual private data center, the GNAX team knew that Intel processors could help control data center requirements as the company expands its infrastructure. “Intel Xeon processors provide the performance and support for large-scale memory capacity that we need to maximize the density of the new environment,” says Rajendran.

The new cloud environment uses HP ProLiant BL460c G6 blade servers equipped with the Intel Xeon processor 5600 series. Customers run the GNAX applications and other applications on their preferred operating system, which in turn runs on the VMware vCloud Director virtualization platform.

Delivering security without sacrificing performance

The cloud’s multilayer security approach includes software-based security, physical security, and robust access protocols. Intel AES-NI technology built into the Intel Xeon processors will play a key role in that multilayer approach, helping to encrypt data without sacrificing application performance.

“In the past, we handled data encryption in the software layer. But we needed a way to scale our encryption capabilities to handle more data, from more customers, without affecting end-user performance,” says Rajendran. “In our testing of Intel AES-NI technology, we achieved a 50 percent reduction in encryption time and a 62 percent reduction in decryption time. Using Intel AES-NI, we can scale our services and protect information while sustaining high performance.”

Increasing density, cutting costs

The Intel Xeon processor-based blades have helped increase infrastructure density. “If we were to build an infrastructure like this with non-blade servers using a previous-generation processing platform, it might require four cabinets,” says Rajendran. “By using HP blade servers and the Intel Xeon processor 5600 series, we can fit the processing power of four cabinets into just one. In addition to conserving space, we save approximately US\$9,000 per month for power and cooling.”

SPOTLIGHT ON GNAX

Founded in 1999, GNAX has become a leading provider of mission-critical data center colocation and cloud services in the southeastern United States. Specializing in solutions for healthcare organizations, GNAX offers infrastructure and applications designed to deliver the capabilities, performance, availability, and security organizations need along with the flexibility and cost effectiveness of cloud computing. Learn more at www.gnax.net.

“Boosting server density is essential for keeping customer pricing down,” says Mong. “Greater density and efficiency also allow us to scale while controlling operating costs.”

Attracting new customers

Within weeks of the cloud launch, GNAX had acquired more than 200 new small business and enterprise customers. Over time, the GNAX team plans to migrate some applications currently running in virtual private data centers to this public cloud. That move will enable GNAX to scale services while keeping operating expenses in check.

Healthcare organizations could use the cloud service for a range of applications, including picture archiving and communication system (PACS), electronic health record (EHR), document management, and disaster recovery applications. Using the self-service capabilities of vCloud Director would enable organizations to reduce costs and enhance flexibility.

The GNAX team is exploring additional Intel technologies that might be incorporated into the cloud. For example, Intel® Trusted Execution Technology (Intel® TXT) could help protect systems by checking security before a virtual machine boots. The Intel® Expressway Service Gateway could serve as an XML gateway for GNAX applications. In addition, Intel® Solid-State Drives (SSDs) could help provide outstanding performance for cloud storage.

Beyond adding capabilities, new Intel technologies help attract new customers. “Potential customers want to know that our solutions are based on technologies from leading vendors,” says Rajendran. “In our efforts to attract new customers, working with Intel makes our job easier.”

Find a solution that is right for your organization. Contact your Intel representative or visit Intel’s Business Success Stories for IT Managers at www.intel.com/itcasestudies



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