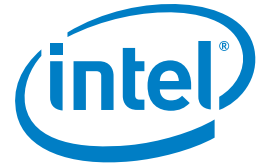


CASE STUDY

Intel® Xeon® processor 5500 series
Intel® Xeon® processor 5600 series
Enterprise Server
Virtualization



Serving Up Efficiency

Intel® Xeon® processors help Papa Gino's Inc. virtualize its data center, enhancing business agility, increasing efficiency, and saving USD 58,000 per year

What began as a small Boston pizzeria nearly 50 years ago is today a booming business that serves more than 13 million guests per year in 370 restaurants throughout the northeastern United States. For Papa Gino's Pizzeria and D'Angelo Grilled Sandwiches, technology plays a central role in the company's continued success—the company uses IT for everything from offering online ordering to running business intelligence applications. When it was time to refresh the data center, the IT group created a virtualized environment with new servers based on Intel® Xeon® processors. Virtualization with Intel processors has helped consolidate hardware, reduce power consumption, and enhance IT flexibility while saving the company more than USD 58,000 per year.



"The Intel® Xeon® processor 5500 series delivers the outstanding raw compute power and memory bandwidth we need for running a virtualized environment....We are hosting up to 20 virtual machines on each physical host so far, and we have barely made a dent in processor utilization."

— Chris Cahalin
Director of Network Operations and
Information Security
Papa Gino's Pizzeria and
D'Angelo Grilled Sandwiches

CHALLENGES

- **Consolidate hardware and reduce energy consumption.** Decrease the number of physical servers and reduce the energy needed for power and cooling.
- **Cut costs.** Minimize the costs of hardware acquisition, power, cooling, and maintenance while still supporting additional IT growth.
- **Increase flexibility.** Refresh aging servers with a more flexible infrastructure that helps IT respond quickly to changing business needs.

SOLUTION

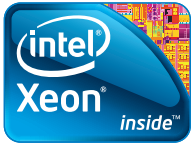
- **Dell servers with Intel® Xeon® processors.** The IT group created a virtualized environment running VMware vSphere* software on Dell PowerEdge* servers equipped with the Intel® Xeon® processor 5500 series. Future acquisitions will include the Intel Xeon processor 5600 series.

IMPACT

- **Fewer servers, less energy.** Virtualization reduced the number of servers by 85 percent, lowering energy consumption and eliminating a large power unit.
- **Reduced costs.** By moving to a virtualized environment, the company is saving more than USD 58,000 per year, including the costs of hardware acquisition, power, cooling, and maintenance fees.
- **Improved performance.** New processors help accelerate employee tasks and deliver a responsive Web experience for customers.
- **Greater business agility.** The IT group can accommodate new service requests faster than before, provisioning servers in hours, not weeks.

The IT group at Papa Gino's Inc. saw a server refresh as an opportunity to improve operational efficiency. "We deployed blade servers several years ago to maximize our infrastructure density, but the blades we were using consumed too much power and emitted too much heat," says Chris Cahalin, director of network operations and information security at

Papa Gino's. "And to support those blades, we needed to use a very large uninterruptible power supply that took up a lot of space in our networking room. When it was time to refresh the servers, we wanted to significantly reduce our power and cooling needs, eliminate the power supply, and minimize the physical footprint of the hardware."



Intel and GreenPages Facilitate Virtualization

The IT group selected Intel processors for the new environment. "We have been using Intel processor-based servers for years, and our relationship with Intel deepened through Intel Premier IT Professional meetings," says Cahalin. "Intel engineers offered insight into ways Intel IT approaches virtualization and addresses a variety of IT challenges. A team from Intel then shared its technology road map with us, which helped us plan our refresh. They also helped us build a strong business case for the refresh using Intel® ROI tools. We were able to demonstrate to our management the value and savings of refreshing servers."

The IT group then worked with GreenPages Technology Solutions to implement the new environment. "The GreenPages team introduced us to the powerful capabilities of VMware," says Cahalin. "With help from Intel and GreenPages, we were able to design the new infrastructure and then virtualize our test and production environments rapidly."

Intel Processors Deliver Performance and Memory Bandwidth

After evaluating servers from several vendors, the IT group selected Dell PowerEdge R710 servers equipped with the Intel Xeon processor 5500 series. VMware vSphere 4 provides the foundation for running database, business intelligence, enterprise resource planning, productivity applications, and other software on Microsoft Windows Server* 2003 and 2008 operating systems.

The Intel Xeon processors provide the performance for the company's current needs plus scalability for the future. "The Intel Xeon processor 5500 series delivers

the outstanding raw compute power and memory bandwidth we need for running a virtualized environment," says Cahalin. "We also have plenty of headroom for growth. We are hosting up to 20 virtual machines on each physical host so far, and we have barely made a dent in processor utilization."

The IT group also sees the value in Intel® Virtualization Technology (Intel® VT) Flex-Migration capabilities, which will enable the company to integrate multiple generations of Intel processors into a single virtual environment. "Intel VT FlexMigration will be critical in helping us protect our investment in the future," says Cahalin. "This technology is another great example of how Intel helps us stretch our budget."

As the company continues to refresh servers, it will integrate the Intel Xeon processor 5600 series. "The greater core count, automatic regulation of power consumption according to workloads, and hardware-based security features make the Intel Xeon processor 5600 series a clear choice for our infrastructure going forward," says Cahalin.

Virtualization Consolidates Servers by 85 Percent and Saves Energy

By creating a virtualized environment, the IT group reduced its server count and slashed energy consumption. "We had been using 20 blade servers for all of our testing and production needs. Through virtualization, we have reduced that number to just three 2U rack servers," says Cahalin. "By using fewer, more energy-efficient servers, we have significantly reduced our power and cooling requirements. We were even able to retire that large power supply and free up more space in the data center."

Papa Gino's Inc. Saves USD 58,000

By running fewer servers, the IT group has achieved impressive annual cost savings. "Moving to a virtualized environment with Intel processor-based servers is saving the company more than USD 58,000 per year in energy costs and hardware maintenance

SPOTLIGHT ON PAPA GINO'S PIZZERIA AND D'ANGELO GRILLED SANDWICHES

Established in 1961, Papa Gino's Pizzeria has grown from a local Boston pizzeria to a well-known restaurant chain. In 1997, the company acquired D'Angelo Grilled Sandwiches. Together, D'Angelo and Papa Gino's Pizzeria serve more than 13 million guests annually in 370 locations throughout the northeastern United States.

fees," says Cahalin. "We also avoided spending USD 80,000 to upgrade the existing blade infrastructure. When we consider that cost avoidance, we break even in three months. We can reinvest ongoing cost savings into new IT projects that will help enhance customer service and boost company efficiencies."

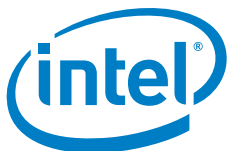
Users Experience Better Performance

Refreshing servers also has helped users, including employees running business intelligence applications and customers accessing company Web sites. "Since moving to the latest generation of Intel processors, employees have thanked us for accelerating tasks," says Cahalin. "The new processors help produce business reports more quickly and deliver a responsive Web experience even during peak times."

Virtualization Increases Agility

Perhaps most important, the move to a virtualized environment has given the IT group greater flexibility for change and scalability for growth. "In the past, it might have taken us a month to deploy a physical server for supporting a new point-of-sale application for restaurants. Now we can provision a new virtual machine in a few hours," says Cahalin. "With the new virtualized environment, IT is helping to increase business agility. As we add new restaurants, enhance the customer experience, and improve efficiencies, we have an infrastructure that can grow with us."

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