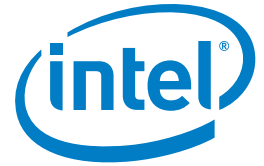


## CASE STUDY

Intel® Xeon® processor 5600 series  
Enterprise Server  
Security in the Cloud



# Expanding into the cloud

Expedient doubles performance and density and reduces energy by almost 50 percent with the Intel® Xeon® processor 5600 series

Expedient Communications has added infrastructure as a service (IaaS) private cloud computing to its managed services portfolio, choosing the Intel® Xeon® processor 5600 series as a foundation for scalable, secure, and efficient cloud services. Upgrading from servers based on the Intel Xeon processor 5500 series, Expedient's IT leaders say they gained a 100 percent increase in compute capacity and density. They also cut their watts consumed per GB of memory, a key indicator for energy efficiency in the cloud, by almost 50 percent.



"When we moved from the Intel® Xeon® processor 5500 series to the 5600 series, we essentially doubled our compute load and density per pod. When we bring in a pod based on the Intel Xeon processor E5 family, we expect to see a 130 percent increase."

– Alex Rodriguez,  
Vice President,  
Systems Engineering  
and Product Development,  
Expedient Communications

## CHALLENGES

- **Keep customers current.** Expand customers' IT capabilities by bringing them the performance advantages of the latest data center technologies.
- **Deliver instant capacity.** Deploy a scalable infrastructure with the headroom to handle peak loads.
- **Optimize the data center.** Increase server density and reduce operating costs.

## SOLUTIONS

- **Intel® Xeon® processor foundation.** Expedient deploys Dell PowerEdge® R710 servers based on the Intel Xeon processor X5650 with 144 GB of RAM per server and is piloting the use of Intel® 10 Gigabit Ethernet Server Adapters to accelerate throughput.
- **Value-added Intel® technologies.** Expedient is exploring Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) and Intel® Trusted Execution Technology (Intel® TXT) to enhance security.

## IMPACT

- **Higher performance and density.** The processor's high performance and increased memory capacity help Expedient offer great performance while nearly doubling the compute load and density per pod.
- **Energy and cost savings.** The upgrade reduces power consumption from 4.9 watts per GB of memory to 2.6 watts per GB, creating a greener and more cost-efficient environment.

## Delivering performance and scale with Intel Xeon processors

Cloud service providers operate in a demanding environment with little margin for error. To thrive in that environment, Expedient designs its cloud for high availability, using the Intel Xeon processor as the foundation for standard building blocks that combine compute, storage, and I/O. Expedient stacks these resources into self-contained pods that let it scale quickly and reliably. Each pod contains Dell PowerEdge R710 servers with the Intel Xeon processor X5650 and 144 GB of RAM per system.

"The Intel Xeon processor 5600 series gives us a significant amount of expandability and

capability in a very small form factor," says Alex Rodriguez, vice president of systems engineering and product development for Expedient. "It allows us to keep costs low and provide our customers a very efficient platform. It contributes to scale by helping us reduce the amount of power overhead as we deal with an ever-growing service catalog and operating environment."

Rodriguez likes the Dell PowerEdge R710 server with the Intel Xeon processor X5650 for its balance of processing power, memory density, and I/O capabilities. He says the combination helps Expedient optimize its data center and provide its customers with excellent performance, and he looks



## The Intel® Xeon® processor helps Expedient control costs as it expands its service portfolio

forward to using the Intel Xeon processor E5 family for Expedient's next pod.

"When we moved from the Intel Xeon processor 5500 series to the 5600 series, we essentially doubled our compute load and density per pod," Rodriguez says. "When we bring in a pod based on the Intel Xeon processor E5 family, we expect to see a 130 percent increase, more than doubling the workload we can handle in a given form factor."

Expedient's customers range from technology innovators to regional hospital systems to large enterprises. Their applications can involve both large data volumes and peak transaction loads. "We see great value in the Intel Xeon processor 5600 series' capabilities in allowing us to handle peak demand performance needs," says Rodriguez. "Customers' needs vary from time of day, day of week or month, and even time of year. The performance we see from the Intel processors allows us to meet that demand."

The processor's energy-efficient design lets Expedient reduce power consumption, which saves on energy costs, creates a greener data center, and contributes to higher density. "Cloud services are often priced based on the memory size of a virtual machine (VM), so one of our key power metrics is the watts per GB of memory," Rodriguez explains. "When we upgraded, we went from 4.9 watts per GB of memory down to 2.6 watts per GB."

### Differentiating through value-added technologies

Expedient finds business benefit in the value-added capabilities Intel designs into its platforms. "Intel is always putting interesting functionality into the processor that we can utilize for our customers' benefit, whether to meet their security needs or deliver a more reliable and efficient service," Rodriguez says. "It resonates with our customers when we can offer these capabilities, because they get the benefits without having to implement things themselves. It helps us meet the needs of our customers and differentiate our service."

Expedient is conducting a pilot using Intel 10 Gigabit Ethernet Server Adapters to accelerate throughput and reduce networking costs and using Intel AES-NI to improve hardware-accelerated encryption and decryption. "We have a lot of customers that do encrypted work," says Rodriguez. "If we can offer a platform with native acceleration, that's a huge benefit to our customers because they can offload some of that work and get better performance."

Rodriguez says Expedient builds security into every level of its offering and welcomes its customers' security audits. He plans to explore Intel TXT and its ability to provide a hardware root of trust. "With Intel TXT, we're hoping to see the start of platform attestation, to begin creating a chain of trust between our operating environments and our customers," he comments. "By doing

### SPOTLIGHT ON EXPEDIENT

Expedient Communications is part of a network of eight data centers across the United States. Headquartered in Pittsburgh, Expedient offers cloud computing and other managed services to enterprise, commercial, education, and governmental organizations. Its data centers meet the rigorous requirements of American Institute of Certified Public Accountants (AICPA) Statement of Auditing Standards (SAS) 70 Type 2 certification. The company was founded in 2001 and is privately held.

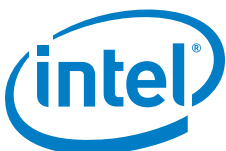
that, we reduce customers' anxieties about the cloud and encourage them to move their infrastructures to the cloud."

Rodriguez's team also plans to investigate Intel® Intelligent Performance Node Manager and Intel® Data Center Manager to fine-tune its energy consumption and further reduce costs.

### Scalable, reliable, cost-efficient

Rodriguez says Intel technologies are critical to his company's success. "Our IT is our business," he states. "If our platforms aren't secure, if they aren't reliable, if they can't scale, then we don't have a play in the service provider market. The Intel Xeon processor 5600 series provides us with scalable, reliable, and cost-efficient platforms, and gives us features we can use to increase security and provide some platform differentiations compared to other providers. It allows us to meet the peak demand needs of our customers. It's very reliable, and it drives down our costs to our customers. That's what we're looking for, and it's ultimately what our customers are looking for, and that's why we chose this platform."

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