



ServiceU Finds the “Golden Ticket”

Company Achieves Outstanding Power Savings and Performance Improvements
with Microsoft® Windows Server® 2008 Hyper-V™ and
AMD Opteron™ Processor-Based Systems

“We were blown away by the results we achieved, and are now firm believers in the AMD Opteron™ processor and Microsoft’s Hyper-V technology.”

David P. Smith, Chief Technology Officer, ServiceU

Challenge:

- Continue to provide customers with a fast, reliable and seamless user experience while accommodating a rapidly expanding customer base.
- Improve IT infrastructure to handle limitations including power and space in two of the company’s datacenters, and enhance datacenter manageability while continuing to improve performance.

Solution:

- ServiceU leveraged the performance benefits of AMD Opteron™ processor-based systems running in a Windows based product environment.
- After examining performance and cost comparisons, ServiceU decided to deploy AMD Opteron processor-based Dell PowerEdge 2970 systems running Microsoft® Windows Server® 2008.
- As an ongoing participant in Microsoft’s Technology Adoption Program (TAP), ServiceU was a beta test location for the Microsoft Windows Server 2008 operating system and, as such, had access to the highly anticipated server virtualization solution, Windows Server® 2008 Hyper-V™

Impact:

- After implementing Hyper-V™ on selected servers at all three of ServiceU's datacenters, the company reduced the number of physical servers by 35 percent.
- ServiceU was impressed with how well AMD Virtualization™ (AMD-V™) technology works in concert with Hyper-V to help simplify hardware infrastructure and datacenter management.
- With the new virtualized datacenter in place, power utilization in one of the Memphis datacenters was reduced by up to 60 percent, giving ServiceU significant capacity for future expansion.
- The advice, service and technology that ServiceU has received from AMD and Microsoft has provided substantial value to the company and its customers. Additionally, ServiceU was pleased with Hyper-V's seamless installation and overall simplicity.

Organizational Profile

Based in Memphis, Tennessee, ServiceU provides on-demand event management software to organizations ranging from Fortune 500 companies to non-profits, schools and churches. With ServiceU's comprehensive approach, customers can benefit from solutions including reserve seat ticketing, online payments for donations, event registration & scheduling and resource and facilities management.

Since its founding in 1997, ServiceU has become a thriving mid-market business that has built a strong reputation within the event management industry by consistently providing customers with a reliable and seamless user experience. With a customer base in all 50 states and 15 countries, high-availability and optimal performance are two of ServiceU's primary goals. Like most web-based and financial-processing businesses, it can't afford to be offline for any length of time. For more information about ServiceU, please visit www.ServiceU.com.

Challenges

In mid-2007 ServiceU recognized it had several IT challenges, due largely to its rapidly growing customer base. "We are continuously looking for ways to utilize leading-edge technology to provide the highest levels of reliability, performance and security for our customers," said David P. Smith, Chief Technology Officer at ServiceU. The company began investigating solutions to maximize infrastructure limitations including power and space, and increase datacenter manageability while continuing to improve performance.

As ServiceU rapidly added new servers, it began to reach power and cooling limitations at two of its datacenters. The problem was especially notable at one of its Memphis datacenters, where the company had already reached the limits of the building's power. "We were using all of the existing capacity to cool and power the datacenter, and if we needed to add any additional servers to that site we would have had to request a massively expensive circuit upgrade from the utility company," explained Smith. Because space constraints were also an important factor in ServiceU's decision making process, Smith and his team were keen to ensure any technology implementation would provide ongoing scalability, reliability and performance.

"ServiceU's customers have come to expect a high level of service, especially in terms of performance," said Colin Neller, Senior Software Engineer at ServiceU. The company's policy is to upgrade its database servers when average CPU utilization reaches 60 percent during peak times. As the company continued to grow it was actively looking for solutions that would upgrade its existing database servers to new equipment with the latest processors to maximize performance.

ServiceU investigated solutions to these challenges with its customers in mind. "Because we host our software for our customers, the reliability and performance of our servers is mission-critical," noted Tim Whitehorn, Chief Executive Officer of ServiceU. "We can't deploy new technology just because it's new – it must provide significant benefits to our customers. That's why we chose to deploy Hyper-V™ on AMD [Opteron™ processor-based systems] – this is truly a big win for our customers and for us."

Solutions

With ServiceU's business thriving, there continued to be concerns over the Memphis data center's power and space capacity. As such, the company was eager to take advantage of the performance benefits of AMD Opteron processors running in a Windows based product environment that would be available to help meet both today's known demands and tomorrow's anticipated demands.

ServiceU researched and tested different technologies before deciding on the solutions to meet its needs. While ServiceU considered the possibility of implementing virtualization technology to assist in datacenter manageability, the company was hesitant to commit to implementing it across the datacenter. "As IT professionals, we understood what virtualization was but thought we didn't need it at ServiceU," Smith commented. "We had heard stories of incompatibilities between products, and problems between different vendors. As we started to take a closer look, though, we saw that there were real manageability benefits to virtualization as well, which could help reduce upgrade time and

allow us to dynamically scale our applications. In order for virtualization to be effective for us, however, we had to find a straight-forward, cost-effective, reliable solution, that also achieved high performance.”

As ServiceU was evaluating the possibility of implementing virtualization, the company was participating in the Microsoft® Windows Server® 2008 Technology Adoption Program (TAP), which allows select customers to work with the Microsoft product team on the development and testing of Microsoft products. As part of that program, ServiceU had access to the early releases of Windows Server® 2008 Hyper-V™, Microsoft’s highly anticipated virtualization technology, as part of the Windows Server 2008 operating system.

At the same time, ServiceU was testing Dell servers based on the AMD Opteron™ processor, which employs AMD’s hardware assisted virtualization technology, AMD Virtualization™ (AMD-V™). AMD-V is a set of hardware extensions to AMD processors designed to help ensure virtualization software is running as efficiently as possible. AMD-V technology enables the AMD Opteron processor to provide fast and efficient memory handling—a must-have for memory intensive environments like virtualization. What was significant for Smith was that AMD-V technology works in concert with Hyper-V to help simplify hardware infrastructure and datacenter management.

“By combining AMD’s Opteron processor with Microsoft’s Windows Server 2008 and Hyper-V, running on Dell servers, we were able to find the perfect mix of hardware and software to support simple, reliable virtualization, while not sacrificing performance,” commented Smith. The integration of the Hyper-V solution impressed him as well. Smith commented, “It is a real testament to Microsoft’s embrace of virtualization that they include Hyper-V with the Windows Server 2008 operating system. In the end, what sold us on Hyper-V was its seamless integration, its overall simplicity and the fact that Microsoft stands behind it.”

After seeing the AMD Opteron-based Dell servers utilizing Hyper-V in a real-world environment, ServiceU was convinced that virtualization could solve manageability, power and space issues without compromising performance and reliability for users, a crucial factor in the companies continued success.

By virtualizing its web servers, ServiceU can now upgrade the host servers to newer servers with faster processors, and simply copy the virtual server file to the new

hardware. This typically allows servers to be upgraded in minutes instead of days, greatly increasing manageability in the datacenter.

In one datacenter, ServiceU had to make a decision to either invest in additional circuits from the utility company, or replace existing equipment with newer processors that consumed less power. "At our Memphis datacenter, the high cost of adding power made the decision simple for us," noted Smith. "Even at our other datacenters, we were able to easily justify the replacement of existing equipment just in savings from reductions in monthly power and cooling costs."

After reviewing performance and cost comparisons, ServiceU decided to purchase AMD Opteron™ processor-based Dell PowerEdge 2970 systems running Microsoft® Windows Server® 2008 to replace many of ServiceU's existing servers. By implementing the AMD processor-based Dell servers, ServiceU reduced the power consumption at its datacenters by as much as 60 percent without compromising performance—a critical design factor for ServiceU's infrastructure. "We implemented virtualization for manageability purposes but ended up being floored by the power savings we achieved with the Dell/AMD equipment," said Smith.

Although ServiceU was not initially planning to consolidate servers, the company found that AMD's multicore processors performed so well that individual servers had extra processing capacity. This allowed ServiceU to place multiple virtual servers on a single host machine. "In many cases, after upgrading to AMD Opteron processors, we experienced better performance with multiple virtual machines running on a single server than we did with previous-generation, individual servers. We are thrilled with the AMD Opteron and the Dell hardware," said Neller. "Another obvious benefit of consolidation is that we further reduce both our power needs and carbon footprint by eliminating physical servers," commented Smith.

In addition to its numerous power and virtualization benefits, ServiceU was also interested in AMD's Opteron processors because of its memory architecture and the performance benefits it offered. The Direct Connect Architecture of the AMD Opteron processor includes an integrated memory controller, which means each processor has direct access to memory. The resulting Non-Uniform Memory Architecture (NUMA) of AMD-based servers offers significant performance and scalability benefits for the data and transaction applications, such as SQL Server and Microsoft IIS, which are core to running ServiceU's business.

"After extensive testing, both in our development lab and at Microsoft's SQL Server Customer Lab, we decided to implement Quad-Core AMD Opteron™ processors for our SQL Servers," said Smith. "This gives us the benefit of the NUMA architecture for our memory-intensive SQL Servers."

Impact

After all three datacenters were virtualized ServiceU had robust, cost-efficient and power-efficient datacenter solution in place, and concern over a full capacity datacenter well behind it. ServiceU is thrilled about its decision to adopt AMD Opteron-based servers running Hyper-V™ technology.

"In one datacenter alone, we doubled the number of operating system installs and doubled the number of processor cores, while cutting power requirements by 35 percent, cutting heat output by 33 percent and decreasing space requirements by 30 percent," noted Smith. "We were blown away by the results we achieved, and are now firm believers in the AMD Opteron processor and Microsoft's Hyper-V technology."

Conclusions

ServiceU couldn't be happier about its decision to implement an AMD Opteron processor-based datacenter. "We are very pleased with the performance and results of our virtualized AMD-based datacenter," said Smith. "In working with AMD over the last year, we have found AMD to have deep technical knowledge and have always been provided the resources we need to deliver a great solution to our customers."

As a long-term customer of Microsoft, Smith is pleased with the customer-centric approach Microsoft has taken. "I really commend Microsoft for its increasing focus on customer needs, with Hyper-V™ being a huge proof-point of this approach," Smith said.

Across the board, from increased performance to reduced power and cooling costs to ease of implementation and simplified manageability, ServiceU has taken advantage of the premier virtualization technology available to customers running Hyper-V on AMD Opteron processor-based servers.

Microsoft and AMD have made a true believer out of ServiceU, even though the company was initially skeptical of virtualization. Commented Smith, "We implemented virtualization for manageability purposes, but ended up radically changing our infrastructure due to the impressive power savings we saw with the new Dell/AMD servers and virtualization."

About AMD

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