

Richardson Electronics empowers its data center with AMD EPYC[™] CPUs

Consolidating HCI, greater performance, and lower per-socket software licensing costs with AMD EPYC[™] processors



PARTNER



INDUSTRY

Engineered electronics services and products

CHALLENGES

Improve performance of VMware® virtualization environment while consolidating hardware provisions and lowering costs.

SOLUTION

Deploy 1st Gen AMD EPYC[™] 7601 processors.

RESULTS

Around 60 percent fewer resources required for each VM instance; half as many VMware per-socket software licenses required; increased room to expand in the data center as the company grows.

AMD TECHNOLOGY AT A GLANCE

AMD EPYC 7601 processors with 32 cores

PARTNERS

VMware

As a global provider of engineered services and products across a wide range of markets, Richardson Electronics requires fast and reliable data center servers. These enterprise-class servers are essential for delivering reliable and rapid virtualized access to the company's Microsoft Dynamics® CRM and SQL databases. Richardson Electronics needed to upgrade its aging IT infrastructure as the company grew and was hoping to improve performance and cut costs while concurrently simplifying management and enabling future expansion.

"We were reaching a limit with our current hardware where we had several bottlenecks," explains Jonathan Clark, Senior IT Manager at Richardson Electronics. The company's IT department relies heavily on virtual machines (VMs), and these were spread across multiple data center locations. There were also ten separate data stores hosted on storage area networks (SANs). To resolve these challenges, Richardson turned to AMD EPYC™ processors to help eliminate the bottlenecks and provide the upgrade path it needed. The end results were much improved performance, reduced expenditures, faster storage access, and a much simpler configuration

The need for greater efficiency

Richardson Electronics was hoping to implement a hyper-converged infrastructure (HCI) design where all three componentsnetwork, storage, and compute-could be provided by the same underlying hardware.

that allows plenty of room for future growth.

"We were moving from a dual-socket Intel solution, spinning discs, one-gigabit networks," says Clark, "and were really just trying to reduce the amount of management that we had for our converged setup, with a networking layer, storage, and then compute. Our servers were past their lifetime, and the company is expanding in different areas. The amount of compute that we need is also growing." The move to HCI would simplify management as well as make future expansions easier and more seamless. The company needed a platform that could deliver a best-in-breed solution across all three areas and seamlessly incorporate the VMware virtualization software it was deploying.

"We looked at several different options," explains Clark, "going across the Intel® Xeon® Scalable platform. But to get anywhere close

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Jonathan Clark, Senior IT Manager, **Richardson Electronics**

to where we wanted to be for performance and having enough cores to support our virtual environment, we still needed a dual-CPU solution from Intel. That's when we started to look at AMD's offering. The single-socket solution just really shined. With 32 cores, the AMD processor had all the

processing power and all the PCI Express lanes we needed, and it fit in with the other parts of the solution. It really just hit the mark right on the spot."

Richardson Electronics had considered Intel's Xeon Gold 6154 in a dual-socket configuration, but the AMD EPYC 7601 processor provided a comparable number of cores in a single socket. This had many advantages, not least of which was the lower capital expenditure required for the initial purchase of single-socket servers that have just one CPU each.



Economies of performance, costs, and scale

Moving to AMD EPYC processors provided considerable performance benefits for Richardson Electronics. Richardson was able to reduce system resource allocation by almost 60 percent per VM and get better performance, and there were cost savings as well on multiple levels. Firstly, fewer physical servers were required, reducing management and power costs as well as the space required in the data center, leaving room for future expansion as the load rises.

Richardson Electronics was also able to switch from 2U to 1U servers, further saving space on the rack for future use. Thanks to the AMD EPYC processor's allocation of 128 PCI Express® lanes per CPU, the servers could move entirely over to NVMe storage, with each server having ten hard drive slots. Clark opted to use four of these slots for the operating system and write cache and then four to provide 4TB of storage per server. This left two slots free per server, providing room to upgrade to 36TB more storage across the data center solution when needed, without adding any more infrastructure.

"In our old environment, we had VMs spread across two clusters at two separate locations," adds Clark. "One of the things we did was reverse that configuration, moving all the VMs to the new production cluster in LaFox, Illinois, and leaving the colocation site for disaster recovery. That meant we were able to take all the VMs that were on seven dual-socket Intel hosts, move them to four single-socket AMD hosts, and still have plenty of resources to allocate. We have nearly 100 VMs running across our environment, and we still have a lot of headroom left for growth."

Faster storage access and a clear path forward

An added bonus of the AMD EPYC processor-powered HCI solution was that Richardson Electronics could dispense with its existing ten different SAN arrays and replace them with a much faster unified storage setup based on VMware vSAN[™] using NVMe drives hosted on the AMD EPYC servers. Where the company's previous storage environment was providing 110MB/sec read/writes, the NVMe-based vSAN is able to

provide approximately 41 times faster reading at 4.5GB/sec and around 29 times faster writing at 3.2GB/sec writing.

The switch from 1Gbit to 10Gbit networking also enabled vSAN to run smoothly, and this wasn't the only performance benefit. "With the vSAN solution and AMD, we now have deduping compression," adds Clark. "It's compressing things and saving storage, but we're not seeing any impact on performance."

The arrival of the AMD 2nd Gen EPYC processors will have plenty to offer when Richardson Electronics needs to make additional upgrades. "We can se 64-core processors, and we won't pay for any more

potentially purchase 64-core processors, and we won't pay for any more VMware licenses."

Clark is excited about the value AMD EPYC processors are providing Richardson Electronics for its new hyperconverged infrastructure solution. "We were looking for ease of management, cost reduction, and performance," he says. "We get all three factors with the AMD solution. In tandem with VMware and vSAN, the difference is night and day."





About Richardson Electronics

Richardson Electronics, Ltd., is a global provider of engineered solutions. For over 70 years, the company has been the industry leader in power grid and microwave tubes. Its Visual Technical Solutions division, Canvys, delivers innovative custom display solutions to a diverse customer base. Its Powerlink division provides technical service for the satellite communications market, while Richardson Electronics Healthcare delivers flexible, efficient high-value medical diagnostic imaging replacement parts, components, and technical support. The company provides solutions and adds value through its global infrastructure. To learn more about Richardson Electronics' range of services visit: www.rell.com.

About AMD

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Electronics

For 50 years AMD has driven innovation in high-performance computing, graphics, and visualization technologies—the building blocks for gaming, immersive platforms, and the data center. Hundreds of millions of consumers, leading Fortune 500 businesses, and cutting-edge scientific research facilities around the world rely on AMD technology daily to improve how they live, work, and play. AMD employees around the world are focused on building great products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit <u>amd.com/epycserver</u>.

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