The Media Team supercharges its webservers with AMD EPYC™ CPUs

10.2x greater throughput and a 96 percent reduction in latency

AMD EPYC

The Media Team has been publishing a growing range of websites specializing in independent technology news and reviews since 1998. This ongoing growth put the company's IT infrastructure under significant strain to support the increasing traffic, which in turn led to slower server response times at peak load. Although The Media Team had upgraded its infrastructure regularly as new websites were added to the portfolio, a fundamentally new server solution was needed to deal with the growing demand. AMD EPYC CPUs delivered the performance and features required for the company to meet its current and continuing goals.

Choosing AMD EPYC Processors

"Our original infrastructure was based around dual-socket Intel Xeon E5520 server technology with eight cores in total and 96GB of RAM," explains David Ross, Founder of The Media Team. This had been upgraded to cope with additional traffic but wasn't delivering the performance required. "There were significant slowdowns in high-demand web serving when the processors hit peak utilization too quickly. The lack of memory bandwidth was particularly inhibiting performance for queries on the large content databases, when load exceeded main memory and data was swapping to slower forms of storage." This was further accentuated by the Intel platform's lack of support for the latest PCI Express® 4.0 connectivity for storage, which enables four times the bandwidth of PCI Express 2.0, the version supported by their current Intel Xeon E5520 CPUs.

The Intel server technology also had energy efficiency limitations, as well as having only minor upgrade potential with the same server technology and form factor. "We could have upgraded the Intel CPUs to 12-core models and doubled the memory to improve requests per second while reducing latency when serving websites," says Ross. "But the scope beyond this was limited.

"When the full potential of the AMD EPYC CPU was unleashed, we saw a 10.2x greater throughput and a 96 percent reduction in latency."

David Ross, Founder, The Media Team

This meant that our existing server platform would not have been able to cope with the increasing demands our server infrastructure would encounter as the demands of our increasing portfolio of websites grows."

The Media Team estimated that it needed a platform that could cope with up to ten times the existing platform's ability to deliver requests per second. "This would significantly reduce page-serving latency in high traffic situations, like when one of our websites was covering a product launch or other popular stories," says Ross. The company was contemplating porting the server and applications to a cloud-based provider, which would have the benefit of being scalable as demand grew. The other option was to keep its server 'in house' but switch to a new and much more scalable server platform, with superior performance, greater upgrade potential, and holistic platform advantages. "A new server platform could provide reduced total cost of ownership and increased productivity, in addition to more flexible deployment and virtualization improvements compared to our existing platform," continues Ross. However, in order to be preferable over a cloud solution, the new server platform would need to offer better value as well.

This led The Media Team to evaluate server solution options available with Intel and AMD processors. "It was clear that AMD-powered platform delivered leadership in outright performance, particularly for virtualization instances, as well as for platform-level features," says Ross. "It also provided better future upgradeability and total cost of ownership advantages over the Intel Xeon alternative." As a result, The Media Team chose to implement a dual-socket AMD 2nd Generation EPYC 7662-powered server, delivering a total of 128 cores, with a very healthy 512GB of main memory.

Handle ten times as many requests with 30 times lower latency

The Media Team's choice wasn't just based around performance, however. "The balanced features of the AMD EPYC platform were also ideal for us, with ample connectivity, storage and memory size, as well as faster RAM when compared to the Intel alternative," says Ross. The additional security features of the AMD platform were another major benefit. Since The Media Team runs a virtualized environment, the fact that AMD's Secure Encrypted Virtualization operates at the processor hardware level provided the company with peace of mind that each virtual machine could be kept separate from others via a transparent layer of encryption.

"Security is particularly important for us because we run multiple websites from a single server, so keeping them isolated in this way is essential so that a problem with one won't affect the others," continues Ross. AMD's security technology lead in other areas also helps protect confidentiality and integrity of data that can be vulnerabilities of older hardware platforms, via the AMD Secure Processor that is integrated within every EPYC processor.

The Media Team assessed the performance of its new platform against its old one, with very reassuring results. The tests were recorded using ApacheBench, to show homepage request throughput and access latencies when serving pages to a virtual machine on the same network with 64 cores and 128GB of RAM. The application tested was run using 4GB of RAM and then either two cores on The Media Team's original platform or 1-8 cores on the new AMD EPYC CPU-powered one, providing a level playing field approach. This produced 10,000 requests with a concurrency of 64 in ApacheBench.

> *"The AMD EPYC server excelled in every required metric for our needs, while reducing hardware complexity and offering clear futureproofing as and when our server infrastructure needs grow."*
>
> *David Ross, Founder, The Media Team*

"With an identical two cores, the new AMD EPYC platform could handle 2.78x as many requests per second as the Intel Xeon platform on our Cranble website," says Ross. "This shows the much faster per-core speed. But when the virtual machine core count was increased to eight on the AMD EPYC platform, the request performance was ten times faster, showing plenty of room for growth."

The Media Team also tested latency, finding that a 15-second latency on the original Intel platform dropped to 1.5 seconds with the AMD EPYC processor using two cores in both cases.

This dropped still further to 0.5 seconds with eight cores from the AMD EPYC CPU. "We were getting a threefold throughput improvement with pages served in a tenth of the time on like-for-like hardware."

Lower power and room for growth

"When the full potential of the AMD EPYC CPU was unleashed, we saw a 10.2x greater throughput and a 96 percent reduction in latency, while also reducing 8U of rack space to 2U," says Ross. The Media Team estimates that the AMD EPYC processor-powered server, although initially more expensive than a similarly specified cloud-based provision,

> *"The new AMD EPYC-powered server was 7.5 times more power efficient than our original Intel Xeon-based one."*
>
> *David Ross, Founder, The Media Team*

would end up being four times less expensive over a three-year period. A new dual-processor Intel Xeon-based server would also have been more expensive for initial purchase, but with lower performance and a more limited upgrade path it could not provide the scalable solution the team needed.

The Media Team also performed performance-per-Watt testing. "The new AMD EPYC-powered server was 7.5 times more power efficient than our original Intel Xeon-based one," says Ross. Plus, the new platform benefited from better storage manageability, redundancy and performance thanks to AMD EPYC processors' support for 128 PCI Express 4.0 lanes. "The PCIe lanes allowed us to make use of fast NVMe™ storage devices with RAID to provide data protection, and with plenty of room to expand capacity when needed, including making full use of the growing potential of PCI Express 4.0 for faster storage controllers," says Ross.

Overall, The Media Team found that its AMD EPYC CPU-powered platform combined outstanding performance with a consistent upgrade path and lower total cost of ownership compared to Intel Xeon CPU-based servers or a cloud-based alternative. For a small business like The Media Team, a large infrastructure investment needs to provide long-term service in an easy-to-manage package that didn't break the bank. "The AMD EPYC server excelled in every required metric for our needs, while reducing hardware complexity and offering clear futureproofing as and when our server infrastructure needs grow," concludes Ross.

WANT TO LEARN HOW AMD EPYC™ PROCESSORS MIGHT WORK FOR YOU?

Sign up to receive our data center content

amd.com/epycsignup

About The Media Team

The Media Team has quickly become one of the world's leading integrated media groups. Using innovative digital creative solutions, deep data, and engaging content, the company devises campaigns that ensure their clients' stories have the desired impact. Within the group are internationally respected brands; together these brands have an impressive database of informed consumers and early adopters who rely on authoritative editorial and the latest news to make informed decisions about their purchases. The Media Team is able to understand clients' goals and create integrated campaigns and content which resonate with target audiences, bringing products to life and delivering proven results globally. For more information, visit themediateam.net.

About AMD

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 amd.com/EPYC.

AMD + THE MEDIA TEAM CASE STUDY

AMD