

Linode maximizes cloud performance and value with AMD EPYC™ CPUs

Improved price-performance, faster memory, and faster storage with AMD EPYC processors



CUSTOMER



INDUSTRY

Cloud services provider

CHALLENGES

Improve price-performance for customers and expand regional footprint.

SOLUTION

Deploy AMD EPYC 1st Gen processors.

RESULTS

Better performance and a greater range of services across a wider global area.

AMD TECHNOLOGY AT A GLANCE

AMD EPYC™ 7501 with 32 cores
AMD EPYC™ 7601 with 32 cores
AMD EPYC™ 7351P with 16 cores

Linode, the world's largest independent open cloud provider, has as its primary objective to maximize performance and value for its customers. When AMD released its 1st Gen EPYC™ processor and future roadmap, Linode realized the new CPU range had the potential to revolutionize what the cloud storage industry was capable of doing and would further fulfill Linode's mission statement: to accelerate innovation by making cloud computing simple, affordable, and accessible to all.

"Our whole mission ever since the very beginning has been how do we make cloud computing simpler, more affordable, and more accessible to drive innovation for everybody no matter if you're a big company or a small business or a hobbyist developer," explains Blair Lyon, VP of Marketing at Linode. "We are known for delivering a great, high-performance product at an excellent price that's transparent and predictable in every market we operate in around the globe. That's one of the things that has always drawn us towards working with vendors like AMD that are going to allow us to continue that mission."

Giving Linode's customers more performance

Linode offers a very broad range of services, from single nodes for a personal Git server all the way to full stack and database hosting for Fortune 500 companies. In all cases, however, the company is looking to maximize performance per dollar. The better this ratio is, the more benefit this intensely

customer-focused company can provide to its customers. Linode is always searching for ways to "democratize the power of the cloud," as Lyon puts it, and AMD EPYC processors have great potential to help them with that goal.

"We evaluated all of the technology on the market to see how it can be used in our platform to benefit our customers," says Alex Peña, Research and Development Engineer at Linode. "In the majority of cases, AMD had the best performance per dollar over the competition." Linode appraises hardware performance with a range of software. Flexible IO (FIO) is used

to test storage throughput and latency. A kernel compile provides a good litmus test that assesses both multi- and single-threaded speed. Time-based tests with equations test floating-point abilities, whilst Stream is used to benchmark the throughput between RAM and processor.

"AMD had the best performance per dollar over the competition."

Alex Peña, Research and Development Engineer, Linode

The AMD EPYC "was far superior to what the competition was able to provide," explains Peña. The 1st Gen AMD EPYC CPU's support for eight channels of memory up to 2,666MHz gave it a real technical advantage over competitor platforms for any application that benefits from high-bandwidth RAM. "With anything like a database, if you're running your database in memory, the faster your RAM performance is, the quicker you can access that data." This is an advantage that's set to increase with the 2nd Gen AMD EPYC CPU's 3,200MHz memory support. But Linode was already very happy with what the 1st Gen had to offer.

Enabling better customer experience

Linode began by rolling out 32-core AMD EPYC 7501 CPUs in a dual-socket configuration across its core cloud services. “Putting 64 physical cores into a machine meant that we could do a lot more with it,” explains Peña. “This applies both internally and providing a better customer service experience as far as performance is concerned.” A further rollout of 32-core AMD EPYC 7601 CPUs is now taking place. “We wanted to squeeze more performance out of the machines,” continues Peña. “So AMD partnered with us to make that happen, providing better price performance value to us and our customers.”

As a result, Linode has been able to offer a very competitive service. “We’ve seen from our customers’ feedback that Linode – in comparison at least to the big three hyperscalers – can often save our clients 30-50 percent or more on their cloud computing bills,” adds Lyon. “That’s a key differentiator for us. We want to come in and be able to provide substantial cost savings while not sacrificing performance.”

The AMD EPYC CPUs have also enabled Linode to strengthen its block and object storage offerings. In this case Linode has deployed the 16-core AMD EPYC 7351P. “Having AMD’s 128 PCI Express® lanes for that solution was very important,” explains Peña. “What you don’t want to do, especially when you’re looking at a very dense and very large storage system, is to be bottlenecked by your processor. Because you can buy the fastest disks in the world and it won’t make any difference at all because your processors aren’t going to be able to keep up. Having more lanes between the disks and the CPU allowed us to operate at a much quicker pace.”

“The partnership with AMD allows us to continue to deliver the performance and price points we need to be competitive and to continue to drive growth.”

*Blair Lyon,
VP of Marketing, Linode*

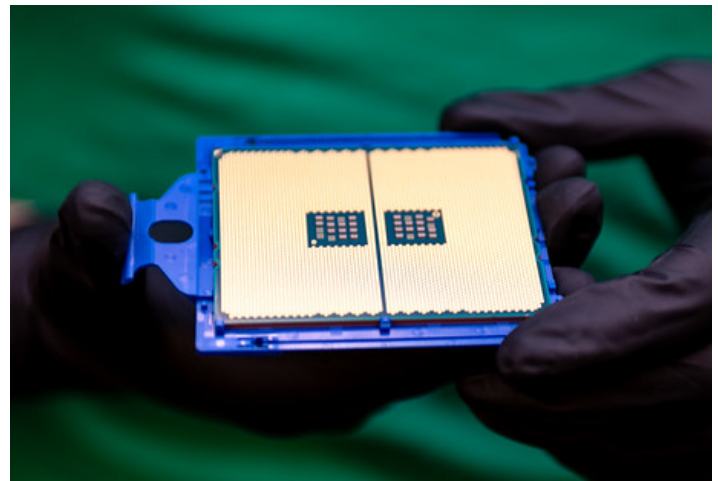
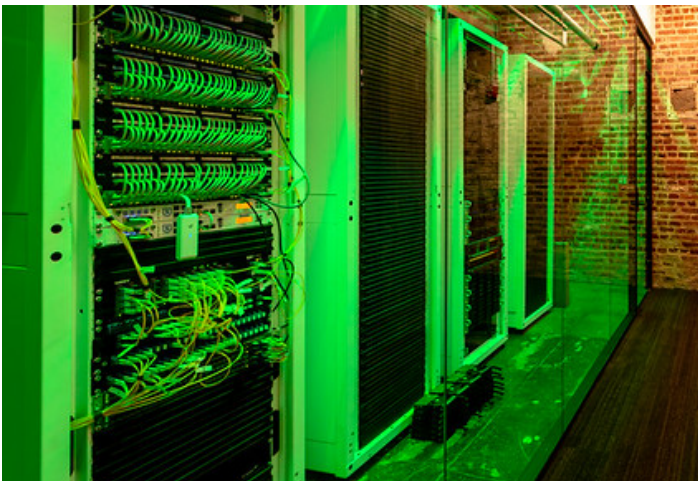
The fast memory bandwidth of the AMD EPYC platform also paid dividends with other applications. “The Ceph storage platform likes memory, especially in the event of a failure,” continues Peña. “In testing, the higher memory bandwidth helped us recover data faster.”

Expanding regions and product portfolio

The AMD EPYC-powered solutions have also been a factor enabling Linode to expand its regional bases. In 2019, it opened data centers in Toronto, Mumbai, and Sydney. “It’s very exciting that we’ve been able to accelerate this quickly with three new data centers in a year,” explained Lyon. “The partnership with AMD allows us to continue to deliver the performance and price points we need to be competitive and to continue to drive that growth.”

Linode is currently evaluating the 2nd Gen AMD EPYC processor to further strengthen its portfolio, thanks to the new version’s potential doubling of the core count in a single server. “There are a lot of new capabilities – managed Kubernetes and bare metal, for example – that ride on the backs of dedicated CPUs that will benefit from increased core count,” explains Lyon. “We are excited about what that will mean for our existing customers and, of course, new customers that are looking for viable alternatives to the big hyperscalers.”

“AMD has been a great partner for us,” confirms Peña, “and it has allowed us to do things both on the technical side and on the human side that other providers simply can’t compete with. With the help of AMD and the amazing support staff that we have here, we can stay in tune with what people are looking for from us and help them get to where they want to go both professionally and personally.”



About Linode

Linode accelerates innovation by making cloud computing simple, affordable, and accessible to all. Founded in 2003, Linode helped pioneer the cloud computing industry and is today the largest independent open cloud provider in the world. Headquartered in Philadelphia's Old City, the company empowers more than a million developers, startups, and businesses across its global network of 11 data centers. To learn more about Linode visit linode.com.

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/epycserver.