

Lower power consumption and double the throughput for content distribution network infrastructure by deploying AMD EPYC processors



CUSTOMER



INDUSTRY

Video content delivery network

CHALLENGES

Maintaining service stability and reducing costs and footprint as demand for its video distribution services grow

SOLUTION

Deploy servers powered by AMD EPYC[™] processors

RESULTS

Double throughput, approximately 40 percent lower CPU usage, and 20 percent lower power consumption

AMD TECHNOLOGY AT A GLANCE AMD EPYC[™] 7502P CPUs with 32 cores

TECHNOLOGY PARTNERS

DCLTechnologies



Video content distribution poses a performance challenge for data center hardware, but it also needs to be provided in a cost-effective way. Broadcasting joint venture JOCDN is at the forefront of delivering video in the Japanese market.

The company faces a constant desire to find the best processing power for the money, to maintain competitiveness and enable the development of new services.

When JOCDN started to find its existing infrastructure was limiting its opportunities for growth, the company began looking for an alternative platform. AMD EPYC processors delivered what JOCDN wanted for competitive service now and for future expansion.

Doubling the throughput

JOCDN was formed with investment from longstanding ISP Internet Initiative Japan, Inc and major Japanese TV

broadcasters to service the country's growing need for online video streaming. "We mainly deal with video content distribution, but we are also adding web content

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Satoru Miyachi, Engineer, JOCDN

required for our 100Gbit NICs. When we compared a 24-core Intel Xeon CPU against a 32-core AMD EPYC processor with our workloads, EPYC showed about twice the throughput in our test."

distribution," says Satoru Miyachi, Engineer, JOCDN. "We provide a Content Distribution Network (CDN) with stability and high quality. We have the most traffic in the domestic Japanese market."

To maintain this leading position, JOCDN wants its infrastructure to have some key advantages. "Service should never be disrupted," says Miyachi. "So, server stability is an essential requirement and server performance is directly related to the competitiveness of our company. Price competitiveness is also a very important factor in the CDN industry, so we must have low operating costs."

PCI Express throughput was an important factor for JOCDN. The AMD EPYC processor's larger number of faster PCI Express lanes greatly enhanced I/O performance for CDN applications, which rely heavily on fast data transfer.

"The CDN servers are equipped with NVMe® disks as well as 100Gbit Ethernet network

interfaces," says Miyachi. "They must deal

distribution. Our customers deliver video to around a million users on our platform."

Keeping up with this level of throughput

while providing exceptional quality requires

constant improvement in infrastructure. "We

on those Intel CPUs and were looking for

alternatives."

were using Intel CPUs for most of our servers, but we were struggling with the specification

Miyachi started hearing about the AMD EPYC

JOCDN's hardware partners, Dell Technologies

and Supermicro, provided test environments.

performance. A high-performance CPU was

"Our former Intel CPUs had lower I/O

processor, including at the CES tradeshow. "We decided to try the new processor," he says.

with a large amount of traffic for video

Great performance, lower power

JOCDN assessed areas other than video throughput, too. "We tested the cache performance as well," says Miyachi. "We put a comparable load on the Intel and AMD EPYC CPUs. We saw that our CPU usage rate was reduced by about 40 percent with EPYC.

At the same time, power consumption was reduced by about 20 percent with EPYC[™]. Yet JOCDN saw no noticeable difference with the response rate." In other words, JOCDN was able to spend less on energy with AMD EPYC processors for a comparable workload, while still having headroom available for when load increases as its business expands.

processors and is in the process of rolling out 30 more powered by 3rd

"We have other servers for other purposes, such as service UI and

service creation servers and workloads. We are now planning to use

EPYC processors for those servers as well."

Satoru Miyachi, Engineer, JOCDN

"The biggest benefit for us has been the performance throughput

competitiveness is the most important factor. Reducing CPU usage

rate by about 40 percent means the service uptime percentage will be improved. The approximately 20 percent power consumption saving means our costs go down. So, we can provide our service with

The reduction in power consumption has had associated benefits for

JOCDN's goals and data center footprint. "As a modern company, we

view sustainability as an important corporate responsibility," says Miyachi.

improvement," says Miyachi. "As a result of that, we can provide

high-performance servers to our customers for a competitive

cost. In the CDN industry, performance is important. But cost

Migrating to AMD processors proved simple as well. "We have been putting a lot of effort into continuous integration and continuous delivery (CI/CD)", says Miyachi. "We are using DevOps tools such as Ansible®, and the migration to EPYC was easy. The servers are now running with complete stability." JOCDN has now deployed 20 servers powered by 32-core AMD EPYC 7502P

Gen AMD EPYC CPUs.

less cost and with strong stability."

Recommended processor for CDNs

"When we compared a 24-core Intel Xeon CPU against a 32-core AMD EPYC processor with our workloads, EPYC showed about twice the throughput in our test." Satoru Miyachi, Engineer, JOCDN

So far, we have replaced around one third of our existing processors with AMD EPYC CPU-powered servers," says Miyachi. "When we increase the number, the effect will be even more significant. A third of our front edge is using 2nd

significant. A third of our front edge is using 2nd Gen AMD EPYC, and in the future, we will mainly use 3rd Gen AMD EPYC processors. The number of cores and number of PCI Express lanes are important, but the overall throughput and high performance are the most important features."

The success JOCDN has had deploying AMD EPYC processors for its video distribution services has led the company to consider using them elsewhere in its computing fleet. "We are using EPYC processor for our virtual machine or container platform," says Miyachi. "But we have other servers for other purposes, such as our development infrastructure and other workloads. We are now planning to use EPYC processors for those servers as well."

"The power consumption per server is reduced, and because of that, we can increase the rack density, reducing our overall footprint. We

have to think about the overall data center's sustainability as a society."

JOCDN is so satisfied with the performance characteristics of AMD EPYC processors that the company would happily suggest them to its partners. "We have a very strong relationship with the broadcasters, as well as the ISP industry," says Miyachi. "We can recommend the features of AMD EPYC processors, such as the power consumption reduction and performance improvement. We heartily recommend these features to those service providers."

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About JOCDN

JOCDN is Japan's leading content delivery network (CDN) for broadcasters and video companies. It was created by fusing internet service provider IIJ's technology for large-scale distribution with video distribution services by NTV such as NTV On Demand and Hulu. Established as a joint venture between the two companies with the aim of providing CDN services to distributors, the company now has investments from brands across the Japanese broadcasting industry. JOCDN has pioneered services including simultaneous distribution of TV broadcasting on the Internet. For more information visit jocdn.co.jp.

About AMD

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