Vogo Networks accelerates content distribution with AMD EPYC™, AMD Ryzen™ PRO, and AMD Threadripper™ CPUs

AMD processors enable the next generation of secure online storage.

AMD EPYC **AMD RYZEN THREADRIPPER** **AMD RYZEN PRO**

CUSTOMER

VOGO

INDUSTRY

Media and Entertainment

CHALLENGES

Provide the best possible performance for Vogo Networks' distributed content delivery platform

SOLUTION

Deploy AMD Ryzen™ PRO, AMD Threadripper™, and AMD EPYC™ CPU-powered systems

RESULTS

15 percent faster encoding and hashing performance than other tested technologies

AMD TECHNOLOGY AT A GLANCE

AMD Ryzen™ 3 PRO 4350G processors with 4 cores

AMD Ryzen™ Threadripper™ 3960X processors with 24 cores

2nd Gen AMD EPYC™ 7F72 processors with 24 cores

TECHNOLOGY PARTNER

Daewon CTS

As the geographical space over which data can be distributed grows, new technologies are required to maintain performance and security. South Korea-based Vogo Networks is at the forefront of developing the decentralized infrastructure that the future needs. Server processing power is paramount, which is why Vogo Networks turned to AMD processors to supercharge its next-generation system.

Empowering decentralized file storage

"Our technology is based on the InterPlanetary File System (IPFS), the next generation Internet Protocol," explains Jun Lee, CEO of Vogo Networks. "The key concept is content addressable memory. Instead of there being an IP address behind any hyperlink in HTTP, in IPFS there is a content ID behind the link in the IP address. That link will take you to the content itself, and the ID is based on the hash code of the contents."

This configuration has advantages for data reliability and security. "With HTTP, if anybody changes the content behind the IP address pointing to it, the person who clicks it and downloads won't know what is being downloaded," explains Lee. "With IPFS, it has to be the same hash code. If someone makes even the slightest change to the content it will be a different file, with a different ID. This is a decentralized storage network."

However, there are implications for the processing power required by the servers delivering this system. "The ID hash code maintaining the consensus is a blockchain," says Lee. "To maintain this, our servers must be connected to the blockchain and keep communicating, so anything that goes in and out of our servers will be listed. By the nature of this blockchain-based data system, content is encoded, which also protects privacy." This is what Vogo Networks calls a Distributed Content Delivery Network (dCDN).

"All the data is distributed and when you click, it can come from a server near you," continues Lee. "We are operating a data center, but it's not a centralized data service. By doing this, we can bring down the cost for our customers and provide better speed." There are many applications where this can be beneficial. "We are approaching universities, schools and entertainment companies, which generate a lot of video and audio content. For one movie, they must produce many different versions of the media."

"We found that AMD processors were 15 percent faster than other processors[1], especially for encoding and computing the hash code, which is roughly 50 percent of the whole process."

Jun Lee, CEO of Vogo Networks

This hashing and encoding process places an emphasis on processing power. "A data center using traditional technology to store and retrieve data requires fast bandwidth and low latency," says Lee. "But with an IPFS-based storage network, two additional processes are required: Proof of Replication (PoRep) and Proof of Spacetime (PoSt). PoRep generates a unique encoding of the data and stores it through a process called "Sealing". It provides public proof that a unique encoding of the data exists in our storage. PoSt provides public proof that a given encoding of the data has existed in our physical storage continuously over a period of time."

These additional processes are the core performance factor of an IPFS dCDN and requires very high computing power. Vogo Networks found that deploying AMD processor technology could deliver the performance needed.

Best performance for hashing and encoding

Vogo Networks realized that it would need a range of CPUs delivering the best possible performance for the different stages of its process. "Before the uploaded data gets to storage it has to be encoded and a hash has to be generated," says Lee. "These two steps demand a very high-performance CPU. We found the AMD chips very well suited for this goal. I had our team test multiple different technologies and chips. They contacted AMD Korea and received really good support from them."

"As we explore other avenues to provide services to our current and future customers, having AMD CPUs will be essential for expansion in a decentralized storage environment using a data sealing process."

Jun Lee, CEO of Vogo Networks

Integration partner Daewon CTS helped build test systems, which Vogo Networks was able to use for performance comparison. "How fast you seal the data sector is very important, because this has to be recorded into the blockchain," says Lee. "In that process, 80 percent of the workload is done by the CPU. We found that AMD processors were 15 percent faster than other processors[1], especially for encoding and computing the hash code, which is roughly 50 percent of the whole process."

So far, Vogo Networks has deployed AMD EPYC™, AMD Threadripper™, and AMD Ryzen™ PRO processors for the process pipeline of its dCDN. The EPYC 7F72 processors perform PoSt and handle uploading the data to the nodes and downloading it to the clients. The PoRep, which performs encoding and encrypting, is handled by the hashing power of AMD Threadripper 3960X and Ryzen 3 PRO 4350G CPUs.

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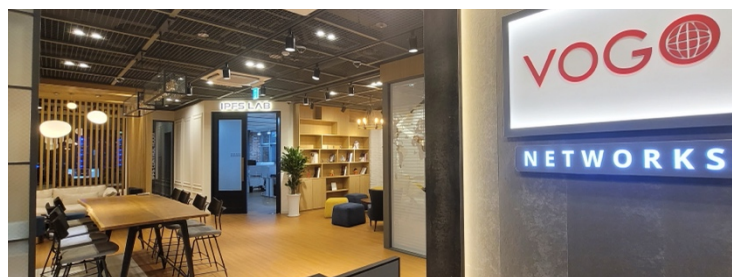
Jun Lee, CEO of Vogo Networks

Perfect basis for expansion

Now that it has a solid basis for its technology, Vogo Networks is aiming to expand into other fields beyond video and audio. "There are many vertical opportunities such as: medical, entertainment, humanitarian, and geographic," says Lee. "For example, in Korea, there's a big movement called the My Data initiative. An X-ray, MRI, or CT scan that was done for you in the hospital is actually yours. They can maintain an archive of it, but they don't own it. Our technology provides a secure way for you to share your scans with the hospital you are visiting."

Lee sees AMD CPUs as a key technology to enable this expansion. "The core performance factor, which is the most important thing in this business, is now provided by AMD," he says. "Because the performance is better, instead of using ten servers, maybe we can do that with seven or eight. We can use a smaller footprint. This is a decentralized storage network, which means the data center servers need to be near where the data is being created. Instead of being in the outside suburban areas, they need to be sitting next to the offices downtown, where the cost of land is very expensive, and power is limited. It's important to be able to do more with the available power and space."

Vogo Networks is looking to build a second data center soon, and between five and ten more planned for 2022. As the system expands, having local geographical facilities will be key. "We are working with small- and medium-sized customers," says Lee. "Often, they don't have facilities of their own, so we are planning to provide them with client hardware as well. AMD is a great fit for delivering sustainable performance, and AMD CPUs are the best for IPFS. As we explore other avenues to provide services to our current and future customers, having AMD CPUs will be essential for expansion in a decentralized storage environment using a data sealing process."