ZENRIN DATACOM OPTIMIZES CLOUD INFRASTRUCTURE FOR MAP SOLUTIONS WITH AMD EPYCTM PROCESSORS

AMD EPYC processors help Zenrin DataCom boost performance and reduce the costs of its Amazon EC2 instances

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Mizuo Chitoshi, Senior

Engineer, Zenrin DataCom

CUSTOMER

ZENRIN DataCom

INDUSTRY

Software & Sciences

CHALLENGES

Manage the rising cost of the company's cloud infrastructure with a costeffective solution that could provide comparable or better performance while ensuring a smooth migration process

SOLUTION

Switch from competitor-based instances to AMD EPYC[™] CPU-powered Amazon EC2 instances

RESULTS

AMD EPYC 7002 processors outperformed competitor processors in about 80% of Zenrin DataCom's benchmark test items

AMD TECHNOLOGY AT A GLANCE

AMD EPYC 7001 processors AMD EPYC 7002 processors AMD EPYC 7003 processors

TECHNOLOGY PARTNER



Zenrin DataCom is a subsidiary of a leading Japanese company with over 70 years of experience in the mapping industry. It provides high-quality data and services to help businesses and consumers make informed decisions based on accurate and up-to-date location information. The company is particularly well-known for its high-resolution mapping information, which includes granular residential maps in dense urban areas that allow for efficient parcel delivery and other locationbased services.

Zenrin DataCom relies on 3rd generation AMD EPYC[™] CPU-powered Amazon EC2 instances as a crucial component of its mapping services. With over 200 server instances currently running on EPYC CPUs, the company can

leverage the cost savings and ease of use made available by AMD EPYC processor-powered instances to run their map drawing, route search, address search, facility search, and geocoding engines. Zenrin DataCom provides these as development tools, smartphone applications for consumers, and navigation functions for corporate customers. Additionally, the company uses AMD EPYC CPU-powered instances to verify and develop its services and to provide customers with their own verification environments.

Lowering costs without impacting cloud operations

Zenrin DataCom began using Amazon EC2 instances in 2011 and has steadily increased its cloud server footprint to over 4,500 instances. One of the advantages of using AWS for Zenrin is the autoscale function and pay-as-you-grow billing, allowing the company to increase or decrease the number of servers as needed and pay only for what it uses. In addition, AWS enables Zenrin to optimize its service operation by starting servers only when necessary, such as when converting map data, then stopping the server when the conversion process is complete.

Despite the benefits of AWS's ease of use, the rising cost of its competitor-based instances has been a challenge for Zenrin DataCom. As a result, the company has started to migrate toward AMD instances to reduce costs while maintaining or increasing performance. "Transitioning to EPYC

instances was a crucial decision for us in reducing our AWS costs, which had been increasing year after year," said Mizuo Chitoshi, Senior Engineer at Zenrin DataCom. "We were initially concerned about the potential for negative effects on performance. However, after

working closely with AMD, we found the transition seamless and effortless. We have been expanding our mapping services on EPYC CPU-powered instances ever since."

According to Mr. Chitoshi, "One of the advantages of using AMD EPYC processor-powered EC2 instances is the ability to change infrastructure layers without changing the program itself, leading to significant cost savings without requiring a lot of manual work or program changes. This ease of migration is a major benefit for Zenrin and one we recommend to other companies."

EPYC powers a wide range of map solutions

"Zenrin DataCom operates its various map solutions engines as a shared infrastructure, with seventy of its 200 AMD EPYC CPU-powered server instances dedicated to its mission-critical mapping engine. Additionally, Zenrin DataCom uses these instances to provide customers with a verification environment to test their applications before moving to production.



According to Mr. Chitoshi, "We are confident in our AMD EPYC CPUpowered platform instances. That's why we are providing these services directly to customers."

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One of the important applications Zenrin DataCom runs on its AMD processor-powered instances is its routing search engine, which finds the optimal route or routes from point A to point B and geolocates the final destination. This function requires substantial CPU resources to find the best possible routes, and Zenrin DataCom uses Amazon EC2 instances to

provide sufficient computing resources to run the search engine smoothly. "The routing search engine is essential for our map solutions, and we rely on Amazon EC2 instances built using AMD EPYC processors to provide the computing resources we need," says Mr. Chitoshi.

AMD EPYC CPU-powered EC2 instances outperform at lower cost

Zenrin DataCom considers the x86 compatibility and ease

of migration the most critical technical aspects of the AMD CPU-powered EC2 instances. These features enable the company to transition to the new platform smoothly and without compromising performance. To ensure a seamless migration process, the vCPU, memory, network bandwidth, and Amazon EBS bandwidth must be comparable to or better than other instance families with similar specifications. To evaluate the performance of AMD EPYC processor-powered instances, Zenrin DataCom conducted a general benchmark test using UnixBench and a performance test by running their routing engine. "We used several benchmark test items to evaluate instances using 2nd generation AMD EPYC 7002 series processors. In about 80% of those test items, AMD achieved higher scores than 2nd generation competitor scalable processors," said Mr. Chitoshi. Zenrin DataCom also evaluated their route search engine's ability to handle simultaneous connections, finding that AMD instances could handle the same number of connections as competitor instances without a significant difference in response time.

"The results were clear," said Mr. Chitoshi. "The AMD EPYC CPU-powered EC2 instance scored higher in nearly all benchmark test items. The performance test further demonstrated that the response time was not significantly different despite the 10% lower cost of the AMD instances."

A faster, cleaner, more cost-effective future

As Zenrin DataCom continues to prioritize technological advancements in its long-term strategy, its partnership with AWS and use of AMD CPUpowered EC2 instances set them up for success in the future. "AMD EPYC processors reduce our power consumption and subsequently may decrease the CO2 emissions of our operations. As more small and medium-sized businesses in Japan emphasize CO2 emission reduction, this feature will become increasingly valuable. We look forward to highlighting the environmental benefits of our platform choices in the future," said Mr. Chitoshi.

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Zenrin DataCom

Additionally, the company is exploring the possibility of utilizing an Amazon EC2 G4ad instance with an AMD GPU for processing 3D data, such as 3D maps. Zenrin DataCom is hopeful that using this instance will significantly reduce the time required for file conversion.

Zenrin DataCom's adoption of AMD EPYC processorpowered instances demonstrates their commitment to providing customers with cost-effective, efficient, and

innovative map solutions. The company plans to upgrade its AWS instances to the latest EC2 R6a instances featuring AMD 3rd Gen EPYC "Milan" processors made available in the Tokyo Region in December 2022. "We're excited to upgrade to the latest 6th generation AMD instances and expect to see significant improvements in performance and cost savings," said Mr. Chitoshi.

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About Zenrin DataCom

Zenrin DataCom is a subsiduary of a leading Japanese company with over 70 years of experience in the mapping industry. It offers products such as route search engines, address search engines and geocoding engines which are used by developers, consumers and corporate customers. The company has advanced technologies and rich map data to offer accurate and reliable location-based services at competitive prices. It is continuously innovating and expanding its services to meet changing customer needs. For more information visit <u>zenrin-datacom.net/en</u>.

About AWS

Amazon Web Services began offering cloud computing IT infrastructure services in 2006, enabling businesses to replace up-front capital infrastructure expenses with low variable costs that scale with their business. Today, Amazon Web Services provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world. The company had \$62 billion in revenue in 2021, with over 40,000 employees and over a million users worldwide. For more information visit aws.amazon.com.

About AMD

For more than 50 years AMD has driven innovation in high-performance computing, graphics, and visualization technologies. Billions of people, leading Fortune 500 businesses, and cutting-edge scientific research institutions around the world rely on AMD technology daily to improve how they live, work and play. AMD employees are focused on building leadership high-performance and adaptive products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit the AMD (NASDAQ: AMD) website, blog, LinkedIn, and Twitter pages.

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