

Easier implementation and seamless security without compromising performance with help from AMD EPYC CPUs and Google Cloud Platform.

a great user experience while still allowing

accounts when they opt to do so."

users to control their own blockchain keys and

Some of the most important customers for

services sector, where real or virtual items of

high value are exchanged, for example in the

industry in the past, but AIKON's technology

form of NFTs. This has been a very centralized

this technology come from the financial

CUSTOMER



INDUSTRY Blockchain services

CHALLENGES

Delivering blockchain identity platform in a secure, encrypted environment with easy implementation and without performance reduction

SOLUTION

Deploy Google Cloud N2D Confidential VMs powered by AMD EPYC[™] processors

RESULTS

Seamless stack with robust security features and no measurable performance impact; ability to use existing code in a hardware-encrypted environment

AMD TECHNOLOGY AT A GLANCE

Google Cloud N2D Confidential VMs AMD EPYC[™] CPUs with up to 64 cores Blockchain technology has received a huge amount of attention over the last few years, and interest has only risen with the arrival of Non-Fungible Tokens (NFT). A lot of companies now want to add blockchain to their own offerings, but they also want to ensure that this decentralized technology remains completely secure. AIKON was founded to deliver blockchain integration to these customers. The company discovered that the built-in security features of AMD EPYC[™] processors that enable Google Cloud Confidential VMs were exactly what it desired. *"We did so*

Decentralized identity via blockchain

"Four years ago, we launched AIKON to bridge the gap between Web 2.0, where servers are centralized, and Web 3.0, where systems and services are distributed and not controlled by any entity.

To achieve this, AIKON builds decentralized protocols to deliver on this vision. Our technology helps businesses and developers include blockchain as part of their solution, without having to become experts on blockchain," says Tray Lewin, Co-Founder and CTO of AIKON. "We provide Software as a Service that makes it easy for teams to add features like crypto transactions or NFTs without having to hire blockchain developers."

AIKON is primarily leveraging the technology of blockchain for rights management. "Our ORE ID service helps connect your current users to the decentralized world by automatically creating blockchain accounts and synching them with your apps," says Lewin. "Part of the balance here is providing

"We did some workload tests comparing Intel-based Google Cloud N2 instances with AMD EPYC CPUpowered N2D Confidential VMs and saw that there was no measurable performance impact."

Tray Lewin, Co-Founder and CTO of AIKON

removes this requirement. "Digital tokens can be backed by physical assets (like gold, a share of stock, or work of art) and traded on completely decentralized exchanges without requiring trusted instances

> Security is essential where high-value financial transactions of this nature are taking place because this is such a popular target for cyberattacks. So when AIKON was looking for an appropriate platform for its

stock exchanges," says Lewin.

technology, it needed a system where activity and data remained encrypted, to guard against compromise. After evaluating an alternative system, AIKON realized that Google Cloud Confidential VMs powered by AMD EPYC processors would deliver exactly the level of security it wanted.

Encryption with no measurable impact on performance

"Three years ago, we were investigating secure enclave technology," says Lewin. "We started experimenting with the early alpha versions. Secure enclaves provide a way to write applications so that it can be completely guaranteed that the code is running as it was written, with no tampering or modifications."

AMD + AIKON CASE STUDY



"The problem with secure enclave solutions, however, is that you must write with a domain specific language," continues Lewin. "We must write custom code to program that Enclave. It's a very secure technology, but we must write code differently and audit it differently."

"Having an encrypted stack really helps reduce the attack surface. We can rely on AMD EPYC technology to help make sure that our service can't be hacked."

Tray Lewin, Co-Founder and CTO of AIKON

While evaluating secure enclave technology, AIKON became aware that Google Cloud was offering an alternative via Confidential VMs. "We got early access to the alpha program through our Google engineers," says Lewin. Google Cloud Confidential VMs powered by AMD EPYCTM processors could deliver similar features to secure enclave, but in a form that would be easier to implement, and without performance implications as well.

"We don't have enormous compute load on the signing service, but we need it to work quickly," says Lewin. "We did some workload tests comparing Intel-based Google Cloud N2 instances with AMD EPYC CPUpowered N2D Confidential VMs and saw no compromise on performance." The Google Cloud Confidential VMs also allowed AIKON to use familiar application development frameworks rather than a domain-specific language. "On paper, secure enclave and Confidential VMs provide similar things. But

secure enclave requires a new language, so you must make sure that you don't have unexpected vulnerabilities. This is a risk, and you also have to find an auditor that knows that highly-specialized space, so there's a lot of additional cost associated with secure enclave."

Keeping the keys Confidential

Google Cloud Confidential VMs therefore provided a very familiar environment for AIKON and a more seamless route to market. "You don't have to rewrite your code, you can take your existing code and run it with confidence versus having to change the paradigm and write new code in a new language," says Lewin. "We've built an open-source server technology that does key generation, key signing, encryption,

"AMD's solution made it much easier for us to build what we needed without having to hire engineers with specialized skills or potentially open up new vulnerabilities by working with new technology."

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decryption, and backups of keys. That service runs on the Confidential Compute platform using AMD encryption end to end so that all the work happening in that memory space benefits from the platform's security features. We generate keys and decrypt keys to use for signing transactions. Our goal is to make sure that there's nothing that can get to those keys."

The hardware-level security features of AMD EPYC processors enable these features on Google Cloud Confidential VMs. "The Secure Encrypted Visualization feature in EPYC processors can run containers with memory encryption, which encrypts data in memory through to the CPU and back, so that we can focus on our code and don't have to worry about the security of the data being operated on," says Lewin. "With blockchain, there's a lot of value that could be extracted if you can break into the core of where the keys are managed. Having an

encrypted stack really helps reduce the attack surface. We can rely on AMD EPYC technology to help make sure that our service can't be hacked."

"AMD's solution made it much easier for us to build what we needed without having to hire engineers with specialized skills or potentially open up vulnerabilities by working with new technology," says Lewin. "With Confidential VMs, we could write our code the way we wanted, and it would run in Google's secure environment without having to spend additional engineering cycles to make that work." Lewin is also looking forward to future AMD EPYC processor upgrades. "We don't want our

technology to be constrained by our partner's technology. We want to be able to scale up when we are ready. It is exciting to see that the AMD roadmap is there for scale as well."

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About AIKON

AIKON was created in 2017 and has since been working on driving mainstream adoption of blockchain technology. The company builds cross-chain identity and wallet solutions – so businesses don't have to. The company's flagship product, ORE ID, is a simple user onboarding and blockchain identity-as-aservice that connects businesses and their users to leading public blockchains - Algorand, EOS, Ethereum and more. For more information visit <u>aikon.com</u>.

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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