K 光世証券

The Science Of Lifting And Shifting To The Cloud

by Timothy Prickett Morgan

Companies in Japan have a long and deep history with IBM computing systems, both its mainframe and its midrange platforms. And in some cases, they have moved from one to the other to maintain the IBM style of integrated systems while attaining the benefits of what many customers still consider the more integrated, less expensive, and easier to use platform that Big Blue offers: Namely, the AS/400 launched in 1988 and its progeny up through the current IBM i generation.

Such is the case with <u>Kosei Securities Co Ltd</u>, which was founded way back in 1961 in Osaka, a large port city in southern Japan that is the commercial center of the island of Honshu and a financial services center in its own right alongside of Tokyo, the nation's capital and its largest city. Both Japanese cities have their own stock exchanges, and as it turns out, Goro Tatsumi, the founder of the predecessor of Kosei Securities, eventually became president of the Osaka Stock Exchange.



Kosei Securities has provided a wide range of services to clients in the financial and capital markets, both in terms of fund procurement and asset management and today has around four dozen employees. In addition to this traditional brokerage business, there is another growing business of providing software to other securities firms by the name of KICS. But thanks to this wellregarded and widely used KICS application suite, Kosei is well

known in the industry. Kosei sells the KICS suite as a service to other financial houses as well as using it for its own securities and brokerage trading and for managing its own underwriting activities.

The KICS application has roots that extend back to the late 1970s, when Kosei Securities wrote its original KICS front office and back office securities trading system, which is unique in that it has always offered face-to-face and services for the buying and selling of securities in its storefronts in Osaka and Tokyo as well as an online way to offer those services to customers.

KICS supports almost all financial products handled by securities companies, including domestic and international stocks, futures, options, investment trusts, bonds, ETFs, and REITs. The original KICS system was developed in COBOL for IBM mainframes for the in-house use of Kosei Securities itself, but the company soon realized the valuable asset that it had created in the KICS applications and began selling it as a service to other securities companies that either did not have the skill, the desire, or the time to create their own core system for managing their internal securities operations.



Kosei Securities can tailor an instance of the KICS application for the individual needs of a securities firm and was on the cutting edge of the SaaS market many decades ago.

In 2008, just as IBM was consolidating the System p and System i platforms down to a single Power Systems line that could run OS/400 (which was renamed IBM i), AIX, or Linux, Kosei Securities decided – after much deliberation and financial analysis – to shift from the IBM mainframe to the IBM Power Systems platform running IBM i and move its core KICS COBOL applications over to the that platform. At the same time, the company standardized on the GeneXus rapid application development tool from GeneXus Software to build out Java and Visual Basic applications that linked the core KICS system to customers over the Internet.

Suffice it to say, the impact of KICS in the Japanese financial markets is much larger in proportion to the size of Kosei Securities.

And that is why Kosei Securities made the decision recently to get rid of its pair of Power8 servers with three LPARs for production, test, and high availability running the KICS applications in its datacenter in Osaka, which were set up with a high availability cluster and instead move to the cloud.

Operating on premises Power Systems machines as well as the auxiliary X86 servers that are linked to them presents a number of challenges for Kosei Securities. First, the pair of Power-based servers take up precious and expensive office space in the Osaka headquarters. Kosei Securities, like many IBM i shops, also has a bunch of X86 servers, and both the Power and X86 iron is functioning well and there has been very little downtime with the Power machines over the years, too. But, as Kosei Securities openly admits, as do many IBM i shops, not only was its iron getting a little long in the tooth, so was its IBM i software stack, and that was holding back innovation for the KICS core COBOL application running on IBM i as well as on all of the other adjunct applications running on Windows Server on those X86 machines.

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What got Kosei Securities thinking about a move to the cloud was the fact that IBM had announced the end of support for the generation of Power machines that it was using to run KICS. Add to that the fact that the air conditioning equipment in the server room in the Osaka office was also aging and would likely need to be replaced, and that the cost of electricity for powering the systems and cooling them was also rising every year. And aside from budgetary considerations, Kosei Securities was worried about rising cybersecurity threats and mitigating against power outages and disasters both natural and manmade.

And so Kosei Securities started researching its cloud options and engaged the consulting services of IBM i business partner <u>OmniScience</u>, which was founded in Tokyo in 1987 and provides a slew of middleware and development tools such as

API-Bridge, PHPQUERY, and a relatively new offering called PVS One. PVS One is a lift and shift service that helps customers move from on premises IBM i instances to IBM i running on Power Virtual Server instances on the IBM Cloud.

"One of the neat things about moving to the IBM Cloud is that you can test how applications will work in a proof-of-concept partition set up on the Power Virtual Server, says Mamoru Ito, Solution Group, Kosei Securities. "With this you can see how it is going to perform in terms of throughout and latency before you commit to a certain configuration or a certain location where the cloud capacity is served."

Using the PVS One service from OmniScience, Kosei Securities set up a PoC setup running on POWER9 Power Virtual Server instances in IBM's datacenter in Tokyo and to its surprise and joy, the KICS application just moved straight over to the newer Power iron and new IBM i release.

Even with an SSL-encrypted virtual private network and the latency of running over the cloud, the Power Virtual Server instance provided nearly the same performance and latency as the onpremises servers running in the Kosei Securities datacenter in its Osaka headquarters. After two months of testing using this PoC environment, OmniScience moved the KICS application over to replicated Power Virtual Server instances running in IBM's datacenters in Japan and also moved those Windows Servers running Java and Visual Basic applications that modernize the KICS suite – extending them to PCs, tablets, and smartphones and adding new functionality on top of that – to X86 instances running on the IBM Cloud.

Another important benefit of moving to the IBM Cloud is the agile approach to application modernization. Using the API-Bridge provided by OmniScience, they are executing box APIs from IBM i, executing APIs used in the securities industry for file transfers, and sending notifications to LINE, the popular chat application in Japan, when securities are bought or sold, etc. New initiatives to usher in a cloud era are underway.

When you move to the IBM Cloud – or indeed any other cloud – backup and recovery is a little different because most clouds do not support tape back and recovery. Thanks to <u>the partnership</u> <u>between IBM and FalconStor Software</u> that was announced in August 2022, FalconStor's StorSafe Virtual Tape Library technology is the default backup and recovery tool for IBM i instances running on the Power Virtual Server cloud service. That partnership <u>was demonstrated in some collaboration</u> <u>work done by IBM and FalconStor on behalf of Tupperware</u>, another IBM i shop, that wanted to move its European operations to the IBM Cloud in Frankfurt and that also knew it needed VTL in the cloud because in its experience BRMS just can't handle the load.

"Whether you use FalconStor or not, if you use Power Virtual Server instances, you will always have your backup data on IBM Cloud Object Storage," explains Kohei Shimono, chief operating officer at Omni Science. "However, if you use FalconStor's StorSafe VTL, the data can be handled as TAPMLB, just as in conventional tape device operations, and the data volume can be further reduced through deduplication. By adopting FalconStor, existing operations can be maintained after the transition to Power Virtual Server. It eliminates the need to make changes to the existing programs for backups that have been used in the past. This reduces man-hours spent on infrastructure operations, allowing them to focus on application modifications. That is the biggest business benefit."

"We were able to keep all the same processes for backup that we had on premises by utilizing FalconStor StorSafe VTL," reports Nobuaki Gondoh, System Solutions Group Manager, Kosei Securities. "This made the transition to Power Virtual Server much simpler and easier for us."

Takeshi Sugata, chief technology officer at OmniScience, says that the combination of data compression and data de-duplication that is enabled by the shift to FalconStor StorSafe VTL for backups has been particularly powerful for Kosei Securities. The company makes backups every day and keeps those backups for 90 days, meaning there are always 90 copies of all its data out there – in the on-premises case, on actual, physical tapes. That is so 20th century. With the VTL's de-duplication, the 80 GB to 100 GB of daily backups have been compressed down to 1 GB per day and are stored on virtual tapes. That is not just a saving of capacity, but a saving of time, too,

because the backups take a lot less time, and while Kosei might not have discovered this yet, we know from the Tupperware experience that recoveries are faster too.

On September 26, 2023, Kosei Securities issued a press release on KICS Cloud service enhancements, with endorsements from IBM and OmniScience. This service enhancement is supported by a combination of IBM Cloud, API-Bridge, and FalconStor. In the future, more companies from outside Japan are expected to enter the securities business there due to the growing interest in Japanese equities. Adopting KICS as a core application package for securities operations by these organizations will be an important and powerful option.

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