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Tyro Payments enables increased flexibility, responsivity and nonstop operations

Tyro Payments

Industry and Location
Financial Services | Australia

Product and Services
SUSE Linux Enterprise Server
SUSE Expanded Support
SUSE Manager
SUSE Linux Enterprise High
 Availability Extension

Success Story

At-a-Glance

To support its fast-growing business, Tyro needed a well-supported Linux distribution with a simple subscription model designed to enable scalability. By migrating to SUSE® Linux Enterprise Server (SLES) with Expanded Support, the company made savings on its total cost of ownership and simplified its future growth path. Today, Tyro runs more than 100 virtual servers across two data centers in an active/active cluster, helping it fulfil its promise of nonstop operations for customers.

- Proven nonstop system availability.
- PCI-DSS compliance, high data security.
- Expert 24/7 local customer support.

Overview

Integrated payment processing by tyro

Tyro is an independent banking institution offering electronic funds transfer at point of sale (EFTPOS) and financial solutions to Australian businesses. Bringing point-of-sale software and banking together, Tyro offers a range of services that can revolutionize the way retailers process payments, streamline their business processes and increase their bottom line. With Tyro, the integration between the POS and payment transacting is direct and seamless.

Tyro delivers:

- Nonstop and high-speed EFTPOS transactions.
- Enriched payment functionality (including mobile).

Challenge

Tyro must provide an efficient and reliable EFTPOS service at all times: if its customers were unable to process card payments, they would face consumer dissatisfaction, loss of revenues and reputational damage. To deliver its promise of nonstop, fast and secure payment processing, Tyro built its own application stack from scratch, based on Java and open source technologies. Sascha Hess, vice president of operations, says: "Being able to accept payments for goods or services is obviously critical for any business. Right from the outset, Tyro has used its own highly available infrastructure and software architecture to minimize our dependency on third parties and ensure that we always deliver on our promise to customers. Owning the stack means we can build in resilience wherever we choose."

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> "We pride ourselves on high availability — in the context of our business, we call it nonstop acquiring — and the natural stability of SUSE Linux Enterprise Server is one of the elements that helps us to achieve this."

SASCHA HESS
Vice President of Operations
Tyro Payments

As its business grew, Tyro naturally needed to expand its infrastructure to handle the rising volume of transactions. At that time, its payment acquisition and processing systems were running on Red Hat Enterprise Linux (RHEL), and the vendor's subscription model made it inefficient to scale as the business grew. Equally, Tyro wanted to improve the quality of vendor support it was receiving.

"We felt that we weren't getting much support out of the relationship, which meant we were spending time on the OS that would have been better spent on building our business," says Hess. "By migrating to a different Linux distribution, we aimed to cut our total cost of ownership — both present and future — and to improve our focus on our core competence. We also saw this as an opportunity to make some architectural optimizations."

Solution

Tyro operates in a highly regulated environment. It must comply not only with financial services regulations but also with regulations and certifications relating to Medicare. Reviewing the list of approved operating systems at that time, the company determined that only two options would meet its requirements: one was its existing OS, and the other was SLES — which Tyro determined would reduce its total cost of ownership.

By choosing SLES with Expanded Support, Tyro was able to plan for a staged migration, during which it would receive full expert support for both its new SLES instances and its existing instances of RHEL. "Expanded Support facilitated the migration quite a bit, enabling us to avoid a 'big bang' approach that would have tied up our resources," says Hess. "This has enabled us to take a very steady and methodical approach to migrations that helps eliminate any risk of downtime. And while we migrate, we get full support from a single source for both our new SLES instances and our outgoing RHEL instances."

The fully virtualized Tyro software stack runs on the company's own Dell blade servers, which are hosted in two major third-party data centers. Tyro built its own multi-layer clustering solution to create an

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active/active landscape in which transaction loads are balanced across a duplicate architecture in each data center. VMware virtualization enables Tyro to pack approximately 90 VMs into each set of four blades; in total, the company has more than 180 production VMs split between its two sites and a further 50+ VMs for development and testing. There are more than 60 different application artefacts, 70 application servers and over 200 running application artefact instances in total. There are also further Linux and Windows virtual servers for both corporate and production running infrastructure services and back-office systems.

"With four blade servers in each data center, our environment is very small by the standards of a bank, but we are currently growing at 30% a year," says Hess. "We pride ourselves on high availability — in the context of our business, we call it nonstop acquiring — and the natural stability of SLES is one of the elements that helps us to achieve this. Another element is the proactive expert support we receive

from SUSE. The testing and quality control that go into each new release of SLES help us to keep our critical payment processing systems running smoothly at all times."

Security is another important aspect to the solution. It is built in at every level of Tyro's architecture, ensuring among other things that merchant networks have no access to cardholder data — which removes the burden of PCI-DSS compliance from Tyro's customers. "Using Linux makes it easier for us to ensure security at the operating sys-

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tem level than if we were using non-open source software," says Hess. "In addition, the testing and quality control from SUSE help ensure that we deploy only previously-tested open source components."

Tyro is embracing the collaborative 'DevOps' philosophy and uses agile and lean principles for software development. As the company moves toward a micro services model for its software, it is addressing the need to ramp up the speed of OS provisioning. Using pre-built OS templates in VMware, the company has a platform that already makes it fast and easy to create new virtual machines to host more servers. As part of its migration to SLES, Tyro took the opportunity to deploy the open source Puppet tool for configuration management, which is included in its SLES subscription and helps it manage this standardized environment and automate common tasks. Equally, an in-house tool ensures the swift delivery of tested applications into production. To augment these existing capabilities and tools, and to further streamline back-end administration so that it can focus more on software development, Tyro is introducing SUSE Manager for server inventory and patch management.

"Our infrastructure has now reached the point at which we need to leverage a commercial product for managing the patching of the OS," says Hess. "SUSE Manager will save us time and effort in patch management and reporting, which we can then reinvest in adding value to our core business of payments processing."

Results

The initial migration from RHEL to SLES with Expanded Support produced an immediate 50% saving in total subscription costs for Tyro.

"At a purely technical level, the differences between the red corner and the green corner are superficial," says Hess. "The added value we get from SUSE is the support and the diligence in the testing of their packages before release — that's what we're paying for. The support has also been very good. When we found a bug in the Linux TCP stack that was causing intermittent latency problems for a small set of terminals, SUSE validated the issue and released a kernel patch for us that solved the problem."

![SUSE logo]

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He adds: "Availability is one of our key concerns, and we're very happy with SLES from that angle, too. Our main focus is on Java; the SUSE operating system gives us a stable, secure platform on which to run it."

Tyro is continuing to optimize its Linux landscape, in particular by building in new automation features. As part of its move toward continuous delivery, the company is hoping to adopt a Platform as a Service approach that will empower development and test teams to provision their own compute and storage resources as they require them. "We see ourselves as the internal IT service for the business, and we want to make it easy for developers and testers to be able to spin up consistent new environments at will," says Hess. "This self-service capability will help make us even more responsive to new demands as we continue to innovate and bring new products to the payments market."

Benefits

- Initial reduction of 50% in annual subscription cost.
- Enabled phased OS migration, mini-mizing impact on staff resources.
- Maintained high availability through-out significant infrastructure expan-sion.
- Facilitated adoption of DevOps prac-tices, for shorter time to market.

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