Tyro Payments

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 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 fulfill its promise of non-stop operations for customers.

Overview

INTEGRATED PAYMENT PROCESSING BY TYRO

Tyro is an independent banking institution offering 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:

- non-stop and high-speed EFTPOS transactions
- enriched payment functionality (including mobile)
- proven non-stop system availability

“...in the context of our business, we call it non-stop 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

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 non-stop, 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, said: “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.”

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, 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.

Results

- Initial reduction of 50 percent in annual subscription cost
- Enabled phased OS migration, minimizing impact on staff resources
- Maintained high availability throughout significant infrastructure expansion
- Facilitated adoption of DevOps practices, for shorter time to market

Tyro Payments at a Glance:

Tyro Payments is Australia’s only independent and fastest growing EFTPOS provider. Serving more than 14,000 customers across the retail, health and hospitality sectors, Tyro processes over AUD7 billion annually in card transactions.

- Industry and Location
  Financial Services, Australia

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

- Results
  + Initial reduction of 50 percent in annual subscription cost
  + Enabled phased OS migration, minimizing impact on staff resources
  + Maintained high availability throughout significant infrastructure expansion
  + Facilitated adoption of DevOps practices, for shorter time to market
“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,” said Sascha 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 SUSE Linux Enterprise Server—which Tyro determined would reduce its total cost of ownership.

By choosing SUSE Linux Enterprise Service with Expanded Support, Tyro was able to plan for a staged migration, during which it would receive full expert support for both its new SUSE Linux Enterprise Server instances and its existing instances of Red Hat Enterprise Linux. “Expanded Support facilitated the migration quite a bit, enabling us to avoid a ‘big bang’ approach that would have tied up our resources,” said Sascha 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 SUSE Linux Enterprise Server instances and our outgoing Red Hat Enterprise Linux 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 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 percent a year,” said Sascha Hess. “We pride ourselves on high availability—in the context of our business, we call it non-stop acquiring—and the natural stability of SUSE Linux Enterprise Server 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 SUSE Linux Enterprise Server 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 system level than if we were using
non-open-source software,” said Sascha 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 towards a microservices 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 SUSE Linux Enterprise Server, Tyro took the opportunity to deploy the open source Puppet tool for configuration management, which is included in its SUSE Linux Enterprise Server subscription and helps it manage this standardized environment and automate common tasks. 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,” said Sascha 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 Red Hat Enterprise Linux to SUSE Linux Enterprise Server with Expanded Support produced an immediate 50 percent saving in total subscription costs for Tyro.

“At a purely technical level, the differences between the red corner and the green corner are superficial,” said Sascha 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.”

He added: “Availability is one of our key concerns, and we’re very happy with SUSE Linux Enterprise Server 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 towards 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,” said Sascha 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.”
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