Leadership in Infrastructure Transformation Stories

WITH ORACLE LINUX AND VIRTUALIZATION

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INTRODUCTION

Companies are constantly faced with new business challenges and seeking solutions to resolve them. These challenges increasingly involve the data centers powering the company. Often the IT teams are dealing with new infrastructure performance, capacity, security, and availability demands. Additionally, what have been traditionally on-premises workloads are increasingly moving to the cloud.

This whitepaper explores how technologies can facilitate these infrastructure transformations. Specifically, we will examine the stories of how six IT leaders successfully responded to their changing business needs and transformed their data centers using Oracle Infrastructure technologies. Their success stories span a variety of businesses representing a cross-section of industries worldwide.

All of the individuals featured are winners from the 2018 Oracle Excellence Awards in the "Leadership in Infrastructure Transformation" category. The category honors leaders who delivered value to their company by leveraging multiple Oracle technologies to improve time to deployment, increase performance, enhance productivity, and reduce the cost of IT operations. To learn more about this award category, please visit: https://www.oracle.com/corporate/awards/leadership-in-infrastructure-transformation

"IT infrastructure plays a leading role as the engine powering engagement and action flows between people, things, and data. They are the heart of any modern business. This is why periodic infrastructure transformation is imperative for companies to stay relevant, grow and compete. Savvy leaders realize this and adapt accordingly."

Richard L. Villars
Research Vice President,
Datacenter & Cloud
IDC

THE LASER BEAM STORY

Philip Adams is the Chief Technical Officer of the National Ignition Facility at Lawrence Livermore National Laboratory. Philip is recognized for his innovative use of several products: Oracle Linux, Oracle VM, and Oracle Enterprise Manager. Leveraging these technologies has improved the overall application and database performance as well as improving resource utilization, and system availability. With less unplanned downtime, there is more operational time available for laser experiments that enable the scientific team's breakthrough discoveries.

Lawrence Livermore National Laboratory (LLNL) is a premier applied science laboratory that is part of the National Nuclear Security Administration within the Department of Energy. LLNL's mission is

strengthening national security by developing and applying cutting-edge science, technology, and engineering that respond with vision, quality, integrity, and technical excellence to scientific issues of national importance. The Laboratory's science and engineering expertise are applied to achieve breakthroughs in counterterrorism and nonproliferation, defense and intelligence, energy and environmental security.

The National Ignition Facility's (NIF) goals are to help ensure the reliability of the nation's nuclear weapons without underground testing; lay the groundwork for using fusion as a clean, safe energy source; and provide scientists from across the nation and around the world with the opportunity to explore new frontiers in astrophysics, materials science, nuclear science, and many other scientific disciplines. Due to the nature of their work, they have to rapidly process data, unplanned downtime must be kept to a minimum, and the environment must meet specific security requirements. The Oracle Database was selected to handle their intense workloads, performance and availability requirements. Therefore, many decisions were made around how the NIF control system will communicate with the database to keep business operations running smoothly.

The team evaluated other vendors' operating systems and virtualization layers before moving to Oracle Linux to ensure the best Linux performance for their database. Besides increasing database performance, the NIF team observed other benefits. Features, such as Oracle Ksplice, which allows for live patching without requiring any downtime, have provided great value. Less planned downtime for the systems essentially means that more time is available for the scientists to work. The NIF team has been able to exceed 400 laser shots per year versus 190 and also reclaimed 5+ hours back per month from downtime and maintenance periods. That is 60 hours per year they can give back to science.

The team also realized the support advantages of working with one vendor for both the operating system and the virtualization layers. For this reason, they eventually migrated their hypervisor to Oracle VM as well. The NIF environment is now almost 95% virtualized and managed by Oracle Enterprise Manager. The combination of Oracle Linux and Oracle VM, along with Oracle Enterprise Manager, has improved their overall infrastructure resource utilization, uptime and availability.

THE CONTINUOUS IMPROVEMENT STORY

Charles Mongeon is the Vice President, Data Centre Solutions and Services (DCSS) at TELUS. Charles is recognized for his innovative use of Oracle Linux. Under his leadership, TELUS has not only improved systems performance but also significantly reduced infrastructure costs. Specifically, they reduced support costs for their Linux environments by almost half while delivering improved performance and reliability. And the transition process was executed without disruption to their business.

TELUS is one of Canada's largest telecommunications companies, with $14.1 billion of annual revenue and 13.3 million subscriber connections. TELUS provides a wide range of communications products and services, including wireless, data, Internet protocol (IP), voice, television, entertainment, video, and home and business security. They are Canada's largest healthcare IT provider.

The DCSS team is continuously looking for ways to improve performance, reliability and efficiency. With a goal to reduce cost without compromising on performance or quality, the team undertook an assessment of its more than 6,000 Linux hosts supporting over 600 applications and their databases across multiple environments. Making any change to these systems, which serve almost every business unit at TELUS, is not trivial as many are vital to the business and considered mission critical.

"We chose Oracle VM and Oracle Linux specifically to improve resource utilization, uptime, and availability for the Oracle Database. Leveraging this infrastructure, we have reclaimed 5+ hours per month from downtime and maintenance periods. That is 60 hours per year we can give back to science."

Philip Adams
Chief Technology Officer
Lawrence Livermore National Labs

"We are always assessing and investigating ways to improve our systems quality and reliability while lowering operational costs. Switching to Oracle Linux improved our patching cycles, manageability, and cost structures and the process was executed without disruption to our business."

Charles Mongeon
Vice President Data Centre Solutions and Services TELUS

It was for this reason the team considered replacing their existing Linux distribution and Oracle Linux quickly emerged as the preferred solution. The team realized they would not only optimize the support of Oracle database environments through common tools and a singular vendor support engagement, but it would be much more cost effective.

The switch was successful and resulted in improved performance and reliability of their systems, as well as a multimillion dollar support cost savings for TELUS, which allowed Charles and the DCSS team to avoid alternative cost-cutting measures that may have yielded less benefit and would have been more disruptive to the business.

THE MODERNIZATION STORY

Michael Myhrén is a Senior DBA/Senior Systems Engineer at Saab. Michael is recognized for his innovative use of several products: Oracle Private Cloud Appliance, Oracle Linux, Oracle VM, Oracle Storage, Oracle Database and multiple database options. Under his leadership, the team now has a very modern infrastructure and highly automated environment.

Saab serves the global market with world-leading products, services and solutions from military defense to civil security. With operations in over 100 countries, they continuously develop, adapt and improve new technology to meet customers' changing needs. They have more than 15,000 employees in over 30 countries. Their operations are divided into five business areas: Aeronautics, Dynamics, Surveillance, Support and Services and Industrial Products and Services.

The team was looking to modernize their IT infrastructure by making it more automated and easier to manage. They were also looking to deliver services faster, more reliably, and securely. For these reasons, they chose a solution that included Oracle Private Cloud Appliance, Oracle Linux, Oracle VM and Oracle Storage.

The resulting new environment has reduced the delivery service for the database tier down from weeks to minutes. More than 100 databases are able to easily be patched within an hour, where this previously required much longer service windows. It also provides faster provisioning of test and production environments. The flexible architecture allows for easier systems expansion to activate resources as needed.

This highly automated environment is easily maintained by a small and efficient team. Fewer people touching the infrastructure helps minimize any irregularities or mistakes. Fewer people needing to manage it also means greater control over the services delivered. The team can now offer easily repeatable and predictable service deployments, with a much lower configuration error rates. They can now provision database services faster for test and production environments, delivering database services in minutes instead of weeks.

There was also a consolidation benefit. The team was able to reduce vendor complexity going from five vendors down to one for the infrastructure layers. This not only helped control license costs but improved the overall support experience.

"We now have a more automated and easier to manage infrastructure based on Oracle Private Cloud Appliance, Oracle Linux, Oracle VM and Oracle Storage. This allows our team to deliver services faster, more reliably, and securely."

Michael Myhrén
Senior DBA/Senior Systems Engineer
Saab AB

THE CLOUD MIGRATION STORY

JK Pareek is Vice President of the Global IT team and Chief Information Officer at Nidec. He is recognized for his ability to align IT strategy with the business strategy and achieve measurable results such as cost savings and performance improvements for his company. In his role, JK is responsible for global IT strategy and operations for 40+ countries and 100+ locations. His focus is on moving IT from being a service provider to a business transformation agent. JK decided to leverage Oracle's Cloud Infrastructure (OCI) to improve operations using Oracle Linux, Oracle VM, and Oracle Storage. This project was done with the System Integrator (SI) partner Infosys.

Nidec is one of the world's leaders in comprehensive motor manufacturing, handling "everything that spins and moves", miniature to gigantic. With pedigrees stretching over 100 years, the brands of Nidec's Appliance, Commercial and Industrial Motors division (ACIM), have been delivering quality and innovative technology for generations.

Nidec ACIM division made a major acquisition, the largest in Nidec's history, in February 2017. The acquired business entities ran Oracle e-Business Suite applications on-premises. A migration was needed to a new data center within a relatively short timeframe (16 weeks). Nidec asked partners to provide proposals to migrate to a private or public cloud, to fit into its cloud strategy. Infosys proposed migrating Oracle E-Business applications, the Oracle Database (several terabytes) and several non-Oracle workloads to the Oracle cloud. This way a world class scalable infrastructure for the core E-Business Suite applications would be insured. The new hosted cloud environment could also support the non-Oracle workloads. The overall cloud model would also be easier on the IT team's resources and budget. It also reduced maintenance costs annually for patching and updates. Having the workloads put into Oracle Cloud would also provide a flexible platform to support future business growth, new business requirements, and IT capabilities.

Oracle Cloud Infrastructure was the only offering to provide Oracle Real Application Clusters (RAC) options for the Oracle Database to ensure high availability. It also provided Oracle Linux and Oracle VM as the underlying software layers to ensure optimal performance across the entire stack.   The environment offered several security options including Connection Manger, Firewall Products and separate network domains. For these reasons, the Oracle Cloud offering was determined as being a better value compared to other vendor offerings. The migration was a smooth transition and went fully live in October 2017.

Several additional benefits have since been realized. Nidec has been able to reduce Oracle Database license needs and operational costs by going down from 40 cores on each node down to 12 or 24 cores on Oracle Exadata servers. Moving from on-premises to the Oracle Cloud model also reduced storage costs and database backup times. Critical long running batch job performance improved as well as increased response times for users.

"With the help of our SI Partner, Infosys, we successfully cloud-lifted our on-premise Oracle E-Business Suite instance and non-Oracle workloads to Oracle Cloud. We are benefiting from the Oracle Cloud Infrastructure solutions based on Oracle Real Application Clusters, Oracle Linux, and Oracle VM, which provide optimal performance across the stack. This migration has not only reduced license fees and operational costs, but also has reduced storage costs and backup times."

JK Pareek
Vice President of the Global IT Team and Chief Information Officer
Nidec Americas Holding Corporation

THE HOSTED CLOUD STORY

Heidi Ratini is a Senior Director of Engineering at IT Convergence. Heidi is recognized for her innovative use of Oracle Linux and Oracle VM to modernize the cloud experience for IT Convergence's customers. Using these technologies, she improved processes and operations. As a result, their hosted cloud offering has seen improved uptimes, excellent customer retention rates and an increase in quality across the board.

Founded in 1998, IT Convergence is a global Oracle Platinum Partner with a comprehensive service offering across all three pillars of the Cloud (IaaS, PaaS, SaaS), including Consulting/Advisory, Private

Cloud (Hosting), Managed Services, Integration, Business Intelligence, Development, Testing, and Training services. IT Convergence has provided solutions to more than 900 top companies, in over 50 countries around the world, delivering senior-level expertise in Oracle enterprise application, database and Fusion Middleware technology stack. IT Convergence sought to provide a more powerful infrastructure that ensures Oracle applications can run and perform at speed for the customers, while also maintaining support quality and excellence. They could also effectively utilize their infrastructure for their multi-tenant environments.

IT Convergence runs their business on Oracle's E-Business Suite and utilizes tool such as Oracle Apex and Oracle Enterprise Manger as supporting systems within their Cloud and Managed Services Practice. They chose Oracle Linux and Oracle VM for their features, performance and value. Specifically using the Oracle Linux Unbreakable Enterprise Kernel (UEK) and options such as Oracle Ksplice for live patching. The unified support model was also hugely appealing to minimize operational costs while ensuring maximum systems performance across the entire stack. They could get both Oracle VM and Oracle Linux from one vendor, and with the same enterprise class support for both products.

By utilizing Oracle VM's integrated tool sets such as the Oracle VM Command Line Interface (CLI), IT Convergence was able to fully automate their building and provisioning efforts, effectively reducing what previously took teams hours down to minutes.   This in turn saved not only time but also resources. They also built their own proprietary automation tool they call Hydra, around the framework of Oracle VM Templates and Oracle Linux. This has allowed them to deliver new builds to their customers extremely fast.

With this new infrastructure, IT Convergence will continue to be a premier supplier of Private Cloud services powered by Oracle VM and Oracle Linux. Additionally, they are expanding their offerings to include Oracle Cloud Infrastructure (OCI) IaaS to their customers as well via APIs. In these ways, IT Convergence is able to maintain their commitment to offer customers the best cloud solution (Private Cloud, Oracle Cloud Infrastructure, SaaS) for their needs.

"Oracle Linux and Oracle VM are being used to support our Oracle E-Business Suite instance which is the backbone for our private cloud offering. The unified support model from one vendor has minimized operational costs and overhead by 86% while providing maximum system performance across the stack."

Heidi Ratini
Senior Director of Engineering
IT Convergence

THE OPERATING SYSTEMS MIGRATION STORY

Brian Young is Vice President of CernerWorks Technology Improvement at Cerner. Brian is recognized for his innovative use of Oracle Linux. He led the migration to this solution for its overall technical, economic, and support improvements. Under Brian's leadership, Cerner has successfully migrated tens of thousands of systems to Oracle Linux. In doing this, he has not only transformed his company's infrastructure but also demonstrated his ability to be a great business partner.

Cerner's health information technologies connect people and systems at more than 27,500 contracted provider facilities worldwide. Recognized for innovation, Cerner offers solutions and services for health care organizations of every size and works to create a future where the health care system works to improve the well-being of individuals and communities.

One of their flagship offerings is a hosted platform for electronic health records (EHR). Cerner's hosting practice is focused on delivering reliable, high performing, secure and cost-effective systems. The team had operational goals of improving efficiency and scalability.

"Our team manages a mission-critical application that cannot have any downtime. It needs to be available 24 hours a day, 365 days per year. Oracle Linux not only increased our application performance but it help us achieve our availability goals. Specifically the live patching with Ksplice is a real value differentiator for us as we can easily apply security updates without the need to reboot or bring our systems down."

Brian Young
Vice President
CernerWorks Technology
Improvement
Cerner

Previously, applications were using various Linux distributions. Cerner decided to make Oracle Linux the primary distribution and migrate to it broadly across their fleet of systems. The EHR application uses the Oracle Database extensively, so shifting to Oracle Linux leveraged an already strong Oracle technology collaboration between the two companies.

Oracle Linux helped Cerner improve system scalability and meet the high reliability and security standards. Live patching with Oracle Linux and Ksplice proved to be a real value differentiator as they could apply security updates without any disruptions. Oracle Linux also simplified certain support scenarios where both operating system and database technology are involved. Additionally, there were significant savings while simultaneously improving technical outcomes.

CONCLUSION

As demonstrated in these stories, there are several ways companies solve business problems with Oracle infrastructure technologies. This can entail a mix of software and hardware products engineered to enhance existing investments such as the database. The new infrastructure these customers implemented have delivered a range of benefits including increased systems performance, increased availability, simplified support, and cloud-enabled on-premises solutions while reducing operational and licensing costs. While each story is different, all of the IT leaders featured shared a common strategic goal: to optimize their operations. In doing so, they not only transformed their data center infrastructure but also transformed their businesses. For these reasons, we recognize and honor our 2018 Oracle Excellence Awards "Leadership in Infrastructure Transformation" winners for their achievements.

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