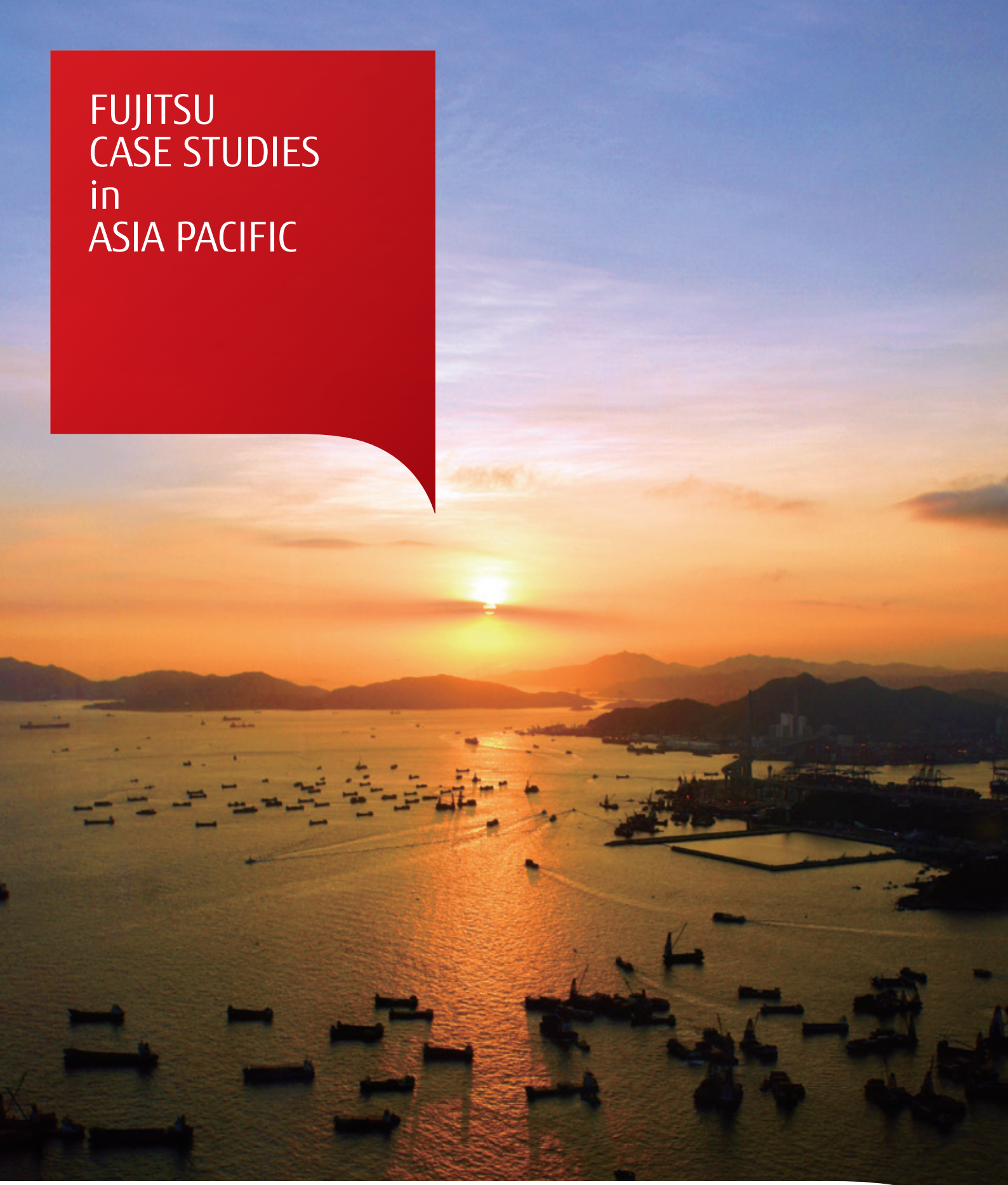
FUJITSU CASE STUDIES in ASIA PACIFIC



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FUJITSU CASE STUDIES in ASIA PACIFIC

Contents

Case Study
Growing the Medical Practice with PRIMERGY was a Snip for the Doctors

The customer

Customer: Parkmore Medical Centre
Providing first class medical care and compassion to all who enter their doors
Industry: Healthcare
Address: 323 Cheltenham Road,
Keysborough VIC 3173
Suite 7, 'The Edge' East,
10 Lake Kawana Bvld,
Bokarina, QLD 4575
http://www.pmc.net.au/
www.drsnip.com.au/
Fujitsu partner:
Omnivision Technology Solutions
155 Grange Road,
Glen Huntly VIC 3163.
http://www.ovts.com.au/

The challenge

Remove the poor performance and frequent lock-ups and deliver a fast and stable environment for the fully integrated, management, clinical, administrative and financial "Profile" software. Plus provide the scalability to grow the medical practice in two new directions.

The solution

The use of a dual processor Fujitsu Server PRIMERGY RX350 S7 to build a fully integral multi-controller RAID environment, tuned for Microsoft SQL server operation. Plus introduce Hyper V server virtualization to allow additional patient data-capture operations.

The customer

Established in 1980, Parkmore Medical Centre (PMC) has provided family oriented healthcare services in Melbourne, Victoria, for over 30 years. Now employing more than 50 staff, they have recently expanded by adding a new business unit and a second medical center location in Queensland, on Australia's Sunshine Coast. The new business unit operates under the name Dr. Snip and provides "no scalpel" vasectomy services in both locations. As a modern medical practice, there is heavy reliance on the use of information technology systems to integrate the business and provide exemplary patient care.

The challenge

In reviewing their needs, the practice turned to Omnivision Technology Solutions, a Fujitsu partner, for new solutions to their information technology and expansion requirements. This would include a refresh of the existing environment, which hosted their Microsoft SQL Server based "Profile" integrated practice management software at the heart of the business. While "Profile" boasted full integration and seamless connections between front desk, financial and clinical functions, this was only true if the IT environment was stable and designed for scalability. The underlying data required a high performance 90GB database, quite a challenge at the small business level, where a Storage Area Network (SAN) is perceived as an unaffordable option.

But the current reality was more of an operational challenge than the users had been lead to believe. There were frequent lockups and poor performance, resulting in reduced productivity and user frustration. The previous IT support company had supplied a high-end Dell server with 8 Serial Attached SCSI (SAS) disk drives and a Direct Attached Storage (DAS) device containing an extra 15 disks. The theory was that the extra disks would allow the creation of multiple RAID10 LUNs. These could be used to optimize SQL Server performance. But with all disk drives in the DAS connected via a single SAS interface, the DAS became a bottleneck. As a result the benefits of multiple RAID10 LUNs had never been realised, and the system was not able to cope with the operational loads being placed on it.

The solution

To meet the demands of a 90GB database at the heart of the medical practice, without using a SAN, requires removal of the bottlenecks to data common to single server solutions. This would require both top server performance and smart arrangement of all data and data recovery processes. Omnivision set, as their first priority, the design of the data environment and the acquisition of a server that could support more than 20 internal SAS disk drives. The Fujitsu Server

The benefit

- Reliability and scalability to grow the Medical Practice
- Decreased end-user frustration
- Increased end-user productivity
- Better outcomes for patients from constant access to patient histories and test results, previously not possible

Products and services

- FUJITSU Server PRIMERGY RX350 S7
- Microsoft Windows Server 2008 R2 with Hyper-V
- SQL Server 2012 Standard
- Dual controller RAID environment using 24 SAS disks

PRIMERGY RX350 with 24 disk drive bays was a perfect fit. It enabled the creation of a fully internal data environment using multiple LUNs that split the available disk capacity across two separate RAID controllers as follows:

RAID Card 1
2 x 146GB RAID1 for Operating System
4 x 146GB RAID10 for SQL Logs
1 x 146GB Hot Spare
1 x 1TB SATA (backups)

RAID Card 2
8 x 146GB RAID10 for SQL Data
2 x 146GB RAID1 for Pagefile
2 x 146GB RAID1 for Hyper-V Virtual Server
1 x 146GB Hot Spare

This not only provided necessary recovery and data capture areas but created the right environment to handle the high transaction load of the SQL database.
In addition the dual processor capability would also provide the power to grow the business into both the new location and the new discipline.
Microsoft Hyper-V was employed for the first time to allow the downloading of patient results without the need for a separate download server.
Further growth would also be possible using additional memory and greater virtualization via Hyper V.

The benefit

Following implementation of the replacement server system, the "Profile" software uptime has been 100% and there have been no system freezes or crashes in any of the processes. Performance improvement has also been substantial, making it significantly faster to navigate around the "Profile" software and database and generate reports. Doctors, receptionists, nurses and admin staff are all extremely happy.
Omnivision also performed a clear and concise 'risk management' analysis of the previous systems that resulted in practical, cost-effective solutions to the defects identified. The computer network is now secure both internally and externally and Parkmore Medical now has an IT roadmap for the future.

Conclusion

The solution continues to run smoothly and highlights the benefits of not only choosing the most appropriate hardware but of partnering with an organization that has the capability to fully understand the use of the technology in specific circumstances. In this case Omnivision, by finding a smarter way to deploy the technology, have achieved a solution that met everyone's requirements. The result is easier management and use of the large medical database to best cost advantage and business performance.

About Omnivision Technology Solutions

Omnivision Technology Solutions, operating since 1995, is a no nonsense no hype one-stop shop for business Information Technology. Committed to providing clients with first class service, along with honest and sensible recommendations; they operate independently and offer truly impartial advice.

About Fujitsu Australia and New Zealand

Fujitsu Australia and New Zealand is a leading service provider of business, information technology and communications solutions. As the third largest ICT Company in the Australian and New Zealand marketplace, we partner with our customers to consult, design, build, operate and support business solutions. From strategic consulting to application and infrastructure solutions and services, Fujitsu Australia and New Zealand have earned a reputation as the single supplier of choice for leading corporate and government organisations. Fujitsu Australia Limited and Fujitsu New Zealand Limited are wholly owned subsidiaries of Fujitsu Limited (TSE: 6702).
For more information, please see: fujitsu.com.au

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Case Study
Analitix – Like having in-house IT in the Cloud

»As a provider of personalized customer services we have built our own range of cloud services to enable well controlled quality of service(QoS) and high business interaction with our customers«

James Lobbes, Managing Director, Analitix

The customer

Country: Australia
Industry: IT services, Internet solutions and business support
Founded: 2001
Employees: 10
Website: www.analitix.com.au

The challenge

With the acquisition of each new managed service customer Analitix had acquired different sets of technology and hardware. These had been shoe-horned into its data center footprint. Over time this mishmash of legacy systems became power hungry, made maintenance difficult, and limited growth. There was a need to consolidate servers, provision for easier storage growth and improve service quality in an overall greener IT environment.

The solution

By moving workloads off its older equipment onto Fujitsu PRIMERGY RX300 servers, Analitix was able to reduce its datacenter power bill by $800 per month. The implementation of a matching ETERNUS DX80 storage SAN, with 10 terabytes of useable space, greatly simplified data management. Fibre channel connections improved performance and reliability, while the addition of paired PRIMERGY RX300 servers enabled the running of Microsoft® Windows® Server 2012 R2 Datacenter edition, with failover clustering.

The customer

Analitix provides IT, Web and Data support to a broad range of small to medium sized businesses. They undertake the role which, in larger organisations, would typically be the domain of the in-house IT department. This covers email, web and document management, the hosting of applications, plus the provision of local and remote desktops and associated managed services. Their high contact customer approach, coupled with the creation of reusable business application models, has allowed this relatively small company to service and build for the diverse needs of a customer base of 200. Analitix has achieved this using a combination of standard and own developed public and private cloud offerings which are hosted in an accredited 3rd party data center.

The challenge

Over the years the provision of SME business support, public cloud based email, web hosting, document management (including Microsoft SharePoint), together with private cloud services such as virtual private servers, dedicated web servers, 3rd party application hosting and remote desktop services had generated a blowout in server and storage hardware. It was time to reduce the number of mismatched servers and software and provide a smarter way to managed storage growth. In particular, with very large electricity bills, a greener and more consolidated future growth path was needed.

The solution

Analitix decided to reduce its server numbers and standardize its cloud and virtualization capability using Microsoft Windows Server 2012 R2 Datacenter edition with Hyper-V technology. This allowed it to dramatically reduce the number of physical servers required through virtualization. Fujitsu PRIMERGY RX300 servers were chosen for their low power consumption, high performance and high reliability. The immediate result was a reduction in electricity use of around $800 per month. Next the introduction of a fibre channel connected SAN, based on a Fujitsu ETERNUS DX80 storage system, simplified storage management and removed other impediments to ongoing data storage growth. Now the way was clear to both grow services to existing customers, while providing capacity to easily add new customers as they were acquired.

The benefit

- A consistent and scalable infrastructure on which to build both public and private cloud services
- Full hardware redundancy, which enables both live maintenance and hot capacity expansion
- Improved system control for better Quality of Service and realistic service level agreements (SLA) with customers

Products and services

- FUJITSU Server PRIMERGY RX300.
- FUJITSU Storage ETERNUS DX80
- Microsoft Windows Server 2012 R2 Datacenter Edition

The benefit

Adoption of a consistent and highly reliable Fujitsu infrastructure, standardized on Microsoft data center technologies, has provided the simplicity of operation lacking with the previous legacy systems. Not only does it mean good scalability, reliability and easier maintenance; it frees up resources to allow Analitix to do what it does best. Be a partner to its customers and not just another remote service provider. Its cloud based services are also improved as changes, maintenance or upgrades can be done "live", no longer creating time pressures or scheduled downtime - significantly reducing impact on end users. This allows Analitix to sell with confidence and offer realistic quality of service together with attractive yet realistic service level agreements.

The Future

Analitix is looking to replicate its public and private cloud infrastructure onto a second data center. This would add to its system security and provide even greater growth potential. The higher levels of reliability would also allow it to sell into much larger organisations. Plans are also underway to act as a host to other smaller resellers by offering them managed space on its datacenter infrastructure. One area where it has an edge over larger public cloud providers is its ability to physically and quickly upload new data into its datacenter. Removing the slow and tedious internet upload processes common with major public cloud providers will benefit the introduction of new users. Finally Analitix is keen to begin offering Microsoft Office 365 as part of its desk top services for small business.

ANALITIX
IT • WEB • DATA

Conclusion

By reducing server clutter, improving service reliability and greening their datacenter, Analitix has overcome critical issues that were standing in the way of future growth. The new infrastructure will allow them to take their managed service business to the next level. Based on high quality Fujitsu hardware and the most well-known and comprehensive software platforms from Microsoft, it delivers the confidence to offer attractive new services.
Further new levels of performance and standardized operation ensure capacity for increased services and customers; plus the ability to quickly and comprehensively expand without excessive effort.

'We have found Fujitsu servers and storage to be a good fit to our cloud data center requirements. We can now confidently provide new high quality services to our customers while creating the time to work alongside them and understand their business as if we were their in-house IT department.'"
James Lobbes, Managing Director, Analitix.

About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. Approximately 170,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE:6702) reported consolidated revenues of 4.4 trillion yen (US$47 billion) for the fiscal year ended March 31, 2013.

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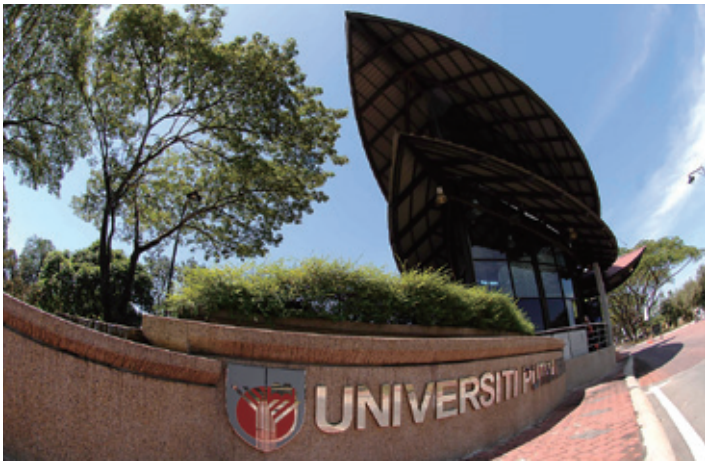
Case Study
Universiti Putra Malaysia(UPM)



The customer

Country: Malaysia
Industry: Education
Founded: 1931

The challenge

- Need for flexible, secure and reliable access to accounting services
- Migrate off unreliable legacy system
- Reduce operational costs including maintenance
- Implement high performance and highly reliably mission critical infrastructure

The solution

- Migrate SAGA database to a comprehensive Fujitsu infrastructure solution
- Efficient and streamlined system operation
- WinTel (windows and Intel) based servers

The customer

Universiti Putra Malaysia (UPM) was established in 1931 as the School of Agriculture. The school was located on a 220 acre property in Serdang, and offered two programs; a three year diploma, and a one-year certificate course in Agriculture. In 1947, the school was renamed the College of Agriculture Malaya by the then Governor of the Malayan Union. The establishment of Universiti Pertanian Malaysia came about when the College of Agriculture in Serdang merged with the Faculty of Agriculture, Universiti of Malaya. Dr Mohd Rashdan bin Haji Baba, the then principal of the College of Agriculture Malaya, was appointed as the first Vice-Chancellor of the new combined organization. With the first intake of 1,559 students, Univerisiti Pertanian Malaysia had its first academic semester in July 1973 involving three central faculties and one basic division: the Faculty of Veterinary Medicine and Animal Sciences, Faculty of Forestry, Faculty of Agriculture, and Division of Foundation Studies. In the early 1980s, UPM extended its area of studies to include Science and Technology(S&T). In 1997, the Univeristi Pertanian Malaysia's name was again changed to Univeristi Putra Malaysia by former Prime Minister, Tun Dr Mahatir Mohammad. This was to more accurately represent UPM as a centre for higher education, especially in science and information technology, facilitating national development in the new millennium.

The challenge

As one of Malaysia's largest users of Standard Accounting for Government Agencies (SAGA), UPM maintains a strong focus on ensuring the university's staff and students have the necessary access to accounting services. Regarded as customers, the staff and students require around the clock IT support and a secure environment to update the relevant financial and audit information in SAGA.
As such, providing access to all key university systems from any location, at any time, on any device, in a highly secured manner became a significant challenge for the information service department of the university. In addition UPM decided to move away from the legacy system that the SAGA software was running on, due to its unreliability and high operational costs. The decision was made to rip out the legacy servers and migrate the SAGA application to a complete Fujitsu solution combining PRIMEQUEST and PRIMERGY servers.

The benefit

- Reinforce reliability of mission critical infrastructure
- Improve efficiency and cost performance of servers
- Expand staff and student access to accounting systems
- Increase security of confidential data
- Reduce operational and maintenance costs

Products and services

- 1 x FUJITSU server PRIMERGY CX400S2
- 3 x FUJITSU server PRIMERGY CX250S2
- 3 x FUJITSU server PRIMERGY BX900S2
- 25 x FUJITSU server PRIMERGY BX920S3
- 3 x FUJITSU Mission Critical Server PRIMEQUEST 1800E2

The Solution

The SAGA system handles a tremendous number of transactions daily from concurrent users. UPM needed a system that could handle this efficiently without fighting for resources or becoming sluggish. The SAGA system is essential for the university to function effectively and is relied on by students and staff to perform vital electronic accounting tasks including e-university (e-forms), asset management and mobile cash billing.

UPM consulted with a number of vendors to address the challenge and where impressed with the level of commitment Fujitsu demonstrated and the high level of reliability built into Fujitsu technology. In combination with Fujitsu's SELECT partner, Fujitsu put together a solution that really impressed UPM. Fujitsu and the SELECT Partner discussed directly with the university MIS team the need to migrate their entire legacy system to an open source environment, allowing them to lower the costs associated with migration and maintenance. The solution would combine the capabilities of; Fujitsu PRIMEQUEST 1800E2, Fujitsu PRIMERGY CX400S1 Multi-Node Server Enclosure, Fujitsu PRIMERGY CX250S1 Dual Socket Server Node, Fujitsu PRIMERGY BX900S2 Blade Server and Fujitsu PRIMERGY BX920S3 Dual Socket Server Blade, to deliver a comprehensive outcome.

Leveraging a collection of whitepapers and benchmark data Fujitsu demonstrated how robust the systems could be and UPM was pleasantly satisfied with the results.

Furthermore with the Fujitsu systems inbuilt Intel® Xeon® processors, the solution was able to easily meet the university's requirements for reliability and price performance.

The Benefit

By migrating from the legacy system, UPM was able to construct a platform that would improve the reliability of one of their most important mission critical systems. With the new Fujitsu infrastructure in place, UPM realized twice the performance of the previous servers, delivering a greater return on investment by allowing the universities systems to be more efficiently and securely accessed. UPM also improved staff and student productivity with an increase in reliability and performance, reducing the overall operational expenditure in terms of maintenance and support.

Conclusion

PRIMEQUEST 1800E2

PRIMERGY CX400 S2

PRIMERGY BX920 S3

UPM was very pleased with Fujitsu's commitment towards the whole process and were amazed at how easily they worked with the university's MIS team. Fujitsu delivered on all of UPM's expectations, and are confident of the great relationship they will share with Fujitsu moving forward.

About Fujitsu

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Case Study
Tokio Marine Life Insurance Indonesia

»The new IT infrastructure from Fujitsu significantly improved efficiency, system stability, flexibility and employee productivity within the workplace«

Edi Zakaria, AVP, Head of IT Department, Tokio Marine Life Insurance Indonesia

The customer

Country: Indonesia
Industry: Life Insurance
Founded: 2012
Employees: 150
Website: www.tokiomarine-life.co.id

The challenge

Committed to a strategy of rapid business expansion, PT Tokio Marine Life Insurance Indonesia (TMLI) plan to build 27 sales offices across Indonesia. During this time, TMLII soon realized a stronger IT backbone and core system was needed to support the new business requirements. However with a number of business constraints, TMLII needed an IT vendor that could overcome these constraints and deliver a high performance solution that improved system efficiency, stability and productivity.

The solution

Fujitsu developed a comprehensive solution, comprising of hardware, software and a strong virtualization design, to renew TMLII's IT infrastructure. Fujitsu combined this with a 24x7 support service that included consultation, assistance in implementation and management of the IT environment. As a result TMLI were able to anticipate any downtime and allow their internal IT team to concentrate on business expansion. TMLI leveraged the strengths of, PRIMERGY servers, ETERNUS storage systems and VMware for virtualization. Together the integrated servers and virtualization software formed the core insurance system of TMLI.

The customer

Tokio Marine Life Insurance Indonesia (TMLI) is a subsidiary of Tokio Marine Holdings, Inc. (TMHI), the oldest insurance group in Japan. Established in 1879, TMHI is also one of the largest insurance companies in the world, with total assets exceeding US$190 billion and branches in 446 cities, across 38 countries worldwide. The Indonesian branch of Tokio Marine Life Insurance began in 2012 with the acquisition of PT MAA Life Insurance. Combining experience from its holding company with the needs of the Indonesian people, TMLI is committed to providing high quality financial services and life insurance products.

The challenge

To support their commitment to rapidly expand the company, TMLI needed to focus on developing its core business as an insurance service provider. Although, TMLI was challenged by a lack of adequate IT infrastructure to accommodate the business needs. The existing IT infrastructure had been left over when the previous business was acquired, and did not correspond with current requirements, including necessary security levels. This often resulted in issues with its effectiveness to perform certain business functions, such as daily backup, as the servers had not been integrated properly. The amount of downtime was also increasing causing a number of problems.

The solution

Fujitsu helped TMLI overcome their initial challenges through the development of a comprehensive solution that drives value by incorporating hardware and software, with virtualization design, implementation and support. The solution leveraged Fujitsu's leading edge PRIMERGY servers and ETERNUS storage systems, integrated with VMware virtualization. Fujitsu built the virtualized environment based on proven experience and delivered it using highly skilled resources, ensuring the needs of TMLI were accurately met. In addition, by showcasing a rich knowledge of VDI, Fujitsu made certain the project was completed on time and on budget. Fujitsu took the necessary steps to make sure the highly compatible core system infrastructure easily integrated with the existing, TMLI IT environment.

The benefit

- Working with TMLI, Fujitsu identified the company's requirements, challenges, and limitations of the existing environment. This means Fujitsu could deliver a cost effective core system that reduced down time while meeting the company's expansion goals.
- The PRIMERGY servers formed the basis of the new virtualized infrastructure and provided TMLI with the flexibility, automation and reliability, they needed for their core infrastructure and future business demands.
- Fujitsu's continuous support and fast response services, created a highly efficient and stable system, which thereby saved costs previously required for additional human support resources.

Products and services

- 6 x FUJITSU Server PRIMERGY RX300 S7
- FUJITSU Storage ETERNUS DX90 S2
- FUJITSU Storage ETERNUS LT40 S2 Tape Library
- Hardware installation and configuration
- VMware design and planning
- Project management services
- VMware consolidation and installation
- Microsoft OS and SQL installation
- jBoss installation and configuration
- Symantec NetBackup installation and configuration

The benefit

As the previous infrastructure wasn't able to support the business adequately, restructuring TMLI's IT environment had a powerful impact. With the newly constructed solution, developed by Fujitsu, TMLI were able to easily respond to challenges with system performance, as well as prevent potential threats to business expansion.

Following implementation, the performance of TMLI's system significantly increased, paving the way for a number of operational cost reductions. Specifically, the high performance of the competitively priced Fujitsu solution resulted in downtime being minimized and a reduction in costs associated with system deployment, maintenance and support. The new IT infrastructure also boosted productivity as systems began to be used much more efficiently. Now with downtime close to zero, minor problems are handled immediately, allowing Fujitsu to focus on providing dedicated quality after sales services. This combined with a clear understanding of the customers' needs became important factors in TMLI's successful business expansion.

"The new IT infrastructure from Fujitsu significantly improved efficiency, system stability, flexibility and employee productivity within the workplace. The price of the solution was surprisingly competitive given the quality Fujitsu offered was unrivalled. We no longer experience downtime and even better, Fujitsu is always ready to respond quickly to any complaints or questions. We estimate that our efficiency and the productivity of our IT support teams have increased by up to 50%. Our internal teams can now concentrate more on their core tasks, as we rely on Fujitsu to manage our IT system," said Edi Zakaria as TMLII AVP - Head of IT Planning Department.

Furthermore, Fujitsu's commitment to provide high quality services to all customers is another advantage that delivers benefits and value to TMLI. "We agreed to a one-year contract with 24x7 coverage and a maximum response time of 4 hours. Although the reality is Fujitsu always responds well within the 4 hours. We also benefited from a reliable installation, so can now anticipate most problems before they occur" Edi Zakaria added.

Conclusion

For a financial service company, the core system is an essential part of running the business. TMLI rely heavily on the performance of their information system, which requires critical support from reliable infrastructure. TMLI's decision to build a renewed information system was a logical way to reduce costs, though most importantly it helped them achieve their vision for rapid business expansion.

Fujitsu was able to put forward the most suitable solution by demonstrating a real understanding of TMLI's business value, workflow processes and existing infrastructure. Fujitsu worked collaboratively with TMLI to offer ideas that could meet their requirements while helping to manage other business constraints.

"Fujitsu proved their reputation for delivering high quality solutions through the IT infrastructure developed for TMLI. We recognized Fujitsu's commitment in providing the best possible service for its clients, and this closely aligned to what we wanted from our solution partner. Our partnership with Fujitsu provides benefits that help us understand the important role of technology innovation plays in the acceleration of business growth. TMLI greatly appreciates Fujitsu for their dedicated support," Edi Zakaria said.

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Case Study
Badan Informasi Geospasial (BIG)

Badan Informasi Geospatial built a robust & integrated data center by implementing a Fujitsu end-to-end solution that connects Indonesia's government agencies, and provides public services with optimal availability

The customer

Country: Indonesia
Industry: Government
Founded: 1969
Employees: 600
Website: http://big.go.id/

The challenge

Badan Informasi Geospasial required a robust and integrated data center to connect to all government agencies throughout Indonesia, and to provide public services with high availability. The complexity of data traffic and real-time analysis meant there were challenges in building a network ecosystem and data center that could run at the necessary bandwidth. High performance and a reliable system was essential to ensuring data communication was optimized.

The solution

Fujitsu provided a complete solution including hardware, data center enhancement, middleware, GIS software, and training.
Fujitsu's solution will enhance the existing BIG data center facilities, including data distribution and backup systems for all stakeholders involved in the project.

The customer

Badan Informasi Geospasial (BIG), an agency owned by the Indonesian government, has the authority to manage data and distribute geospatial information in Indonesia. BIG was established on October 17th 1969, and has two main roles; to provide efficient and effective cooperation, coordination, integration, and synchronization of geospatial information; and to leverage the use of geospatial information for government administration and various aspects of community life. In 2011, Fujitsu collaborated with BIG to build a data center as part of the National Geo-Spatial Data Infrastructure Development (NSDI) project.

The challenge

BIG, previously known as BAKOSURTANAL, in 2011 embarked on the National Geo-Spatial Data Infrastructure Development (NSDI) project. Soon after, Indonesia legislated that BIG would serve as the main source for all geospatial information in Indonesia. With its new responsibility, BIG needed to improve its existing data center facilities, including backup systems, and construct consolidated networks between its offices and the 12 participating ministries involved in NSDI. BIG intended to create an environment in which stakeholders cooperate and intersect with each other to better achieve their objectives at different political or administrative levels. The NSDI project will become the foundation of the future National Geo-Spatial Information Systems (NSIS). However, data was initially collected individually and each central agency had its own production system that didn't synchronize with other production systems. This highlighted a data traffic and data redundancy issue between the agencies.

The solution

Fujitsu provided BIG with an end-to-end solution that included high performance servers, a data center facility, middleware, GIS software, and training. This solution guarantees the success of the NSDI project and forms a basis for the NSIS to operate efficiently in the future. The high performance products and services provided by Fujitsu have a proven record in forming a seamless solution for effective data communication. Furthermore, with its high compatibility the solution can easily integrate with existing platforms (hardware and software), to accommodate any future business requirements or platform upgrades.

The benefit

- High performance computing provides faster & optimized data communication, allowing BIG to run a single data repository for all 12 ministries/10 central agencies.
- Single repository data center enables data redundancy to be reduced to a minimum level.
- Highly compatible Fujitsu solution and infrastructure easily integrates with existing 3rd party IT products, to ensure implementation and transition is completed within a tight time frame.

Products and services

- 4 x FUJITSU Mission Critical Server PRIMEQUEST 1800E
- 196 x FUJITSU Server PRIMERGY BX920/BX924
- 2 x FUJITSU Server PRIMERGY RX300
- FUJITSU Storage ETERNUS DX8400
- FUJITSU Storage ETERNUS DX440
- 10 x FUJITSU Storage ETERNUS
- FUJITSU Storage ETERNUS LT60 Tape Library
- 2 x FUJITSU 5300 SAN Switches
- 17 x FUJITSU PRIMECENTER Racks
- 18 x FUJITSU Software ServerView Resource Orchestrator Cloud Edition
- 36 x FUJITSU Software ServerView Resource Orchestrator Virtual Edition

The benefit

Fujitsu recognized the high performance system was an essential part of BIG's NSDI project, as it needed to gather and deliver geospatial data to and from the data center. By implementing Fujitsu's proven end-to-end solution, BIG could gain the necessary reliability and power to manage the geospatial information effectively.

The launch of the Ina-Geoportal (Indonesia-Geospatial Portal http://tanahair.indonesia.go.id) on the 17th October 2011 was a key success factor for the NSDI project. By deploying the public portal to run on Fujitsu's PRIMEQUEST servers, BIG ensured the system delivers global 24/7 availability.

10 Fujitsu PRIMERGY Blade Chassis were then provided at 10 central agencies forming a network node to the main data center. Fujitsu's robust and reliable PRIMERGY servers were chosen because they could guarantee optimal data communication along the network and data center.

- The new system improves data communication in terms of speed and data volume.
- Minimizes potential data redundancy between the nodes.

Fujitsu provided BIG with PRIMECENTER Racks, ETERNUS storage, ETERNUS tape library, and ServerView management software. BIG's IT staff was also given training to equip them with the necessary knowledge regarding database, infrastructure, and IT governance. This would allow them to optimize system and employee productivity.

With the NSDI schedule firmly on-track, BIG is preparing for the next phase in which geospatial data will be published cross a broader range of channels and industries.

BIG is well aware of the value of geospatial data, and how important the sharing of this data will be for government administration, national economic growth, transportation, and many other areas of society. The progress of the project is underpinned by the foundations set by the Fujitsu solution, and is helping Indonesia to prosper and grow as a nation.

When selecting Fujitsu, BIG took into account the scale of the current NSDI project and the future of NSIS. BIG recognized that Fujitsu's end-to-end solution was tried and tested and offered the best fit for their current and future needs. Fujitsu's breadth of experience, coupled with a complete set of hardware, software, services and solutions, provided the capacity to lay a platform that can scale with the nations growth.

Conclusion

Fujitsu's high performance systems have ensured BIG can overcome any potential issues regarding data communication, e.g. delivery delays, data loss, or data redundancy. The successful progress of the project and alignment to the timeline has ensured BIG can confidently work towards the next phase.

Aware of the importance of geospatial data and the NSDI project, BIG is racing against time to deliver services to the government. Now running on Fujitsu's end-to-end solution, the process of gathering, managing and delivering geospatial data has been optimized and fully supports them in overcoming these time constraints. Availability has always been one of the key success factors in delivering a high performance service to BIG, and was quickly achieved with the implementation of Fujitsu's PRIMERGY servers into BIG's data center.

BIG's NSDI project is a vital initiative for Indonesia's development as a nation. The processing of Geospatial data will benefit Indonesia in many ways, across many different industry sectors, e.g. economy, government, education, and entertainment. Completion of NSDI will mark a significant milestone for Indonesia as it takes positive steps towards the future.

About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. Approximately 170,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE:6702) reported consolidated revenues of 4.4 trillion yen (US$47 billion) for the fiscal year ended March 31, 2013.

Case Study
DKI Jakarta Regional Disaster Management Agency

»DIMS has helped BPBD DKI Jakarta in accelerating information management during disaster mitigation, particularly during severe flooding that hits Jakarta«

Edy Junaedi, Head of Informatics and Controlling Division, DKI Jakarta Province Regional Disaster Management Agency (BPBD)

The customer

Country: Indonesia Industry: Government
Founded: 2011 Employees: 40
Website: http://bpbd.jakarta.go.id/

The challenge

In DKI Jakarta Province, regular flooding hits the city and surrounding areas almost every year during the rainy season. This has forced the local government to take preventive and mitigation action. For instance, in 2002, 2007, 2012 and 2013, large-scale flooding hit Jakarta, affecting many people and impacting the local economy. As the economy and Jakarta's infrastructure continue to develop, increased damage and losses should be anticipated in the case of natural disasters. BPBD, as one of the most crucial organizations in Jakarta, requires an effective integrated disaster management system to manage regular flooding and other disaster issues in the region.

The solution

Fujitsu's DIMS, an integrated system of hardware and software designed to accelerate the management of information during the disaster mitigation process, was implemented at BPBD. The DIMS application combines Fujitsu's vast experience and advanced knowledge of disaster mitigation systems as applied in Japan, which experiences natural disasters with similar characteristics to those occurring in Indonesia.

The customer

DKI Jakarta Regional Disaster Management Agency (*Badan Penanggulangan Bencana Daerah* – BPBD DKI Jakarta) is a disaster management agency established in February 2011 under the Regional Governor's authority. The Regional Secretary is the ex officio Head Officer of BPPD, reporting to the Governor. This institution is responsible for determining the guidelines and directives on fair and equal relief efforts that include disaster prevention, emergency response, rehabilitation, and reconstruction. BPBD DKI Jakarta's mission is to protect the people of Jakarta through disaster risk reduction, to increase the people's readiness, and enhance the region's capacity for disaster management.

The challenges

The existing manual system at BPBD was unable to perform fast and accurate disaster mitigation actions and information assembly. For instance, it took 5 to 7 days to gather critical information about the disaster (e.g. level of inundation and affected locations), which created delays in the deployment process at BPBD stations and headquarters. This impacted the slowdown of overall flood mitigation process.

In addition, BPBD's own portal was often down due to overloaded server capacity. Thus, it prevented citizens from accessing real-time accurate information regarding the disaster. In fact, this issue ran contrary to State law no. 24 (enacted in 2007) on Disaster Mitigation, which clearly states that all Indonesian citizens have the right to acquire fast and accurate information from a disaster early warning system.

The solution

In light of this situation, BPBD DKI Jakarta needed to enable swift emergency response, and bolster the effectiveness and efficiency of disaster management efforts. Fujitsu proposed BPBD adopt the Disaster Information Management System (DIMS) application, which includes functions that can manage damage and shelter information, displayed on a digital map, and can send out messages to staff and related disaster management organizations. Functions in DIMS applications are under the control of Pusdalops (Jakarta Operation Controlling Center – JOCC), which acts as a subordinate to BPBD DKI Jakarta. Fujitsu's solution helps BPBD to effectively collect and distribute relevant information to specific receivers. Fujitsu also developed BPBD's web portal to improve information dissemination and eliminate the problem of overloaded access. Fujitsu will also provide consultancy and support

The benefit

- BPBD's IT system is now more effective and enables them to increase capabilities in handling disaster information management.
- DIMS application plays a significant role in the acceleration of information assembly and distribution during the flood mitigation process by establishing a fast and accurate early warning system to speed-up the overall disaster management process and recovery.
- BPBD is able to provide more detailed information to fulfill needs of other agencies in real-time and with high accuracy.

Products and services

- FUJITSU Disaster Management Information System Application
- FUJITSU server PRIMERGY RX300
- FUJITSU 20 Inch Monitor EM2010W
- Symfoware Server Standard Edition Processor License
- FUJITSU Interstage Application Server Standard-J Edition Processor License
- Development of BPBD Web Portal
- Planning and Consulting
- System Infrastructure Building
- Application Development / Solution Introduction

services during the critical periods, including high-speed response on technical support related to system and hardware maintenance.

The benefit

BPBD DKI Jakarta decided to implement DIMS because this solution is able to cover three phases of the disaster mitigation process - pre disaster, emergency response, and recovery. In addition, it supports portals and offers comprehensive solutions with most competitive cost efficiency. The client also considered Fujitsu's extensive experience in handling disaster mitigation in Japan, which highlighted the quality and reliability of the solutions.

DIMS enables BPBD DKI Jakarta to more accurately and quickly collect and centralize disaster-related information, make crucial decisions and provide essential messages, such as early warnings, to disaster management staff and organizations.

"DIMS has helped BPBD DKI Jakarta in accelerating information management during the disaster mitigation process, particularly during the severe flooding that hits DKI Jakarta. When we still used manual systems during the 2013 flooding, it took 5 to 7 days to receive integrated data, such as flood points and inundated areas. Meanwhile, our web portal, which should provide information to the public, did not function effectively. However, with Fujitsu's support, during the 2014 flooding in January, we were able to obtain real-time information and distribute it quickly to ensure effective coordination in the whole disaster mitigation process," said Edy Junaedi, Head of Informatics and Controlling Division BPBD DKI Jakarta.

The DIMS developed by Fujitsu facilitates BPBD DKI Jakarta's performance in managing critical and accurate information of major importance in an overall disaster mitigation process. Its main features are the following:

- **Transmits accurate early warnings** - The system can manage information on the water level of rivers and can automatically send warnings to staff and disaster management organizations about the level of risk and areas likely to be affected in the event of a flood. The warnings speed up initial disaster management activities, such as evacuation orders and the establishment of the disaster countermeasures office.
- **Makes collection and provision of information more efficient** - Collecting information from and providing information to disaster management organizations and citizens requires much time and effort. Unforeseen contingencies such as staff shortages and an unexpected increase in response measures are a common occurrence during natural disasters. The system assists the operations of staff working at the disaster management command center by using registration information with entry forms and automatic data coordination with a portal web site.
- **Assists swift decision making** - Using functions that display registered damage and shelter data on digital maps, the system provides real-time information on the overall situation of the disaster, thus facilitating quick decision making.

Conclusion

This DIMS application from Fujitsu has improved BPBD's response time significantly. BPBD is now able to provide more detailed information to fulfill the specific needs of other agencies in real-time and with high accuracy. As a result, coordination in the whole disaster mitigation process has become more effective and efficient.

DIMS played a significant role in the acceleration of information assembly and distribution during Jakarta flood mitigation processes in January 2014 by establishing an early warning system that was fast and accurate and thus able to speed up the recovery.

"Fujitsu's experience in providing DIMS for disaster management in Japan is a guarantee for us to implement a similar system in mitigating disaster in DKI Jakarta Province," added Edy.

About Fujitsu

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Case Study
Kyoto University

Private cloud server consolidation using Red Hat Enterprise Linux KVM and disaster tolerant ICT infrastructure systems

The customer

Industry: Education
Founded:1869 (Seimikyoku)
University establishment:1897 (Kyoto Imperial University)
Established by: National University Corporation, Kyoto University
Students: 23,000 (approx.)
Kyoto University has academic institutions and research facilities located across 3 campuses; Yoshida campus the core of the university's activities since its founding, Uji campus and Katura campus. Kyoto University has a reputation for delivering students world-class education and producing Nobel prize winners. With graduates of the University playing important roles in both international and national affairs, and acting as leaders in politics, industry and society.

The challenge

- Consolidation of a large number of physical servers
- Automated backup of important data at a low cost and enhancement of business continuity measures in case of a disaster
- Reliable operations for mission-critical e-mail systems

The benefit

- Efficient server operation management through the construction of a private cloud environment with Red Hat Enterprise Linux KVM.
- Robust remote backup site for disaster recovery leveraging Fujitsu East Japan data center.
- Improved maintenance and reliability by outsourcing the e-mail system.

Overview

Kyoto University constructed a private cloud by virtualizing 128 servers to enhance their Business Continuity Plan (BCP) and to optimize ICT investment in research and their general computer system. The new system began operations on December 28th 2012. Kyoto University previously had a virtual environment, however the latest private cloud has the ability to provide more than 400 virtual servers, improving reliability and operational efficiency. The backup site is operated via the Fujitsu East Japan data center as per the BCP, and aims to deliver infrastructure service continuity in case of a disaster.

Customer background

Improve BCP through virtualization replacement

Kyoto University's general computer system operates on a range of OS platforms and versions from Windows to Linux, because of the varying application requirements. While implementation of the virtual environment began in 2008, a complete replacement of the whole system was required due to the life cycle of the servers. Mr. Hirokazu Akasaka of Kyoto University's Information Mangement Department, Academic Information Infrastructure Service, Technical staff stated, "We responded to requests from the universities teaching staff to construct ICT for education and research purposes. We built the virtualized environment in 2008 to help efficiently deliver the required environment. Now, with the latest server replacement, we decided to implement a newer virtualized solution."

Professor Tatsuya Kawahara of Kyoto University, Academic Center for Computing and Media Studies, who was involved in the system design continued, "The campus renews the system once every 4 years. During

Professor Tatsuya Kawahara,
Academic Center for Computing and Media Studies,
Kyoto University

Mr. Hirokazu Akasaka,
Academic Information Infrastructure Services,Information Management Department,
Kyoto University Technical Staff

System

- FUJITSU Server PRIMERGY CX400
- Red Hat Enterprise Linux KVM
- FUJITSU Software ServerView Resource Orchestrator

our last cycle (2008) we migrated from physical servers to virtual servers. Now that the virtualized solution has matured, we decided to not only update the system, but also regenerate it with the long term future in mind. We wanted to improve the overall system in a way which responded better to demands for requirements such as disaster prevention."

The solution

Server consolidation, anti-disaster and e-mail system outsourcing

Kyoto University structured their new system around requirements for virtualization and consolidation of the campus's physical servers, and disaster prevention plans.

Virtualization and consolidation of physical servers

The virtual environment implemented by Kyoto University in 2008 was not responsive enough for the campus users. As such, they recognized that a private cloud solution could improve reliability, increase server operation and management efficiency, and reduce overall IT power consumption by virtually consolidating the campus's physical servers.

Business critical server continuity and data backup

To protect important information stored at Kyoto University on the private cloud's virtual servers, the BCP site was set at a distant location. By using an information sharing system between the two sites, operational continuity could be protected, switching over to the back-up server at the BCP site in the case of disaster or outage. Professor Kawahara explains,

"Disaster prevention had become essential following the damage caused to other Universities during the earthquake and tsunami that hit Japan in 2011. While server consolidation provides easier server management, the most important aspect of the consolidation process was to have all data in one system. This however reinforced the importance of the Backup environment's robustness, because if that system is damaged, we risk losing everything."

24 hour operation of the student and staff e-mail system

The Kyoto University e-mail system had previously experienced constant interruptions and maintenance delays due to the working hours of IT administrators and statutory inspections of the facility. Eventually the decision was made to outsource the e-mail system. Mr. Akasaka explains; "There were different opinions regarding the e-mail system because of the important information it handled. While other options were considered such as; a public cloud service or operating it within the campus system, in the end we decided to build the new solution at an external data center and manage and operate it ourselves."

System overview

Kyoto University selected Red Hat Enterprise Linux KVM and FUJITSU.

Professor Kawahara talks about why Red Hat Enterprise Linux KVM (RHEL KVM) was chosen.

"For the new system implementation, we requested information from various companies and had a number of discussions with them. Our previous virtual server was constructed with VMware and Citrix XenServer, however considering our new requirements, we decided to use RHEL KVM which integrates with Red Had Enterprise Linux's kernel."

"While an updated version of VMware was retained, we chose to migrate Citrix XenServer to RHEL KVM for its stability and low cost performance. The migration from physical servers to virtual servers will now continue using RHEL KVM."(Akasaka)

"During hardware selection, Fujitsu Server PRIMERGY demonstrated its high grade CPU, efficient power conservation capabilities and strong storage disk performance. This was highlighted in the extensive technical evaluation where the Fujitsu proposal, including Red Hat, was recognized for its outstanding price quality." (Kawahara)

Business benefits and future possibilities

Speedy virtual server migration, high performance and high reliability

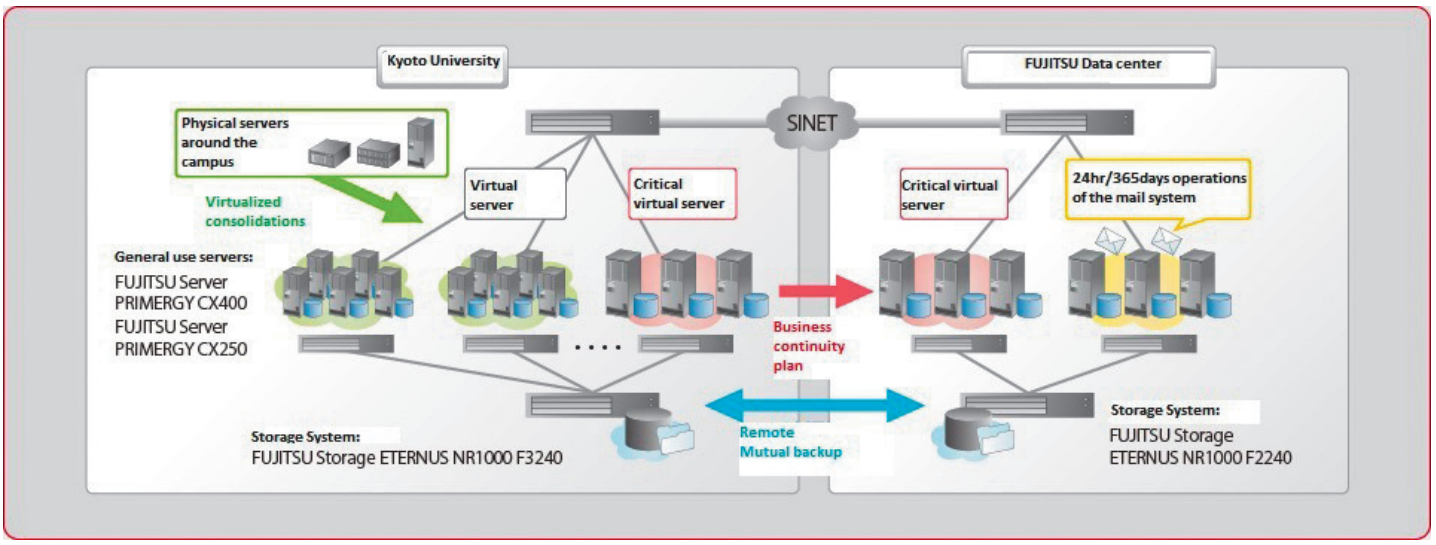
"We had limited time to migrate to the new system, however with the help of Fujitsu's RHL technical service desk, it was completed within the scheduled period. The general server system operates 24 hours a day, and it is hard to stop it even for just an hour. However, Fujitsu ensured the migration was able to take place efficiently and with minimal impact to the users." (Kawahara)

"There are now 250 virtual servers in operation on the private cloud and we are planning to implement more using the RHEL KVM platform. It has the ability to support more than 400 virtual server implementations, which we expect will be sufficient to satisfy the user's requests over the next 4 years. Additionally RHEL KVM is highly suitable for our large scale server consolidation, as it also helps to save on license costs."(Akasaka)

"When we visited the Fujitsu data center, we were highly impressed with its disaster resilient facilities and the efficient management style with appropriate administrators. It will be important to learn from the way Fujitsu operates at the center to support our own activities." (Kawahara)

The Fujitsu data center is located in an area of eastern Japan where the risk of damage from natural disasters is low. It is fully equipped with the latest disaster mitigation measures to deliver safety, reliability, and efficiency, as well as 24/7 system operations. This has resulted in superior reliability, security and availability for the campus wide faculty e-mail system and BCP construction plans, while optimizing ICT resources. Meanwhile the system uses the SINET4 Science Information Network to connect Kyoto University's private cloud with the data center, creating a resource efficient, dependable, user-friendly and low cost network. This advanced project is a leading edge solution and is yet to be implemented at many other Universities.

[New System Structure]



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Case Study
Yamagata University

VMware Horizon View 5 enhanced the security of 500 desktops running on Yamagata University's virtualization environment, while Fujitsu's PRIMERGY Server BX922 S2 and ETERNUS Storage DX80 S2 systems were chosen as the virtualization infrastructure

The customer

Customer: Yamagata University
Industry: Education
Founded: May 1949
Number of students: 9,261

With six faculties for; Literature and social sciences, Education, Art and Science, Science, Medicine, Engineering and Agriculture. And four campuses; Kojirakawa, Iida, Yonezawa and Tsuruoka.
Yamagata University promotes education, research and social responsibility.
Website: http://www.yamagata-u.ac.jp/index.html

The challenge

- Standardization of client systems, Office software and improvement of security level

Overview

As one of the largest universities in East Japan, Yamagata University built a thin client virtual desktop environment using VMware Horizon View 5. Fujitsu and Fujitsu Systems East were responsible for constructing the system and Fujitsu's 'PRIMERGY Server BX922 S2' and 'ETERNUS Storage DX80 S2' were selected as the platform for the virtual environment. Yamagata University is planning to expand the thin client system and is also considering the possibility of cloud migration in the future.

Customer background

The most advanced university virtual desktop system.

Yamagata University has 10,000 students enrolled across six faculties; Literature and social sciences, Education, Art and Science, Science, Medicine, Engineering and Agriculture. As one of the largest universities in East Japan, Yamagata University is spread over four campuses; Kojirakawa (Education, Art and Science, Literature and Social Sciences, Science), Iida (Medicine), Yonezawa (Engineering), and Tsuruoka (Agriculture). With a strong emphasis on education, research and social responsibility, the university has set goals they strive to accomplish; University administration with a focus on student learning, fostering those who possess profound humanity and a high-level of expertise, knowledge generation, collaboration with local and global communities and continuing efforts for reform.

Mr. Kiyoshi Yaguchi,
Manager in External Relations Department
Yamagata University

Yamagata University is a leading university in Japan and in 2011 opened a Research Center for Organic Electronics at the Yonezawa campus. This facility featured divisions for the development of organic EL, organic solar, and organic transistors, and leveraged a research "dream team" formed by prize winning professors of the universities staff. Through the strength of this, the university established it's self as one of the world's best research centers for prominent industrial innovation and industrial clusters. In October 2012, the Literature and Social Science department built a research institute for the 'Lines and Geoglyphs of Nazca and Pampas de Jumana' in Peru to investigate its mystery and collect the data for its protection plans that University is working since 2004.

Yamagata University has an administration team of 500 staff within the 4 campuses. In an effort to continue to efficiently support the students and world leading research centers, they proactively worked on the informatization of all administration tasks.

The benefit

- Reduce the support work by standardization of client environment
- Reduce the risk of information leaks as data is no longer taken from the computers

Products and services

- FUJITSU Server PRIMERGY Server BX922 S2
- FUJITSU Storage ETERNUS Storage DX80 S2
- FUJITSU Smart-UPS RT5000 Uninterruptible Power Supply
- VMware vSphere 5 Server virtualization
- VMware Horizon View 5 Desktop virtualization

For example, previously office PCs were updated individually, therefore when a new PC was deployed it was not standardized. The PC's OS would vary from Windows 2000, Windows XP, Windows Vista, Windows 7, while software versions were different depending on installation dates. As a result the complex environment was becoming increasingly hard to manage and the university was becoming more prone to security risks. While training on security awareness had been completed in regard to the impact of human error, risk prevention also needs to be performed on the system itself.
Mr. Kiyoshi Yaguchi, Manager in External Relations Department, Yamagata University, said "At the suggestion from the director in-charge at the time, the decision was made to install thin clients. Our 500 office PCs needed to be replaced to thin clients as a standardized solution that could also help prevent information leakages."

The focus

VMware Horizon View 5 virtualized 500 desktops.

In 2010, after thin clients had been confirmed as the preferred solution for Yamagata University, they began to evaluate various thin client systems that could meet their needs. As there were very few cases of other universities using this type of solution, Yamagata University requested potential vendors to demonstrate the advantages of each of their systems for comparison includes Fujitsu that had previously implemented the IT system used in the Networking and Computing Service Center located at the Kojirakawa campus. However the new thin client environment also needed to cover all applications used by the current PCs including; financial accounting system, travel expense calculator system, documentation management system, and school affairs system.

Mr. Masatoshi Yamakawa,
Chief of External Relations Department
Yamagata University

Mr. Masatoshi Yamakawa, Chief of External Relations Department, Yamagata University, said "The terminal service system has applications that can only be used on a specific client's OS, in addition the workload required for installation is excessive. This was a big part of our decision to eliminate the individual terminals and select a virtual client system."
As the Networking and Computing Service Center was already using virtualized servers with VMware vSphere, the universities staff was able to get clear picture of how the virtual system would operate on the thin clients with the virtual server status monitoring. In late 2011, following the tender process and vendor evaluation, thin clients running on Fujitsu's virtual desktop 'VMware View 5' was selected as the ideal solution for Yamagata University.

System overview

Increase in security with the "Anywhere desktop", as data is no longer taken from the computers.

By March 2012 the advanced solution, developed by Fujitsu and Fujitsu Systems East, became operational and was recognized as one of the leading thin client systems amongst all universities. Based on 'Fujitsu Blade Server PRIMERGY BX922 S2' as a platform, VMware Horizon View 5 was implemented at the server room of Kojirakawa campus.
In total 500 thin clients were deployed across Kojirakawa, Iida, Yonezawa and Tsuruoka campus, allowing the staff to access a personalized virtual desktop and operate their applications from any terminal within the university. 'Fujitsu Storage ETERNUS DX80 S2' was then selected as the storage system for the new environment and was connected via fiber channels to the PRIMERGY BX922 S2. While two 'Fujitsu Smart-UPS RT5000' were also deployed to provide an uninterrupted power supply. Mr. Masaki Endo, Chief of General affair division, Kojirakawa campus service department Yamagata University, said "Only a small number of staff are now needed for day to day management of the thin client system. However we also have the support of engineers from the Networking and Computing Service Center who have experience with VMware products for any larger issues regarding the virtualization infrastructure."

Mr. Masaaki Endo,
Chief of General affair division,
Kojirakawa campus service department
Yamagata University

Since implementation, the virtual desktops have been operating steadily without incident, and the staff hasn't required any new knowledge or training to work with the new system. The change has also improved user support Mr. Endo explains "We previously had 4 OSs; Windows 2000, XP, Vista and 7, this meant support, particularly over the phone, was a real challenge. Now, with the new operating system the OS has been standardized to Windows7 running Office2010". Previously in the case a staff member needed to move departments, there were cases that they had to copy their data to USB memory and then reinstalled at the new location. But now we have been able to avoid that as the virtual desktops provide the exact same environment wherever the user logs in. This has significantly improved our level of security.

Future possibilities

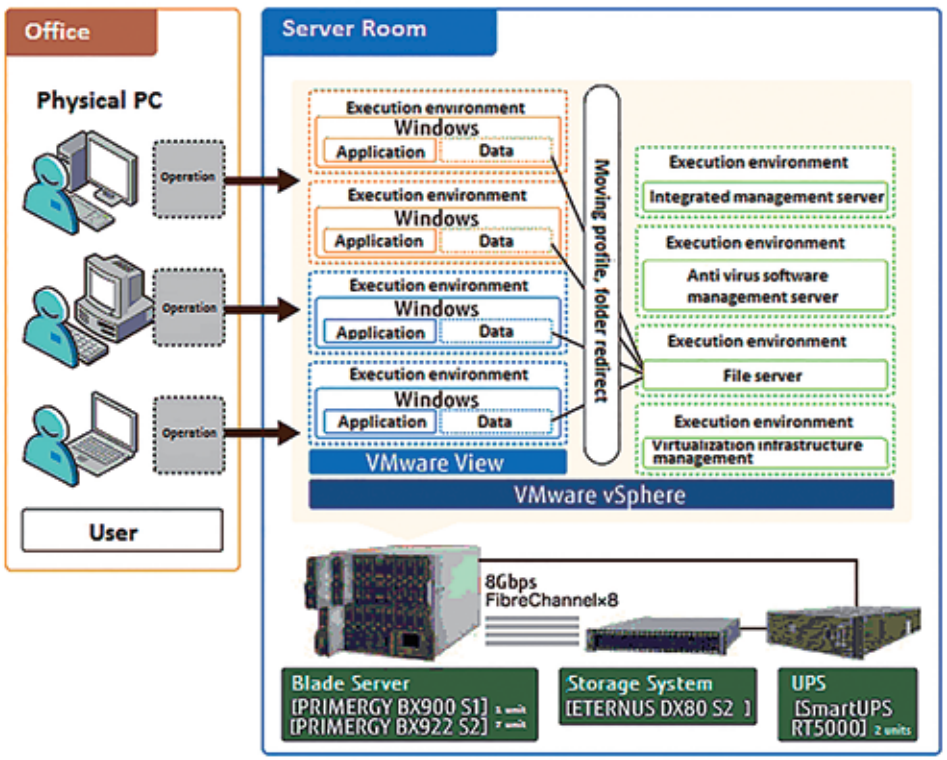
Following the success of the thin client system, the university is considering possibilities around migrating to the cloud.

Responding to Yamagata University's request, Fujitsu installed a measurement tool that analyses the thin client's disk level performance allowing to monitor overall system status. "We recognized Fujitsu's pragmatic approach from installation right through to the performance tuning performed after the system was operational. Some venders are unable to flexibly adjust specifications to accommodate our needs, although Fujitsu provided suggestions and advice above and beyond the original requirements" Mr. Yamakawa stated.

The success of the thin client system in the administration office has meant Yamagata University has started to look at changing other PC systems to virtual desktop solutions. "In the facilities department we design buildings and a large amount of plans are created through a CAD system utilizing standard PCs. However, after the realizing how smoothly the new thin client solution works, there have been requests to implement the virtual desktop here as well" Mr. Yaguchi declared.

Furthermore with the increasing trend of using applications through a network, Yamagata University is also considering migrating to the cloud. In particularly, the cloud environment with the latest authentication system that could help to reduce operational costs.

Outline figure of office thin client system



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Case Study
Yahoo Japan Corporation

Using a next generation ICT infrastructure concept, the "Prefab" Data Centre, Yahoo Japan drastically reduced operational costs such as air conditioning and other facilities

Challenges

Review high costs associated with current Data Centre facilities.

Establish new construction and operational processes for large Data Centre environments.

Drive new value from the Data Centre environment

Effect

Reduce the megawatt unit price by 60% and achieve an annual average PUE ratio of 1.044 (*1).

Established build and operation process for Prefabricated Data Centers.

Established core technology and methodologies for robust ICT infrastructure to expand in the future

Mr N. Matsuya
Technical Director
Infrastructure Engineering Dept.

Mr T. Kimura
Manager
Site Operations

Ms S. Tei
Purchasing Dept.

The customer

Yahoo Japan Corporation
Founded: Jan. 31, 1996
Registered Address: Minato-ku, Tokyo, Japan
Capital: 8,037M Yen
CEO: Mr. Manabu Miyasaka
Employees: 3,842 (Mar.2013)
Biz Lineup: Advertisement on Internet, e-Commerce, Membership Service, etc.
Website: http://www.yahoo.co.jp/

Background

Next Generation DC Concept targeted huge facility cost reductions

Yahoo Japan was established in 1996 and is now Japan's largest portal site. Yahoo started out as an internet search engine and directory site, where it gained overwhelming support from users during the early days of the Web. Now a leading internet organization, Yahoo continues to be at the forefront of Internet based services in Japan.

Yahoo Japan relies on Data Centeres (DC) located across the country to maintain their highly reliable and stable business services. In 2004, in order to extend the business Yahoo Japan began to decentralize their DCs, which were predominantly located in Tokyo. This process also provided the opportunity for Yahoo to drive down the facilities' operational costs.

Traditional DCs require a huge investment in top class infrastructure. However, Yahoo Japan was able to overcome this challenge by taking a next generation approach to DCs which could achieve high efficiency and reduce costs. In September 2011, Yahoo Japan commenced field trials for a modular style DC unit, referred to as a "Prefab" DC.

Mr. Norifumi Matsuya has been in charge of the Prefab DC project since its design phase. According to Mr. Matsuya, requirements for extreme reliability had the most impact on the costs of traditional DCs. "Within a traditional tiered DC, each facility is optimized to maintain reliability, supporting disaster prevention countermeasures and providing a redundant power supply. Yahoo Japan had to completely change this approach in order to achieve the business objectives."

The Prefab DC is a portable, single configuration unit that can accommodate approximately 400-500 servers. The servers can be installed according to demand growth, ensuring only the minimum number of servers are used. This system dramatically reduced facility costs and operational costs for air conditioning, electricity, disaster prevention countermeasures and more. In addition, the solution also promotes Green ICT which reduces their environmental footprint.

Mr. Matsuya said, "Traditional DCs are suitable for systems that handle confidential data. However many of Yahoo's systems only handle public information, and the requirements are more aligned to a Prefab DC. As the Prefabricated DC can be flexibly expanded in small increments, Yahoo can provide guarantees in terms of service availability."

Implementation

PRIMERGY was selected to satisfy the Prefab DC requirements.

Following the confirmation of their basic design platform, Yahoo Japan began selection of a server for the Prefabricated DC. According to Mr. Kimura, as part of Yahoo Japan's Server Selection Policy, the servers for the Prefab DC were required to increase power efficiency and reduce electricity costs. Yahoo also wanted a server with a Backup Battery Unit (BBU), that allows them to discard the expensive UPS system, and to operate in a high temperature environment to minimize the air conditioning costs. After a comparison between a number of products, Yahoo Japan chose Fujitsu Server PRIMERGY RX200 S7, for its capability to satisfy these requirements to a high degree.

During the selection process, Yahoo identified that not only did PRIMERGY have the specification and performance to match Yahoo Japan's requirements, but Fujitsu also had the technology knowhow and support structure they expected from their server vender. Regarding the specification and performance, Mr. Kimura said "In addition to the cache design which drives energy savings and reduces our environmental footprint, the server's ability to guarantee operation in high temperature environments was a decisive factor." Mr Kimura indicated that the PRIMERGY server's high expandability as a 1U rack server was superior to others they evaluated.

The integrated Battery Backup Unit for PRIMERGY was jointly developed by Yahoo and FDK, a Fujitsu group company, while Fujitsu verified its operability with the server. Mr. Kimura said, "In 2010, embedding an integrated battery into a server was not a popular concept, and it was hard to find a suitable vendor. Eventually, we decided to develop our own solution with the help of Fujitsu."

System Overview

Installation for 200 Fujitsu Server PRIMERGY RX200 S7 was reduced with independent racking features

Construction of the DC, including the installation of 200 PRIMERGY RX200 S7 units, was competed in 2011. Ms. S. Tei, responsible for procurement and deployment of IT equipment at Yahoo said, "During this time, we put a variety of requests to Fujitsu, and each time they rapidly and accurately responded. This gave us a confidence in Fujitsu's support and reliability even after the installation. The highlight was the integrated Battery Backup Unit which successfully passed the test of our technical team and currently operates without any issues."

Mounting ICT equipment was also important in the Prefab DC construction. Yahoo insisted the equipment must be mounted to the racks efficiently. PRIMERGY's Drop in Rail and Quick Release Lever functions were a stand out advantage and reduced the installation time. "The servers needed to be rack mounted in the DC, and PRIMERGY RX200 S7 was the only server that satisfied this condition." Mr. Kimura said.

The Outcome of Installation and Future Plans

The Prefabricated Data Center concept achieved a PUE ratio of 1.044 and a 60% reduction in the MW unit price.

The trial phase of the Prefab DC was completed and has now started playing a role in Yahoo Japan's day-to-day services. In 2013, the construction of a second unit was completed with several improvements such as the removal of various hot spots by repositioning parts of the equipment.

The Prefab DC project is already delivering quantitative improvements to Yahoo. According to Mr. Matsuya, the Prefab DC reduces 60% of electricity consumption compared with traditional DCs in terms of MW (Mega Watt) units, while the PUE (Power Usage Effectiveness) ratio has reduced to 1.044. "Our initial target was to bring the PUE ratio to less than 1.1, so we are very satisfied with this impressive result." Mr. Matsuya said. "Without FDK's BBU being mounted in the server, the Prefabricated DC project would not have been possible. The BBU and PRIMERGY have been key factors in achieving efficient power saving performance with a low failure rate." Mr. Kimura stated.

Mr. Matsuya and his team have been looking ahead to the future. "With agile and decentralized DCs, we have the capability to implement countermeasures against large-scale disasters. It is our responsibility to provide infrastructure that corresponds to the business's needs, and the evolution of the Prefab DCs will play a role in achieving this."

Products

FUJITSU Server PRIMERGY RX200 S7: A two-way rack mounted server with cutting edge technology, that saves power through optimized fan control.

Integrated Battery Backup Unit, jointly developed with Fujitsu and Fujitsu's group company, FDK: An Integrated Battery Backup Unit (BBU), which uses a Ni-MH battery (safe and robust against high temperature environments), effective during temporary blackouts and unexpected power outages. The BBU can replace expensive UPS systems and minimize power loss by conversion (AC to DC, DC to AC).

*1 PUE Ratio: Power Usage Effectiveness (PUE) is an energy efficiency measurement for DCs. The ratio is determined by the power consumption of the whole DC environment, divided by the power consumption of the ICT equipment.

*The contents of this Case Study are based on interviews conducted on July 3rd, 2013.

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Case Study
Right-on Co., Ltd.

Data deduplication dramatically reduces storage requirements and time needed for backups. The streamlined backup-and-restore operations enable Right-on Co., Ltd. to improve business continuity and support day-to-day business transactions of their 481 stores across Japan

The customer

Industry: Retail
HQs: 1-11-1 Azuma, Tsukuba-shi, Ibaraki
JAPAN 305-8503
Representative: Tatsuharu Yokouchi
# of employees: 854 (as of August 20th, 2012)
# of stores: 481 (as of August 20th, 2012)
Major business areas:

- Right-on specializes in selling casual-wear, predominantly denim jeans, targeting male and female customers of all ages.
- Nationwide chain stores offering different types of stores depending on the location, i.e. urban street stores or suburban roadside stores. The Right-on stores also can be found inside shopping malls, power centers or station buildings.

Website: http://right-on.co.jp/

The challenge

- Make Right-on's data readily available for quick recovery in the event of disaster.
- Establish a bigger repository to solve storage space shortages for backups.
- Improve the availability and business continuity of the company's SAP solution, in response to the unprecedented Earthquake on March 11, 2011.

The benefit

- The newly upgraded SAP system executes a full backup daily with the ability to maintain up to 7 generations of system backups. Also, disk-to-disk secondary backups to the Fujitsu Storage ETERNUS CS800 S3 data deduplication appliances can be created. These are performed on a daily basis, making it possible to recover the system from the most recent backup in the event of disaster.
- Data deduplication technology can dramatically reduce storage space requirements by up to 83%, significantly helping ease and simplify the management of ever-growing business data.
- Right-on's business-critical SAP system was rebuilt, upgraded and relocated to the Fujitsu data center. The new ICT infrastructure provides improved availability and robustness, helping keep Right-on's business up and running even during power outages caused by natural disasters.

Overview

Right-on Co., Ltd. (Right-on) is a chain of casual clothing stores located all over Japan. After the nation was hit by the catastrophic earthquake on March 11, 2011, Right-on began rethinking their business continuity strategies. To tackle existing data protection challenges and achieve higher levels of continuity, Right-on decided to relocate its mission-critical SAP system from the company's server room to Fujitsu's data center. At the same time, the company replaced the aging SAP infrastructure with the latest technologies. The newly upgraded SAP system adopted the Fujitsu Storage ETERNUS DX410 S2 disk array and ETERNUS CS800 S3 data deduplication appliances, and has transformed the way important business data can be secured. Using the OPC (One-Point Copy) function of the DX410 S2, a full backup of all business data can be created everyday (First backup). Following which, seven generations of the backed up data can be copied to the deduplication appliances daily (Second backup). This high-speed daily backup approach enables Right-on to quickly recover the system with minimal RTO if there is an event that causes data loss. Optimal backup efficiency is another benefit of the new system. The adoption of data deduplication technology made it possible to eliminate redundant data and reduce the storage space needed for backups. With a highly advanced backup-and-restore mechanism supported by Fujitsu's cutting-edge storage solutions, Right-on has developed a strong business continuity strategy to better serve its customers as well as staff members at the 481 stores* nationwide.

(*481 stores - Data as of August 2012)

Customer background

The devastating impact of one of the most terrifying natural disasters in recent history made Right-on rethink the importance of having adequate business continuity plans.

Right-on Co., Ltd. started its business in 1980 with one small jeans store. The company has continued to grow by opening new stores one after another, and now has a large scale retail chain operating 481 stores (as of August 2012) across Japan. Upholding a strong corporate philosophy of "Bringing enrichment and happiness to life through the sale of people's all-time favorite jeans", Right-on is always passionate and committed. This is underpinned with two key objectives; Ensuring the company provides a wide range of casual clothing products to meet the needs of customers of all ages, and

Storage System

- FUJITSU Storage ETERNUS CS800 S3
- FUJITSU Storage ETERNUS DX410 S2
- FUJITSU Storage ETERNUS SN200 Model 600

Servers

- FUJITSU Server PRIMERGY BX920 S2
- FUJITSU Server PRIMERGY RX300 S6

Picture. One of the Right-on stores inside a shopping mall

ensuring the company creates store designs that provide the whole family a pleasant shopping experience. In an effort to keep attracting current and new markets segments, Right-on has been aggressively working on new product development. In particular for private labels ('BACK NUMBER' Right-on's flagship brand), there has been vigorous brand exposure through TV commercials, and specialty stores have been offering a different store formats to the conventional stores. For example, 'CHIME' is Right-on's new brand that specializes in clothes for adult women.

Even though Right-on's business continues to evolve and grow, the company still maintains their bottom-up approach to management. This consistent policy is one factor that drives the company forward and keeps it ahead of the fierce competition in the casual jeans market.

"In today's diverse market, it can be challenging to generate a huge hit. Instead of attempting to increase revenue from a single source, companies should focus on increasing sales across each individual item," says Mr. Junpei Kawasaki, Corporate Officer, Director, Corporate Planning, Right-on Co., Ltd. He continues, "In that sense, it's inevitably important that real-time insights into business operations can be seamlessly communicated to the management. At Right-on, we use SAP solutions to enable managers to capture changing situations at each store and help them make instantaneous and informed decisions. This allows us to drive more efficient business operations. By receiving and reflecting clear directions, our customer-facing employees can make the necessary improvements right away." The business-critical SAP system provides 'real-time' insight into actual business situations. Along with frontline information exchanged at the weekly staff meetings, these are the two key enablers for Right-on to support day-to-day transactions. When the company's SAP system was affected by the Great East Japan Earthquake on March 11th, 2011, Right-on decided to assess the SAP system's availability and evaluate an adequate backup strategy.

Right-on refurbished its aging SAP system being relocated to the Fujitsu data center

Right-on chose to adopt Fujitsu's latest storage offerings that would enable the company to copy seven generations of backup data to the secondary store on a daily basis. This would significantly improve the systems availability and continuity compared to the previous tape-based weekly backups.

On the day of the big earthquake, it was reported that the server racks in Right-on's server room at Tsukuba City, Ibaraki Prefecture had fallen down. Immediately after the report, Fujitsu staff rushed to the disaster site. "Fujitsu's response was very impressive", recalls Mr. Kazuhiro Hamada, System Engineer, Corporate Planning, Right-on Co., Ltd. "The Fujitsu engineers began inspecting the system on the following day, and our business-critical SAP system was recovered and fully functional again within a mere two days."

Mr. Junpei Kawasaki
Corporate Officer Director, Corporate Planning
Right-on Co., Ltd.

After having experienced the unexpected disaster, Right-on decided to embark on a new project in December 2011, aiming to relocate the company's aging SAP system to the Fujitsu data center, and replace the old infrastructure to achieve higher levels of reliability and robustness.

When building the new SAP system, Right-on's primary focus was establishing more efficient and effective backup strategies as the company was concerned with the safety and viability of the traditional backup procedures. "Our previous SAP system had the ability to perform and manage backup jobs, but we were just not confident whether the system would be recovered properly or how quickly it was able to recover in the event of an actual disaster. The SAP system is the back bone of the company. If it goes down for any reason, our business activities will stop," Kawasaki explains why Right-on was so keen to look for better backup solutions.

Previously, it needed to run for 45 hours (starting from Friday night to Sunday afternoon) to transfer backup data to tapes and create the second set of data copies. As the company's business data had continued to grow, this time-consuming weekly backup started causing concerns that the job would not be completed in time.

Mr. Kazuhiro Hamada
System Engineer Corporate Planning, Right-on Co., Ltd.

To address these critical challenges in backing up the ever-increasing quantities of data, Fujitsu's latest storage solution was adopted to underpin the new SAP system. Right-on had realized using the high-speed OPC (One-Point Copy) feature of the ETERNUS DX410 S2 disk array, would allow them to perform a daily backup, as well as maintain seven generations of backed up data. At the same time, the company also wanted to execute a second backup (disk-to-disk) on a daily basis. This would be to the secondary storage available on the ETERNUS CS800 S3 data deduplication appliances. With this, the system could be restored from the most recent backup even in the event of data loss. However, issues still remained as the company required full backups of seven generations of data, which is equivalent to as much as 20TB within a single working day. This meant that potential shortages of storage capacity were a major concern, too.

The newly-deployed system for Right-on

Optimized backups and high deduplication efficiency using Fujitsu's cutting-edge storage solutions.

To resolve the challenges and enable the secondary backup to complete within 24 hours, Fujitsu proposed the use of three ETERNUS CS800 S3 entry-model appliances. In addition, 10Gbps high-speed technology was adopted to connect the backup server and the secure switch. Following which fully-redundant paths between the secure switch and each ETERNUS CS800 S3 unit were deployed, so the 10Gbps capability could be fully utilized. As the amount of backup data differs depending on the applications, Right-on created a job flow that would help increase backup efficiency. Moreover, different combinations of backup data types are used to further achieve optimal efficiency when using the storage-side of data deduplication.

The Fujitsu Storage ETERNUS CS800 S3 is an easy-to-use turnkey solution, and can be configured from a standard Web browser, thus it significantly helps reduce the time required to deploy a backup environment. The SAP upgrade project began in April 2012 and the new system went live in October the same year. Utilizing the virtualization technology, Right-on's ICT that previously needed five racks, could now be consolidated into two, greatly reducing data center floor space and costs. In the new environment, a boot from SAN configuration was deployed using the ETERNUS DX410 S2 disk array and the Fujitsu Server PRIMERGY BX920 S2 blade servers. The SAN boot environment, combined with the VMware HA feature, has enabled Right-on to perform automated failover of running workloads to a standby server. In doing so, the system availability and continuity has been significantly improved, even in the event of server failure.

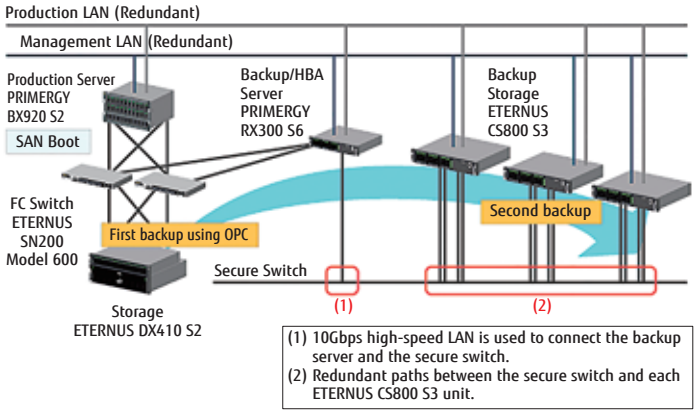
Business benefits and future possibilities

Data deduplication reduces storage requirements by 83%, helping to resolve issues associated with storage capacity shortages.

Since production cutover, Right-on's new system has been functioning well with no issues. Recently, a blackout due to severe thunder storms occurred near the Right-on headquarters. However Right-on's system was now fully protected within the Fujitsu data center, ensuring they could be confident of no system disruption.
"We feel safe and secure," says Hamada. "We now have dramatically improved business continuity preparation plans for natural disasters. Even if data loss occurs, quick recovery from the disaster is possible thanks to the daily backups."

The secondary backup to the ETERNUS CS800 S3 can now be executed within 14 hours compared to the previous 45 hours on the old system. The new disk-to-disk data backup approach also helps Right-on to eliminate the manual process of replacing and storing tape devices. Taking advantage of the data deduplication technology, the amount of data to be backed up was reduced by up to 83%, greatly reducing storage space requirements. Another highlight of the new system is the virtual thin-provisioning allocation scheme in the shared storage environment. This makes it possible to optimize utilization of available storage, helping Right-on quickly and easily add capacity to meet the company's changing storage needs in the next five years.

Right-on has a vision to further expand the use of the SAP system in a way that will empower the business.
"Establishing a better business continuity strategy was the primary priority of this project, although we also developed more aggressive plans that would maximize the value and contribution of ICT to our business. For example, utilizing ICT to visualize how our business is performing, or to make the business processes more efficient, is the area we'd like to focus on," says forward-looking Kawasaki. "In the process of addressing our diverse and changing needs, we look forward to continuing to work with Fujitsu. There's been years of good business relationships between our two companies, and as a result we believe Fujitsu is fully aware of our business situation and our needs. Based on Fujitsu's in-depth understanding, they are able to work with us and come up with many dynamic and practical proposals that will grow our business," Kawasaki concludes.



(Figure 1) System configuration at Right-on

Right-on is moving forward with the aim of becoming a leading retail clothing business, and bringing happiness to its customers and all jean lovers. As a trusted ICT partner of Right-on, Fujitsu is committed to providing innovative storage solutions that support Right-on's business continuity strategies. This is possible by taking full advantage of the vendor's comprehensive ICT capabilities and resources.

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Case Study
LIFE CORPORATION

Integrated virtualization infrastructure improves LIFE CORPORATION's operational efficiency in 232 stores* nationwide and sets a platform for expansion and future business growth. While disaster prevention planning is reinforced as the de-duplication appliance can reach its maximum data compression ratio of 90%

*as of May 2013

The customer

Industry: Retail
Head Office: 1-19-4 Higashinakajima,
Higashi-yodogawa-ku,
Osaka JAPAN 533-8558
Representative: Takaharu Iwasaki
Founded: October 24th 1956
Sales Revenue: ¥505 billion (February 2013)
Number of employees: 19,894 (February 2013)
Number of stores: 232 (May 2013)
Website: http://www.lifecorp.jp/

The challenge

- Integrate servers and storage systems to generate cost reductions.
- Improve backup efficiency in the virtualized environment.
- Implement a high performance and highly reliable solution that supports business operations.

The benefit

- Integration of the virtualization infrastructure, servers and storage systems, reduced capital investment expenditure by 36% and maintenance costs by 64%.
- The implementation of ETERNUS CS800 S3 increased backup efficiency by allowing the data compression ratio, of the de-duplication appliance, to achieve a maximum of 90%. The high compression ratio and remote encrypted replication function strengthens the capacity for disaster prevention planning.
- The Integrated storage ETERNUS DX410 S2 provided high speed performance using an FC connection. The highly reliable system now has the power to effectively support the operations of 30,000 employees across 232 supermarkets nationwide.

Overview

LIFE CORPORATION built a virtualization infrastructure in order to integrate disparate servers and storage within the business. Fujitsu's ETERNUS DX410 S2 storage solution was selected for its high reliability, high performance and ability to effectively protect the business data of all 232 stores* across Japan. While the ETERNUS CS800 S3 was selected to accommodate the backup storage requirements. ETERNUS CS800 S3 data compression and de-duplication ensure LIFE CORPORATION can reinforce their disaster prevention planning. (*as of May 2013)

Customer background

Integration of servers and storage was essential to opening 400 stores.

Founded in 1956, LIFE CORPORATION runs 232 supermarkets across Japan, predominantly in Kansai and Tokyo metropolitan regions (May 2013). Focused on building a trusted relationship with its customers, LIFE CORPORATION will target the opening of 400 stores and 800 billion yen in revenue.

In 2012, LIFE CORPORATION began implementing a next generation business plan which included the opening of two new flagship stores over the next three years, one in Osaka (Nov 2013) and the other in Tokyo (2015). The plan will look to roll out a new innovative work style for employees, as well as establish a comprehensive strategy across five areas – new store openings, merchandise, customer satisfaction, cost optimization and future planning.

To ensure these five strategies are fully realized, optimizing ICT use will be an important aspect. In recent years, building an ICT infrastructure that reduces costs and can respond to change in the business environment has become paramount.

"In 2009, we started to look at integrating the increasing number of servers and storage systems within our business system. ICT infrastructure which could expand efficiently and flexibly with our business growth would be essential in achieving our goal of 400 stores." said Mr. Kenshi Yamamoto, Corporate Officer, Director of Corporate Planning and Information System, LIFE CORPORATION.

Mr. Kenshi Yamamoto,
Corporate Officer,
Director of Corporate Planning and Information System,
LIFE CORPORATION

Storage System

- FUJITSU Storage ETERNUS CS800 S3
- FUJITSU Storage ETERNUS DX410 S2
- FUJITSU Storage ETERNUS NR1000 F2240[1]
- FUJITSU Storage ETERNUS SN200[2]

1: ETERNUS NR1000 F series is a NAS product available only in Japan.
2: ETERNUS SN200 series is a Fiber Channel Switch available only in Japan.

Servers

- FUJITSU Server PRIMERGY RX200 S6
- FUJITSU Server PRIMERGY RX300 S6

The solution

Experience and a comprehensive solution were key factors when selecting a partner to build the integrated virtual infrastructure.

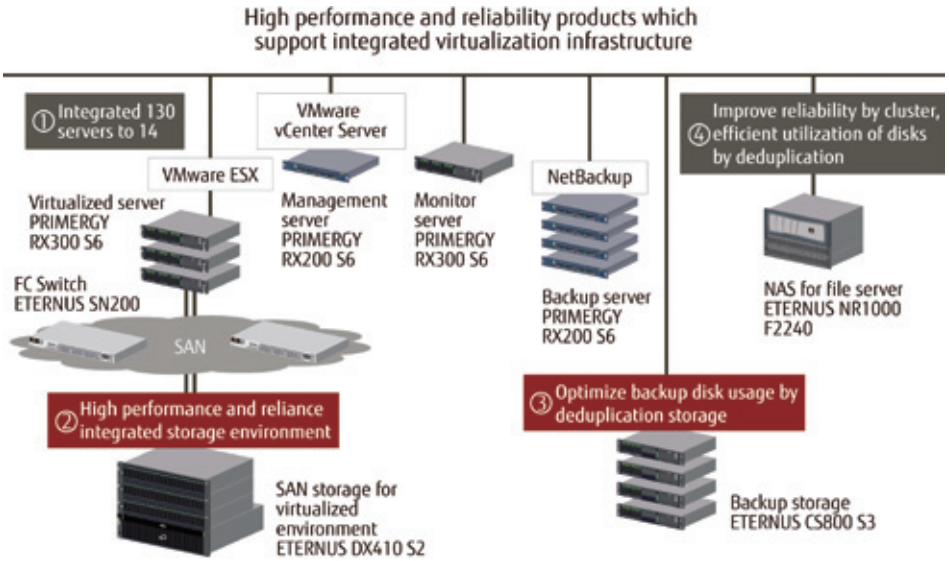
LIFE CORPORATION had around 40 systems each optimized for a specific business function including; attendance management, payroll management, finance and groupware. Over time as the number of servers incrementally increased so did costs and the complexity of managing the system. Furthermore as the amount of infrastructure continued to grow its ability to adapt to changing business environments declined.

Mr. Yasuhiro Yamane,
Section Chief in charge of Information System division, LIFE CORPORTION

"In the past when more storage was required for the dedicated servers in each business, we have had to stop whole the system. However with our approach of using next generation ICT infrastructure, system expansion can be completed flexibly without system interruption. In addition by optimizing resources and separating hardware and software operations, we have been able to drive down costs as well." stated Mr. Yasuhiro Yamane, Section Chief in charge of Information System division.

With an eye for the future, the company chose to adopt a server and storage solution that utilized virtualization technology. In 2011, LIFE CORPORATION issued an RFP (request for proposal) that detailed their requirements for an integrated virtualization infrastructure. From the vendors that responded to the RFP, Fujitsu was selected to partner with LIFE CORPORATION and construct the integrated virtualization infrastructure that would facilitate future planning. Mr. Yamane explained the reason for selection. "In addition to fulfilling all requirements, Fujitsu proposed a solution that was the most effective in generating cost reductions, and delivered high quality disaster prevention. Fujitsu was chosen based on their extensive proven performance and knowledge of VMware solutions. What's more, Fujitsu offered one-stop-support for the multi-vendor environment, providing us with a strong sense of security." Mr. Yoshihiro Sogabe, Section Chief of Information System division of LIFE CORPORATION said.

Mr. Yoshihiro Sogabe,
Section Chief of Information System division of LIFE CORPORATION



System overview

De-duplication and scalability takes priority when selecting the backup storage solution.

"We were concerned that the processing speed of servers in a virtualization environment would be less than with physical servers. We believed this would be due to I/O operational bottlenecks, and therefore one of our key requirements was high performance. In addition as the system was used by over 30,000 employees high reliability was also essential. In regard to functionality when selecting the backup storage solution, priority was given to de-duplication and scalability. Following the selection of the right infrastructure for our needs, migration to the new integrated virtualization infrastructure took place. This was undertaken through a staged approach in accordance with the replacement of the physical servers, while consideration was also given to scalability required in the future." said Mr. Shinji Takemura, Deputy Section Chief of Information System division.

Mr. Shinji Takemura
Deputy Section Chief
of Information System division,
LIFE CORPORTATION

Business benefits and future possibilities

Benefits exceeded expectations. ETERNUS CS800 S3 improved back-up efficiency by maximizing data compression to 90%.

Implementation of the integrated virtualization infrastructure solution for LIFE CORPORATION began in February 2012. A year and a half later and the system continue to provide strong performance and are delivering results that exceed expectations. "With the virtual solution in full swing we have managed to reduce capital investment costs by 37%, maintenance costs by 64%, and decrease utility and other operational costs by 44%, we also were able to reduced our environmental footprint by half" explained Mr. Yamane.

"By processing the system backup in the virtualized environment the data compression ratio can reach its maximum of 90%. The ETERNUS CS800 S3 back up of physical servers also ensures unified management of both system backup and data backup. Currently we are planning to use the remote encrypted replication function of ETERNUS CS800 S3 to develop a disaster prevention planning. We are confident that the high compression ratio achieved by ETERNUS CS800 S3 will allow us to control network costs." said Mr. Takemura.

In the past, LIFE CORPORATION has primarily used tape backup, however now with ETERNUS CS800 S3 they can reduce operation costs associated with of changing and storing the tapes. Within the new virtual infrastructure platform, the department's disparate servers have been integrated into the ETERNUS NR1000F[3] NAS storage device to improve operational efficiency. This is also supported by the integrated virtualization infrastructure ensuring disk capacity optimization using de-duplication, and clustering that provides high reliability.

Mr. Yamamoto talked about the future possibilities as follows; "Cost reduction is still our main focus. While Fujitsu supports the stable operation of our integrated virtualization infrastructure, we also rely on them for thought leadership and innovation around Big Data and any other initiatives that will drive our business".

Leveraging advanced technology and its extensive experience, Fujitsu will continue to support LIFE CORPORATION in their passion for social development and building trust for their customers.

3: ETERNUS NR1000 F series is a NAS product available only in Japan.

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Case Study
China Telecom

Fujitsu Server PRIMERGY and China Telecom set the platform for 4G network construction in China

The customer

Country: the People's Republic of China
Industry: Telecommunications
Founded: 2000
Employees: 312,520
Website:
http://www.chinatelecom.com.cn/

The challenge

China Telecom's testing environment was complex including a large server environment and a wide range of operating systems from Windows to SUSE Linux and various others. The testing project needed to be completed over a tight, uninterrupted, two year timeline to ensure it aligned with the 4G launch date. China Telecom needed a highly compatible platform solution that could provide stability to ensure the project proceeded smoothly.

The solution

Fujitsu proposed a total of 500 Fujitsu Server PRIMERGY RX100S7 and PRIMERGY RX100S7p due to the products high reliability and low power consumption. The durable and compatible PRIMERGY servers were able to deliver China Telecom a high performance solution that best fit their requirements for a stable platform that could support the 4G network tests. Additionally by reducing power consumption China Telecom could also drive costs down.

The customer

China Telecommunications Corporation (China Telecom) established in 2000, is China's largest state-owned communication company and is consistently listed in Fortune's Global Top 500. As one of the top 3 telecommunication carriers in China, they manage the world's largest fixed-line telephone network and China's 3rd largest mobile telecommunication service. Through numerous subsidiaries, China Telecom provides telecommunication services across 31 provinces of China, and in the Americas, Europe, and Asia-Pacific.
On March 31, 2011, China Telecom's integrated mobile network service "Tianyi" (meaning e- surfing) recorded more than 100 million mobile subscribers, making them the world's largest CDMA network operators. China Telecom Group also owns two large holding companies; China Telecom Corporation Limited, and China Communication Services Corporation Limited, which went public on the Hong Kong and New York stock exchanges.

The challenge

As 4G mobile networks became more and more popular around the world, the Chinese government recognized their importance and made sure upgrading the networks from 3G to 4G was a top priority. The Chinese government also started to focus heavily on constructing new 4G networks around the country.
As a leading telecommunication carrier, China Telecom began working with the government to accelerate the testing of the 4G mobile networks. However in order to obtain the 4G licenses required to launch new 4G services, the testing project needed to be completed within a strict timeline. This was a critical factor as the tight schedule meant there was no contingency to handle any serious issues that may occur. The testing project had to run without interruption for a two year period, if there was a system failure, the tests had to be restarted. This was made more difficult due to the size and complexity of China Telecom's ICT environment and the custom testing systems developed specifically for the project. The tests needed to be carried out over China Telecom's large ICT environment that consisted of thousands of x86 servers. Within this environment, the tests also had to communicate with various network management systems and business application software.

The benefit

- High stability and reliability over the 2-year testing period
- Increased performance for the different applications
- Compatibility for the multi-vendor ICT environment
- Reduce power consumption to decrease project costs

Products and services

- 500 x FUJITSU Server PRIMERGY RX100S7 / RX100S7p

Further compounded the difficulty of the project was China Telecom's wide range of operating systems, including Windows, SUSE Linux and various others, as well as the unique systems designed specifically to perform the testing.

The solution

As a result of this complexity, China Telecom identified the need for a highly durable and compatible system that could provide strong performance and consistent quality. In the end, Fujitsu Server PRIMERGY was selected as the ideal platform for the 4G network tests. China Telecom recognized Fujitsu for their experience and continued pursuit of advanced technology, quality and reliability. In addition, the environmentally friendly green design of Fujitsu's products also proved very positive, as it closely aligned to China Telecom's environmental strategy. Fujitsu proposed a combination of 500 PRIMERGY RX100S7 and RX100S7p servers. The solution strongly met the requirements set by China Telecom and delivered a highly reliable platform that also lowered power consumption.

The benefit

In total 500 PRIMERGY RX100S7 servers were successfully deployed across China Telecom's ICT environment in order to support the testing project. Following their implementation, the new platform soon demonstrated superior performance over other vendors, and achieved some excellent results:
Stability and Reliability: Over the two years the uninterrupted tests were completed running 24 hours a day, 365 days a year, with a zero failure rate. This result not only ensured the phased tests were performed to schedule with a high rate of stability, but also provided China Telecom with confidence in working with Fujitsu.

Excellent compatibility: the 4G test project could continue smoothly with the solid and reliable performance of PRIMERGY platform, even under such a complex environment that the PRIMERGY platforms needed to interact with various venders' hardware and software products.

Fujitsu Server PRIMERGY RX100S7 / RX100S7p

Reduced Costs: Fujitsu Server PRIMERGY RX100S7p offers outstanding energy efficiency. Leveraging this strength, China Telecom significantly reduced energy consumption and thereby was able to decrease the costs of the test project by approximately 100,000 RMB.

Conclusion

4G has become a top priority for all companies within China's communications industry, as such the government and the whole industry is paying close attention to the project. The Chinese governing body is expected to release the required licenses as scheduled to vigorously promote the construction of 4G networks.
The test project, utilizing the strengths of PRIMERGY, proved to be highly successful and paved the way for the construction of the 4G networks. PRIMERGY's leading technology and quality was recognized by China Telecom, and has resulted in a plan to invest more in not only the entry-level RX100 servers but in the high-end Fujitsu server PRIMERGY RX500 as well.
The compatibility and reliability of Fujitsu Server PRIMERGY ensured the trusted platform needed to support China Telecom's 4G network service was formed.

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Case Study
China Eastern Airline

Fujitsu ETERNUS DX80 S2 storage system safeguards the "Data Mart" Project for China Eastern Airline

The customer

Country: the People's Republic of China
Industry: Public Transportation
Founded: 1988
Employees: 59,872
Website: http://www.ceairgroup.com/

The challenge

Growing competition in the aviation market, has built pressure on China Eastern Airlines to launch their "Data Mart" project. This project is designed to discover new service opportunities, and drive customer service quality. However, such a vital, mission critical system needs a reliable storage platform that is flexible enough to adjust to future requirements. Additionally, the airline required a knowledgeable partner to provide expertise in service and support.

The solution

Fujitsu introduced the SAN network storage solution consisting of the ETERNUS DX80 storage system and Brocade 300 SAN fibre channel switch. Coupled with Fujitsu's strong service and support capability, this solution was able to provide the necessary reliability and security.

The customer

China Eastern Airline, headquartered in Shanghai, is one of the three largest air transportation companies in China. Listed in 1997 on the Hong Kong, New York, and Shanghai stock markets, its business scope focuses on passenger and cargo, air transportation services. This covers everything from public air transportation, and the production and sale of related products, to the maintenance of aviation equipment. In January 2010, China Eastern Air Holding Company possessed assets worth in excess of RMB 100 billion Yuan, and had over 60,000 employees.

With a fleet of more than 400 aircrafts, China Eastern has an extensive flight network extending to 1000 cities in 187 countries. Each year they serve nearly 70 million travelers and rank among the world's top 5 airlines in terms of passenger transportation volume.

The challenge

In the face of increasing competition in the aviation market, airlines are looking to more effectively forecast market shifts and gain a greater understanding of customer needs. In particular, they see the key to gaining a competitive edge will be to offer individual services. China Eastern Airline quickly identified that to achieve this they would need to construct a system that would improve their commitment to customer service quality. As such, the "Data Mart" project was launched to enhance their ability for market analysis.

The "Data Mart" project is intended to discover new service business opportunities. This would be possible through analysis of the enterprise database for scheduling, services and productions, together with customer information that is to be collected. For this reason, a reliable storage platform with high-performance and high-availability was required to support effective data storage, analysis and application.

China Eastern Airline needed to be sure that the right, partner was selected. Since they planned to adopt the ORACLE data warehouse solution to help construct the "Data Mart" project, China Eastern Airline knew having a trusted partner, knowledgeable of the ORACLE solution, would be essential. They also realized the importance of meeting the various requirements for security, reliability, integrity, and high availability for effective data transmission to the data center.

The benefit

- High reliability for the "Data Mart" through the powerful data protection technology.
- Increased flexibility produced from the storage platform's redundancy features and expandability.
- Increased security with strong disaster recovery mechanisms protected by the data safe.
- Energy conservation design reduced TCO.

Products and services

- FUJITSU Storage ETERNUS DX80
- Brocade 300 SAN FC Switch
- Fujitsu professional support capability and service

The solution

In consideration of China Eastern Airline's need for a stable and efficient storage platform, Fujitsu proposed the SAN network storage solution. This solution is based on the ETERNUS DX80 S2 storage system and Brocade 300 SAN FC Switch, and ensures reliable data transmissions in real-time. Fujitsu also made certain of a smooth implementation of the "Data Mart" project based on Fujitsu rich experience of ORACLE database.

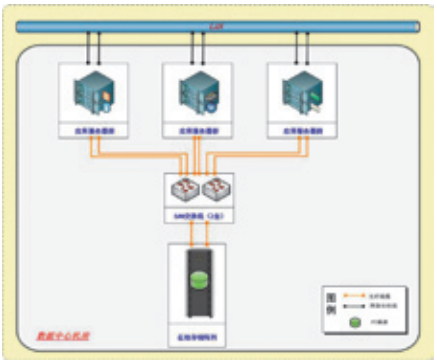
Security of the system is reinforced using Fujitsu Block Guard technology. At the same time, in case of power outages, Fujitsu storage provides Cache Guard to protect cache data during power loss through writing it to hard disk. Furthermore, Disk Drive Patrol technology has also ensures data consistency by regularly checking drives.

ETERNUS storage systems are designed with full redundancy configuration and online capacity expansion. While the 4 Gbps fibre channel switch has also been adopted to connect controller with the independent disks. This mechanism can automatically detect and isolate faulty disks and then reduce the impact on system usability as a result of disk failure. Compared to the general disk series connection, this not only improves the systems reliability, but also reduces the risk of disk error.

The Benefit

For China Eastern Airline the ETERNUS storage system meant that they could effectively implement the "Data Mart" knowing it would be reliably supported. With the high reliability of the system the Airline was able to depend on the real time information and quickly respond to the competitive market demands. Moreover, ETERNUS's complete redundancy and ability to easily expand, significantly improved the systems availability and flexibility.

The cost effective disaster recovery function based on the SAN network storage solution and the RAID level 6 scheme also allowed China Eastern Airline to reduce costs while at the same time increasing the effectiveness of their data security for high-availability systems. This provided a further protection for the airlines rapidly growing data.



The storage system's unique energy conservation protection design, powerful expansion function and use of virtualization technology, also proved to be very important to China Eastern Airline. With these capabilities the new "Data Mart" is reducing their TCO by lowering energy consumption, operational costs and maintenance, while extending the solutions life cycle.

Conclusion

Fujitsu Storage ETERNUS DX80 S2 built a highly efficient connection between the mission critical system and the storage equipment. Through the flexibility of the solution, China Eastern Airline are now able to prepare and plan for future expansion, and the "Data Mart" project has ensured that data is reliable and can be effectively used. Equipped with Fujitsu Storage ETERNUS DX80 S2, as well as Fujitsu's support and services, China Eastern Airline can now easily facilitate their customers' needs and make changes as required in the fast paced, dynamic market.

About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. Approximately 170,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE:6702) reported consolidated revenues of 4.4 trillion yen (US$47 billion) for the fiscal year ended March 31, 2013.

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Case Study
Anhui Jianghuai Automobile Co., Ltd.

»Underpinning the Enterprise Resource Planning (ERP)system with powerful ICT infrastructure has guaranteed data security and business continuity«

Mr. Shao, Project Manager, Anhui Jianghuai Automobile Co., Ltd.

The customer

Country: the People's Republic of China
Industry: Manufacturing
Founded: September 30,1999
Employees: 17,000
Website: http://www.jac.com.cn

The challenge

As JAC's Baan ERP systems and databases continued to expand with the growth of the business, the current infrastructure made up of 2 sets of Unix servers and 2 sets of mid-range storage systems, struggled to meet the business needs. It soon became vital to maintain a competitive position in the market for JAC to upgrade or replace the hardware used for their ICT infrastructure platform.

The solution

Fujitsu worked closely with JAC to develop a tailored solution aimed at improving ERP system performance, data protection and business continuity. The customized infrastructure upgrade constituted of 5 servers, 2 storage systems and 2 fiber switches. The new ERP platform now has the performance to provide every JAC department with a unified service.

The customer

Anhui Jianghuai Automobile Co Ltd. (JAC), was originally established In 1964 as Hefei Jianghuai Automobile Factory and in 2001 was listed on the Shanghai Stock Exchange. As one of the key enterprises involved in China's National Torch Program, designed to advance development across high tech industries, JAC sold over 460,000 cars in 2011 and has grown by over 40% in the past 21 years. In 2011, JAC's total revenue reached RMB 34.7 billion (USD 5.7 billion).

The challenge

The pervious JAC ICT environment consisted of two Baan ERP systems implemented on two separate platforms made up of Unix servers purchased in 2004. As the database and Baan ERP systems grew with the business, the hardware struggled to support its needs. This heavily impacted reaction times of the system, and consequently created problems with data sharing and the speed of the reporting process. Both systems had been designed with a hot standby structure, which created further stress on performance and capacity as the system strived to work around the clock to meet the increasing business requirements. Storage was also becoming a major concern as the two mid-range storage systems that were part of the environment had reached 90% capacity and were increasing at 2% per month.

The solution

With a focus on improving ERP performance, data protection and business continuity, Fujitsu proposed a tailored solution to meet JAC's current and future business needs. In consideration of storage capacity and future system scalability, two Brocade switches and two Fujitsu Storage ETERNUS DX440S2 severs were added to the environment. By connecting the SAN fiber switches to the disk arrays and the database servers, JAC created an FCSAN system that allowed JAC to share network storage disk space. Once the new hardware had been implemented, the existing ORACLE 10G RAC databases were then deployed on the FCSAN framework, enabling database clustering and load balancing. Furthermore, to improve business continuity and safeguard the new FCSAN structure, volume imaging software was deployed to mirror the relationship between the two DX440 storage systems. This made sure that every I/O reached the controller of the two storage systems through two host channels and that only when both returned correct I/O results was the operation deemed complete. As a result data contained in the DX440 system is consistent, avoiding any data loss or interruption to performance.

The benefit

- Improved reliability of the ERP system through infrastructure with greater performance and stability
- Improved efficiency and reduce management costs with centralized data management
- Increase data security through remote backup and distributed backup functionality
- Enable uninterrupted business operations, even during unforeseen issues
- Improve accuracy of information and accelerate decision making capabilities to become more competitive in the changing market landscape

Products and services

- 2 x FUJITSU Storage ETERNUS DX440S2
- FUJITSU Storage ETERNUS SF AdvancedCopy Manager

The benefit

For JAC, the biggest concern was the reliability of their ERP systems. However with the high-performance of Fujitsu Storage ETERNUS DX440S2, they were able to develop an extremely stable data storage infrastructure that could accommodate rapid increases in data and expand with their business growth. JAC were also very impressed with the scalability of Fujitsu Storage ETERNUS DX440S2 as it allowed them to adapt to their changing business environment. With free selection and a combination of modular disk storage, managing the requirements for rapid data increases was made easy. Furthermore, expansion was completed without interruption to the business as the ERP system remained online during the process.

Increasing data security was another key element to establishing the reliability needed from the new solution. Leveraging the remote backup and distributed backup functions of Fujitsu Storage ETERNUS DX440S2, as well as its spare fault tolerance, JAC ensured the system could quickly recover from any downtime and provide greater protection against unexpected disasters. With the new system design structured to focus on fault resistance, double backup and multi-backup functionality eliminated the impact of single points of failure and guaranteed business continuity.

With the previous distributed storage systems, JAC had difficulty effectively managing the increasing amounts of data and new requirements resulting from rapid business growth. Data was either being processed manually or disparately entered into the system at various points. However after introducing the highly reliable Fujitsu Storage ETERNUS DX440S2 system, JAC can now centrally manage this data, support multiple platforms, and automate processing. This has ensured that not only has efficiency in the work place improved, but management costs have been reduced as well.

To ensure JAC could keep pace with the ever changing competitive environment, they need to be able to react quickly with accurate information that will drive business development and profit. By closely integrating the new Fujitsu storage solution with the rest of the ICT

Fujitsu ETERNUS

environment, it supports management decision making with real-time data and a greater level of data transparency and accuracy. For JAC management, this fast access to reliable information has been essential in becoming more proactive to changes in the market.

Conclusion

The ERP platform upgrade solution was developed following repeated discussions between Fujitsu and JAC regarding their reliability needs and current system challenges. Together they designed a solution to specifically meet the requirements of JAC now and in the future. The implementation proved very successful and as a result has reinforced JAC's trust in Fujitsu's solutions products and expertise. JAC is confident that with Fujitsu's support they can continue to grow their business using the power of ICT.

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Case Study
NAVINFO Co., Ltd.

»The high performance, flexible and efficient Fujitsu Storage ETERNUS DX series provides NAVINFO the ideal storage platform to accommodate rapid data growth«

Mr. Zhang, Project Manager, NAVINFO

The customer

Country: the People's Republic of China
Industry: Navigation Information Services
Founded: 2002
Employees: 1000+
Website: http://www.NAVINFO.com/

The challenge

NAVINFO Co., Ltd. is China's leading provider of digital map and related services. For NAVINFO, the accumulation of data and effective data management are essential to the business. However, with rapid business growth and an increase in demand for more accurate and timely information, NAVINFO faces challenges with ever expanding volumes of data and risks associated with data loss. NAVINFO recognized a highly reliable IT platform with high I/O performance would be necessary to continue to provide quality services to its customers. The platform would also need to be flexible enough to expand with future business growth, and at the same time remain cost effective in optimizing storage investment.

The solution

NAVINFO selected the Fujitsu Storage ETERNUS DX440 S2 solution, connected to the FC SAN network made up of 2 Brocade switches via the FC redundant link. The solution, which already demonstrated high performance during its SPEC benchmarking (evaluation for overall system performance), was implemented into the customer's data center following a strict POC study for compatibility with other vendor products. NAVINFO identified Fujitsu Storage ETERNUS DX440 S2 as the best fit for its business needs.

Customers

NAVINFO Co., Ltd., headquartered in Beijing, is China's leading provider of digital map, dynamic traffic information and vehicle network services. It is also the first Chinese map producer to develop a commercial application for dynamic traffic information. With over 10 years' experience in map navigation production, NAVINFO has led the Chinese market for 9 consecutive years, and has controlled the Chinese mobile phone map market for 5 consecutive years with over 50% market share. Additionally NAVINFO is a leader in Personal Navigation Devices, Location Based Services, Internet Based Map Services, Traffic Information Services and Intelligent Telematics Services.

The challenge

NAVINFO now offer services to companies in 22 cities, including Beijing, Shanghai, Guangzhou, Shenzhen, Hong Kong and Macau. NAVINFO also provides services across almost all major international automotive manufacturers in China including Toyota, Honda, Nissan, Benz, VW, and GM. However, with rapidly growing needs for accurate and timely data, the company is facing a number of key challenges:

Data security

NAVINFO holds China's largest high-quality digital map database, and as of August 2011, had collected map data covering over 2.32 million km's of road. This detailed map data, spanned 2,847 counties, cities and districts nationwide, with more than 13.5 million Points of Interest (POI) matched to the road network. For NAVINFO, this data is a critical part of its business. However data loss became a serious risk as the large amounts of data were getting more and more difficult to store and manage. NAVINFO recognized a highly reliable IT platform with high I/O performance would be necessary to continue to provide quality services to its customers.

Ever expanding data

Based in Beijing, NAVINFO established a system that collected, updated and distributed digital map data across the whole country. The system was constantly updated with real-time traffic data and comprehensive geographic information based on static map data. This allowed various users to access digital map information quickly from their mobile phones, computers or GPS devices. However, as data was continuously collected, updated and distributed, NAVINFO knew their storage requirements would differ depending on the type of data and how frequently it was accessed. As such, NAVINFO realized they needed a flexible and scalable data storage solution.

The benefit

- Increase system reliability and ability to seamlessly manage and protect data during rapid growth
- Increase system flexibly to scale with business data requirements
- Increase data management efficiency with storage tiering
- Improve energy efficiency and data center operations with environmentally friendly green IT products

Products and services

- FUJITSU Storage ETERNUS DX440 S2
- Brocade Fiber Channel Switches

The solution

Based on NAVINFO's requirements for high I/O performance, high reliability and high scalability, Fujitsu proposed the ETERNUS DX440 S2 storage system to support backend operations at the data center. With an incredible MTBF (Mean Time Between Failure), ETERNUS delivered NAVINFO the reliability they required. And having achieved an outstanding SPC benchmark result, ETERNUS DX440 S2 demonstrated its proven performance. After completing a strict POC for compatibility, NAVINFO decided Fujitsu Storage ETERNUS DX440 S2 was the best fit for its business.

The benefit

High performance, reliability and compatibility

The ETERNUS DX400 S2 series with Intel® Xeon® processors is purpose-built for data centers and virtualized environments. ETERNUS series' leading architecture provides NAVINFO with outstanding performance. The system's ability to easily support and integrate with other vendor's solutions was vital for NAVINFO to store and access large and various data seamlessly.

Scalability and flexibility

The major design principles of ETERNUS DX are its compatibility and modularity. For NAVINFO, the ETERNUS system was able to support their need for a capacity-intensive environment, while at the same time, its non-disruptive capacity upgrades, ensured they could simply add disk space to scale up when the business required it.
The combination of this and ETERNUS DX's flexibility ensured NAVINFO could develop and implement a cost effective storage structure. With the continual rapid growth of data, ETERNUS DX formed a highly optimized balance between cost performance and capacity.

Green IT products for Corporate Social Responsibility (CSR)

Due to China's significant business growth, Corporate Social Responsibility (CSR) has become increasingly more important for all enterprises in China. One of NAVINFO's core objectives in the renovation of its ICT system was to reduce energy utilization and pollution by using the ICT environment to operate the GPS solution and car network system. As the extremely energy efficient Fujitsu Storage ETERNUS DX solution is equipped with a compact design and an ECO-mode (hard disks automatically shut down after a defined idle period), NAVINFO not only reduced energy consumption, but heat generated in the data center as well. In doing so, NAVINFO achieved its CSR goals with a greener data center environment.

Conclusion

NAVINFO strives to provide a better driving experience for motorists with complete Intelligent Transport System services. The CEO has a clear vision for the company, to become the number one provider of fully integrated Intelligent Transport Systems in China. Specifically NAVINFO wants to expand into new markets by strengthening existing digital map services, focusing on Big Data utilization and provide better services that leverage existing digital data content.
With the implementation of ETERNUS DX, NAVINFO created a high performance, highly reliable, flexible and scalable storage platform that is building a solid base for future growth.

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Case Study
President Chain Store Corporation (PCSC)

PCSC operates Uni-President Enterprise Corp.(UPEC)'s chain store business in Taiwan, and effectively controls the retail businesses of Uni-President Group. Working with PCSC, Fujitsu fully understood their requirements and successfully deployed a cloud infrastructure

The customer

Country: Taiwan, Republic of China (R.O.C)
Industry: Retail
Founded: 1978
Employees: 6,300
Website:
http://www.uni-president.com.tw/04business/departments02-2.asp

The challenge

PCSC faced a costly and complicated ICT integration encompassing various business groups, across a wide range of business functions. To accommodate the changing business environment and to plan for the future, PCSC required a platform that was flexible and could expand with growing needs. Furthermore the environment needed to be highly available and provide business continuity by avoiding interruptions to the system.

The solution

Based on PCSC'S existing PRIMERGY server, the cloud infrastructure could be easily deployed on additional Fujitsu PRIMERGY BX400 servers and Fujitsu's ServerView Resource Orchestrator (ROR). ROR was also able to support the necessary High Availability (HA) requirement, while overall the solution reduced total cost of ownership and provided a platform for future expansion.

The customer

Uni-President Group is the largest food production company in Taiwan, as well as the largest drink manufacturer and third largest instant noodles supplier to China. Now it has become one of the largest international food conglomerates in Asia with more than 230 enterprises and a total revenue of NTD 388 billion (USD 13 billion) in 2011.
Uni-President Enterprises Corp. (UPEC) established the President Chain Store Corporation (PCSC) in 1978 to introduce 7-ELEVEN convenience stores into Taiwan. Following which, PCSC was able to successfully introduce other well recognized global brands, including Starbucks, Cold Stone, Mister Donut, MUJI, Yamato home delivery/collection services and more. PCSC runs more than 5100 retailing shops, with revenue of more than NTD 120 billion (USD 4 billion). At the same time, PCSC also successfully expanded its retail business models to other Asian markets like China and the Philippines.

The challenge

PCSC is the leading retail business under the Uni-President Group. Other businesses within the PCSC group include Taiwan Business Group, Food & Beverage Business Group, Retail Business Group, and China Business Group, as well as other subsidiaries within each group. Under this complicated structure, PCSC was tasked with integrating ICT resources of each business within their group. This involved integrating up-stream and down-stream business processes within, and outside of, the company, across a range of functions including real and virtual shops, logistics, manufacturing, and other various backend services. PCSC immediately realized that this task would involve significant resources to manage the diversified ICT assets.
Another difficult challenge PCSC identified was that due to the dynamically changing business environment, each business group would need to be able to deploy IT resources flexibly and rapidly. PCSC wanted a reliable ICT architecture at a reasonable cost that would accommodate plans for future expansion.
High Availability (HA) architecture, that included a clustering function, was recognized by PCSC as one aspect that would be necessary to ensure business continuity and avoid business loss from interruptions to ICT systems. PCSC were determined to take a more strategic approach to this challenge rather than simply deploying a few spare servers in each business group.

The benefit

- TCO saving leveraging existing ICT assets, space and energy saving
- Easy and faster management of physical and virtual resources through ROR cloud management system.
- High availability with N + 1 auto-recovery
- Established a scalable cloud infrastructure for the IaaS platform offering dynamic resources management in the future.

Products and services

- FUJITSU Server PRIMERGY BX400 with FUJITSU ServerView Suite
- FUJITSU Storage ETERNUS DX60
- Fujitsu ServerView Resource Orchestrator (ROR) for cloud management
- Fujitsu's professional service capability to deploy virtualization and cloud environments

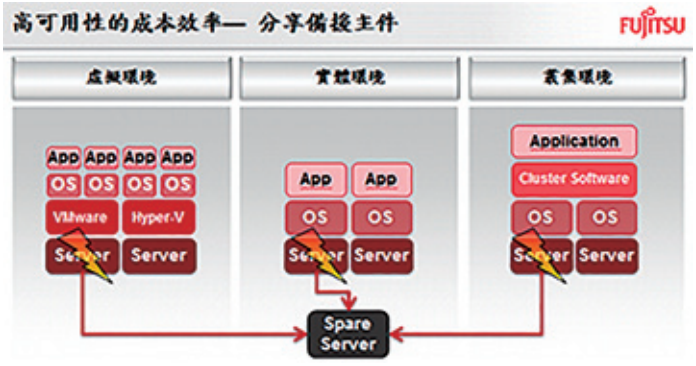
The solution

Fujitsu recommended that PCSC build an IaaS private cloud solution. PCSC had already deployed the high performance, reliable PRIMERGY BX400 blade servers as part of their application and database server infrastructure in 2011. As such, Fujitsu proposed adding another 4 blade servers to maximize the performance and consolidate the existing servers at the same time. Plus with the implementation of Resource Orchestration (ROR) PCSC could successfully establish a dynamic cloud infrastructure. This not only met the HA requirements, but also provided foundations for a private cloud environment in the future.

The benefit

Reduced Total Cost of Ownership (TCO)

Based on existing PRIMERGY assets, this project consolidated all Intel-based x86 servers into 7 standardized PRIMERGY BX400 blade servers, including 1 spare server, within a single chassis. As a result of using a high-density server structure, Fujitsu's unique green IT design and ServerView Software Suite, have saved space and energy. Coupled with a centralized and easy to manage environment, PCSC is seeing significant reductions in the Total Cost of Ownership (TCO).

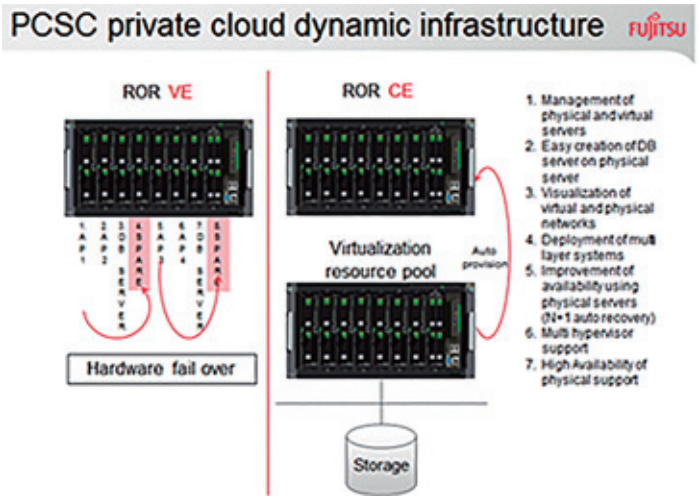


High Availability

The installation of Resource Orchestrator (ROR) enables PCSC to integrate physical servers underlying the IT infrastructure. ROR manages the complicated physical and virtual resources via a unified user interface. This feature quickly solves hardware failover problems in the physical, virtual and clustering environments with the auto recovery support function.
For instance, WWn and MAC is transferred to the shared spare server during a hardware failure.

Automation and scalability for the future

This deployment also established a foundation for dynamic and automatic future resources to be assigned via the IaaS cloud infrastructure. For instance, the dynamic resource management of the physical server pool, virtual server pool, storage pool, network pool and OS image pool can all be supported by ROR. Auto provision is a key feature of Fujitsu's cloud management tool, enabling it to deliver a logical server from the resource pool within 30 minutes. Additionally, this resource can be automatically returned to the pool for reuse when the job is complete.



Conclusion

Fujitsu has constructed an infrastructure which not only meets PCSC's requirements for High Availability but also provides steps to the cloud: standardization, virtualization, and automation. Now PCSC uses the same IaaS technology used in Fujitsu Global Could Platform (FGCP) centers worldwide. Furthermore, based on professional support from our experienced teams, Fujitsu confidently works with PCSC to reshape their ICT as they begin the journey into the cloud.

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Case Study
Tri-service General Hospital

The Tri-Service General Hospital (TSGH) provides clinical treatment and conducts training and research programs under the jurisdiction of the National Defense Medical Center (NDMC). Fujitsu understood their needs and helped to realize a solid platform for future medical cloud environments

The customer

Country: Taiwan, R.O.C
Industry: Healthcare
Founded: 1946
Employees: 2,826
Website: www.tsgh.ndmctsgh.edu.tw/

The challenge

Tri-Service General Hospital (TSGH)'s current hardware infrastructure platforms are close to end of life. As a result, data access performance has deteriorated, and maintenance support for parts is difficult to obtain. The hospital was also focused on progressing the electronic medical records exchange program. They needed to figure out how to secure data storage and design the disaster recovery program for the continuously increasing amount of medical data.

The solution

Fujitsu proposed to replace the existing HP Integrity Superdome with Fujitsu's PRIMERGY RX200 S6, RX600 S6 creating an open environment, while using Microsoft Hyper-V for virtualization. Fujitsu Storage ETERNUS DX440S2 and the ETERNUS SF ACM storage management software also used for synchronized backup between the machine rooms at the hospital site and the backup site by the remote data replication function. In addition, Fujitsu Storage ETERNUS CS800, the data duplication equipment, is adopted to improve and enhance the function and performance of the backup system.

The customer

The Tri-Service General Hospital (TSGH) was established in 1946. It is a teaching hospital under the jurisdiction of the National Defense Medical Center (NDMC). The Hospital provides clinical treatment to military servicemen, patients with medical insurance, and the general public, while also conducting training and research programs. For many years, the hospital has been rated by the Department of Health as a first-rate teaching facility and medical center.

In order to cope with a rapidly changing medical environment and improve military medical education and operations, it decided to construct a new central facility in 2000. This new facility would consolidate existing local hospitals, enhance operational proficiency, and expand medical service areas. Currently the hospital employees 2826 people, offers 1,712 hospital beds, and provides consultation to an average of 5000 outpatients, 250 emergency patients, and 2000 inpatients daily.

Seeking to continuously improve medical treatment and keep up with future development, the hospital has established a number of new centers while consciously investing in the latest equipment. Some of the new centers include a PET center, Women Health Center, Hemophilia Care & Research Center and a Traditional Chinese Medicine Department.

The challenge

In conjunction with moving to the new facilities, the hospital management wanted to enhance its business processes by underpinning them with the latest ICT technology. Along with the new equipment the hospital saw that the effective use of ICT technology would improve efficiency and the quality of medical service.

Current server and storage hardware platforms had reached end of life. In particular the Itanium chipset was almost no longer used and support and maintenance for parts was not easily available. Not to mention system performance was entirely insufficient. It became TSGH's top priority to find a new infrastructure platform that could meet their high performance requirements.

Furthermore to maintain their ranking with the Department of Health

The benefit

- Total cost of ownership (TCO) was reduced with the new infrastructure solution and virtualization environment.
- Increased performance delivered through the new Fujitsu infrastructure.
- Improved reliability through increased business continuity, high-availability, and improved back-up management of the disaster recovery design.
- Efficient and rapid back up via the de-duplication function

Products and services

- 14 x FUJITSU Server PRIMERGY RX200S7 for applications
- 2 x FUJITSU Server PRIMERGY RX600S6 for database
- 2 x FUJITSU Storage ETERNUS DX440S2 with disk array management software ETERNUS SF ACM for DR solution
- 1 x FUJITSU Storage ETERNUS CS800 S3 VTL for de-duplication with VTL technology for data backup acceleration
- 2 x Brocade 300 and 2 Brocade 5300 for Fibre Channel SAN Switch
- Microsoft Hyper-V for virtualization environment

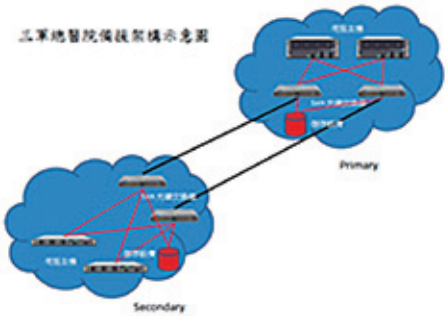
as one a first-rate medical facility, TSGH were pursuing an implementation of an electronic medical records exchange program. As a result, they required a secure data storage and disaster recovery solution that could handle the ever increasing medical records database.

The solution

Fujitsu proposed to replace the existing platform products, and adopt centralized management and distributed computing via Hyper-V virtualization technology. This migrated data from the previous UNIX architecture to a new Windows OS platform.
The following was proposed for the new ICT infrastructure:

1. Migration and consolidation: Migrate and build up the DB and App server platforms using 14 Fujitsu PRIMERGY RX200S7, 1U industry servers and 2 units of Fujitsu RX600S6 high-end servers.
2. Virtualization solutions: Install Microsoft Hyper-V as s a hypervisor and virtualization management tool.
3. Disaster Recovery solution using Fujitsu's reliable ETERNUS DX440S2 storage systems and ETERNUS SF ACM for backup management software across different sites.
4. Data de-duplication solutions using Fujitsu ETERNUS CS800 S3 Virtual Tape Library (VTL) for advanced data de-duplication requirements.

The benefit



Total Cost of Ownership (TCO) was reduced by replacing and migrating from HP's Integrity Superdome (Itanium chips) to PRIMERGY servers via Hyper-V virtualization solutions. The migration from HP-UX architecture to Windows OS architecture lead to cost-savings from server consolidation, ISV and IHV support for Itanium platform and installation of Windows server OS. This consolidation also protected existing assets and meant no further education investment was needed as users were familiar with Windows products. The users don't have to learn Linux to use the new environment.

Moreover, the new infrastructure based on PRIMERGY servers, equipped with a high-performance Intel Xeon chip, together with the proven performance of ETENUS DX440S2 storage systems, delivered all round superior performance. Plus the flexibility provided by Hyper-V, ensured the cloud infrastructure for future expansion was available as well.

Disaster Recovery solutions based on ETERNUS DX440 S2 and ETERNUS SF ACM provide a synchronized data backup function by remote data replication function. This occurs between machine rooms at the primary site and secondary recovery site. Not only does this enhance the High-Availability and improve back-up management, but it also ensures business continuity in case of a natural disaster, or man-made impacts including infrastructure failure.

Finally, Fujitsu's ETERNUS CS800 S3 VTL established efficient data backup via the de-duplication function. This function eliminates duplicate copies of data, increases backup capacity, and accelerates the process. At the same time, server virtualization by Hyper-V also made more efficient use of ICT resources. In this way the functionality and performance of the system were further improved and enhanced.

Conclusion

This project replaced the existing platform products, and realized a centrally managed and distributed computing architecture via Hyper-V virtualization technology. The solution also allowed for confidential data to be smoothly migrated from a closed UNIX platform to an open Windows and Linux platform. All of which have established a base for upgrading to a cloud environment, and made it easy to deploy a healthcare cloud with the electronic medical record system in the future. Teamed with Fujitsu's professional support and experience , Tri-Service General Hospital can embark on their journey to the cloud.

In collaboration with

COMPANY COMPANY

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CS-APAC-2014-01