



SANGFOR HCI

Case Study Folder

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Innovating to establish a simple, stable, secure and easy cloudification IT infrastructure, dedicated to making IT more valuable and creative.



Sangfor HCI Introduction

The form of data center is evolving as information technologies advance. It's been nearly 80 years since the invention of the world's first computer, and the world has been changed since ever. From mainframe, minicomputer, physical x86 servers to virtualization, private cloud and public cloud, the landscape of IT is now more diversified than ever before. Software-defined infrastructure has now become mainstream in data centers across the world to support digital application.

Among all the software-defined infrastructure architectures, hyper-converged Infrastructure(HCI) is no doubt the simplest form. By consolidating compute, storage, virtualization and management into a single layer of infrastructure, HCI radically reduces data center footprint and simplifies IT operations & management. Unlike traditional HCI that mainly focuses on storage and compute, Sangfor HCI pushed the boundary further by also converging networking and security into the software stack to realize a full-featured software-defined data center. In addition to the flexible infrastructure resource pool, Sangfor HCI also added a variety of features to protect the workloads running atop. It has built-in backup, integrated CDP and DR, distributed firewall and optimized virtual security appliances to ensure the reliability and security of businesses.

Going beyond infrastructure, Sangfor also offers its self-developed cloud management platform and Kubernetes-based container orchestration platform to transform its HCI into a digital platform. With the capability of keeping evolving, HCI is capable to realize more possibilities for business in the digital age.

Tested and proved by the market, Sangfor HCI has won widespread customer recognition around the globe. Institutions across all verticals rely on Sangfor HCI and SCP to run mission-critical businesses with agility, availability, flexibility and security. By reducing the entry threshold for SDDC and cloud, Sangfor opens the gate for all sizes of customers to adopt the most advanced software-defined technologies for business success.

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MANUFACTURING



ART Serina Piston_DYNA Metal



Customer Overview

ART Serina Piston & DYNA Metal are both factories under SERI-WATHANA ENTERPRISE, providing pistons, bearings and other components to major automobile companies. As a Japanese joint-venture, many of their customers are Japanese companies.

Challenges

As a manufacturing enterprise providing components to top Japanese companies, buyers require top quality products and an top-tier production line.

In recent years, their traditional server + SAN structure caused a number of accidents including flood damage to the main production link and system, that affected the quality of the production line.

To build a stable production system, their IT team required:

- A highly stable and available local system
- A method to quickly and easily restore business when main data center is down

Solutions

Based on customer requirements, Sangfor provided a fully customized HCI solution.

- Replaced legacy infrastructure with SANGFOR HCI , providing stability with DRS, DRX and HA features
- Built a DR solution in two factories, with system failover between 2 sites, to reach maximum business continuity
- The whole solution comes from single vendor, reducing the complexity of the structure and management

Executive Summary

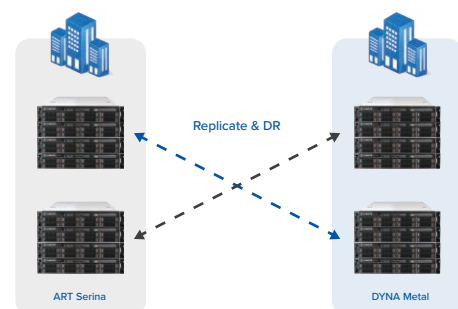
- Customer: ART Serina Piston & DYNA Metal
- Industry: Manufacturing
- Location: Thailand

Challenges

- Traditional server infrastructure lack of stability and complex in management
- Lack of disaster recovery plan

Sangfor Solutions

- Sangfor HCI



Global Business Power Corporation



| Customer Overview

Global Business Power Corporation (GBP) is a leading energy company (Top-3) in the Philippines, producing high quality, reliable and cost-efficient power supplies through five subsidiaries and ten power generation facilities nation-wide.

In 2017, GBP decided to refresh its data center infrastructure by searching for a reliable, scalable, redundant and secure data center environment. Their legacy setup was not meeting the business requirements of hardware redundancy, auto backup, disaster recovery, disaster recovery simulation and ease-of-management.

| Challenges

Managing multiple sites is complex. In each data center, there are many devices from various vendors. Computing virtualization was from VMware, switch and router from Cisco, and storage and physical server were from Dell. IT admin were required to simultaneously open many tabs to monitor all devices. Troubleshooting required administrators to physically visit the server room, as all devices ran independently.

GBP's business system contenuity was weak, with no HA in place. During peak hours vGBP saw a rise in access requests from end users and core business systems like IBM Maximo or EDMS, which their legacy system was unable to handle. There was also no failover or accident-triggered mechanism to keep business running in the event of a power outage or accidental disk plug-out. Because DRS functions require an enterprise license, resources could not be expanded automatically if a virtual machine encountered a insufficient resource issue.

Data was not well-protected, taking five days to restore application functionality (RTO=5 days). IT admin needed to troubleshoot defective systems remotely the with help of local IT admin. The amount of data lost during network downtime was far too high. IT admin were forced to copy data from storage to tape each month as a backup, causing many issues.

First, tape backup is a lengthy process, as this technology isn't capable of high speed writing. Secondly, the tape was incapable of backing up updated data, requiring IT admin to backup all data every month. Thirdly, due to a lack of disaster recovery mechanisms, IT admin were forced to fly to deliver the tapes to various sites every month, so that the plants could load the tapes when necessary. Therefore, RPO was between one week to one month, which proved to be far too long.

| Executive Summary

- Customer: Global Business Power Corporation
- Industry: Manufacturing & Natural
- Resources
- Location: Philippines

| Challenges

- Managing multiple sites is complex
- Continuity of business system is weak
- Data is not being well-protected

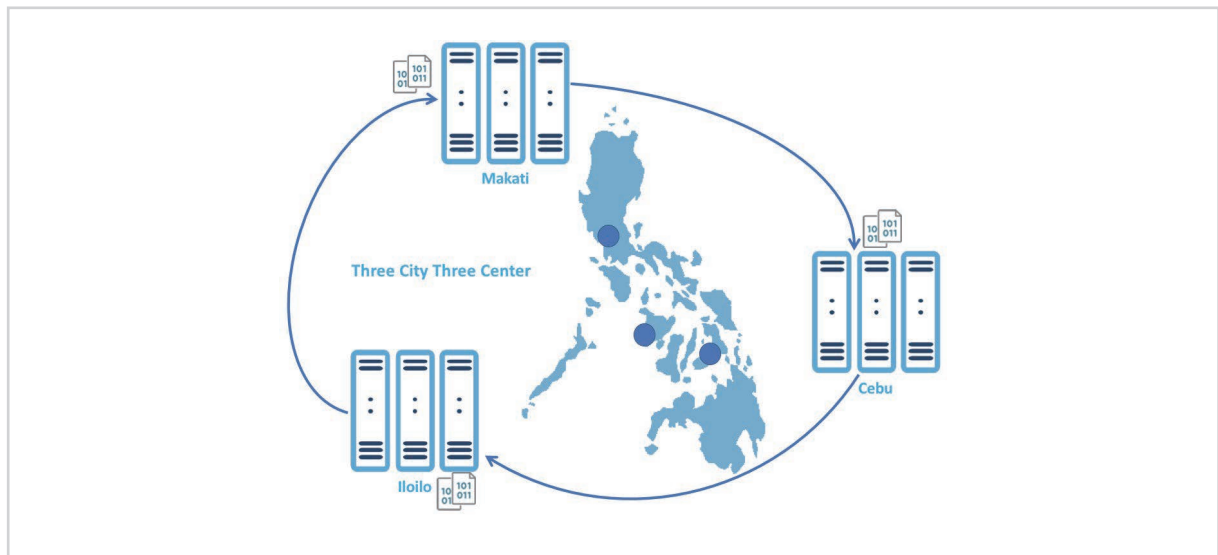
| Sangfor Solutions

- Sangfor HCI

| Sangfor Solution

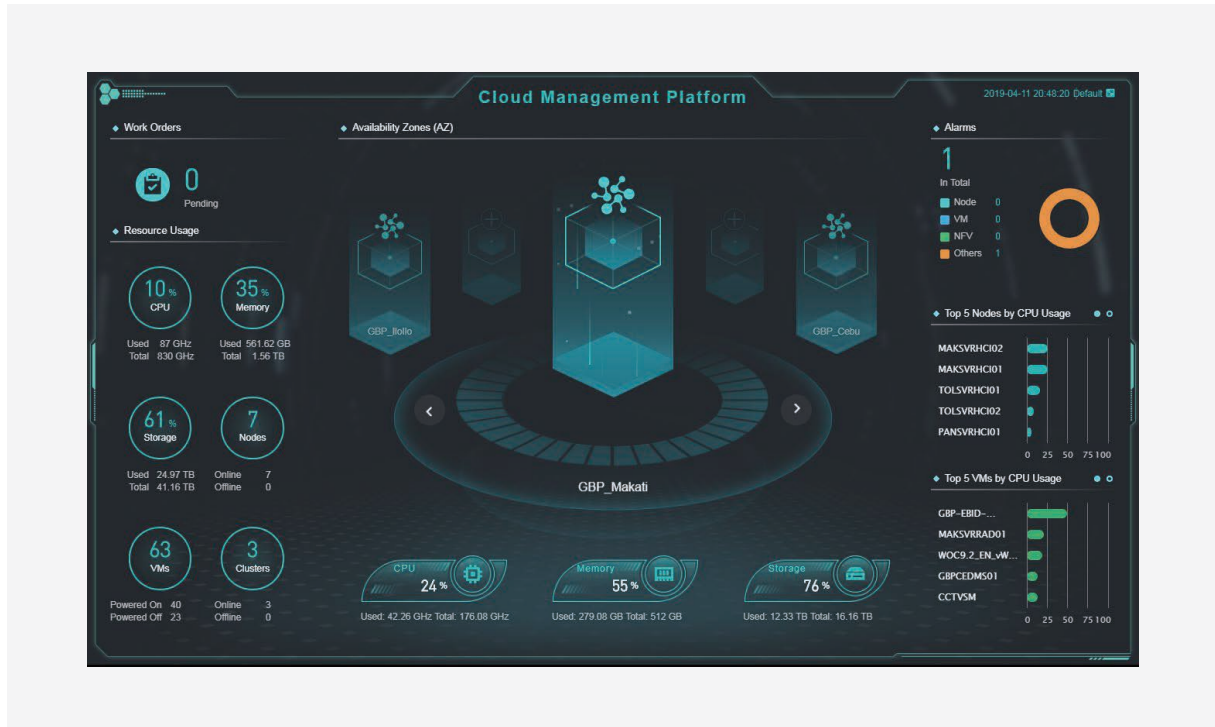
The ideal solution must be stable, easy to manage and use, and able to maintain data integrity. Sangfor provided GBP with a tailor-made solution, far beyond their expectations. GBP kept three data centers in Makati, Cebu and Iloilo (Makati critical data backed-up in Cebu. Cebu critical data backed-up in Iloilo. Iloilo critical data backed-up in Makati). In each data center GBP consolidated all virtual machines with Sangfor HCI and ran them on Sangfor aServer and Dell servers. All business applications run on these three clusters.

On the Sangfor HCI platform, GBP activated many functional licenses. The basic license package includes aSV, aSAN and aNET. For backing up all data among the three data centers, GBP activated aDR. For managing and monitoring three sites, GBP activated SCP. For compressing and optimizing data transactions, GBP activated vWANO.



End-User Experience

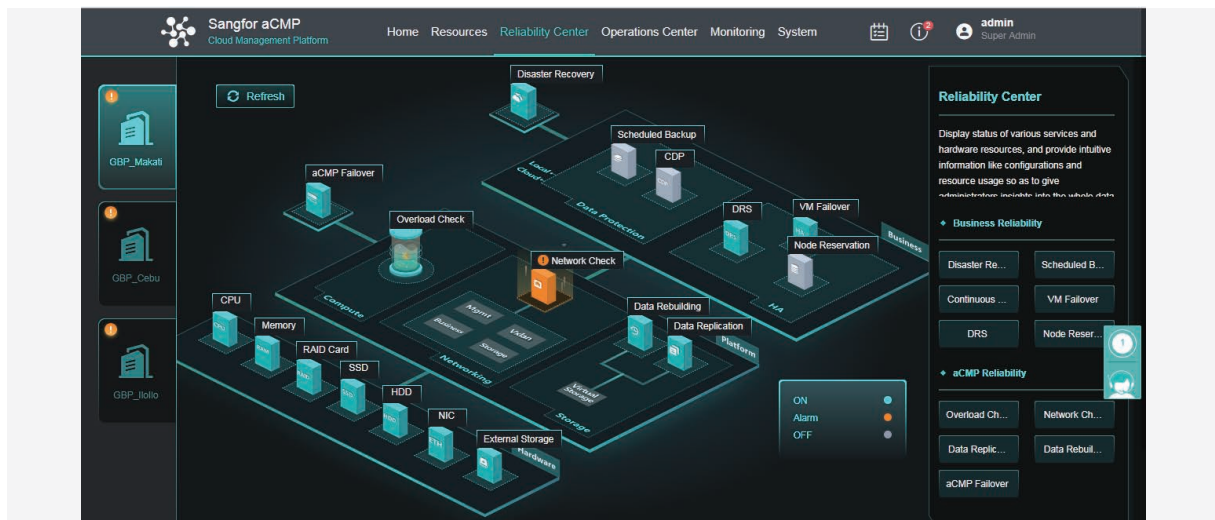
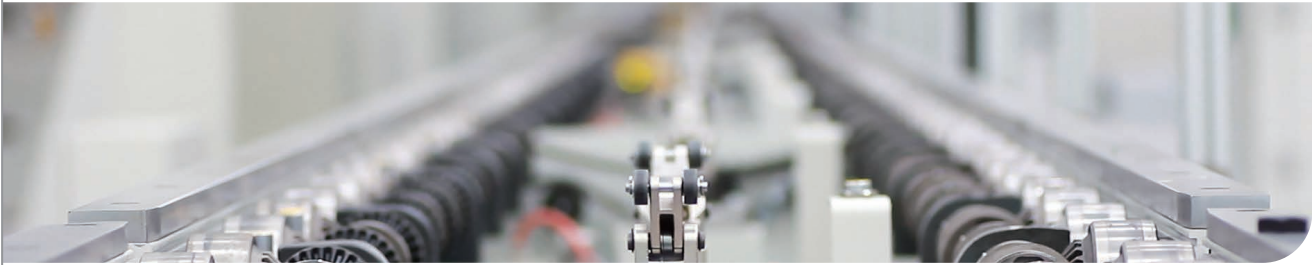
SCP provides a great tool to centrally monitor and manage all Sangfor clusters. With this management web-console, GBP can operate all maintenance and supervision activities creating VMs, monitoring status of hardware and Sangfor HCI software, percentage of backed up data, throughput of each site and status of each VM on all sites (usage of storage, CPU and memory).



Business now runs continuously without disruption. Because GBP has a cross-site active-standby datacentre, when one VM or physical server encounters an issue, traffic is transferred to another city, and business isn't influenced. Secondly, high availability is enabled on each HCI cluster. Failover and aMotion is triggered by any disruption or incident, including power outage and disk or cable plug-out. Migration between nodes is instant and automatic.

The Sangfor solution includes file-level recovery capabilities, to recover files from image backup. If a VM suffers a ransomware attack, the system is recovered quickly and easily. Critical systems' stability and reliability have been greatly improved. Finally, through built-in Dynamic Resource Scheduling (DRS) in Sangfor HCI, GBP is now confident that the systems will always have enough resources for end users.





Data is well-protected and RTO/RPO is minimized. Through SCP and aDR, **RTO has been minimized from 1 week to 3 hours** and **RPO has been minimized from 1 month to 4 hours**. The disaster recovery simulation function allows GBP simulate a disaster with a few clicks of a button. The most impressive function is the offsite backup optimization, with limited bandwidth capacity. The Sangfor solution ensured that GBP can transfer backup data offsite with at **least an 87% compression rate**. Finally, while GBP generates **136G** of raw data daily, the vWANO and HCI compression feature means that post-compressed data is only **17.68G**.



PT Samsung Electronics Indonesia



| Customer Overview

PT Samsung Electronics Indonesia is a subsidiary of Samsung. As a global technology leader, Samsung offers home appliances including TVs, monitors, refrigerators, and washing machines as well as major mobile telecommunication products like smartphones and tablet PCs. Samsung also remains a major provider of trusted electronic components, such as DRAM and non-memory semiconductors.

| Challenges

Previous IT Infrastructure

In their previous environment, there were 26 HP servers and no virtualization technology. Many were nearing end of life with a very low CPU utilization rate.

Customer Requirements

As servers were old, performance issues arose, in addition to the energy required to run all 26 servers.

1. Samsung Electronics needed to migrate all the physical servers into HCI, meaning the HCI solution needed good support to move their applications from the physical servers into the virtualization environment.

2. Expansion needed to be simple, allowing them to scale their compute and storage resource as their business grew.

3. The solution needed to be cost effective. Compared with traditional solutions, HCI solutions are less expensive, but prices from other HCI vendors like Nutanix were still not cost-effective enough.

4. Some new applications, including a new database would need to be deployed in the new HCI environment.

| Executive Summary

- Customer: PT Samsung Electronics Indonesia
- Industry: Manufacturing
- Location: Indonesia

| Challenges

- Server Virtualization
- Easy Migration and Expansion
- Solution Needs to be Cost-Effective

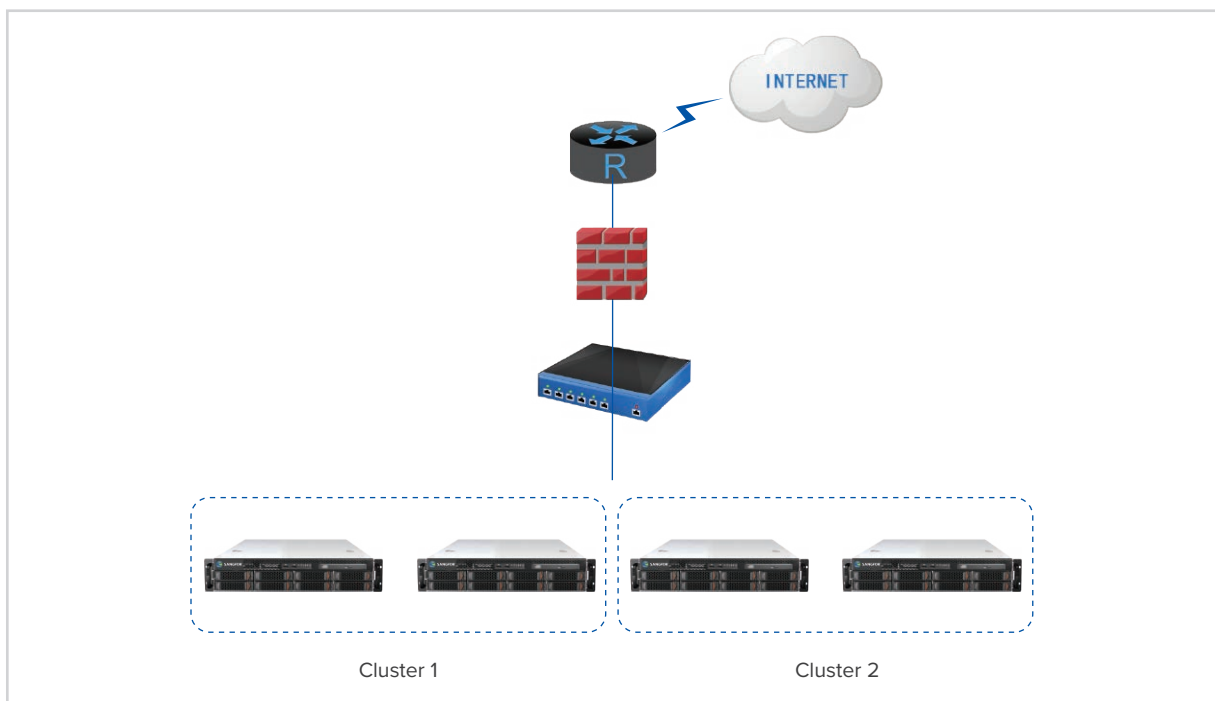
| Sangfor Solutions

- HCI software solution based on SUPERMICRO servers



Solutions

- Using four nodes of the Sangfor HCI appliance, (aServer2105, with aSV, aSAN license, all old servers are now hosted in the new HCI appliances and are easily managed.
- Using a Sangfor converter, the old OS was easily migrated to HCI. Hot migration was used to avoid system/application downtime during the migration.
- Two clusters were created with four servers, ensuring applications like databases could be migrated between two high spec servers, ensuring that IO was localized when HA features are active.



Rochdale Spears



Customer Overview

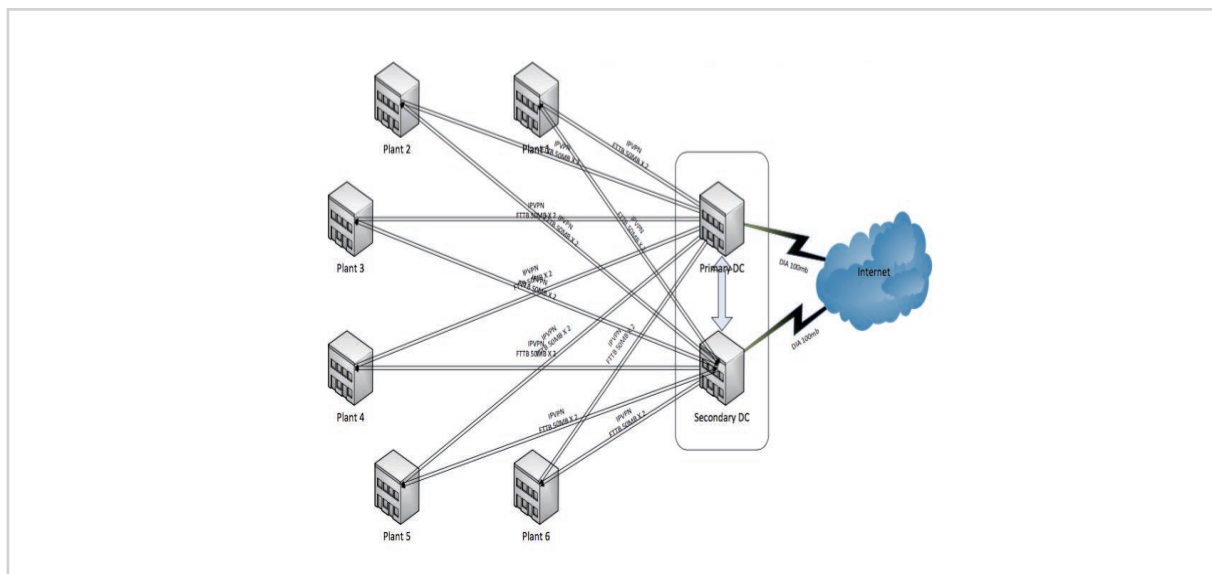
Rochdale Spears is a very successful conglomerate, using brick and mortar stores and an online platform to design, manufacture, and distribute designer home furnishings and decorative accessories for high-end distributors and retailers in USA and globally. The Group continues to grow rapidly with almost 4,000 employees in Vietnam, across 5 manufacturing plants, headquarters in Hong Kong and offices in the US. They deliver outstanding business results while being responsive to customers, employees, and the environment.

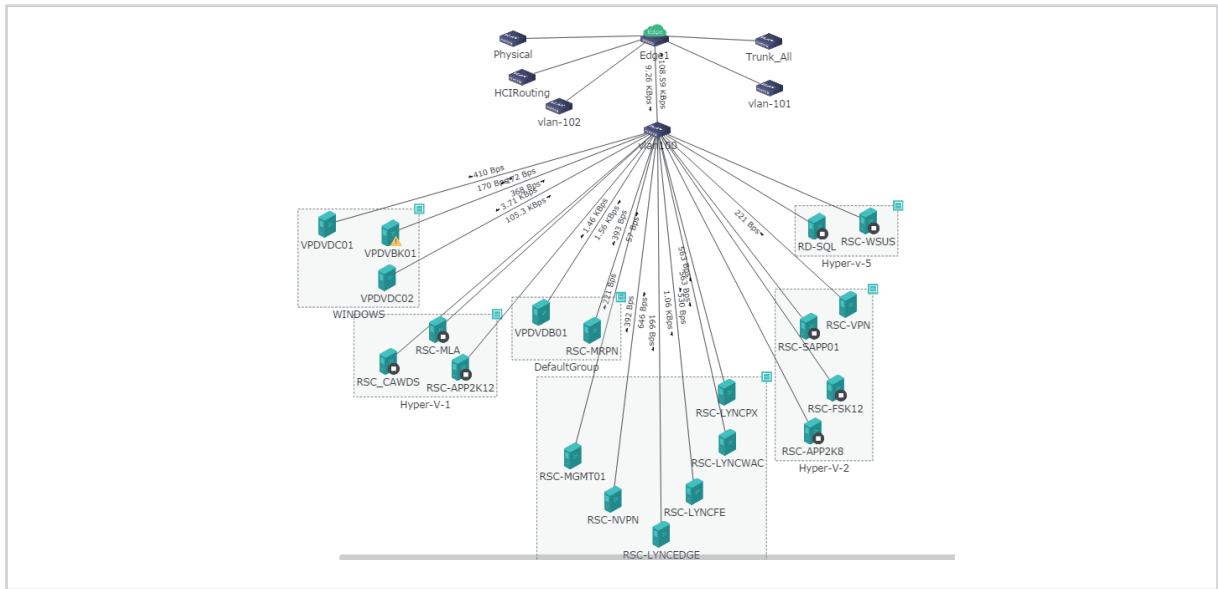


Customer Challenges & Requirements

When Rochdale Spears closed one of their Vietnam based factories, planning to build a new factory 5 KM away from the old location, and relocating their old DC to a DR site 50KM away. Servers running in this to-be-closed factory were end of life, and even though they were virtualized by Hyper-V, were performing well below the needs of applications. Moreover, management of these servers was a constant nightmare for engineers. Rochdale Spears was first searching for traditional architecture, with Dell server +SAN storage, however the high cost, time-consuming purchase and implementation process and complex O&M, made them rethink their decision and search for something simpler and more cost-effective.

After becoming aware of the Sangfor HCI solution, Rochdale Spears was intrigued by the simple & fast deployment, scale-out architecture and intuitive management. Not only could Sangfor provide compute, storage and networking resources on HCI for their new DC construction, but also security and future-proof technologies for SDDC evolution.





Highlights

- 24 VMs in Hyper-V and 8 physical servers were migrated to Sangfor HCI in new DC
- Incredibly fast deployment and application on-line speed as opposed to traditional solution which required weeks for deployment vs. days with HCI
- 50% CAPEX reduction with equally high performance compared to traditional solutions
- Simplified O&M improves efficiency and enables innovation
- Scale-out on demand features maximise flexibility

Other Project Information

01

Sales: Ringo Yao

02

Partner:
Big Data Architect

03

aServer 2200*4 +
(aSV+aNET+aSAN)*8

04

PO: 50K

05

Decision Maker:
IT Director

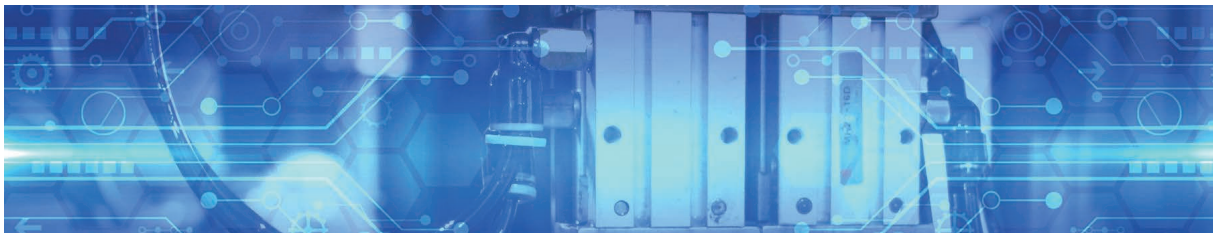
SONY EMCS (MALAYSIA) SDN BHD



Customer Overview

Sony Corporation is a Japanese multinational conglomerate corporation. Its diversified businesses include consumer and professional electronics, gaming, entertainment and financial services. Sony EMCS (Malaysia) Sdn. Bhd. manufactures television, audio, video and hi-fi products and operates as a subsidiary of Sony Corporation. It was formerly known as Sony Technology Malaysia and changed its name to Sony EMCS (Malaysia) Sdn. Bhd in June 2008.

SONY
make.believe



Executive Summary

- Japanese MNC
- Industry: Manufacturing
- Location: Malaysia

Challenges

- Performance issues with legacy systems
- Single point of failure
- No Disaster Recovery

Sangfor Solutions

- Sangfor HCI

Challenges

Performance Issues

1. Legacy IT systems (server, storages and network)

- Sony was using a conventional 3 tier infrastructure system to setup a data center (DC). Conventional DCs always incur a high operation and maintenance cost due to the need to maintain different brands of infrastructure from different vendors.
- Having Hyper-V and physical servers in one environment burdens IT staff, forcing them to maintain and manage two different solutions in one environment.
- Legacy servers with mid-grade hard disk (SAS/SATA) result in slow IOPS issues during peak hours or whenever many staff request access to the database server.
- Using the “teaming” (i.e. LACP) method to increase throughput for the network occupies a large number of cables.

Single Point of Failure

- No ‘failover’ with all data backup on only one node
- Restoration is slow when backup and restoration requires a replacement server

No Disaster Recovery

- Existing backup software unable to immediately bring up the system in the event of a disaster
- Cost of implementing DR on a legacy IT system would be prohibitive

| Sangfor Solution

Sangfor consolidated all Sony EMCS' s outdated servers into only 3 hyper-converged infrastructure (HCI) appliances, with 2 nodes in the Data Centre and 1 node at the backup site.

| Solution Values

Improved Efficiency

- Sangfor SSD caching technology, striping and large-page mechanisms accelerate database performance dramatically. Sony staff is now able to export reports in seconds, without going to the IT department for help.
- Consolidation of both Hyper-V and physical servers into Sangfor HCI simplifies the previous complex administrative task of managing two different solutions.
- Segmented the network based on the network diagram with 10G bandwidth.

Data Protection

- Configured clustering within 2 nodes in DC to create at least 2 copies of all data, eliminating any business impact if one physical node does down.
- Instant recovery was configured and tested, providing failover in 30s.

Business Continuity

- Critical applications are now elastic with Sangfor DRS & DRX. Sangfor HCI can automatically adjust system resources to cope with business peak hour requirements.
- The built-in HA auto-switches workloads from one node to another in the case of hardware failure.



Tek Automotive



Customer Overview

TEK Group is a world leader in the production of high quality tire repair kits. Internationally marketed under the Fix & Go® brand name, their repair kits are used by major automobile manufacturers worldwide.



Challenges

TEK Group, a global company with Swiss-based headquarters and several subsidiaries, including one in Italy, planned to open a new production plant in Malaysia. They needed a new remote data center and a solution to handle core project functions, server virtualization and perimeter security, including a secure remote connection between Italy and Switzerland.

Requirement

Server virtualization to handle 8-10 virtual machines, supporting every IT service needed by workers in this new, bigger plant, like active directory authentication, file sharing, virtual IP phone service, database, administration, management and production software with stability and high availability.

New firewall to protect the network, manage internet traffic and handle stable VPN connection with headquarters for data exchange, backup and remote management.

Executive Summary

- Customer Name: TEK Group
- Industry: Manufacturing
- Location: Italy

Challenges

- Remote Data Center
- Cross-Country Operation
- Server Virtualization & Perimeter Security

Sangfor Solutions

- Sangfor HCI aServer-2200
- NGAF 5100

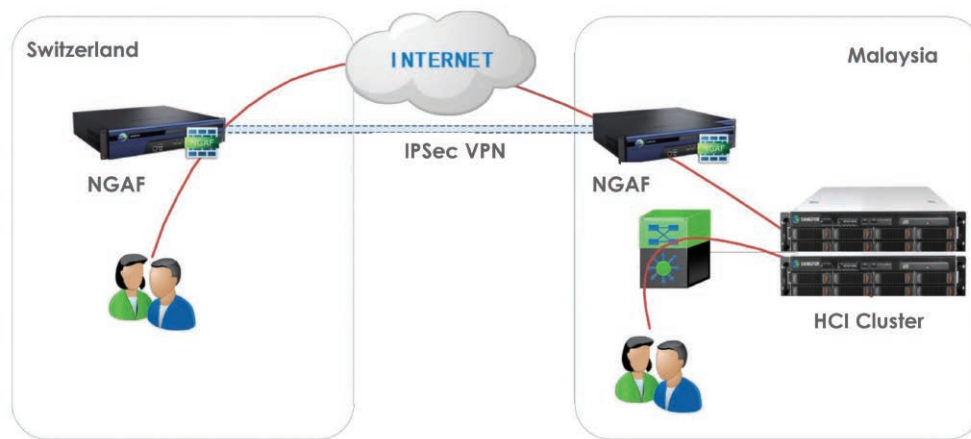


| Sangfor Solution

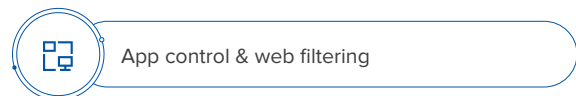
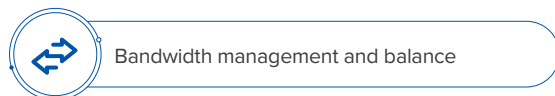
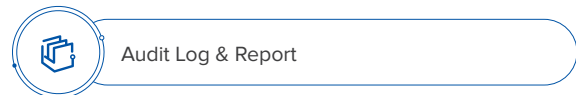
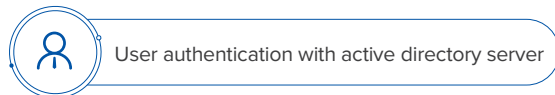
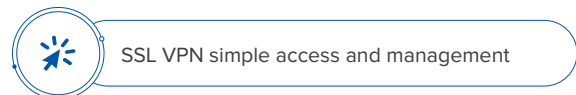
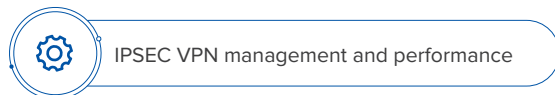
Sangfor was chosen for its advanced technology and the ability to provide secure and fast support and professional local partnerships.

An HCI cluster of 2 Sangfor aServer-2200's was implemented, each equipped as CPU, memory, disk and network. The customer was now able to distribute any kind of IT service to the 50+ people working in the plant, from the office to production floor. The light web management interface gives the Italian IT manager control of everything inside the system.

NGAF manages internet access with policy control and remote connection from Italy, with standard IPSEC VPN to connect with the headquarters and VPN SSL to permit administrators to provide access and support from anywhere.



| NGAF Features that Customer Finds Important



Yakult Indonesia Persada



Customer Overview

Established in 1990 in Indonesia, PT Yakult Indonesia Persada was licensed by Yakult Honsha Co., Ltd., Japan to produce a unique probiotic dairy product made by fermenting a mixture of skimmed milk with a special strain.

Challenges

- Many of the physical servers were old, at risk of hardware failure and needed to be retired permanently.
- In the event of hardware error (server failure, disk failure, etc..) a speedy recovery option was mandatory, requiring a high-availability solution.
- The client required a solution that reduced their dependency on power and cooling energy.
- Separation of computing and storage was required with external storage capable of extending the storage capacity.
- A centralized management platform for different hardware components was required.
- Automatic backup features for all the data was mandatory.

Solution

Yakult originally had 20 physical servers and 15 VMs running on VMware. Sangfor proposed a customized solution of Sangfor HCI aServer with aSV and aSAN license. We replaced all the old physical servers with only 4 Sangfor HCI servers and migrated the VM with high utilization through the Sangfor platform. In upcoming upgrades Sangfor plans to migrate all VMs from VMware to Sangfor HCI.

Executive Summary

- Customer: Yakult
- Industry: Food & Beverage
- Location: Indonesia

Challenges

- Old Hardware
- No Recovery Options
- Required Cost Reduction
- Extended Storage Capacity
- No Centralized Management Platform
- No Backup Features

Sangfor Solutions

- Sangfor Hyperconverged Infrastructure aServer, aSV, aSAN



Solution Details

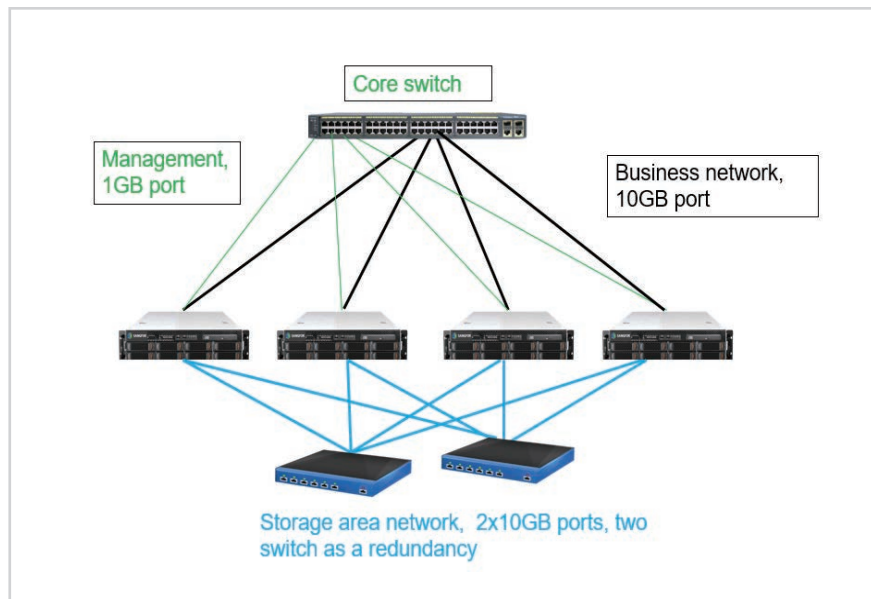
Sangfor used four x86 servers and aServer 2200 to build one cluster, allowing for potential extension of up to a maximum of 64 servers in one cluster.

Sangfor used two switches to build the storage area network as a redundancy with a 10GB connection. A 10GB port was used as a business port for VMs to access the network. A 1GB port was installed as a dedicated management port.

Proposed Migration Plan:

Step 1: Migrate the existing physical servers onto Sangfor HCI. Most of the existing physical servers were old and at high risk of hardware failure which would lead to data loss, significantly impacting business.

Step 2: Migrate all virtual machines running VMware by first managing them using Sangfor HCI on a centralized platform. Then begin a gradual migration of the VMs to Sangfor HCI based on individual VM status beginning with the most utilized VM and working down.



LIST OF MORE MANUFACTURING AND PUBLIC CUSTOMERS

Advnet s.r.l.	Laguna Autoparts Manufacturing Corporation
Angeles Electric Corporation	Lanificio Cerruti
Barret Hodgson	LEGAZPI CITY WATER DISTRICT
Berti Macchine Agricole	Outfitters
Buono (Thailand) Co.,Ltd.	Panasonic Gobel Energy Indonesia
Carco Srl	Panjawattana Plastic
Centotrenta Servicing S.p.a.	PT Graha Segara
China Harbour Engineering Company LLC - Construction Company	PT Sinta Prima Millfeed
China National Petroleum Corporation (CNPC) Middle East	PT Tembaga Mulia Semanan Tbk
China National Petroleum Corporation -AdbuDhabi	PT. Exedy Manufacturing Indonesia
Citistores	Pylon Public Company Limited
DTH	S.r.l.
DYNA METAL CO., LTD.	Sotus International Co., Ltd.
FAEDA spa	TERA TEC Co.,Ltd
Far Eastern New Century Corporation	Thai Inter Depot and Transport Co.,Ltd.
FIMAR spa	THAI MITSUWA PUBLIC CO.,LTD.
Fukui kasei (thailand) co. ltd	Thai Nippon Seiki Company
Furukawa Automotive Systems (Thailand) Co.,Ltd.	Thai Samsung
General Membrane	TPN FlexPak Company Limited.
Germton Enterprises Limited	Traditions
Goldilocks Bakeshop Inc.	Tripura group(PT Tiga Daya Digital Indonesia)
Harber Center Port Terminal Inc	United Can
Hush Puppy	Wan Chung Construction Co. Limited
IchitanGroup	WANKE
IIL	Yakult
KTNF Co., Ltd	

EDUCATION



HanShin University



Customer Overview

Hanshin University was established in 1940 as the first theological university in Korea, and since 1980 has become a comprehensive University, embracing scholarship, godliness, truth, freedom, love, and practicality and dedicated to sharing and serving.

Challenges

Hanshin University operates a baccalaureate administration system and other university systems to manage students. However, the problem of efficiency of management due to a lack of IT personnel arose constantly. With a 10-year plan to proceed with a next-generation Advanced Administration project aimed at efficient resource use, their biggest goal was to virtualize existing servers and storage, maximizing management efficiency.

Solutions

SANGFOR HCI solution was combined with Dell servers* 3 to virtualize servers and storage [P to V]

- Stable and easy to use with SANGFOR SDDC Converter Migration and
- Efficient network construction of many servers through aNET
- Real-time data protection with CDP for 5 critical servers
- In case of resource shortage, infinite extension is possible with the addition of linear nodes
- Integrated management of all servers, data, and network operations through Web UI

Sangfor HCI (Hyper-Converged Infrastructure)

Executive Summary

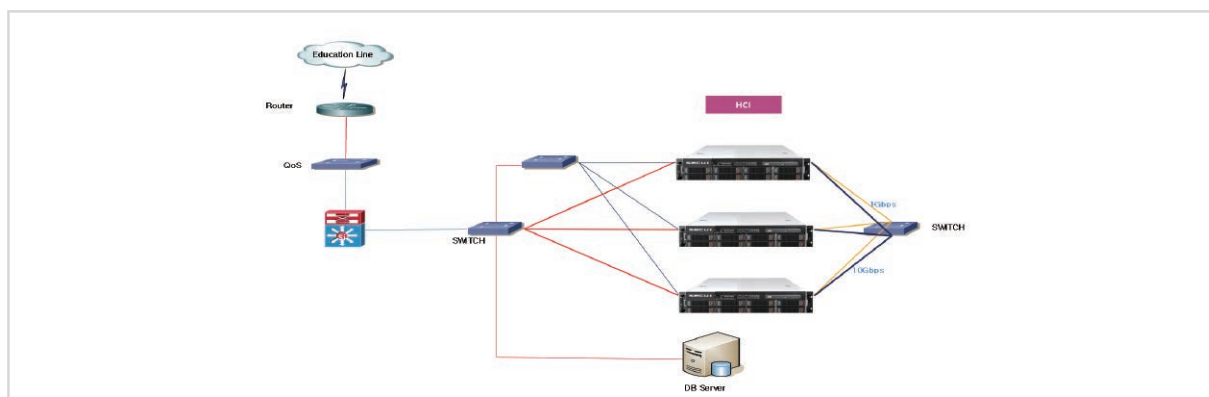
- Customer: University IT Manager
- Industry: Education - Universities
- Location: Korea

Challenges

- Server & storage virtualization and integration
- Real-time protection of critical server data
- CDP
- Maximized manageability

Sangfor Solutions

- Sangfor HCI
[aSV, aSAN, aNET, CDP]



National University of Sciences and Technology

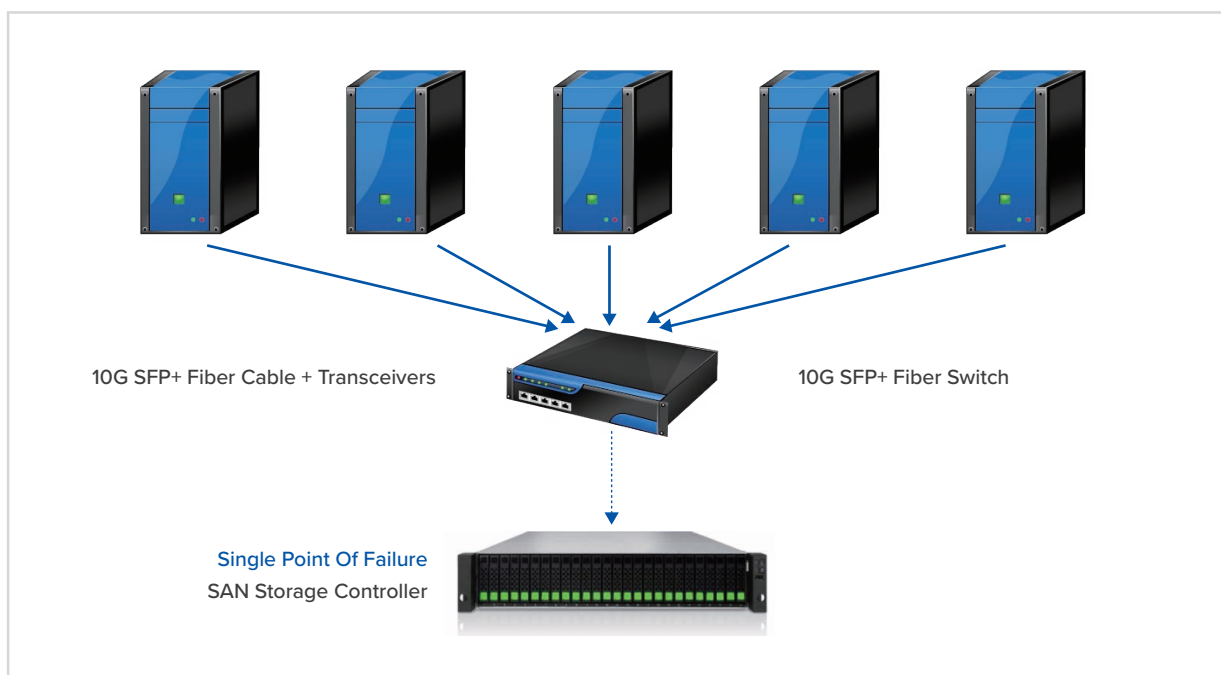


Customer Overview

The National University of Sciences and Technology (NUST) was established in March 1991 for the promotion of higher scientific education in Pakistan, especially in the fields of science and technology, by providing a stable and disciplined academic environment together with need- based research, pertinent to industrial requirements.

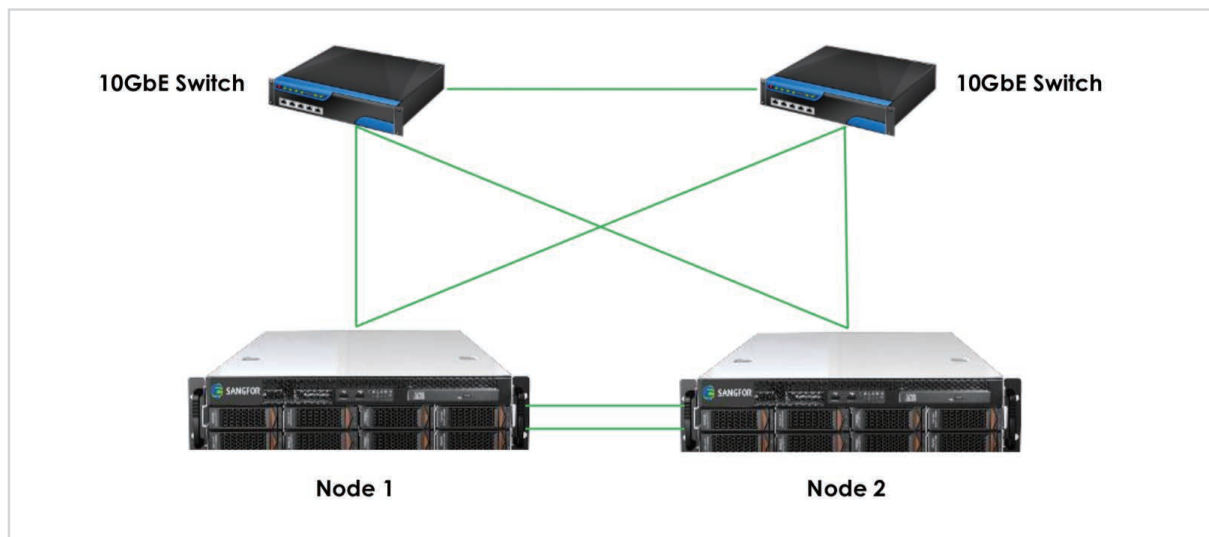
Customer Challenges

- 01 Single-Point of Failure for Traditional SAN Storage Controller
- 02 Limited Disk Performance With Single SAN Storage
- 03 Complex Setup & Heavy Hardware Footprint
- 04 Multiple Operation Consoles (Virtual Machine / Storage / Backup Software)
- 05 High Annual Renewal Cost for 3rd Party Backup Solution
- 06 Traditional Data Center Without Flexibility for Private Cloud Transformation





| Sangfor Solution



| Customer Benefits With Sangfor Solution

- 01 Automated High Availability Without Single-Point Of Failure
- 02 High Disk Performance In Virtual Storage With Data Integrity Assured Ultra-Simplified Setup with Minimal Hardware Footprint
- 03 All-in-one Single Operation Console
- 04 Built-In Backup Solution For Virtual Machines
- 05 Built-In Private Cloud Solution Ready On-the-Go

Suan Sunandha Rajabhat University



Customer Overview

SSRU offers undergraduate programs, graduate programs and doctoral degree programs to full-time and part-time students. It has more than 80 fields of study for students and their International College and Management. Students enjoy learning via on-line systems, E-learning and has wireless campus services throughout the university. All processes regarding student admission, registration, delivery of student grades, announcement of study results and payments are made through the online systems.

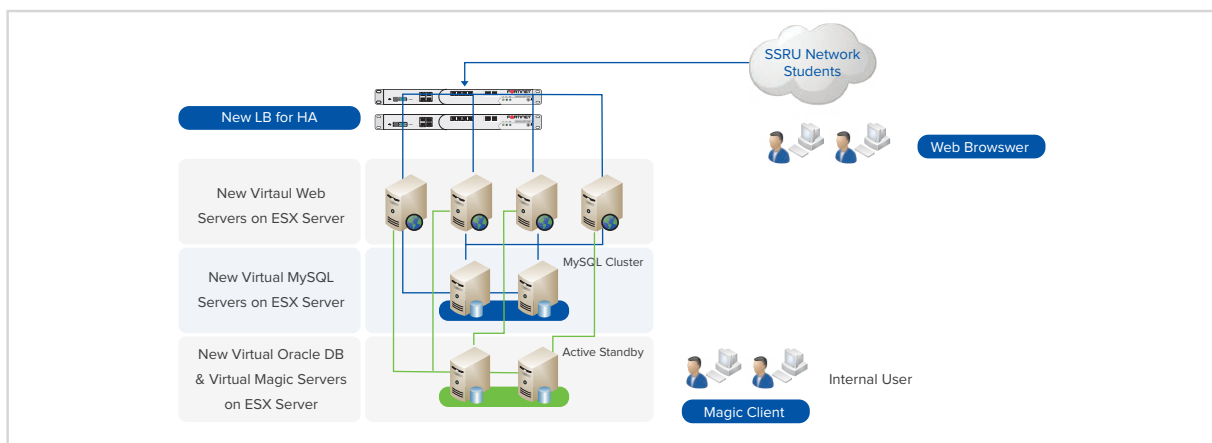


Challenges

SSRU aims to reform and empower all levels of operational processes to be more flexible, rapid, efficient and effective, the key point being to utilize information technology and modern communication to make the transformation towards E-university, improving management capability and service level for users.

In order to reach this goal, the IT department was tasked with finding a solution that can deal with massive online connection from users who need to access internal services, as currently such connection requests often cause network delay and access failure. Business functions like financial services, document process and curriculum management were all impacted. Due to all these issues, the university considered reforming its IT infrastructure for higher performance.

The IT infrastructures of the University mainly supports E-university and financial services that carry a high load of connections by providing web services for various types of categories and interlink with both Oracle and MySQL database, which need high performance for data processing. However, SSRU's current system was not capable of managing the increasing demand for connection, as a result of fast growing rate of new students each year.

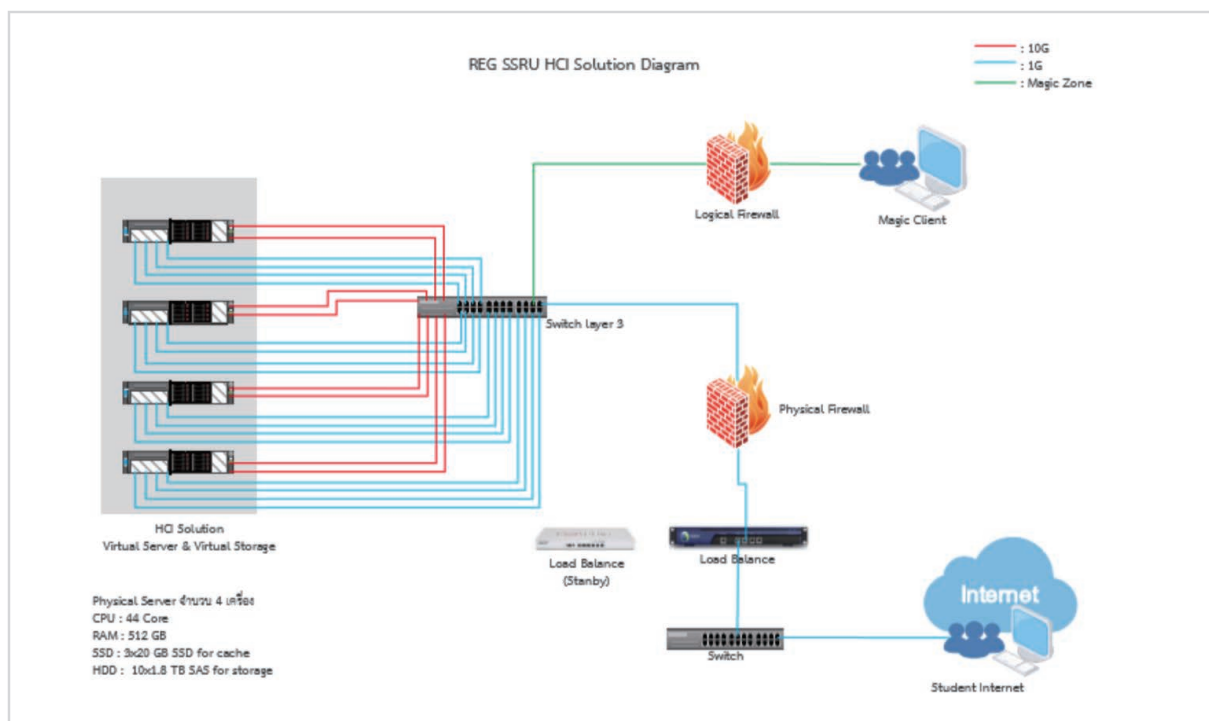


SSRU has been dedicated to technology development for years, in the pursuit of achieving a true E-university. The university has tried various new technologies and believes that Hyper- Converged Infrastructure (HCI) is the innovation that can re-define IT infrastructure and boost data center efficiency and performance, eventually making the transition to the cloud possible.

Sangfor Solution

Sangfor' s Hyper-Converged Infrastructure (HCI) brings resource management options in scalability of standard hardware plus virtualization technology. Operation and maintenance are no longer chores, as a minimum number of IT staff are capable supporting large systems effortlessly. Moreover, network virtualization and other NFV functions enhance user experience and IT service performance.

Sangfor HCI provides flexible resource planning for the University' s dynamic growth, sparing them from unnecessary follow-up investment when upgrade is needed.



Universiti Sultan Zainal Abidin



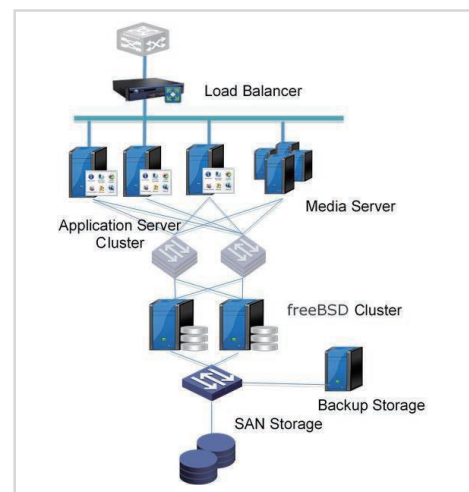
Customer Overview

Universiti Sultan Zainal Abidin (abbreviated as UniSZA) is considered the biggest "comprehensive university" on the East coast of Peninsular Malaysia and as one of the most respected Islamic-based institution of higher learning in Malaysia. It has produced thousands of graduates in various fields since its establishment in 1980.

Challenges

There were 13 racks in their DC, absorbing too much electricity and space, and overloading the air conditioning, which was unable to provide a cool enough environment. Some servers were outdated and storage became bottlenecked. Because open source free BSD 11.0 was used for DR and backup, a specialized IT team was required to work with the online Veritas Backup system. The total IT system was in urgent need of renewal.

- Reduce the number of racks
- Reduce pressure of the cooling system
- DR and Backup solution should be integrated
- Open source systems should be supported
- Operation and maintenance need to be simplified



Executive Summary

- Customer: UNISZA
- Industry: Education
- Location: Malaysia

Challenges

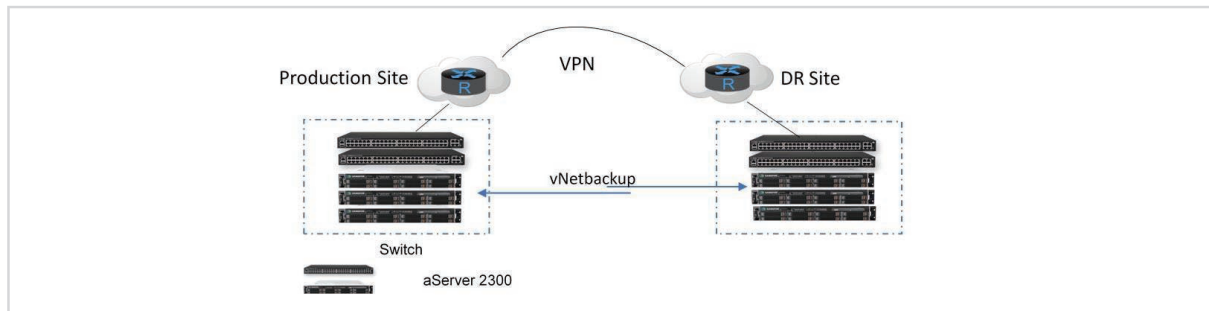
- Too many traditional servers in the DC were dissipating too much heat
- Servers faced performance bottleneck
- DR & backup system far too complex

Sangfor Solutions

- Sangfor HCI including aServer, aSV, aSAN, vNet, NFV – (vAF, vWAF, vAV), vNetbackup (Backup &DR) & Centralized Management GUI

Sangfor Education Cloud DC Solution

Sangfor's education cloud DC solution provides an overall hyper-converged solution, integrated DR and security to support all mission critical applications. A total of 6 nodes were deployed, with 3 nodes deployed at each production and DR site. Two sites were connected with IPVPN. VMs and Storage could now be backed up locally or remotely. Scheduling policies were implemented to move virtual machines between both locations. If a production server goes down, a DR server will resume operations within an hour. Software defined architecture allows educational institutions to modify and upgrade their existing facilities into more location-independent, flexible and collaborative learning environments with low TCO.



Specifications Sangfor Cloud DC Solution

Sangfor HCI (Hyperconverged Infrastructure) Solution, including aServer (specifications below), aSV (server virtualization), aSAN(storage virtualization), vNet (network virtualization), NFV – (vAF, vWAF, vAV), vNet backup (backup & DR) and centralized management GUI, were deployed.

Model: aServer 2300	Per Server	3 Servers, Production Site/DR Site
CPU Cores	28	84
RAM (GB)	512	1536
SSD (GB)	1200	3600
HDD (TB)	70	210
IPOS Performance	14,000	42,000

Benefits Sangfor Solution

- 13 Racks reduced to 3 racks saving 80% in electricity cost.
- Operation and management is easier, with more than 60% of the maintenance workload unnecessary due to the centralized management portal.
- More than 100 applications are now supported, including web applications, an exam system, learning system, email and development system. IT infrastructure is now more reliable, due to integrated DR and backup solutions.
- The system is now more secure with vNGAF internal and external protection.
- All is provided with low TCO.

The Sangfor Solution

- Sangfor is a trusted provider of education platforms for more than 100 outstanding universities globally.
- Sangfor provides a tailor-made overall solution to support and protect all mission critical applications.
- The Sangfor solution provides built-in DR and continuous data protection.
- A different name-brand vendor was considered as virtualization provider until it was discovered that the solution wouldn't work with an open source system, requiring a significant investment of time and money to overcome.
- A second name brand vendor suggested expanding the windows server, but it wouldn't work well with the online open source system and the migration would have taken a long time, with some apps needing to be rewritten.

USAS (Universiti Sultan Azlan Shah)



Customer Overview

Universiti Sultan Azlan Shah (USAS) is an institute of higher learning registered under the Private Higher Educational Institution Act 1996 (Act 555). USAS offers a variety of courses from foundation studies level to PhD. The campus is located in Bukit Chandan, Kuala Kangsar the Royal Town of Perak.

USAS strives to produce excellent graduates through quality education programmes based on the integration of Islamic values and professional knowledge, preparing a conducive environment for scholars to explore, strengthen and renew the authorisation of knowledge through research.

USAS was established in the historical royal town of Kuala Kangsar, with its clean and beautiful surroundings that attract both local and foreign tourists, making the university's position extremely strategic.

Challenges

Complex Management

- USAS had a conventional IT infrastructure (5 tiers) supplied by different vendors, making it tedious to maintain and O&M difficult. IT administrators were forced to check each appliance individually to ensure maintenance operations were kept up-to-date.
- The physical appliances were legacy and spare parts difficult to find in an emergency. Vendors did not often have the appropriate spare parts on hand and were forced to order any hardware required.
- There were only 2 IT personnel running the entire IT department, requiring them to work weekends and holidays and long hours, resulting in exhaustion and low productivity.

Difficult to Expand

- Physical appliances disallowed expansion or addition of resources. Because USAS hosted in-house applications, IT personnel were required to add additional physical servers whenever new applications were installed. The lengthy procurement process and lack of manpower meant that this task often took days or weeks to complete. Moreover, additional physical servers required additional software licenses and network ports, forcing IT personnel to both procure a server and also to closely watch all switches simultaneously.

Executive Summary

- Private Local University
- Industry: University, Education
- Location: Malaysia

Challenges

- Complex to Management
- Difficult Expansion
- Low Utilization
- No Disaster Recovery Plan

Sangfor Solutions

- Sangfor HCI

Low Utilization

- Unlike in a virtual environment, the utilization of servers was relatively low (30% or below). Their system was not cost effective and their ROI was comparable to a virtual environment. USAS management pressured the IT department to develop an alternative plan to resolve the issues of high cost of ownership & low ROI.

No Disaster Recovery Plan

- Floods, electric disruption or any kind of disaster caused significant service downtime, leaving IT administrators no alternative ways to restore systems. Because all data was stored in a single location, all core applications and systems were running 24/7. ISO auditors were putting pressure to USAS to focus on data security while USAS executives insisted on a DR plan to ensure there was no business impact to their offsite offices.

| Sangfor Solution

Sangfor consolidated all physical appliances (servers and storage) into 2 nodes of hyper-converged infrastructure (HCI) to replace the existing legacy systems.

| Solution Values

Replaced with Hyper-Converged Infrastructure (HCI)

After a few discussions and POC, Sangfor proposed their HCI solution and managed to substitute 4 physical appliance units with only 2 physical servers units. With a single brand and single vendor, IT and Operation departments experienced a lessening in the complexity of administrative tasks. The IT department was now able to spend more time focusing on necessities instead of constant hardware or appliance maintenance.

Highly Efficiency and Expandable

IT personnel easily create virtual machines to host the in-house applications whenever necessary (Sangfor re-designed the infrastructure system with additional resources within the given budget). Sangfor's HCI leveraged their virtual environment to simplify administrative tasks, reduce the purchase of new hardware and simplify the complexity of physical resources. Furthermore, Sangfor HCI consolidated the network, allowing IT personnel to easily map newly provisioned virtual machine(s) into any VLAN with the 'drag-and-drop' feature, simplifying the procurement process to a 'Software Defined Data Centre' concept.

Setting up a Disaster Recovery Centre

Sangfor helped setup Disaster Recovery (DR) functions for USAS (specially requested by a USAS IT manager after visiting a Sangfor event), configured the backup from production and transferred copies to DR. Thus, IT administrators can now power up DR whenever necessary with 'one-click,' with convenient mobile access available to provide full flexibility and full security.

Balance the Server Utilization

Working in a virtual environment means resources are equally divided into 2 nodes of physical servers to load balance the resource weight. Sangfor configured the server specification based on the importance of individual applications to achieve the best utilization and to maximize the ROI. Sangfor has enabled USAS to fully recover from any downtime without loss of significant data near- immediate recovery.

Universiti Malaysia Sabah



| Customer Background

Universiti Malaysia Sabah (UMS) is an institution of higher education that produces human resources, experts and professionals in a variety of fields with the focus on the quality of graduates, quality of institutions, and quality of the overall system. UMS has strived to attract, develop, and retain excellent talents.



At present, UMS has more than 1200 academicians, 483 PhD or equivalent. Many of these highly committed and dedicated academics have published in high impact journals and won awards nationally and internationally in recognition of their research and innovation.



| Requirements

Learning Management System (LMS) – SmartUMS v3

Due to the pandemic, students were required to attend classes virtually through internet. Therefore, UMS developed their own LMS called SmartUMS. SmartUMS helps students enroll in courses, download study materials, assignment submission, and with examinations. In order to support all 13,000 students, the required extremely high compute power to run.

Their current infrastructure was incapable of running such critical systems, due to performance issues and aging hardware. The UMS IT team was considering purchasing a new hyperconverged infrastructure to host their system, as HCI can guarantee performance while providing ease of management.

| Executive Summary

- Customer: UMS
- Industry: University, Education
- Location: Malaysia

| Challenges

- Complex to Management
- Difficult to Expansion
- Low Utilization
- No Disaster Recovery Plan

| Sangfor Solutions

- SANGFOR HCI Solutions

Massive Storage Capacity

With all the learning material uploaded to SmartUMS, the new infrastructure must be capable of storing an unusual amount of data. Apart from student data, learning documents, electronic textbooks and PowerPoint slides, SmartUMS contains video and class recordings, requiring a storage capacity of up to 1.7 petabytes, with a portion dedicated to storing video and recordings.

High Utilization

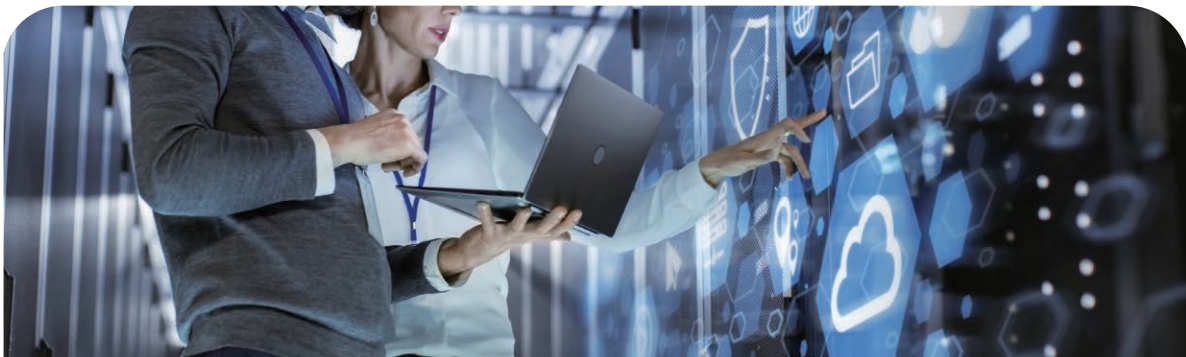
The number of students means server utilization was always high. Therefore, the servers must be powerful and reliable to support the 24/7 heavy traffic. Issues like frequent downtime, slow access or data loss result in bad user experience, and could affect student learning.

Disaster Recovery Plan

Floods or bad weather often caused system downtime. IT administrators need a way to restore systems quickly, and needed a DR plan, which required an offsite location to ensure there was no business impact. All data is stored in one location, with core applications and systems running at 24/7. A DR site would allow UMS to minimise system operation downtime.

| Sangfor Solution

Sangfor provided 5 nodes of their hyperconverged infrastructure solution, HCI, to host SmartUMS at the production site at UMS, as well as 2 other nodes at University Malaysia Sarawak (UNIMAS), acting as DR site.



| Solution Values

Sangfor Hyper-Converged Infrastructure (HCI)

After discussion and POC, Sangfor proposed their HCI solution, and deployed 5 units of physical nodes at UMS to host SmartUMS. All resources from these 5 servers are combined into a large resource pool, to provide compute power to the system. With only one single brand and one single vendor, IT and operations administrative tasks are easier, leaving the IT department time to focus on critical issues over hardware or appliance maintenance.

Massive Storage Capacity

Even utilizing a disk slot on the HCI node, it is impossible to support 1.7 petabytes of storage. Therefore, Sangfor proposed an alternative solution, using JBOD storage. Three JBOD storage nodes were deployed, each containing 50 pieces of 14TB SAS disk, providing 700TB of capacity. All NVMe SSD disks are deployed in the HCI server for caching purposes. Now, the solution supports up to 2.1 petabytes of storage, while performance is guaranteed through hybrid disk technology. This storage method will work for 3 years.

High Availability

Sangfor HCI provides a virtual environment where resources are equally divided into 5 nodes of physical servers, to load balance the resource weight. Sangfor configured the server specification based on the importance of applications to achieve the best utilization. If a physical server goes down, there is no disruption to their environment. The HA mechanism is automatically triggered to failover VMs to other healthy nodes. Hardisk failure is tolerable, as all data has a second replica, in case the first replica is corrupted or inaccessible.

Setting up a Disaster Recovery Centre

Sangfor helped setup a Disaster Recovery (DR) site for UMS, at its neighbor university UNIMAS. During the deployment, the backup files from the production side were transferred to the DR side manually, because the files were too large to digitally transfer. After the DR site was deployed, connection was established between the DC and DR, to sync the data. A DR policy was set up and activated. IT administrators can now power up DR whenever necessary, with no effect on business. Bringing up tDR is as simple as 'one-click,' and can be accessed mobally, to provide full flexibility and security.

Universiti Malaysia Pahang



| Customer Background

Established as a technical university in 2002, Universiti Malaysia Pahang (UMP) offers a variety of engineering and technology-based technical programmes, including high-level Technical and Vocational Education and Training (TVET).



Ranked as one of the best in Research and Innovation within the classifications of Malaysia Technical University Network (MTUN) and Non-Research University (Non RU), UMP is steadfastly committed to innovating and developing unique academic programmes through strategic international collaborations.



| Business Pain-Points

- 01 MPM emphasizes data protection as the amount of data continues to grow at unprecedented rates. They need to conduct business even if data is damaged or lost.
- 02 MPM has limited tolerance for business downtime, as it affects their operations, making it impossible to access important information.
- 03 Backup functionality is required with the server infrastructure to minimise involvement of multiple vendors.
- 04 Backup needs to be flexible so that different backup policies can be applied to different VMs, to suit their requirements.

| Executive Summary

- Customer: UMP
- Industry: Education
- Location: Malaysia

| Challenges

- Data protection
- Minimize downtime
- Built-in backup
- Flexibility

| Sangfor Solutions

- Sangfor Hyper Converged Infrastructure (HCI) Solution

| Benefits of Sangfor HCI Solution

Sangfor HCI consolidates virtual CPU, memory, disks and network into one box. We offer exceptional reliability, performance and a simple and straight forward interface. Most importantly, our backup solution is built-in, and can communicate with external storage.

Equipped with comprehensive of data assurance method to guarantee the business continuity

- **Disk Fail** : Solved by software RAID 10 as data comes with with mirroring. There are always a minimum of 2 data copies.

- **VM Fail** : Built-in backup and restore features without 3rd party backup software, instant recovery speeds up the recovery time. (RTO = 3 minutes)

Node Failure: VMs automatically failover when one node fails. Recovery takes only 1 minute.

Universitas Islam Negeri Syarif Hidayatullah Jakarta



| Customer Background

UIN Syarif Hidayatullah Jakarta is in the top 50 (rank 48th) of the University in Indonesia based on webometrics ranking (January 2020 update). UIN Syarif Hidayatullah Jakarta originated from Academy of the Service Academy of Religious Sciences (ADIA) established on June 1, 1957.



ADIA itself was an official academy under the management of Ministry of Religious Affairs. ADIA was established by the Decree of the Minister of Religious Affairs, No. 1 of 1957. This institution was intended to educate and prepare civil servants to be expert in teaching Islamic courses in Secondary Schools, Vocational Schools and Religious Schools.

ADIA joined PTAIN (The State Islamic Higher Education), in its development, in Yogyakarta and became The State Institute of Islamic Religion (IAIN) al jamiyah al Hukumiyah. ADIA became IAIN's branch in Jakarta with two faculties: the Faculty of Tarbiyah (Education) and the Faculty of Adab (Literature). IAIN Syarif Hidayatullah Jakarta officially became UIN Syarif Hidayatullah Jakarta by Presidential Decree No. 031 on 20 May 2002. The decree became the foundation of legality of IAIN Syarif Hidayatullah Jakarta become Syarif Hidayatullah State Islamic University Jakarta

UIN Syarif Hidayatullah Jakarta consisted of nine faculties at that time; Faculty of Tarbiyah (Tarbiyah and Teachers Training, Faculty of Adab and Humanities, Faculty Ushuluddin and Philosophy, Faculty of Shariah and Law, Faculty of Da'wa and Communication, Faculty of Dirasat Islamiyah, Faculty of Psychology, Faculty of Economics and Social Sciences, and Faculty of Science and Technology. The total number of departments becomes 41 majors



| Customer Demands

As of 2019 UIN Syarif Hidayatullah Jakarta have more than 36,000 students with up to 20% increase students each year. However, the existing server in their data center is already more than 5 years with a mixed physical and virtual environment. This current condition created several challenges and complained of students because of slow response time to servers especially student portal.

There were also not enough resources to do research and development for the internal team. This condition makes the UIN Syarif

Hidayatullah Jakarta planned to renew and upgrade their existing data center. Their existing Data Center consists of more than 20 servers with 95% of the servers is self-develop applications. Therefore, there is several components need to be considered in the creating new Data Center infrastructure:



- New environment needs to be integrated with existing solutions
- Existing conditions can be easily migrated to the new environment with minimum risks
- Increase SLA and user satisfaction
- Build in backup and HA functionality
- Easy to manage, maintain, monitor, and create applications
- Start from small size, easy and flexible to grow to higher size
- Easy implementation of DR when needed in the future

| Sangfor HCI Solution

01

Propose five x86 servers-aServerD 2305 to build one Cluster for DC. Maximum can be extended up to 64 servers in one Cluster

02

Sangfor HCI Build-In backup can make backup in RPO of 1 hour

03

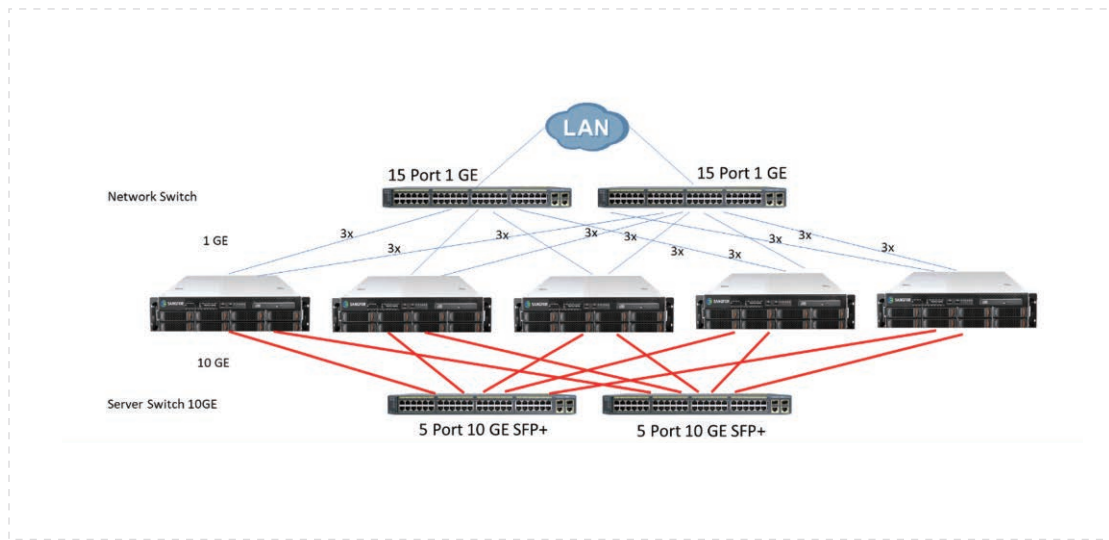
Migrated all 23 physical servers into 5 nodes of HCI Clusters with twice performance in CPU, Memory and HDD

04

All 5 nodes offer a HA functions to ensure the systems availability

05

Network virtualization function makes it easier for the users to create applications topology



Competitors – Nutanix

Competitor Advantages and Disadvantages from Customer' s perspective

Advantages

- Better Brand Recognition
- Integration with microservices
- Leader in Hyperconverge Solution
- Multi Hypervisor option

Disadvantages

- Need minimum 3 nodes
- No local support services
- Price is higher than customer's budget

Our advantages and disadvantages from customer' s perspective

Advantages

- Sangfor can provide end to end solution with Network virtualization functions
- The investment price is within customer's budget
- Sangfor SCP can manage multiple clusters in the future when needed to create DR without additional investment
- Sangfor have local support to ensure the after sales service of the product

Disadvantages

- Sangfor HCI solution not integrated with microservices yet

Universitas Tarumanegara



Customer Background

Universitas Tarumanegara (UNTAR) is in the top 100 (rank 89th) of the University in Indonesia based on webometrics ranking (January 2020 update). UNTAR is a university in Jakarta, Indonesia and one of the oldest private universities in the country established in 1959. In 2017 UNTAR received an accreditation A (meaning Excellent) from the Government's National Accreditation Board (BAN-PT).



It has 4 campuses, where Campus I (main campus) and Campus II are located in the metropolitan area of West Jakarta, and Campus III in South Jakarta. A future Campus IV of 130 hectares, currently under construction, is in Karawaci (a satellite town some 25 kilometers from West Jakarta), and will become an integrated campus called Tarumanagara City.

Customer Demands

As of 2019 UNTAR have more than 15,000 students with up to 3000 increase students each year. Their existing server in their data center is already more than 5 years with a virtual environment (Vmware). This current condition created several challenges and complained of students because of slow response time to servers especially student portal. There were also not enough resources to do research and development for the internal team.

In the business part, the cost of Vmware new license and renewal is to high. Therefore, when they want to add mode server in the existing environment it will cost them a lot. This condition makes the UNTAR planned to renew and upgrade their existing data center using other advance technology which is Hyper Converged Infrastructure. Their existing Data Center consists of 7 physical servers with more than 50 vms and increasing. Therefore, there is several components need to be considered in the creating new Data Center infrastructure:

- New environment needs to be integrated with existing solutions (VMware).
- Existing conditions can be easily migrated to the new environment with minimum risks.
- Able to manage existing data center environment (VMware) in single management.
- Start from small size, easy and flexible to grow to higher size.
- Increase SLA and user satisfaction with build in backup and HA functionality.
- Easy to manage, maintain, monitor, and create applications.
- Easy implementation of DR when needed in the future.

| Sangfor HCI Solution

01

Propose two x86 servers-aServerD 2305 to build one Cluster for DC. Maximum can be extended up to 64 servers in one Cluster

04

Managed all existing VMware environment in the SCP

02

Sangfor HCI Build-In backup can make backup in RPO of 1 hour.

05

All 2 nodes offer a HA functions to ensure the systems availability

03

Migrated 21 virtual servers in the production clusters into 2 nodes of HCI

06

Network virtualization function makes it easier for the users to create applications topology



LIST OF MORE EDUCATION AND PUBLIC CUSTOMERS

Aberdeen St. Peter's Catholic Primary School	Po Leung Kuk Law's Foundation School
ACME Learning Centre	Politeknik Negeri Jember
Allama Iqbal Open University	RAJINIBON SCHOOL
Assumption College English Program	Rangsit University
Barret Hodgson	S.K.H. Ma On Shan Holy Spirit Primary School
Cebu Institute Technology University	Seoul International School
Chindwin College	Shun Lee Catholic Secondary School
Ching Chung Hau Po Woon Secondary School	Si Maha Sarakham Nurse College
Chosunlbo JNS Co., Ltd	SKH Bishop Mok Sau Tseng Secondary School
City University of Macau	SKH Holy Spirit Primary School
Dhonburi Rajabhat University	SMIU
Edugate Learning System	St. Patrick's Catholic Primary School
Faculty of Information and Communication Technology, Silpakorn University	Stewards Pooi Tun Secondary School
Father Cucchiara Memorial School	Tai Kok Tsui Catholic Primary School
Fukien secondary school affiliated school	Thailand Cyber University
German-Malaysian Institute	True Light Middle School (Primary Section)
HKUGA College	Tsuen Wan Chiu Chow Public School
kasem bundit university	Tsuen Wan Public Ho Chuen Yiu Memorial Primary School
Kasetsart University Sriracha Campus	Universitas Negeri Yogyakarta
Kwun Tong Government Primary School	Universitas Sam Ratulangi
Lai King Catholic Secondary School	University Islam Negeri Mataram
Lyceum of the Philippines University	Vajira Hospital
Macau University of Science and Technology	Yan Chai Hospital Tung Chi Ying Memorial Secondary School
Multimedia University	Yaumati Catholic Primary School (Hoi Wang Road)
Ping Shek Estate Catholic Primary School	Yaumati Catholic Primary School
Po Kok Secondary School	Minghsin University of Science and Technology
Universiti Malaysia Sabah	Universiti Malaysia Pahang
Universitas Islam Negeri Syarif Hidayatullah Jakarta	Universitas Tarumanegara



GOVERNMENT



Dinas Komunikasi dan Informatika Daerah Istimewa Yogyakarta (DIY)



Customer Overview

Dinas Komunikasi dan Informatika Daerah Istimewa Yogyakarta (DIY) is a government institution managing all the things related to IT in the Yogyakarta Province. Diskominfo DIY advises the governor of Yogya Province in the IT field. The Institution is established according to Law No.23 Year 2014 about Regional Government and Government Regulation No.18 Year 2016 concerning Regional Devices, which mandates that every regional government carry out compulsory government affairs that are related to basic services, including communication and informatics, statistic, and coding.

Business Pain-Points

All of the Yogyakarta Provincial institutions' applications were located in the Diskominfo DIY data center. There are currently 120 virtual machines in the DIY data center, with the number expected to increase. This makes it mandatory for Diskominfo DIY to have a Disaster Recovery Center. Their DR was in Batam. In the existing Diskominfo DIY data center and DRC, they used 3-tier traditional architecture running VMware. They used an existing Cisco UCS Blade System with 6 nodes of servers and more than 5 physical servers in the DC. In the DRC they also had 1 UCS Blade server system with 6 nodes of servers. Therefore, their requirements were:

- Data replicated to DRC within 1 day (120vms)
- Integration with existing solutions
- Improved SLA and user satisfaction
- Easy management, maintenance, and flexibility to move between DC and DRC
- Easy flexibility and expansion
- Single pane monitoring for DC and DR
- Both DC and DR sites completely protected from any harmful traffic
- Ability to connect to both DC and DR using a secure tunnel link

Executive Summary

- Customer: Diskominfo DIY
- Industry: Government
- Location: Indonesia

Challenges

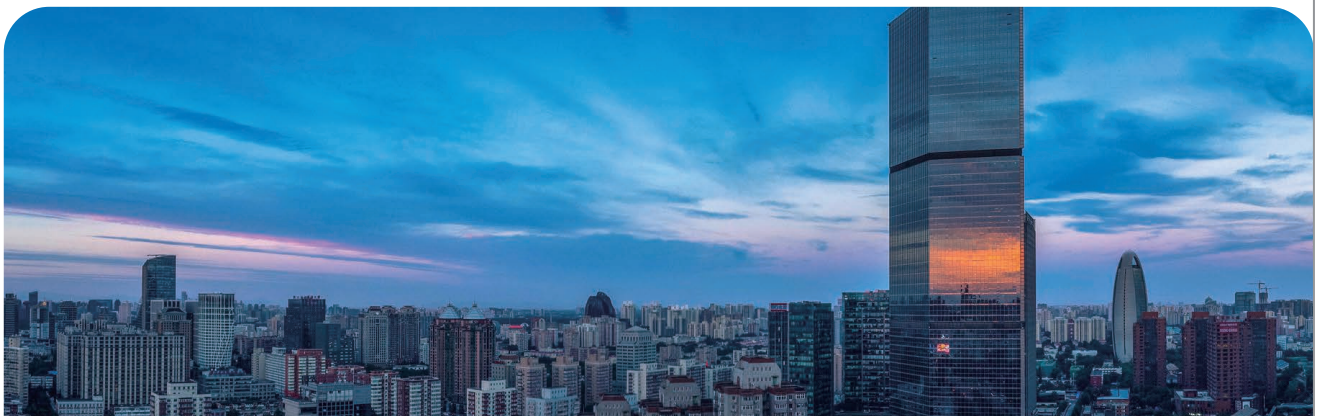
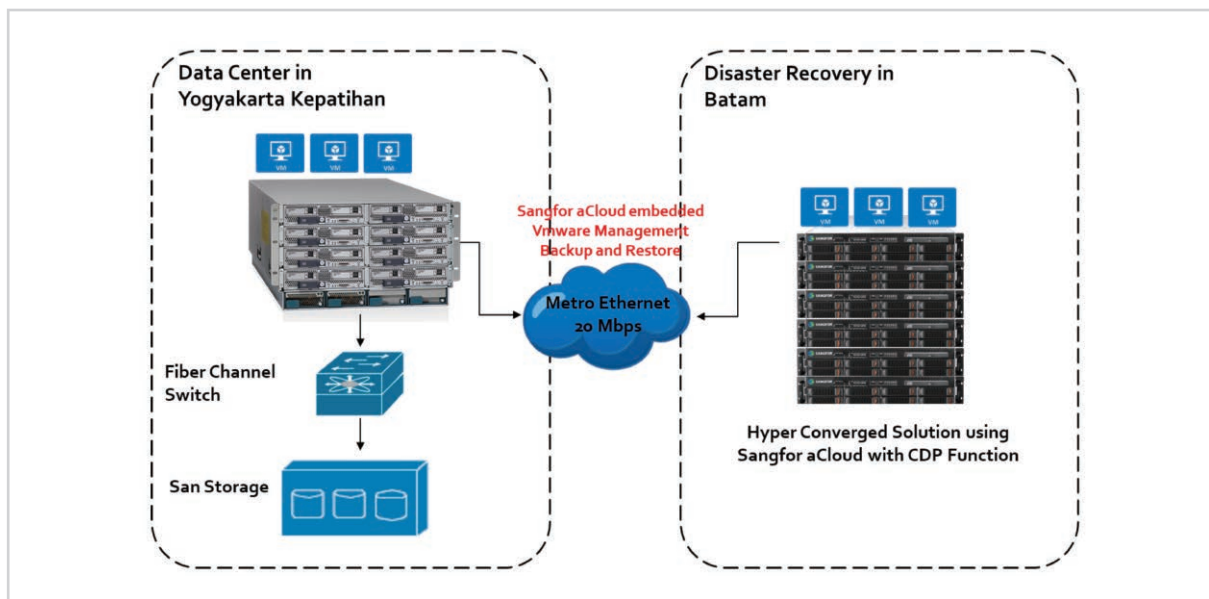
- Data replicated to DRC within 1 day (120vms)
- Integration with existing solutions
- Easy management, maintenance, and flexibility to move between DC and DRC

Sangfor Solutions

- Sangfor HCI

| Sangfor Solution

- 01 Sangfor proposed 6 x86 servers - aServer 2205 to build one cluster for DRC. Maximum extension is up to 64 servers in one cluster.
- 02 Sangfor HCI' s built-In backup provides off-site backup with RPO of 1 hour.
- 03 Integrated existing VMware in DC, with 6 nodes of HCI platform in DRC, allowing the customer to manage the VM' s in vCenter on Sangfor SCP.
- 04 Offsite backup of all VM' s in DC to Sangfor HCI cluster in DRC.



KEMAS (Jabatan Kemajuan Masyarakat)

Customer Overview

The Community Development Department, often known to the public as **KEMAS**, was established in 1961 as an extension of the Adult Education Division.

Following the launch of the “New Economic Policy” in 1970, KEMAS shifted its focus toward community development and in an effort to combat illiteracy and poverty in the rural communities of Malaysia, KEMAS adopted the “**Functional Literacy**” concept, introduced by UNESCO in 1977.

Challenges

3 Tier Structure

1 Traditional structure (server, storage and network)

- A majority of the servers were aging with only 2 engineers responsible for managing all the conventional servers.
- Management of the 8 physical servers and 4 ESXI VMware hosts was a challenge in terms of management efficiency.

- Because the network was separated into 2 zones (server and DMZ), an excessive number of ports were being utilized and the complexity of the network was greatly increased.

- Management of both VMware and physical servers, all with different access methods, was complex and inefficient.

High Availability

- Traditional servers weren't necessarily highly available, causing management to worry about reliability.
- With no restoration method in place, in the event of a failure all data would be lost. After experiencing a catastrophic data failure, management was convinced they needed a virtualization solution to prevent this loss in the future.

Expansion Bottleneck

- When new applications were added, the VMware host became fully occupied and KEMAS was required to purchase additional physical servers to support their network.
- Their existing system required an increased cost when expanding with new applications.

Executive Summary

- Ministry
- Industry: Government
- Location: Malaysia

Challenges

- 3 Tier Architecture
- High Availability
- Expansion
- Bottleneck

Sangfor Solutions

- Sangfor HCI Consolidation
- Reliable Architecture
- Efficient Expansion

| Sangfor Solution

Sangfor consolidated both the traditional & VMware platforms into Sangfor HCI, with high availability features and automatic VM failover when node failure occurs. Sangfor HCI enhanced the CPU expansion efficiency, meaning easy future expansion of memory and disks without requiring additional nodes.

| Solution Values

3 Tier to 1 Tier Consolidation Solution

- Migrated all the physical servers and EXSI host VMs into Sangfor HCI.
- Centralized both servers and DMZ zone into Sangfor Network Virtualization management console, creating network segments within the HCI console and reducing the complexity of physical network segmentation.
- The user-friendly web UI allows customers to easily manage HCI without any onsite Sangfor training.



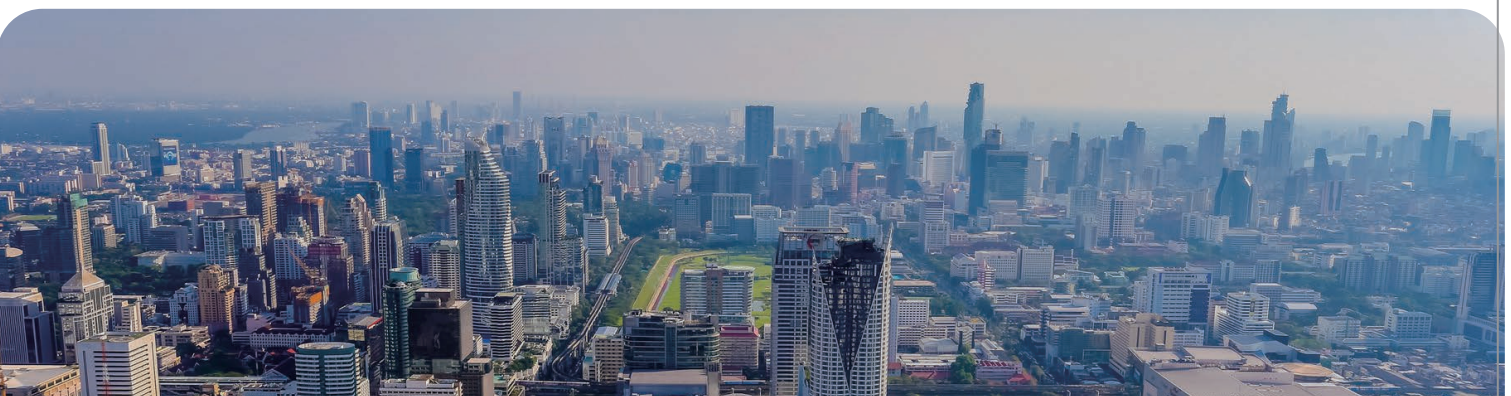
Ensure Business Continuity

- In the event of node failure, the VMs were equipped with automatic failover, expediting recovery to around 1 minute.
- In the event of VM failure, built-in recovery imaging means recovery is possible within 3 minutes.



Expansion Efficiency

- New applications are easily created and resources assigned (CPU, RAM, disk) based on requirements, with no additional nodes required.
- No further nodes will be required regardless of future expansion, the addition of extra RAM or disks, eliminating the need to invest in new nodes.



MOH (Ministry of Health)



Customer Overview

The Ministry of Health (Malay: Kementerian Kesihatan), abbreviated MOH, is a ministry of the Government of Malaysia responsible for health systems, healthy behaviour, cancer, public health, health management, medical research, health systems research, respiratory medicine, health promotion, healthcare tourism, medical devices, blood collection, leprosy control, clinical research, dental care, health institutions, laboratories, pharmaceuticals and patient safety.

Business Pain-Points

When new applications were added, the old server couldn't handle the resources. Purchase of a new physical server was required, and as a result, the cost of expansion increased. There were 12 sites that needed deployment and MOH wanted to centralize the management of all 12 sites into one single management console. Additionally, the old server infrastructure design failed to meet the latest reliability standards and lacked high availability. MOH wanted a flexible solution for future storage expansion. Finally, backup storage was required, to store data outside the production server.

Benefits of Sangfor HCI Solution

- 01 HCI can centrally manage applications with one single console
- 02 Provide N+1 design for each location. Total deployment at 12 sites
- 03 Allow for hot swap storage in the future and supports flexible expansion of hardware with different specifications
- 04 Can be integrated with external storage
- 05 Instant recovery of VM within 3 minutes

Executive Summary

- Customer: Ministry of Health
- Industry: Government
- Location: Malaysia

Challenges

- Traditional 3-tier architecture unable to handle resources
- Lack of centralized management
- Lack of reliability
- Lack of expansion flexibility
- Need to integrate with external storage

Sangfor Solutions

- Sangfor HCI

MOHR (Ministry Of Human Resources)



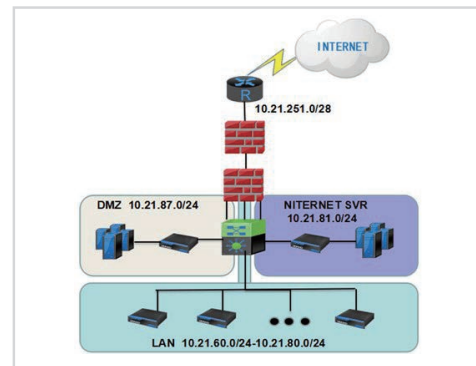
Customer Overview

The Ministry of Human Resources (MOHR), formed in 1958, is a ministry of the Government of Malaysia that is responsible for skills development, labour, occupational safety and health, trade unions, industrial relations, industrial court, labour market information analysis and social security. They have over 60 servers, including 58 physical and 8 virtual.



Previous IT Infrastructure

MOHR's previous internal network included 3 zones: DMZ, NITERNET and LAN. All servers are distrusted in DMZ and NITERNET zones. Their 68 servers include web, mail, FTP and SQL servers. They were end of life with most in use for the past 5 years and some for over a decade.



Customer Challenge/Demand:

IsSwift, MOHR's contractor responsible for IT operation and maintenance, had only 3 staff to manage all 68 servers. Most staff time was taken up by server management, as physical servers require individual management. Maintenance was becoming increasingly demanding as the servers aged, leaving no time for network analysis and tasks.

2 entire rooms were dedicated to the physical servers, which generated a significant electricity and cooling cost.

The aging servers were performing too poorly to satisfy increasing business needs. As the business grew, the whole IT system was sure to expand, with more costly servers needed.

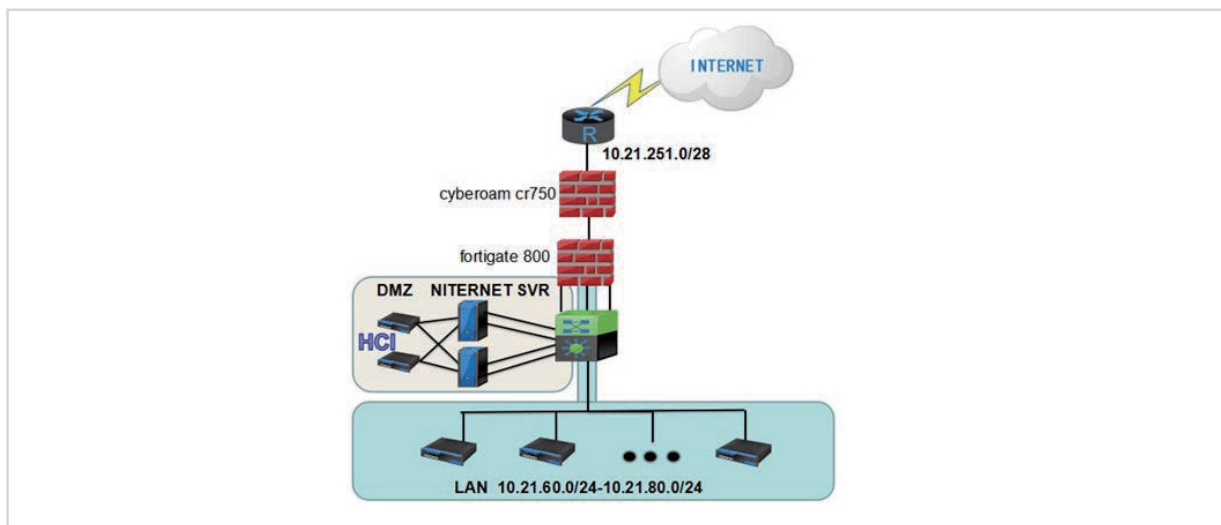
Alternative Solution

MOHR reached out to a USA-based vendor first, but the server & storage virtualization solution they offered largely exceeded MOHR's budget.

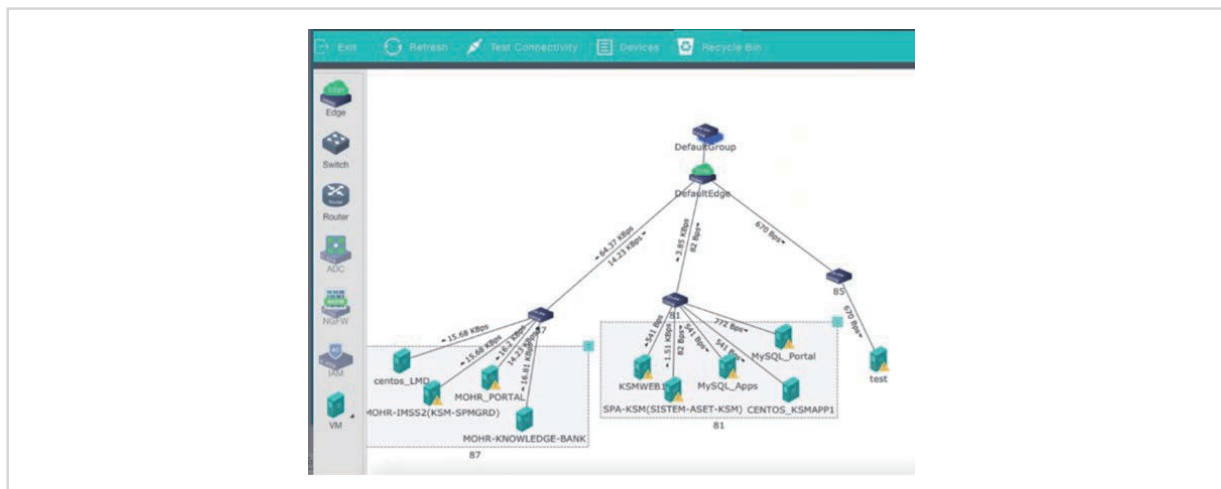
The USA-based vendor didn't have the network-wide firewall and internet access management functions required, integrated into their system, requiring MOHR to purchase additional systems from other vendors for any future IT development.

Sangfor HCl Solution

- MOHR's IT Manager was invited to an HCl event by a Sangfor distributor, and showed interest in the Sangfor HCl solution. Sangfor provided a tailor-made plan and quote within their budget.
- All 68 servers were migrated to 4 sets of Sangfor HCl (aSV + aSAN + aNET) with complete server virtualization, storage virtualization and network virtualization functions.
- After deploying Sangfor HCl, the MOHR IT infrastructure was unchanged. Moreover, by utilizing server and storage virtualization, MOHR can now easily expand their business by creating new VMs while enjoying quicker TTM and lower TCO.



- With Sangfor HCl network virtualization, MOHR can now operate and maintain the entire IT infrastructure effortlessly with the “What You Draw is What You Get” feature.



- MOHR's data center footprint was reduced from 2 rooms too part of 1 small room. Their IT staff now are free from tedious maintenance tasks and have more time for analysis and other value-added business.

PT Asuransi Sosial Angkatan Bersenjata Republik Indonesia (Persero)



Customer Overview

ASABRI was established in 1971 under the supervision of the Indonesian Defence Ministry. Today, they are under the auspices of the Ministry of State-Owned Enterprises. ASABRI provides insurance and pension for members of the army, police and the non-military members of all those who work for the Ministry of Defence and Indonesian Police Department.

Business Pain-Points

Their existing environment had more than 90 virtual machines, running on old servers since 2010, using Hyper-V from Microsoft. The virtualization technology they used did not have a HA (high availability) function. They needed a solution that was cloud-ready, like Amazon Web Service or Azure, in addition to a self-managed Private Cloud.

Poor performance of legacy servers was becoming a problem. Their requirements were:

Executive Summary

- Customer: PT ASABRI
- Industry: Government
- Location: Indonesia

Challenges

- A private cloud solution
- Flexible expansion
- High Availability

Sangfor Solutions

- Sangfor HCI

01

A private cloud solution and all virtual servers migrated to the platform with the help of an excellent support system.

02

Easy expansion with the ability to easily add more compute and storage resources as their business grows.

03

The ability to deploy new applications (like ERP) in the new environment.

04

High availability

| Benefits of Sangfor Solution



Pay-as-you-grow, easy expansion



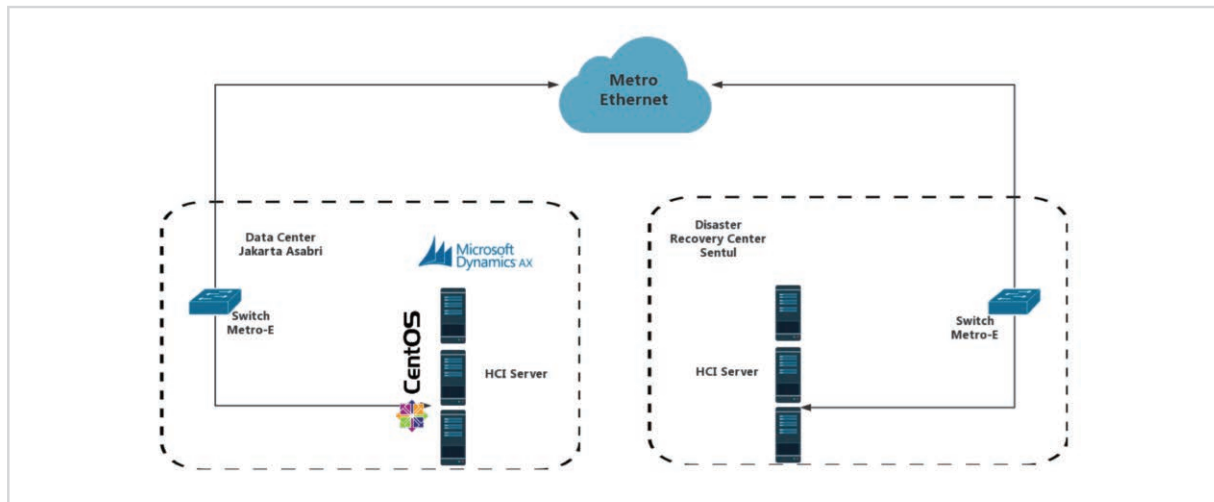
Over 90 servers hosted and managed on only 3 nodes with the Sangfor HCI platform



The Sangfor converter provides effortless migration from Hyper-V to Sangfor HCI



Sangfor HCI can achieve high availability with virtual SAN functions that give them 99.99% SLA



Ministry of Science Technology and Innovation



Customer Background

The abbreviation of MOSTI is Ministry of Science, Technology and Innovation, previously called MESTECC.

MOSTI Pain-Points

MOSTI was struggling to maintain their current legacy server infrastructure, which was running on a traditional 3-tier architecture platform. Traditional 3-tier architectures are large, use a great deal of electricity and are difficult to manage and troubleshoot in storage, server and network.

- MOSTI wanted to shift to virtualisation technology, but didn't know where to start. They surveyed multiple HCI brands.
- MOSTI was using a legacy server with mid-end hard disk (SAS/SATA). The result was a slow IOPS (Input & Output Per Second) issue during peak hours.
- MOSTI wanted a low cost solution with maximum value, and wanted to reduce the cost for IT infrastructure, while improving performance.
- MOSTI discovered that their previous backup solution had poor restoration performance, taking more than 30 minutes or more to get their server up again if it was experiencing issues.



Executive Summary

- Customer: MOSTI
- Industry: Government
- Location: Malaysia

Challenges

- Legacy server infrastructure
- Performance Bottleneck
- Lack of expansion flexibility
- Single Point of Failure

Sangfor Solutions

- Sangfor HCI Solutions

01

- Using 2 nodes of Sangfor HCI reduces the amount of expensive equipment and software required. With HCI, MOSTI only needs to purchase the minimum amount of hardware and licenses.
- The number of physical servers, and the space they needed and the amount of electricity needed was reduced. Using visualisation, MOSTI can check on real-time VM traffic, system resource conditions and even troubleshoot VMs.

02

Sangfor HCI has SSD Caching technology, striping, and large-page mechanisms to improve server efficiency for IOPS. We called this Hybrid technology, which combines SSD + SATA Disks.

03

Sangfor HCI consolidated virtual CPU, memory, disks and network into one box. We offered MOSTI 3 exceptionally reliable performance and a simple and straight forward interface. Most importantly, our backup solution is built-in, to communicate with external storage and store the backup files.

04

Sangfor HCI has configure clustering within 2 nodes in the DC (production) in order to have at least 2 copies of data, or even 4 to maximise availability and minimise business impact if one node is down. HCI's Instant Recovery feature brings up data located at any node.



Department of Environment

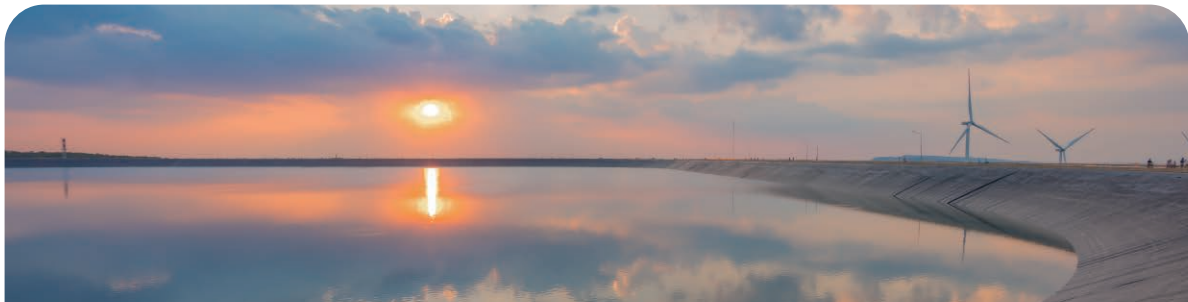


Customer Background

The Department of Environment, Ministry of Environment and Water is responsible for ensuring sustainable development of Malaysia's development process and keep the environment clean, healthy and safe for the people.



DOE acts as a disseminator of information, skills and valuable ideas for the development of the community's ongoing appreciation of the natural environment. This includes promoting the concept of self-compliance by industry and the public.



Business Pain-Points

There was no backup in existing environment. If a disk failed or data was lost, they must recover the data manually or contact their vendor to provide recovery services, which come with a fee.

- There was no HA. If a server failed, replacement of hardware was needed. This maximises the down time for the operation.

- There was no disaster plan or recovery tools, meaning data was not being well-protected. The amount of time it took to restore applications was functionality too long. They wanted to build a Disaster Recovery Center to achieve second or minute-level RPO.

- Government compliance achieved using an external backup storage appliance apart from internal backup.

Executive Summary

- Customer: JAS
- Industry: Government
- Location: Malaysia

Challenges

- Lack of backup & HA
- Lack of DR replication
- Compliance for external backup storage

Sangfor Solutions

- Sangfor HCI Solution

| Customer Background

01

Sangfor HCI consolidate virtual CPU, Memory, disk and network into one box. We offers customer with exceptional reliability, performance and a simple and straight forward interface. Most importantly, we have our backup solution built-in where it can communicate with external storage to store the backup files.

02

HCI is equipped with comprehensive data assurance methods to guarantee business continuity.

- **Disk Failure:** Solved by software RAID10 as data comes with mirroring. There are always a minimum of 2 data copies.
- **VM Failure:** Built-in backup and restore features without 3rd party backup software.
- **Node Failure:** Automatic failover algorithms

03

A complete DR solution is implemented on top of the production cluster, replicating every VM sdata to the DR data center. Without any 3rd party agent, Sangfor HCI can achieve second-level RPO, with less than 3 minute RTO.

National Disaster Management Agency



Customer Background

The National Disaster Management Agency (NADMA), Jabatan Perdana Menteri was established as an agency for management of disasters. Their mission is to ensure safety and national well-being by developing multi-agency cooperation to build and improve capacity and preparedness in disaster management.



Nadma focuses on integrating science and technology in disaster management, strengthening the Special Malaysian Disaster Assistance and Rescue (Smart) and ensuring inclusive disaster management.



NADMA Pain-Points

- NADMA was struggling to maintain their current legacy server infrastructure, which was running on a VMware 3-tier platform. NADMA wanted to shift to virtualization technology, but didn't know where to start.

- NADMA was concerned about risky cross platform VM migration and compatibility issues. They needed to ensure that migration could be performed from their current platform, on a different brand of virtualization platform.

NADMA want a minimum cost solution with maximum value. They needed to reduce cost for IT infrastructure but also improve performance.

- NADMA was planning to deploy a Disaster Recovery Centre (DRC) in stages.

Executive Summary

- Customer: NADMA
- Industry: Government
- Location: Malaysia

Challenges

- Legacy server
- Infrastructure
- Lack of backup & HA
- Lack of expansion flexibility
- DRC

Sangfor Solutions

- Sangfor HCI Solution

| Benefits of Sangfor HCI Solution

01

2 nodes of Sangfor HCI reduced reliance on expensive equipments and software, requiring only minimal hardware and licenses.

02

Sangfor provided migration tools for NADMA to migrate their existing servers, using V2V 2 (Virtual to Virtual) migration to the Sangfor HCI platform.

03

Sangfor HCI consolidates virtual CPU, memory, disk and network into one box. We offer exceptional reliability, performance and a simple and straight forward interface. Most importantly, our backup solution is built-in to communicate with external storage to store the backup files.

04

5 months after the deployment of the production data centre, a new HCI cluster was deployed at their Disaster Recovery 4 Centre (DRC). Sangfor HCI works perfectly with other server brands, as our solution is not hardware dependent.

Diskominfo Kota Makassar



Customer Background

Dinas Komunikasi Dan Informatika Kota Makassar (Diskominfo Kota Makassar) is a government institution tasked with managing all the things related to IT for all government affairs under the City of Makassar.



Challenges

01

To improve public services for citizens, the City government of Makassar delivers various services, including digital applications and is responsible for preparing infrastructure to support applications and services.

02

Diskominfo Kota Makassar needed an infrastructure that could support an application and software platform, to improve services and job performance, and provide excellent user experience.

02

Diskominfo Kota Makassar's IT team needed a platform that supported big data.



| Sangfor Solutions

Sangfor proposed 6 Nodes HCI (aServer-2205) and 1 Next Generation Applications Firewalls (NGAF-M5500) as a bundle solution.

Sangfor HCI was deployed as a platform for new applications. Sangfor HCI delivers both a platform for their applications and high availability, easy management, snapshots and backups, to significantly increase their performance, and availability to their applications.

Sangfor Next Generation Application Firewall (NGAF) now protects their applications from public access. With Sangfor NGAF provides real-time assessment of application security, and uses Engine Zero to protect the system from malware. Even web applications accessed by public are protected by Sangfor Integrated WAF, as an all-in-one solution with easy management and simplified reporting.



LIST OF MORE GOVERNMENT AND PUBLIC CUSTOMERS

Badan Narkotika Nasional	Ministry Of Human Resources
Badan Pengawas Pemilu RI (Bawaslu)	Office of the Government Chief Information Officer
Badan Tenaga Nuklir Nasional	Ombudsman Republik Indonesia
Badan Pengusahaan Kawasan Perdagangan Bebas dan Pelabuhan Bebas Batam (BP BATAM)	Office of Woman's Affairs and Family Development (OWF) Office of Woman's Affairs and Family Development
Bawaslu (Badan Pengawas Pemilihan Umum Republik Indonesia)	Palace of Justice
City Government of Zamboanga	PDRM
Department of Disaster Prevention and Mitigation (DDPM)	Perbadanan Kemajuan Filem Nasional Malaysia
Department of Justice	Perpustakaan Nasional
Department of Local Administration	Perum Perumnas
Diskominfo Bangka Belitung	Philippine fiber industry development authority
DISKOMINFOSTANDI Kota Bekasi	PMRC
EPOMS	PT. ASABRI (Persero)
Fscct	PT. Bandar Udara Internasional Jawa Barat (BIJB)
Jabatan Keselamatan dan Kesehatan Pekerjaan	PT. Pindad Persero
Kementrian Perhubungan Republik Indonesia	PT. Rajawali Nusindo
Kodiklat TNI AD	PUSAT PENGEMBANGAN SUMBER DAYA MANUSIA
Kuala Lumpur Regional Centre for Arbitration	PERHUBUNGAN LAUT(Ministry of Transportation)
Kumpulan Prasarana Rakyat Johor	Royal Thai Navy
Mahkamah Perusahaan Malaysia	Suruhanjaya Perkhidmatan Awam (SPA)
Mass Transit Railway (MTR)	Thailand Productivity Institute
MBPJ	United Nations Development Programme
Ministry of Science, Technology and Innovation	Widya Karya - Kereta Cepat Indonesia China/ Wika KCIC
Department of Environment	National Disaster Management Agency
Diskominfo Kota Makassar	



Hermina Hospital



Customer Overview

RSIA Hermina is an Indonesia-based private hospital operator that focuses on women and children, originally built in 1967 with only 7 beds. Hermina provides optimal and professional services for patients. The hospital strives to meet increasing needs for better services and to be consistent with RSIA Hermina Group's Developing Program, the "Program for Quality Improvement and Supervision" for all treatments and to support the "Quality Service Improvement" directive set forth by the Ministry of Health.

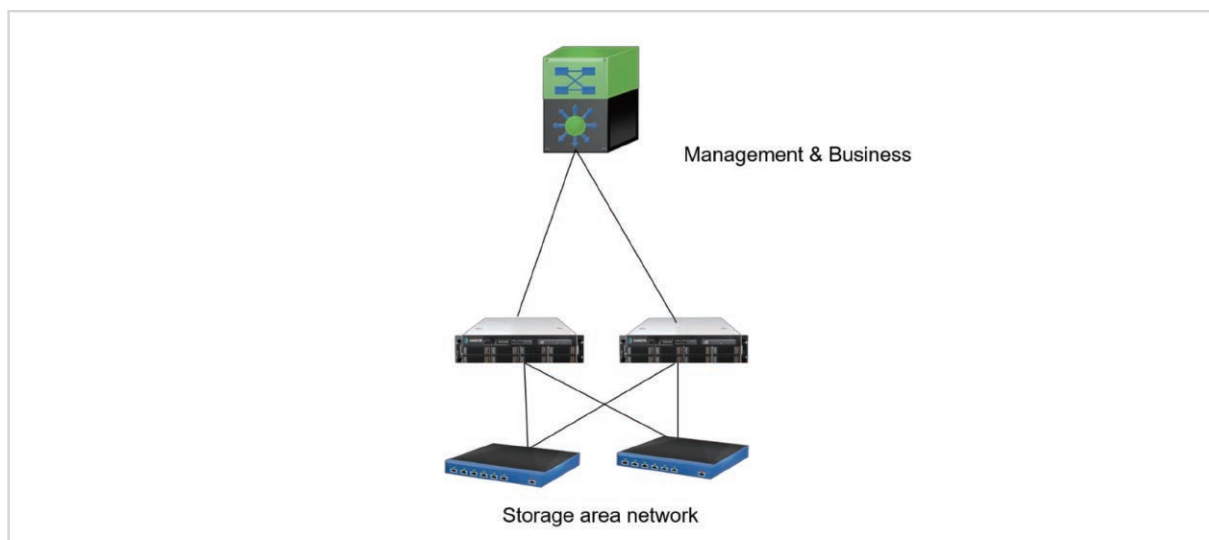


Customer Requirement

- Hermina manually created patient records, and still used physical archives for their files.
- Hermina required a replacement of all their current servers.
- As Hermina partnered with the Tekno5 CEO to create a Hospital Information System (HIS) and Electronical Medical Record (EMR), they required a third-party server which would integrate with their systems.

Sangfor HCI Solution Benefits

- 2 Dell servers with 4 sets of HCI licenses (aSV and aSAN) for pure virtualization, saving rack space.
- HA and backup functions without 3rd party software



Husada Hospital



Customer Overview

Husada Hospital is a type B hospital, with a capacity of 311 beds. Inpatient facilities available are; Super SUITE, SUITE, VIP SUPERIOR, VIP STANDART, Class I, II, III, Children's Room, Room for Midwifery and Genecology and Intensive Care Room (ICU/CCU). The superior units of Husada Hospital include an integrated Diabetes Services Unit, Stroke Unit, Liver and Gastrointestinal Unit, Interventional Radiology and Laparoscopic Surgery unit.

Husada operates 24 hours, serving patients who need emergency, laboratory, radiology and pharmacy health services.



Customer Requirements

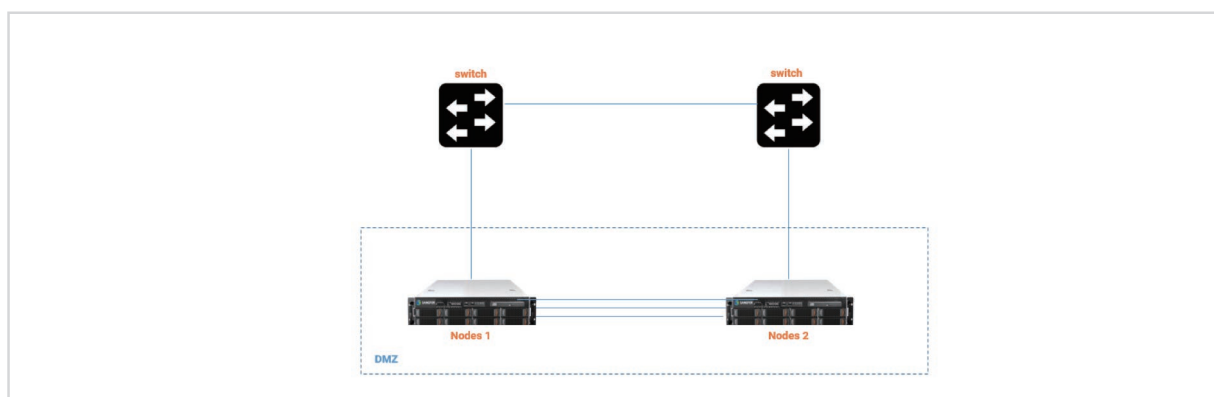
- Physical servers for critical applications including HIS, LAB and EMR, which needed high resources while running to avoid any applications suffering downtime.
- Good after-sales support services to support the continued development of the infrastructure.
- The IT team was searching for competitive pricing, suitable to their budget and matched with the virtualization solution.

Sangfor HCI Solution

- Sangfor HCI replaced their traditional infrastructure by reducing 2 servers into 1 cluster, and within this cluster, unifying compute, storage resources and management, with no need to install an agent on the client computer to manage applications.

By using 2 nodes of the Sangfor HCI appliance, aServer, no external storage was needed. Sangfor aSAN provided virtual storage,

- boosting performance and data protection capabilities through multiple copies of all policies.
- “What You Draw Is What You Get” topography simplifies O&M.

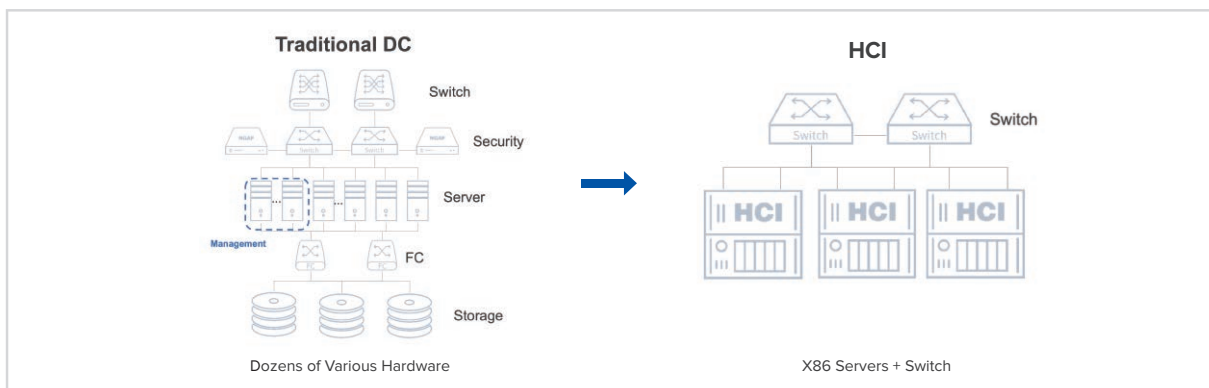


Proposal Value

1. Simple

Sangfor HCI is simple, with fewer server virtualization technologies, more external storage, physical router/switch and security devices than are typically found in traditional cloud architecture. The initial scale was large and initial investment high. With the increase of equipment, the system's point of failure increased, leading to the decline of reliability of the entire platform. Finally, a large amount of physical equipment leads to a longer procurement process and extends the time to market.

Sangfor HCI needed only a X86 server and switch, two kinds of equipment, making the initial total cost of the cloud data center drop sharply. Based on distributed architecture, two all-in-one machines can build a resource pool, guaranteeing system reliability. Based on a modular and standardized resource pool, the construction process is very simple.

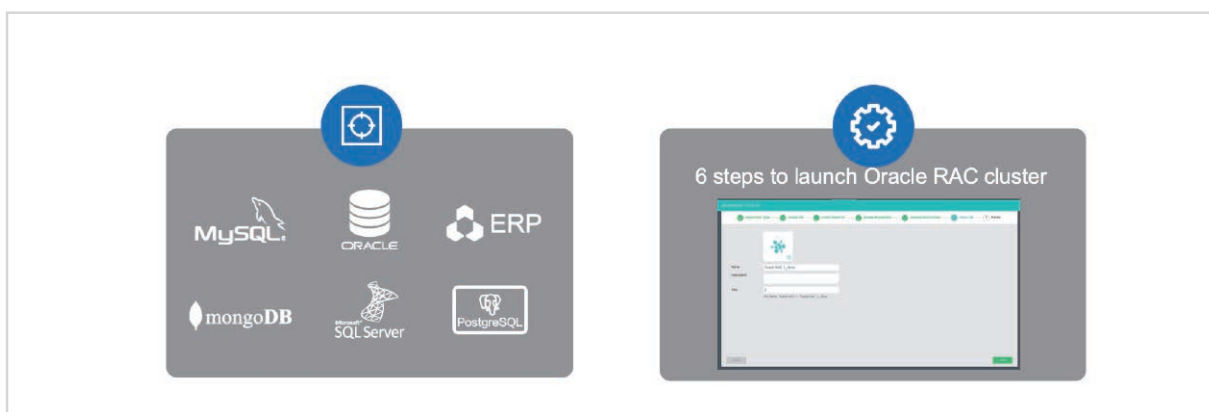


HCI is a category of scale-out. IT architecture was simplified by consolidating legacy hardware into servers and switch, all functions are delivered by software. Sangfor consolidates more hardware, like firewall and load balancer, providing better CapEx and management.

2. Stable

HCI stably and efficiently carries enterprise-level core services such as Oracle RAC and SQL Server clusters.

The combination of software-defined distributed storage architecture, deep optimization of RAC scenarios, and optimization for CPU and memory, HCI stably supports Oracle RAC and ensures performance, stability, and reliability.



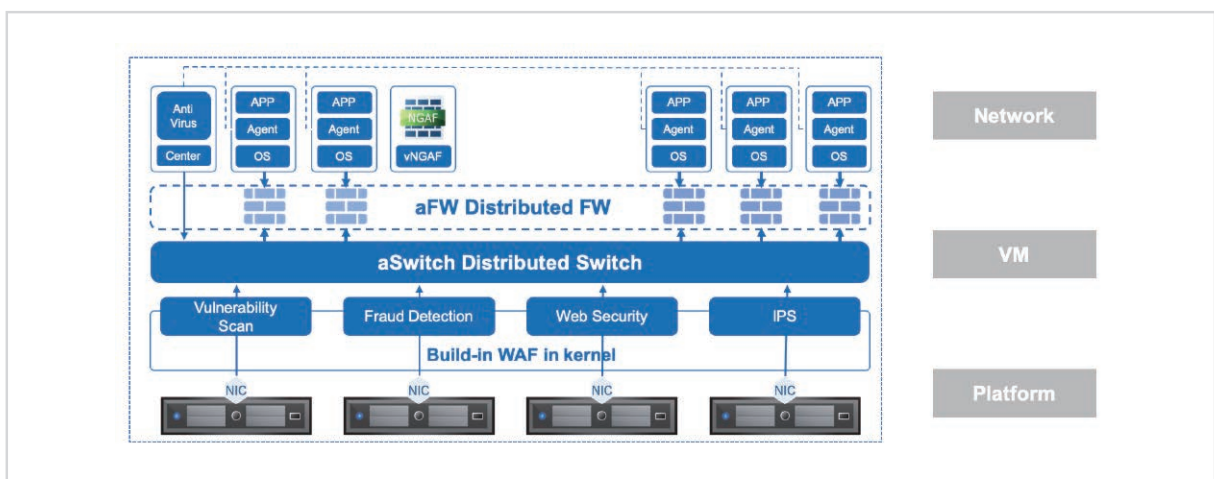
Multi copies is totally different from a traditional RAID based mechanism. This feature dramatically enhances data security. Sangfor provides technology designed to ensure reliable data, such as multiple copies of data. All data is written to disk and on multiple hosts. The platform also provides built-in standby functions that can reserve backup data on local or remote storage space.

3. Security

Because traffic between virtual machines is invisible, a virtual machine can easily become a springboard to reach the entire data center in the event of an attack. Sangfor incorporates WAF code into the kernel and provides a distributed virtual firewall function in the hyper-converged architecture, providing firewall protection for each virtual host and micro-isolation of virtualized services.

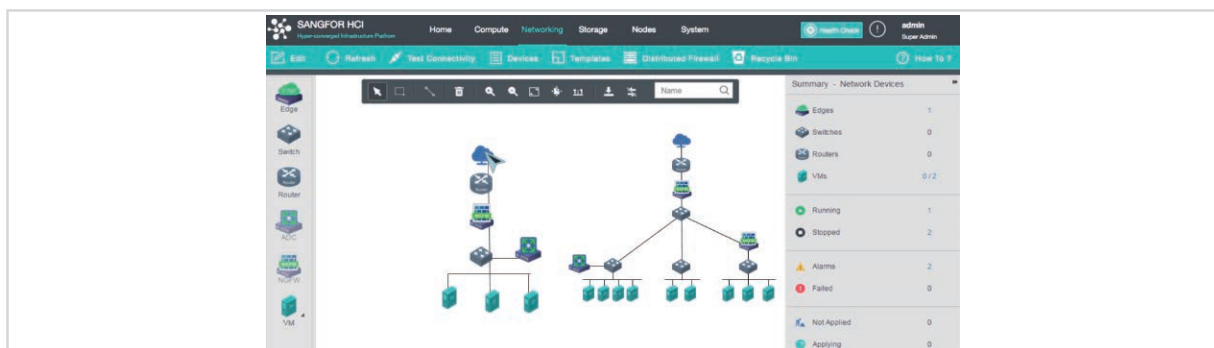
Sangfor has also virtualized various network security devices such as NGAF and ADC, which can be deployed directly at key locations in the cloud data center. All security components are managed through a unified web platform and achieve rapid deployment and policy delivery.

Sangfor simultaneously provides east-west micro-isolation and north-south NFV cloud security solutions, the most comprehensive virtualization and cloud data center security solution in the industry.



4. Easy-to-use

Sangfor is the only vendor that enables network topology automatic generation. Network provisioning is a majority of an IT engineers work load, making automation a valuable feature. Before automation, engineers would spend 5 days a week in the machine room, while now all work can be completed on the management console.



Jakarta Eye Center



Customer Overview

Jakarta Eye Center (JEC) is an Indonesia-based Private Eye Hospital with International Standards. JEC is committed to increasing quality of life, through awareness of eye health. JEC has been serving for people in Indonesia from 1984 as the First Eye Hospital, as well as the most complete and the most professional.

Business Pain-Points

- JEC needed new servers or any an option to replace their current servers. They considered moving their environment to a Cloud infrastructure, requiring 4 servers in their environment, as a start.
- JEC wanted an HCI solution that could continue utilising existing storage, (SAN or NAS), and third-party servers, namely Dell.

Sangfor HCI Solution

- Dell x86 servers and Dell R740xd were used to build one cluster, with a maximum of 64 servers in one cluster.
- Sangfor provided 8 sets of software licences for aSV and aSAN for virtualisation and continuous data protection, for 5 VMs running critical traffic.

Executive Summary

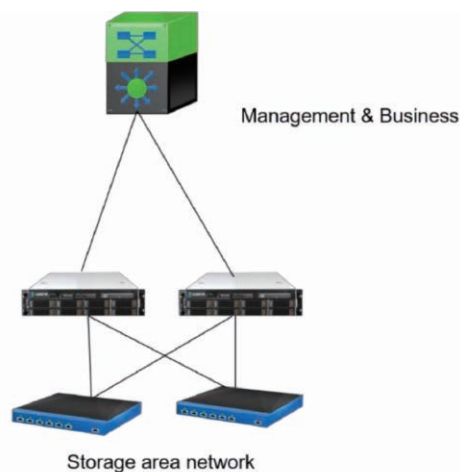
- Customer: Jakarta Eye Center
- Industry: Healthcare
- Location: Indonesia

Challenges

- Flexible expansion
- HCI that would continue utilizing existing storage (SAN or NAS)
- 3rd-party servers
- Maximize manageability

Sangfor Solutions

- SANGFOR HCI
[aSV, aSAN, aNET, CDP]



Mariano Marcos Memorial Hospital and Medical Center



Customer Overview

Mariano Marcos Memorial Hospital and Medical Center (MMMH & MC) is the biggest public hospital in Llocos Norte province, in the city of Laoag, founded in 1972. MMMH & MC are the only level-3 hospitals (the highest level) in the region that offer CT. In 2012, MMMH & MC started their digital transformation, with iHomis (hospital information system) & MedSys supported by the DOH (Department of Health). With more and more systems being digitalized and patient quantity increasing, the IT infrastructure had become a critical challenge.

Challenges

Performance Issues

Their IT infrastructure had become a drag on the efficiency. It took 5-10 minutes for the billing department to export a detailed billing report for patients, who were increasingly unsatisfied with the long wait.

Limited hardware in the Pharmacy Department caused complains that there was no response from server while printing monthly pharmacy reports. The Medical Social Service Classification Department complained about the lack of response from the MSSC module of the server. These two departments could only export data from the server with the assistance of IT staff.

The discharge procedure took about 3+ minutes per patient and hospitalization procedure taking about 5+ minutes per patient, because the Payment Department needed to wait for the system to feedback invoice information. This means an average of 3,000 minutes wasted daily due to low server performance.

High Risk of Failure without High Availability Design

The physical server was designed without any redundancy, meaning server failure would bring down the entire hospital's operation.

They had a high risk of losing data, as there is no automatic, high frequency backup solution for critical applications.

Legacy System's Influence on IT Department's Workload

Most of the IT department's resources were spent dealing with performance issues due to the legacy system.

Hospital service would often (monthly) stop for 3-4 hours if a corresponding system was in planned maintenance, for there is no redundancy design.



Executive Summary

- Customer: Mariano Marcos Memorial Hospital and Medical Center
- Industry: Healthcare
- Location: Philippines

Challenges

- Poor Performance
- High Risk of Failure without High Availability Design
- Legacy System's Influence on IT Department's Workload
- Maximize manageability

Sangfor Solutions

- Sangfor HCI

| Sangfor Solution

Sangfor consolidated all outdated servers into only 3 hyper-converged infrastructure appliances, to support all hospital IT applications.

| Solution Values

Improved Efficiency

- With Sangfor SSD caching technology, striping and large-page mechanism to accelerate database performance, the Pharmacy and MSS departments can now export their reports in seconds, without going to the IT department for help.
- The waiting time for discharge has been reduced to a few seconds, long enough for the billing & payment departments to generate invoices.

Data Protection

- Ransomware had been disrupting the production systems consistently. Every time it happened, there would be huge data loss. Now, the core systems recover easily from ransomware attacks, with the help of local backup and continuous data protection.
- CDP backs up data every 5 seconds, to minimize data loss.
- The current infrastructure is an enhanced system that can recover lost data in case of accidental disk/server failure.

Business Continuity

- The critical application, iHomis, is now elastic with Sangfor DRS & DRX. Sangfor HCI can automatically adjust system resources to cope with peak business hours.
- The IT department doesn't need to shut down servers for planned maintenance. With Sangfor's live migration technology, applications can now be migrated to another node without any service interruption.
- The built-in HA can auto-switch workloads from one node to another, in the event of hardware failure.



Royal Progress International Hospital



Customer Overview

Royal Progress International Hospital is a Class B Private Hospital, established in 1990 in Sunter, North Jakarta. The hospital's outpatient capacity is about 300 and inpatient capacity about 185. Royal Progress developed their own HIS to support their business requirements, and integrated it to BPJS.

Business Pain-Points

Main Problems

- Royal Progress wanted to replace their legacy servers, which had been in use for over 5 years, and purchase new servers to run new applications.

Performance Issues

- Accounting documents took over 2 hours to process with the legacy system.

Core Application Risks

- Existing servers had no backup server, meaning a down disk or server would cause the entire system to go down, significantly hindering business operations.

Benefits of Sangfor Solution

Main Solutions

- Sangfor HCI was bundled with ASUS Servers, using 2 servers for HA and to run all their existing and new applications.

Improved Performance

- Sangfor SSD caching technology accelerates database performance and improves monthly accounting report efficiency, lowering the amount of time to a total of 30 minutes.

Data Protection for Core Applications

- High Availability is provided by 2 physical servers. If one server is down, all VMs will automatically failover to the second server.

Technical Solutions

- New application deployment now takes only 30 minutes. With Sangfor HCI automatic backup, Royal Progress eliminated the additional cost for third-party backup and allowed RPO to be set as weekly, daily or hourly.

Executive Summary

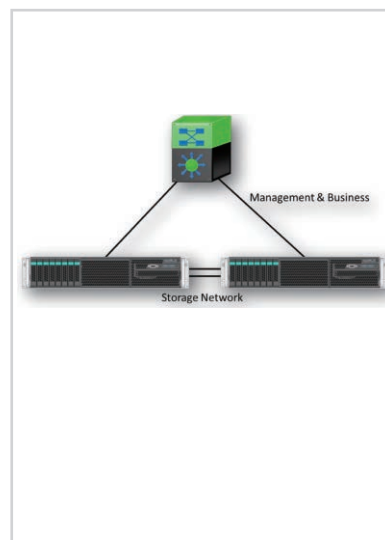
- Customer: Royal Progress International Hospital
- Industry: Healthcare
- Location: Indonesia

Challenges

- Private cloud solution
- Flexible expansion
- High availability

Sangfor Solutions

- Sangfor HCI



Ministry of Health



Customer Background

The Ministry of Health (Malay: Kementerian Kesihatan), abbreviated MOH, is a ministry of the Government of Malaysia that is responsible for health system, health behavior, cancer, public health, health management, medical research, health systems research, respiratory medicine, health promotion, healthcare tourism, medical device, blood collection, leprosy control, clinical research, health care, dental care, health institution, laboratory, pharmaceutical, patient safety and so on.

MOSTI Pain-Points

New Applications are added, and the old server couldn't handle the resources, meaning they must purchase new physical servers at great cost.

There are 12 sites for deployment, and MOH wanted to centralise the management of all 12 sites into one single management console. Additionally, the old server infrastructure design failed to meet the latest reliability standards, lacking high availability. MOH needed a flexible solution for future expansion for storage and to create backup storage outside the production server.



Executive Summary

- Customer: MOSTI
- Industry: Government
- Location: Malaysia

Challenges

- Legacy server infrastructure
- Performance Bottleneck
- Lack of expansion flexibility
- Single Point of Failure

Sangfor Solutions

- SANGFOR HCI Solutions

Benefits of Sangfor HCI Solution

- 01 Use hyper-converged infrastructure to centrally manage applications with one single console
- 02 Provide N+1 design for each location. Total deployed 12 sites.
- 03 Allow hot swap storage in future and support flexible expansion of hardware with different specifications
- 04 Can be integrated with external storage
- 05 Instant recovery of VM within 3 minutes

Hospital Raja Permaisuri Bainun Ipoh

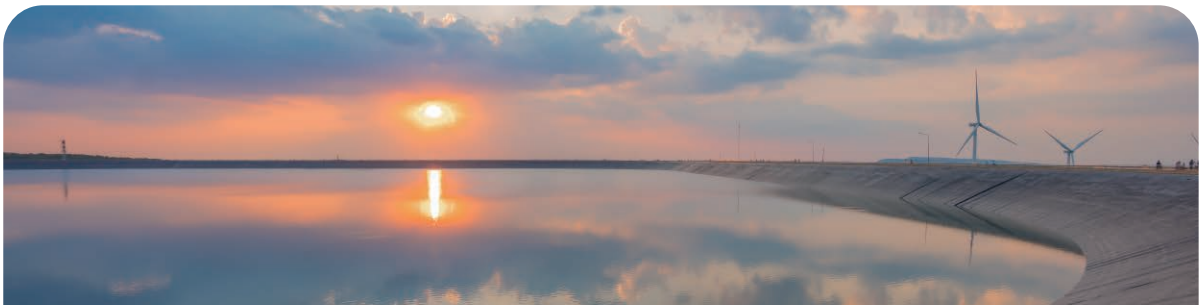


Customer Background

Hospital Raja Permaisuri Bainun is the General Hospital in Ipoh, Perak. The Hospital is the largest hospital in Perak and third largest in Malaysia with a capacity of 990 beds, 16 operating room, 16 bed adult intensive care unit, 8 bed coronary care units, 17 bed intensive care units child (PICU) and 20



extra neonatal care unit. Hospital Raja Permaisuri Bainun provides specialized services in nephrology, respiratory medicine, hematology, neuro surgery, plastic surgery, and pediatric surgery. Imaging services with CT scan and MRI equipment mammography machine.



Challenges

3 Tier Structure

Traditional structure (server, storages and network)

- Servers were aging, nearing the end of their support period, as well as end of life.
- Managing both VMware and physical servers on one infrastructure was a challenge for them in terms of management efficiency.
- Network was separated into 2 types of zones (Server and DMZ), consume multiple ports and increasing the complexity of the network.
- Managing both VMware and physical servers with different access methods and client bases was difficult and time consuming.

Executive Summary

- Customer: HRPB
- Industry: Healthcare
- Location: Malaysia

Challenges

- Consolidates the infra
- Cost effective
- Ease of Management

Sangfor Solutions

- Sangfor HCI Consolidation
- SCP web-console
- Efficient management

Requirements

Cost effective solution

HPRB want the lowest cost solution with maximum value. Reduce cost for IT infrastructure but at the same time performance is improved.

Ease of Management

Management found it difficult to learn the new technology, as they have been using VMware for quite some time, and some are certified on it. They wanted a management interface that was easy to understand.

Sangfor Solution

Consolidate 3 Tiers into a 1 Tier Solution

- 01 Migrate all the physical servers and EXSi host VMs into Sangfor HCI and V2V migration from VMware to Sangfor HCI.
- 02 Consolidation of both VMware and physical servers into Sangfor HCI simplifies the previous complex administrative task of managing two different solutions.
- 03 Centralised both servers and the DMZ zone into the Sangfor Network Virtualisation management console, creating a network segment within the HCI console and reducing the complexity of physical network segmentation.

Cloud Management Platform

- 01 Sangfor SCP is a straight-forward ,yet fully integrated, management console. It provides visibility, centralized operation and management via a unified WEB platform, and users enjoy an ultra-simplified, on-demand IT framework that is evolvable. Most importantly, SCP is easy to learn.

LIST OF MORE HEALTHCARE AND PUBLIC CUSTOMERS

Agusan Del Norte Provincial Hospital	PT mitra keluarga hospital
Batangas Medical Center	Rizal Medical Center
Bethsaida BPJS Hospital	RS Bethsaida Hospital
Bethsaida Hospital	RS MITRA KELUARGA
Damen Hospital	St. Luke's Medical Center – Global City
Healthserve	St. Paul Hospital Tuguegarao, Inc
Kalbe	Surat Vejkit Company Limited
LANANG PREMIER DOCTORS HOSPITAL	Villa Sandra
Negros Polymedic Hospital	West Metro Medical Center
Perpetual Soccour Hospital	Hospital Raja Permaisuri Bainun Ipoh
Ministry of Health	



BFSI



Bank of China Singapore



| Customer Overview

Established in 1936, Bank of China Singapore Branch holds a network of 22 financial touch points. With over 80 years of presence in Singapore, leveraging the Group's extended global network and team of experienced professionals, this branch provides a full range of financial services to its customers from China, Singapore and the surrounding



regions. Over the years, Bank of China Singapore demonstrated its long-term commitment to promote bilateral economic and trade relations between China and Singapore. This particular branch is the first bank in Singapore to provide a wide range of RMB services including RMB deposit, loans, remittance, cash exchange, clearing, trade settlement and finance, bond underwriting and distribution, RMB wealth management products and RQFII investment services.

| Customer Challenges & Requirements

Bank of China had more than 10 servers running Maxxmedia and file servers in the data center. They also required the use of internet and monitoring applications. However, the existing servers were too old to handle all the new workloads together with the existing applications. All of the servers were running in physical mode without shared storage, which means a single point of failure everywhere, and no effective failover or backup solution implemented to secure business continuity and reliability. Furthermore, with only one engineer to manage everything in the data center, the tasks were far too complex and laborious for him to do effective daily O&M.

| Sangfor HCI Solution

Sangfor HCI provided 2 units of 2U aServer, combining the power of aSV and aSAN. Existing Maxxmedia and file servers were easily migrated to the Sangfor HCI platform with the easy-to-use P2V migration tool. The customer self-taught themselves to use the migration tool and successfully migrated all the existing applications to Sangfor HCI within a half day. New business like DHCP and Wiki can be launched on the HCI platform with a few clicks on the web-based console, running smoothly without any performance concerns, thanks to the aServer appliance powered by the latest Intel CPU chips and SSD caching and tiering. Existing server storage capacity can be leveraged as a backup destination for HCI, and native HA is built-in to ensure business continuity. O&M has also been simplified with the Sangfor HCI intuitive web-based management platform, liberating engineers from painstaking IT O&M and leaving more time for business innovation.

| Highlights

O&M simplified dramatically with the intuitive web-based management console, enabling quicker new business launch, continuity and reliability, guaranteed by native HA and backup with a short learning curve.

EFU Life Insurance



Customer Overview

In 1990, the government of Pakistan reopened the life insurance business to private sector organizations. EFU Life Assurance Ltd. started operations in November 1992 as the first private sector life insurance company. In early 1993, EFU Life commenced its Group Life Insurance Business and by March 1994, the company began writing its individual life insurance business.

Customer Requirements

- The web servers Takaful.com and EFUlife.com needed professional WAF protection.
- EFU needed high availability and high IO/IOPS for client portal, POS and other mission critical VMs. Currently using SAN + server with VMware, but not finding it agile enough in the area of capacity extension.
- EFU needed SSL VPN for future extension of 2000 users
- EFU had a low yearly budget available, requiring the reuse of the current server with the new solution.

Sangfor HCI Solution for Insurance Customer

Sangfor integrated HCI with EFU's current hardware (upgrading hard disks with SSD) in two node clusters with virtual storage/network and virtual FW with WAF. Plans were made to add vSSL in the upcoming year, to provide 2000 new users an SSL concurrent connection without adding hardware.

Sangfor Solution Benefits

- Sangfor HCI allows the client to reuse their current highly-performing hardware, reducing initial investment cost. Clustering designed and SSD tiering virtual storage provides HA and high performance.
- Sangfor NFV (network function virtualization) provides virtual FW without extra hardware.
- Sangfor HCI includes a one-stop DR function, which helps provide DR with second-level RPO and minute-level RTO, which can be activated as needed.

Executive Summary

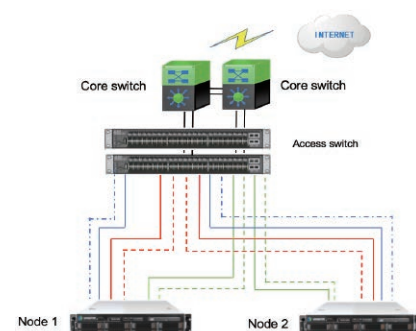
- Customer: EFU Life Insurance
- Industry: Insurance
- Location: Pakistan
- Ref. : Pak Qatar/ Askari Life

Challenges

- High performance and high availability for mission critical VM
- DR and DR site management
- More comprehensive security

Sangfor Solutions

- Sangfor HCI including aSV, aSAN, aNet, vADC (Load Balancer) and CDP



Funan Securities



Customer Overview

Funan Securities is a local securities company with a long history. Funan Securities is dedicated to providing the most convenient service for customers and partners through diversified and qualified securities and financial services, while maximizing profits for company's shareholders. Funan Securities made a strong contribution to the development of Vietnam's stock market.



Challenges

Funan Securities was recently acquired by the Yin'an Group, which required expansion of its business and IT construction.

1. As FNS grows, a large amount of data needs to be transferred within the internal network, while physical hardware of servers and storage continue to near end of life.

- **Unable to Expand Its Storage**

Traditional expansion of the server required a temporary business server shutdown, significantly affecting business. Moreover, the FNS server slot was full and couldn't be expanded.

- **Slow Access**

It was difficult for employees to access data stored in physical servers and storage, making their old physical servers and storage the biggest obstacles to improving productivity.

- **Heavy Workload to Maintain**

All of their data centers have been in use for more than 10 years, with old and problematic servers. IT managers were required to spend a great deal of time dealing with hardware problems, leaving no time to deal with and plan more valuable business opportunities.

2. Their security protection was poor, with older, traditional firewalls providing no professional protection against security threats to the server and application layer. More recent ransomware strains were a large threat to their data security.

- **Poor Comprehensive Protection**

FNS suffered from corporate espionage, malicious code, access authorization cancellation and distributed service rejection attacks, and found their defences unable to cope.

- **Complex Security Analysis**

FNS business continuous development was putting pressure on their logs, which were unable to respond quickly enough to respond to risks effectively. This required the use of costly security experts on occasion.

- **Lack of Dynamic Security Awareness**

As the company expanded, the IT infrastructure also needed to be upgraded, causing new security vulnerabilities they were unable to address.

- **Data Security Transactions between Stations**

FNS is a securities company with many branches, meaning the key sales and financial data connection between branches needed to be very secure.

3. FNS has many branches, with the data center in Jakarta, Indonesia. A great deal of time was needed for branches to connect to the data center in the HQ, to receive e-mails and to enter the ERP system, which seriously affected efficiency of employees.

- **Low Download Speed**

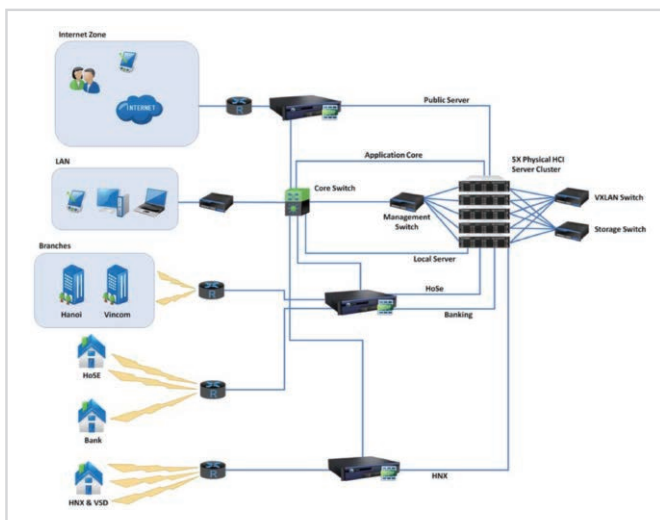
Although FNS rented an international dedicated line, it still couldn't satisfy user experience demands as business developed. However, improving only the bandwidth of this dedicated line promised a significant cost.

- **Slow Core Business**

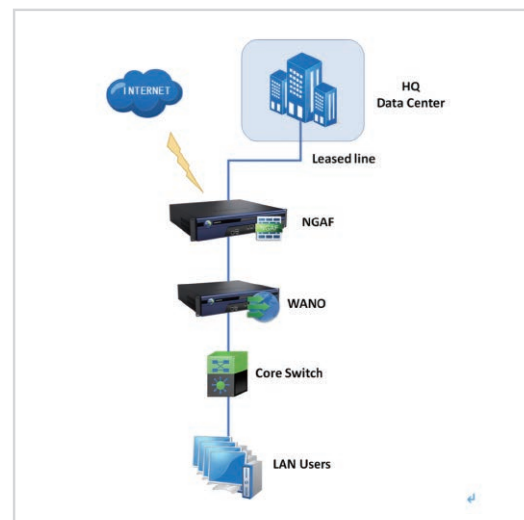
Some of FNS's internal business systems and file-sharing servers were managed in the Jakarta data center, while the Vietnam office needed to connect to ERP frequently, with each connection step taking more than 30 seconds. It often took more than 10 minutes to download a 10M file, meaning employees spent a significant amount of time waiting, which seriously affects employee work efficiency.

Sangfor Solution

The Sangfor designed solution for FNS included 3 physical host servers, 3 next generation firewalls, a WAF module and a WANO as a network optimization and acceleration device between branches. All major data is integrated into and managed in the data center in the Ho Chi Minh headquarters. Branches now access the data center through VPN and a dedicated line. The branch gateway deployed a NGAF device to protect business data, and a WANO device to optimize the link between the branch and the data center, reducing bandwidth usage.



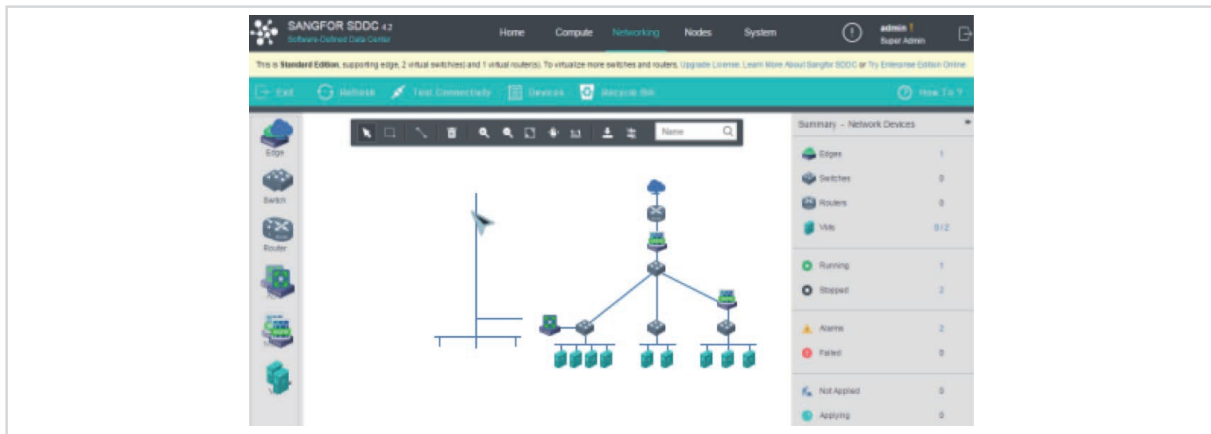
FNS Overall Topology



Branch Network

1. Sangfor HCI

Sangfor provided a virtualization platform for FNS, which is easy to manage and expand. This solution consists of 3 physical servers, merged into one logical resource pool and sharing these resources to all virtual machines, virtual storage and virtual network devices within Sangfor HCI, which can support about 25 virtual servers.



Sangfor HCI provides a “What you draw is what you get” topology console screen.

The Sangfor virtual network platform in HCI allows users to design seamlessly or create their own virtual topologies in the console. The virtual network platform can add or remove virtual routers/switches and connect or disconnect these servers according to need.

Sangfor HCI provides a virtualization platform for servers and storage, reducing IT server maintenance workload. In addition, CPU, memory and storage no longer need to access multiple internal network layers.

2. Sangfor NGAF

Sangfor NGAF protects internal and online data transaction and web applications in servers.

- **Next Generation Converged Security**

Sangfor NGAF provides the converged security of next-generation firewall and WAF, IPS security, web application protection and security visibility. Sangfor provides improved FNS security using AI-enabled Engine Zero, with enhanced abilities to detect bad domains, anti-DDoS, ransomware and spam through dynamic detection and intelligent analysis. Sangfor NGAF uses a closed-loop system to enhance security protection, reducing risk and making correlation analysis between NGAF, cloud sandbox and cloud intelligence.



- **Comprehensive Report and Automatic Log Analyzer**

Allowing IT managers to understand security events easily, and respond to risk quickly.

- **Overall Security Assessment of the Entire Network**

Sangfor NGAF provides security protection, based on signature, with PVS, web scanning programs and dynamic identification. Sangfor NGAF actively identifies new business assets or updated business assets through the Sangfor Business Recognition Engine. If a changed asset is discovered, it will automatically perform an incremental evaluation of the changed asset.

Security Connection with Sangfor VPN

- Through Sangfor VPN, NGAF establishes a high-speed security passage for data transactions between sites, to achieve a stable connection.

3. Sangfor WANO

Sangfor allows each branch to deploy WANO in bridge mode, and the Ho Chi Minh data center deployed WANO in gateway mode. These two WANOs form an "accelerated passage" where Sangfor applies a large number of patented technologies, including byte cache, compression, and application agent. During this process, bandwidth occupation is reduced and stability and transmission speed are improved.

FNS uses a public network to carry WANO, allowing each branch to connect back to the Ho Chi Minh data center in high-speed.

Sangfor WANO also provides the following value:

Reduced bandwidth occupation and eliminated need to upgrade bandwidth, leading to improved application response ability and work efficiency.



Pak Qatar Takaful



Customer Overview

Pak-Qatar Family Takaful Limited (PQFTL), the first and largest dedicated Family Takaful Company in the Islamic Finance industry. The company is rated “A+” (having stable outlook) by JCR-VIS Credit Rating Co. Limited and the Pakistan Credit Rating Agency (PACRA). The Company’s paid-up capital is in excess of Pak- Rs. 1.3 billion, which is highest in the industry.

Customer Requirements

- New server and storage for new Oracle applications and DB and virtualization required for Server
- Guarantee mission critical VM resiliency through HA. For Oracle DB, more than 5k IOPS for per VM required
- Second-level data replication and backup for DB
- Load balancing for mission critical VMs to guarantee business continuity

Sangfor HCI Solution for Insurance Customer

Sangfor HCI provides a one window solution, including hypervisor, virtual storage, virtual network and function devices, DR/ Backup and multi-cluster management. 3 nodes were deployed in Pak Qatar Takaful. CDP was included for DB with application backup every 5 seconds.

Sangfor Solution Benefits

- The Sangfor solution is integrated with virtual storage/virtual network and virtual load balancer, providing a one window solution with easier management and no need for SAN and FC switch.
- Sangfor virtual load balancer offers multiple load balancing algorithms for VMs, designed to ease VM loading and guarantee continuity.
- Sangfor HCI with HA, hot migration, DRS, hot spare disk and CDP features, can guarantee business continuity without data loss, with up to a 1s data IO replication period.

Executive Summary

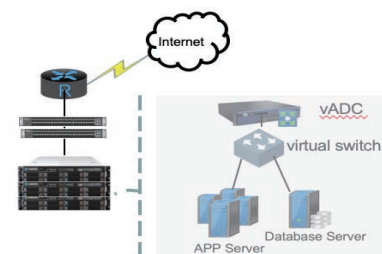
- Customer: Pak Qatar Takaful
- Industry: Insurance
- Location: Pakistan
- Ref. Case: EFU Life/ Askari Life

Challenges

- High performance and high availability of mission critical VM
- DR and DR site management
- Enhanced and comprehensive security

Sangfor Solutions

- Sangfor HCI including aSV, aSAN, aNet, vADC (Load Balancer), CDP



PT Asia Pacific Commodity Exchange (APCX)



Customer Overview

The Asia Pacific Commodity Exchange (APCX) is a branch of the Nanning (China-ASEAN) Commodity Exchange in Indonesia. APCX provides a trading platform for upstream merchants and a downstream physical retail network. APCX plans to focus on platforms for the large demand for rice, sugar, agricultural and side line food and LPG.

As APCX facilitates cross-border trade with Mexican exporters on the platform, APCX has joined local banks and financing parties to provide the necessary trade financing and cross-border foreign currency settlement services for the client organizations in need. APCX will become an important trading platform for poultry and livestock products in Indonesia. With Indonesia being the world's largest single Islamic population, APCX can also serve as a springboard for connecting Indonesia and other countries involved in the Islamic industry trade.



Previous IT Infrastructure

Before setting up an office in Indonesia, APCX put their IT into public cloud, as their IT resource requirements were limited. After opening the Indonesian office, they discovered the need to move applications from cloud and also the need to launch more new applications.

Customer Challenges & Requirements

As their system needed to be deployed as soon as possible, the IT department was looking at traditional solutions involving servers and external storage, all of which required a long time to market and significant expense for future expansion.

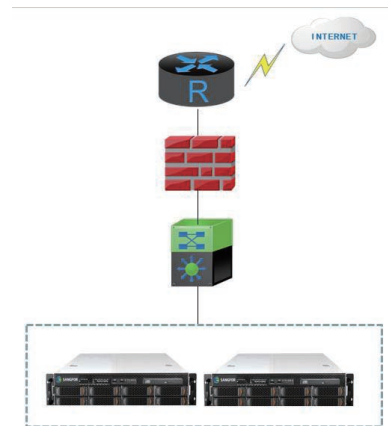
- 01 They wanted to set up the whole IT system quickly and easily, with simple management, due to a lack of IT staff.
- 02 IT systems must have a failover feature to minimize downtime, as the system is used for online trading.
- 03 The solution must be cost effective, as the traditional server + SAN storage solution is quite expensive.
- 04 Future expansion must be effortless, as they had plans to add compute and storage resources as the business grows.

| Sangfor HCI Solution

Instead of using a traditional IT infrastructure, Sangfor HCI puts resources into commodity servers. One cluster can provide compute & storage resources, and management is unified into one single web platform, with NFV features that can be enabled any time, without adding new hardware.

With Sangfor HCI, no external storage is required. Using internal storage with Sangfor aSAN technology provides excellent performance and data protection by providing two copies of policies.

The entire system was built in one day. The customer can now easily change configurations, create new VMs, and do testing, before putting system online. And the total TCO is just 50% of the what traditional solutions cost.



AL Rajhi Bank



Customer Overview

Based in Riyadh, Saudi Arabia, Al Rajhi Bank plays an integral part in the life of the Kingdom. They serve citizens, finance their own growth and have been contributing to Saudi development for over 50 years, catering to both the retail and wholesale needs of clientele. Al Rajhi Bank marks Malaysia's first foray into the international banking market, an exciting and highly significant development in the history of the bank.

Business Pain-Points

Al Rajhi Bank had a traditional three-layer architecture made up of server, storage and networking. The IT team at Al Rajhi was spending much of its valuable time simply keeping the system running. Upgrades and maintenance were time consuming, complex and costly. Furthermore, there was an increasing number of new applications, as Al Rajhi hosts a variety of apps, making expansion a challenge.

In the future Al Rajhi plans to upgrade to an on-premise private cloud, providing the IT team with a comprehensive platform to enjoy cloud facilities. However, they do require a dedicated link for VM communication and guaranteed storage performance. Moreover, every month the IT team needs to generate an infrastructure report for management, proving that the infrastructure is in good condition.

Benefits of Sangfor HCI Solution

- Same technical architecture capabilities with lower TCO and higher ROI
- Great local support with fast response
- Easy migration and configuration of network virtualization
- Health Check reporting for effortless management, with visible, real-time hardware status updates, providing a good reference point for future usage forecast and upgrade plans.

Executive Summary

- Customer: AL Rajhi Bank
- Industry: FSI
- Location: Malaysia

Challenges

- Eliminate traditional 3-tier architecture
- Boost expansion efficiency
Guarantee performance
- Easy reporting on infrastructure

Sangfor Solutions

- Sangfor HCI Software:
6CPU - aSV, aSAN, aNET
- Hardware :
Dell-R740-2000 x 3 units

P&O Insurance



Customer Background

Pacific & Orient started as a private limited company in 1994. It acquired Pacific & Orient Insurance (P&O Insurance), one of the largest Malaysian general insurers, and then went on to be listed on the Main Board of the Bursa Malaysia Securities Berhad in 1995. Since then, Pacific & Orient Berhad has diversified in business interests to include financial services and information technology services.



These businesses have a common pool of human and information resources which the Group can capitalise on in its search for new business and investment opportunities.



Business Pain-Points

- P&O's traditional three-layer architecture was made up of server, storage and networking.
- P&O was spending most of its valuable time simply keeping the system running, and on upgrades and maintenance, which was time consuming, complex and costly.
- As part of an insurance group, security is important for P&O, requiring an advanced security solution to protect their entire datacenter.
- With an increasing number and variety of applications, expansion had become a challenge.
- Upgrade to private cloud would provide the IT team with a manageable platform to enjoy comprehensive cloud facilities.

Executive Summary

- Customer: Insurance
- Industry: BFSI
- Location: Malaysia

Challenges

- Traditional HCI
- Time consuming, complex and costly
- Lack of scalability

Sangfor Solutions

- Sangfor HCI Solution

| Benefits of Sangfor HCI Solution

01

Consolidate the major datacenter component into a Sangfor's unified management platform, and remove traditional infrastructure.

02

Multiple HCI units are integrated into the datacentre as a whole IT infrastructure, unifying O&M and providing visualisation. As a result, users can create new IT framework that is ultra-simplified and can grow on-demand & evolve smoothly.

03

NFV features can be enabled anytime without adding new hardware.

04

Replaced their existing Hyper-V infrastructure with Sangfor HCI, transforming their architecture from three-layers to one layer.

Dana Pensiun Perkebunan



| Customer Background

Dana Pensiun Perkebunan was established in 1976 by Yayasan Dana Pensiun. In 1997 YDPP changed to Dana Pensiun Perkebunan, according to government policy. Dana Pensiun Perkebunan operates as a pension fund, and offers fund management solutions.



Dana Pensiun Perkebunan serves customers in Indonesia, managing professional benefit pension plans for all companies within the scope of PT Perkebunan Nusantara (PTPN) and related institutions, maintaining old age income for all participants.



| Customer Demands

Dana Pensiun Perkebunan is a state-owned funding company being audited by OJK. OJK obligates Dapenbun to have a DR, to maintain their business through any disaster. Their network construction couldn't support DR, as all their applications were running in the physical servers.

There were 3 physical servers running their ERP systems: SISFORBUN, Database Server Oracle, and Business Intelligence Server QlikView. All servers were running on IBM/Lenovo x3650 series servers. Sangfor proposed their hyperconverged solution (HCI) in the data center and disaster recovery center. The requirements for the DR are:

- RPO for the DR should be within 1 hour
- Increased SLA and user satisfaction in each subsidiary company
- Easy to manage, maintain, and flexible to move between DC and DRC and vice versa
- Start small, with easy and flexible to growth possible
- Single pane of monitoring for DC and DR
- DC and DR protected from any harmful traffic
- Users should be able to connect to both DC and DR using secure tunnel link

Sangfor HCI solution

01

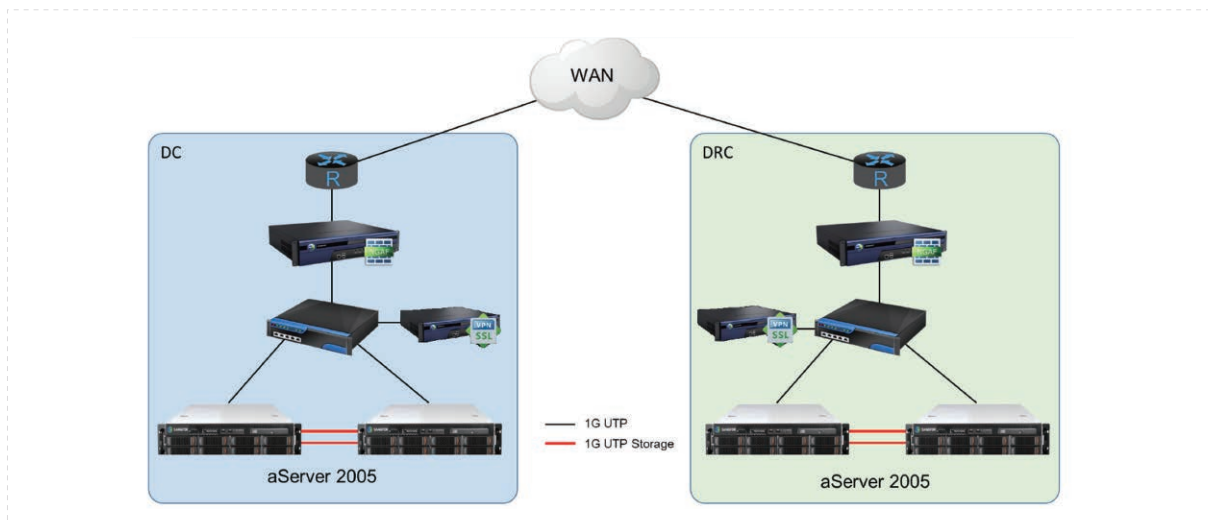
Sangfor deployed four x86 servers-aServer 2005 to build two clusters. One cluster of 2 aServer 2005 in the DC and one cluster of 2 aServer 2005 in the DR, with a maximum of 64 servers in one cluster

02

Sangfor HCI has built-in backup to make offsite backup in RPO of 1 hour

03

Sangfor used 4 NGAF in total, with 1 NGAF each for gateway firewall in DC and DR, and another 1 NGAF each for SSL VPN in DC and DR



Competitors – Nutanix

Competitor Advantages and Disadvantages from Customer' s perspective

• Advantages

- Better Brand Recognition
- Leader in Hyperconverged Solution
- Customer had used this solution for 1 year

• Disadvantages

- Need a minimum of 3 nodes
- Price is higher than budget
- POC wait time is 1 year

Our advantages and disadvantages from customer' s perspective

• Advantages

- Sangfor provides an end-to-end solution from NGAF firewall to SSL VPN and Hyperconverged HCI solution
- The price is within budget
- Sangfor used the Sangfor Demo Room to demonstrate all the solutions
- within 1 week

• Disadvantages

- Current version still not supporting replication

LIST OF MORE BFSI AND PUBLIC CUSTOMERS

Anti-money Laundering Council	EFU Life
ASKARI LIFE	Equity Financial Press Limited (Equity Group)
Bank BJB Syariah	Equity life
Bank Bukopin	Lippo Group
Bank of China Group Investment Limited	Orix Leasing
Bank of Communications(South Africa)	Pak-Qatar
Bank of Makati	PT koperasi nusantara
Bayleaf	Ultra Glory Investment Limited
Pacific & Orient Insurance	Dana Pensiun Perkebunan



SERVICE PROVIDER



Hitachi Sunway Information Systems



| Customer Background

Hitachi Sunway Information Systems is a leading ICT Services Integrator in ASEAN, specialising in implementing, supporting and providing consultancy for Enterprise Resource Planning (ERP) & Product Lifecycle Management (PLM) solutions, and managing and supporting IT infrastructures and cloud-enabling IT platforms, including Cyber Security elements, in our fully compliant and secured data centres.

| Customer Pain-Points

- Hitachi Sunway's business model provides only co-location, backup-as-a-service and DR-as-a-service, resulting in limited revenue.
- Hitachi Sunway has the intention of developing a multi-tenancy cloud platform, but lacked the resources to do it.
- To develop a multi-tenancy platform from scratch, you need a team of developers and requires many resources. Hitachi Sunway was hoping to get a readily available multi-tenancy platform solution.
- Abundant hardware infrastructure was available but not being used.



| Executive Summary

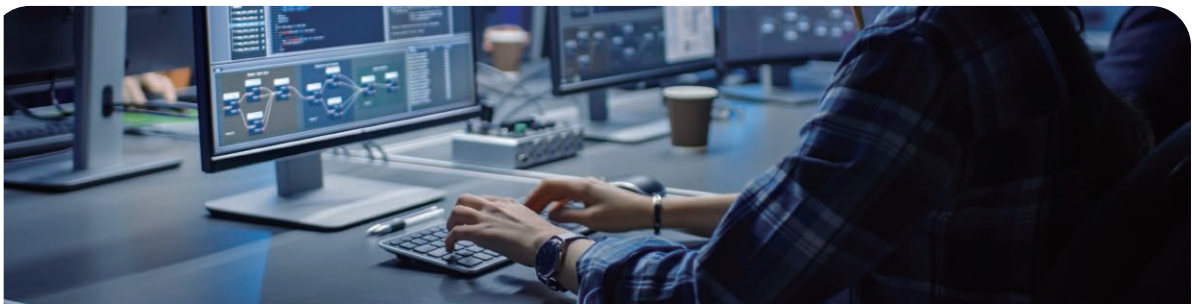
- Customer: Hitachi Sunway Information Systems
- Industry: Enterprise
- Location: Malaysia

| Challenges

- Limited revenue making services
- Lack of resources to develop multi-tenancy platform
- Hardware are not utilized

| Sangfor Solutions

- Software-based HCI
- Equipped with multi-tenancy feature
- Billing and detailed reporting
- Built-in backup solution for tenants



| Benefits of Sangfor HCI Solution

01

Sangfor HCI saves money as it is software based. Sangfor provided only HCI software and SCP (Cloud Management Platform), so they don't need to purchase new hardware appliances.

02

Sangfor SCP is equipped with a multi-tenancy feature which allows customers to create tenants under 3 levels and 2 management rights. Each tenant includes tenant administrators and tenant users, avoiding tenant network security threats and supporting tenant resource quotas.

03

Resources consumed by each tenant can be billed and metered by pre-defined charge policies, with billing reports that can be exported with a detailed consumption record.

04

A 3rd party solution is not required, as Sangfor HCI comes with a built-in backup solution which allows the tenant to backup the VMs by themselves.

BIG Band Sdn Bhd



Customer Background

Big Band Sdn Bhd was established on 2004 and has been developing to be one of the leading hosting service providers in Malaysia with an goal of acheiving an overall network uptime 99.99%.

Customer Requirements

- Big Band provides many services including co-location (Malaysia, Indonesia), cloud hosting, connectivity, dedicated cloud, dedicated hosting (Malaysia, USA and Indonesia), disaster recovery services, e-mail services, migration cloud and managed services consisting of managed firewall, managed router, DDoS protection, managed WiFi and managed servers.
- Big Band was planning to expand their business model by providing Infrastructure as a service (IaaS) with virtualised computing resources over the internet.
- Big Band was hoping to get a readily available multi-tenancy platform solution. They do not wish to invest time and money to develop the platform themselves as this is not efficient.
- Big Band's partners will make use of the platform infrastructure to help create more tenants, increasing revenue.

Big Band wanted to utilise their abundant hardware available at the data center.



Executive Summary

- Customer: Big Band
- Industry: Enterprise
- Location: Malaysia

Challenges

- IaaS business model
- Multi-tenancy platform
- Hardware was not utilized

Sangfor Solutions

- Software-based HCI with IaaS
- Equipped with multi-tenancy feature
- Billing and detailed reporting
- Multiple cluster
- Cost saving



| Benefits of Sangfor HCI Solution

01

Sangfor SCP is equipped with multi-tenancy features which help customer can create tenants under 3 levels of management rights. Each tenant includes a tenant administrator and tenant users, helping to avoid tenant network security threats and supporting tenant resource quotas. Cloud providers like Big Band benefit from this feature as Sangfor SCP can provide an IaaS form of cloud computing.

02

Resources consumed by each tenant can be billed and metered using a pre-defined charge policy. Billing reports can be exported with a detailed consumption record.

03

Multiple clusters were formed with one cluster is to suit personal use while the other houses the tenants.

04

Big Band can now host their platform with more than 10 tenants on single cluster of HCI, using the Sangfor SCP platform. The tenants are comprised of partners and customers.

05

Sangfor HCI is software-based, saving the customer money. Sangfor provided 5 nodes of HCI software with the SCP (Cloud Management Platform), eliminating the need to purchase new hardware appliances.

PT. Tiga Daya Digital Indonesia



| Customer Background

PT. Tiga Daya Digital Indonesia is an subsidiary of PT Triputra Investindo Arya, focusing on Information Technology, to deliver the highest level of IT support service to other subsidiaries within the group. TDDI is a team of highly-skilled professionals who focus on information technology integration in modern business.



| Customer Demands

In order to provide Cloud service for Triputra Group and maximize resource utilization while avoiding waste of resources, TDDI as a Triputra Group subsidiary, needed to set up one Cloud Management Platform. To be successful, they required:

- To develop and build a standard Data Center to support all subsidiary companies within Triputra Group.
- Increased SLA and user satisfaction in each subsidiary company.
- Easy to manage, easy to maintain, with flexibility to move between DC and DRC.
- Start small and easily and flexibly grow higher.
- Monitoring hardware usage (core, memory and storage) for each subsidiary, meaning its easy to extend capacity.
- Core business systems should offer zero-downtime for their electronic business platform, meaning the system runs in HA mode.
- The platform should include security capabilities, like IPS, anti-virus, anti-malware, WAF, data leakage protection, web scanning, vulnerability scanner, and advanced security reporting, to avoid VMs that have been attacked.
- A Cloud platform that can support SAP.
- Built-in distributed firewall to achieve VM isolation.
- A billing system based on hardware usage.

| Sangfor HCI Solution

01

Instead of using a traditional IT infrastructure, Sangfor HCI puts resources into commodity servers. One cluster can provide compute & storage resources, and management is unified into one single web platform, with NFV features that can be enabled any time, without adding new hardware.

02

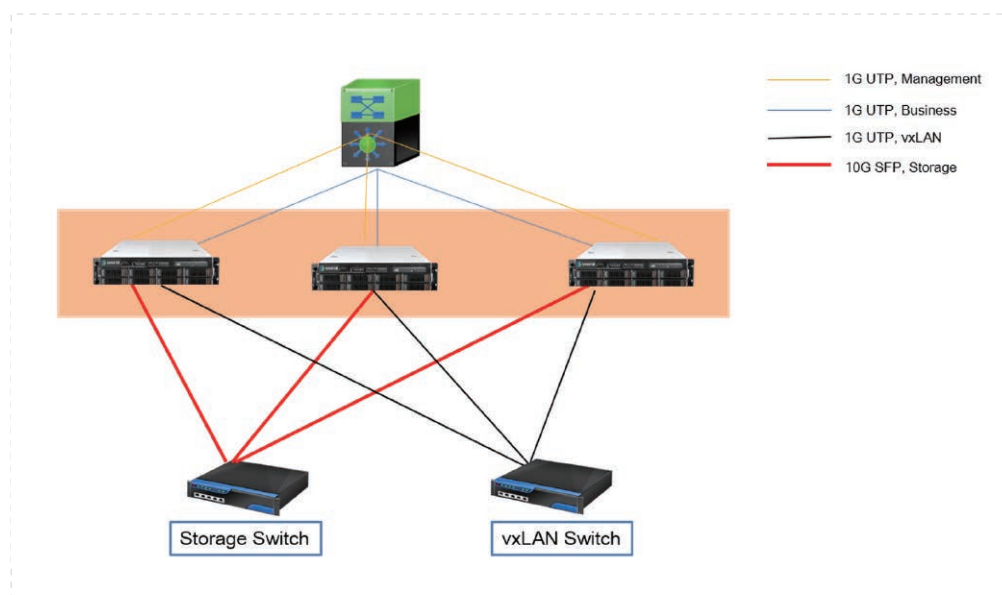
By using 3 nodes of Sangfor HCI appliance aServer2305, no external storage is needed, because we used internal storage with Sangfor aSAN technology, which provides good performance and protection of data through a two copy of policy.

03

Sangfor SCP supports user self-service resource applications, billing and metering for branch companies and sub-organisations and tracks the amount of resource consumed by each tenant.

04

Sangfor HCI's "What You Draw Is What You Get" topography makes O&M easier.



OTHERS



Budget Mart



| Customer Overview

Budget Mart is a one-stop shop for all grocery and convenience store needs, strategically located at the heart of Boracay's bustling commercial center, D'Mall. It's the first modern supermarket operating on the island and, to this day, is still recognized as Boracay's Best Supermarket. Budget Mart aims to introduce something new and unique to the public and at the same time elevate the standard of convenience stores around the country through exceptional product selection, delicious food, modern design and excellent service.



| Customer Challenge

As the best supermarket of Boracay, Budget Mart's business is growing rapidly with daily transactions beyond thousands. But due to vulnerabilities of the traditional IT architecture, Budget Mart suffered from the problems that dragged down productivity.

Due to bottleneck of existing physical servers, which accommodate the core business, it takes a while to transfer daily commodity transaction records from branches, back to headquarters in Makati. The response time is too long, with transmission of transaction records to core systems lasting a few hours at a minimum. In addition, if core business is disrupted by unexpected events, they would be unable to recover from the disruption and maintain business continuity.

When business reaches its peak time, a data torrent comes into the core system, indicating that the system has no self-adaptive ability to survive peak hour workloads.

| Customer Requirements

Business Continuity:

To ensure business continuity through unexpected disruption, Budget Mart needed a new IT infrastructure with the capability to guarantee business continuity, minimizing downtime to zero

Agility and Synergy:

It's necessary to have the ability to recover from disaster and minimize downtime.

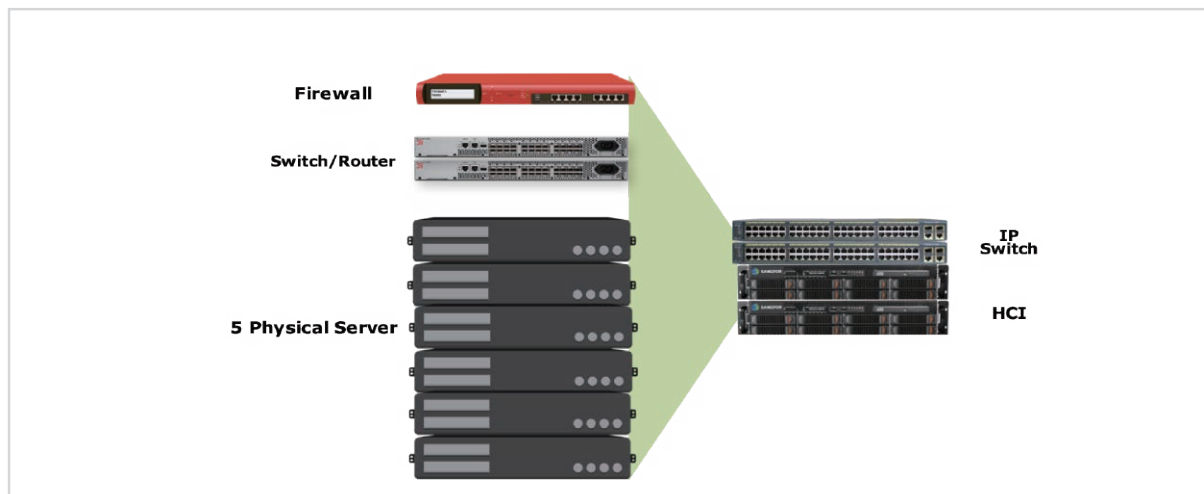
The IT infrastructure should be able to recognize pressure from data, and perform self-adjustment to enhance performance and accelerate response time.

Operation and Maintenance:

The existing traditional IT infrastructure was built with separate physical servers, which have been in operation for several years, many of which are no longer sold. They wanted their data center silos to be eliminated in the near future, and for O&M to be simplified.



| Sangfor HCI Solution



The left side of the graphic above was the layout before the implementation of HCI, with 6 physical servers handling the ERP system and its attached database. On the right side is the current layout of the network infrastructure after the deployment of HCI, where old servers have been consolidated down from 6 to 2, and performance of database is far superior.

| Benefits

- 01 Massive Capex reduction through significant hardware consolidation
- 02 Simplify O&M dramatically with single-pane-of-glass management
- 03 Business continuity ensured with native high availability
- 04 Shorter transaction times through performance improvement

Crowne Plaza



Customer Overview

Crowne Plaza Danang is centrally located between Hanoi, HCMC and the gateway to four UNESCO World Heritage Sites. Domestic and international leisure-seekers and professional meeting organizers take advantage of the benefits of staying at the Crowne Plaza Danang, the largest international upscale hotel along Danang Beach.

Challenges

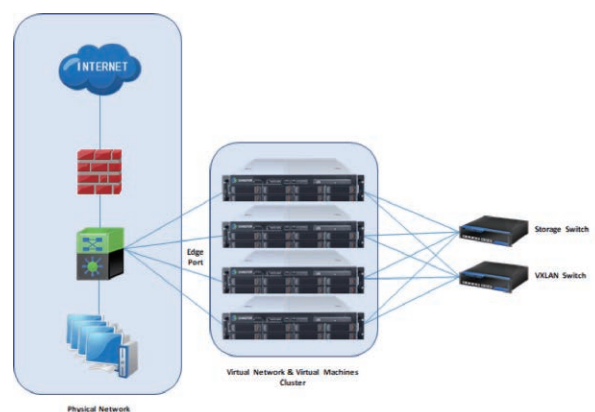
As Crowne Plaza Danang grows, accumulated data and information stored in their physical servers became one of the biggest issues preventing seamless productivity. Employees had difficulty accessing data stored on their physical servers and storage, due to the large amount of data transmission within the internal network, as well as the obsolete physical server and storage hardware.

The IT manager of The Crowne Plaza finds it difficult to have staff focused on user experience when the server and storage O&M tasks are so overwhelming.

Sangfor Solution

Sangfor designed a new server and storage solution for Crowne Plaza, including a virtualization platform, making it easier to manage, highly scalable, and a seamless network design.

Figure 1: Crowne Plaza's new virtualization servers and storage solution



Sangfor HCI

Sangfor designed a solution with 4 physical servers for Crowne Plaza, with all 4 servers grouped together through a process called “clustering.” Once they are clustered, the 4 physical servers are merged into 1 logical resource pool and shared with all of the virtual machines, virtual storage, and virtual network devices in the Sangfor HCI. Sangfor HCI allows redundant copies of a virtualized server to run on different nodes within a cluster, helping Crowne Plaza ensure data availability.

Furthermore, the virtual network platform in Sangfor HCI allows users to seamlessly design or create their own virtual topology from the console.

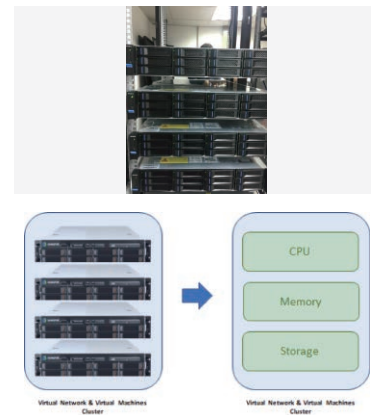


Figure 2: Sangfor HCI clustered resources pool

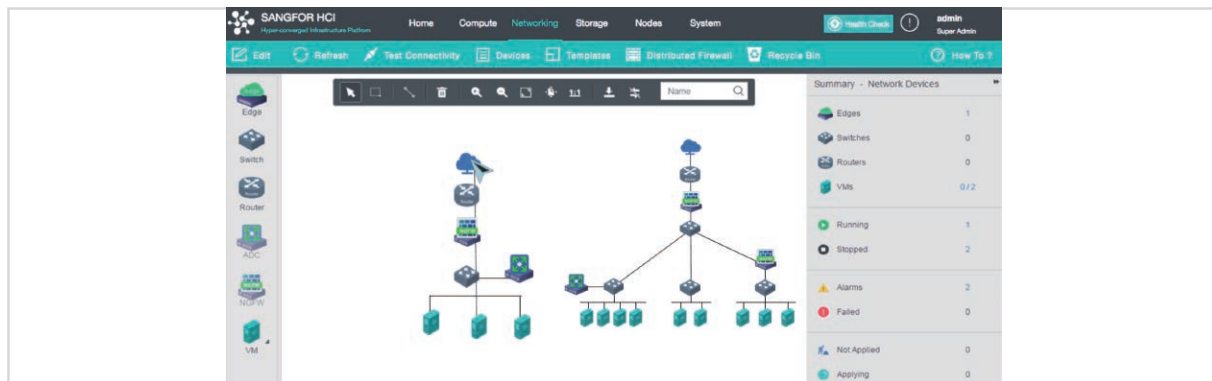


Figure 3: “What you think is what you get” console screen

The virtual network platform provides Crowne Plaza the freedom to add or remove virtual routers and switches or to connect and disconnect those servers in any way they desire.

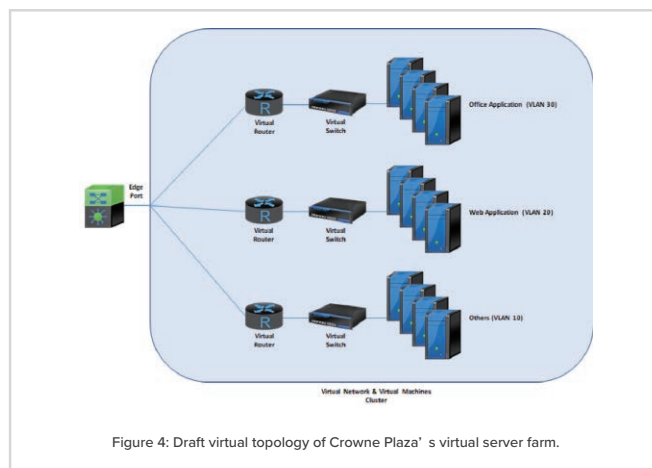


Figure 4: Draft virtual topology of Crowne Plaza's virtual server farm.

Sangfor HCI provides a virtualization platform for servers and storage and greatly reduces the server maintenance workload. Performance has been sharply improved by the virtualization platform, as resources like CPU, memory and storage do not need to traverse through multiple internal network layers.

J&T Express



Customer Overview

J&T Express is an express delivery company with a basic IT system. The extensive J&T network facilitates express services for customers throughout Indonesia. They deliver within the city, inter-city, inter-provincial, and also to e-commerce customers. J&T Express provides pick-up service with a high transmission speed, simultaneously supporting the growth of their e-commerce business.



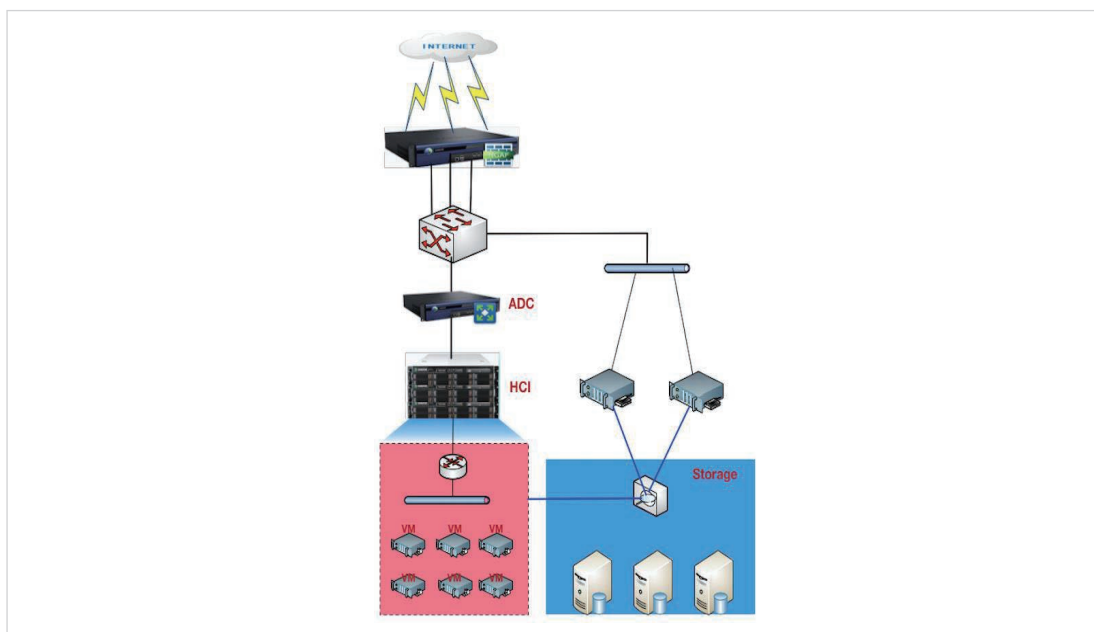
Customer Requirements

Business:

- Increased revenue means more online shopping orders. J&T Express is building more powerful business support capabilities to meet new challenges.

Technology:

- It's necessary to add new servers to support an increasing number of session connections.
- Core business systems should offer zero-downtime for the electronic business platform, meaning the system should run in HA mode.
- WAF, IPS and Access Control are necessary elements for the customer network and server farm.



| Customer Challenge

Due to a surge in customer traffic, existing hardware servers were no longer able to handle the workload and fulfil requirements for flexible expansion. If J&T Express simply used a hardware server to expand the core business group, server resources wouldn't be used effectively. Moreover, that path would be inconsistent with the strategic requirements of subsequent business expansion.

| Sangfor HCI Solution

Customer Experience with Other Vendors

J&T Express did consider the option of continuing to use physical servers from a well-known and familiar vendor with servers already deployed in some of their core systems.

However, the disadvantages to the hardware server were

- Unable to offer expansion flexibility. One business system can only be deployed on one dedicated server, meaning the server resources are not fully utilized.
- Subsequent expansion can only be done by adding new servers, substantially increasing costs.
- aServer provides virtualization solutions. Migration to virtualization platform does not affect the customer's existing core businesses, and meets their needs for flexible expansion. HA mode ensures zero downtime while enabling fast backup and recovery, high throughput, and high load solutions. When it was all said and done, the customer spending was 50% below the allocated budget.

PST Travel Services Sdn Bhd



Customer Overview

Established in 1972 as a ticketing agency, PST Travel Services Sdn Bhd (formerly known as Peter Stuyvesant Travel Services Sdn Bhd), is fully owned by Wawasan TKH Sdn Bhd.

In 1995, PST opened two branches in Penang and Subang, hoping to meet the demands of the rapidly growing travel business. Today, PST is the one of the Top 3 travel agencies in Malaysia, with over 180 highly trained employees. PST's services go well beyond reservation and ticketing, extending into hotel reservation and car rental as well as conference, seminar and incentive arrangements.

Combining global coverage with local service, PST offers an integrated technology infrastructure that provides intelligent analysis of travel data, allowing corporations to maximize the return on their travel investment. For travellers, PST offers consistent service and a broad range of resources to help them stay satisfied, productive and focused on their business objectives.

Challenges

Legacy IT Infrastructures

Their existing legacy servers had been in use for over 5 years and were performing poorly, unable to handle large volumes of concurrent access.

Fully occupied HDD and RAM slots severely limited scalability. Replacing the HDD and RAM was not advisable due to slow server processors and the possibility that data migration could cause a crash, resulting in a significant loss of data. Using the "teaming" (i.e. LACP) method to increase throughput for the network occupies a large number of cables.

Lack of Efficiency

Many applications (SQL, House Application, Remote Desktop, Web Server) were in constant use while branches were simultaneously accessing the server, resulting in a performance bottleneck. IT administrators were forced to purchase a temporary high-end computer to host any new application(s) created, based on business needs.

No Disaster Recovery / Single Point of Failure

The physical servers were all standalone and without any backup capabilities, severely impacting business if the physical server was down.

With no data recovery and restoration capabilities, a disaster or malware attack would have a severe or crippling impact on business.



Executive Summary

- Top 3 travel company
- Industry: Travel Agency
- Location: Malaysia

Challenges

- Legacy IT infrastructures lacked efficiency
- No DR
- Single point of failure

Sangfor Solutions

- Sangfor HCI

| Sangfor Solution

Sangfor consolidated all outdated servers into only 4 hyper-converged infrastructure (HCI) appliances to support all IT applications.

| Solution Values

Replaced with Hyper-Converged Infrastructure (HCI)

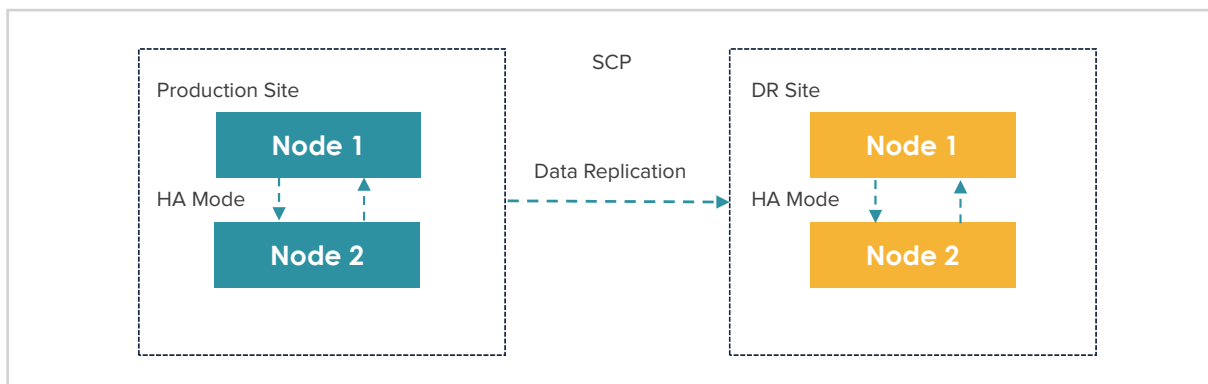
- HCI technology consolidates the all legacy IT infrastructures (compute, storage, network and security) into one, providing high performance information access, both locally and remotely from branches.
- Sangfor HCI is highly expandable with no need to add on additional physical servers (provided there are sufficient resources to provision virtual machines). Sangfor HCI enabled PST Travel to easily add resources (RAM, storage) without powering off the physical server.

High Efficiency

- With the high expandability of HCI, PST Travel needs no additional resources to host new and vital applications. IT admins were able to provision 2 or more virtual machines to load balance resources to core business applications.

Business Continuity

- Critical applications are now elastic with Sangfor DRS & DRX. Sangfor HCI can automatically adjust system resources to cope in peak business hours.



- High Availability mode is one of the many native security features of Sangfor HCI, creating multiple copies of all data.
- Sangfor HCI ensures that PST experiences no downtime and no business impact, even in the event of a disaster.

TOSHIBA TEC Singapore



| Customer Overview

TOSHIBA TEC Singapore Pte Ltd (TSE) designs, builds and services world-class turnkey ODM/OEM solutions for Fortune 500 companies worldwide and for Best in Class small and medium-sized enterprises. Delivering state of the art ODM/OEM products to key players in industries including transport & logistics, retail, banking and healthcare,



TOSHIBA TEC Singapore helps customers remain a step ahead of the competition. TOSHIBA TEC Singapore, headquartered in Singapore, is a TOSHIBA TEC Corporation Group company, an operating company of TOSHIBA Corporation.

| Customer Challenges

Toshiba had more than 15 servers and several Hyper-V VMs running in the data center. The systems running on these servers included Lotus Notes, Exchange, Microsoft SQL Server Database and many other file servers. Most of the internal applications were hosted on the physical servers, and these servers had been running for over 5 years with hardware failures now and then.

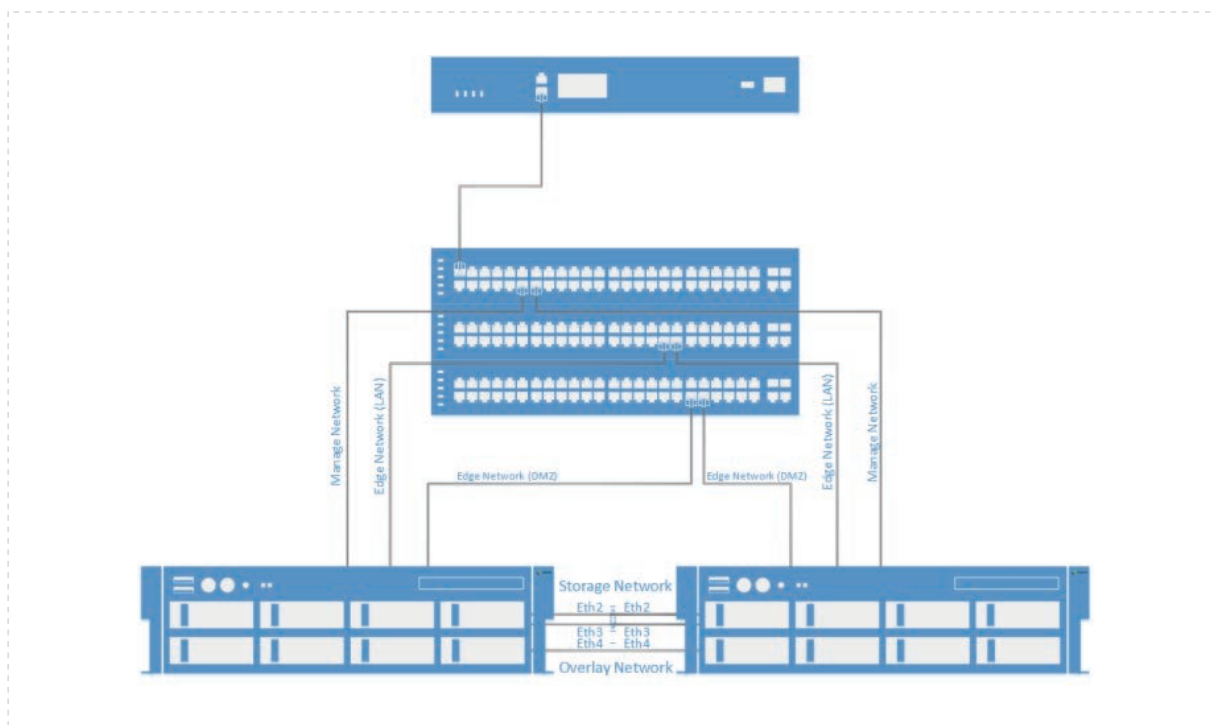
There was no HA for those physical servers and Hyper-V VMs to failover business in the event of a failure. Sometimes they had to wait for hours for the business to recover from hardware failure. With only one engineer to manage all the servers, he was forced to manage everything separately, a complex and time-consuming task.



Sangfor HCI Solution

Sangfor consolidated all the existing physical servers with only 2 units of aServer, and dramatically simplified daily O&M. With compute virtualization aSV and storage virtualization aSAN, the customer was able to migrate all physical servers and Hyper-V virtual machines to the HCI platform, ensuring business reliability with high availability.

Sangfor HCI simplified everything with their web-based management console, providing the customer unified single-pane-of-glass management over all resources, simplifying operations and reducing time consumption. Now they can spin up a VM and get business launched in minutes, as opposed to hours or even days before.



Highlights

- Significant hardware footprint reduction by consolidation
- O&M simplified drastically with intuitive management console
- Business continuity guaranteed with native HA
- Time-to-market shortened

LIST OF MORE OTHERS AND PUBLIC CUSTOMERS

Active e-Solution Limited	fortesys
Alfamart Trading Philippines	Fotomax Far East Limited
All Golden Luck	GandATS
All Link Hotel and Resorts Group Limited Inc	Gerry's Grill
A-ONE Info Tech Co.	GJSteel Public Co., Ltd.
Art-Serina Piston Co.,Ltd.	Global Business Power
Ascend Group	Global Oriental Berhad
ATS TECH	Golden Dragon Group
Bahria Town	Grand Dragon Hotel
Batelec II	Hong Kong Wingjet International Company Limited
Berita Satu	HOPE Teknik Pte Ltd
Big Data Architect Limited	Hybrid Technologies
C C Land Management Limited/Yugang International Limited	IchitanGroup
Café Deco Group	ICONNECT SA (PTY) LTD
CCCC-ERCL	Inter-Media Consultant Co.,Ltd.
Cemindo	ITSIN Co.,Ltd
Centegy Technologies (Pvt.) Ltd	Kingviews Adamas Systems Limited
China News Service H.K. Branch Limited	Kumpulan Prasarana Rakyat Johor
China Resources Vanguard (Hong Kong) Co. Limited	Lembaga Alkitab Indonesia
China Telecom Global Limited	Lippo Group
COCOLIFE	Macau international Airport Co.Limited
Computel 2 Srl	Mainland Headwear Holdings Limited
CONG TY TNHH CONG NGHE VIEN THONG DTH VIET NAM	Mandalay Resources Corporation
Digital Chosun Inc.	MBIXIONS
EIS service	Million Hill Asia Pacific Limited / Royston Securities Limited
Foresight	Mirej Hotel Clark
Forewide Company (HK) Limited	Multinet

LIST OF MORE OTHERS AND PUBLIC CUSTOMERS

MyNews	Rumah Sakit Hermina
NETSAT (PRIVATE) LIMITED	Sealite Shipping
Nippon Wiper Blade (M) Sdn Bhd	Secui Co., Ltd
Nixon Peabody CWL	Seidopro
Nong Khai Hospital	Servintek
ONERO IT SERVICES (PTY)	SIIX H.K. Limited
P & O Global Technologies Sdn Bhd	Silver Shores Investment Development Company Limited
Pahang Medical Centre	Sino Merchant Properties Limited
Patcharakorn business co.,ltd.	SmarTone
Planetel srl	Software Dynamic
PT Adakom International Technology	SPI GLOBAL
PT Alam sutera	Summed Co.,Ltd
PT Baosteel	Summit Capital Leasing Co., Ltd.
PT CNBC Indonesia	Thai Nippon Seiki Co., Ltd
PT Kemas Indah Maju	The Confucian Academy
PT Sumber Alfaria Trijaya tbk	The Hong Kong Federation of Youth Groups
PT Tiga Daya Digital Indonesia(TDDI)	The Macau Roosevelt Hotel
PT. Cakrawal Putra Nusantara	Toshiba
PT. Graha Segara	Toshiba Sales & Services Sdn Bhd
PT. Luxindo Raya	Tritech Distribution Limited
PT. Sumber Alfaria Trijaya	Truth Baptist church
Pt.Amerta Indah Otsuka Pt.AQmerta Indah Otsuka	TSI Holdings Sdn Bhd
Qoo10	UTX Group
Red Cross	Visionet
Ricoh Hong Kong Limited	WCE
Rochdale Spears Vietnam	Jentop
Ronald Lu & Partners	China Overseas Holdings Limited



SANGFOR

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