Hospital Improves Efficiency with Next-Generation Data Center

Customer Case Study

St Vincent's Hospital reduces IT operating costs and increases productivity with Unified Data Center architecture

EXECUTIVE SUMMARY

Customer Name: St Vincent's Hospital (Krankenhaus St Vinzenz Betriebs GmbH)

Industry: Healthcare

Location: Zams, Austria

Number of Employees: 700

Challenge

- Improve medical and administrative efficiency
- Reduce IT costs
- Sustainably support increased IT demands

Solution

- Unified Data Center architecture to support new mission-critical applications
- Cisco Unified Computing System with Extended Memory, powered by Intel Xeon Processors
- Pre-integrated with EMC VNX5300 unified storage platform and VMware vSphere 5.0

Results

- Hospital efficiency enhanced by higher availability of critical applications and better data capture
- IT operating costs significantly reduced
- Ability to manage twice as many virtual workloads with same resources

Challenge

St Vincent's Hospital in Zams serves two districts in Austria's mountainous Tyrol region, where, each winter, the number of tourists greatly increases the resident population of 100,000 people. In addition to specializing in trauma surgery as a result of treating victims of skiing accidents, St Vincent's is also a general hospital that provides a full range of services. With 333 beds, the hospital prides itself on offering both residents and tourists the highest standard of care, which is increasingly delivered with the help of the latest technologies.

The hospital had undertaken a program of activities to upgrade certain facilities and automate more processes, as part of a long-term goal to improve services, enhance employee productivity, and reduce costs. The program, which lasted about a year, included refurbishing the laboratory, digitizing the documentation of surgical procedures, and introducing a new hospital information system (HIS) to manage the medical, financial, and administrative aspects of the organization more effectively. St Vincent's also planned to adopt new business management software, integrated with the HIS, to manage all its accounts. Before deploying the new applications, however, the hospital needed to upgrade the performance and capacity of its IT infrastructure.

"The HIS project almost doubled the number of servers that we needed," says Johannes Juen, vice chief executive for IT at St Vincent's. "We also knew that network traffic would increase significantly after deployment, and data storage requirements would rise from about 16TB to 50TB in five years."

To meet the anticipated demand for additional capacity, throughput, and processing power, the hospital decided to replace its entire data center infrastructure, consisting of servers, a storage area network (SAN), the local area network (LAN), cables and accessories, and management systems. Key requirements included minimizing the time spent on maintenance and management, which meant avoiding any increase in size and complexity that made the data center setup harder and more expensive to operate.

"We wanted more infrastructure without any associated extra work," says Juen. "Because our IT team is very small, we needed a data center platform that was not only bigger, faster, and better than our existing systems, but also much more manageable."

"Whenever we need to expand our data center capacity to run more applications, it will simply be a matter of purchasing more memory instead of more servers. For us, UCS meant fewer servers (and software licences) to buy, install, configure, manage, and support."

Johannes Juen
Vice chief executive for IT
St Vincent's Hospital, Zams

Solution

The IT team carried out a cost/benefit comparison of several vendors' data center approaches, and at first considered purchasing and deploying network, server, storage, and virtualization solutions as separate technology islands, a common practice in legacy data center environments. However, the team found a more innovative approach to building its next-generation data center in the Cisco Unified Computing System™ (UCS™), which brings together all these elements and makes it possible for the first time to manage them as a single cohesive system.

That manageability extends into the core of Cisco® UCS, where virtualization is now applied to network and storage elements as well as servers. This approach means that, instead of statically over-provisioning dedicated infrastructure for individual projects, the hospital now has a shared infrastructure from which it can flexibly allocate, deallocate, and reallocate hardware resources to IT services according to changing business requirements.

A core part of the Cisco Unified Data Center architecture, UCS is far more scalable than conventional blade servers, and its Extended Memory capability, coupled with next-generation Intel processors, meant that the hospital could operate more virtual machines on each server than on legacy server platforms.

Legacy x86 servers used to run out of memory before running out of processing power, requiring the hospital to buy new servers, but this does not happen with UCS because its Intel Xeon processors are so powerful. "Whenever we need to expand our data center capacity to run more applications, it will simply be a matter of purchasing more memory instead of more servers," says Juen. "For us, UCS meant fewer servers (and software licences) to buy, install, configure, manage, and support."

Another interesting design feature of UCS was the pre-built integration at the technical level with VMware virtualization software and EMC storage solutions, which the IT team wanted to use. The team also appreciated the collaboration between Cisco, EMC, and VMware, which gave visible proof of the companies' long-term commitment to UCS.

"We see great benefits in the collaboration between Cisco, EMC, and VMware," says Juen. "The individual technologies are state-of-the-art in their own right but, in our view, the combined solution is more innovative and compelling than competitive platforms."

In addition to the UCS, St Vincent's Hospital purchased an EMC VNX5300 unified storage platform, an EMC Avamar backup system, and VMware vSphere 5.0 virtualization software. This complete Cisco, EMC, and VMware solution proved less expensive to buy and run than legacy data center environments from other vendors. The IT team installed the complete solution in just two days, an operation that would have taken weeks using legacy approaches. A Cisco partner provided expert assistance to minimize scheduled downtime and protect the data center's 24-hour operation.

Results

By selecting Cisco UCS, the hospital has achieved its goal of obtaining more powerful and scalable servers without increasing costs and complexity.

To run all the additional applications, the hospital needed twice as many virtual machines as before, but there was no need to recruit any more administrators because, with UCS, all hardware resources are managed as a single cohesive system, not separate technology islands.

"In the past, we have always had to pay for external expertise to help with projects. I'm sure we will save money in this area now that we have UCS, and we'll definitely save more money in future when we scale our environment, because we won't need to hire new administrators every time we buy new servers."

Johannes Juen
Vice chief executive for IT
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The hospital is also reducing its reliance on external technical resources, which it used to purchase from a local provider to work on specific projects. Moreover, even when it becomes necessary to buy additional blade servers, the in-house IT team will remain the same size because UCS enables the hospital to scale the capacity of its data center without having to add complexity. This capability gives the IT department two sources of cost reductions in the longer term: the ability to insource more work and to avoid the expense of recruitment.

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Because UCS is far more scalable than traditional blade servers, it can support a high number of virtual machines and large data-set workloads, which places few limitations on future expansion and enables the hospital's IT team to add new servers quickly and cost effectively when they are needed.

"We've moved from a fixed and dedicated project-based infrastructure to a shared infrastructure based on UCS, on which we host multiple IT services. And because it's a shared infrastructure, we can afford to have some spare capacity so we can deliver new IT services to respond to new business requirements much more quickly," says Juen. "All the hardware configuration is stored in the UCS service profile, so when you need to make a change, you only have to do it once. That saves an enormous amount of time that you would otherwise spend on searching for errors and installing updates."

The IT team is using the automation features of UCS to reduce the number of steps within the provisioning process. Once the team has created a service profile for a particular server and activated it on a blade, they can immediately restart that profile on a different blade in the event of a server failure or to carry out scheduled maintenance. This capability gives the IT team more flexibility and control in how it manages the data center, which helps improve efficiency while limiting the need for downtime.

Juen estimates that deploying a new server takes five minutes on UCS, compared to three or four hours on a legacy physical server. This time saving greatly increases the agility of the hospital's infrastructure and the availability of its mission-critical applications, while reducing management time and related costs.

Because the cost of the Cisco, EMC, and VMware solution was lower than the hospital's original budget, the IT team was able to buy new desktop clients and monitors with the remaining funds. In addition to getting more value out of its IT capital budget, the hospital has also significantly cut data center energy costs, because energy consumption is lower with UCS than it would be using legacy x86 servers with comparable capacity and performance.

Next Steps

The new HIS application, Enterprise Resource Planning (ERP), and a cluster of Microsoft Windows applications are all running on the Cisco UCS, and the hospital will soon transfer its picture archiving and communications system (PACS) to the new platform as well, removing the last of the legacy physical servers from the data center.

Meanwhile, better availability of critical applications is helping the hospital to function more effectively. In the longer term, Juen expects the quality of data capture to improve, which could further enhance the hospital's capabilities.

For More Information

Details of the Cisco Unified Data Center architecture and solutions are available at: http://www.cisco.com/go/datacenter

For more information on Cisco UCS, visit www.cisco.com/go/unifiedcomputing

Product List

Data Center:

- Cisco Unified Computing System featuring B230 M1 Blade Servers powered by Intel Xeon 6550 processors

Applications List

- VMware vSphere 5.0
- EMC Avamar backup software
- Hospital information system (HIS)
- Picture archiving and communications system (PACS)
- Enterprise Resource Planning (ERP)
- Microsoft Exchange
- Microsoft Office
- Microsoft SharePoint

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