



Healthcare Firm Gains More Efficiency, Cuts Costs with Private Cloud Environment

Overview

Country or Region: Switzerland

Industry: Health

Customer Profile

HCI Solutions is the information management arm of Galenica, a Swiss healthcare company. HCI provides database services and software solutions to healthcare firms. It is based in Bern, Switzerland, and employs 200 people.

Business Situation

Each HCI subsidiary maintained its own data center, which led to high costs, a lack of control over IT resources, underutilization of resources, and delays in delivering new products and services.

Solution

HCI used Microsoft System Center 2012 to create a private cloud infrastructure to run all its IT services, including 900 business-critical databases.

Benefits

- More efficient IT management
- Faster delivery of IT services
- Potential hardware savings
- Hundreds of databases managed by six people
- Improved quality of life for IT staff

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Because HCI Solutions creates information solutions for Swiss healthcare companies, its own information systems need to be reliable and responsive. To better manage its far-flung server holdings and reduce costs, HCI created a private cloud infrastructure by using the Windows Server 2008 R2 Datacenter operating system with Hyper-V technology and Microsoft System Center 2012. By using a private cloud model, HCI has been able to configure its IT resources as a flexible pool of virtualized resources that it uses to deliver internal IT services faster, which helps it deliver products and services to customers sooner. HCI stands to significantly reduce server costs and needs only six people to manage an infrastructure containing 900 databases and dozens of applications. Also, staff members are less stressed now that they have tools that they can use to be more proactive.



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Situation

HCI Solutions is the information management arm of Galenica, a Swiss company that is active throughout the healthcare market. Among other activities, Galenica develops, manufactures, and markets pharmaceutical products; runs pharmacies; provides logistical and database services; and sets up networks. The Galenica Group enjoys a leading position in all its business sectors—pharmaceuticals, logistics, retail, and healthcare information. A large part of the Galenica Group's income is generated by international operations.

HCI Solutions maintains master product databases used by the entire Swiss healthcare market and develops IT solutions for the networked healthcare market.

HCI databases contain the global trade information numbers used to identify every product in the Swiss healthcare market. HCI Solutions generates and maintains these numbers and also maintains a complete “biography” of every Swiss pharmaceutical product—product registration data, scientific and research data, drug interaction data, recommended use information, and much more. Its databases—around 900 in all—are used by all Swiss pharmaceutical companies and pharmacies.

HCI is organized into five subsidiaries that all use this data, which means that the company is critically concerned with data integrity, exchange, and performance. “We are an information company more than a healthcare company; data is our business,” says Michael von Niederhäusern, Chief Information Officer at HCI Solutions. “All the HCI companies use the data in our master product information databases and repurpose it in multiple ways. We must

have airtight IT systems that are powerful and reliable.”

Because of the need to isolate each subsidiary's data and processes on separate servers, each subsidiary maintained its own data center and IT team. This led to hundreds of servers, high costs, and the danger of information gaps and mishaps.

Also, each team used different management tools, which meant that HCI did not have a single, centralized view of all the interconnected systems. An information problem in one subsidiary could have ripple effects through the larger organization.

Even as long ago as 2005, von Niederhäusern knew how he wanted the company's IT infrastructure to work. His idea was to have a single data center that would house all of the company's data centrally and offer centralized control, while allowing subsidiaries to partition their data securely inside that data center and request IT services in a utility-like way when needed. “What we wanted all along was a private cloud, but the technology for creating it was not available then,” von Niederhäusern says.

Still, HCI used the tools that were available and began to make progress. In late 2005, it used Microsoft Virtual Server 2005, an early server virtualization technology, to virtualize its web servers and other smaller server roles. In 2008, when Microsoft introduced the Windows Server 2008 R2 operating system with Hyper-V technology, HCI worked with its IT partner, itnetx, to build a 16-node Hyper-V cluster and virtualize still more servers. itnetx is a member of the Microsoft Partner Network in Bern with a Gold competency in virtualization and a Silver competency in systems management.

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By using Hyper-V, HCI was able to centralize all its data centers in one location and virtualize all server resources. However, it still lacked a way to figuratively tie all of its virtualized resources together and turn them into a single IT “utility” that could supply the company’s IT needs in a dynamic way.

Solution

When Microsoft announced Microsoft System Center 2012, with tools for creating and managing private cloud environments, itnetx recommended that HCI use those applications to take its Hyper-V cluster to the next level. By using the Microsoft System Center 2012 Virtual Machine Manager component specifically, HCI could create a parent private cloud environment that contained separate child cloud environments for each subsidiary.

itnetx enrolled HCI in the Technology Adoption Program for System Center 2012 Virtual Machine Manager and designed and implemented the HCI private cloud infrastructure. HCI brought in Microsoft Services for design review. “itnetx understood the private cloud model—not all solution providers do,” says von Niederhäusern. “itnetx helped us use System Center 2012 to build something that is really leading-edge.”

Expandable Private Cloud Fabric

Although HCI has yet to achieve its ultimate vision, it has constructed a basic private cloud fabric and created mini-cloud environments for two of its five subsidiaries. HCI used the 16 host servers that it purchased in 2008 and on them created a shared pool of 100 virtual machines. The private cloud cluster is 60 percent full, but HCI plans to soon add a second 16-node cluster to its fabric, using more powerful servers. “The beauty of a private cloud is that once the fabric is built,

you can add as many clusters as you want and grow your IT resources endlessly,” von Niederhäusern says.

The host servers are IBM System x3650 M3 servers with dual quad-core Intel Xeon processors and 96 gigabytes (GB) of RAM. Why use IBM? “We have very good experience with IBM servers and use them extensively throughout all our subsidiaries,” von Niederhäusern says. “We know IBM hardware very well and receive good pricing.” All host servers run Windows Server 2008 R2 Datacenter with Service Pack 1, and the virtual machines run versions of the Windows Server operating system.

HCI is running virtually all its IT services in its private cloud environment, including a Microsoft Dynamics NAV enterprise resource planning system, Microsoft Exchange Server 2010 messaging software, Microsoft Forefront Threat Management Gateway 2010 security software, and Windows Server Remote Desktop Services in Windows Server 2008 R2, which it uses to give remote users access to company applications. However, the most significant workload is the 900 product databases that are the core of its business. These databases, running Microsoft SQL Server 2008 data management software, total hundreds of gigabytes of data.

Automated Cloud Creation and Management

HCI created a separate two-node cluster that runs System Center. The Virtual Machine Manager component is the centerpiece of the management infrastructure. von Niederhäusern says that the automated virtual machine provisioning feature is probably the most important of the application, enabling his staff to add cloud resources with a few mouse-clicks. “We simply slide a bare-metal server into a

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rack, and System Center provisions the virtual machines automatically and adds them to the cluster and the cloud,” he says. “It couldn’t be easier.”

The company wants to use the Service Template Designer feature of System Center 2012 Virtual Machine Manager to virtualize pharmacies. Today, when parent firm Galenica opens a pharmacy, HCI installs a physical server and several point-of-sale (POS) terminals in the store. HCI wants to remove the server and provide the applications as cloud services. “Creating the IT infrastructure for a new pharmacy could be as easy as creating two or three virtual machines in our cloud,” says von Niederhäusern. “We could use Service Template Designer to very quickly deploy the needed applications.”

HCI uses the Dynamic Optimization feature of System Center 2012 Virtual Machine Manager to automatically load-balance workloads. If an application begins to slow or show other signs of distress, Microsoft System Center Operations Manager 2007 R2 sends an alert to the Virtual Machine Manager component, which moves the affected workload to a new virtual machine or host server and ensures that the performance of all applications is optimized across the cloud infrastructure.

Another much appreciated feature is the one-click installation of security updates. Previously, updating host servers was so time-consuming that HCI simply did not do it. Now, the IT staff can keep host servers updated with the latest security updates, which helps to make the infrastructure more secure.

HCI uses System Center 2012 to manage its cloud environment in a fully automated way. As an example, when a virtual machine or host server has a problem, System

Center Operations Manager immediately notices and sends a service request to Microsoft System Center 2012 Service Manager. It simultaneously notifies the Virtual Machine Manager component, which automatically provisions the needed replacement virtual machines or moves the affected workloads onto another host server.

When those steps are done, System Center notifies the application owner. HCI created the entire workflow in Microsoft System Center 2012 Orchestrator, which directs each step of the process. “Before we had System Center, it would have taken us a day to complete a whole server restart process, because everything was done manually and we had to find the technician time to do it,” von Niederhäusern says. “Today, it’s done in minutes.”

Benefits

HCI Solutions has finally attained the flexible, centralized IT infrastructure it long sought, which it can use to more easily provide IT services to the business. The company eliminated US\$3 million in servers and manages a complex and growing IT infrastructure with just six people, who sleep better at night because of the proactively managed data center.

More Efficient IT Management

What’s the number-one benefit of a private cloud environment? To von Niederhäusern, it’s more efficient management. “We have far more control over our IT environment,” he says. “Previously, we had many IT ‘islands’ that were very difficult to control. Now we can deliver IT services to all our subsidiaries from a centrally managed cloud environment. Our IT environment today is being watched at all times by one team that is using one set of management tools. It’s more secure, because everything

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is tracked and runs on standardized, stable hardware.”

Before, HCI was unable to track the health of virtual machines across all its subsidiaries. Today, the IT staff uses System Center 2012 to get an overview of the entire infrastructure. It knows the performance level of every server and application at all times, which results in enhanced availability and security of IT services.

Improved Quality of Life for IT Staff

With all information about the IT infrastructure consolidated into one master system and managed with one central tool set, the staff can see potential concerns before they turn into problems, which means less stress for the IT staff. “Our staff members are no longer ‘sleeping on a needle,’ as we say in Switzerland, worrying about receiving emergency calls in the middle of the night,” von Niederhäusern says. “Nor do they dread showing up for work in the morning and facing an emergency. Rather than living and working in reaction mode, they know what’s happening in our environment and they feel in control.”

Faster Delivery of IT Services

A proactively managed IT infrastructure also translates into faster delivery of needed IT services to the business—which in turn translates into faster delivery of products and services to customers. “We can meet customer needs much more flexibly than we could before,” von Niederhäusern says. “If the marketing, customer service, or product development teams need more servers to support a project, we can provide them immediately, which we couldn’t do before. In the end, we can provide better service for a lower price with cloud computing.”

Potential Hardware Savings

HCI also saved significantly on servers. It consolidated more than 100 physical servers to about 25, potentially eliminating \$3 million in server acquisition and maintenance costs. “Instead of spending \$4 million on hardware, we spent \$1 million for a cloud environment,” von Niederhäusern says. “Plus, we are utilizing our servers more fully, so we are getting full use of our investment.”

Each HCI subsidiary still needs a secure, private IT infrastructure in which to isolate its workloads; it has achieved that now in a less expensive and more flexible cloud infrastructure.

Hundreds of Databases Managed by Six People

Even more valuable to HCI over the long run is the management efficiencies provided by cloud computing. A staff of only six people manages the rapidly expanding cloud environment that hosts the company’s 900 business-critical product databases and dozens of other applications. By consolidating its five separate IT teams to one, HCI was able to deploy staff members to other areas.

“With six people, we are running the entire data center, but more importantly, we have the capacity to grow way beyond our current load without significantly expanding our staff,” says von Niederhäusern. “Significantly expanding the size of our cloud does not significantly expand the management work. In fact, we will add another 16-node cluster next year, doubling the size of our infrastructure, with no staff growth.”

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers in the United States and Canada who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to:

www.microsoft.com

For more information about itnetx products and services, call (41) (31) 802 0505 or visit the website at:

www.itnetx.ch

For more information about HCI Solutions products and services, call (41) (58) 851 2600 or visit the website at:

www.hcisolutions.ch

Microsoft System Center 2012

Microsoft System Center 2012 helps your organization achieve IT as a service by enabling productive infrastructure, predictable applications, and cloud computing on your terms. With System Center 2012, use a self-service model to deliver flexible and cost-effective private cloud infrastructure to your business units while capitalizing on existing data center investments. Applications run your business, so System Center 2012 is designed to offer deep application insight combined with a service-centric approach to help you deliver predictable application services. Finally, by using System Center 2012, you can deliver and consume private and public cloud computing on your terms, with common management experiences across both.

For more information about Microsoft System Center 2012, go to:

<http://www.microsoft.com/en-us/server-cloud/system-center/2012.aspx>

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2008 R2 Datacenter with Service Pack 1
 - Microsoft SQL Server 2008
 - Microsoft System Center 2012
- Technologies
 - Hyper-V

Hardware

- 16 IBM System x3650 M3 servers with dual quad-core Intel Xeon processors

Partners

- itnetx gmbh