

Transform the data center

Customer Solution Case Study



Lufthansa Systems

IT that makes your life easier

Lufthansa Systems Uses Hybrid Cloud to Trim IT Delivery to Hours and Reduce Costs

Overview

Country or Region: Germany

Industry: IT services

Customer Profile

Lufthansa Systems provides consulting and IT services to airlines and other industries. Lufthansa Systems is based in Kelsterbach, Germany, and has offices in 16 other countries.

Business Situation

Lufthansa Systems had used virtualization technology extensively, but competitive pressures prompted the company to further automate IT processes, speed service delivery, and reduce data center costs.

Solution

Lufthansa Systems upgraded to Windows Server 2012 R2 and Microsoft System Center 2012 R2 in order to enhance its private cloud environment and is using Windows Azure to expand its capabilities.

Benefits

- Gain standardized global service delivery
- Deliver IT services in hours instead of days
- Reduce IT capital and operating costs

“By using hybrid cloud resources from Microsoft, we can offer even more consistent capabilities and services to our customers without adding storage capacity to our data centers worldwide.”

Bardo Werum, Senior Vice President of Infrastructure, Lufthansa Systems

Lufthansa Systems provides consulting and IT services and has a leading position in the global aviation industry, catering to more than 300 airlines and 150 customers from other industries. The company is upgrading its data center servers to the Windows Server 2012 R2 operating system and Microsoft System Center 2012 R2 to add multitenancy and self-service resource provisioning to its private cloud environment. It is also using Windows Azure to augment its on-premises private cloud with public cloud resources to gain increased capacity and resilience. By taking advantage of the full spectrum of Microsoft cloud software, spanning on-premises and public cloud environments, Lufthansa Systems can deliver global IT services even more consistently, deliver resources faster, and reduce both capital and operating costs in its global data centers.



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Situation

Lufthansa Systems provides consulting and IT services for more than 300 airlines and 150 customers in the transport and logistics, media and publishing, energy, healthcare, and tourism industries. The wholly owned subsidiary of the Lufthansa Group employs about 2,800 people and has offices in Germany and 16 other countries. Lufthansa Systems offers a range of IT services: consulting, development and implementation of customized industry solutions, and managing applications.

Lufthansa Systems operates a large data center in Kelsterbach, Germany, covering 6,800 square meters and housing thousands of servers. It also has data centers in the United Kingdom, the United States, and Singapore. Its parent company, the Lufthansa Group, is a customer, as are other major airlines, airports, financial services firms, healthcare systems, publishers, and logistics companies. Lufthansa Systems hosts Microsoft server applications, UNIX and Linux operating system-based systems, commercial applications such as Siebel, and line-of-business and custom applications.

Several years ago, Lufthansa Systems virtualized its data centers by using the Windows Server 2008 R2 operating system with Hyper-V technology. It later upgraded to the Windows Server 2012 operating system to achieve increased virtual machine density. It also deployed Microsoft System Center 2012 data center solutions to fashion its virtualized environment into a dynamically reconfigurable private cloud and manage resources across all its data centers in a uniform and automated fashion.

With these innovations, Lufthansa Systems was able to reduce its footprint of physical servers, better utilize those servers, reduce data center management costs, increase availability, and improve responsiveness to customer needs. However, because the hosting industry is extremely competitive,

Lufthansa Systems cannot rely on past achievements to maintain its status; it has to constantly innovate to stay ahead of the competition and customer demands.

“We wanted to take private cloud computing even further by providing self-service IT resource provisioning for our customers,” says Bardo Werum, Senior Vice President of Infrastructure for Lufthansa Systems. “With Windows Server 2012, we did a good job of automating many manual processes in our data centers, but we wanted to go further and give customers direct access to their resources. That would be another huge step forward for us, one that would help us be even more competitive and responsive.”

Self-service provisioning would also reduce costs, which is an ongoing pressure in the global aviation industry. “Storage needs and costs are rising, and we’re continuously acquiring new customers around the world,” Werum says. “We have to find ways to keep growing and serving customers without adding further storage to our data centers.”

Additionally, Lufthansa Systems’ hosted private cloud environment was limited to single-tenant solutions, with every customer running applications on dedicated hardware. Lufthansa Systems wanted to create a multitenant hosted private cloud whereby it could isolate the workloads of multiple customers on shared hardware. This would let it achieve higher server density and lower costs.

Solution

Lufthansa Systems was eager to participate in the Microsoft Rapid Deployment Program (RDP) for the Windows Server 2012 R2 operating system and Microsoft System Center 2012 R2 to take advantage of improvements in multitenancy, storage efficiency, workflow automation, and self-service resource delivery.

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“Participating in Microsoft RDPs is an important competitive advantage for us because we gain early access to the latest Microsoft software that we can use to achieve market advantage,” Werum says. “Microsoft software is improving at an ever faster pace, and it’s critical that we stay abreast of the latest changes. We increase customer trust when we stay up-to-date on the latest software. RDPs also give us a channel for providing feedback to Microsoft, which listens to our ideas and often incorporates them into its products.”

During the RDP, Lufthansa Systems worked with Microsoft Services Consulting and local IT provider Phat Consulting to build a cluster running Windows Server 2012 R2. A System Center expert, Phat Consulting is a member of the Microsoft Partner Network with a Gold competency in Management and Virtualization. “No one has the level of knowledge about new Microsoft products that Microsoft Services provides,” Werum says. “Because Phat is a Microsoft partner, it has deep knowledge in deploying and using these new products. The assistance of both these organizations was invaluable.”

Self-Service Management Portal

Phat installed early versions of Windows Server 2012 R2 and System Center 2012 R2 and helped Lufthansa Systems use Windows Azure Pack for Windows Server to set up a self-service portal for customers. Windows Azure Pack is a collection of Windows Azure technologies that organizations deploy to gain a Windows Azure-compatible experience within their own data centers. These technologies build on Windows Server 2012 R2 and System Center 2012 R2 to provide a self-service portal for managing services such as websites, virtual machines, and more.

By using the Windows Azure Pack portal, Lufthansa Systems customers can provision and manage their own compute and storage resources. “The self-service portal in Windows Azure Pack is quite easy to learn and use, and gives us a common look

and feel between our infrastructure resources and those that our customers find in Windows Azure,” says Werum.

Lufthansa Systems implemented Remote Desktop Gateway so customers can easily connect to their virtual machines through the self-service portal. Remote Desktop Gateway is a role service in Windows Server 2012 R2 that enables authorized remote users to connect to resources on an internal corporate or private network, from any Internet-connected device.

Multitenancy, Storage Efficiencies, and More

While Lufthansa Systems focused on implementing self-service provisioning during the RDP, it is also exploring a number of other capabilities in Windows Server 2012 R2 and System Center 2012 R2. One of these is Hyper-V Network Virtualization, which is the foundation of software-defined networking. By using Hyper-V Network Virtualization, administrators can isolate network traffic for different customers on a shared infrastructure without the use of virtual local area networks. Administrators can securely run multiple virtual networks, even with the same IP subnets and manage virtual networks by using Microsoft System Center 2012 R2 Virtual Machine Manager.

Also of benefit to Lufthansa Systems is the ability to create storage pools using Storage Spaces, which provides sophisticated virtualization enhancements to storage technology. Lufthansa Systems will use two storage pools to aggregate multiple physical hard disk units together and provide highly resilient storage arrays at a much lower cost than purpose-built storage systems. “By using storage pools, we can expand our storage elastically and manage it more flexibly,” says Werum.

Lufthansa Systems also uses the new storage tiering capability with write-back cache, which leads to a significant performance increase. The company can

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decrease storage needs by using enhanced cluster shared volumes features.

The Lufthansa Systems data center staff uses Virtual Machine Manager to administer the overall private cloud environment, while individual customers manage their own virtual machines through the Windows Azure Pack portal. By using the automated workflows provided by the Orchestrator component of System Center 2012 R2, Lufthansa Systems adds further flexibility to its automatic processes and creates virtual machines faster than it could previously and in a standardized manner. It uses the Service Manager and Operations Manager components of System Center 2012 R2 to track service issues and monitor server health.

Public Cloud Expandability

To augment its internal private cloud environment, Lufthansa Systems uses Windows Azure to expand its global data center capacity in what’s known as a hybrid cloud model—combining private and public cloud resources. Windows Azure is the Microsoft cloud platform that provides on-demand compute, storage, content delivery, and networking capabilities to host, scale, and manage web applications through Microsoft data centers.

One of the first hybrid cloud scenarios that Lufthansa Systems has implemented is using Windows Azure as a disaster recovery location for key Microsoft SQL Server 2014 databases. In the event of a catastrophic site failure, the on-premises databases will fail over to Windows Azure and continue to run in a Microsoft data center without interruption. The company also plans to use Windows Azure to distribute content globally, letting customers download content from a local Microsoft data center.

Lufthansa Systems plans to run Windows Server 2012 R2 on all host servers and 3,000 virtual machines across its global, multisite hosted private cloud environment. During the RDP, Lufthansa Systems

primarily deployed development and test systems in its Windows Server 2012 R2 cluster; but ultimately, the company will run all customer workloads on the operating system, including SQL Server databases, web services, demanding line-of-business applications such as Siebel and SAP, productivity applications, and infrastructure workloads such as file, print, and authentication. Lufthansa runs its Windows Server 2012 R2–based private cloud on Dell PowerEdge M620 and R720 servers.

Benefits

By upgrading to the latest Microsoft cloud software and taking advantage of cloud services, Lufthansa Systems has been able to standardize its global IT services, continue to expand globally without adding further capacity to its data centers, significantly shrink service delivery times, and reduce both capital and operating costs.

Gain Standardized Global Service Delivery

By using a hybrid cloud approach, Lufthansa Systems gains the ability to offer a uniform set of IT services to any customer, anywhere in the world. “We have data centers around the world, but each has different capacities and often different procedures,” Werum says. “By using hybrid cloud resources from Microsoft, we can offer even more consistent capabilities and services to our customers without adding storage capacity to our data centers worldwide. This gives us tremendous agility, because adding capacity takes time and costs lots of money. By using Windows Azure, we can deliver very sophisticated services the same day that we gain a new customer.”

Deliver IT Services in Hours Instead of Days

By using the Windows Azure Pack for Windows Server, Lufthansa Systems was able to create a self-service virtual machine deployment capability that lets customers

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gain access to IT resources in hours rather than days.

Because Werum’s team has been able to accelerate service delivery so dramatically by using its Hyper-V private cloud, it has seen an increase in the number of requests for Hyper-V virtual machines versus those built on other virtualization technologies.

“Microsoft has a really good story in terms of delivering a complete solution for application service providers,” Werum says.

“Microsoft has the operating system, virtualization technology, management layer, databases, and public cloud services. We and our customers like using one vendor if possible, because it greatly simplifies the solution, reduces integration problems, and creates a less complex solution.”

Reduce IT Operating and Capital Costs

Hybrid cloud computing reduces costs in multiple ways. First, having a more consistently built and managed data center environment increases stability and contributes to fewer problems. All the automation and self-service provisioning further reduces management time and costs by speeding deployment work and eliminating human error. “By using Windows Server 2012 R2 and System Center 2012 R2, we’re able to expand our business without adding further capacity,” Werum says.

Lufthansa Systems will significantly reduce capital costs such as storage by using Windows Server 2012 R2 storage efficiencies. By improving server utilization, Lufthansa Systems can maintain fewer host servers and further reduce its on-premises data center costs by moving some workloads into Windows Azure.

“We want to use all the Microsoft products we can,” Werum says. “By using Windows Azure Pack, we can create a very similar environment to Windows Azure in our own data centers and use the same tools. It’s very easy to migrate workloads between

our private cloud environment and the public cloud services in Windows Azure. We can do everything we need to do by using one provider. This reduces costs and complexity and decreases our problem resolution times. This is critical to helping us be successful.”

For More Information

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For more information about Phat Consulting products and services, visit the website at:
www.phatconsulting.de

For more information about Lufthansa Systems products and services, visit the website at:
www.lhsystems.com

Transform the data center

The hybrid cloud from Microsoft transforms the data center by extending existing investments in skills and technology with public cloud services and a common set of management tools. With an on-premises infrastructure connected to the Windows Azure platform, you can deliver services faster and scale up or down quickly to meet changing needs.

For more information about transforming the data center, go to:
www.microsoft.com/en-us/server-cloud/cloud-os/modern-data-center.aspx

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2012 R2 Datacenter
 - Microsoft System Center 2012 R2
- Technologies
 - Hyper-V
 - Windows Azure Pack for Windows Server

- Microsoft Services
 - Microsoft Services Consulting

Hardware

- Dell PowerEdge M620 and R720 servers

Partners

- Phat Consulting