Fire Department Extinguishes High IT Costs, Ups Availability by Using Virtualization

Storstockholms brandförsvar

Overview

Country or Region: Sweden
Industry: Government—Local

Customer Profile
The Greater Stockholm Fire Department provides fire and emergency medical response to Stockholm, Sweden, and nearby communities. It is the largest fire brigade in Sweden, with 15 fire stations.

Business Situation
When Stockholm, Sweden, and nine nearby cities merged their fire departments to save money, they needed to consolidate their IT holdings and also create a disaster recovery capability.

Solution
The Greater Stockholm Fire Department has consolidated servers using the Windows Server 2008 operating system with Hyper-V technology, and manages its environment using Microsoft System Center data center solutions.

Benefits
- Servers reduced 80 percent
- IT staff costs cut by U.S.$140,000
- Higher availability
- Easier scalability

"[With Hyper-V] We can now maintain IT services even if one of our two data centers completely breaks down."

Jan Wisén, Chief Fire Officer, Greater Stockholm Fire Department

In 2008, Stockholm, Sweden, and nine nearby municipalities decided to consolidate their emergency services to cut costs. The resulting Greater Stockholm Fire Department worked with Lan Assistans, a Microsoft Gold Certified Partner, to merge two IT departments, and succeeded in trimming servers by 80 percent using the Windows Server 2008 Datacenter operating system with the Hyper-V technology. It also deployed Microsoft System Center data center solutions to manage the new IT landscape, and Microsoft Application Virtualization to deliver applications to PCs as needed. In addition to reducing servers by 80 percent, the fire department has reduced licensing costs for some applications by 80 percent and will ultimately save U.S.$140,000 annually on IT resources. The fire department is delivering higher application availability and can now cost-effectively scale its IT infrastructure.

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Microsoft | Virtualization

"We decided early on to standardize on Microsoft software for the new data center, because Microsoft software is less expensive than other options, and more people understand it."

Camilla Ågren, Project Leader, Donald Davis & Partners

Situation

Municipalities around the world are facing starkly reduced budgets due to the economic recession that began in 2007. In Sweden, the city of Stockholm and nine surrounding municipalities decided to consolidate their emergency services to cooperate and cut costs. Thus, in January 2009, the Stockholm Fire Department, which served six municipalities, merged with the Södra Roslagens Fire Department, which served six municipalities, to form the Greater Stockholm Fire Department, with 15 fire stations and 850 employees.

From an IT perspective, the merger created opportunities to streamline and simplify. However, the new Greater Stockholm Fire Department had to figure out how to trim duplicated services and infrastructure. There were two data centers to consolidate, one in Stockholm, and one in Täby, Sweden, which had served the Södra Roslagens Fire Department. Each of the two IT departments had previously maintained a small internal staff but outsourced key applications and IT management tasks to local IT providers.

The original Stockholm Fire Department had approximately 30 Windows operating system–based servers in house, and the Södra Roslagens Fire Department had approximately 15 servers running both the Windows Server 2003 operating system and Novell NetWare. Users in the newly merged organization had to negotiate multiple application logons and e-mail messaging systems.

At the same time that it was consolidating hardware and software to trim costs, the Stockholm Fire Department wanted to automate and centralize routine IT management tasks so that it could reduce IT staffing costs, too. One of the most labor-intensive tasks was deploying applications to individual PCs across 15 fire stations. "Employees share PCs because rotating crews are staffing fire stations 24 hours a day," explains Jan Wisén, Chief Fire Officer of the Greater Stockholm Fire Department. "However, if only 30 employees wanted to use a certain application, such as Microsoft Office Visio 2007, the IT staff had to deploy the program to all 100 PCs so that it would be available whenever it was needed. This was a licensing expense and also consumed IT resources to update and secure so many desktop applications."

While it was reorganizing its IT department, the Greater Stockholm Fire Department also wanted to create a disaster recovery capability between Stockholm and Täby, so that if a critical server went down in one location, the application—and department—could continue running from the other location. All the department's key fire-response processes can run without IT support, so that nothing can interfere with community protection, but many computerized applications are critical to operations. The most critical application is a mapping system that tells firemen where to go when there is a fire. Another application runs a private fire-alarm response service that the department offers to businesses and citizens. This is a revenue-producing service that must be operational at all times.

Solution

In November 2008, the Greater Stockholm Fire Department called on Lan Assistans, a local Microsoft Gold Certified Partner and one of Sweden's most knowledgeable IT solutions providers, to help consolidate the two data centers and build one streamlined IT organization. "We decided early on to standardize on Microsoft software for the new data center, because Microsoft software is less expensive than other

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Börje Carlsson, Technical Project Leader, Lan Assistans

options, and more people understand it," says Camilla Ågren, Project Leader for Donald Davis & Partners, a consultant firm that represented the Greater Stockholm Fire Department in merging the two IT organizations.

The department initially hoped that it could reuse existing servers, but because of poor design in one of the data centers, Lan Assistans recommended that the department start with a clean slate using modern hardware and software.

Virtualization a Key Strategy

Lan Assistans also recommended using the Windows Server 2008 operating system with the Hyper-V virtualization technology to achieve both server consolidation efficiencies and cost-effective failover between the two data centers. "Using Hyper-V to implement server failover would be far simpler than using physical servers," says Börje Carlsson, Technical Project Leader at Lan Assistans. "Other IT consultants that the department spoke with recommended using VMware, because it had a longer track record. But Hyper-V had all the functionality that the Stockholm Fire Department needed, cost far less, and would simplify vendor management."

The Greater Stockholm Fire Department purchased a Microsoft Enterprise Client Access License Suite, which made the move to an up-to-date Microsoft software foundation even more affordable. This license suite gives organizations access to 11 of the most popular Microsoft infrastructure, communications, collaboration, management, and security programs, such as Windows Server, System Center Configuration Manager, and System Center Operations Manager.

Thirty Virtual Machines on Four Hosts

The department deployed the Windows Server 2008 Datacenter operating system with Hyper-V in May 2009. The Datacenter edition offered clustering capabilities and free operating system licensing for up to four virtual machines on each host server. The Greater Stockholm Fire Department deployed Windows Server 2008 Datacenter on four physical production servers—two in Stockholm and two in Täby—and two test servers in Stockholm. On these four physical production servers, the department has created 30 virtual machines, which run the Windows Server 2008 Enterprise operating system. It still has 10 stand-alone physical servers, but these will be migrated onto the virtual hosts by the end of 2010.

The department purchased HP DL380 host servers, each with two quad-core Intel Xeon processors. Rather than deploy a storage area network, the department is using an HP MS60 Direct-Attach Storage unit and the hard disk drives in the servers for data center storage. The IT staff implemented a failover capability at the application level by running critical applications in duplicate at each location. If an application or server fails at one location, it continues to run from the other.

The fire department will eventually virtualize all its data center workloads, including line-of-business applications, e-mail messaging, and databases. One Microsoft SQL Server 2008 database serves the department's financial application, another serves the alarm-response application, and a third serves the mapping application.

Centralized Server Management and Backup

At the same time that it deployed Windows Server 2008 Datacenter with Hyper-V, the

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Greater Stockholm Fire Department licensed a suite of Microsoft System Center data center solutions for managing, monitoring, and backing up its physical and virtual servers. Using the Microsoft Server Management Suite Enterprise license, the fire department was able to license four key System Center programs for a far more reasonable price than licensing them individually.

The IT staff uses Microsoft System Center Virtual Machine Manager 2008 to create virtual machines, manage virtual machines and physical servers, monitor server performance, back up server workloads, and handle all routine server management tasks. The staff uses this program in conjunction with Microsoft System Center Operations Manager 2007 to proactively monitor server performance. Staff members can add more CPUs or memory to virtual machines or physical servers to keep application performance levels high and avert slowdowns or failures.

The IT staff also uses Microsoft System Center Data Protection Manager 2007 to back up applications and data between the two data centers over a high-speed data connection. System Center Data Protection Manager is continuously backing up data between virtual machines in the two locations. If one data center goes down for any reason, the virtual machines at the live location will take over. "We were able to achieve a very effective and cost-effective disaster preparedness setup using System Center Data Protection Manager, without additional third-party software," Carlsson says. "It was very easy to do."

Dynamic Application Streaming

To complement the efficiencies provided by Hyper-V server virtualization, the Greater Stockholm Fire Department also deployed Microsoft Application Virtualization (App-V), part of Microsoft Desktop Optimization Pack (MDOP) for Software Assurance, to more efficiently deliver applications to 850 users in 15 locations. App-V eliminates the need to install software on individual computers and instead enables IT personnel to deploy applications to regional servers and then stream the needed applications from those servers to client computers as needed. "Applications can follow users instead of machines," Carlsson says. The department is currently delivering 10 applications using App-V and one software image.

The department uses Microsoft System Center Configuration Manager 2007 to distribute App-V applications to fire-station servers, and from there, applications are streamed to individual computers. Linking System Center Configuration Manager and App-V gives the Greater Stockholm Fire Department a unified deployment experience and reduces the overhead of building an extra App-V deployment mechanism. Today, all fire department employees access applications using App-V, and the department plans to increase the number of virtualized applications.

The fire department also uses the Terminal Services Gateway role of Windows Server 2008 to enable remote users to connect to terminal services and remote desktops from any Internet-connected device. To better protect client computers, the fire department deployed Microsoft Forefront Client Security for PC-level virus protection.

Benefits

By embracing server and application virtualization, the Greater Stockholm Fire Department has been able to reduce server and application licensing costs by 80 percent, trim IT staff costs by U.S.$140,000 annually, increase application availability, and effectively scale costs.

"Licensing costs for [critical] applications are reduced by 80 percent with App-V."

Börje Carlsson, Technical Project Leader, Lan Assistans

Servers, Software Licensing Reduced 80 Percent

The Greater Stockholm Fire Department will ultimately consolidate 30 physical servers to 6 Hyper-V servers, an 80 percent reduction. Microsoft estimates that such a consolidation will reduce energy costs by $16,367 annually.

Desktop software licensing costs, too, have decreased with the use of App-V. "We currently have about 10 applications that have to be available on every PC, and some of them are very expensive," Carlsson says. "Licensing costs for these applications are reduced by 80 percent with App-V."

Last but not least, the fire department has greatly reduced its software licensing costs by taking advantage of various Microsoft licenses, which it estimates has reduced the overall solution cost by 30 to 50 percent.

IT Staffing Costs Reduced by $140,000 Annually

The department has also reduced IT staffing costs. "By consolidating the two departments and using Hyper-V and System Center solutions to gain management efficiencies, we have realized IT staffing costs [savings] of SEK1,000,000 [$140,000] to date," Ågren says. "We expect to save another SEK1,000,000 within another year by continuing to automate tasks that are now manual."

IT efficiencies come from faster server setup, faster application packaging and deployment, and faster application testing. For example, creating a virtual machine takes about an hour, whereas deploying a physical server can take a week or longer if the server needs to be ordered. "We estimate that we will reduce application packaging and deployment time by 50 percent using App-V," Ågren says. "Deploying an application manually within our geographically dispersed organization used to [require] an entire day of travel for just a single PC. Using System Center Configuration Manager, we can distribute one application to all 850 PCs in one day."

Also, with a cost-effective, high availability infrastructure, the fire department lowers the cost of routine maintenance work. The IT staff can easily perform software and server upgrades during normal business hours by performing maintenance work in one data center while delivering IT services from the other.

Higher Application Availability

In addition to reducing IT staff time, the use of App-V helps keep desktop applications more secure. "We eliminate the opportunity for users to uninstall or corrupt applications; with App-V, the applications are always running perfectly," Carlsson says.

Through the use of Hyper-V, the department also has higher availability for its business-critical applications. Previously, neither the Stockholm nor Täby Fire Departments had disaster protection. Using Hyper-V, the Greater Stockholm Fire Department can easily and cost-effectively implement a disaster recovery solution. "We can now maintain IT services even if one of our two data centers completely breaks down," Wisén says. "We can also measure variables that impact availability using System Center Operations Manager and focus on the right issues so that we are putting our effort where it has the most impact."

Easier Scalability

Even though the Greater Stockholm Fire Department now has a lean, consolidated IT infrastructure, its services will continue to grow as the communities it serves continue to grow. Now, when the IT staff needs to add more servers or more performance to

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For more information about Lan Assistans products and services, call 08 522 329 00 or visit the Web site at:
www.lanassistans.se

For more information about the Greater Stockholm Fire Department, visit the Web site at:
www.storstockholm.brand.se

an application, it can do so immediately. It doesn't have to requisition and set up new physical servers.

"We can simply create new virtual machines on a handful of host servers, assign additional virtual machines to an application, or assign more CPUs to a virtual machine, if an application needs more power," Carlsson says. "We have more flexibility and scalability than ever before."

Microsoft Virtualization

Microsoft virtualization is an end-to-end strategy that can profoundly affect nearly every aspect of the IT infrastructure management lifecycle. It can drive greater efficiencies, flexibility, and cost effectiveness throughout your organization. From accelerating application deployments; to ensuring systems, applications, and data are always available; to taking the hassle out of rebuilding and shutting down servers and desktops for testing and development; to reducing risk, slashing costs, and improving the agility of your entire environment—virtualization has the power to transform your infrastructure, from the data center to the desktop.

For more information about Microsoft virtualization solutions, go to:
www.microsoft.com/virtualization

Software and Services

- Microsoft Server Product Portfolio
  - Windows Server 2008 Datacenter
  - Windows Server 2008 Enterprise
  - Microsoft Forefront Client Security
  - Microsoft System Center Configuration Manager 2007
  - Microsoft System Center Data Protection Manager 2007
  - Microsoft System Center Operations Manager 2007
  - Microsoft System Center Virtual Machine Manager 2008 R2
- Technologies
  - Hyper-V
  - Microsoft Application Virtualization

Hardware

- HP DL380 servers
- HP MS60 Direct-Attach Storage

Partner

- Lan Assistans

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