



## Farmers' Cooperative Virtualizes Its IT Environment; Expects an ROI of 250 Percent

### Overview

**Country or Region:** United States

**Industry:** Agriculture

### Customer Profile

Hamilton Farm Bureau (HFB), based in Hamilton, Michigan, serves agricultural producers, consumers, and builders by offering a variety of products and services. It has 140 employees.

### Business Situation

HFB was experiencing rapid business growth. It needed a way to boost the availability and reliability of IT systems that had grown faster than the ability of the IT department to maintain and upgrade them.

### Solution

HFB consolidated 14 server computers to 4 by adopting the Microsoft virtualization technology in Windows Server 2008 R2 with Hyper-V.

### Benefits

- Boosts availability to 99.999 percent
- Is expected to lower cost of ownership by 30 percent
- Delivers an expected 250 percent ROI
- Speeds IT response to business needs

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Hamilton Farm Bureau (HFB), a farmer-owned cooperative in western Michigan, was growing a lot of things—including its technology infrastructure. When the availability and reliability of that infrastructure became concerns, HFB turned to C/D/H, a Microsoft Gold Certified Partner, and to Microsoft virtualization technology. By virtualizing its environment, Hamilton consolidated 14 physical computers down to 4, boosted the availability of its IT systems to 99.999 percent, reduced the total cost of ownership of those systems by an estimated 30 percent, and placed the IT department in the more strategic role of helping to shape business direction. HFB expects to achieve a return on investment of 250 percent.



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### Situation

Asked to think of farm-fresh crops, you might think of corn or wheat, or perhaps the sweet smells of fresh cherries and blueberries. Technology would likely be pretty far down your list. But Hamilton Farm Bureau (HFB) grew technology—its own IT infrastructure. And it was growing that technology so quickly that things threatened to get out of hand.

HFB, a 90-year-old, farmer-owned cooperative located throughout western Michigan, is active not only in supplying crop inputs, seeds, and services to crop farmers, but also in selling feed, eggs, and propane. By 2009, the company had seen several years of rapid growth, in part through acquisition. That put a burden on the IT department to keep up with growing numbers of both line-of-business solutions and computer servers, a significant burden given that the department consisted of only two people.

The infrastructure had about reached the limit of the staff’s ability to manage it. HFB had generally acquired a new computer to run each new application that it adopted—a policy that resulted in a mix of 14 computers of varying ages, operating systems, and hardware specifications. Because there was no standard operating system and configuration, the IT staff had to maintain each of those computers separately, and by hand.

As a result, updates sometimes didn’t happen on time, or at all. Hardware parts were increasingly difficult to find, with painful consequences. For example, it once took a week to locate and install a replacement RAID controller card to get an accounting database up and running. The one-computer-per-application architecture was rife with single points of failure. Computers were often down for repairs

or unscheduled maintenance, which affected the availability of the computers that HFB needed to support a rapidly growing business.

System maintenance was further complicated by backups to tape that were unreliable and time-consuming to restore. And, HFB had no disaster-recovery solution for its system.

“There were nights when I couldn’t sleep, worrying about whether all the computers were functioning,” says Brian Haas, IT Systems Manager at HFB, and the person responsible for keeping the infrastructure going.

HFB looked into the options for addressing these problems, but each seemed to come with a problem of its own. A wholesale replacement of the infrastructure with 14 new computers was a prohibitive expense; even more so would be the replication of the environment with 14 more computers for disaster recovery. Some solutions would require Haas and his IT colleague to learn a new operating system or technology, something for which they had little time. An integrated hardware and software storage solution appeared to be a robust, but expensive, alternative to tape backups.

“We needed more options,” says Haas. “It was time to do some basic research.”

### Solution

Haas did that research and came upon a promising option: virtualization. Running the infrastructure in a virtualized environment, in which multiple virtual servers could run simultaneously on a single physical server, offered many advantages. The environment would be easier to maintain, leading to higher availability. And because Haas would be able to quickly add virtual servers when

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needed, the environment would also be more flexible, more agile, and better able to respond to business requirements, especially related to the company's continued growth.

Haas's research also led him to another realization: “Virtualization wasn't something I wanted to tackle on my own,” he says.

To confirm the feasibility and value of virtualization for HFB, and to design and deploy the solution, Haas turned to C/D/H, a Microsoft Gold Certified Partner. “We chose C/D/H because they are known for jobs of this complexity,” says Haas.

“They brought a tremendous amount of knowledge to the project. Their recommendations were first-class and aligned perfectly with our business needs. And their technical knowledge was exactly what we needed.”

C/D/H began its work by analyzing the HFB technology environment and evaluating the feasibility of virtualizing that environment, taking into account the storage space, drive usage, processor speed, and memory requirements of each computer. It did so using the Microsoft Assessment and Planning tool, which enabled C/D/H to efficiently allocate virtual machines to physical hosts, while allowing for growth and high availability. Its recommendation: The environment could be served by three physical server computers hosting the company's applications on 14 virtual servers, plus a fourth physical server for monitoring and managing the environment. The hardware chosen for this makeover was a trio of Dell PowerEdge R610 computers, each with dual quad-core processors.

HFB and C/D/H next had to consider the software platform for virtualization. The vast majority of the HFB infrastructure—90 percent, Haas estimates—is based on

Microsoft technology. It's the platform in which HFB is invested, and in which its staff is trained. So the companies looked at the latest Microsoft virtualization solution then available, the Windows Server 2008 operating system with Hyper-V technology. But that software wouldn't support the two Linux-based line-of-business applications that HFB used. VMware would, so HFB, despite its concern over the much higher licensing costs for VMware, chose that platform.

While HFB and C/D/H continued to plan the new environment, and before any investments had been made in new hardware or software, Microsoft released Windows Server 2008 R2, the second release of Windows Server 2008. The Hyper-V enhancements in that release supported Linux, so HFB would be able to virtualize its Linux line-of-business applications. Windows Server 2008 R2 fit seamlessly with the existing environment, making it possible for the company to virtualize its installations of Microsoft Exchange Server 2007, SQL Server 2008 data management software, and other Windows Server-based applications. It cost substantially less. And it eliminated the need for Haas and his colleague to learn and maintain a second operating system. HFB switched to the Microsoft virtualization technology.

The infrastructure was migrated to Windows Server 2008 R2 with Hyper-V over four weeks in September 2009, using physical-to-virtual migration technology in Microsoft System Center Virtual Machine Manager 2008 R2. That technology enabled HFB and C/D/H to implement the migration without taking the existing servers offline. The applications were clustered in virtual servers located across the three physical servers. The servers connect to a Xiotech Magnitude 3D 4000e storage-area network

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unit for storage, backup, and disaster recovery. The clustered architecture was chosen for its ability to promote high availability for users and easier management for the IT department.

To manage the virtual environment, HFB uses the Microsoft System Center product family, including System Center Virtual Machine Manager 2008 R2 and System Center Data Protection Manager 2010 Beta.

### Benefits

HFB has gained the highly available and reliable technology environment that it wanted, while reducing the total cost of that environment. As a bonus, the IT department is able to respond more quickly to new business needs.

#### **Boosts Availability to 99.999 Percent**

In contrast to the concerns that Haas had over the availability of the previous infrastructure, the virtualized environment is delivering what Haas says is “rock solid” availability, which he estimates at 99.999 percent.

Several factors contribute to that higher availability. The Live Migration and Cluster Shared Volumes technologies in Windows Server 2008 R2 make it possible for Haas to move virtual machines from one physical server to another, in order to balance the loads among physical servers and fine-tune the levels of performance.

Haas says he makes such adjustments several times each month. He uses System Center Virtual Machine Manager to monitor and evaluate the virtual machines to determine that optimal balance, as well as to easily implement the movement of the virtual machines between physical servers.

Moving virtual machines among physical servers also keeps the virtual machines

available to users when a physical server needs to be taken offline for updates or maintenance. Haas uses the Live Migration feature to move the virtual machines that are on a physical server to one or both of the other physical servers, performs the needed maintenance, and then returns the virtual machines to their original location.

Haas is also able to bring up new virtual servers far more quickly than before. “Rebooting a physical server could take more than 10 minutes before,” he says. “Now, I restart virtual servers in less than a minute.”

Other contributors to higher availability and reliability are the faster and more reliable backup and restoration of data. Haas gets these benefits from a combination of System Center Data Protection Manager and the SAN device. He finds that backups are more automated and are managed in the data’s native file format—rather than a proprietary backup format—for easier management of the backup and restore process. Backups that used to take an hour are now handled in less than 10 minutes.

Because backups are faster and easier to conduct, Haas now implements three full backups per day, whereas he had time for only one backup per day before. More frequent backups also increase the usefulness of the company’s new disaster-recovery system, which is based on storing a copy of those backups at a secure, remote location. Being able to back up frequently means that if HFB should have to recover data from the backup, it will be recovering the most current, relevant data.

Perhaps most important to the new levels of availability and reliability is that Haas has been able to remove the potential for the

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single points of failure in the former infrastructure.

“With Hyper-V, we’ve turned an infrastructure based on single points of failure into an infrastructure based on redundancy and failover,” he says. “Now, there’s no reason for server downtime to affect users. So, I sleep better at night. And we couldn’t have afforded this enterprise-class architecture any other way.”

**Lowers Cost of Ownership, Is Expected to Deliver a Return of 250 Percent**

HFB implemented the new infrastructure with an eye toward reducing both up-front and continuing costs. For example, by using Hyper-V instead of VMware, HFB cut its licensing costs by about 80 percent. “VMware required us to purchase a license for each virtual machine we ran,” says Haas. “With Windows Server 2008 R2 and Hyper-V, we pay for one license per physical machine, on which we can run up to four virtual machines without an additional charge. It’s like getting three virtual machines for free.”

Haas also looked at the broader savings that HFB achieves by moving from a physical to a virtual infrastructure. The total cost of ownership is lower because, in addition to the licensing savings, HFB will now replace fewer physical servers per year, manage fewer physical servers, and spend less time in management per server than it spent before. In all, he expects total cost of ownership to decline by about 30 percent.

Haas estimates that moving the company’s servers to a predominantly virtual environment will deliver a return on investment (ROI) of 250 percent. “This was the best technology investment the company could make,” says Haas.

**Speeds Response to Business Needs**

Because the virtual environment is more flexible than the company’s previous infrastructure, Haas can respond more quickly to new business and technology needs. For example, he can update software applications more quickly because the virtual environment speeds the software-testing process. It does this by making it possible for Haas to bring up a new test server in minutes, compared to the hours it took him in the physical environment—assuming that a physical machine was available.

The broader time savings that comes from faster and easier management of the virtual machines has even more important implications for HFB. It frees Haas to focus on strategic efforts that provide greater overall value to the company.

“I can respond faster to users’ requests and concentrate on keeping users happy when I don’t have to worry about servers limping along,” he says. “At a higher level, when I’m not putting out as many fires, I have more time to work on projects like our adoption of Microsoft Exchange Server 2010, which means we can upgrade much faster than we could otherwise. Now, I get called into business discussions to evaluate technology and to help pick vendors. That’s delivering real value to the company, and I didn’t have time to do that before.”

## 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](http://www.microsoft.com)

For more information about C/D/H, call (616) 776-1600 or visit the website at:

[www.cdh.com](http://www.cdh.com)

For more information about Hamilton Farm Bureau, call (877) 969-1122 or visit the website at:

[www.hfb.com](http://www.hfb.com)

## 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 that systems, applications, and data are always available; from 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](http://www.microsoft.com/virtualization)

### Software and Services

- Microsoft Server Product Portfolio
  - Windows Server 2008 R2 Enterprise
  - Microsoft System Center Data Protection Manager 2010 Beta
  - Microsoft System Center Virtual Machine Manager 2008 R2

- Technology
  - Hyper-V

### Hardware

- Dell PowerEdge R610 computers
- Xiotech Magnitude 3D 4000e SAN

### Partner

- C/D/H