Microsoft

Windows Server 2008 R2

Customer Solution Case Study

Continental Airlines Streamlines Operations, Cuts Costs with Virtualization Solution

Customer: Continental Airlines
Web Site: www.continental.com
Customer Size: 42,000 employees
Country or Region: United States
Industry: Transportation and logistics—Air transportation services

Customer Profile
Continental Airlines is the world's fifth largest airline. Together with Continental Express and Continental Connection, the company has more than 2,800 daily departures and serves approximately 67 million passengers a year.

Software and Services
- Microsoft Server Product Portfolio
  - Windows Server 2008 R2 Datacenter
- Technologies
  - Cluster Shared Volumes
  - Hyper-V
  - Remote Desktop Services

Hardware
- HP BladeSystem c7000
- ProLiant blade servers

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Jason Foster, Systems Architect and Director of Technology, Continental Airlines

To expand its virtualized server and desktop infrastructure, Continental Airlines deployed a beta release of Windows Server® 2008 R2 Datacenter. By using improved Hyper-V™ technology and Remote Desktop Services, Continental expects to increase system uptime, implement new services in minutes instead of weeks, and save up to U.S.$1.5 million a year in hardware, software, labor, implementation, and related operational costs.

Business Needs

Continental Airlines understands the critical importance of using information technology to move ahead in the competitive, rapidly changing commercial airline market. For years, Continental has relied on Terminal Services in the Windows Server® 2003 operating system to give employees access to programs and data on the company's server computers. Continental has also used Microsoft® Virtual Server 2005 to increase hardware utilization and save costs. With the release of Windows Server 2008 Datacenter, the company expanded its virtual environment by using Hyper-V™ virtualization technology and improved Terminal Services technology. With these efforts under way, Continental continued looking for ways to get the most value from its physical and virtual assets.

Solution

In mid-2008, Continental Airlines began evaluating a beta release of Windows Server 2008 R2 Datacenter, deploying the software on five servers in a test environment. Continental has been a

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longtime participant in Microsoft Technology Adoption Programs (TAPs), in which companies evaluate and provide feedback on Microsoft software before its official release. "There are always key value technologies that emerge from any TAP project," says Jason Foster, Systems Architect and Director of Technology at Continental Airlines. "Windows Server 2008 R2 offered fully realized versions of the advanced server virtualization and Terminal Services features that were originally introduced in Windows Server 2008."

Windows Server 2008 R2 includes enhanced Hyper-V and Virtual Desktop Infrastructure (VDI) technology for server and client computer virtualization. In addition, Terminal Services has been improved and renamed as Remote Desktop Services (RDS).

After Windows Server 2008 R2 is officially released, Continental expects to deploy it rapidly. Within the first year, Continental plans to expand its VDI by at least 2,000 desktops to support a critical business unit.

Benefits

By using Windows Server 2008 R2, Continental is gaining benefits including:

- **High system reliability for better service.** Continental is impressed with how reliably the new operating system has worked during the company's tests. "Windows Server 2008 R2 is very stable, especially for a beta release," says Foster. "We're not sitting by our pagers at home wondering if it's about to fail."

  One feature that contributes to the high reliability is Live Migration, which supports transferring virtual machines from one host server to another, without interrupting service. Live Migration takes advantage of Cluster Shared Volumes, a feature in failover clustering that simplifies and streamlines the configuration of Hyper-V clustered virtual machines. Foster says, "With Live Migration, our virtualized workloads stay up and running even when system failures occur. That means we provide better service and avoid the time and effort required to respond to help-desk calls from users."

- **Annual savings of up to $1.5 million through efficient virtualization.** The improved Hyper-V feature supports using up to 32 logical CPUs on host computers, adding and removing virtual hard disks without restarting the virtual machine, and using Second Level Address Translation for faster performance. Foster explains how these and other improvements are reducing costs and saving time: "In our environment, a single physical server running Windows Server 2008 and the original Hyper-V can support about 10 to 15 of our standard workloads. Windows Server 2008 R2 with the improved Hyper-V can support more than 30. From a fixed capital asset perspective alone, that's a savings of $60,000 to $80,000 per Hyper-V server."

  The new solution also supports rapid deployment of new services. Foster says, "In terms of time-to-market, our implementation team can now go to a Web portal and deploy a virtualized service workload in minutes, versus weeks or even months in a traditional physical server deployment."

  He continues, "When you combine capital asset savings, reduced implementation time and costs, and the operational savings from higher uptime, it's easy to sell upper management on the benefits of Windows Server 2008 R2." Continental estimates that once the operating system is fully deployed and technology growth stays constant, the company will save up to $1 million a year in hardware and software capital costs and $500,000 a year in labor, implementation, and related operational costs.

- **Easier-to-manage virtual desktop infrastructure.** Continental is taking advantage of Remote Desktop Services to streamline the management of its growing virtual desktop environment. RDS offers an improved user experience and support for more flexible VDI strategies. In particular, Continental IT administrators can use the Remote Desktop Connection Broker in RDS to easily set up user access for both virtualized and traditional session-based desktops. The virtualized desktops can run full Windows® XP and Windows Vista® client operating systems. Jim Dekan, Technology Manager for Enterprise Systems Engineering at Continental Airlines, says, "With the new VDI model, employees will access a desktop running on Hyper-V, as opposed to the older, more cumbersome architecture where we would have a terminal server running, for example, Windows Server 2003 on a rackmount server that users connect to through Terminal Services."

  Richard Wilson, Enterprise Engineer at Continental Airlines, adds, "The combination of improvements to Hyper-V—including more virtual CPUs per virtual machine—and higher uptime will make it easy for other Continental departments to choose Windows Server 2008 R2 over other vendors' offerings. The result will be a higher overall adoption rate of virtualized servers and applications throughout Continental Airlines."

Windows Server 2008 R2

Windows Server 2008 R2 is the latest version of the Windows Server operating system from Microsoft. With Windows Server 2008 R2, you can create solutions that are easier to plan, deploy, and manage than with previous versions of Windows Server. Building on the features, security, reliability, and performance provided by Windows Server 2008, Windows Server 2008 R2 extends connectivity and control to local and remote resources. This means that your organization can benefit from reduced costs and increased efficiencies gained through enhanced management and control over resources across the enterprise.

For more information, go to:
www.microsoft.com/WindowsServer2008R2

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