Wisconsin Physicians Service and Winnebago: Moving to Linux on the Mainframe

The attraction of Linux on the mainframe isn't so much the low cost of licensing Linux or the fact that users can modify it and rely on a community of developers to fix bugs, users say. Instead, the big draw is the ability to combine Linux with the mainframe's proven reliability, speed, and management tools to drive down the cost of running critical applications. "We're not interested in just getting the least expensive thing on the market," says Randy Lengyel, senior vice president of MIS at Wisconsin Physicians Service Insurance Corp. (WPS), a health insurer in Madison, Wisconsin. "We want something that is reliable, functional and has great customer service from the vendor."

The sweet spot for mainframe Linux today is server consolidation—replacing dozens or even hundreds of separate Intel-based Linux or Windows servers with a partition on the mainframe that dedicates a single processor, memory, and other system sources to running Linux. For example, WPS created a virtual Linux Server running on one 250-MIPS processor that was available within an IBM eServer zSeries 900 mainframe and did it at 40 percent of the cost of ordering, installing, and configuring a new Intel-based server, says Lengyel. A virtual server can be created within two to three minutes and deliver as much as nine times the throughput of a stand-alone server, he says. WPS, a long-time mainframe user, was drawn to running Linux on the mainframe as a way to leverage the mainframe's reliability and to keep support costs low.

The instability of its Windows NT servers was one reason why recreational vehicle manufacturer Winnebago Industries Inc. implemented a Bynari InsightServer groupware application for Linux on an IBM zSeries mainframe. Dave Ennen, technical support manager at the Forest City, Iowa–based company, says he had to reboot his Windows NT servers once a week in an effort to improve their stability. "On the mainframe, everything is geared to staying up 24 hours a day, seven days a week," he says.

Winnebago already had a mainframe (an IBM S/390 Multiprise 3000 Enterprise Server) and a staff skilled in IBM's z/VM, an operating system that can divide each partition in a mainframe into multiple software-based virtual machines, each running its own operating system and applications. Rather than go through the expense of training his staff for the upgrade from Windows NT to Windows 2000 and Windows Exchange Server 2000, Ennen says it was more cost-effective to use part of his existing mainframe capacity and his staff's mainframe skills to run its Linux-based e-mail system. However, "If you were going to go out and buy a mainframe just to run Linux," he says, "it's going to be a little hard to justify."

Many observers say users should be running at least 20 to 25 servers before even considering consolidation into a mainframe Linux environment. Some of the best candidates for consolidation are infrastructure applications such as file and print services, e-mail, domain name servers, and Web servers. But not every application is a natural for mainframe Linux. Windows applications are a poor choice, since they don't run on Linux, although Linux equivalents are available in many cases. And applications that have complex graphical user interfaces or that perform complicated data analysis can use so much processing power that it's more cost-effective to keep running them on stand-alone servers.

Users have also been reluctant to move complex applications such as SAP R/3, which can take years to implement on distributed servers, onto a new environment. Although SAP AG has been among the first vendors to support Linux with its flagship products, Linux will represent only about 10 percent of new installations in 2003, says Manfred Stem, product manager for Linux Lab and Unix platforms at SAP.

Once you've identified applications to run on the mainframe, users and analysts recommend migrating them first to stand-alone servers running Linux. That's a good way to get support staff familiar with Linux before tackling the additional complexity of the mainframe, they say. Training Unix veterans in mainframe Linux skills—or Linux veterans in Unix skills—can be one of the biggest challenges. Many organizations have one support organization for mainframes and another for Windows and Unix servers, says John Kogel, vice president of the systems and service management group at Candle Corporation of America. These groups must work together and learn new terms for familiar concepts, he adds. For example, since beginning its move to mainframe Linux in January 2002, WPS cross-trained two mainframe and two Unix staffers in the combined Linux/mainframe environment. Each employee then took his knowledge back to his respective group.

Case Study Questions

1. How can a mainframe use Linux to replace the equivalent of hundreds of Unix or Windows servers?

2. What are the business benefits and challenges of using Linux on a mainframe to replace Windows or Unix servers? Use WPS and Winnebago to illustrate your answer.

3. What business applications are best suited to servers? To mainframes? Explain your reasoning.