



SAP AG

Citrix Application Delivery
for Technology Solutions
& Consulting

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Michael Markl
Global Service Owner, SAP IT
Infrastructure Communication
Services, SAP AG

Key benefits

- Enables server consolidation, reducing hardware from 700 to 200 servers, or 70 percent
- Provides efficient administration of virtualized resource pools
- Minimizes storage needs through provisioning of standardized server images
- Increases agility through dynamic allocation of hardware resources
- Reduces energy use and CO2 emissions

SAP adds Citrix server virtualization for full performance with fewer servers

For more than 35 years the name SAP has stood for innovation, success and creativity. As the leading supplier of business software and services, and as the third-largest independent software vendor in the world, SAP develops business software solutions for more than 76,000 customers around the globe. SAP has branches in more than 120 countries and employs more than 51,800 people.

The challenge: optimizing server resources

Currently, all users within SAP get access to the applications needed for their daily work via a Citrix XenApp™, Enterprise Edition environment. With Citrix application virtualization technology, SAP delivers all standard applications, including Microsoft® Office and its SAP® Business Suite software. Around 800,000 user sessions are currently logged monthly at the server farm. External users connect to the infrastructure as well — for example, for product development, support and linguistic localization of applications.

“The origins of today’s worldwide Citrix solution go back to a clearly defined and manageable project,” reported Michael Markl, global service owner, SAP IT Infrastructure Communication Services. At the end of the 1990s, SAP installed the first Citrix XenApp server to centrally deliver applications to its international training center. “The expenditure for administration was significantly reduced by the new architecture, and at the same time the introduction of thin clients reduced hardware costs,” remarked Markl.

Based on the positive experiences in the area of training, SAP relatively quickly decided to install the technology company-wide. The goal was to accelerate the rollout of new applications, to improve application performance over the network and to support flexible access scenarios - outside the company as well as inside. Via the Web Interface feature of Citrix XenApp, SAP personnel were given the ability to securely access their personal working environment from anywhere.

The importance of rapid and flexible application delivery to SAP was evident in the fall of 2007, when the company announced the takeover of software manufacturer Business Objects. “After approval of the merger, all the important company applications had to be available to all 7,000 new employees within four weeks,” said Markl. “Through the construction of an additional XenApp farm, we were in a position to meet this goal on time.”

Currently, the company’s Citrix infrastructure comprises around 720 servers, 85 percent of which are in St. Leon-Rot. The rest are distributed among computing centers in the US and in Asia. The available applications may be grouped in three areas: the Standard Office Desktop for all SAP employees;

Networking environment

- Citrix XenApp™, Enterprise Edition running on blade servers
- Citrix® XenServer™, Platinum Edition
- Microsoft® Windows Server® 2003
- More than 51,000 PCs and notebooks

the Standard Training Desktop for training sessions at customer sites and at the worldwide training centers; and the project area with several hundred individual environments used for development, beta testing and support. The entire environment is overseen by a mere 10 administrators around the world.

A number of years ago the first discussions were held in the department about how to enhance the efficiency of the IT infrastructure through virtualization of server workloads. “The technologies available at that time, however, offered too little added value for the XenApp environment,” Markl explained. “We were therefore very eager when Citrix presented its own server virtualization solution with XenServer.”

Implementing a Citrix server virtualization solution

SAP was primarily interested in the possibilities of Citrix® XenServer™, Platinum Edition, since the combination of server virtualization and dynamic provisioning fit exactly the requirements of the internal infrastructure. On the one hand, there were many different servers in the project area to be dealt with, and most of the time they were not used to full capacity. Here, SAP counted on great consolidation potential through virtualization. On the other hand, many identical servers were being run in the office and training area. Streaming a single image to multiple virtual machines would help keep these servers consistent and minimize the need for storage.

According to Markl, the first performance tests went very well. “We set up a XenServer host and installed XenApp on two virtual machines. We were somewhat surprised at the result. Through virtualization, we were able to practically double the maximum number of users on the server. The output from the processor and the available working storage space were optimized, and at the same time it was clear that XenServer and XenApp worked together very well in practice.”

Reducing total costs by 35 percent

In order to validate the first impressions under real-life conditions, in the summer of 2008 SAP carried out a productivity test with 25 servers. The initial test results were fully confirmed. In parallel, a detailed business case was put together in cooperation with Platinum Citrix Solution Advisor Huber S-Consulting to examine which advantages could be achieved by virtualizing the entire XenApp environment.

“We expect that total costs for the server infrastructure will be reduced by more than 35 percent because of XenServer,” said Markl. “In the future, we will need some 70 percent fewer physical servers, which will allow us to consolidate the infrastructure into about 200 servers — down from 700. In addition to the hardware savings, we will save on administration and energy costs. Our CO2 output, for example, will be reduced by about 600 tons per year.”

After the successful productivity test, SAP decided to implement XenServer, Platinum Edition as the virtualization platform for the XenApp environment. The time was right: by the end of 2008 about one third of the current server hardware was scheduled for replacement, but through consolidation with XenServer, significantly fewer servers than planned needed to be acquired. Investment in the server virtualization solution therefore paid for itself from day one.

The rollout of XenServer is to take place in several steps. First, at St. Leon-Rot the servers for standard applications will be virtualized, followed by the training servers, and finally the entire project area. It is planned that by the middle of 2009 all XenApp servers in Germany will be virtualized, followed by SAP international locations in Asia and the US by the end of 2009.

Dynamic allocation of resources

By using the virtualization design, SAP is aiming not merely to consolidate resources. In the future, the IT infrastructure is to be set up in a more dynamic fashion with regard to actual demand. Via comprehensive system monitoring, the IT directors want to continuously record how heavily the virtual machines are loaded. "With a management tool like Citrix Workflow Studio, the virtual machines would be able to automatically allocate more hardware resources as the user load increases," Markl commented. "And in return, we will be able to shift unused workloads automatically to specified servers, and to temporarily turn off unneeded physical servers."

Beyond that, Markl can foresee more than just virtual servers on the XenServer hosts. "We are also considering desktop virtualization. In the project area there is a lot of demand to conduct software tests in various client environments, which would be an interesting scenario for virtual desktops. In the near future we will evaluate the possibilities for implementing Citrix XenDesktop."

Applications delivered

- Microsoft® Office
- SAP® Business Suite
- Adobe Acrobat

About the Citrix Solution

Citrix XenApp™, a member of the Citrix Delivery Center™ product family, is the industry's de facto standard for delivering Windows®-based applications with the best performance, security and cost savings. Citrix® XenServer™, also a member of the Citrix Delivery Center, is an enterprise-class solution for virtualizing application workloads across any number of servers in the datacenter as a flexible aggregated pool of computing resources. With the new Platinum Edition, XenServer becomes the first and only solution on the market to address both virtual and physical servers, making the entire datacenter more dynamic.

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