



*“Server virtualization proved to be an excellent solution to the current needs and challenges of our business, such as server room space constraints, power supply, and air conditioning performance limitations. The deployment of VMware ESX enabled us to manage our resources in an efficient and flexible manner, and to increase their security.”*

— Jacek Więcki, Head of IT Department, Pekao SA

#### KEY HIGHLIGHTS

##### The challenges

Optimizing the IT environment to enable more efficient and effective management, and to improve the utilization of limited resources: server room space, power supply, and air conditioning.

##### The solution

VMware Infrastructure 3.5 enabled efficient and dynamic use of server resources, which translated into server room space savings and reduced power consumption.

## Pekao SA

Pekao SA is one of the largest financial institutions in Poland, also in terms of IT infrastructure. As a market-driven and customer-oriented organization that closely monitors competitive initiatives, it must be able to make quick changes to its business structure. This poses significant challenges to the IT department, which has to respond instantly to emerging business needs in order to be able to support the Bank in its development. Historically, changes related to developments in information technology and the ownership changes that had taken place over the past few years resulted in a very complex IT infrastructure, which was becoming increasingly more challenging to maintain using the limited (although previously sufficient) resources. This forced the Bank's IT organization to look for solutions which could help optimize the IT environment.

Key considerations that prevented the IT infrastructure from being upgraded included significant floor space constraints in Data Center server rooms, as well as external power supply limitations (which affected both the server infrastructure and the backup power supply/air conditioning systems). Therefore, the Bank had to evaluate and decide whether to relocate the server rooms to another location, or to implement a solution that would help optimize the use of the existing server infrastructure resources. Following the analysis of possible and optimum solutions, it was determined that the best option was to virtualize the Wintel platform. The pre-deployment analysis showed that virtualization technology would provide significant server room space savings and help reduce power consumption, both in terms of current utilization and the future development of the entire IT environment.

An important factor in the decision to deploy a virtualization platform for Wintel servers was the issue of optimizing individual servers' resources and parameters. System vendors and integrators typically adopt a very conservative approach, and recommend exaggerated environmental specifications for their systems (on the basis of past deployments). As a result, such environments are frequently oversized, and systems are often assigned much more hardware resources than are actually required for operational use. With server virtualization, however, RAM and CPU pools can be established and allocated to applications in a flexible manner.

Pekao SA completed the market evaluation in 2008. A comparison of the functionality and benefits provided by different virtualization platforms showed that the VMware solution was particularly useful to Pekao SA, and was the best match for the Bank's requirements. Another important factor in the selection of the virtualization technology was the maturity of VMware's solution.

Under the virtualization project approach developed and deployed with the integrator, the VMware platform was deployed on a new, dedicated infrastructure, and applications were migrated in a number of stages (due to the fact that the migration involved high-availability production systems). The physical servers that

VMWARE VIRTUAL  
INFRASTRUCTURE AT WORK**VMware solutions used**

VMware Infrastructure 3.5:

- ESX Server 3.5
- VirtualCenter 2
- High Availability
- Lifecycle Manager
- Site Recovery Manager

**Deployment environment**

- VMware ESX 3.5 on an x86 architecture (IBM blade servers)
- IBM midrange disk arrays with SATA drives

*“The deployment of virtualization technology helped us improve the utilization of server room infrastructure and reduce power consumption. Most importantly, however, it allowed us to structure the IT environment so that we can respond to business needs even more efficiently. We consider the deployment a success, as it has provided significant business benefits, both tangible and intangible.”*

— Jacek Więcki, Head of IT Department,  
Pekao SA

became available (provided that they met specific requirements) were successively incorporated in the new virtual environment and used as additional VMware ESX hosts. This enabled the virtual infrastructure to be expanded gradually while minimizing the cost of new hardware.

At the Bank's request, experts from VMware (the solution's manufacturer) supervised and validated the deployment performed by the Bank's selected integrator (the company deploying the virtualization platform for the Bank). The approach adopted was designed to ensure smooth deployment and compliance with good practices. Using that approach, the deployment was completed within six months, which is a very good result considering the scale of the project (several hundred x86 servers).

According to initial plans, the VMware platform was expected to support approximately 250 virtual machines. Currently, around 500 virtual machines are active in the production environment, and more applications are being developed using the new virtual server environment. Only those applications (servers) which are not suitable for virtualization – for example those that require physical encryption cards or fax interfaces – remained outside the virtual environment.

The Bank uses two Data Centers connected by a dedicated wide area network. The deployment of VMware Site Recovery Manager made it possible to establish high-availability functionality for the virtualized systems and servers, and to deploy the required security features (Disaster Recovery and Business Continuity Planning functionality). Furthermore, it allowed for easy migration of virtual machines between server rooms, for example during maintenance activities or upgrades to the virtual machine environment.

Due to strict stability, security and reliability requirements, the Bank deployed VMware Infrastructure 3.5. Now, preparations are underway to move to VMware vSphere 4, since it offers new and potentially compelling features, such as the ability to use a larger number of CPUs per server and a new clustering technology.

## Results

- 11.6:1 server consolidation ratio
- Approximately 500 virtual x86 machines
- Significantly more efficient use of the existing server capacity
- Reduced power consumption and air conditioning utilization (reduced CO2 emissions)
- Improved floor space utilization in server rooms
- Reuse of existing physical servers to expand the virtual environment
- Streamlined and standardized IT infrastructure and services
- Unified and homogeneous Disaster Recovery and Business Continuity Planning functionality and processes
- Virtualization of the entire intranet platform (SharePoint Portal), analysis and reporting systems, CRM solutions, back-office systems, HR systems, file-sharing systems, antivirus and IDS tools, videoconferencing system and many applications dedicated to the Bank's various internal and external business operations

