



PKO BANK POLSKI S.A. DELIVERS RELIABLE, SECURE AND CONVENIENT BANKING FOR THE DIGITAL ERA



Bank Polski

CUSTOMER

PKO BANK POLSKI S.A.

WEB SITE

WWW.PKOBP.PL

INDUSTRY

BANKING INDUSTRY

LOCATION

WARSZAWA, POLSKA

KEY CHALLENGES

- Building an environment for critical banking applications
- Ensuring security of virtual environment
- Achieving maximum economic effectiveness

SOLUTION

Virtualizing servers, network and security has enabled PKO Bank Polski to build highly available and efficient IT environment for critical banking applications.

BUSINESS BENEFITS

- Accelerating application deployment
- Improved infrastructure flexibility, security and scalability
- Cost optimization of IT infrastructure for critical applications

The IT environment of a financial institution must be highly accessible, efficient, scalable and secure. At the same time a high level of economic effectiveness must be maintained, since it is required by customers, shareholders and market regulators. For almost a decade, VMware technologies have been opening new possibilities and driving the digital transformation at PKO Bank Polski; they provide the foundations for numerous financial innovations, help protect the brand and build customers' trust, and make this largest Polish bank a more agile institution.

PKO Bank Polski S.A. is the leader of the Polish banking sector, the largest and also one of the oldest commercial banks in Poland. It provides services to 9 million customers who use 7.9 million bank cards, has the largest distribution network and is the largest employer in the entire sector. The bank is constantly developing and introducing financial innovations. The direction of its transformation is determined in particular by digitisation of the life of Polish Citizens. The number of internet banking users is constantly growing. Today almost 60% of customers use online channels.

Challenge

The bank's strategy responds to long-term challenges of the banking sector. They arise out of legal regulations, diversified needs of customers, economic situation on the local market and new technologies. The major issues in the latter area include security, as well as an increase in cost-effectiveness and organisational effectiveness.

A modern bank's IT environment must operate 24/7. Customers perform transactions non-stop, even at 6am on 25th December. This is partly because Polish Citizens travel more, also to other time zones. However, regardless of the reasons, for the bank, and for its IT department, it means that the traditional service window, where work on the systems can be performed, is now shorter by half. Not so long ago it lasted from midnight to 4am. Now it starts at 2am and ends at 4am. Even during that time, there are transactions that need to be handled, says Andrzej Leszczyński, Director of the IT Infrastructure Department at PKO Bank Polski.

It is difficult to find an IT environment with a similar scale, complexity and requirements in Central Europe. More and more applications at PKO Bank Polski cooperate with each other constantly. For example, appropriate operation of mobile banking depends on around a dozen other applications. There is a huge volume of data and a high number of customers. For critical systems that are visible to customers, unscheduled downtime for all systems in total amounts to approximately one hour a year. Such level of accessibility is practically unobtainable for most organisations.

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ANDRZEJ LESZCZYŃSKI
DIRECTOR OF THE IT INFRASTRUCTURE
DEPARTMENT AT PKO BANK POLSKI

VMWARE FOOTPRINT

- VMware NSX
- VMware AirWatch MDM, Content Locker, SEG
- Server virtualization technology

APPLICATIONS VIRTUALIZED

- Critical banking applications such as IKO - PKO Bank Polski mobile application

A rapid increase in the number of transactions generates challenges related to efficiency. Polish Citizens, in particular young ones, rarely moving away from cash and make their payments electronically. The systems of PKO Bank Polski must be scaled to service peak loads at such times as the last weekend before the Christmas holidays where the largest number of transactions is performed in the bank's systems.

In view of increasing cyber threats, the bank's systems must also be appropriately secured. The bank constantly cooperates with its customers, conducting information and educational campaigns promoting safe online behaviour. At the same time, it delivers a multi-layer IT protection system.

Moreover, shareholders expect an appropriate financial result. This is why the IT department feels a large cost pressure, which, however, does not mean the consent for any compromises regarding accessibility, efficiency, scalability or security. The level of infrastructure complexity creates huge challenges in terms of its supervision by the IT department. It requires appropriate organisation of work and use of appropriate, reliable technologies, sums up Andrzej Leszczyński.

Solution

For 10 years, PKO Bank Polski has been using the technologies and support of VMware PSO consultants to tackle the challenges related to development of its activity and the changing market environment.

The virtualisation of servers based on a VMware solution was introduced for the first time in 2007 for the needs of the new application of PKO Bank Polski implemented at that time. Over the last 10 years, an overwhelming majority of critical systems of PKO Bank Polski were transferred from Solaris, AIX and HP-UX clusters to the IT stack based on VMware technology, says Andrzej Leszczyński.

The current level of virtualisation of infrastructure amounts to almost 70%. An example of a critical system operating with the usage of the VMware technology is IKO, i.e. mobile app of PKO Bank Polski, which enables access to user accounts, checking its status or history, ordering a money transfer, topping up a mobile or making a deposit, and servicing contactless payments, says Krzysztof Halicki, Deputy Director of the IT Infrastructure Department at PKO Bank Polski.

Due to an increasing popularity of server virtualisation, ensuring security of the serviced applications is becoming an even greater challenge. The characteristic feature of the virtual environment is that numerous virtual systems operate on a smaller number of hardware. The threats may be transferred much easier and thus special safeguards are required. Critical systems operating in a virtual environment require adequate protection. It is provided by the VMware NSX Network Virtualization and Security platform.

The NSX solution makes the security function independent from physical infrastructure and to integrate it with the hypervisor layer. It allows the creation of intelligent security rules, assigned to virtual engines, regardless of physical topology of the network. VMware NSX enables micro-segmentation of the network and securing each application individually. That, in turn, renders it very difficult to carry out any IT attacks involving environment exploration or data theft. As far as the safety of key Bank applications is concerned, securing the environment against attacks such as ransomware is of crucial importance. By applying an integrated VMware NSX and Trend Micro Deep Security platform in

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KRZYSZTOF HALICKI
DEPUTY DIRECTOR OF THE IT INFRASTRUCTURE
DEPARTMENT AT PKO BANK POLSKI.

a non-agent form, our solution allows you to move firewall, antivirus and antimalware functions outside of the virtual engine, thus, making it impossible to uninstall security function of operating system, and – if a hazardous code is detected – ensuring an automatic quarantine of infected equipment.

“VMware NSX allowed us, first of all, to monitor all layers of the virtual environment in terms of security. The VMware network virtualisation technology, combined with third-party software, ensures security to applications in the ESX layer. NSX enables network micro-segmentation which allows third-party software to detect malware and perform the functions typical for Intrusion Detection Systems.” says Andrzej Leszczyński.

The project of the future is full virtualisation of the network and beginning its software definition. PKO Bank Polski currently closely monitors the network virtualisation technology in terms of stability of software defined solutions.

Business results and benefits

VMware virtualisation is now a standard for critical applications at PKO Bank Polski. If a physical server is not absolutely necessary, e.g. due to licence requirements, a virtual VMware engine is launched. This eliminates hardware-related costs, reduces unscheduled downtime of applications, reduces time spent on problem solving, and in consequence to dramatically increase the IT productivity. It is also a perfect solution for systems requiring high accessibility thanks to offering mechanisms to perform disaster recovery.

Thanks to VMware virtualisation, we create new environments faster, launch applications faster and can achieve higher levels of workload on our hardware. Our choice was also made due to lower costs when compared to a classic IT stack for critical applications, built on Unix systems. The x86 architecture is cheaper, but offers similar reliability. On VMware virtual server farms, we have a higher utilisation level and thus achieve a higher economic effectiveness, explains Andrzej Leszczyński.

VMware is a trusted partner, who supports its clients in this age of digital transformation.

“VMware solutions implemented in PKO Bank Polski offer high availability and enable native integration of security. They also support business applications, enabling the bank to introduce new products for its clients faster and in more secure way” – says Piotr Jabłoński, Senior Systems Engineers at VMware.

“From our point of view business continuity is essential. Numerous IT systems are interlinked and have to operate 24/7, exchanging information on an ongoing basis. It is a stable, mature technology ensuring a high level of security.” adds Andrzej Leszczyński.

Security of virtual environment is extremely important, because cyber-attacks are more and more common and elaborate. “VMware NSX supports monitoring of all layers in this environment, for example to detect any malware. It allows to build intelligent security rules which are assigned to virtual workloads independently from physical network typology” – says Krzysztof Halicki, Deputy Director of the IT Infrastructure Department at PKO Bank Polski.

PKO Bank Polski is looking to invest in building a private cloud. Its aim is to provide test and developer environments even faster. An additional advantage will be automation of numerous tasks performed by administrators. Developers

will receive a self-service platform allowing them to make available the ready environments by pressing just one button. From an administrative point of view, the private cloud is to enable automation of software updating. One of the options analysed by PKO Bank Polski is to base the private cloud on VMware technologies.

VMWARE AIRWATCH AT PKO BANK POLSKI: FULLY CONTROLLED MOBILITY

The bank has used the AirWatch technology to manage mobility for several years now. The MDM (Mobile Device Management) AirWatch system encompasses over four thousand smartphones used by PKO Bank Polski employees. It enables efficient management of mobile devices.

The AirWatch technology was originally implemented to service mobile devices with the Windows Mobile system. Later on, the bank chose smartphones with the Android system and Samsung Knox security solution. "We have liked the VMware AirWatch system from the very start. It fulfilled all requirements that a financial institution may have. After migration to the Android platform, we were concerned whether AirWatch would cooperate well with it. The tests showed that everything ran smoothly." says Andrzej Leszczyński.

The bank has started to use additional functionality provided by VMware AirWatch. Currently it has launched the function providing access to shared disc resources via the Content Locker app and to VPN per application, which will enable access to intranet resources from the browser that will automatically open the VPN channel.

