

# Mobile TeleSystems OJSC (MTS)

*“In the course of our long-term cooperation, VMware Inc. became not only an MTS software supplier but a strategic partner contributing to the company business development, based on forward-looking deployment of innovational IT technologies and cutting-edge virtualization solutions.”*

— Valery Shorzhin,  
Information Technologies  
Director, MTS

## KEY HIGHLIGHTS

### Challenge

- Reduction of IT costs
- Increase in system fault tolerance
- Reduction of datacenter area
- Energy savings

### Solutions

- Energy costs reduction
- Capital expenditures reduction (rent)
- Operating expenditures reduction (maintenance)
- High availability and business continuity provisioning

## Close cooperation with VMware Professional Services delivered shortened timelines and predicted savings through collaboration, monitoring, information sharing and training.

Mobile TeleSystems OJSC (MTS) is the largest mobile phone operator in Russia and the Commonwealth of Independent States (CIS). MTS services more than 102 million subscribers. It provides mobile communications in Russia, Ukraine, Uzbekistan, Turkmenistan, Armenia and Belarus, a territory with a total population of more than 230 million. MTS has been listed on the New York Stock Exchange since July 2000.

Business growth led to necessary growth of MTS's IT infrastructure and higher complexity of the infrastructure management. The MTS information technologies team faced the challenge of reducing capital and operating expenditures for maintenance of the billing systems in the regions where the company is present.

In 2008, MTS began a project to virtualize application servers of the OSS Foris billing system. The project covered nine time zones in the territory of Russia.

MTS chose to deploy virtualization technologies by VMware and implement VMware Professional Services without involving the company solution partners.

“MTS has been using VMware products since the year 2004, and this positive experience proved the high quality and reliability of the vendor,” says Valery Shorzhin, information technologies director at MTS. “In view of the high importance of virtualization deployment for MTS business development, we made a decision to carry out the project with the vendor. This vendor has the deepest knowledge of the product, tested methodology and access to best practices in the area, all around the world.”

The first and most complex part of the project covered the Moscow region. The results and the experience of this project implementation was the model for the solutions in the other regions.

## VMWARE AT WORK

- VMware Infrastructure 3, Enterprise
- VMware Virtual Machine File System
- VMware Virtual Symmetric Multiprocessing
- VMware® ESX® Server
- VMware vCenter™
- VMware vMotion™
- VMware High Availability
- VMware Distributed Resource Scheduler

## DEPLOYMENT ENVIRONMENT

- Total number of physical servers: 36
- Total number of virtual machines: 160
- Virtualized applications: Application servers of the OSS Foris billing system

## Professional Services

Virtualization of the MTS billing system in the Moscow region was performed by technical specialists of MTS in close cooperation with VMware Professional Services.

VMware Professional Services is an international unit of VMware Inc., providing strategic and technical consulting at virtualization deployment. VMware Professional Services enables IT organizations to accelerate time to market, reduce deployment risk and maximize return on investment in VMware products and solutions. VMware Professional Services currently combines the efforts of more than 4,000 specialists, with expertise gained from more than 2,000 projects all over the world.

VMware provided the project with an international team of specialists from Russia and the United Kingdom as well as specialists from Germany who had similar experience with projects implemented for European mobile operators. A VMware technical account manager (TAM) working in close cooperation with the client's officers could suggest a technically adequate solution on the basis of best international practices while also communicating in all stages of vendor-to-client cooperation.

MTS delegated to the project group officers from IT as well as business units. Specialists from different departments of the company brought unprecedented expertise in their fields. There was minimal risk at virtualization deployment and all requirements were taken into consideration.

"Within the project, MTS specialists closely cooperated with the consultants of the VMware Russian office and received the latest information on the products and technologies of the vendor" says Shorzhin. "It helped to considerably simplify the communication process, avoid bureaucracy and minimize the project timeline."

## Virtualization Deployment

The virtualization deployment in the Moscow region, where two MTS datacenters are situated, started in 2008 and included the following stages:

### • Virtualization Assessment

A virtualization assessment carried out by VMware Professional Services specialists in the two Moscow datacenters of MTS revealed that the servers were loaded at an average of 10 percent. Based on the assessment, Professional Services prepared a detailed report on how to reduce capital and operational expenses. The report determined that consolidation of the future virtual infrastructure could achieve this.

"The assessment showed that virtualization would allow MTS five times reduction of a number of physical servers," says Shorzhin.

### • Solution Architecture Design

At this stage the detailed system design was developed. It included all the available and necessary functions of VMware Infrastructure 3, taking into consideration all the requirements of the business application. The VMware Professional Services specialists together with the MTS project group created the solution design and planned the system deployment, including testing procedures and further cutover.

According to Shorzhin, "Development of recommendations for further utilization of the system became a very important stage of the project. We plan to adopt the solution architecture for later creation of virtual infrastructure in other regions of MTS presence."

- **Preparation of Virtual Infrastructure**

The third stage included construction of a virtual environment and its integration with the existing systems, including server equipment and systems for data storage, monitoring and backup and changes in the LAN system.

“Complexity of deployment was stipulated by the necessity of complex changes into the existing IT infrastructure. Thanks to the work by VMware Professional Services, we managed to create a unique solution, taking into account all the MTS requirements of reliability, according to the criticality level of the billing system,” says Shorzhin.

- **Switching of the OSS Foris Servers into Virtual Infrastructure**

At this stage, templates of the virtual machines of OSS Foris business logic were created for the launch of functional software in the virtual infrastructure. Before switching, a complex testing, including an overload test, was done. The results of testing proved the system was ready to be transferred to a virtual environment. The work done on the previous stages made it possible to do the transfer in one service shift.

“After the switch, according to the plan, the system was tested in production for one and a half months. Within this period, the officers of VMware Professional Services stayed at our venue and provided constant monitoring of the new infrastructure. We also had our employees trained within this period,” says Shorzhin.

- **Personnel Training**

During the production test period, VMware Professional Services officers trained MTS specialists under the Jumpstart program. It was important because they received not only theoretical information but also practical information based on the environment they were going to support.

## Results

- 20 percent reduction in energy consumption and conditioning
- 60 percent reduction of datacenter space
- 78 percent reduction in the use of physical equipment
- Planned \$190,000 savings in equipment technical support in the next three years
- Developed VMware-based solution for high availability provisioning and failure recovery that will allow the client to deploy VMware SRM for applications protection
- 85.5 percent reduction on licenses (OS Windows Server), reduced from 116 to 36

