

“Using Hitachi solutions, we were able to quickly switch to new corporate file service handling technologies that use a centralized catalog service. We hope that this will lay the foundation for the future development of data storage systems at our company.”

*Aleksandr Igorevich Reut
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Russian Car Manufacturer Upgrades and Streamlines Storage Infrastructure With Hitachi Technologies

OAO AVTOVAZ, a leader in the Russian car manufacturing market, is an equal partner in the Renault-Nissan Alliance. Since the launch of 2 manufacturing sites in Tolyatti and Izhevsk, the company has produced over 28 million cars. AVTOVAZ's products account for close to 18% of the cars on the Russian market. Since the company's origins in 1966, its storage infrastructure had evolved through various technologies and generations and was in need of a comprehensive upgrade. AVTOVAZ found Hitachi Data Systems to be ready for the challenge.

About AVTOVAZ

On July 20, 1966, the government of the USSR issued a directive to build a car factory in Tolyatti. In April 19, 1970, the 1st VAZ-2101 models rolled off the production line. The initial models were the 1st milestone in the history of OAO AVTOVAZ. Today, the company employs around 65,000 people, and its 2013 turnover was estimated at 175,200,000 rubles. According to the latest estimates, by 2020 the budget of the company's science and research, and design and testing departments will equal 3% of AVTOVAZ's revenue.

The Challenge: Disparate Heterogeneous Systems

The company's IT infrastructure has historically been composed of varied components: servers produced by different manufacturers running Linux, HP-UX, and Microsoft® Windows®, and storage systems like EMC DMX, Hitachi Adaptable Modular Storage, EMC CX and others. As its dedicated data storage systems expanded, so did the storage area network (SAN). However, it was connected only to large UNIX servers that handled the important factory management tasks and database management systems.



OAO AVTOVAZ

INDUSTRY

Automotive Manufacturing

SOLUTION

File and Content

HARDWARE

Hitachi Unified Storage 130
Hitachi NAS Platform 3090

SOFTWARE

Hitachi Command Suite

SERVICES

Provided by Hitachi Data Systems Global Solution Services

Benefits at a Glance

- Administration via convenient interface.
- Systems can expand to 3x volume and performance.
- Transparent user authentication.

SUCCESS STORY

For a long time, the company's IT infrastructure developed without any comprehensive upgrade. Different generations of dedicated servers and data storage systems based on proprietary solutions were used to handle various tasks. Consolidation of IT and data storage resources was only implemented for high-performance UNIX systems using hardware partitioning. As the number of application users whose daily duties required IT system support (designers, financial department staff, factory shop operators and other specialists) increased, the need arose for creating corporate file storage for sharing and home directories. Previously, the need was met by using the corporate portal and proprietary software running on Linux servers, at which time user authentication was performed using an internal catalog service.

AVTOVAZ determined that it needed a corporate file storage and a server virtualization solution [Citrix and keyboard-video-mouse (KVM)]. The company needed an infrastructure that would let it consolidate the many high-performance tasks it faced, which, in turn would increase the load on the hardware. Both the corporate file storage and the virtualization system required mechanisms for disk run-time allocation, to prevent unclaimed data storage partitions from accumulating.

In addition to the abovementioned tasks, the company needed efficient data storage system disk space allocation between corporate servers that were not yet connected to the SAN. The company was planning on using standard SMB/NFS network

protocols and its well-developed factory Ethernet infrastructure for data exchange. The corporate file storage required easy scaling of the new platform in terms of data volume and number of users. In addition, it was necessary to switch to standardized user authentication with Microsoft Active Directory®.

Beyond changes in the user authentication procedure, AVTOVAZ intended to transfer a number of services that used to be based on its proprietary information system. It would move the files to new corporate storage that utilized Microsoft technologies and offered tools for monitoring system efficiency and performance. In creating such highly centralized systems, the company further wanted to ensure that local and global components of the infrastructure are fail-safe.

The Solution: File and Content Platform, Delivered by Hitachi

AVTOVAZ deployed its 1st Hitachi storage solution in 2009, Hitachi Adaptable Modular Storage (AMS) 1000, and introduced AMS 2500 in 2010. Its successful record with AMS encouraged AVTOVAZ to consider HDS for current needs.

Having outperformed its competitors on this IT infrastructure upgrade project, Hitachi Data Systems offered AVTOVAZ a scalable compact solution: a cluster platform based on Hitachi NAS Platform 3090 (HNAS 3090). Most of the proposals from other manufacturers involved many interconnected servers or specialized devices,

which translated into a large number of racks and complicated system administration procedures.

Compared to the competitors' solutions, Hitachi Unified Storage 130 (HUS 130) with SAS disks offered maximum performance and unique storage density while keeping electricity consumption low. The installed systems can expand to 3 times the volume and performance.

Hitachi Data Systems offered a balanced, reliable, solid, finished solution, a file access cluster platform and data storage system, which is easy to integrate into existing infrastructure.

Deploy a Complex Project in the Shortest Time Possible

HDS promptly supplied the equipment and worked with the customer to set up the data storage systems. At the 1st stage, Hitachi Unified Storage and Hitachi Command Suite were implemented along with Hitachi NAS Platform to form file network storage for corporate user data. Access to data storage systems for Citrix and KVM hypervisors was provided using the NFS protocol. At the 2nd stage, the system was integrated with Microsoft Active Directory, and an automatic login directory generation mechanism was set up. The 3rd and final stage involved the expansion of the virtualization platform in terms of the number of servers and the information services on them. It also involved an increase in the number of users who use the HNAS cluster to store files.



“A cluster platform based on HNAS allowed for a more flexible application of existing and new data storage systems by providing direct file access to users without engaging many proprietary systems.”

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The Benefits: Convenience, Reliability and Savings

A cluster platform based on HNAS allowed for a more flexible application of existing and new data storage systems by providing direct file access to users without engaging many proprietary systems. High-performance NFS access to data storage systems via HNAS allowed the company to promptly introduce Citrix virtualization solutions. The NFS protocol has also promoted efficient data storage system disk usage with the help of run-time allocation technologies for virtual environments.

A single administrator can now support general network file storage using a convenient interface to accept user requests for changing permissions and allocating more space.

Cluster setup significantly increased reliability for this solution. A malfunction at one locale in no way affects the servers' operation; the tasks it handles are automatically transferred to a different locale. The administrator is automatically notified of the situation. Local clustering helps avoid service downtime in the event of failure of any of the HNAS components.

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Thanks to the integration with Microsoft Active Directory, HNAS can perform transparent user authentication. Corporate policies regarding access to different data stored in the HNAS can now be enforced, which reduces the cost of operating various systems that were used in the past. The infrastructure's ability to offer new services based on Microsoft Active Directory has been expanded.

The return on investment (ROI) in this project came from downtime reduction on existing services and quicker introduction of new information services. ROI is also gained from the efficient use of data storage disk systems for any server connected to the Ethernet or Fibre Channel network.

Ahead: Move Toward Fully Fail-Safe Operations

AVTOVAZ is planning on using HNAS to store archive data and for part of its backup needs. At the same time, the company is planning to actively use the block-level, hardware-accelerated, data-deduplication capabilities HNAS provides to reduce the space required to store this type of information. As for the platform upgrade, with the increase in the amount of data, the company decided to access HNAS via network interfaces at a speed of 10Gb/sec instead of the current 1Gb/sec. In addition to increasing performance and storage volumes, the company is planning to relocate the system to 2 independent sites to facilitate perfect disaster protection.

 **Hitachi Data Systems**



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