Alfa-Bank Builds a New Data Center Based on Cisco Nexus Hardware

The bank has installed the new generation of Cisco Nexus switches, which are fully compatible with the objectives and architecture of the modern Data Center 3.0, as part of its data center's network infrastructure.

Customer: Alfa-Bank
Industry: Banking
Location: Moscow
No. of Employees: 17,000 employees

What the project means for the business:
- Enables IT System performance maintenance for the purpose of calibration against growth and business strategies
- Reduction of IT-structure costs through continuing development of internal resource virtualization and implementation of internal cloud computing environments
- Maintenance of the Bank's technological superiority in the banking services market.

A Success Story

Primary Goals

Alfa-Bank is one of Russia's largest private banks, executing all types of banking transactions in the financial services market. Alfa-Bank's head office is located in Moscow. In total, throughout Russia and the world, the bank has 444 representative offices, including a subsidiary bank in the Netherlands and financial subsidiary companies in the United States, Great Britain, and Cyprus. Alfa-Bank employs around 17,000 people. At the end of the third quarter of 2011, its client base was about 49,000 corporate clients and 5.8 million individual customers.

Maintaining its status as one of Russia's leading privately-owned banks, increasing its profitability, and establishing industry standards for technology, efficiency, quality service and teamwork are among Alfa-Bank's top priorities. As part of its development strategy, the company decided to build a new data center. Alfa-Bank chose Cisco as a technology partner, as it is highly experienced in developing network products and solutions for data centers.

HP and CROC participated in the project. HP served as the general contractor in charge of designing the new computing center (NCC). The experts at HP worked out the concept for the future center and partnered with CROC in developing the preliminary design. CROC executed all the work, including evaluating the selected site and developing and installing the modern engineering systems.

Project Implementation and Results

The next-generation Data Center 3.0 architecture, which embodies the transition from a centralized physical infrastructure to a highly-integrated virtualized environment, was selected for building the data center. Data Center 3.0 links local networks, the information storage system and application delivery networks together, which makes it possible to use a single transport system for resolving any issue and eliminates the need for alternative networks to transmit data to the archive. This simplifies the cabling and data center switching infrastructure.

In addition, this unified architecture allows denser and more compact servers to be installed, increasing the data center's productivity. In conjunction with the virtualization features, this attribute allows the data center to operate more efficiently, prolongs its life span, and helps maximize the load on the resources installed while saving on energy.

Data Center 3.0's architecture is based on the flagship line of next-generation Cisco Nexus switches. The network was built using a classic core – distribution – access design. Cisco Nexus 7000 Series switches were installed at the core and distribution levels, forming a scalable, modular platform with upgradable switching volume, reserved components, and support for 10, 40 and 100 Gigabit Ethernet channels.

"Our new data center meets the world's highest standards and requirements for financial institutions. We believe that Cisco's innovative technologies will enable us to achieve our strategic business objectives."

Oleg Potapov, Deputy Director of IT Support at Alfa-Bank

The Cisco Nexus 7000 Network Platform is fully compliant with a new requirement for data center networks: virtualization of real-time applications, video services and workgroup technologies. To meet this challenge, in particular, the new Virtual Device Contexts (VDC) technology was used, enabling the creation of isolated virtual switches (virtual contexts) on one physical switch. Flexible allocation of resources between the VDCs is possible.

In addition, the following technologies and protocols have been implemented on the new platform:

• Virtual PC (vPC) and FabricPath, enabling a departure from the traditional Spanning Tree Protocol (STP) and the aggregation of communication channels with new features

• Overlay Transport Virtualization (OTV), a scalable solution for expanding tier-2 networks between data centers

"Cisco Nexus network equipment fully meets all requirements for building a modern data center, that is, consolidation, virtualization, and cloud computing.

Andrey Shustrov, Project Manager for the creation of Alfa-Bank's NCC

• In Service Software Upgrade (ISSU) technology, which makes it possible to update without stopping services; this is very important for maintaining the continuity of business processes

• Port configuration profiles

• Check Point software, which is able to create and revert to any hardware configuration version.

Cisco Nexus 5000 and Nexus 2000 (FEX) Series switches were installed at the access level of the new data center at Alfa-Bank. The two switches, the Cisco Nexus 5000 and the Cisco Nexus 2000 (FEX), form a "virtual chassis" and serve as a distributed access fabric. The Cisco Nexus 2000 is the "interface card", and the Cisco Nexus 5000 handles management tasks and system settings. Server connections run at 1 GB/s and 10 GB/s.

The horizontal structured cable systems (SCS) at the access level use the Top-of-Rack model, where a single Cisco Nexus 2000 Access Switch or a blade switch is installed in each server rack. The copper cables connecting the servers to the access switches are localized in one rack, and optical lines run between the racks. This solution made it possible to optimize the center's cable infrastructure and lower SCS operating and deployment costs. To enable interoperability with its three other data centers, Alfa-Bank set up high-speed links with a throughput of 10 GB/s. Using Cisco solutions in building the data center enabled flexible organization of the SCS, centralized network infrastructure management, and easy scaling of the system. In addition, it significantly reduced operating costs associated with the use of the data center.

The network infrastructure was put into operation in only five days; during this time the equipment was installed, set up, and configured according to the customer's requirements.

Currently, only Phase I of the project has been commissioned: the first of the data center's two server rooms. The first stage of the NCC was launched in late April 2012, and the launch of the second is planned within the next six months.

"The introduction of new technological solutions using the Cisco Nexus Series at the data center gives the Bank the opportunity to gain a competitive advantage by substantially improving the IT systems' efficiency and reducing risks associated with the storage, processing, and transfer of information."

Oleg Samarin, Cisco Systems, Deputy Technical Director for Corporate Client Operations