

A long way to RTGS in Russia: problems and solutions

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Where to start?

The existing payment and settlement system in Russia is paper-based, and so is highly decentralised. And the central bank's payment system is the core of the national one. Historically the bulk (65%) of interbank payments have been executed via the central bank's payment system. Another 20% of payments are intrabank, and the rest are settled through interbank correspondent accounts.

The disintegration of the USSR, combined with the appearance of hundreds of banks around the country and poor telecommunications or even a lack of them in some regions, forced the central bank to establish a huge number of Cash and Settlement Centres (CSCs), more than 2,100 as at mid-1992. The purpose of these centres was to supply (and withdraw) cash to (from) commercial banks and to serve as a link to the central bank payment system, receiving paper payment orders from banks.

In view of the fact that 70% of payments are carried out within one administrative unit¹ and that Russia incorporates 11 time zones, the pillars of the central bank payment system are 80 Regional CSCs (RCSCs) which receive banks' payment orders from CSCs, settle all intra-regional payments and exchange banks' payment orders with other RCSCs. As the need to establish a new payment system in 1992 was urgent, there was no single technological solution for the RCSCs and many decisions were made on a regional basis. This resulted in more than 30 different types of hardware/software combinations at the RCSCs. Some used the gross settlement principle, some the net one; in CSC-RCSC and inter-RCSC communications, e-mail, telegraph and even postal messages were used. It

¹ Russia is made up of 89 administrative units (oblasts), nine of which were created after 1991. There is a central bank branch in every unit except those newly established.

could take a week or more for a payment to become final. Banks with branches in different regions of the country had to decentralise their resources into multiple accounts at different CSCs in order to carry out clients' payment orders. As a result, towards the end of 1994 the central bank payment system was recognised as being extremely inefficient even by the central bank authorities.

The new Law on the Central Bank of the Russian Federation (Bank of Russia) adopted in April 1995 provided that the bank is obliged to settle all intra-regional payments within two working days and inter-regional payments within five days. That was the start of the transformation process for the Russian payment system. Since it was realised that telecommunications are the key problem in speeding up settlements, the bank has launched a construction programme linking its CSCs with existing telecommunication facilities which is to be completed by mid-1998. Moreover, the bank has recognised that the current telecommunications infrastructure in Russia cannot be the foundation for the future settlement system and that there is a need for more advanced technology. It has therefore decided to launch its own satellite in order to ensure the ongoing transformation.²

In mid-1996 the Bank of Russia's Board of Directors adopted ambitious plans for upgrading its existing settlement system using state-of-the-art technology (upgrading and harmonisation of hardware and software) and defining an RTGS project. The latter was prepared within nine months and adopted by the Board of Directors in April 1997.

The RTGS concept

Modern technology for processing and transmitting data permits the centralisation of settlement functions to a large extent. The planned real-time gross settlement system will be a single-tier system under which the accounts of credit institutions and of the clients of the Bank of Russia are concentrated at the Federal Settlement Centre (FSC).

The FSC will be a specialised settlement unit of the Bank of Russia for the settlement and bookkeeping of transactions between credit institutions and clients that hold accounts at the Bank of Russia.

² The satellite was successfully launched in November 1997.

All RTGS participants should have a terminal for the electronic exchange of documents and data with the FSC. If participants have no such terminal, they will exchange documents with the FSC via the central bank's workstations installed at the CSCs. The only limitation on participation in the RTGS system will be the need to comply with the operating conditions set by technical specifications.

The main objectives of the RTGS system are the following:

- to increase the speed of transactions within the banking system and to reduce the banks' settlement risk by finalising interbank settlements within the shortest period of time;
- to provide for the possibility of intraday liquidity management by participants;
- to settle transactions in organised securities markets the same day; and
- to allow participants to consolidate their resources in one location.

Payments within the framework of the RTGS system will be:

- irrevocable (after debiting to the account of the paying credit institution) and final (after crediting to the account of the receiving credit institution);
- carried out continuously during the business day (given the 11 time zones in Russia, the unified banking day for all regions will run from 4 a.m. to 8 p.m. Moscow time for the FSC and credit institutions; during these hours any RTGS participant will be allowed to settle anywhere in the Russian Federation);
- booked to the respective accounts of RTGS participants and reflected immediately upon their acceptance (information about the current balance on their account will be available to participants);
- effected in electronic format between RTGS participants.

Participants in the RTGS system should have a dedicated terminal with specialised software/hardware installed at their offices or at the specialised offices of the Bank of Russia. Such specialised offices are to be set up in order to provide access to RTGS for those who are unable to acquire their own terminal, and will allow the input and transmission of payment orders. These offices will perform the functions of operational units responsible for receiving and processing the settlement documents in paper format and transmitting instructions through their RTGS

workstation. Their number and location will be defined during the implementation of the RTGS project.

Bearing in mind the size of Russia and the need to construct a telecommunications network in a number of regions of the country, the Board of Directors decided to build the RTGS system on a step-by-step basis. During the first stage intra-regional RTGS is to be established in every region. Intra-regional RTGS will allow real-time settlements to be made within a region while settlements with other regions are executed on a traditional basis. To date, 43 out of 80 regions in Russia have intra-regional RTGS.

In 1999, when intra-regional RTGS will be operational in the 15 regions with the greatest volume of payments, the national RTGS system will be launched. From the start, the national RTGS will link these 15 regions. The other regions will be incorporated subsequently upon completion of their telecommunications infrastructure. All regions of Russia should be linked to the RTGS system by the end of the year 2000.

Risk and liquidity management in the RTGS system

In May 1993 the Ministry of Finance and the Bank of Russia launched an electronic Treasury bill trading system. This system now comprises a network of more than 2,500 terminals located in the eight largest cities across seven time zones. The trading is organised daily in real time and in the eight cities simultaneously. Settlements (both funds and securities) are carried out the same day. The stock of Treasury bills currently exceeds 425 trillion roubles (US\$ 72 billion).

Since the spring of 1996 the Bank of Russia has used Treasury bills as collateral for its lombard credits (from 3 to 30 days). 50% of Russian banks that hold Treasury bills have access to this facility. In April 1997 the Bank of Russia launched two-day repo operations with primary dealers in the Treasury bill market. There are 40 primary dealers, all of them banks. In August 1996 the bank introduced a non-collateralised overnight credit facility to enable primary dealers to finalise settlements. These credits are provided at a penalty rate (refinancing rate plus 30%).

With the establishment of RTGS the Bank of Russia is planning to redevelop the current refinancing facility so as to be able to provide liquidity to banks in order to avoid settlement queues. The new facility

will be based on a link between the RTGS and Treasury bill trading systems and the Treasury bill custodian. This project is facilitated by the fact that the Bank of Russia created the trading system and is now supervising and regulating all trading and technical aspects of this system. The bank, together with MICEX (owner of trading system), is also a shareholder in the custodian.

During the first stage Treasury bills will be used as collateral for overnight credits from the Bank of Russia. This will allow the bank to reduce its interest rates and will enable banks to use the facility in order to make all necessary payments. Furthermore, the bank intends to develop a system of intraday credits (also collateralised by Treasury bills) to enable intraday payment queues to be avoided.

In order to avoid intraday liquidity shortfalls, ensure a smooth settlement process, reduce systemic risks and prevent the build-up of payment queues, the following measures are envisaged:

- centralised management of payment queues during the day;
- the possibility of using optimised queue management algorithms on the basis of agreements concluded with credit institutions in the event of critical situations; and
- arrangements to ensure an even flow of payments throughout the business day.

Credit risks in the RTGS system will be managed by setting limits on the volume of credits provided to banks by the Bank of Russia and, primarily, by the use of collateral. The bank will guarantee the provision of intraday liquidity within the limits and on the conditions which it defines.

Moral hazard will be managed through the use of conditions on the granting of intraday liquidity, a tariff policy which will encourage an even inflow of payments during the business day and early submission of payments, and the imposition of sanctions for any violation of the rules of the settlement procedure.

Technical risks will be managed through hot reservation of hardware and software and data replication, the use of autodiagnosics, the establishment of an integrated system of control of telecommunication and information resources, upgrading of the professional skills of staff, timely servicing, the maintenance of climatic conditions in accordance with the technical specifications and the application of standard technological requirements to the hardware

and software of the credit institutions interfacing with the RTGS terminal.

The role of private clearing houses in providing special interbank settlement mechanisms ensuring guaranteed net settlement will be another important factor for intraday liquidity management by banks effecting settlements through the RTGS system. The Bank of Russia will support the operation of such clearing houses by drawing up the regulatory framework and providing the technical facilities for their interaction with the participants in its own clearing and settlement system.

The stages of RTGS implementation

The development of the RTGS system will proceed stage by stage in conjunction with the creation of a regulatory framework, the installation of technical equipment and the provision of software and organisational support to the settlement units of the Bank of Russia.

The transition period will comprise two stages.

In the first stage, a two-tier settlement system will be introduced, with the Federal Settlement Centres (FSCs) constituting the first tier and the RCSCs the second tier.

The corresponding accounts of all banks and clients of the Bank of Russia will be transferred to the RCSCs and centralised processing of accounting and operational data will be launched at the regional level, with intra-regional payments being channelled via the RCSCs and inter-regional payments via the FSC.

The FSC will open accounts for inter-regional payments for each RCSC participating in the RTGS system as well as transit accounts for the booking of transactions between RCSCs located in different time zones in the event that payments are not entered in the recipient's account by the close of the business day at the RCSC which serves the receiving credit institution.

The FSC will keep the accounting records of every payment routed between the RCSCs as well as reconcile and record, on a daily basis, the end-of-day results of gross settlements between the RCSCs participating in the RTGS system.

During the first stage, the RTGS system will operate in parallel with the Bank of Russia's existing settlement system and will remain a relatively autonomous subsystem integrated into a single accounting and operational complex.

Among the factors determining the sequence of linking different regions to the RTGS system will be the volume of the inter-regional and intra-regional payments turnover and the availability of adequate telecommunications and computer capabilities.

Before the system is introduced, steps will be taken to optimise the region's settlement and data-processing networks.

The intra-regional RTGS components will be commissioned concurrently with the creation of the FSC.

Prior to the start of operations by the FSC, it may be that RTGS will be launched only at the intra-regional level, with the region being linked to the FSC and allowed to perform inter-regional settlements later.

As the regions providing the bulk of the payments turnover are gradually linked to the FSC, the second stage of the introduction of the RTGS system will start, with the opening of accounts for all settlement participants and the closing of their accounts with the RCSCs.

The terminals at banks and at the offices of Bank of Russia clients needed to provide the RTGS link will be installed on a voluntary basis.

With a view to reducing the FSC's workload in connection with the processing of the return payments from those regions not linked to the RTGS system and addressed to credit institutions and Bank of Russia clients which have accounts at the FSC, such payments will be processed and recorded by the RCSCs that have previously provided settlement services to the recipients, and subsequently recredited to the FSC.

The development of the RTGS network will be based on a standard hardware and software package that will be replicated and sent to the regions in accordance with a predefined schedule.

The integrity of the RTGS system will be supported by a single system of supervision ensuring the uniform monitoring of compliance with the settlement rules and procedures, data-processing functions and operating hardware and software components.