Prof-Media Multichannel Broadcasting Complex

Prof-Media Multichannel Broadcasting Complex (PMBS/Prof-Media Business Solutions, Moscow) comprises the assets of its television channels into a single multichannel broadcasting system. The complex is located in the historical 19-th century building of former Danilovskaya Textile Workhouse at Varshavskoye Shosse. The huge interior space is now occupied by the offices of the management, TV companies and the overall broadcasting complex for 11 TV channels (9 air and 2 redundant for 4 broadcasting time zones).

The complex system project has been implemented by Qualitron Company, which is a leading system integrator in the Russian market. The latest solutions of leading vendors have been used for the project implementation.

The basic concept of the complex is the highest possible use of tapeless technologies. The media are processed and stored only in the file format. MXF (OP1a, DV, 25 Mbps) format with multichannel sound is used as the main option. The use of MXF standard ensures file compatibility with current and future playback systems. The complex also includes workstations for media digitizing from cassettes with the possibility of cleaning from noises and transcoding. The solution allows to actively use of archive media available in each TV company.

File processing, including creation of low resolution copies and transformation of any input format into MXF is performed by Telestream FlipFactory transcoding system. The logical array of 3 high performance IBM servers, supporting simultaneous processing of dozens of files at the speed 2-3 times higher than real time and normalizing of the audio level is used for files transformation. FlipFactory is also utilized for short files transformation into Flash Video format to be used for TV3 company web-site.
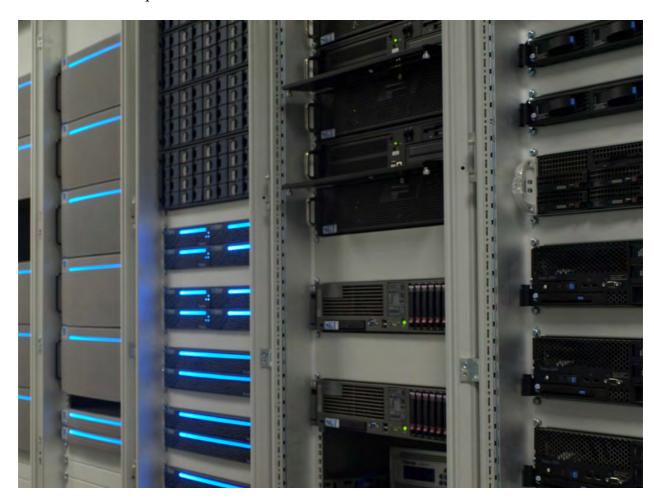
Due to considerable volume of media coming to the system, use of media manual quality control is practically impossible. Tektronix Cerify system of media automatic quality control has

been used for the first time in Russia for solving this problem. All incoming media undergo the control of various parameters, for example, correct internal file structure, availability and compliance with allowed noise levels, absence of picture distortion, etc. Quality is checked simultaneously for several files at the speed higher than real time. The check results are stored in the Media Asset Management (MAM) database and are used for decision making on media admission for air.

One of the key components of the complex is Omneon MediaGrid storage system. 84 TB network RAID enables storage of all media (both in high and low resolution) for all channels, and immediate access to approximately 3 months buffer (per each TV channel). MediaGrid storage system supports high speed file exchange between all components of the complex. 100% redundancy of MediaGrid data and components ensures high availability of media. The system modular structure also helps to easily scale its volume in non-disruptive manner.

External programs are recorded and air played from Omneon Spectrum multichannel video server (24 outputs, 8 inputs) with total RAID capacity for about 500 hours in MXF/DV25 format. Programs are generated by means of 2 outputs of the video server, allowing to use DVE cross-fades and effects. Digitized media are copied in MediaGrid storage system and the files for airplay are downloaded to the server through LAN managed by SGT automation system. Single MXF file format requires no additional transformations.

Miranda IS-750 multifunctional devices are used for TV channels graphics design. These devices enable simultaneous solution of several tasks: seamless mixing of video and audio signals, output of patterns with dynamic data, implementation of short animated sequences, clocks and animated graphics. Miranda Vertigo XG programmable designing system supporting scripts execution and including of dynamic data from external sources (databases, RSS, etc.) is used for advanced designing.

Media Asset Management and air automation is based on VEDA system from SGT Company (France). Integration of MAM databases and the automation systems facilitates data exchange between the two main subsystems. The system has been drastically upgraded during the project implementation and currently embodies several innovative ideas which have never been implemented in the Russian market. Among other things the system manages all the devices using only native network protocols, ensures dynamic load balancing between device controllers and redundancy of main components. The system manages not only media digitizing and air playing, but also metadata editing, automatic import and transformation of files, creation and export of EDL (in Avid and Apple formats). The system is integrated with various traffic management systems using BXF (Broadcast eXchange Format, SMPTE 2021), Telestream FlipFactory transcoding and Tektronix Cerify quality control systems.

Apart from the above described items the following components are used in the complex:

- Network Electronics VikinX switching matrix (64x64 with 100% redundancy);
- Miranda Kaleido-X (96 inputs) multiscreen system with combined pictures displaying on 8 screens and imbedded sound volume control;
- Tektronix test instrumentation;
- Plug-in equipment (distributors, frame synchronizers, etc.) and RollMap monitoring system from Snell&Wilcox;
- Alpermann+Velte time code generator with GPS synchronization;
- Riedel Artist intercom system;
- HP ProCurve network architecture.

Technology-wise the complex is one of the most advanced solutions which comprises several best currently available developments. Cutting edge solutions set the foundation for further development of the complex.