The ASTRO U-series – an international success

Ukrainian cable operator Volya invest in IP head end technology

ASTRO in the CIS

The ASTRO U 100 series made its way beyond the borders of Germany. After gaining major projects with domestic German cable network operators, more and more international operators are putting their trust in the ASTRO IP head end technology. Especially in the CIS, several big projects have been gained by ASTRO. As an example one project in the Ukraine should be pointed out.

Pavel Kurmachev, Director of Planning & Development @ Volya

Volya, Ukraine

The biggest Ukrainian cable network operator is Volya with the Network Operation Center (NOC) in the capital city Kiev. From this NOC, Volya plays out cable TV signals to 19 cities all over the Ukraine. In total, approximately 2.2 million households receive their signals from Volya, and the analog PAL signals are processed by ASTRO head end technology. In August 2012 Volya launched new IP receiving technology for their networks and ASTRO was chosen after a long period of testing the products of different vendors.

Pavel Kurmachev, Director of Planning and Development mentioned several reasons for the decision to purchase the ASTRO technology: "No other vendor was able to offer such excellent system parameters and for some cities Volya provides 80 PAL channels, so the signal performance after combination is extremely important. Further points were the redundancy concept and the easy handling which convinced us." Now, after one year of operation in Volya's networks the result is very promising: "Some head ends have been in operation for one year, some less, but to date none of the modules have failed, so I want to express my gratitude to the ASTRO R&D and production", Kurmachev adds.

NOC of Volya, Kiev

General points about the ASTRO IP head end

IP to PAL processing is made with the U 11x 4-way IP/PAL converter. The U 11x receives up to four IP multicast groups and converts the capsulated MPEG transport streams in up to four PAL output channels. In addition to outstanding signal parameters the U 11x offers many interesting features for cable network operators. For instance, it is possible to overlay a time-controlled news ticker to provide additional information for the subscribers and in addition it is possible to feed different content to one output channel – the so-called time shared output channel.

The U 100-230 is designed as a base unit for the signal converters with two integrated power supplies for redundant voltage feed. Thanks to the U 100-C an easy and convenient management is guaranteed. The complete head end is configured and monitored with it. The management functions vary from a rack view of the complete head end to time-controlled updates to the point of automatically executed redundancy switching e.g. in case of a failed input signal.

Redundancy switching for highest reliability

Volya is using all available redundancy mechanisms – soft- and hardware-based – provided by the ASTRO U 100 series. Both signal losses due to a lost input signal and defective signal feeding can be compensated either by IGMPv3 "source select" or redundant physical IP interfaces for each ASTRO signal converter. The head ends in the Ukraine are of course equipped with spare equipment to be able to react to a possible defect of one module or to prepare maintenance work in order to minimize the influence on the subscriber.

Easy handling and maintenance

The operational concept is kept as easy as possible. All modules have the same graphic user interface (GUI) for IP settings, IP receivers and management

Requirements to solve	2 Data ports	IGMPv3	replacement
• Link loss	✓	✓	
• Defective data switch	✓	✓	
• Defective IP frontend	✓	✓	
• Malfunction in signal source		✓	
• Defective signal modulator			✓

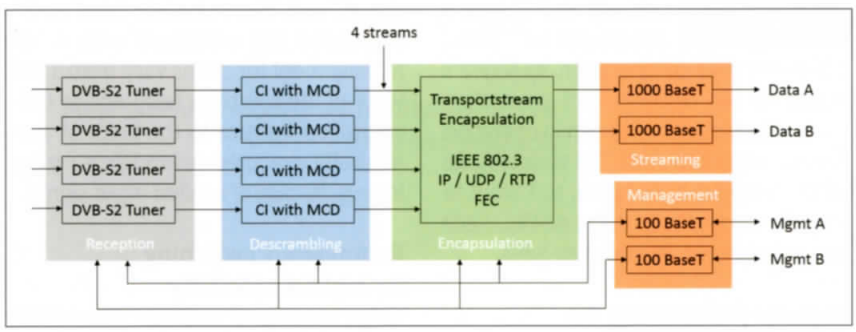
Integrated mechanisms for effective redundancy switching

functions. Only the modulator settings differ from the different signal converters, this is why the operation of the modules is very easy after once-only training. But also for maintaining, the ASTRO engineers have found solutions for quick reaction: All modules including power supplies are "hot-swappable", meaning that they can be exchanged during operation in particular without affecting services running on other modules. The configuration of the modules is stored on an SD card which can be easily replaced after removing the signal converter. As a result, the replacement module only has to be equipped with the "old" SD card and the exchanged module starts with the correct configuration. The on-site technician does not have to worry about how the configuration of the defective device was and how this configuration should now be loaded into the redundant device. This means a device replacement is absolutely trouble free.

Further modules and future perspective

For QAM processing ASTRO offers the U 158 8-way IP/QAM converter. The U 158 receives up to eight IP multicast groups and converts the content to QAM output channels. Features like local NIT generation and LCN processing are integrated as a matter of course. But also supporters of FM radio stations are not ignored: The U 124 16-way IP/FM converter generates up to 16 analog FM radio stations out of four IP multicast groups and supports individual adjustment of every station like level, loudness and dynamic RDS to mention only some of them. But this is not the end of the product range for modules processing IP streams. IP to COFDM is available as well as IP to IP descrambler with multichannel decoding functionality.

As the ASTRO U 100 series has been completely developed by ASTRO R&D in Germany, all possibilities are available for future developments (e.g. customizing, fast trouble-shooting, ongoing evolution). The next evolution steps are already being made with the DVB-x to IP streaming technology. The U 144 is a 4-way DVB-S2 to IP streamer with CI and multichannel decoding and the U 164 is the same device equipped with a multi standard frontend for DVB-C, -T and -T2 input signals. For operators who do not need to descramble the streams, ASTRO offers the 8-way free-to-air versions U 148 for DVB-S2 and U 168 for DVB-C, -T, and -T2. Just to visualize: an 8-way streamer results in 24 streams per rack unit which is an incredible signal density per 19" rack unit.



Block diagram U 144 DVB-S2 to IP streamer

Field trial at Kabel Deutschland

A very good sign that the company is on the right path with new developments is the successful launch of a DVB-C2 field trial in June 2013 at Germany's biggest cable network operator "Kabel Deutschland". ASTRO was invited to deliver the U 160 IP to DVB-C2 modulator and to provide an important part of the signal chain together with Arris and Sony. Details of this field trial can be evaluated in Kabel Deutschland's official press release.

Innovative RF-Distribution solutions

Developing, manufacturing and marketing professional RF-Distribution products and solutions is the core business of RF-Design from Bensheim/Germany. Their products are used in satellite earthstations, teleports as well as in broadcast and broadband infrastructures while RF-Design strengths also include designing and providing custom-made RF distribution solutions according to the customers individual needs. For the second time RF-Design will be exhibiting at IBC 2013 in Amsterdam (Hall 1, Stand F57). At IBC 2013 they will showcase various solutions for RF signal splitting/combining, switching, routing, amplifying, monitoring while their highlight this year is a new and compact Switch/Routing Matrix.

NEW L-Band Switch/ Routing Matrix "FlexLink K4"

RF-Design´s latest innovation is the new L-Band Switch/Routing Matrix "FlexLink K4" which will firstly be presented for the first time during the IBC2013. The "FlexLink K4" is a professional, flexible and modular Switch/Routing Matrix, designed as a 4RU/19" Master/Slave chassis concept allowing the user flexible signal management. The system features various input/output configurations starting from 4:4 up to 32:32 within one master chassis while it is easily expandable in increments of 4 e.g to 128:128 via a master/slave chassis.