

Innovative End-to-End RF Signal Management for Cable TV Network in Vietnam

Introduction

One of the biggest telecom service providers in Vietnam, who had planned to build up a Cable TV network nationwide, including a main head-end in Hanoi plus over 700 Sub head-ends along the country. The Hanoi head-end receives signal from satellite antenna dishes with dual-Pol and IP contribution, and at each Sub head-end delivers both digital and analogue cable TV signal over GPON network.

Challenge

At the Headend, an outside antenna farm that provides live signals for content acquisition. In house, the L-band signal will be received by IRDs, decoded before passing to baseband processing stage.

The distance between antenna farm and head-end cage is 60 meters, but it is crucial to have very high signal quality, multiple-output matrix supports redundant capability of the IRDs in the live content environment. This application also requires remote management of equipment including RF levels and LNB power.

At Sub head-end are outputs of over sixty analogue TV channels and 24 digital QAM signals feeding an RF combiner, the combined signal will be fed an optical TX over fiber network. Due to interference environment, Viettel is looking for a combiner type with very low slope, high port-to-port isolation, and ultimate resiliency.

Solution

Together with Vietcoms, a DEV local partner in Vietnam, we designed the best technical and commercial solution for the project at both head-end and Sub head-end premises.

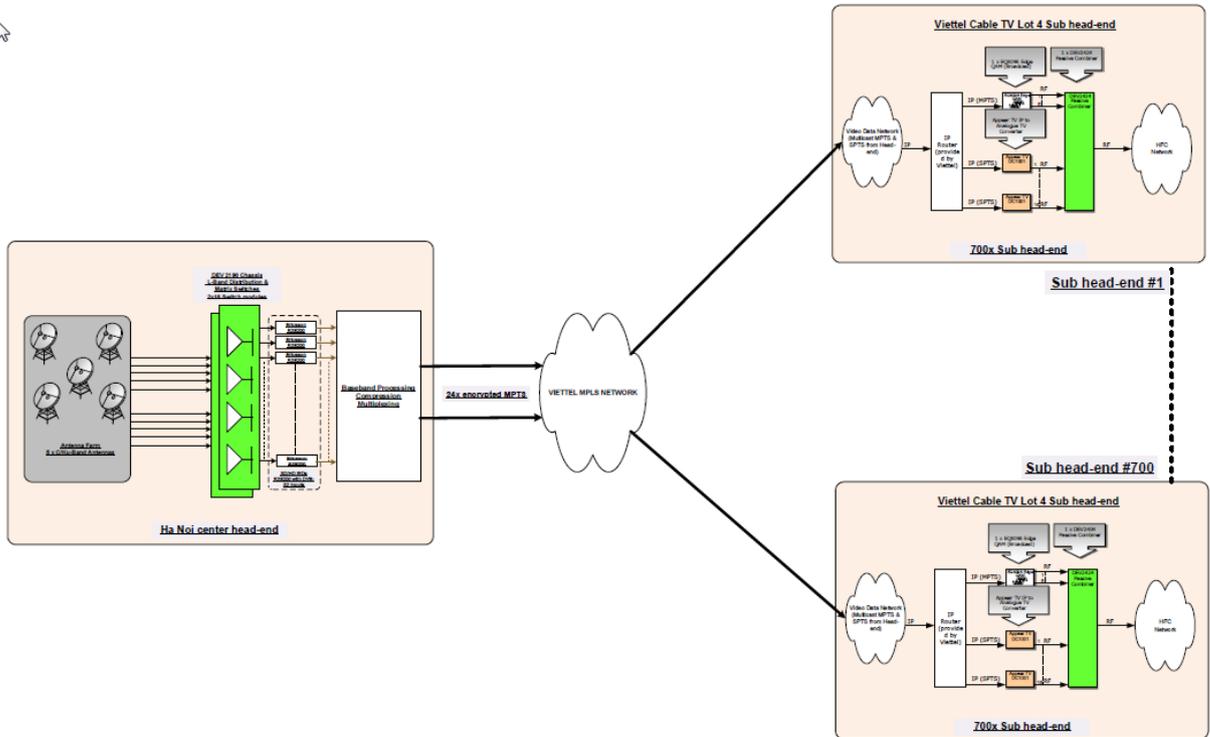
The solution was using DEV2190 matrix for satellite L-band distribution and DEV2424 passive combiner for combine Analog TV and QAM frequencies at every Sub head-end.

The "managed" DEV2190 with option 2x16 matrix cards can provide up to 15 transponders/services per Satellite antenna to be accessed, the remaining port for backup IRD under NMS system. The DEV2190 has a graphical user interface, allows full-controlled of parameters such as signal level, sensitive, LNB power, etc. In addition the DEV2190 is a manage distribution solution, which means that for each of the incoming signals the gain (and if needed tilt) can be configured via SNMP or web browser.

Finally, a passive frequency combiner DEV2424 is chosen at this point as it will introduce less signal noise than using an active combiner with amplification. In addition the unit has ultimate resiliency to power and electronic component failures, well-designed for every local Sub head-end machine room without man's supervisor.

The DEV combiner needs to use (6) input ports for the EQAM and (16) input ports for the IP to Analog TV processing unit, for a total of 22 input ports used. A further (2) input ports will be required for signal monitoring purposes

Schematic of the Application



Benefits for the Customer

With a professional approach, DEV has taken their long-term experience to meet Viettel requirement in order to provide them the best solution against solving all the challenges.

By using DEV solution, the customer can benefit from:

- /// End-to-end control of the RF signal from antenna up to the receivers
- /// Reliable RF signal management based on high quality components and integrated redundancy functionalities for content acquisition
- /// Minimum rack space required with compact rack unit design
- /// Expert consultant and design verification from initial to implementation phase of the project

Conclusion

A well-design, cost-effective solution with DEV2190 sitting at the main head-end along with multiple DEV2424 in every Sub head-end provides the customer a solid and highly reliable system, creating a golden opportunity to quickly dominate the market.

About VIETCOMS: VIETCOMS is a local system integrator and product distributor for various manufacturers in the video market. Knowing as a leading SI in Vietnam, we commit to deliver state-of-the-art solutions, excellent signal quality to our customers. For more information, please visit www.vietcoms.com.

About DEV Systemtechnik: DEV Systemtechnik develops and produces a complete range of leading-edge, high-performance products and systems for the optical and electrical transmission of Radio Frequency (RF) signals via coaxial cable or fiber for satellite, cable, and broadcast television head-ends. All products are built to meet the highest standards of system availability, reliability, and controllability.

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