A C-COM White Paper

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ARY Digital One – ESNG Application

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Introduction

Established in 1997, C-COM Satellite Systems Inc. is a leader in the development and deployment of mobile satellite-based technology for the delivery of 2-way high-speed communication services into vehicles or other mobile structures as well as a leading service provider of reliable 2-way high-speed broadband satellite based Internet services. C-COM designs, develops and manufacturers proprietary mobile self-pointing (iNetVu®) antenna systems, intelligent 'One-Button' controllers and accessories that allow the delivery of high-speed communication services into mobile environments, while stationary; virtually anywhere where one can drive. The iNetVu® antenna system can be activated with the simple push of a button or with the click of mouse. Once activated, it deploys automatically in a few minutes, locks on to the selected satellite and delivers broadband Internet access, VoIP and Video services.

C-COM's product development team utilizes in-house expertise in electronics and software to bring the latest industry features to its iNetVu® controller technology. Field feedback and specific requests can be rapidly developed into working customer solutions. This customization makes the iNetVu® family of advanced mobile antenna systems the number one choice in thousands of global applications.

There are more than 2,200 iNetVu® products deployed across the globe and are considered indispensable to many of customers who rely on this product to deliver essential connectivity.

Problem Statement

For years clients have searched for the solution to portable satellite connectivity to allow for the timely delivery of news from remote locations. In North America and many other places, the four commonly used options for connectivity include the use of point to point microwave connections, portals where the tapes could be uploaded to the studio, cellular connections and satellite connections.

With the exception of satellite connections all of the other methods have limitations due to line-of-site or the presence of local infrastructures. The issue with the Line-of-Site relates to the inability of the SNG truck's microwave antenna

to physically ‘see’ (communicate using a microwave energy beam that has to travel in a straight line from sending antenna to the receiving antenna without obstructions from trees or buildings) the receiver antenna which is usually located on a surrounding hill or a tall building.

The issue with portals is that due to high cost, they are located in only a few physical locations. The SNG operator had to shoot the event, edit it and then drive to the portal to upload the video, and then drive back to the event and start shooting again. The time delay involved here meant the ‘live’ event was always delayed by the shoot, drive and upload delay.

With the desire to deliver ‘live’ news coverage, more and more clients like ARY have been pushed to use satellite connectivity to deliver their live feeds. Proving a cost effective and reliable satellite communication solution for ARY Digital Ones SNG needs lead to the development of this project.

Previous Options

Historically, satellite systems have used fixed satellite (VSAT) antennas installed at one location coupled with RF and environmental equipment to support the system. Many people have produced solutions to the remote satellite system dilemma.

Some of the solutions being used are the portable fixed antenna that is assembled by a technician at the live event site,

or the fixed antenna mounted on a truck and pointed to the satellite by an experienced technician.

Yet others used fixed antennas configured with actuators operated by a technician at the live event site.

While all these methods worked, the requirement for a technician to be present and the time delay caused by the labor involved made them less than optimal.

ARY Digital One had been using a solution involving the assembly of a fixed antenna by a technician at the live event site. A 2.4m fixed antenna was chosen to provide connectivity. Some of the ARY technicians became incredibly fast at the assembly and pointing of these antennas and the connection could be established in less then 15 minutes. A large cargo truck was used to haul the antenna and camera equipment from location to location.

This size of vehicle and the associated costs have been an issue as has the delay in being ready to go “on air”.

The iNetVu® Solution

C-COM’s reseller, Mohammad Ahsan owner of Entertainment and Reality Television, was intimately familiar with ARY’s issues having been the catalysts for ARY to get into the television business years ago.

ARY Digital is the subsidiary of the ARY Group established in 1970. The ARY Group of companies is a Dubai-based holding company founded by a Pakistani businessman, Haji Abdul Razzak Yaqoob (ARY), who is the chairman of the group. The channel started operations in 2000, when the group acquired a private television channel which catered to the Southeast Asian community in UK, and named it ARY Digital. When the Government of Pakistan allowed licenses for private satellite television channels, ARY Digital sensing an opportunity, stepped into the market.

Currently, the network consists of channels including ARY Digital (Asia-Mid East-UK/Europe-USA) (Entertainment), ARY News, The Musik (Music), QTV(Religion), Zauq (Food), HBO, Nick, and many other new ventures are in the pipeline. Most of the networks in-house channels have their own specialized programming catering to Urdu speakers living in Pakistan and abroad.

ARY Digital has become the Urdu speaking television viewers favorite which has spread it's footprint across the globe. Today the channel has separate beams across South East Asia, Middle East, United Kingdom, Europe and North America promoting Pakistan's soft image and rich culture across the globe. As an ambassador for the great people of Pakistan beaming into more than 100 countries, ARY Digital has a vision to become a vital organization contributing positively towards a more prosperous Pakistan in the near future.

In an effort to modernizing its fleet of SNG trucks to make them much simpler and faster to operate, Mr. Ahsan proposed a new approach. Mr. Ahsan attended the CommunicAsia Trade Show in Singapore in 2008, where he met C-COM's President and CEO, Dr. Leslie Klein whose company was exhibiting the iNetVu® Mobile at this trade show. Mr. Ahsan was impressed with the simplicity and ease of operation of the iNetVu products and decided to use the iNetVu® Mobile systems for ARY's SNG needs.

Assembly Time

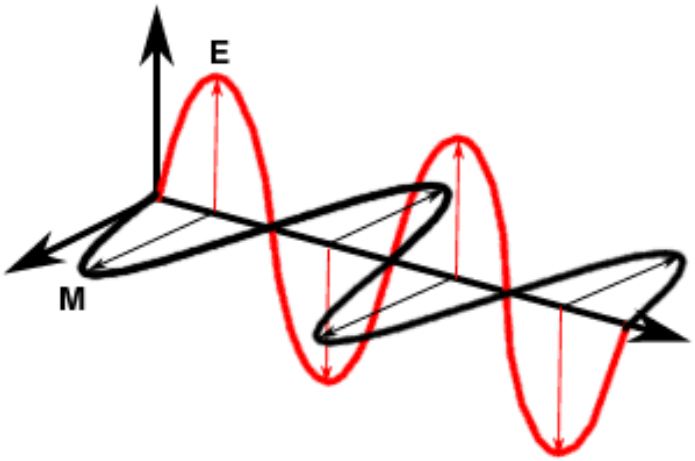
One of the nice features of the iNetVu® system is that when mounted on the roof of a vehicle the system is completely assembled and ready to be deployed at any time once the vehicle is stopped.

The client choose to mount the iNetVu 1200 units to the roof of number of new small, custom built trucks that include a small office for technical personnel. This means that as soon as the ARY vehicle stops at the news event site, the iNetVu® system is ready to be deployed by a simple press of a button. No time is wasted in unloading the antenna pieces and assembling an antenna system.

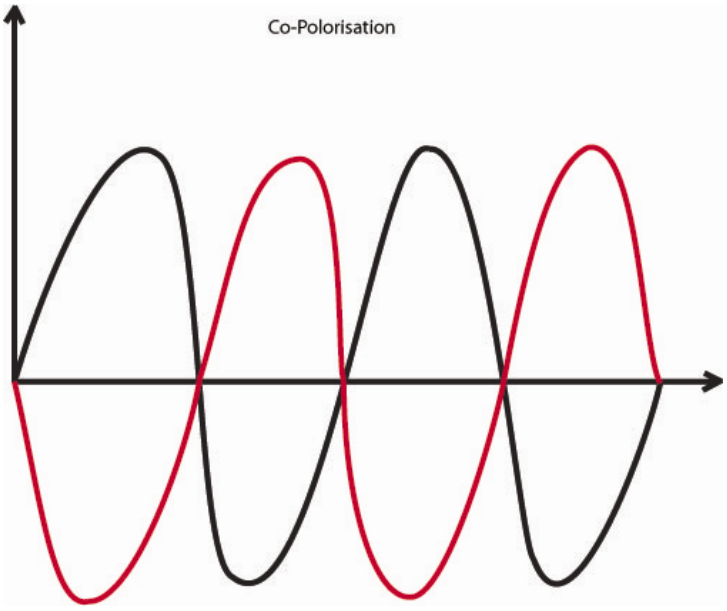
Antenna Pointing

The second important feature of the iNetVu® is its ability to locate the selected satellite and perform the required cross-polarization without operator intervention. With four different methods of locating the satellite, there is always a solution that will work in almost any situation.

In this case the customer had airtime contracted on three different satellites. Two of the satellites are configured in the normal cross-polarization orientation while the third satellite has a co-polarization orientation. The difference between these two, while simple, creates some operational issues. In cross-polarization, the Receive signal and the Transmit signal are sent in two physical planes, 90º apart (so if the Transmit is vertical the Receive is horizontal or vice-versa).



In co-polarization, both Transmit and Receive are sent in the same physical plane (both horizontal or both vertical).



This situation meant that a standard cross-pol feed would not be able to handle all three of ARY's chosen satellites.

The engineering team at C-COM was able to address this situation without the need for ARY to purchase any additional hardware. With a little ingenuity, they were able to modify our "Reference Satellite" routine to deal with this issue. Our "Reference Satellite" routine provides a method of locating a satellite when no DVB carrier is available, when no modem is available and no Beacon signal is available. In this situation our Controller can be told to find a satellite that does provide either a DVB carrier or a Beacon signal and once it has located this satellite, by program control, it will automatically locate the target satellite through a proprietary mathematical algorithm.

This algorithm was modified by C-COM engineers to be able to locate the Co-Pol satellite in the opposite polarity and then simply rotate the polarization to the correct position. This provided an elegant and simple custom software solution to what would have been an otherwise expensive hardware modification.

Vehicle Size

The third important feature of the iNetVu® is its ability to be installed on a much smaller vehicle. This provides a number of benefits. A smaller vehicle is less expensive to operate and it can get into locations where a larger vehicle may not be able to (this is particularly important when the event you want to cover is too busy with participants or is limited in space).

A smaller vehicle costs substantially less to purchase, and requires fewer staff to operate. The money saved could be utilized in purchasing more vehicles and expanding your reach in new or existing markets.

Implementation

C-COM's reseller, worked with ARY senior technical management to develop a solution that could delivery the required technical specifications. C-COM received an order for 13 units and once assembled and fully integrated, the iNetVu® mobile systems were shipped to Karachi.

Upon arrived and after the first truck became available, a custom made rack was built by ARY technicians to hold the iNetVu® 1200 mobile antenna to the roof of the truck body. The truck body included a small studio where video and audio could be manipulated.

The iNetVu® 1200 was mounted on the rack and cabled into the small studio. Once connected, the unit was tested and it worked as expected. A few additions were made to the equipment in the truck and a test run to a news event was made.

The iNetVu® 7000 Controller that ships with the iNetVu® Mobile antenna system provides complete, automatic self-acquisition of the target satellite with a single press of the 'Find Satellite' button. This feature means that almost anyone can drive the vehicle and run the satellite system with very little training and almost no effort at all.

Summary

With the use of iNetVu technology, ARY journalists can now connect to the satellite, simply with the push of a button, thus making it possible to deliver cost effective 'on the spot' news reporting without the need for in-depth technical knowledge of satellite technology. In other words, it has helped them to;

- increase their fleet of news gathering vehicles,
- reduce their vehicle operating costs,
- improve the response time to 'on air',
- improve the reliability of the news gathering solution,
- reduce the size of vehicle that was to be used for news gathering

The iNetVu® mobile antennas have not only provided the client with an advanced, cost-effective and easily implementable solution but also helped them improve their live news reporting through state of the art technology which will allow ARY Digital continue to be one of the leading news gathering agencies in Pakistan.