Case Study: Loudoun County, Virginia

Loudoun County, Virginia, a progressive county of 519 square miles with rapidly growing communities, is the fourth fastest growing in the United States, according to the 2010 census.   As part of the Washington Metro Area, Loudoun County shares the Motorola ASTRO 7.11 trunked radio system with three other town and neighboring community colleges. The system has one nine-site zone with 2400 subscribers, managed by a technical support team. The support team and system administrators constantly evaluate products which might increase the system's overall value and productivity.

At the 2001 APCO show, Genesis displayed products with monitoring, management, and reporting capabilities. The one-of-a-kind software, the ability to secure real-time data, and the diagnostic capability of Genesis software tools impressed Loudoun County radio system administrators. They quickly recognized no commercial off-the-shelf software existed as a radio network enterprise tool to deliver critical information to support system operations. A partnership with Genesis began when Loudoun County administrators concluded that Genesis could develop the diagnostic software the growing county needed.

Loudoun County selected Genesis as a partner for numerous reasons:

- No reporting capabilities existed for the Loudoun County Radio System prior to 2001.
- The Genesis tools make the system administrator more productive and better informed.
- Genesis tools have an easy migration path in the life cycle of a radio system.
- Loudoun County appreciated the capability to integrate Genesis tools with Motorola system enhancements and third party applications.
- OEM had no resources to address Loudoun County's requests for custom software with reporting capabilities.
- Radio System troubleshooting analysis from data provided by the Genesis system.

Genesis can identify the historical user use of communications on a specific talk group, confirming helping to troubleshoot user error versus system error. The system has also verified management concerns such as subscribers individual radio outages.

Throughout its partnership with Loudoun County, Genesis has implemented additional system enhancements. Because of the rural geography in half of Loudoun County, the region lacks cell coverage in some areas; therefore, Loudoun County has installed High Performance Data (HPD) for coverage. Loudoun County administrators approached Genesis for the development of new software capable of HPD reporting to meet the special needs of their County's private data networks.

Discussions for HPD reporting started in the fall of 2009, and the Genesis HPD reporting product became fully operational in December 2009 with five created reports.   For a three-month period, conference calls, weekly meetings, and many exchanged emails allowed Loudoun County administrators to work closely with Genesis employees to create this new HPD reporting product. "A strong relational exchange was key in the product development and completion," mentions Gary McKelvey, Public Safety Communications Systems Supervisor with the Department of Information Technology for Loudoun County.

"The ability to troubleshoot with GenHPD is beyond beneficial," says McKelvey.   GenHPD has provided value as it assists administrators in recognizing potential problems, such as user operational errors, and subscribers now better understand Loudoun County's detailed monitoring and reporting capabilities.

GenHPD reports any latency problems with the data flow through the system.   Weekly reports permit the Assistant IT Director, John Pumphrey, to correlate results with the system data load as well as determining the traffic levels, data use per site, and types of data being moved, thus verifying in detail the balance of the system. These results allow system administrators to efficiently identify, localize, and manage the data pipe while saving significant personnel resources.

Genesis created an additional customized solution for Loudoun County to aid in radio localization. As part of the Washington Metropolitan Area, Loudoun County found it challenging to identify and manage the radios of eight neighboring counties and cities. A custom Genesis report enhances the use of the GPS/AVL capabilities with the Motorola Outdoor Location System by giving the dispatch operator (and all management personnel) the ability to locate and track all outdoor personnel and vehicles with the alias as well as the radio ID.   Previously, the system only displayed the radio ID—but not the alias—making it more difficult to match personnel with their respective radios.

Loudoun County administrators worked in partnership with Genesis and Motorola to form a solution using a separate Genesis product called GenSPOut, which filters the alias information from the ATIA data stream and then sends that information to a mapping software package called EnRoute (a CAD/CAM software package). Finally, the system displays the radio ID, alias, latitude, longitude, and direction on the console according to the user-defined, configurable parameters. Because this process occurs instantly, it saves a considerable amount of time while reducing the need for voice communications.   The dispatcher can now readily locate radios in an emergency situation to provide appropriate backup by enabling Command and Control. For example, the locating tools have been

instrumental in finding firefighters within the Department of Forestry. In this scenario, the location information sent to the firefighters' CAD pinpoints their location at intervals designated by the system administrator from Command and Control.

Today, Loudoun County acts as a showcase radio system in the Washington Metro Area for Genesis and Motorola—both of whom bring in customers to visit and observe. Also, the additional reporting capabilities initially created for Loudoun County have enhanced the networks of radio systems worldwide. Loudoun County most often uses four types of GenHPD reports: *The Data and Bitrate Usage by Sit*e, *The Calculated Bitrate Per Site*, *The Calculated Bitrate By ID* and the *Data Load Per System*. "The Genesis products have created an easy and reliable partnership because of their capability to develop state-of-the-art and next-generation products as technology evolves," concludes Gary McKelvey. In fact, "We use these reports daily to diagnose and troubleshoot system problems."