



Cabarrus County Information Technology Services

Shared E911 Infrastructure for Geographically Dispersed PSAPS

PROGRAM TITLE

Shared E911 Infrastructure for Geographically Dispersed PSAPS

PROGRAM INITIATION

September 2012

ABSTRACT OF PROGRAM

Cabarrus County migrated the County's three E911 Public Safety Answering Point (PSAP) centers to shared infrastructure and the Intrado network. Cabarrus County, Concord, and Kannapolis now share primary and secondary Positron next generation Voice over IP for Emergency Response (VIPER) controllers. Call taker positions at all three PSAP locations and a backup site were migrated to Power 911, an integrated intelligent workstation that provides call takers with on-screen control of both landline and wireless calls. Migration to integrated hardware allows for a highly available and fault-tolerant system that provides a geographically dispersed E911 PSAP system for the citizens of Cabarrus County.

NEED FOR THE PROGRAM

Concord received the wireline 911 funding directly to their PSAP from residents within the City of Concord. Kannapolis received wireline 911 funding directly to their PSAP from residents in the City of Kannapolis. These two entities dispatch Law and Fire calls. All wireless calls and county wireline calls are received at the Cabarrus County PSAP. Cabarrus County dispatches Law and Fire Calls in the areas not covered by Concord and Kannapolis. The county dispatches all Emergency Medical Service calls.

Legislative Changes to 911 Emergency Telephone Service HB 1691 (SL 2010-158) allowed primary PSAPs receiving direct funding from the 911 Board to share their 911 funds with secondary PSAPs to pay for eligible expenses. Existing CML equipment leased for all three PSAP locations was at end of life. Funding changes for the county's has three E911 PSAP operation centers, Cabarrus County (primary), City of Concord (secondary) and City of Kannapolis (secondary), the construction of a new County E911 operations center, and the selection of new E911 phone equipment provider provided an opportunity for the three municipalities to work together to build a shared E911 infrastructure. The project goals were to consolidate equipment, use of standardized hardware, operate on common software and share infrastructure for efficient operations and reduced expenditures for all three geographically dispersed PSAP centers.

DESCRIPTION OF THE PROGRAM

Enhanced 911 was incorporated in Cabarrus County in the early 1990s. There are three 911 centers Cabarrus, Concord, and Kannapolis. All three centers receive 911 calls for service; these calls are based on ESN districts. In the past the three centers were standardized on common equipment from CTC. In approximately 1997, the three 911 centers were upgraded to the CML Rescue Star 911 phone



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system. In this case the three centers had their own servers but standardized on common equipment. This equipment is leased through CTC which is paid for out of 911 funds.

During the construction of the new Cabarrus County Sheriff Administration building the 911 center selected a new 911 phone equipment vendor. The selection of the Positron 911 system enabled the Cabarrus 911 center to utilize the existing IP network. Cabarrus County submitted a funding request to the North Carolina 911 board for the funding of secondary PSAPs as backups to the primary PSAP Cabarrus County 911 center to create a geographically dispersed 911 system. The Cabarrus County 911 center was provisioned with equipment for 10 positions at the primary site and 2 positions at the county's remote backup facility. This project funded adding positions at the secondary PSAPs; City of Concord, and City of Kannapolis that also provided additional backup to the Cabarrus County 911 center.

The implementation for the Cabarrus 911 center was completed in three phases. Phase one provided a full Positron Viper for Cabarrus 911 at the primary site. The second phase brought up a second full Positron Viper at the remote backup site. The third phase was to link the two Vipers together to provide failover, and the Cabarrus 911 system a redundant backend server platform from which to operate.

The funding request to North Carolina 911 board for the funding of secondary PSAPs as backups was approved and three additional phases were implemented to give the citizens of Cabarrus County the knowledge that someone will be there to answer their 911 call. Phase four supplied new 911 phone positions for the Concord PSAP. Phase five supplied new 911 phone positions to the Kannapolis PSAP. Finally, phase six will implement the Intrado network for the three PSAPs.

Phases four and five of this project were important to both Cabarrus County, City of Concord and the City of Kannapolis. The CML equipment which the county leased from Windstream and ran the Kannapolis and Concord PSAPs had reached its end of life. The proposal did not require the replacement of the CML servers only the positions and network switches. The project leveraged the existing infrastructure of Phase 3 and the fiber connections that currently exist between Concord and the county. Time Warner was used to add the City of Kannapolis to the fiber ring that was already in place. After the fiber ring was completed the county will terminate the lease of the CML equipment and it was removed. This will add 11 additional positions at the secondary PSAPs that will have the ability to take calls from the Cabarrus 911 Vipers. These additional positions also have the ability to take calls from the Cabarrus 911 primary PSAP and the other secondary PSAP if and when they are needed.

RESULTS OF THE PROGRAM

The Positron Viper system provides the ability to run the three PSAPs off shared infrastructure. The 911 trunks are terminated at the two viper locations and the calls are distributed based on their ESN number to the appropriate PSAP. Intrado and Cabarrus County went to great lengths to ensure that multiple paths are provided utilizing independent providers for each connection. This solution basically turns the three PSAPs into one PSAP with geographically dispersed answering positions.

	Cabarrus 911	Concord	Kannapolis	Backup Site
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Positions	10	8	7	6
Normal Staffing	7	5	4	0

If the Cabarrus 911 center positions experienced a failure the Kannapolis and Concord positions would have the ability to answer the 911 calls normally routed to Cabarrus. This system also provides benefits if there is a high volume incident in a particular ESN. The higher volume of calls have the ability to roll over to the other PSAPs. All three PSAPs also have the ability to quickly failover and move their call center to the county's backup location and the other PSAP call centers. The specific scenarios are covered inter-local agreements between the PSAPs of Cabarrus County, City of Concord, and the City of Kannapolis. The North Carolina 911 board requested that the specifics be outline in writing.

CONTACT INFORMATION

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