

FirstNet Backup for Hosted Call Handling and Router Refresh

North Carolina boasts a resilient ESInet where Primary PSAPs utilize redundant AVPN (AT&T virtual private network) circuits, and the backup sites utilize a single AVPN. Although there has been great success with this configuration, there is always room for improvement in the provision of NG911 services.

In several cases, the “last mile” provider is the same company for both AVPN circuits. There are other cases where the last mile circuit is utilizing legacy infrastructure and may be more susceptible to environmental interruptions. Because there is circuit diversity at Primary PSAPs, this interruption typically does not impact service. With many PSAPs located in areas that often experience inclement weather and only have a single provider delivering the last mile, they are more vulnerable to service interruptions. Bounces, or service interruptions, are logged in the NMAC ticketing system to document any inconsistencies in the signal delivery of both AVPN circuits.

Providing 911 over the ESInet is an essential service to North Carolina PSAPs and now having the ability to deliver admin calls (non-911) over the same circuits places more emphasis on this resource. Considering this is a critical piece of the network, additional resiliency is needed.

Over the last two years, options have been explored, and a solution has been identified that is proven in other states to provide resiliency and redundancy. AT&T’s FirstNet product will provide an additional AVPN connection that allows for an additional path for 911 calls and SIP Admin for the PSAPs who have adopted this service.

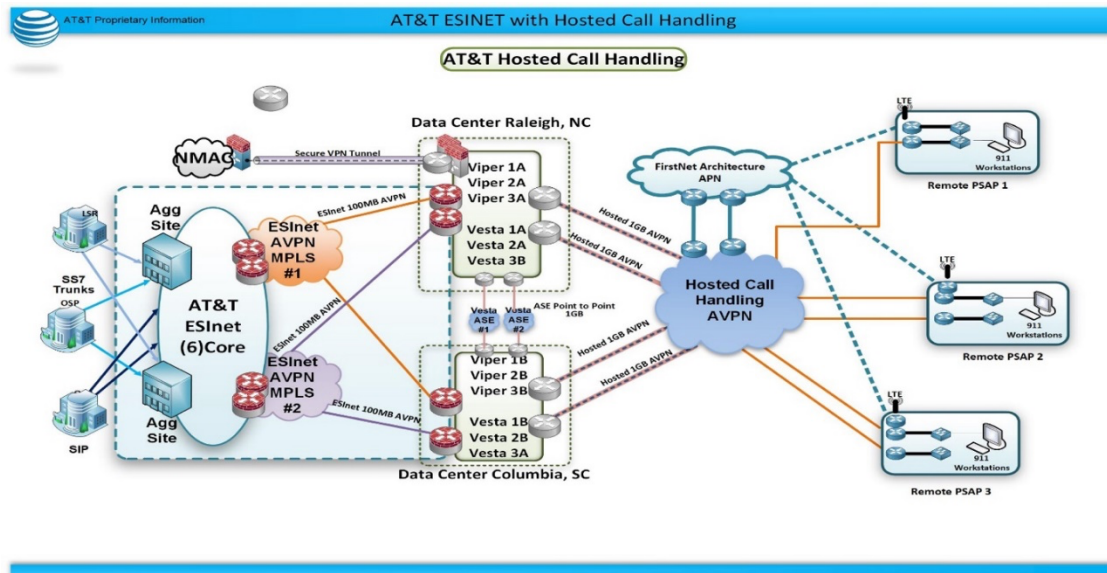
AT&T FirstNet is a wireless redundant solution available to North Carolina Primary PSAPs to ensure continuous NG911 connectivity and provide ancillary services to the PSAPs. This is not a service sourced from a local wireless store for commonly known devices such as cellular phones and MiFi devices. Instead, this FirstNet solution is the only wireless method allowed by AT&T for an ESInet connection, and AT&T FirstNet connectivity and certified devices are the only approved wireless solutions contained within the ESInet and hosted call handling deployments. Furthermore, the FirstNet network ensures that wireless traffic is private and highly secure, and is treated with always-on **PRIORITY** and **RUTHLESS PREEMPTION**, meaning this traffic is always addressed first, maintained as critical through the network, and never delayed by non-emergency traffic.

AT&T’s FirstNet wireless redundant solution is currently being utilized by Iowa, Kansas, and Tennessee, and those states have reported being pleased with the solution. Because North Carolina has a Statewide ESInet with a 90+ percent adoption rate of the hosted call solution, the State is uniquely situated to enjoy a cost benefit for the hosted portion of implementation of this project.

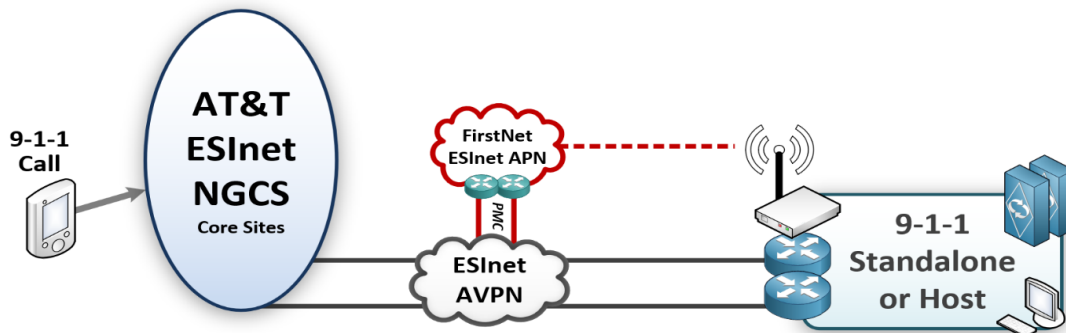
As the preparation of the project proposal was being discussed, it was realized there was also a need to refresh routers at each PSAP. This refresh will take place as part of this FirstNet project to minimize impact to the PSAPs but the refresh would happen regardless, as the current fleet of routers is reaching the end of service life. To further enhance this project, it was determined that POTS (plain old telephone service) lines can be abandoned at the PSAPs for router support as this is implemented. With the costs of POTS lines increasing at an alarming rate, this initiative will provide the opportunity to reduce recurring costs paid by the Board.

The FirstNet project would provide an additional AVPN circuit for each Primary PSAP and its physical backup. The FirstNet service is connected to the local routers and can serve as another viable route for 911 and SIP admin traffic if there is an interruption of the hardline AVPN circuits. This addresses concerns mentioned above, as well as times when a PSAP is operating from the backup site.

The following diagrams illustrate the basic functionality of the Hosted and ESInet-Only solution:



ESINET-Only Sites



Each Primary PSAP and its approved physical backup site will receive a site survey where technicians will capture key performance indicators to determine installation considerations. Items such as signal strength, quality, and bandwidth, in addition to where the Cradlepoint and any other needed equipment must be installed will be assessed during this survey. All survey and installation costs, no matter the extent of the installation, are covered in the non-recurring costs. This is a turnkey solution for the North Carolina 911 Board.

This solution will be provided at NO cost to Primary PSAPs and their approved physical backup, and will be optional for the PSAP, with no requirement to participate.

Costs Breakdown for NC911 Board:

HOSTED PSAPS				
Hosted Primary PSAPs	102			
Physical Backups for Hosted	61			
Potential # of Hosted FirstNet Sites	163			
FN One time charges	\$1,985	\$323,555	One-time Charges	Annual
MR Charges	\$710	\$115,730	Monthly	\$1,388,760
	Per facility	Total		
Managed Router NR charges SINGLE	\$725	\$44,225		
Managed Router NR charges DUAL	\$870	\$88,740		
ESInet Only PSAPs				
Primary PSAPs	10			
Physical Backups for ESInet Only	9			
Potential # of ESInet Only FirstNet Sites	19			
FN One time charges	\$ 6,000.00	\$ 114,000.00	One-time Charges	
	Per facility	Total		Annual
MR Charges	\$ 710.00	\$ 13,490.00	Monthly	\$ 161,880.00
Managed Router NR charges SINGLE	\$725	\$6,525		
Managed Router NR charges DUAL	\$870	\$8,700		
Router Management Charges				
		Monthly		Annually
Host Routers (4)	\$ 560.00	\$ 2,240.00		\$ 26,880.00
10M PSAP Router (168)	\$ 200.00	\$ 33,600.00		\$ 403,200.00
10M T1 PSAP Router (10)	\$ 300.00	\$ 3,000.00		\$ 36,000.00
50M PSAP Router (4)	\$ 300.00	\$ 1,200.00		\$ 14,400.00
Annual costs once fully	\$2,031,120.00			
Non-Recurring costs total	\$585,745.00			
Monthly costs fully deployed	\$169,260.00			

Billing per PSAP, direct to the 911 Board, will occur as equipment is installed and turned up for operation. Totals listed in the spreadsheet presume 100% adoption and are shown at full capacity. ESInet-Only PSAPs are decreasing in number and will likely be about half of what is listed today considering the anticipated timeline for installation.

Installations will begin in the next budget year, but site surveys and network buildout will begin as soon as the project is approved in order for installations to start immediately after the start of the new fiscal year.