STAGEnet NG9-1-1: Proof of Concept Test

Emergency Services Communication Coordination Committee

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Overview

With the introduction of the NENA i3 standards, PSAP communications will be migrating to IP based NG9-1-1 systems. While NG9-1-1 systems will eventually provide the ability for PSAPs to interface to callers via numerous multimedia formats, they can also provide a new level of flexibility and cooperation between PSAPs that is attainable in a relatively short time frame.

The implications of migrating a single PSAP to NG 9-1-1 technology opens up a long list of new technologies and scenarios to evaluate. Further expanding that migration up to multiple and eventually all of the State's PSAP's quickly adds additional complication to the evaluation scenarios. The goal of this POC is to test the fundamental technologies and operational scenarios of a NG 9-1-1 system, and show that STAGEnet can participate in this migration. In partnership with Grand Forks PSAP, RRRDC, and Century Link, ITD has developed a Proof of Concept plan to test the compatibility of STAGEnet and other IP connections for use in a NG9-1-1 system. The tests intend to successfully demonstrate the following:

Operational Milestones

- Ability to establish and route calls to a remote facility
    - Demonstrates the ability to relocate call takers or to add additional seats for special events
- Simulate the ability for a NG 9-1-1 system to support a permanent, Branch PSAP
    - Reduces or eliminates the need for dedicated CPE equipment at smaller PSAPs
- Simulate the ability for one PSAP to serve as overflow for a remote PSAP who's call takers are saturated

Technology Milestones

- Demonstrate the ability to securely transport calls to remote locations via STAGEnet IP network
- Demonstrate the ability to achieve redundancy across multiple IP connections
    - Establish a failover scenario to securely route calls in case of a link failure
- Demonstrate the flexibility provided by automated IP based call routing control

These test scenarios do not necessarily represent the exact configuration that a production environment would employ. They are intended to demonstrate the capabilities of the technology and provide valuable lessons for planning a production NG 9-1-1 system that supports similar scenarios. There are numerous combinations of equipment, connectivity options, and configurations that could provide valuable results to the states PSAPs.

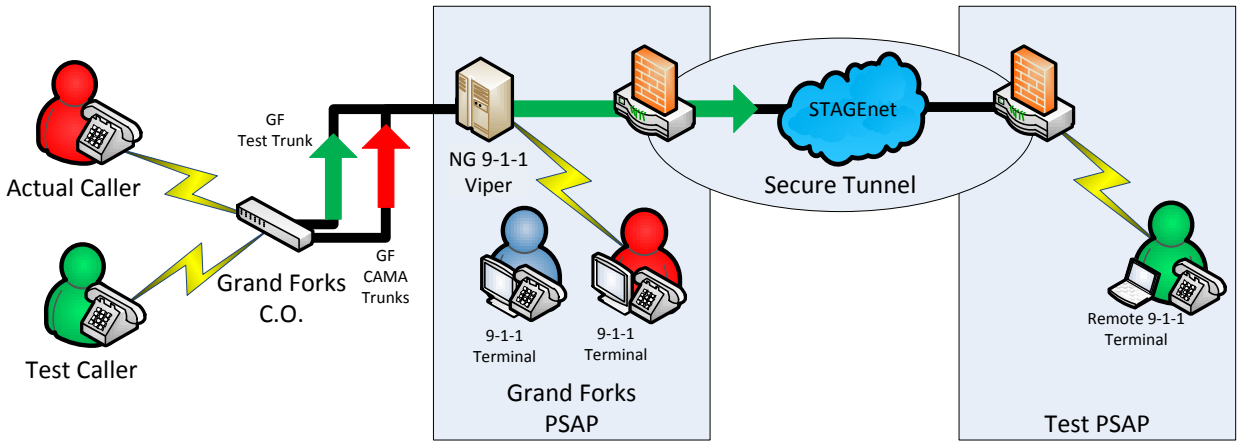
Test Descriptions

Test 1 – EOC Simulation

Target Completion – 1/31/12

The first test is designed to demonstrate a scenario where calls are routed to a remote facility, simulating the functionality of an Emergency Operations Center. This could be used to provide local overflow support during times of high call volumes, or to allow calls to be taken outside of the normal PSAP if there were an event that prevented call takers from performing their duties in the normal PSAP location (chemical spill, bomb threat, etc.).

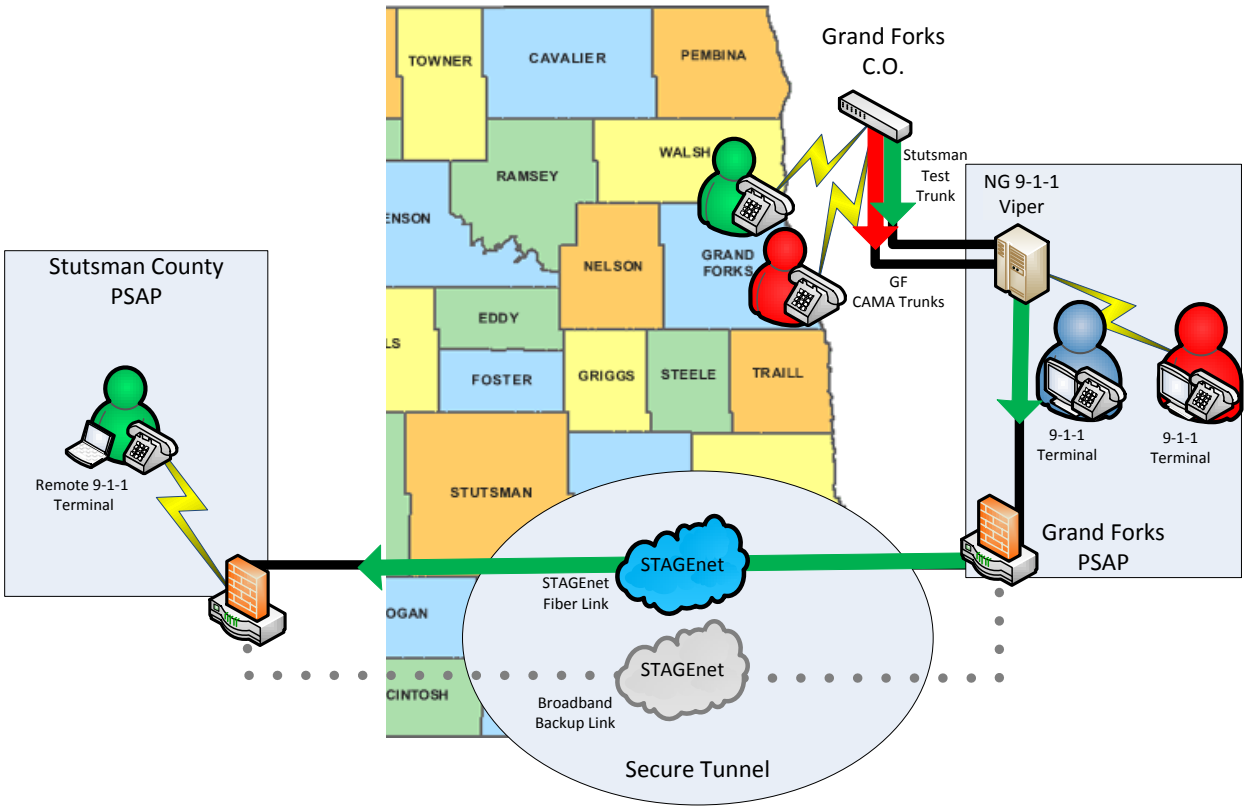
In addition to demonstrating the operations of an EOC , this test also demonstrates the technology's ability to securely transport calls to a remote call taking facility and also demonstrates automated call overflow and custom routing rules.



Test 2 – Branch PSAP Simulation
Target Completion – 4/31/11

In the second test scenario, we are simulating the operation of a Branch PSAP, using the Grand Forks NG 9-1-1 equipment to serve as the Regional Host. A Branch PSAP is a dedicated PSAP that is configured with a limited set of hardware to interface to the Regional Host PSAP(s) where the NG 9-1-1 systems are located. This allows the Branch PSAP to migrate to a NG 9-1-1 system with a much lower capital investment. This structure also allows for flexible call routing and redundancy benefits.

In this test, a dedicated trunk line is terminated into the Grand Forks NG 9-1-1 Viper, to accept test calls from Stutsman County. This test will not modify any portion of the existing Stutsman county 9-1-1 PSAP. We are simply placing test equipment within the facility to demonstrate the ability to migrate to an NG 9-1-1 system. As other Regional Hosts, such as Fargo's RRRDC, are established, further redundancy can be designed to allow dynamic failover between the available Regional Host facilities.



Financial Estimates

The following table outlines the projected costs for each item required to carry out the tests for this POC. ITD is providing the Firewall and Switch equipment at no cost, and will be reclaimed after completion of the trial.

Item	Quantity	Unit Cost	Total Cost
Power 9-1-1 Remote Terminal	2	$5,000	$10,000
CenturyLink Configuration Services	1	$10,000	$10,000
Juniper Firewall	3	-	-
Extreme Switch	2	-	-
STAGEnet Link	2 x 12 Months	$500	$12,000
Cable Routing	2	$250	$500
Test Phone Trunk Setup	2	$50	$100
Phone Trunk Gateway	1	$2,500	$2,500
Total			**$33,600**

Summary

There are many ways that the State's PSAPs can achieve a transition to NG 9-1-1 based systems. The goal of this POC is to evaluate ways that PSAP's, ITD, and other providers can work together during this process. It is our belief that by leveraging existing resources like STAGEnet and establishing agreements to share capacity on core NG 9-1-1 systems, the State's PSAP community can achieve a much more resilient and cost effective transition.

Upon successful completion of this POC, additional projects will be required to do a more thorough analysis of the specific components and technologies required for each PSAP to meet their operational and budgetary goals.