



State Interoperable & Emergency Communication Board Meeting

September 12, 2012



Welcome

Jerome M. Hauer

Commissioner

*New York State Division of Homeland Security
& Emergency Services*

Robert M. Barbato

Chair

*State Interoperable & Emergency Communication Board
Director, OIEC*



Public Safety Broadband Update

Matthew Delaney

FirstNet Board

- NTIA announced FirstNet Board members on August 20th
- 12 members announced (rest are statutory)
- 3 directly from public safety, including Deputy Chief Charles Dowd of NYPD
- Others from the telecomm or CIO fields, some with public safety/government backgrounds
- First meeting is expected to occur this month

State and Local Implementation Grant Program

- On August 21st, NTIA released initial guidance information on the \$135M grant.
- Only general information. Actual notice of funding availability expected 1Q2013.
- Based on comments submitted, including from NYS.
- First round of funding will most likely focus on State governance and broadband administration.
- NTIA may ask States to show how their governance works for broadband and how they are adding LTE expertise to that governance.



**Update:
Round I Statewide
Interoperable
Communications Grant**

Larissa Guedko

Distribution of Awards

County	Proposal Amount	Award Amount	Use of funds
Sullivan	\$1,198,000	\$1,198,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Madison	\$1,997,812	\$1,997,812	Equipment for new UHF system for Central New York radio consortium.
Cortland	\$2,000,000	\$2,000,000	Equipment for new UHF system for Central New York radio consortium.
Otsego	\$1,128,000	\$1,128,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Schoharie	\$858,000	\$858,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Onondaga	\$331,446	\$331,446	Replacing non-compliant EMS ("MED Channel") equipment used to contact hospitals for medical reports & direction while en route to hospitals.
Niagara	\$2,000,000	\$2,000,000	Is in the process of building a new UHF digital radio system. They will utilize their award to purchase subscriber radios, upgrade a tower site and refresh their PSAP.
Steuben	\$1,523,264	\$1,523,264	Converting existing system to digital to meet the narrowband deadline. And installing National Interoperability base stations. The system upgrades will be keeping pace with neighboring counties and their systems.
Delaware	\$1,078,000	\$1,078,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Cortland	\$2,000,000	\$2,000,000	Radio equipment for new countywide system to be connected to Central New York radio consortium.
Ulster	\$978,000	\$978,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Washington	\$171,500	\$171,500	Implementing a gateway and microwave solution permitting counties to link their systems.
Genesee	\$228,309.46	\$228,309	Replacing non-compliant interoperability channel base stations, and new simulcast equipment permitting first responder interoperability.
Greene	\$893,000	\$893,000	Installing new radio and microwave infrastructure, National Interoperability base stations.
Essex	\$2,000,000	\$2,000,000	Implementing a gateway and infrastructure solution to permit the counties in the consortium to link their radio systems together; and narrowband compliant mobile radios to integrate in their new radio system.
Warren	\$736,938	\$736,938	Implementing a gateway and microwave solution permitting counties to link their systems.
Nassau	\$1,995,511	\$877,729 *	Radios for local PDs/other responders to use county radio system, and other multiband radios for supervisors to communicate with Suffolk County.
	Total:	\$20,000,000	

Progress

- Quarterly Reports completed on June 30
- One County has vouchered their grant expenses
 - Genesee - TRACS Equipment Received and Installed. Narrowband transceivers received.
- Many other counties are on track with the project plan listed in their grant
- Process beginning for grant extensions



Round 2 Statewide Interoperable Communications Grant

Larissa Guedko

Round 2 SICG Components

- Improve interoperable communications through developing, expanding or consolidating large-scale, regionally-focused LMR systems for public safety use among two or more counties supporting multi-jurisdictional and multi-discipline, including State agencies
- Improve Governance structure, Develop Standard Operating Procedures (SOPs), TICPs, Strengthen Training and Exercise Programs to promote efficient interregional communications, interoperability, cooperation and overall first responder readiness

Round 2 SICG Objectives

- **Improved collaboration** with all forms of government
- **Expand consortium/regional partnerships** inclusive of multi-jurisdiction, multi-discipline, intergovernmental (State/local/NGO) stakeholders
- **Operating procedures** in counties, between counties and agencies
- **Implementation and use of National Interoperability and State Mutual Aid channels**

Round 2 SICG Statistics

- \$36 mil dedicated in Round 2 for further development of statewide interoperable communications for public safety – SICG (Statewide Interoperable Communications Grant)
- Counties were allowed to submit only 1 application per County
- 58 potentially eligible counties & NYC
 - Received 49 applications from 49 counties (85% response)
 - Requests total \$158,927,049
 - 9 counties did not apply



PSAP Grant Update & SICG Efforts

Robert Barbato

NYS Tax Law

New York State Tax Law re: Public Safety Answering Points

Link: [Laws of New York - Tax Law Section 186-f-Public Safety Communication Surcharge](#)

* (d) The sum of **seven million dollars annually** for the provision of grants to counties for costs related to the operation and improvement of local public safety answering points. Such annual grants may consider prospective or retrospective costs incurred to consolidate public safety answering points, to implement new technologies in local public safety answering points that facilitate interoperability and create operating efficiencies, or to promote the development and implementation of cross-jurisdictional standard operating procedures that foster regional consolidation. The sum of **two million dollars annually** for the provision of reimbursement to counties for operating expenses, other than personal service, incurred during the operation of local public safety answering points. The commissioner shall develop a plan for the distribution of such reimbursement, in consultation with the New York state interoperable and emergency communication board. The plan for distribution may consider the potential recipient's compliance with the standards of such board and the potential recipient's role in providing communication services to the benefit of other municipalities.

Standards & Guidelines

- Part 5200. Minimum Standards Regarding Direct Dispatch of All Emergency Services
 - Title 21. Chapter LX. New York State 911 Board
- NENA Standards www.nena.org
 - National Emergency Number Association (NENA) i3 Architectural Standard for NG9-1-1: NENA 08-003. This standard provides key technical guidelines for the implementation of next-generation 911 (NG-911) systems.
- National Plan for Mitigating to IP-Enabled 9-1-1 Systems
 - National 911 Office website provides information on development of optimal 911 services. <http://www.911.gov/911-issues/standards.html>
- OASIS
 - For Data Standards refer to OASIS – Organization for the Advancement of Structural Information Standards at www.oasis-open.org

Eligibility Criteria

- Applications must be submitted by Counties on behalf of county and municipal PSAPs, operating within their jurisdiction.
 - There is no county match required with this grant
- Each PSAP must certify compliance with Title 21 Chapter LX, Part 5200 Minimum Standards Regarding Direct Dispatch. (Enhanced Wireless 911 Certification).
 - Certification document must be submitted by a County with their application.
- Grant funds may be used only to supplement the portion of local governments' budgets that pertain to PSAPs, not replace any budgeted funds.
- County can apply only for one grant type:
 - PSAP Consolidation, Improvements and Enhancements Grant (\$7 million)
 - PSAP Sustainment Grant (\$2 million)



Strategic Technology Reserve - Recent Deployments

Robert Barbato & Toby Dusha

Accomplishment of PSIC objectives

- Acquired and deployed five (5) communications vehicles and one (1) support vehicle that are pre-positioned in the DHSES geographic regions for immediate deployment during all-hazards;
- Acquired and deployed a radio cache to be pre-positioned in each DHSES geographic region; and
- Is in the process of implementing NIMS-compliant SOPs and training and exercise programs to support the use of the assets.

Location of STR Vehicles

The five (5) Strategic Technology Reserve vehicles, and accompanying radio cache, are deployed throughout the State at the following locations. Vehicles are rotated throughout the State as needed. The support vehicle remains in Albany.

New York State Police
Troop "A" Headquarters
4525 West Saile Drive
Batavia, New York 14020

NYS DHSES / OIEC
1220 Washington Avenue
Building 22
Albany, New York 12226

OEM Region 2
392 Creek Road
Poughkeepsie, New York 12601

State Preparedness Training Center
5900 Airport Road
Oriskany, New York 13424-0742

Nassau County
700 Hicksville Road
Bethpage, New York 11714

Communications Support

- Disasters
 - Hurricane Irene & Tropical Storm Lee, 2011
 - Fire – Harriman State Park, April 2012
 - Fire – Lake Placid, July 13, 2012
 - Severe Storms – Chemung County, July 26, 2012
 - Fire/Haz-Mat – Columbia County, August 2, 2012
 - Lightening Strike – Orange County, August 2012
- Non-disaster
 - Wallenda Event – June 14-17, 2012
 - Maccabi Games – Rockland County,
August 13 – 17, 2012
 - NY State Fair – August 23 – September 3



Channel Naming and Use

Toby Dusha

Channel Naming and Use

- National Interoperability Channel names well defined
- National Interoperability Channel usage plans and policies need to be developed, for use within NYS
- State and regional channels need both standard naming and policies developed
- Consortiums and grant projects are or will be utilizing these channels – time is of the essence.
- OIEC wants input on both naming and development of policies, especially from other parts of the State.

Example

- Take 155.370 MHz
- Is this “Interstate”, “Intrastate”, “MRD”, “Interagency” or “Three-Seventy,” or “The Point”, or “State” as opposed to “state”?
- All depends on who you ask
- This is a problem – confusion can/does result
- Would NYLAW I be better? Or NYLAW370?
- What are acceptable uses? Law enforcement and interagency only? Other services -> law enforcement interop?
- Similar issue exists with “EMS” channels



9-1-1 Advisory Subcommittee

Sheriff Joseph Gerace



Duplication Advisory Working Group

Brian LaFlure

Goal and Purpose

- **The goal, of this plan is to develop a common IP structure for the eventual connection of multiple Consortiums and Agencies in a Statewide secure “Intranet” for interoperability and PSAP redundancy.**
- **The purpose is to give any participants a recommended framework to build from, with the least possible interference with existing systems.**

Important Considerations

- **Understanding this is a very important facet of any system, we must think big enough for future expansion, yet still be manageable for the current systems.**
- **The consensus seems to be to use an MPLS solution for the most efficient use of bandwidth.**
- **Procurement of information of existing infrastructure will be needed.**

IMPORTANT

- **It is important that this “possible” solution is just one of many ways to solve this question.**
- **It is just a suggested plan, and does not involve any particular brand of equipment, or Vendor.**
- **All solutions shall be built around non-proprietary protocol, with some common standards,(like P25 did).**

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Network Addressing Draft V I.I

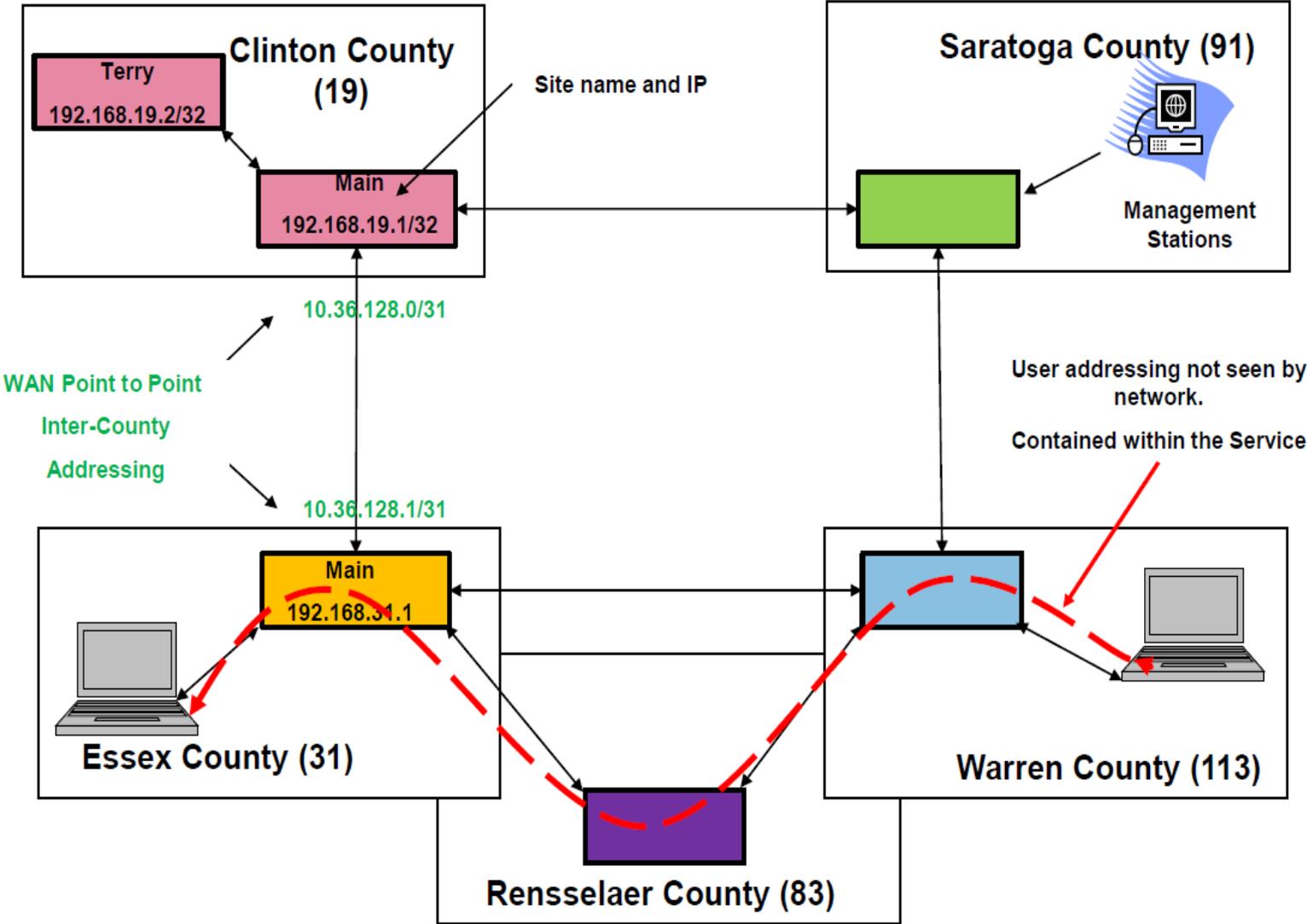
MPLS Network IP Addressing

- Recommend using FIPS Code for addressing
 - http://en.wikipedia.org/wiki/List_of_counties_in_New_York
 - 62 Counties and Boroughs in the State of New York
 - The FIPS county code is the five-digit Federal Information Processing Standard (FIPS) code which uniquely identifies counties and county equivalents in the United States.
 - The three-digit number is unique to each individual county within a state. To be unique within the entire United States, it must be prefixed by the state code. To uniquely identify Albany County, New York, one must use the state code of 36 plus the county code of 001.
- IP Public Class C range to be used for device addresses
 - 192.168.County Code. Device Address
- IP Public Class A range to be used for link addresses
 - 10.State Code. County Code. Port Address

MPLS Network IP Addressing (cont.)

- MPLS Switch Address
 - Management IP Address
 - 192.168.19.1/32 (19=Clinton County)
- MPLS Link Address
 - MPLS Links can be intra-county, or inter-county.
- Use the FIPS Standard to include State Numbering in the Second Octet
 - Intra-County example
 - 10.36.19.0/31 (36=NY State.19=Clinton County)
 - 10.36.19.1/31
 - Inter-County Example
 - The County Number does not apply!
 - Solution, use a designated number for interconnect Links i.e. "128"
 - 10.36.128.0/31
 - 10.36.128.1/31
 - Sets Precedent for Future Interconnect with Surrounding States

Network Addressing Example for a Consortium



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User's Requirements

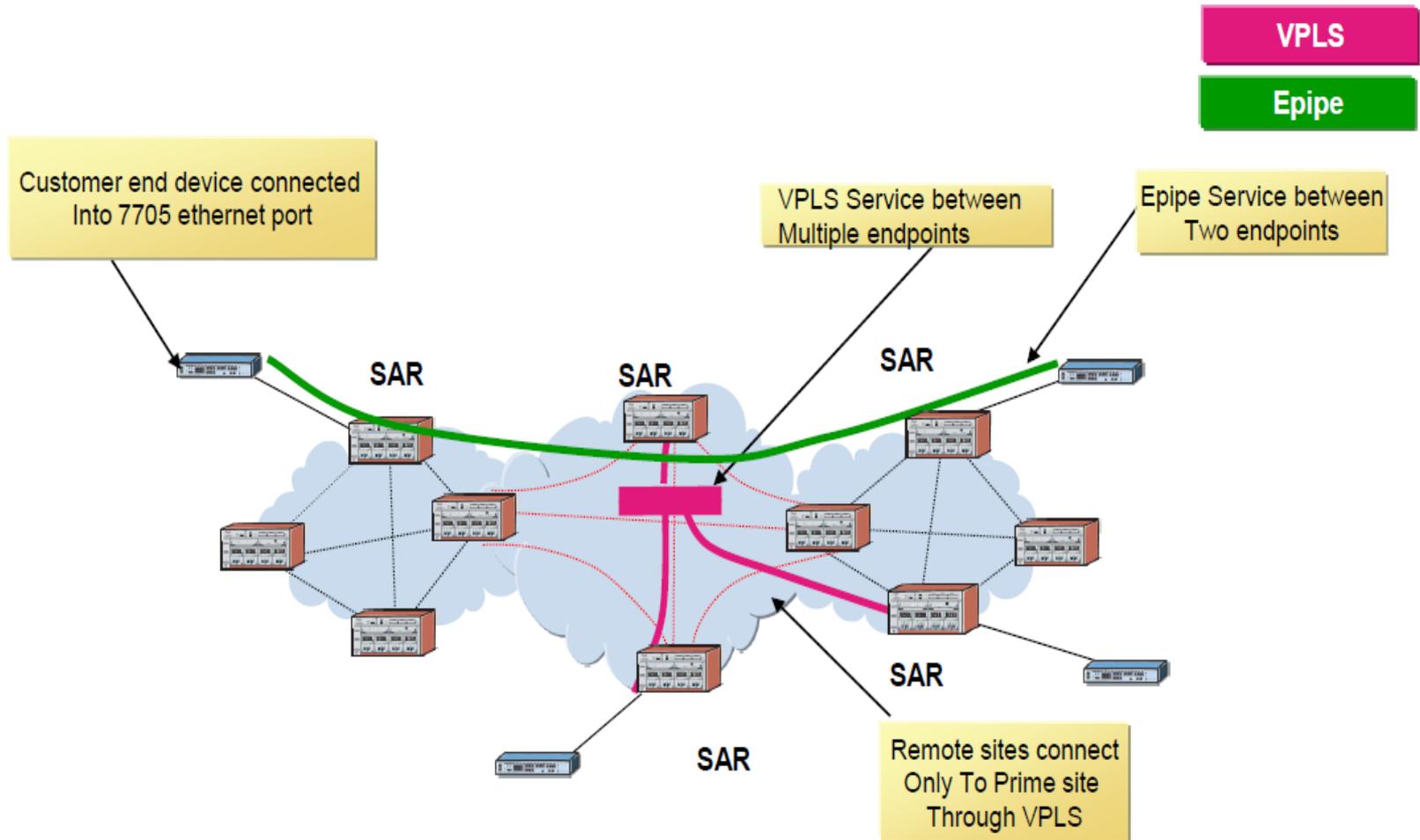
What are the User Requirements?

- Latency? – Worst case latency needs to be lower than the acceptable latency required.
- Link Redundancy? – What is the network Architecture?
 - In the event of a failure between a loop site and a spur site, the site will be unavailable until the issue is resolved.
 - Link redundancy at a remote site with multiple paths back to a regional site will provide a continuous path for customer traffic to flow!
- Connectivity? – Every location in the network requires what form of connectivity? T1? Ethernet? DS3? etc.
- QoS? – discussion required for QoS requirements. Priority based on marking received or apply marking on port ingress.

3

Services

What are Services?

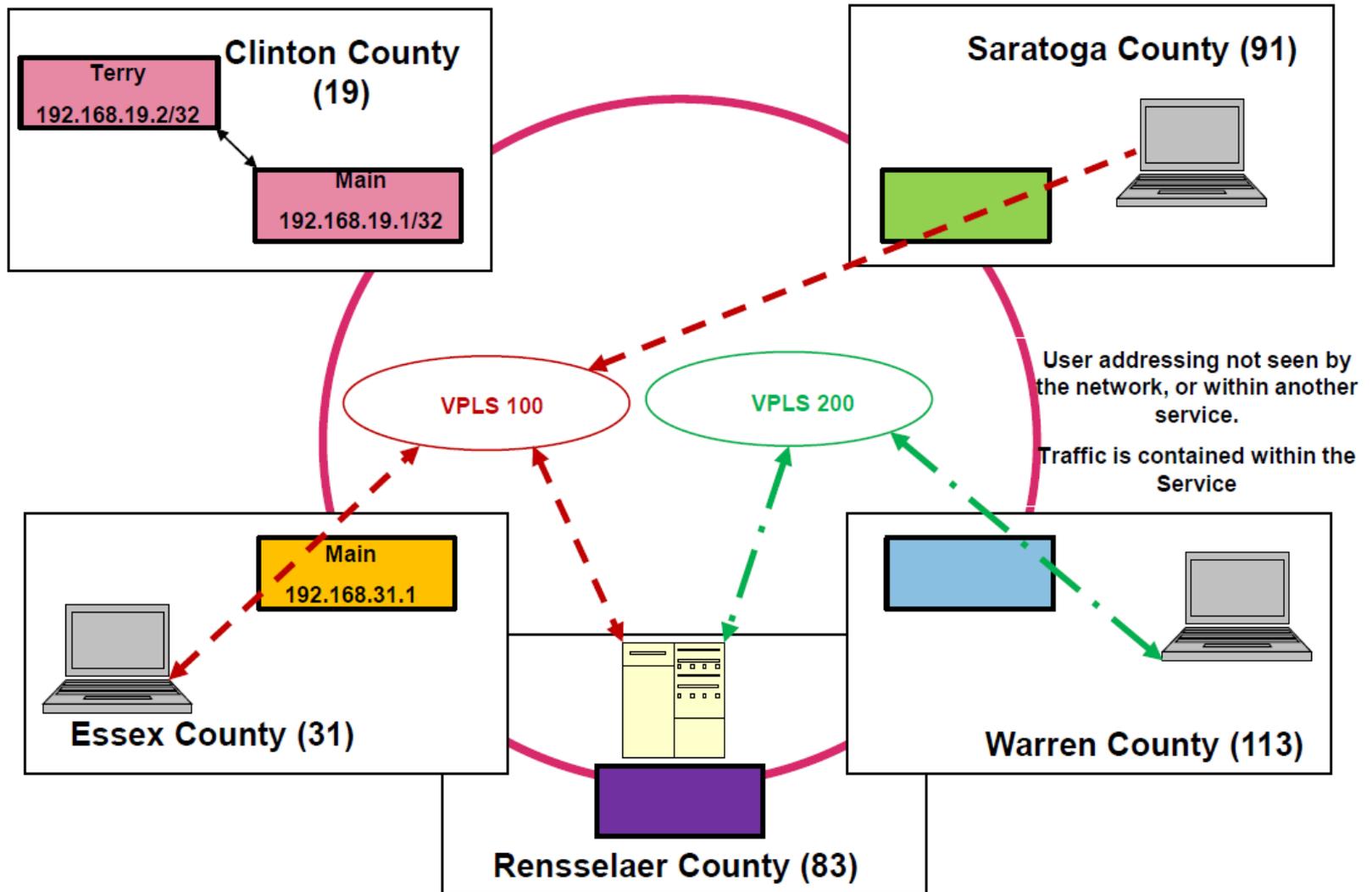


Types of Services

- Point-to-point Pseudowires
 - TDM Cpipe for legacy WAN, phone, LMR
- Point-to-multipoint VPLS
 - Public Safety WAN for office connectivity/“Internet” (County routers)
 - Contractor WAN for contractor office connectivity/“Internet” (separate routers)
 - 2-Way Voice and Data
- VPRNs
 - Public Safety access (for Service Personnel in Field, Emergency Operations)
 - Network device management (switches, UPSs, etc.)
 - VoIP – for future use
 - Camera – for future use



Addressing Contained within User



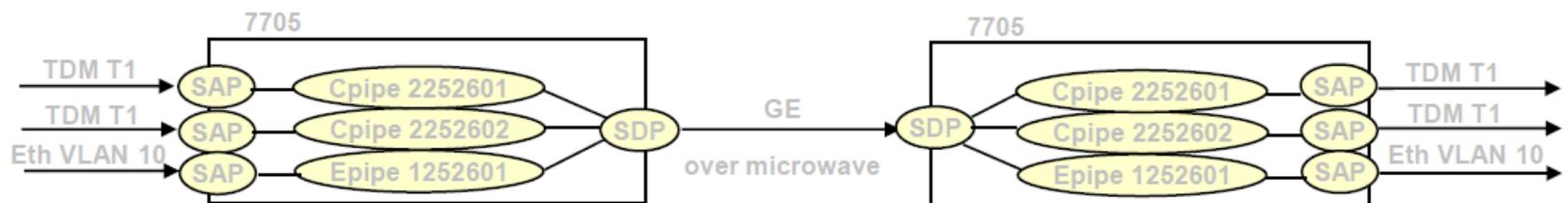
Service Naming Scheme

- Each Service (Epipe, Cpipe, VPLS, VPRN, IES, etc.) has a Service-ID
- Must be configured the same at both ends
 - Up to 10-digit number: 1 – 2,147,483,647
- So choose a provisioning convention.
- This network will use a 8 digit service id format.
 - **XAAABBBB**
 - X= 1 for Epipe,
 - 2 for Cpipe,
 - 3 for VPLS,
 - 4 for VPRN,
 - 5 for IES



Service Naming Scheme

- AAA= FIPS code (128 used for intercounty connections)
- BBBB= Service number 01-9999. This is assuming there will not be more than 9999 services within or between counties
- Example: 61280001 = Epipe #1 between node 23 and 43 between 2 different counties
- Example: 10530001 = Epipe #1 between node 10 and node 12 within Madison county
- We may be able to remove some of the first number variations with the FIPS code in use.
- X= 1 for Epipe,
 - 2 for Cpipe,
 - 3 for VPRN



Traffic Security Measures

- Ensure default vlans are not in use.
- Make Sure all unused ports are disabled preventing unauthorized physical connection into the service of unauthorized PCs.
- Change all Passwords from the default.
- Control plane is not visible from the customers, since all customer traffic is encapsulated in MPLS.
- Use the “Control Word” on OSPF links (optional, disabled by default)
- BFD enabled on network ports to enable faster detection of any link failures between sites.



QoS Quality of Service

- Service traffic will be classified into internal forwarding classes based on the service type (Ingress SAP) and scheduled within the systems with priorities that correspond with the service type.
- Traffic priority order (highest to lowest)
 - High
 - Medium
 - Low
 - Best Effort
- Confirm if traffic marked before ingress port or if marking applied at ingress



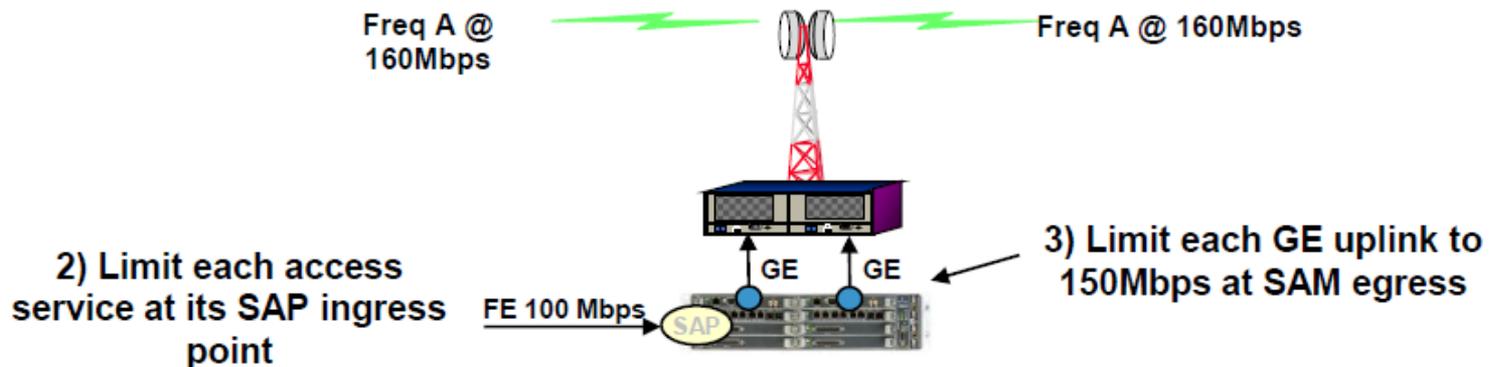
QoS Classes

- Suggested QoS Classes of Service

Default Class Type	FC ID	FC Name	FC Designation	Definition
High Priority (Premium)	7	Network Control	NC	Intended for network control traffic.
	6	High-1	H1	Intended for network control traffic or delay/jitter sensitive traffic.
	5	Expedited	EF	Intended for delay/jitter sensitive traffic.
	4	High-2	H2	
Assured	3	Low-1	L1	Intended for assured traffic. Also the default priority for network management traffic.
	2	Assured	AF	Intended for assured traffic.
Best Effort	1	Low-2	L2	Intended for best effort traffic.
	0	Best Effort	BE	

QoS

- **Prioritize applications**
 - “LMR higher than TDM, TDM higher than VoIP...”
- **Limit access bandwidth**
 - Police at ingress SAP
 - Committed rate, peak rate
 - No problem for constant-rate traffic like TDM
 - Queuing & scheduling in routers ensures fairness
- **Limit trunk bandwidth**
 - Physical 1000 Mbps GE link feeds into 2 x 150Mbps microwave links
 - Apply QoS policies at network side to rate-limit the traffic



4

System Network Management

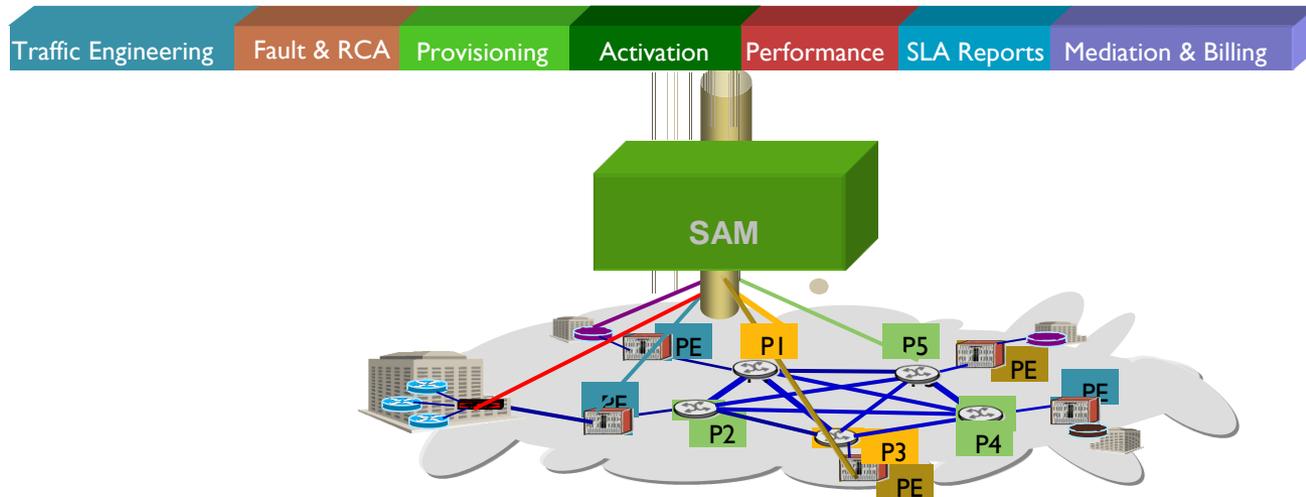
Security, Network Management, Other

- **Security**
 - RADIUS server?
 - SSH? SNMP? Centralized syslog export?
- **MTU** – no jumbo frames!
- **NTP** server
 - Need time-of-day server address to correlate alarm info and logs
- **Network Management**
 - In-band management
 - How many clients per management unit?



S.A.M.: Connection Overview

- Separate interfaces:
- One attached to the managed network
- One attached to the user admin network.
- The two networks are deemed separate and are NOT routed through the SAM server platform. The user admin network address resides in the customer LAN network or through a firewall to outside access. The managed network is a closed network providing MPLS connectivity to multiple sites.





New Business

Future Meeting Dates

- State Interoperable & Emergency Communication Board Meeting September 12, 2012
 - 10:00 AM – 12:00 PM
 - Revisiting E9-1-1 Standards
- Governor's Summit on Emergency Preparedness – October 29-31, 2012
 - Albany, New York



Thank you for attending