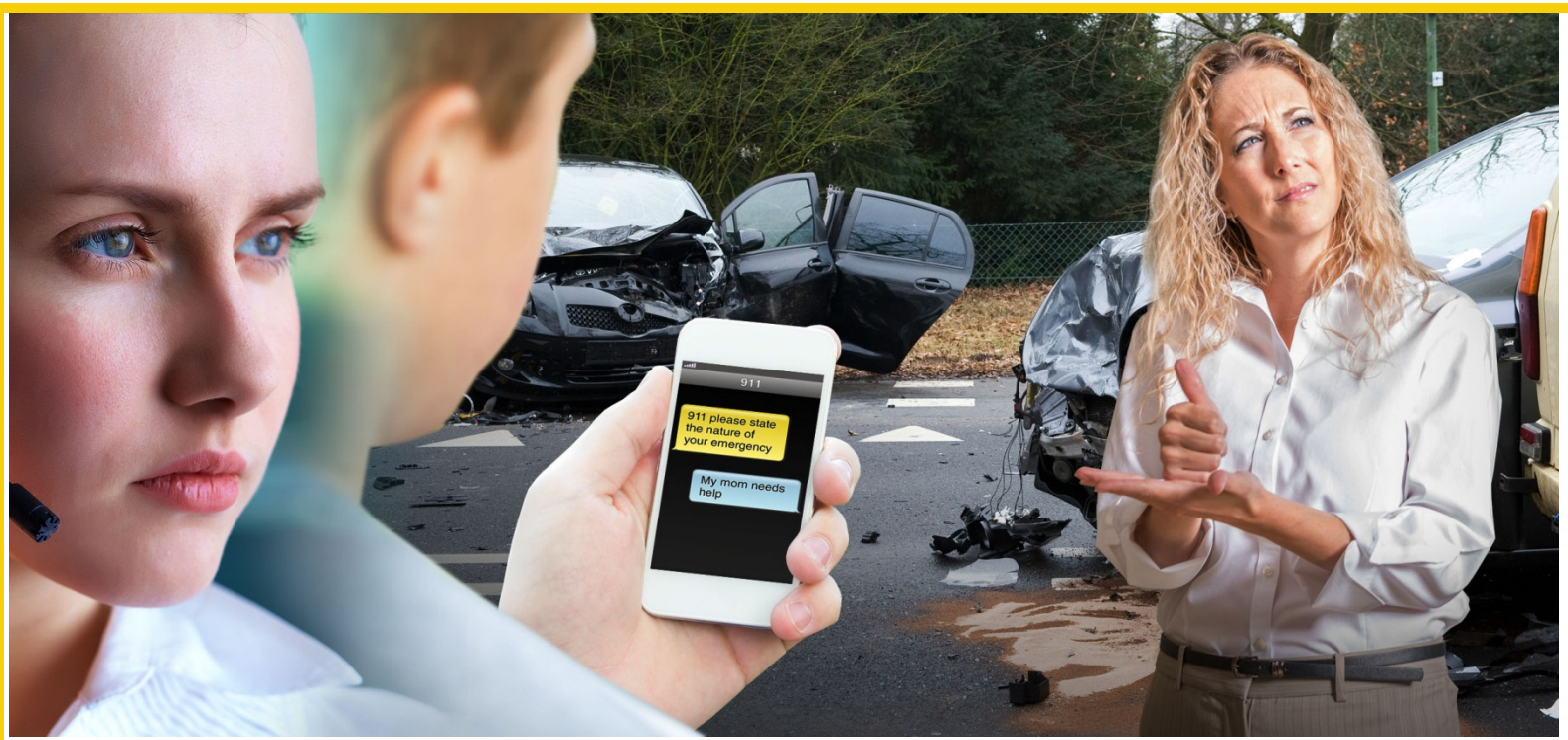


TCS SMS9-1-1 Update

September 2014

TCS TeleCommunication Systems
Enabling Convergent Technologies®

Current Regulatory Situation

- Current status of the Regulatory Review:
  - **Carrier-NENA-APCO** agreement
    - Voluntary agreement presented to FCC 12/12/2012
  - **FCC FNPRM** – Notice of Proposed Rule Making
    - Builds on Carrier-NENA-APCO Agreement
    - Bounce back messages required as of Sept 2013
    - General Availability per Carrier Agreement by **mid-2014**
    - Intent is to accelerate national availability
  - **Followed by a 2nd FNPRM**
  - **New Second Report and Order**

Second Report and Order

Released: August 13, 2014

- Technical feasibility has been illustrated
- Public benefits far outweigh the costs
- Text messaging increasing while minutes of use decreasing
- All covered text providers to be capable by 12/31/2014
- Service delivery within 6 months of PSAP request

ATIS/TIA J-STD-110 Standard

- Three message delivery methods
- Routing on coarse location
- Automatic bounce back and Inactivity timeout
- TCC to TCC interface
- What the Standard does *not* provide:
  - Centralized reporting for emergency SMS messages across jurisdictions
  - Centralized logging & recording service across jurisdictions
  - Any detailed training required by jurisdictions, provided by wireless carriers
  - Specific User Interface selection by the carriers – It's the PSAP's choice
  - MMS support
  - Multi-targeted SMS text communication, Prioritization, Roaming

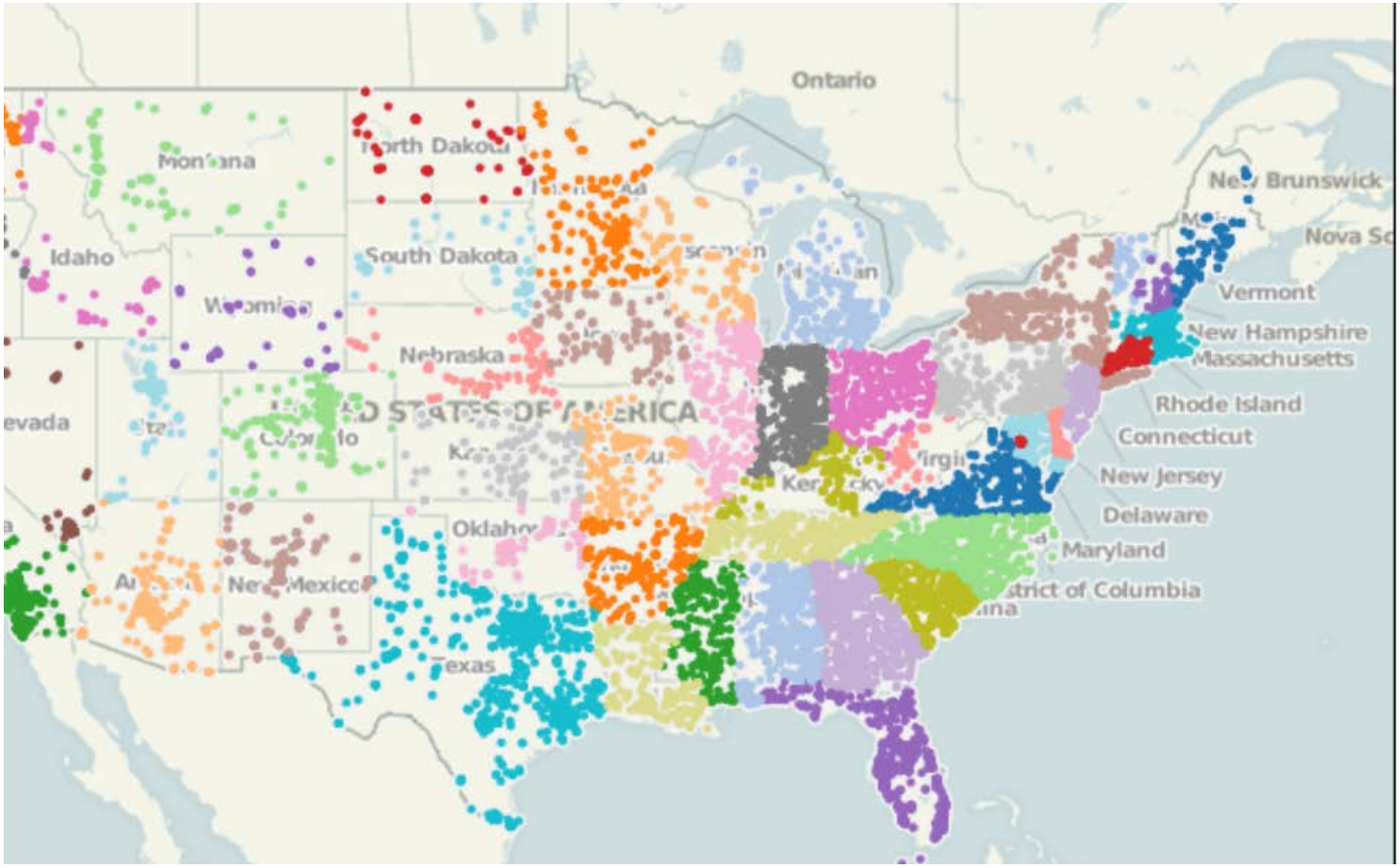
- **TCS a primary author of J-STD-110**

ATIS/TIA J-STD-110.2

Work Items under consideration

Work Item Area	Work Item Description
OTT Text	Over-the-top text messaging support
MMS	Pictures and Videos, Multiple recipients on text-only messages
Roaming	into US-based VPLMN, from a US-based HPLMN, and from an international-based HPLMN
Error Handling	extend bounce back message, include specialize wording, error scenarios between the originating and terminating TCC, and error conditions to log
Updated Location	Enhanced location capability (similar to Phase 2)
Operational	examine SMPP timers, and automated Suspend/Resume functionality between PSAP and TCC (e.g., off-line, alternate routing)
Messaging	review impacts of delayed messages, and of out-of-order messages
Testing	standardization of minimum testing procedures, use of short codes for testing, identifying messages as test messages

2014 SMS9-1-1 Attempts Statistics



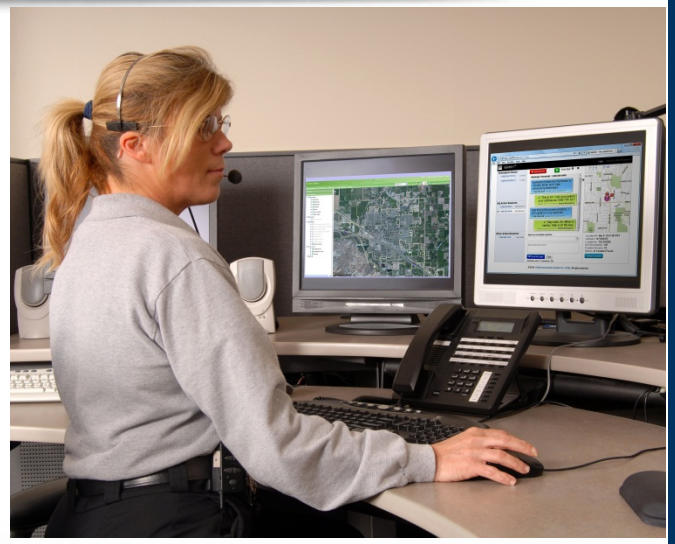
65,806 public attempts to text 911 from 1/01/2014 to 8/31/2014

5,670 attempts in VA

Public demand is there

TCS Deployment

- **Currently Live:**
  - **GEM –69 PSAPs**
  - **TTY – 18 PSAPs**
  - **SIP MSRP – 59 PSAPs***
  - **Steering to Intrado – 16**
  - **In Progress - 333**



- **162 PSAPs in 22 states**
- **TCS services provided at no cost to GEM and TTY PSAPs**

* *First fully ATIS/NENA/i3 compliant TCC to ESInet delivery*

FCC Deployment Tracker (as of 5/16/2014)

State	County	Jurisdiction	PSAPs Accepting Texts	Serving Carriers	Text-to-911 Platform Deployed	Deployment Date
Colorado	Pitkin	City of Aspen and Pitkin County	Pitkin County Emergency Dispatch (Pitkin County and Roaring Fork Valley portion of Eagle County)	Verizon	TCS - Web Browser/GEM911	10/28/2013
Georgia	Paulding	Paulding	Paulding County 911	Verizon	TCS - Web Browser/GEM911	2/7/2014
Illinois	Cook	Cook	Northwest Central Dispatch Systems	Verizon	TCS - Web Browser/GEM911	12/3/2013
Indiana	Elkhart	Elkhart	Elkhart County Public Safety Communications Center	Verizon	TCS - Direct IP	3/5/2014
	Kosciusko	Kosciusko	Kosciusko Communication Center	Verizon	TCS - Direct IP	2/13/2014
Iowa	Black Hawk	Black Hawk Co.	Black Hawk Co.	i-Wireless	Intrado - TXT-2-911	8/1/2009
Maine	All	All	Gray & Orono DPS (for entire state)	Verizon	TCS - SMS to TTY	6/1/2013
Maryland	Frederick	Frederick County	Frederick County Emergency Communications Center	Verizon	TCS - Web Browser/GEM911	3/21/2013
Montana	Missoula	Missoula County	Missoula County 911 Center	Verizon	TCS - Web Browser/GEM911	10/31/2013
New York	Chemung	Chemung County	Chemung County Communication Center	Verizon	TCS - Web Browser/GEM911	8/1/2013
	Monroe	Rochester	Monroe County 911 Center	Verizon	TCS - Web Browser/GEM911	5/24/2013
	Montgomery	Montgomery County	Montgomery County Sheriff's Office	Verizon	TCS - Web Browser/GEM911	7/15/2013
	Montgomery	Montgomery County	Montgomery County Sheriff's Office	T-Mobile	Not Reported	11/20/2013
	Oneida	Oriskany	Oneida County Sheriff's Office	Verizon	TCS - Web Browser/GEM911	6/6/2013
	Onondaga	Onondaga County	Onondaga Police Department	Verizon	TCS - Web Browser/GEM911	9/27/2013
	Steuben	Bath	Steuben County E911	Verizon	TCS - SMS to TTY	3/12/2013
North Carolina	Durham	City of Durham	Durham Emergency Communications Center	Verizon	Intrado TXT2911	8/1/2011
	Durham	City of Durham	Durham Emergency Communications Center	AT&T	Intrado TXT2911	3/13/2014
	Durham	City of Durham	Durham Emergency Communications Center	Sprint	Intrado TXT2911	5/12/2014
Ohio	Geauga	Geauga County	Geauga County Department of Emergency Services	Verizon	TCS - Web Browser/GEM911	8/20/2013
	Hamilton	Hamilton County	Hamilton County Communications Center	Verizon	Intrado TXT2911	11/21/2013
Pennsylvania	Dauphin	Dauphin County	Dauphin County EMA	Verizon	TTY	7/15/2013
	Lancaster	Lancaster County	Lancaster County-wide Communications	Verizon	TCS - Web Browser/GEM911	7/10/2013
	Lehigh	Lehigh	Allentown Police Department	Verizon	TCS - Web Browser/GEM911	2/11/2014
	Luzerne	Luzerne County	Luzerne County	Verizon	TTY	8/14/2013

http://transition.fcc.gov/cgb/text-to-911-deployments.pdf

SMS9-1-1 Delivery Methods

Legacy – TTY

- Uses the PSAP's existing voice call paths
- Handled on existing CPE
- Session control consideration
- TTY is half duplex
- Limited character set
- TTY Syntax

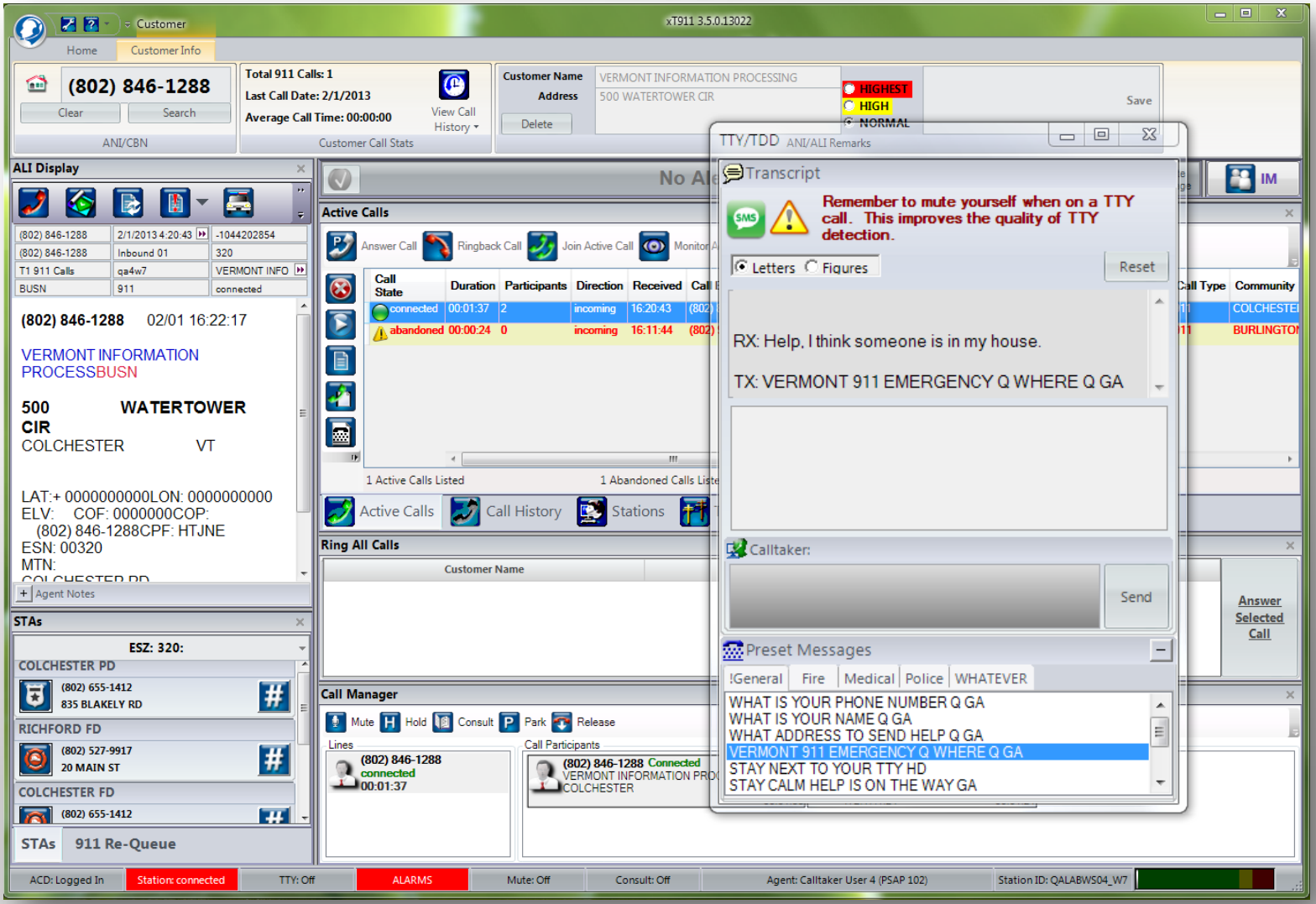
HTTPs - GEM

- Web based service
- Easy to deploy
- Easy to train
- Single intuitive screen
- IP connectivity requirements
- Additional Screen for PSAP personnel

SIP – i3

- Follows NENA i3 recommendation of SIP MSRP (session mode)
- Direct ESInet Integration
- Future scalability
- CPE considerations
- EMInet/ESInet upgrade path

“Legacy” Interface – TTY



GEM911 versus TTY

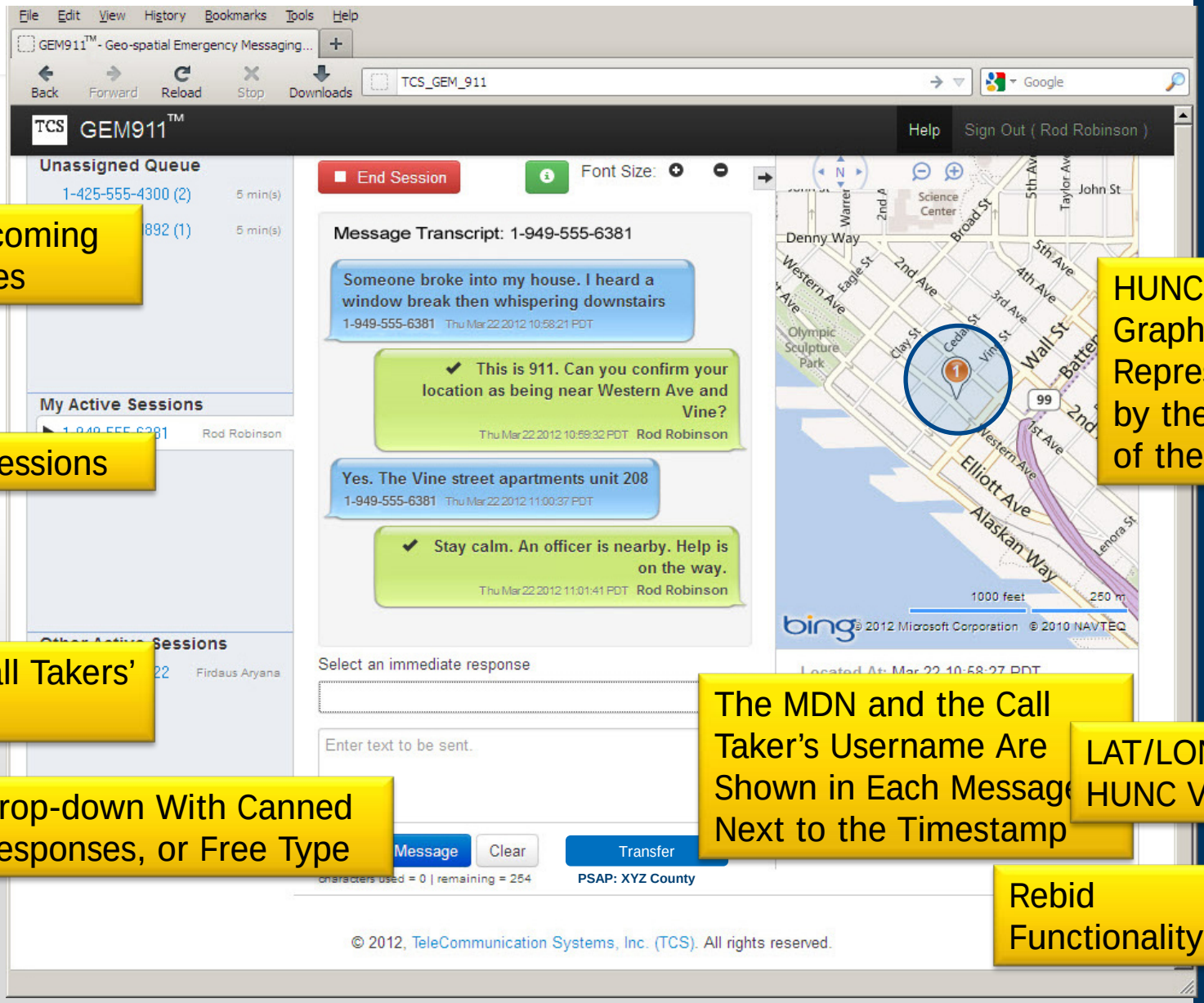
GEM911

- ✓ Full Character Set
- ✓ Bi-Directional Session Management (Full-Duplex)
- ✓ Location Delivered with Session
- ✓ Multi-Session Management
- ✓ Short Deployment Timeline
- ✓ Additional Data Integration
- ⊘ CPE Integration
- ⊘ IP Network Accessibility Considerations
- ⊘ Screen Real Estate Impact
- ✓ Seamless Migration to NG9-1-1
- ✓ **IT'S FREE**!

TTY

- ⊘ Reduced Character Set
- ⊘ Uni-Directional Session Management (Half-Duplex)
- ⊘ Existing Automatic Location Identifier (ALI) Process for Location
- ⊘ Single-Session Management
- ⊘ Longer Deployment Timeline
- ⊘ Possible Cost Impacts
- ✓ CPE Integration - Logging and Reporting
- ✓ Reuses Existing Overload Trunking Policy
- ✓ Operational Familiarity
- ✓ **ALSO FREE**!

"Interim" Interface: TCS GEM911



New Incoming Messages

Active Sessions

Other Call Takers' Sessions

Drop-down With Canned Responses, or Free Type

The MDN and the Call Taker's Username Are Shown in Each Message Next to the Timestamp

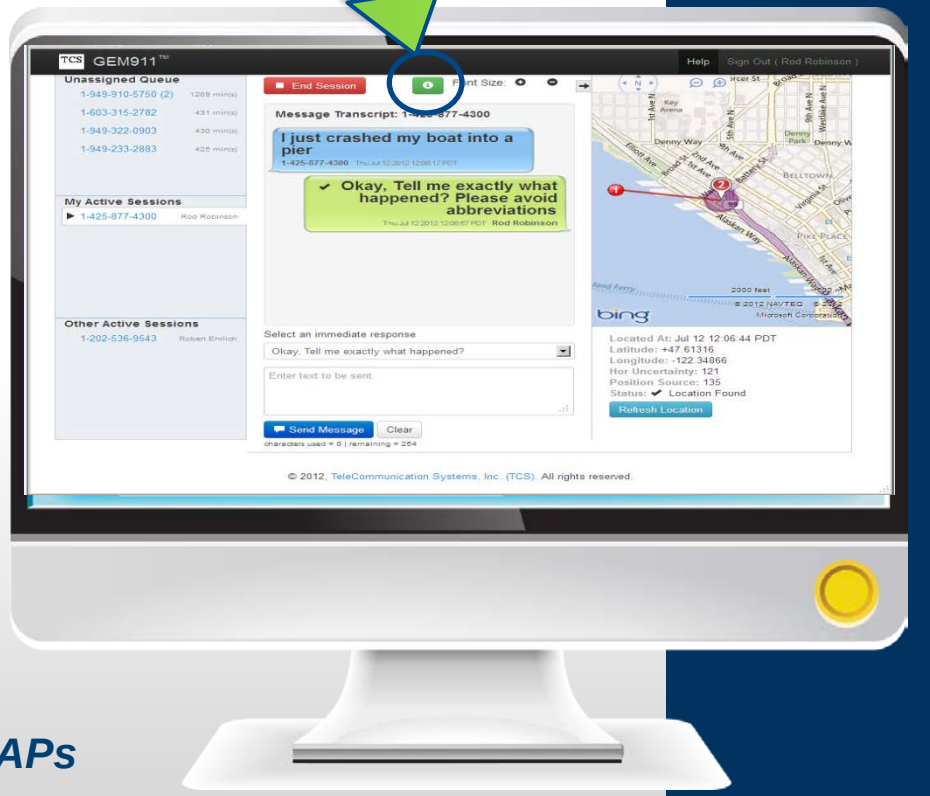
HUNC is Graphically Represented by the Size of the Circle

LAT/LON and HUNC Values

Rebid Functionality

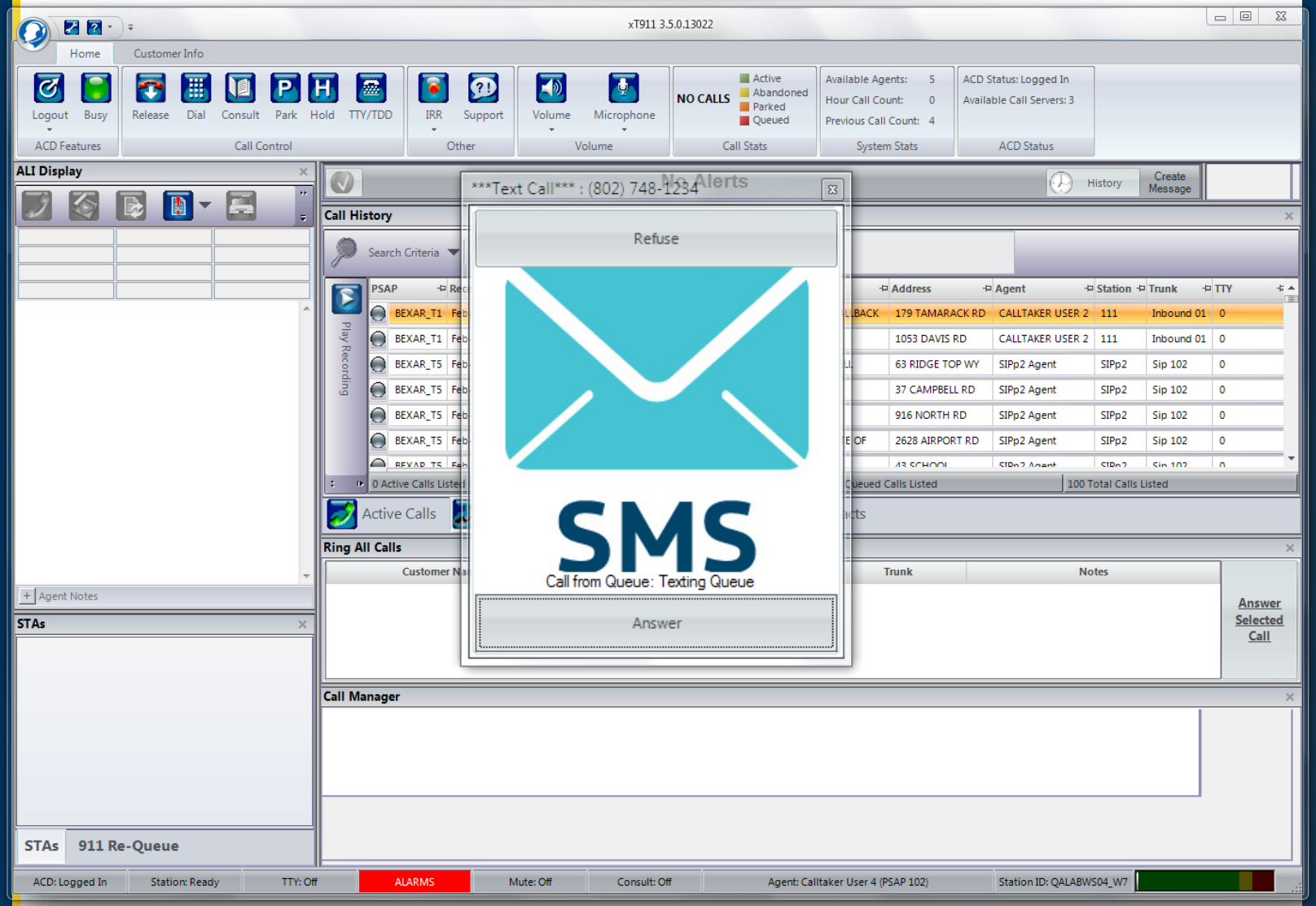
Smart911: The Integrated Strategy

- **Smart911 Fully Integrated into GEM911 Portal**
- **Partner With Rave to Provide Complimentary Smart911 Exposure via GEM911**
- **Offer Standard Smart911 as well**
- **Delivery of Rich Session Media to PSAP Call Takers**
  - Medical Conditions
  - Disabilities
  - Number of Residents in Home
  - Bedroom Layouts in Home
  - Photos of Dependents, Pets, Residence
- ***Delivery of Rich Session Media to PSAPs***
  - Via SMS 9-1-1 (GEM911) (Text Sessions Only)
  - Via CPE (All Sessions, Text and Calls)



Included with GEM 9-1-1 – ***At no cost for text messages.***

“i3” Interface – i3 ESInet/CPE

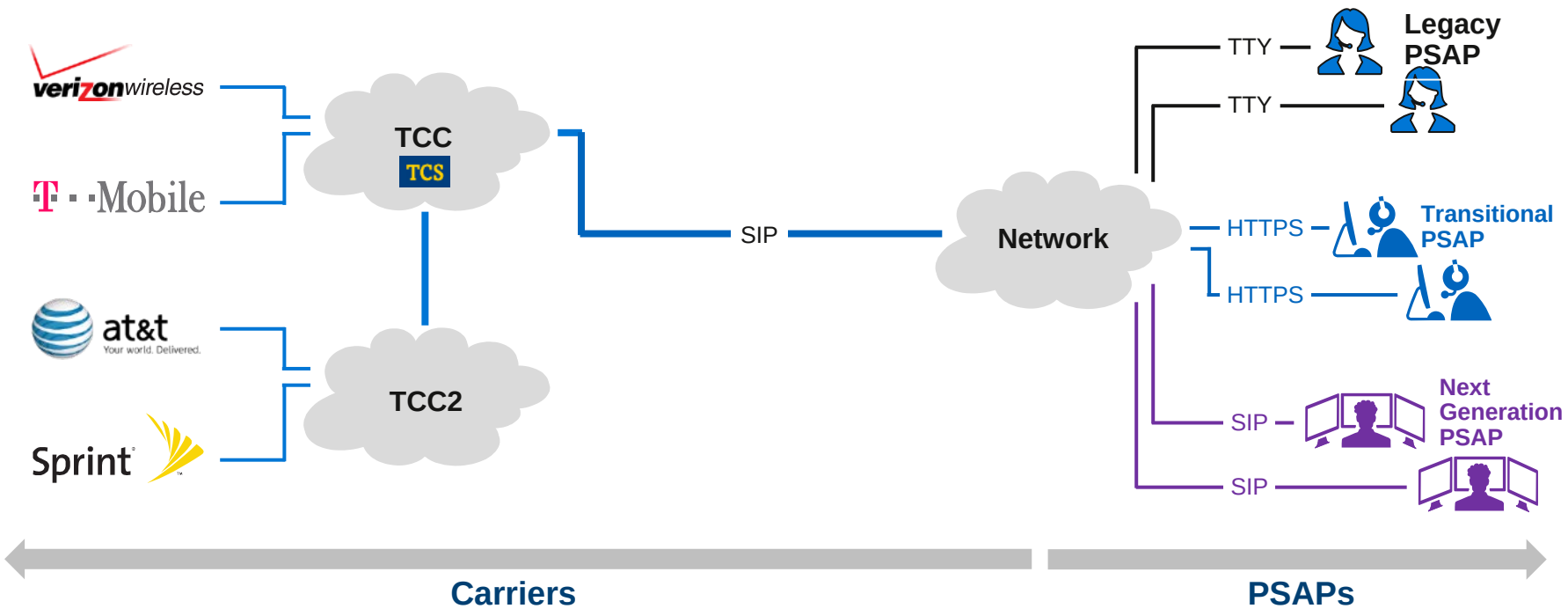


SMS-911 Feature Enhancements

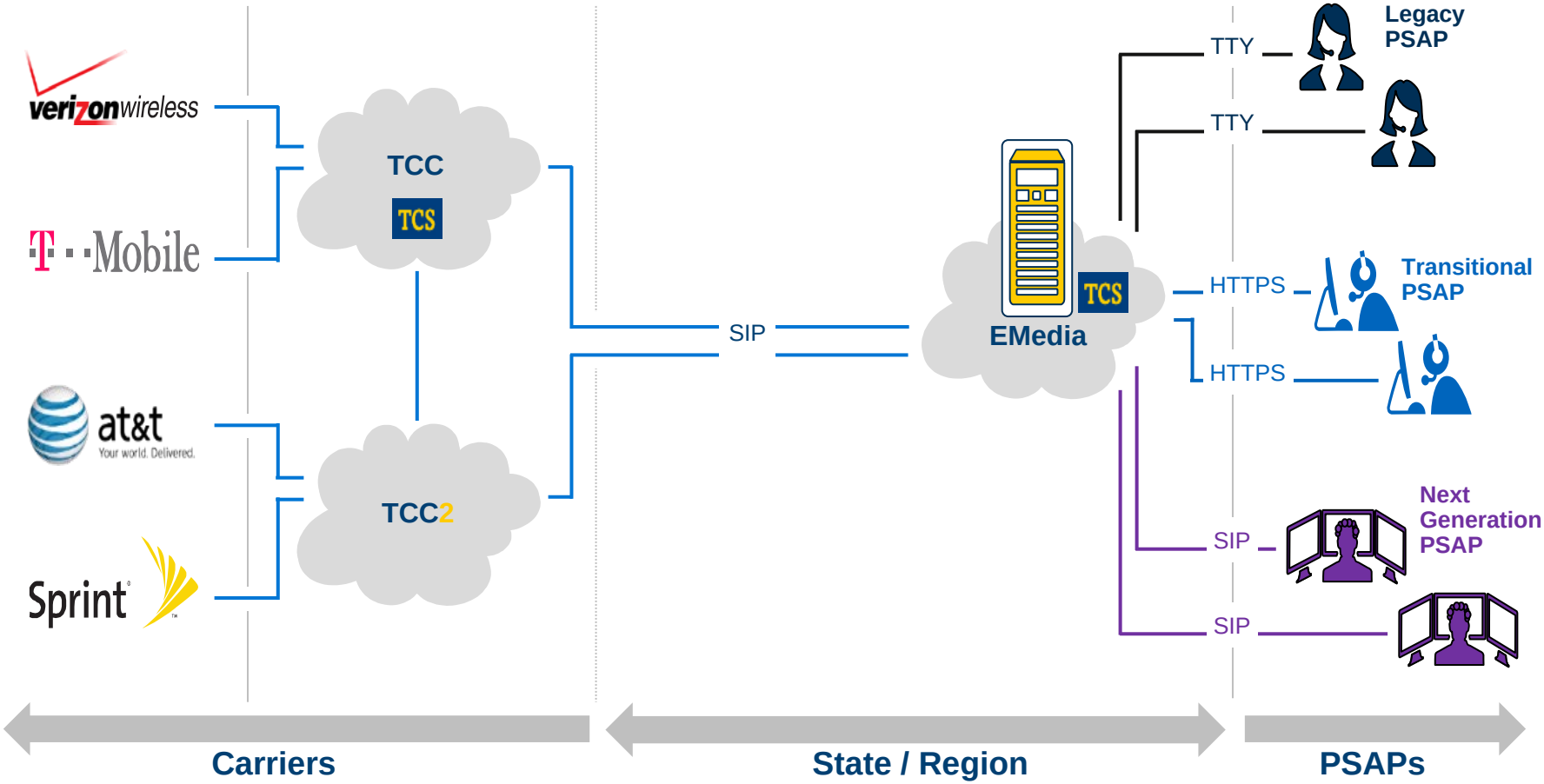
- **Language Translation**
- **Transfers to Secondary PSAPs (non-routable)**
- **Local Conversation Logging**
- **End Session Confirmation**
- **Visual notification on all incoming messages**
- **Transfer without caller being in polygon**
- **MSRP based transfers**
- **Additional browser support** – ongoing
- **Carrier and Location method Identification per session**

- **What about location?**
  - Dependent on the carrier
  - CSRIC Working Group 4 making recommendations to the FCC about precise location for SMS 9-1-1

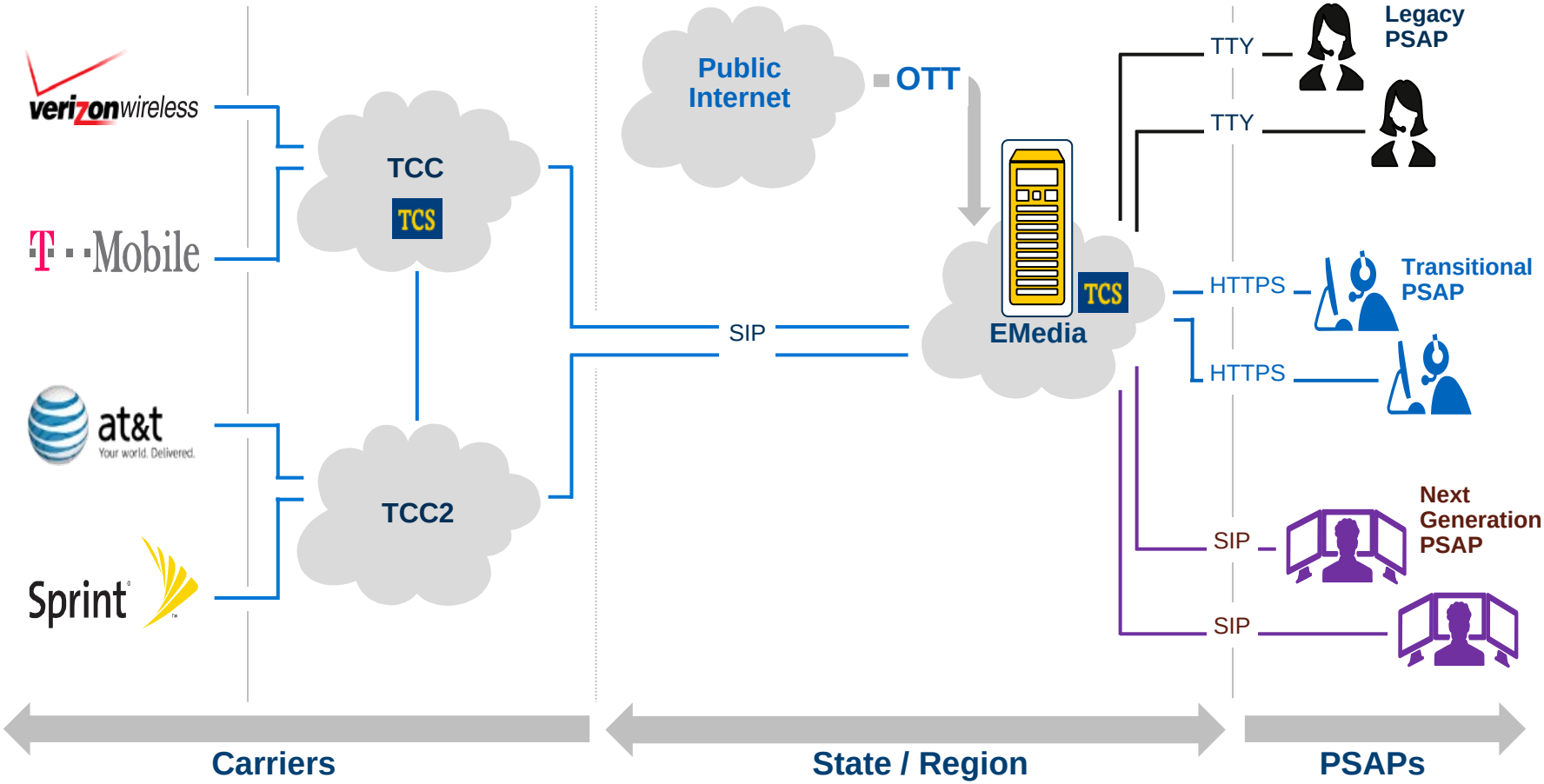
Text Services Architecture



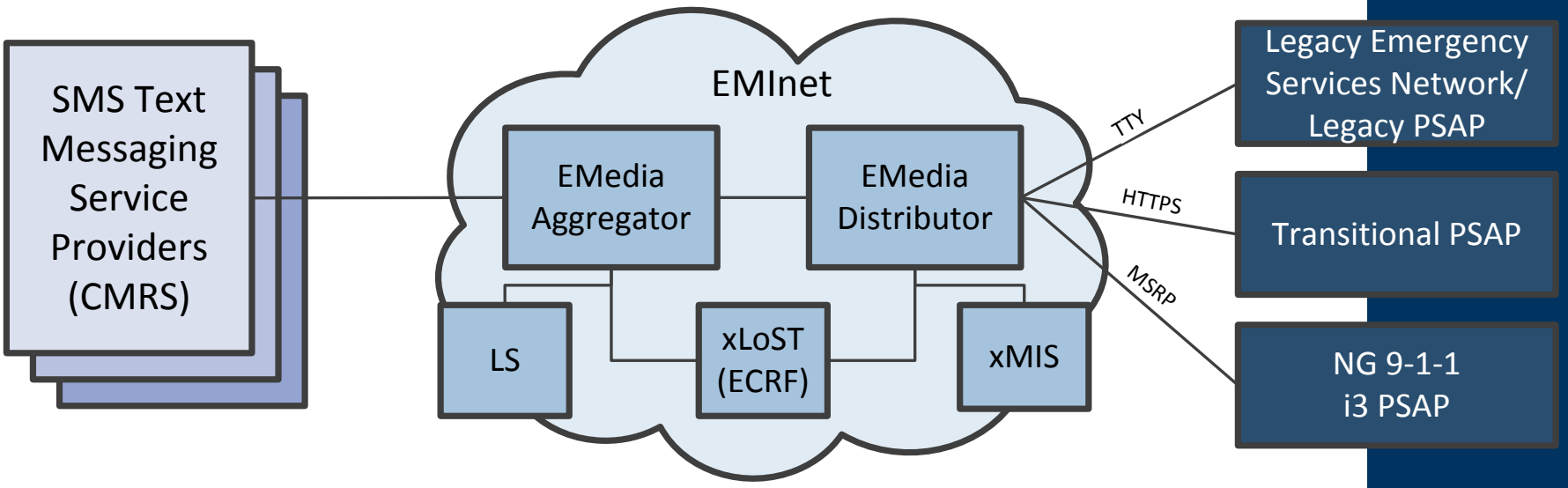
Enhanced Text Services Architecture



Enhanced Text Services Architecture

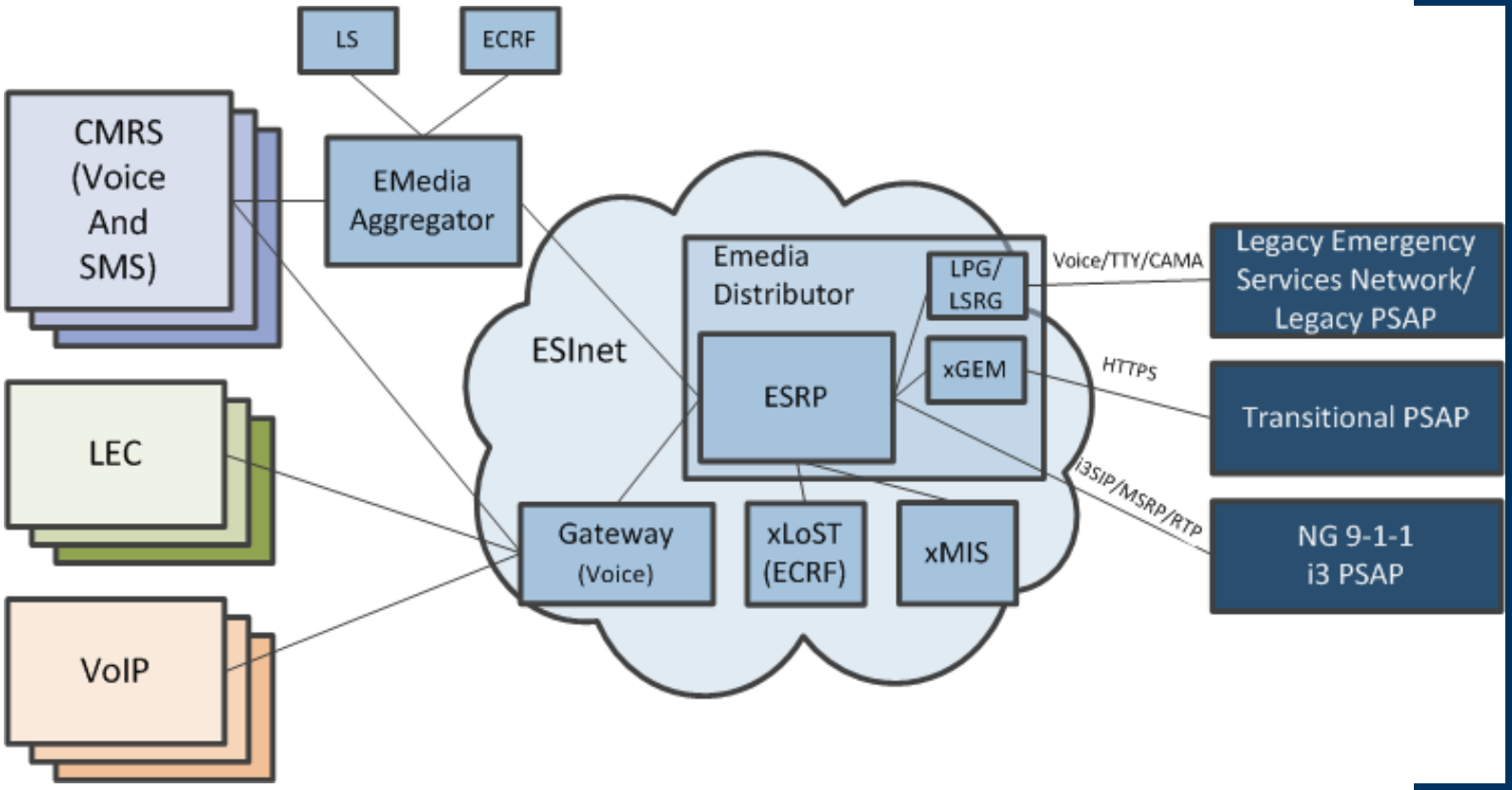


Emergency Messaging IP Network (EMInet)



An EMInet is built on i3 (NG 9-1-1) components used for SMS Text Message processing

Emergency Services IP Network (ESInet – i3 Architecture)

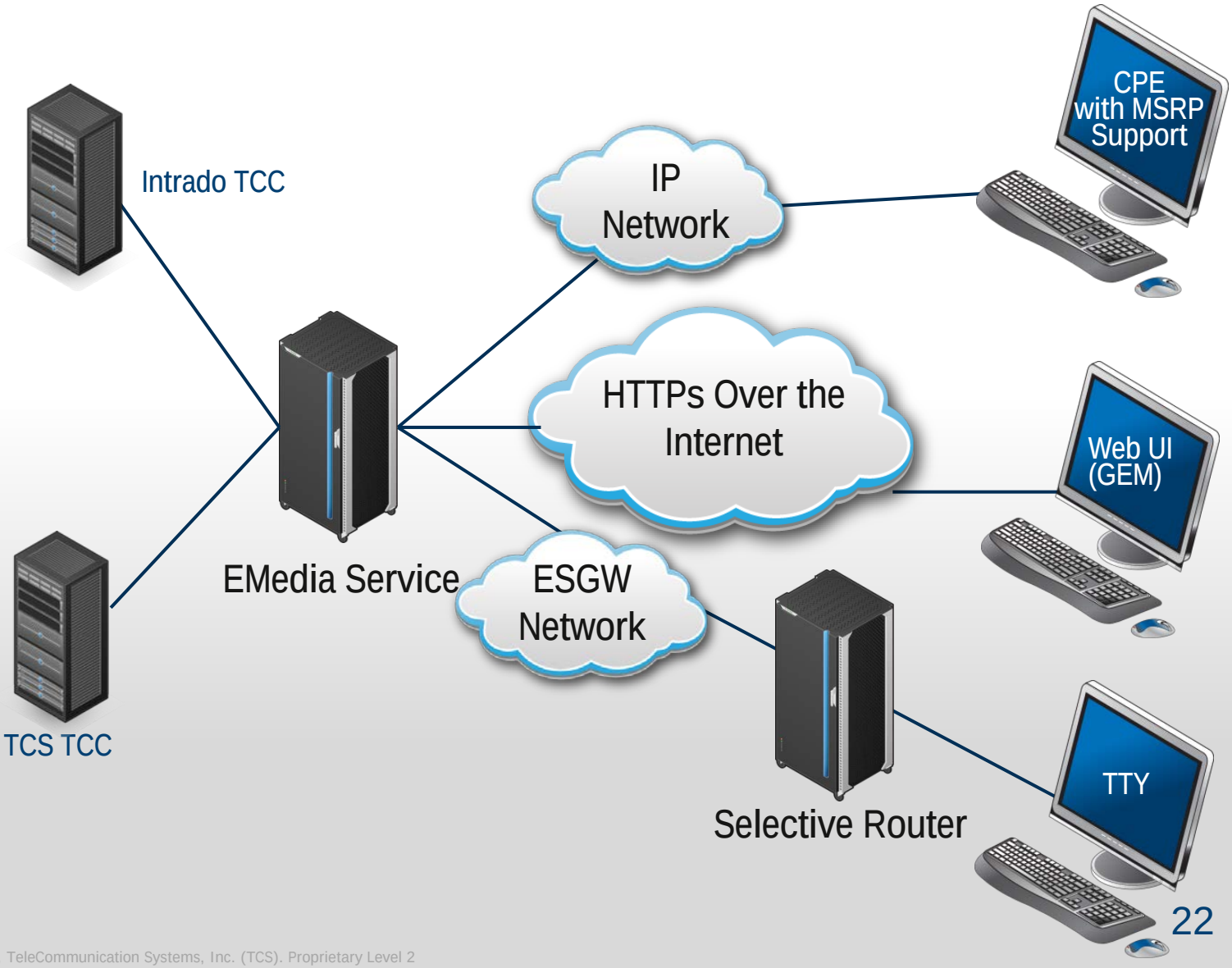


An EMInet can be extended with additional i3 components to support Voice traffic, becoming an ESInet

EMedia – Features / Benefits

- Supports any J-STD compliant, text-enabled CPE via the MSRP interface .
- Supports transfer of text sessions between different interfaces.
- Provides usage reporting.
- Integrates with CAD, recording and reporting systems.
- Compliant with the National Emergency Number Association (NENA) i3 standard.
- Simplifies PSAP training – message delivery and functions are the same for all carriers.
- Shortens test and turn-up time

EMedia Network Options



QUESTIONS?

THANK YOU!