First Responder Network Authority (FirstNet)

"It's the Apps!"

Kevin McGinnis, Board Member

EM Forum
March 27, 2013

Emergencyfans.com

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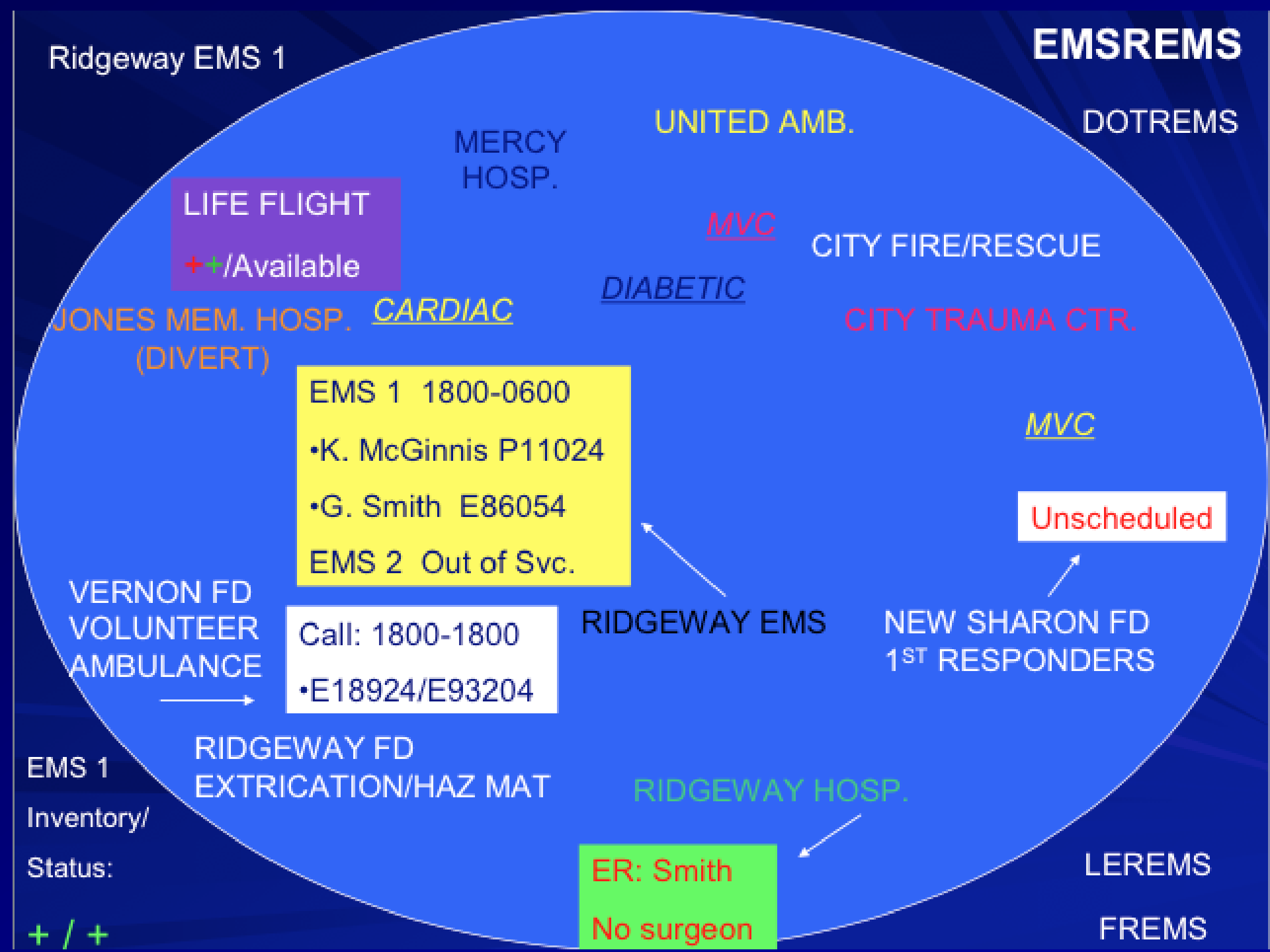
EMS Information Needs

- Situational Awareness
- Common Operating Picture
- Sequential Processing → Parallel Processing
- Inability to Adopt Available Diagnostic Applications


Ridgeway EMS 1
EMSREMS
DOTREMS
UNITED AMB.
MERCY HOSP.
LIFE FLIGHT
++/Available
MVC
CITY FIRE/RESCUE
DIABETIC
JONES MEM. HOSP. (DIVERT)
CARDIAC
CITY TRAUMA CTR.
EMS 1 1800-0600
•K. McGinnis P11024
•G. Smith E86054
EMS 2 Out of Svc.
MVC
Unscheduled
VERNON FD VOLUNTEER AMBULANCE
Call: 1800-1800
•E18924/E93204
RIDGEWAY EMS
NEW SHARON FD 1ST RESPONDERS
RIDGEWAY FD EXTRICATION/HAZ MAT
EMS 1
Inventory/
Status:
+ / +
RIDGEWAY HOSP.
ER: Smith
No surgeon
LEREMS
FREMS

“Golden Hour”

≠ 20+20+10+30+120+40 Minutes

Trauma, Heart Attack, Stroke…..

Ridgeway EMS 1

EMSREMS

MERCY HOSP.

UNITED AMB.

LIFE FLIGHT

MVC

CITY FIRE/RESCUE

2 Patients/45MPH

1001 Hendrix Highway (Nash/Oak Sts.)

Toyota Prius/Object/Head On

++Airbags ++Belts

++Severity

CITY TRAUMA CTR.

MVC

NEW SHARON FD
1ST RESPONDERS

VOLUNTEER AMBULANCE

RIDGEWAY EMS

MVC

RIDGEWAY FD
EXTRICATION/HAZ MAT

RIDGEWAY HOSP.

Other Medical Alarms

Crash at 8:29 PM, 5/8/10

Probability of Injury: 92%

Add/Edit Passenger Details

Pass-enger	Age	Gender	Safety Belt	Entrap-ment	Eject-ion	Prob. of Inj.
1	40	F	N	Y	N	92.0%

DeltaV: 30mph

PSAP Contact:

PAYETTE
1130 3RD AVE N
PAYETTE, ID 83661
(208) 642-6006

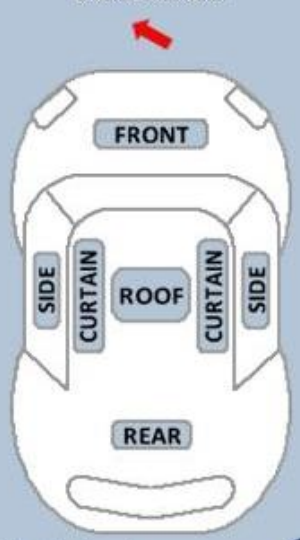
Incident Information:

Incident ID:	1438314045
Event Notification:	Vehicle Accelerometer
Event Verified:	No
Rollover:	No
Data Provider:	OnStar
Provider Contact:	800-466-7827

Vehicle Information:

Color:	White
Year:	2009
Manufacturer:	General Motors
Make:	Chevrolet (1)
Model:	Cobalt Sedan

Direction of Force



Airbag Deployed

Car Curb Weight (lbs): 3200

Passenger Side Damage? No

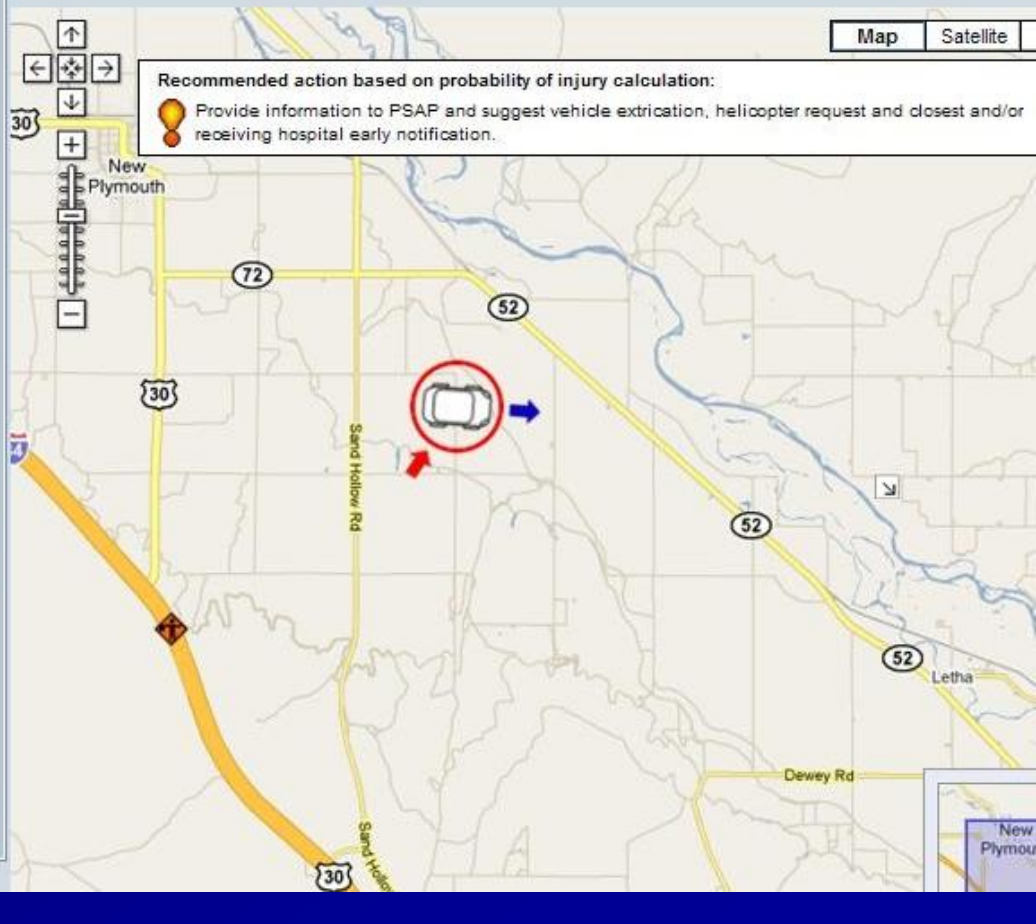
Rear Damage? No

<< Previous Report Next Report >> Create Event Close

At A35. Look out for an accident.

ID: ONSTAR-1438314045.2
Status: ~~CURRENT~~ Auto-held (updated)

Author: unknown
Received: 10:2~~5~~9 PM, 5/8/10



Ridgeway EMS 1

Parallel Processing

EMSREMS

DOTREMS

UNITED AMB.

MERCY HOSP.

LIFE FLIGHT→

ETA: 12 Min's.

MVC

CITY FIRE/RESCUE

JONES MEM. HOSP. (DIVERT)

CARDIAC

CITY TRAUMA CTR.

DIABETIC

Team On Alert for Pt:+

NEW SHARON FD 1ST RESPONDERS

VERNON FD VOLUNTEER AMBULANCE

RIDGEWAY EMS

ED On Alert for Pt: +

MVC

RIDGEWAY FD EXTRICATION/HAZ MAT

RIDGEWAY HOSP.

ROAD CLEARANCE

Lights + /Cars ++

Ames St. to Clark St. to Old Highway (E); 15.2 Mi.s; #3945 Old Highway

ETA: 10 Min's.

Ridgewa

FREMS

UNITED AMB.

ACN Alert

MVC

CITY FIRE/RESCUE

TOYOTA

PRIUS

Gasoline-Electric Hybrid

Emergency Response Guide
(Revised)

MVC

NEW SHARON FD

VERNC

MVC

RIDGEWAY EMS

RIDGEWAY FD

2 Patients/45MPH/Front Seats

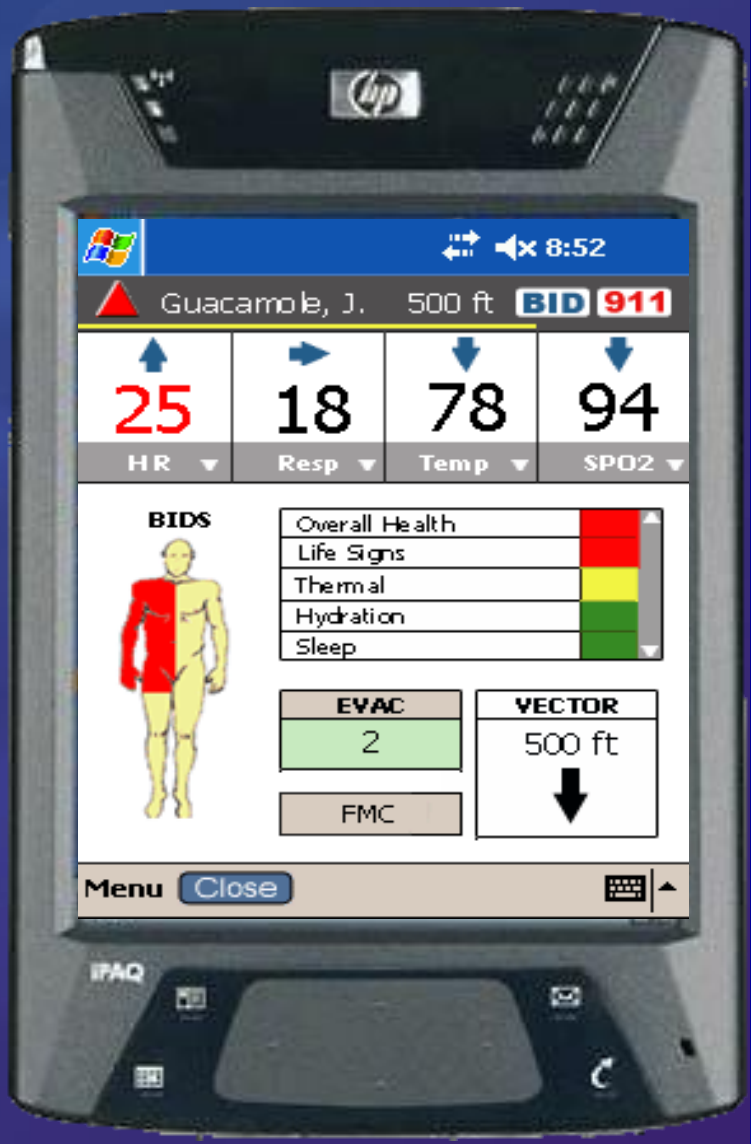
2004 Toyota Prius Head On/Object

++Doors ++Patients (Driver Priority)

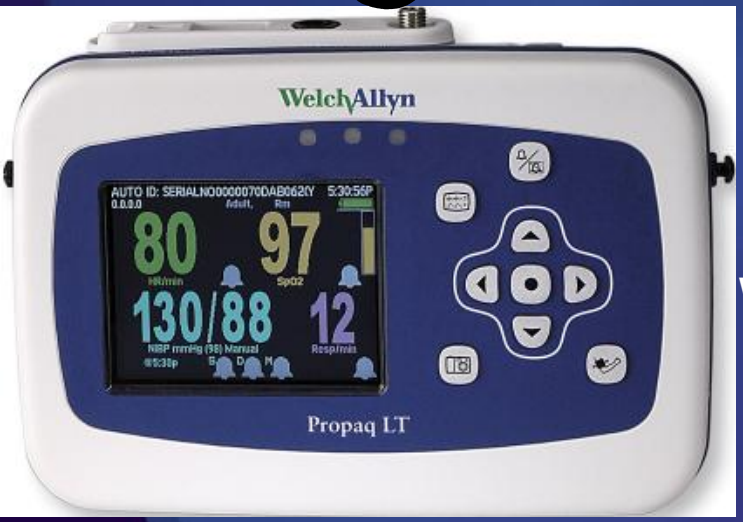
At Scene: More Parallel Processing

Electronic Health Record

Portable PSCD Type Platform



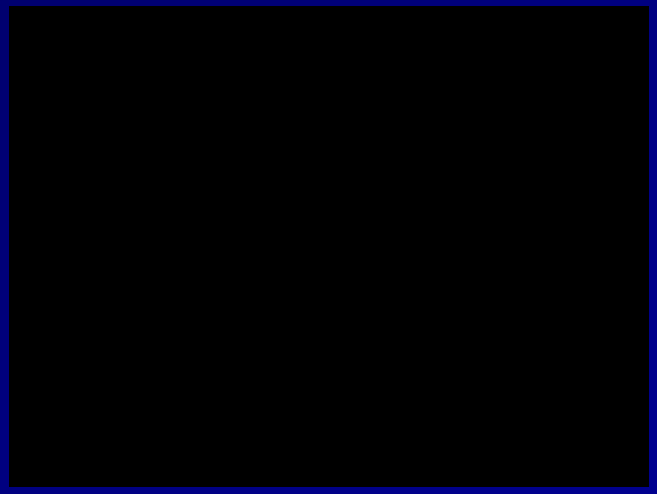
Speech Recognition Input



Wireless Patient Monitoring

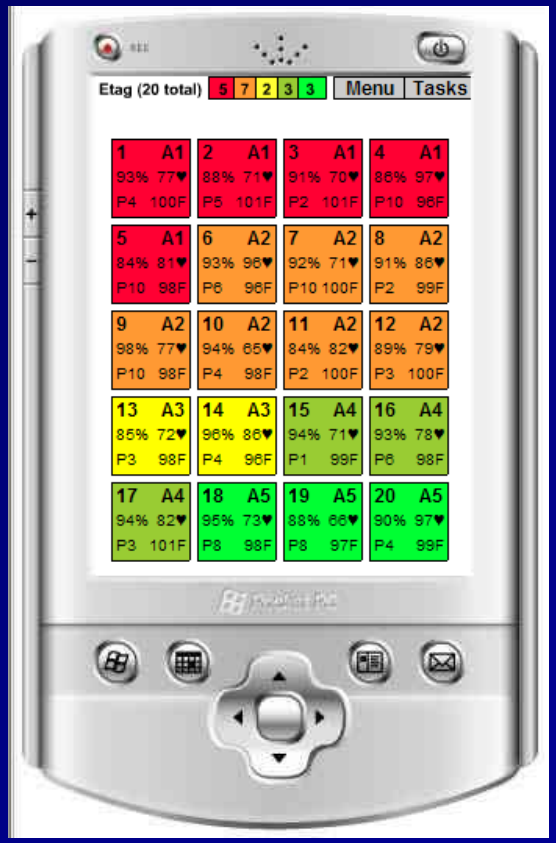
Diagram content courtesy of the Department of Defense, Telemedicine & Advanced Technology Research Center

Click to Play EMS Video



- Other Technologies
  - 2 Way Video (Virtual MD/Community Paramedicine)
  - Stand Off VS Monitoring
  - Portable CT Scan (Images)
  - Portable Ultra Sound (Video & Images)

- Other Technologies
  - Multiple Patient Monitoring (Mass Casualty Incident)
  - Multiple Responder VS Monitoring
  - Infra Red Crowd Disease Detection



Other Predicted Technologies

- EMS Based Routine Patient Monitoring
- Automated Dispatching Based on Monitored Patients and Vehicles
- Audio/Video/Data Interfaces with “I’ve fallen” Systems
- Access to Searchable Patient Records/Images/Data
- Real-Time Vehicle Extrication Hazards Alerting Based on AACN Including Video/Images as Necessary
- Syndromic Surveillance and Quick Alerting to Specific Populations
- Physician Mediated Interface Between EMS Dispatch, EMS Crews and Nurse Call Centers

FirstNet

- 2006 – Public Safety Broadband Network Concept
- 2007 – Public/Private Concept
  - FCC
  - Public Safety Spectrum Trust
- 2008 – Failed Auction
- 2009 – Public Safety Community Organizes
  - Public Safety Alliance
- 2012 –
  - Middle Class Tax Relief and Job Creation Act of 2012
  - FirstNet Public Safety Broadband Network

Assets

- Congressional mandate to establish a nationwide Public Safety network
- 2 x 10 MHz of nationwide spectrum (700 MHz, Band 14)
- $2B of current funding; potential for $5B of additional funding
- An experienced Board of Directors motivated to bring NPSBN into service
- Substantial industry collaboration around user requirements, interoperability and technology

Assets: Boundless Talent and Energy

FirstNet is very grateful for the:

- **NPSTC Statement of Requirements (SoR)**
- **NPSTC Assessment of Future Spectrum and Technology**
- **NPSTC Public Safety Broadband High-Level Launch Requirements - *Statement of Requirements for FirstNet Consideration***
- **SafeCom Statement of Requirements (Version 2.1)**

Thank you to all Public Safety professionals who have contributed their time and effort to develop these documents to help guide our work at FirstNet.

Meeting 1,300+ Detailed Requirements

NIST National Institute of Standards and Technology U.S. Department of Commerce

NTIA

FCC Federal Communications Commission

NPSTC Requirements	Number
User Services	312
Network Services	209
Transport Requirements	154
System Design	66
User Equipment	60
Local Operations Support	157
Migration and Evolution	60
Governance	10
Policies and Procedures	94

FCC Minimum Interopability Specifications	Number
Requirements (Must)	46
Considerations (Should)	55
Interfaces (Architectural)	11
Recommended Interfaces Requirements	9

SAFECOM

FirstNet plans to:

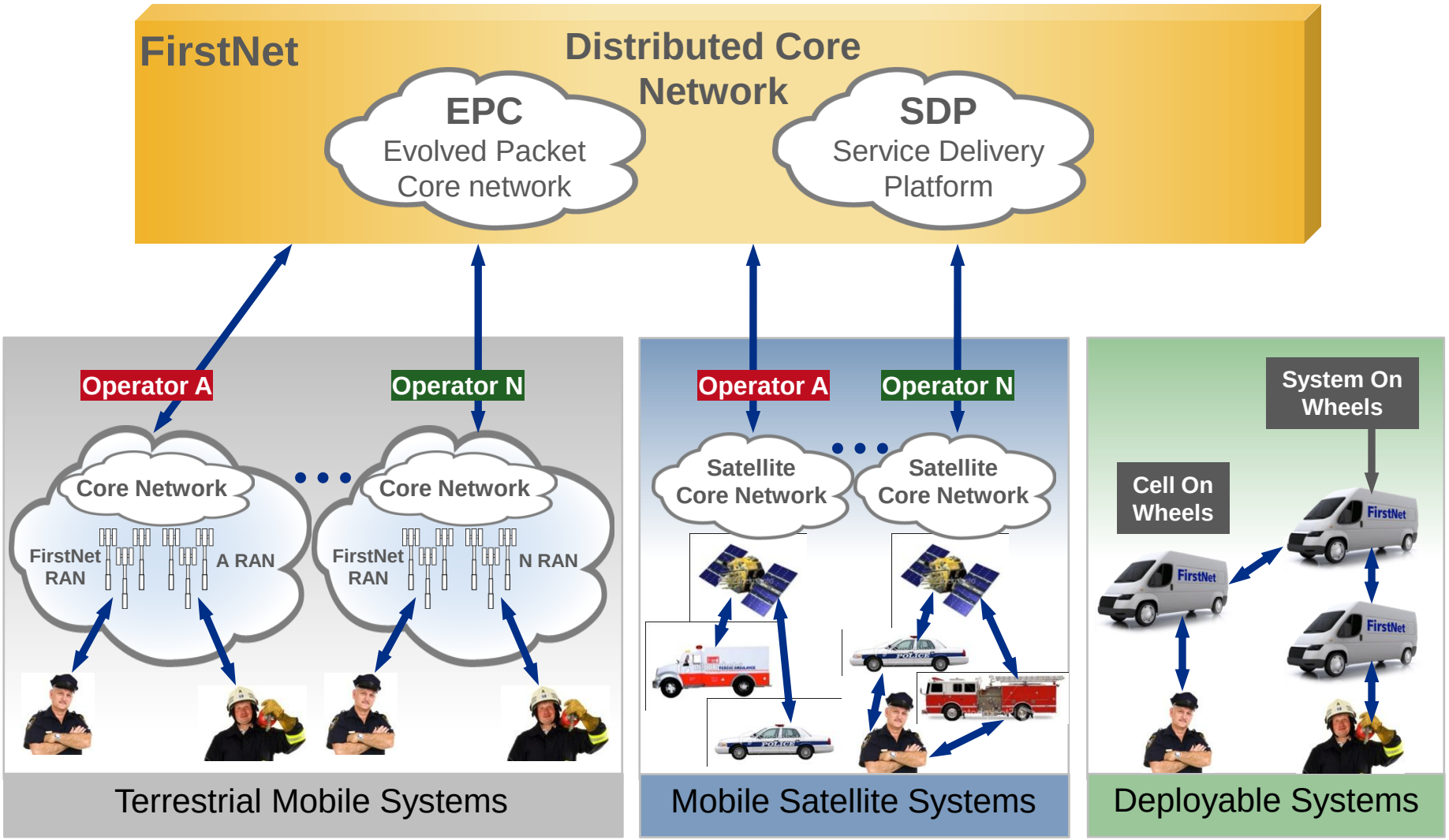
- Leverage all of the good work already done in these areas by the relevant PS groups:
  - Start from a baseline of 1,300 requirements and then add the full FNN specific suite
- Seek vendors who will meet or exceed the key PS needs, but broaden the requirements to increase flexibility and decrease costs.

The FirstNet Public Safety Broadband Network Concept

The FirstNet Network concept leverages the significant investments and combined efforts of the public sector and the commercial wireless industry:

- **Public Safety** - integrates inter-agency communications services, reduces costs, and improves efficiency and response time
- **Wireless operators** - have the opportunity to participate; serve a critical US nationwide need; and increase their subscribers, usage, and commercial coverage
- **Network & handset suppliers** - have the opportunity to participate; serve a critical US nationwide need; and increase their network & handset product lines, sales volumes and revenues
- **Application developers** - have the opportunity to develop apps that increase our security and safety across the US; and increase their product lines, user bases and sales volumes

FirstNet "3-in-1" Nationwide Network Concept



FNN Solves Several Critical Issues

- Instant inter-agency communication and collaboration
- Interoperability with existing public safety systems
- Group communications on a nationwide scale
- Mission-critical reliability through multi-network access
- Coverage extension into unserved/underserved rural areas
- Lower cost subscriber equipment based on LTE and other international standards
- Deployable infrastructure to address large-scale emergencies
- Ubiquitous US coverage provided through satellite network integration

Network Guiding Principles

Network Principles	Description
Ubiquitous Coverage	1) “Every Square Meter” - - Coverage “Where Public Safety needs it” from multiple terrestrial, satellite and deployable mobile networks 2) Continental US, Alaska, Hawaii, Puerto Rico, US territories, including tribal areas & coastal waters - - 56 geographic areas
7 x 24 Availability / Uptime	“You can bet your life on it” - - Always on, fault-tolerant, non-stop, integrated Public Safety grade network
High Reliability	Network resilience, fault tolerance, public safety grade hardening, redundancy, diversity in all aspects of network and its operations
Nationwide Distributed Network	1) Leverages multi-billion dollar investments in American terrestrial and satellite mobile networks 2) National distributed FirstNet Core Network directly interfacing with public, private and government networks for instant inter-agency coordination
“3-in-1” Network Platform	Combines three (3) types of networks for highest possible availability - - multiple terrestrial fixed mobile networks, multiple satellite mobile networks with terrestrial subnets with rapid-deployment FirstNet mobile terrestrial subnets

Network Guiding Principles (Cont.)

Network Principles	Description
Priority Access and Local Management	1) Instant, automatic priority access for first responders & PS users 2) Local Network Operation Centers (NOCs) and real-time control of user prioritization and incident command
Excellent Voice Quality	QOS on all mission-critical voice services, QOS greater than LMR, QOS equal to or better than commercial wireless networks
Fast Data Speeds / Throughput	Peak rates, burst rates, fixed rate speeds provide high speed data delivery and throughput
Best Available Speed	1) Network provides the best available data speed / throughput 2) Instant, automatic “fallback” to lower speed/quality of service to get the information / call through in case of network congestion, impairment or outage
Extensive Advanced Services	A large, growing number of advanced wireless services which meet or exceed PS user requirements
Flexible Service Delivery	Three service delivery options - - 1) “Real-Time” (less than 50 msec end-end delay); 2) “ASAP” (as soon as possible but greater than 50 msec); 3) “Scheduled” (prior to a future time)
Instant Group Communications	Offers a wide range of group text, voice, data and video services across all agencies and geographies at the touch of a button

Network Guiding Principles (Cont.)

Network Principles	Description
Multiple RAN Diversity	Leverages alternative radio access routing through multiple 3G and 4G RANs for maximum geographic coverage, lowest cost, RAN diversity
1000's of PS Applications	1) FirstNet App Store will provide latest App downloads instantly 2) Apple, Android, Microsoft application ecosystems
Latest 4G LTE	Pursuing and pressing future development of leading-edge 4G LTE technology as national standard for PS broadband services and applications
Highly Secure Communications	Dedicated, diverse core network interconnecting facilities; No dependence on the PSTN or public Internet
Dual-Track Network Deployment	Two separate network teams give Priority #1 to: "First Responders in Un-served/Under-served Areas" and to "First Responders in High Risk / High Density Areas",
Low Cost	Provide excellent services & applications at less than commercial costs

Our Purpose: To Serve Public Safety

FirstNet exists to serve first responders and the Public Safety community with highly-reliable, nationwide wireless services, applications and user devices, at the lowest possible fees.

Help Us Help You

“What can public safety users do?”

- Never forget where FirstNet came from
- Be the owners as well as the users
- Identify your state point of contact
- Get involved in the process
- Think “Apps”!

Thank You!

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