



Assure911™

for

Reliable Operations of Emergency Communications:

Enhanced 9-1-1 Failure Detection
Cross Organizational Situational Awareness

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What is Reliability?

“In my village the perception of reliability of our 9-1-1 service is that if someone sees another person bleeding, they’ll call 9-1-1 first.”

- Overheard at a NG 9-1-1 Conference

How do you Operate a 9-1-1 Service Reliably?

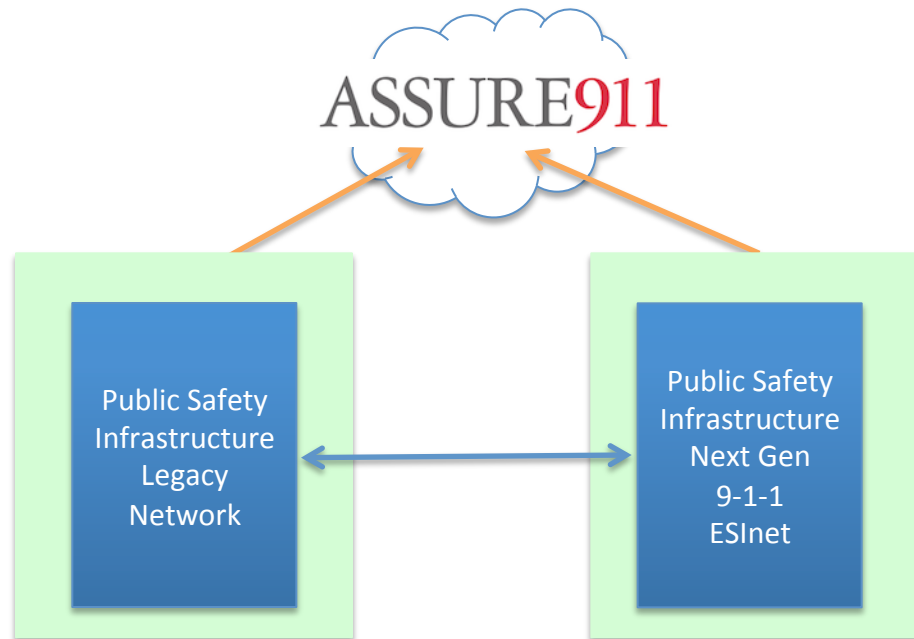
- Visibility into Call Origination Failures in the Access Network
 - Wireline and Wireless Access Network
- Integration of Signaling Data
 - SIP / VoIP Originations Failures
- Next Generation 9-1-1 Functional Elements
- Distribution of actionable alerts
 - Dashboard customized to reflect the national footprint
 - Assure911 Mobile Apps
 - Text, Email, Existing NOC system



Patented “9-1-1 Status System and Method”

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- The purpose is to allow sharing across organizations
- Allows collection of data from two or more 9-1-1 networks
- Covers Legacy E9-1-1 and Next Generation 9-1-1
- Allows data collection from both originating and terminating networks
- Provides alerts based on troubles found

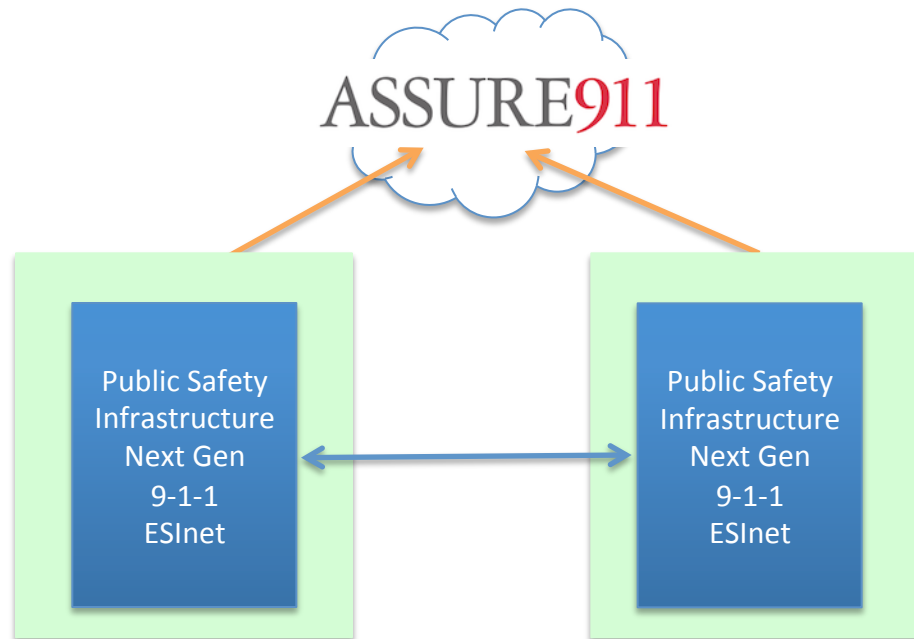


→ Monitoring Data
→ Public Safety Data

Patented “9-1-1 Status System and Method”

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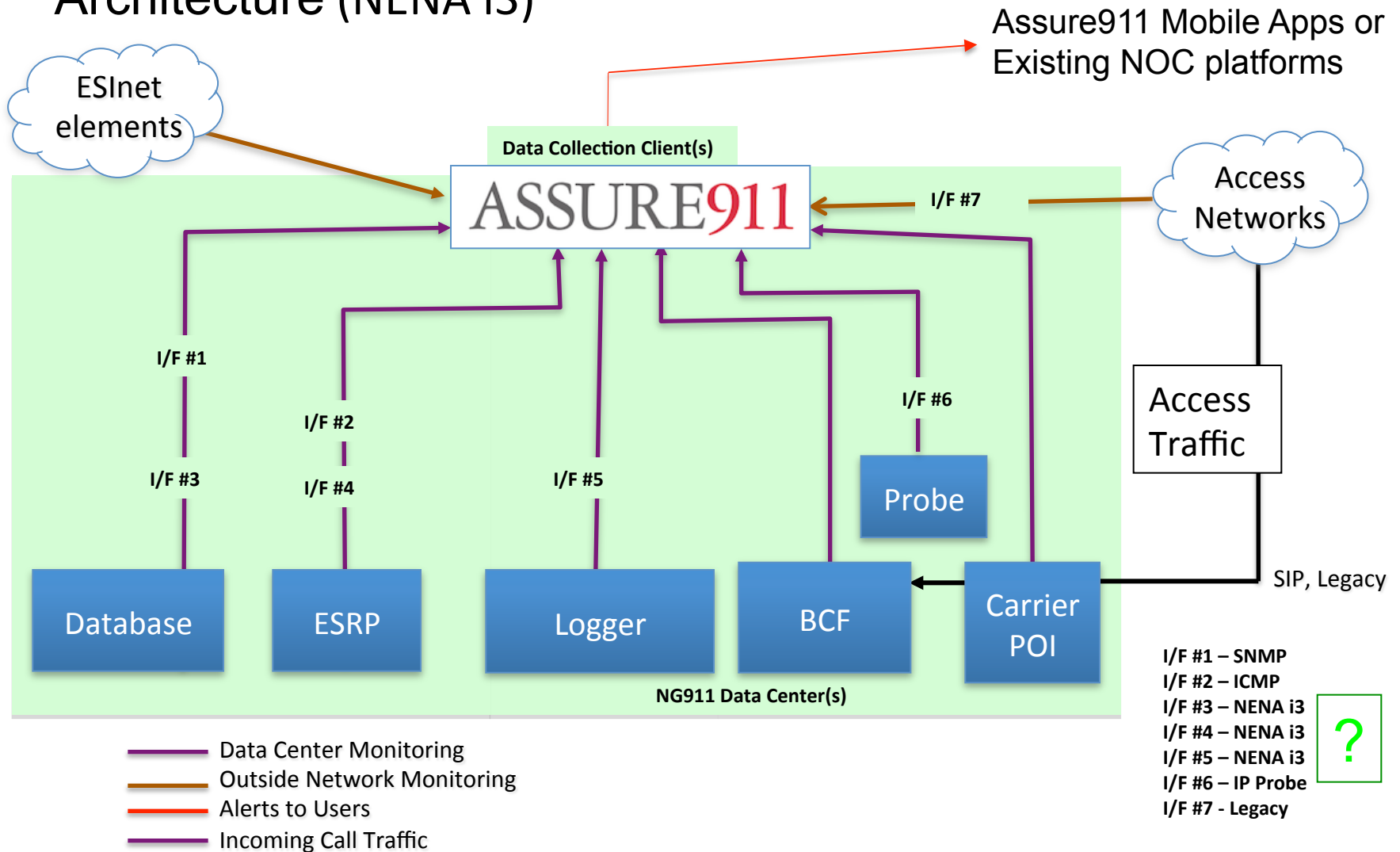
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→ Monitoring Data
→ Public Safety Data

Visibility of the Next Generation 9-1-1 Architecture (NENA i3)

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Integration of Signaling Data - SIP / VoIP Originations

In an IP network,
Probes and
Border Control Functions (Session Border Control and Firewall),
Give visibility into

- All SIP initiated call troubles
- All SIP Control events
- Complete network coverage



Assure911 Alarm Review Retrieving Detail for s_cli=ESRP.			
09/12/2012 07:53:21	SIPCallFailType	Server Time-out	co
09/10/2012 20:03:17	SIPCallFailType	Server Time-out	co
09/10/2012 19:59:40	SIPCallFailType	Server Time-out	co
09/10/2012 19:56:06	SIPCallFailType	Server Time-out	co
09/05/2012 22:55:04	SIPCallFailType	Request Terminated	co

Next Generation 9-1-1 Data

Back to Main Screen		
Time	Call Id	Civic
2015-05-20 02:04:07.986 CST	<input type="button" value="CI2685"/>	No match for JACKSON CO 1000000000 ST Murphysboro 077 IL <input type="button" value="6100100140"/> <input type="button" value="LERG"/>
2015-05-20 02:06:11.023 CST	<input type="button" value="CI268A"/>	No match for PULASKI CO 5000000000 IS AV MOUND CITY 153 IL <input type="button" value="6100100199"/> <input type="button" value="LERG"/>
2015-05-20 14:13:44.625 CST	<input type="button" value="CI27AA"/>	No match for AC00000000E 500000000042 ELDORADO 165 IL <input type="button" value="6100100111"/> <input type="button" value="LERG"/>

- Call Data (NENA i3) used to detect troubles on a per-call basis
- Database results could indicate Default Routing
- Dynamic Thresholding finds abnormal call processing patterns

FCC is supportive of a reliable
Next Generation 9-1-1 roll-out,
including monitoring ...

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“Finally, we believe the network monitoring component of the existing rule should cover not just the physical diversity of monitoring facilities, but also the proper prioritization of critical network alarms.”¹⁰⁸

¹⁰⁸ For example, 911 service providers should have processes in place to send critical alarms to appropriate personnel whenever a substantial proportion of 911 calls are not being processed ... comparing the number of calls originated to the number of ALI queries “

From:

Document FCC-14-186A1

POLICY STATEMENT AND NOTICE OF PROPOSED RULEMAKING

Adopted: November 21, 2014

Released: November 21, 2014

IV. NOTICE OF PROPOSED RULEMAKING,

A. Revisions to Rule 12.4,

Paragraph 45, Page 20

Compare ALI Queries to other traffic

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Select Event_Type(15)	
ALiquery	38
ALiresponse	1
Answer	49
ECRFquery	6
ECRFresponse	

Monitor Normal amount of ALI Queries

Assure911® Dashboard	ETH Login	Apple	iCloud	Facebook	Twitter
Webmail...	Saline_Co...	WebMail -...	CIPS SS7...	dem	

The threshold for the
Period of Interest TwoPM has been crossed.

Less than 5 messages of type ALIquery have been
received for clli:JXXXXLECRF1 so far within TwoPM.

4 ALIquery's matching clli:JXXXXLECRF1,ALIquery
The POI period Threshold is:11

Definition –



Situational Awareness Related to a 9-1-1 outage

“All entities in the chain of end-to-end 911 service must give serious consideration to ensuring that information about alarms associated with critical physical and logical functionalities is shared among such entities along the 911 call chain”



From:

April 2014 Multistate 911 Outage: Cause and Impact

Report and Recommendations, Dated October 10/2014

Public Safety Docket No. 14-72 PSHSB Case File Nos. 14-CCR-0001-0007

Section 4.4 Communications Among 911 Ecosystem Participants

Definition –



Situational Awareness requires the END-to-END VIEW

“Our goal of proactive, measured accountability for reliable 911 call completion extends from the provision of service to the 911 caller at one end to the provision of service to the PSAP on the other.”

From:

Document FCC-14-186A1

POLICY STATEMENT AND NOTICE OF PROPOSED RULEMAKING

Adopted: November 21, 2014

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II. BACKGROUND, A. Entities Providing 911 Connectivity, Paragraph 7, Page 4

Value –

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9-1-1 Service Situational Awareness reduces risk

To LIVES

To Business

9-1-1 outages put lives at risk

ated aren't the pernicious ones, but the ones that willingly flout FCC rules. a wireless carrier received a fine was T-Mobile, in 2007; both examples since early 2011 were incurred by wireline services, in what the commission apparently considered flagrant infractions.

"IT TOOK NEARLY ONE MINUTE FOR THE OPERATOR TO REALIZE SHE COULD NOT FIND MY D I HAD THE WRONG 911."

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Dispatch to fatal fire delayed nearly 4 minutes

911 center director not able to account for 2 minutes of delay

Author: Adam Schrager, aschrager@wiscvtv.com

Published On: Jun 09 2014 07:29:20 PM CDT | Updated On: Jun 10 2014 11:56:41 AM CDT



Crews' dispatch to fire where man died delayed nearly 4 minutes

7 Day Forecast Radar | More

Comprehensive that inquiries are opened. Two months before
stage hit eight states. It was centered in Washington.
connect during the six-hour outage. Problems like that

VIDEO New York City New Jersey

PAID FOR

CONFUSION
DEATH?

LOCAL

- Police
- arrest
- Wom
- Crash
- Madi
- site r
- UPS c
- Police
- schoc
- Fire d

All Rights

Value

9-1-1 outages can be costly to service providers

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FCC zaps CenturyLink with \$16 million fine over 2014 911 outage

Sections NationalJournal

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Helping Brewers Grow

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Verizon Hit with \$3.4 Million Fine for Not Reporting 911 Outage

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Speaker John Boehner announces resignation | Live Video

T-Mobile hit with \$17.5 million FCC fine



Marco della Cava, USA TODAY

11:25 p.m. EDT July 17, 2015

RESOLVES APRIL 2014 OUTAGE INVESTIGATIONS: CENTURYLINK FINED \$16 MILLION, INTRADO FINED \$1.4 MILLION
On April 7, 2015

Federal Communications Commission's (FCC) Enforcement Bureau (Bureau) has entered into consent decrees with CenturyLink, Inc. (CenturyLink) and Intrado Communications Inc.

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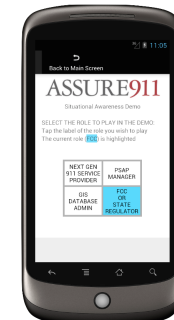
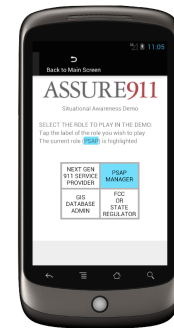
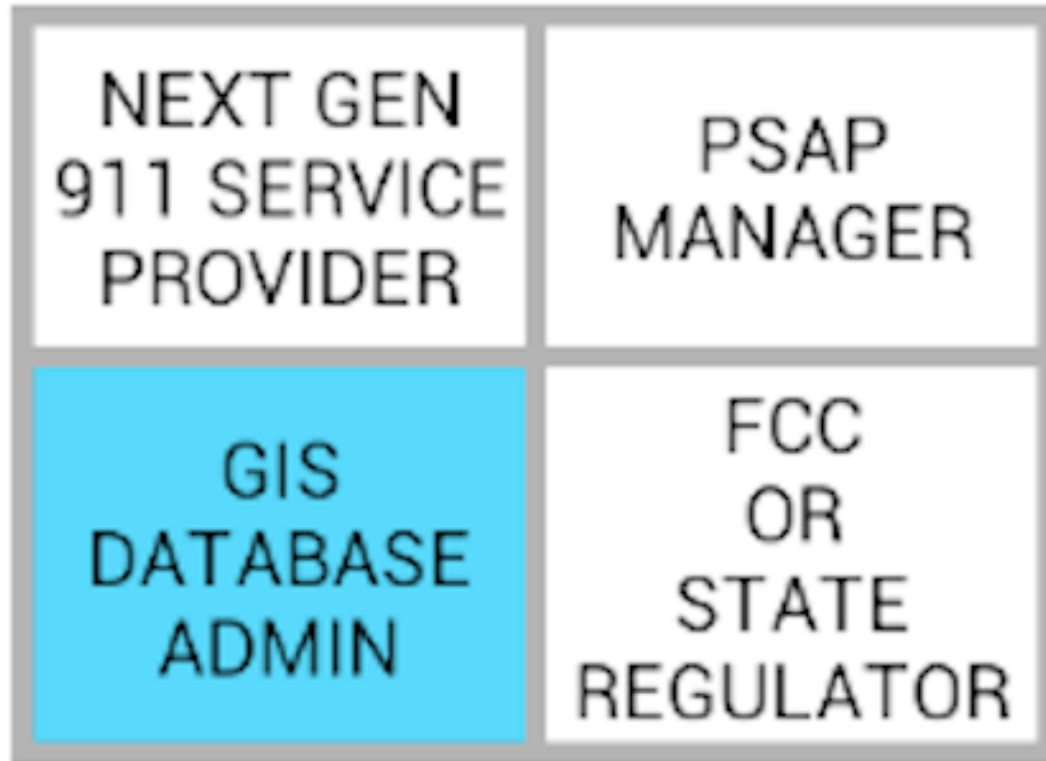
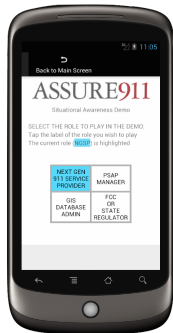
Reporting and Notification for Regulatory Compliance

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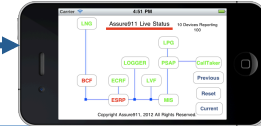
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- Go to Settings
- And select the role you wish



Outage Scenario: ✗ Fiber Cut in Transport Facilities

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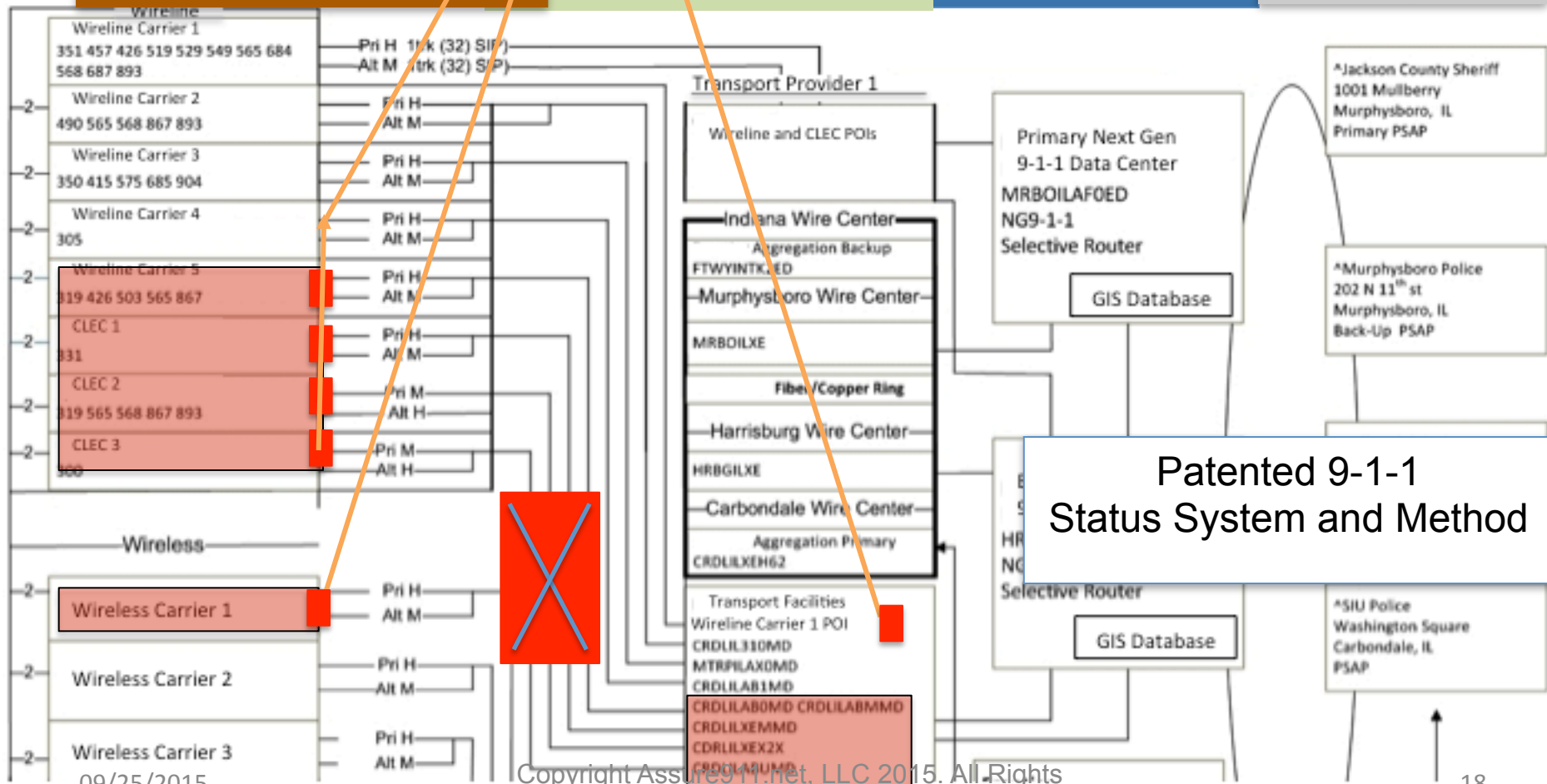
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Carrier and VSP OSS

IP Transport OSS

Element Manager

Element Manager



09/25/2015

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Actionable Alerts sent to users based on Role

Fiber Cut in Transport Facilities



9-1-1 System Service Provider	PSAP Management	FCC
05/14 11:05 No Trouble	05/14 11:05 No Trouble	05/14 11:05 No Trouble
05/14 11:10 Circuit Fail Wireline Carrier	05/14 11:10 Ckt Fail: NXX-319 more	05/14 11:10 No Trouble
05/14 11:15 PSAP Notified	05/14 11:15 Ckt Fail: NXX-319 more	05/14 11:15 No Trouble
05/14 11:20 Circuit Fail CLEC (1x)	05/14 11:20 Ckt Fail: NXX-319 more	05/14 11:20 No Trouble
05/14 11:25 Circuit Fail CLEC (3x) REPORTABLE	05/14 11:25 Ckt Fail: NXX-319 more	05/14 11:25 No Trouble
05/14 11:30 Circuit Fail Wireless Carrier (5x)	05/14 11:30 Ckt Fail: NXX-319 331 more	05/14 11:30 No Trouble
05/14 11:35 FCC Must be Notified in 10 mins	05/14 11:35 Ckt Fail: NXX-319 331 more	05/14 11:35 No Trouble
05/14 11:40 Transport Provider	05/14 11:40 Ckt Fail: NXX-319 331 more	05/14 11:40 Outage in Mytown
05/14 11:45 FCC Notified	05/14 11:45 Ckt Fail: NXX-319 331 more	05/14 11:45 Outage in Mytown

Path Forward

Let's work together to improve
End-to-End
9-1-1 Reliability

Visit assure911.com for more information