



Text-to-9-1-1...Know Your Options

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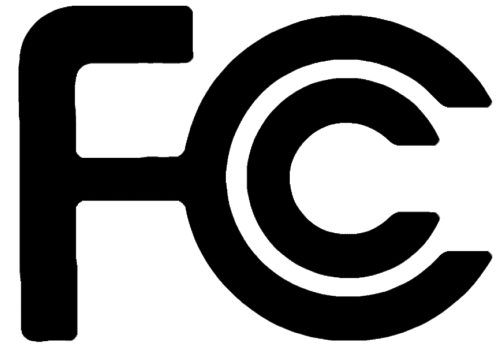
The Evolution of Text to 9-1-1

- Current Regulatory Status
- Deployment Experiences
- Text to 9-1-1 Responsibilities
- Interoperability
- How SMS to 9-1-1 works
- Future services
- PSAP Deployment Options
- Deployment Process



Regulatory Status

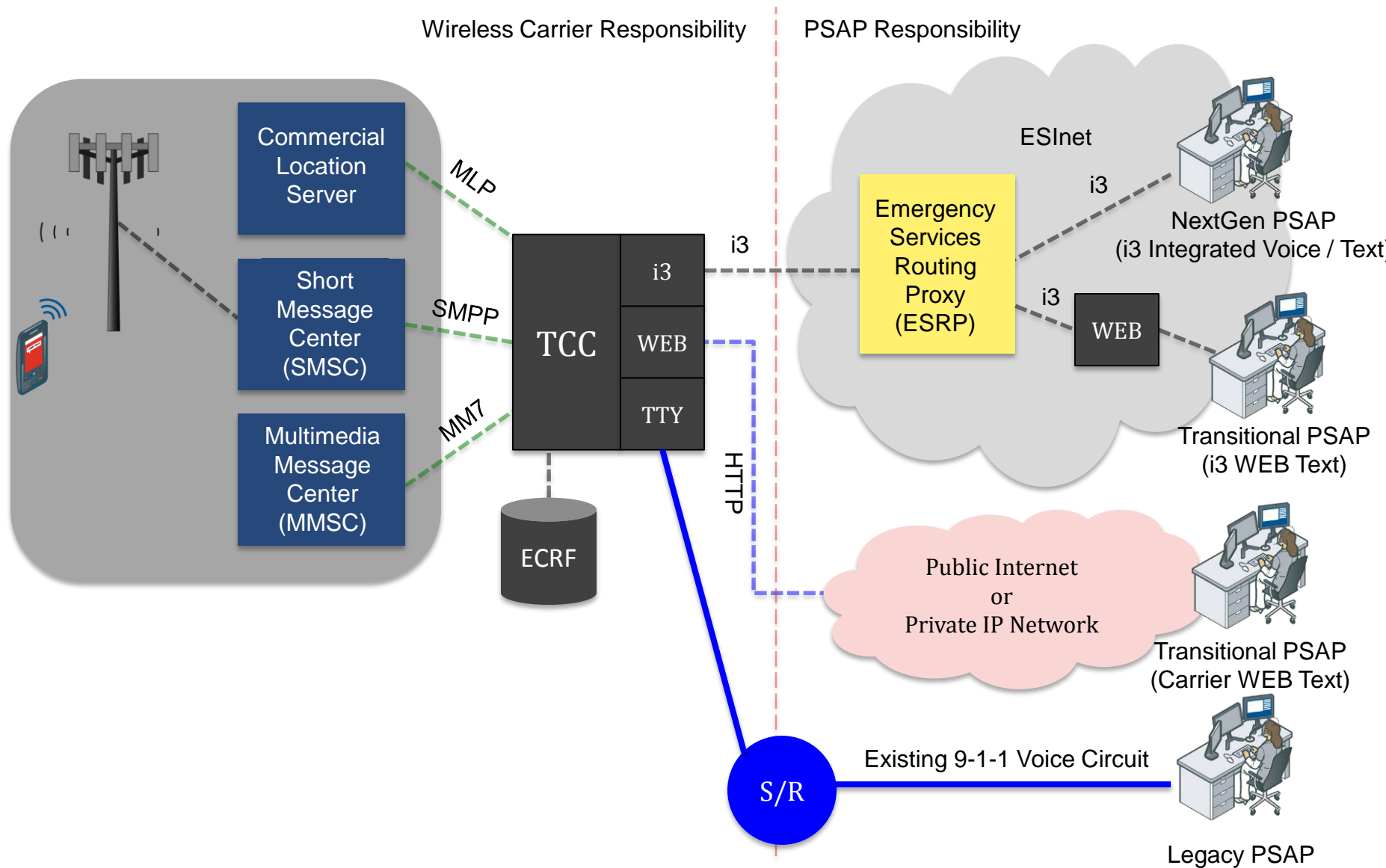
- AT&T, Sprint, T-Mobile and Verizon agreed to make Text-to-9-1-1 available by May 15, 2014
- AT&T, Sprint, T-Mobile and Verizon agreed to implement an automated bounce back message by June 30, 2013
- FCC Report and Order 13-64. Covered Text Providers will provide an automated bounce back message by September 30, 2013



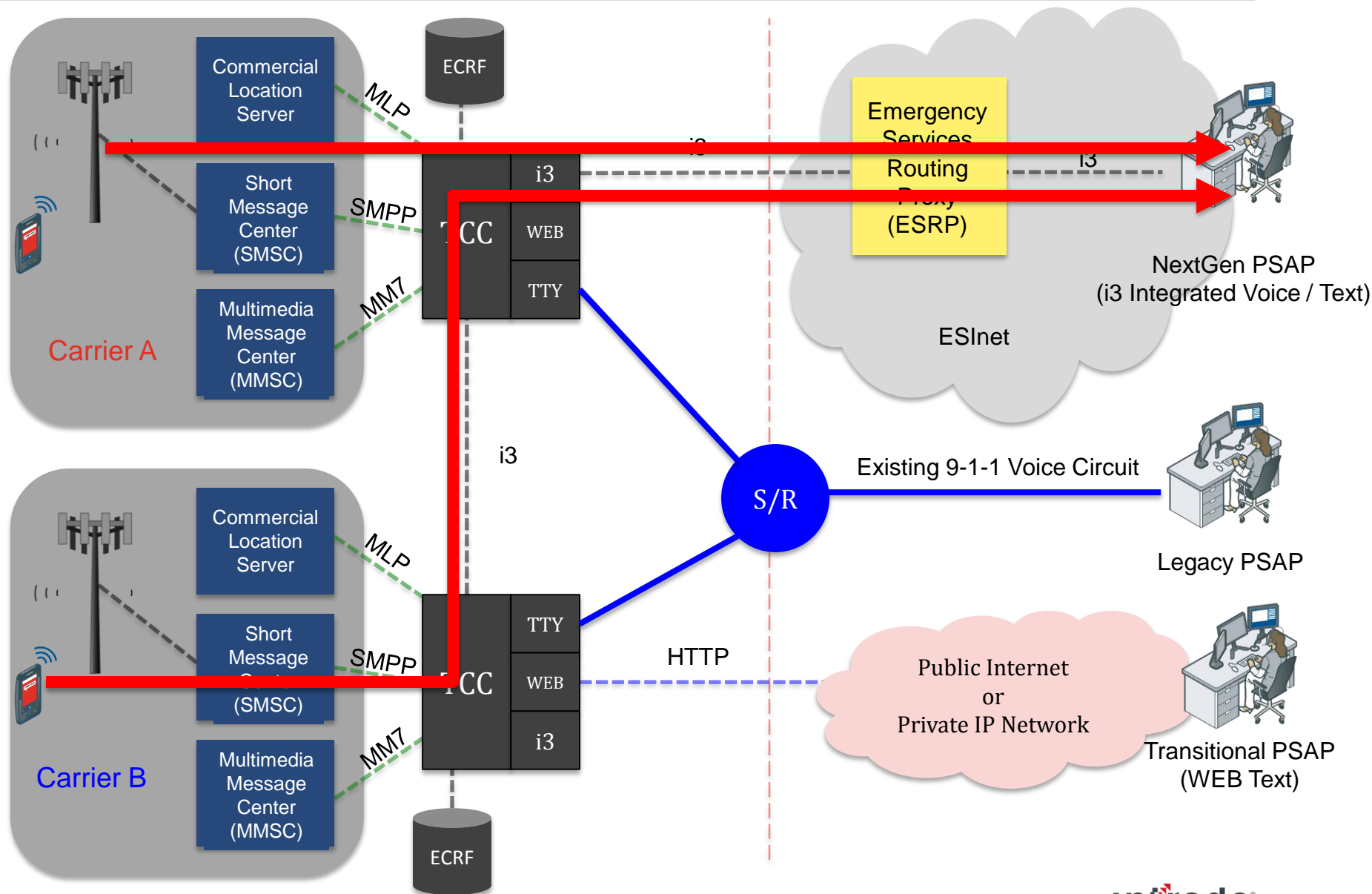
Deployment Experiences

- Integrated Text/Voice deployed in three markets
 - Blackhawk County, Iowa – Iowa Wireless
 - Durham, N.C. – Verizon Wireless
 - State of Vermont – Verizon Wireless, AT&T, Sprint (trial over)
 - Many in process
- Traffic has not overwhelmed the PSAPs or Carriers
- Fraudulent traffic has not been a problem
- Delayed or out of sequence messages have not been a problem
- Current use cases show situational value of text
 - When a voice call would be dangerous
 - For young people where text is the preferred mode of communications
 - When anonymity of text makes a caller choose it over voice

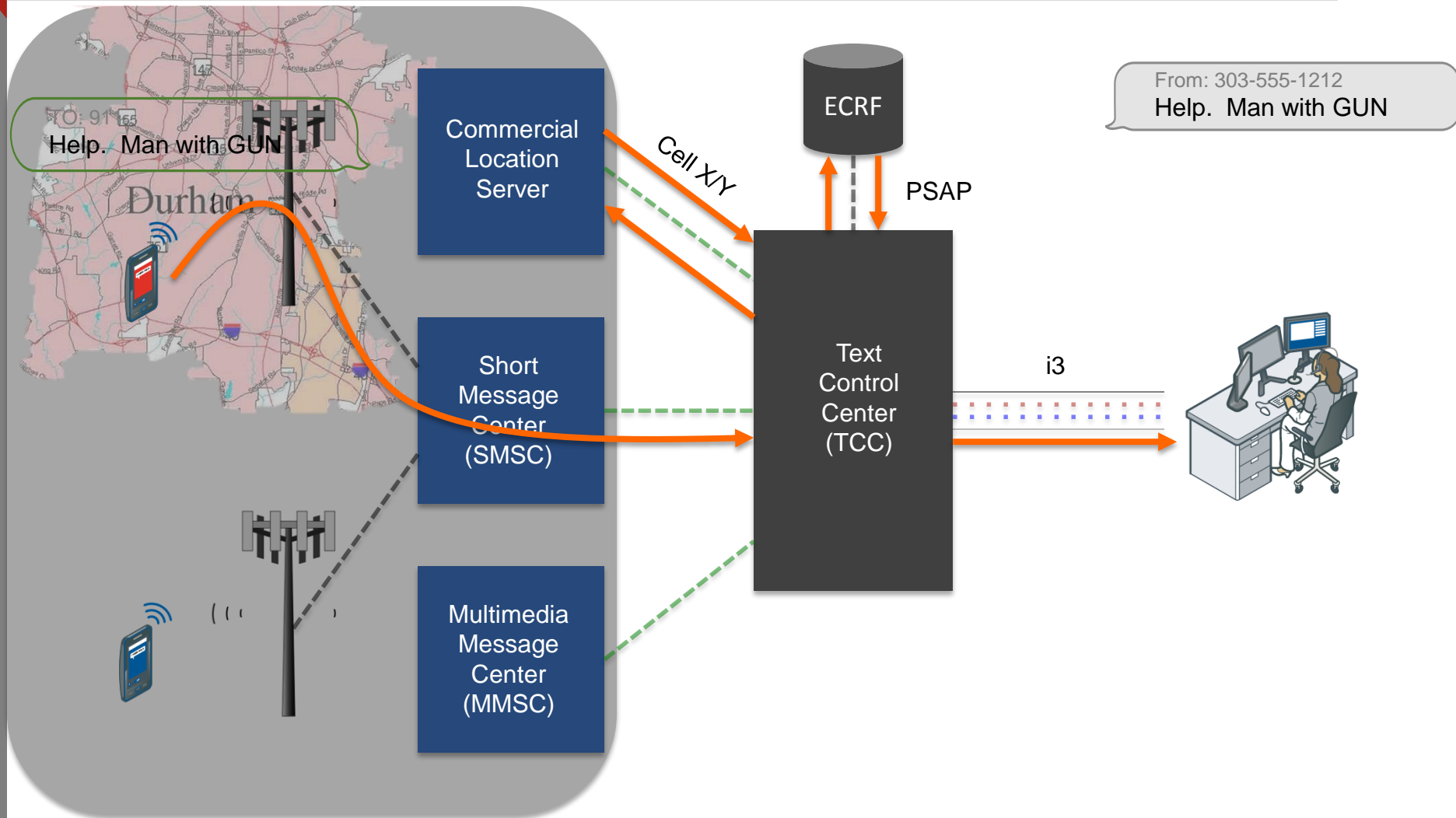
Text-to- 9-1-1 Responsibilities



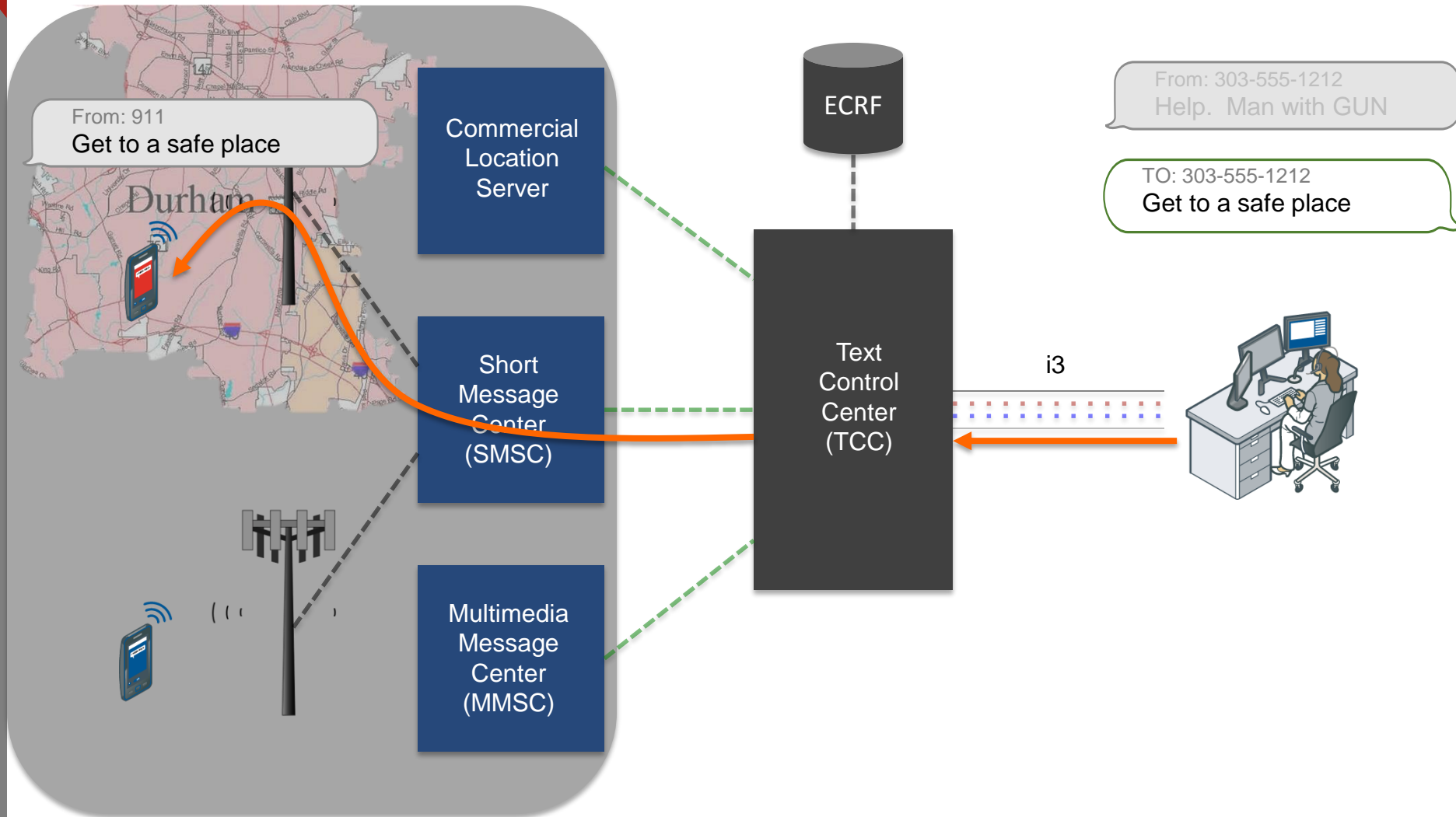
Text-to- 9-1-1 Aggregation



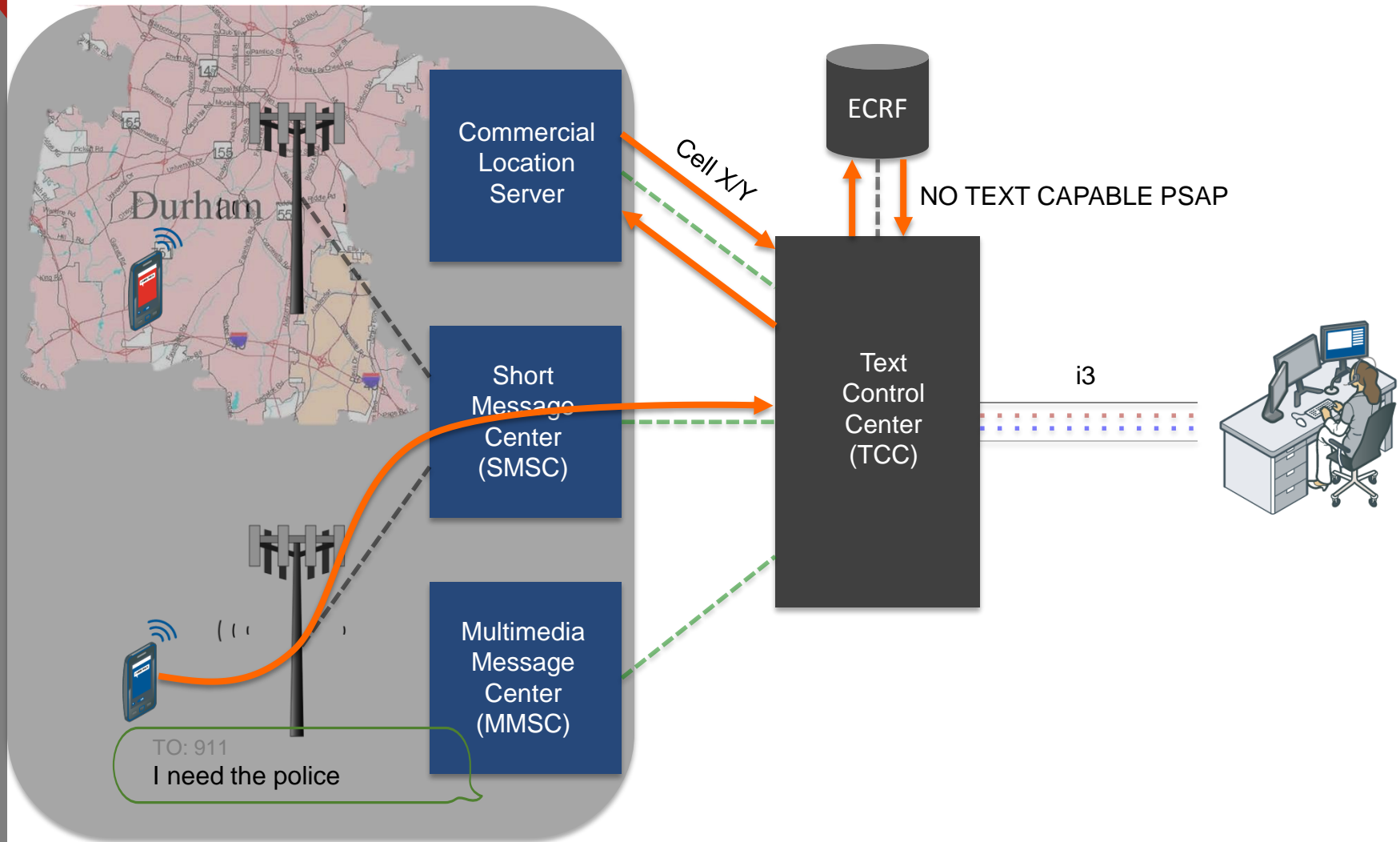
How SMS to 9-1-1 Works – Text Enabled Coverage Area



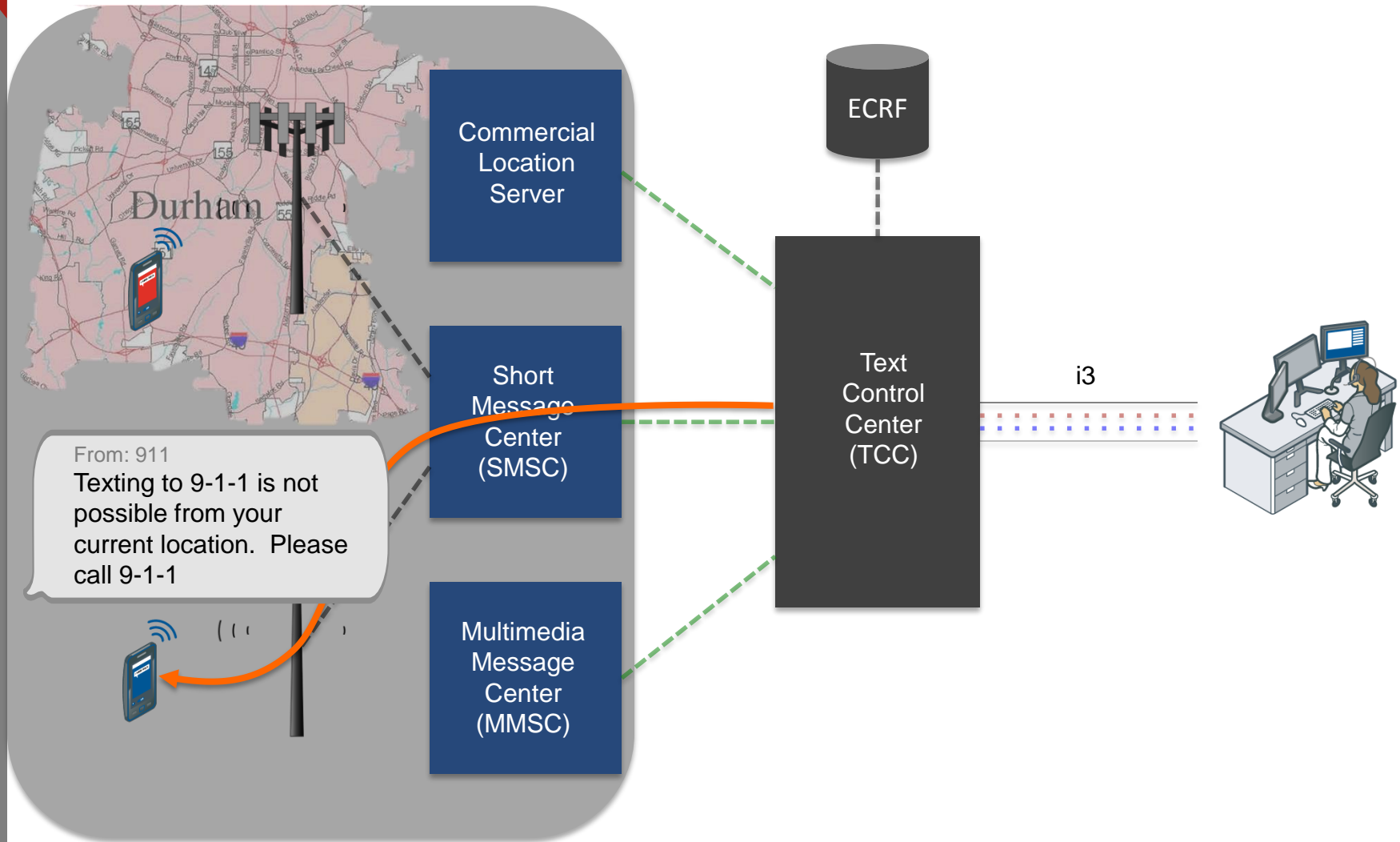
How SMS to 9-1-1 Works – Text Enabled Coverage Area



How SMS to 9-1-1 Works – No Text Capable PSAP (Bounce Back Message)



How SMS to 9-1-1 works – No Text capable PSAP (Bounce Back Message)

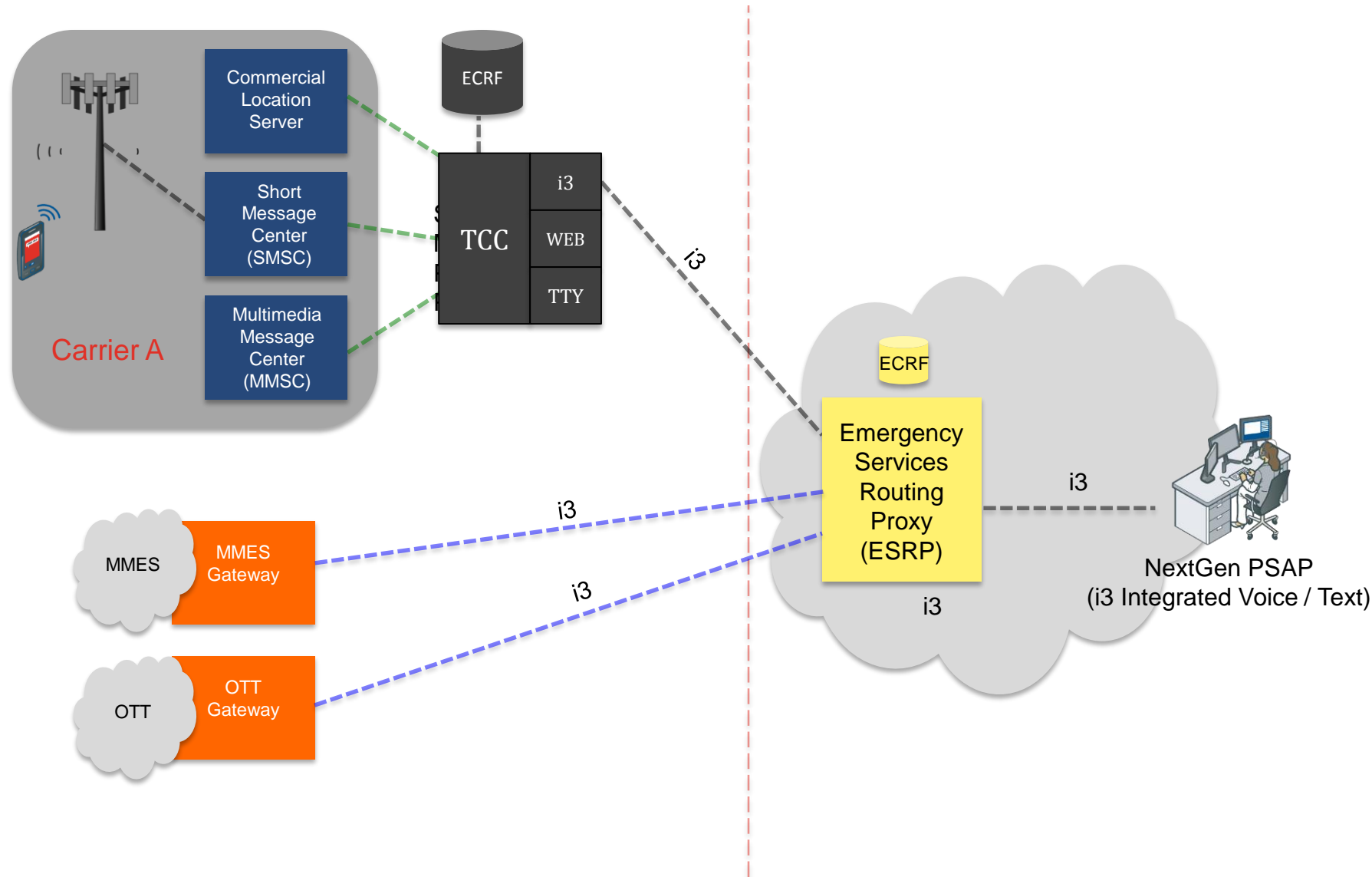




Roadmap to the Future

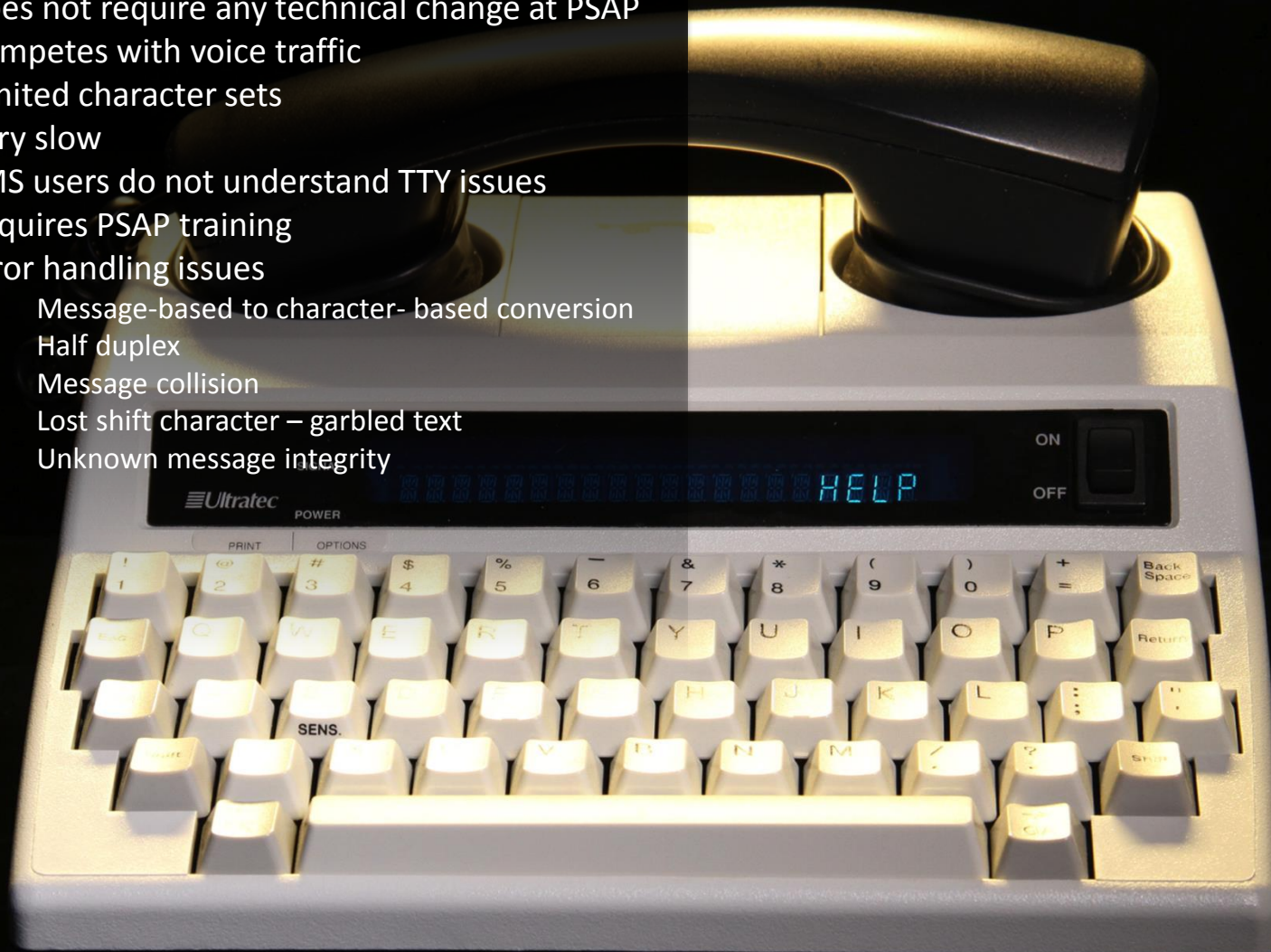
- SMS will be around for many years (>5 years)
- SMS creates a foundation for future non voice services
- MMES (Multimedia Messaging Emergency Services) in standards development for future non voice communications with 9-1-1 (3+ years away for first device)
- OTT (Over The Top) Applications communications with 9-1-1. (iMessage. Pinger, Blackberry Messenger, etc.) (1+ years)

Non Voice Services beyond SMS



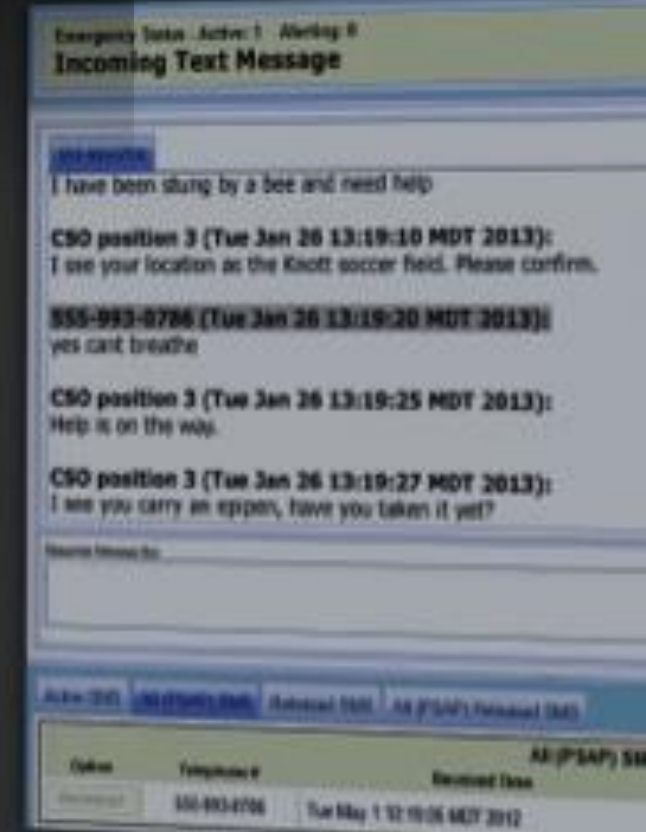
SMS Delivery Over TTY

- Developed in early 1960's
- Does not require any technical change at PSAP
- Competes with voice traffic
- Limited character sets
- Very slow
- SMS users do not understand TTY issues
- Requires PSAP training
- Error handling issues
 - Message-based to character-based conversion
 - Half duplex
 - Message collision
 - Lost shift character – garbled text
 - Unknown message integrity



Web Browser

- Transitional Approach
- Allows rapid implementation
- Low initial cost
- Public Internet connectivity Possible
- Separate systems for Voice and Text
- Separate reports for voice and text
- New screen for Text calls
- New training
- Adds Possible Cyber Security Exposure



Integrated (CPE and/or CAD)

- Ultimate NextGen 9-1-1 i3 Solution
- User interface similar to TTY
- Simple PSAP training / low transition effort
- Integrated work flow with voice calls
- Integrated reports and record management
- CAD integration being developed by major CAD vendors
- Dedicated, Secure NextGen Network
- Does not impact voice trunk capacity



Compose   

Active Calls History Calls Released Calls Agents Status Call Query Abandoned Calls

TRUNK/LINE	STATE	TYPE	AGENT	TELEPHONE	ILI

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

History

POSITION 9

4/29/2013 8:29:39 AM

Alarms

ABOUT

Compose   

Active Calls History Calls Released Calls Agents Status Call Query Abandoned Calls

TRUNK/LINE	STATE	TYPE	AGENT	TELEPHONE	ILI

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

POSITION 9 4/29/2013 8:31:10 AM Alarms ABOUT

ILI | **CPI** | ALI | ALI~~X~~ | RTX | TTY

TEL # NAME
ADDRESS CLASS
P-ANI
EXACT MAIN #
X Y ESN
PROVIDER CONF UNCERT
AGENCIES

Val ☒ ☒

Redial 308-990-1437

9-1-1	CALL WAIT	241-1711	STOP	S/U
			PLAY	
				STOP GRT
			MON EXT	
ADMIN	EXT	TEXT 1 - 0:04		

Release | CONF | ~~X~~ | Transf | HOLD

SMS / Text Conversation

I need the police. A man just broke into my house. I am in a closet

Carrier: Hawaii Cellular
Cell Address: 123 Main Street, Kauai
Cell X/Y: 22.08N 159.5W
Cell Uncertainty: 1609
PSAP: Kauai Police

Send

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

ILI | **CPI** | ALI | ALIX | RTX | TTY

TEL # NAME
ADDRESS CLASS
P-ANI
EXACT MAIN #
X Y ESN
PROVIDER CONF UNCERT
AGENCIES

Val | Checkmark | X | Printer | Arrow

Redial | 308-990-1437 |

9-1-1	CALL WAIT	241-1711	STOP	S/U
			PLAY	
			STOP GRT	
			MON EXT	
ADMIN	EXT	TEXT 1 - 0:08		

Release | CONF | X | Transf | HOLD

SMS / Text Conversation

I need the police. A man just broke into my house. I am in a closet

Carrier: Hawaii Cellular
Cell Address: 123 Main Street, Kauai
Cell X/Y: 22.08N 159.5W
Cell Uncertainty: 1609
PSAP: Kauai Police

This is 9-1-1 What is your exact location

Send

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

ILI | **CPI** | ALI | ALIX | RTX | TTY

TEL # NAME
ADDRESS CLASS
P-ANI
EXACT MAIN #
X Y ESN
PROVIDER CONF UNCERT
AGENCIES

☒ ☒

Redial

9-1-1	CALL WAIT	241-1711	STOP	S/U
			PLAY	
			STOP GRT	
			MON EXT	
ADMIN	EXT	TEXT 1 - 0:22		

Release | CONF | ☒ | Transf | **HOLD**

SMS / Text Conversation

I need the police. A man just broke into my house. I am in a closet

Carrier: Hawaii Cellular
Cell Address: 123 Main Street, Kauai
Cell X/Y: 22.08N 159.5W
Cell Uncertainty: 1609
PSAP: Kauai Police

This is 9-1-1 What is your exact location

332 Emi road, Koloa

I am hiding in the master closet. Please hurry

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

ILI | **CPI** | ALI | ALIX | RTX | TTY

TEL # NAME
ADDRESS CLASS
P-ANI
EXACT MAIN #
X Y ESN
PROVIDER CONF UNCERT
AGENCIES

Val

Redial 308-990-1437

9-1-1	CALL WAIT	241-1711	STOP	S/U
			PLAY	
			STOP GRT	
			MON EXT	
ADMIN	EXT	TEXT 1 - 0:26		

Release | CONF | | Transf | HOLD

SMS / Text Conversation

I need the police. A man just broke into my house. I am in a closet

Carrier: Hawaii Cellular
Cell Address: 123 Main Street, Kauai
Cell X/Y: 22.08N 159.5W
Cell Uncertainty: 1609
PSAP: Kauai Police

This is 9-1-1 What is your exact location

332 Emi road, Koloa

I am hiding in the master closet. Please hurry

The Police are on the way. Stay hidden

Send

PSAPS	HAWAII CNTY	UTILITES	TOW	TAXI'S
GOVERNMENT	CONSOLES	KAUAI POLICE	POLICE DEPTS	FIRE STNS

Questions to Ask

- Will the solution provide aggregation from ALL wireless carriers or will I need a different solution for each carrier?
- What is the system availability of the solution?
- What are the network connectivity options for the solution?
- Does the solution support a transition to a full i3 solution as we deploy a local ESInet with all of its components?
- How do I get transcripts of text calls off of the system?
- Can I transfer calls to other solutions?

Deployment Process

1. Decide on deployment timeline
 1. Deploy now as carriers come online and announce to public
 2. Soft launch / slow ramp – deploy now but announce when all carriers are online
 - Over 2 million SMS to 9-1-1 attempts / year occur today.
 3. Wait for all carriers to come online in May 2014.
2. Choose initial technology
 1. Integrated with CPE
 2. i3 Based WEB
 3. TCC based WEB
 4. SMS to TTY
3. Request service from Wireless Carriers

Questions

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