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May 1, 2014

Via Electronic Filing

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte Presentation PS Docket No. 11-153 and PS Docket No. 10-255

Dear Ms. Dortch:

On April 30, 2014, Tim Lorello, Senior Vice President Telecommunication Systems, Inc. ("TCS"), Elliott Hamilton, TCS Senior Director Strategic Planning, Thomas Ginter TCS Vice President, NG9-1-1, and Roger Marshall TCS Technical Staff met in person and via telephone with the following representatives of the Federal Communications Commission's Public Safety & Homeland Security Bureau: David Furth, Tim May, Nicole McGinnis, Dana Zelman, David Siehl, Rasoul Safavian, Difie Osborne, and Erika Olsen.

TCS representatives suggested that Text-to-911 roaming issues are primarily created from location roaming challenges and suggested various business and standards-based approaches that could be used to address roaming that would work with existing SMS solutions today or next generation messaging solutions of the future. TCS also recommended that network-centric location solutions be given strong consideration over device-based solutions given their greater level of security and trustworthiness. Finally, TCS assured the FCC that conformance with the JSTD-110 ATIS specification is met for any TCS TCC customer that supports any of the three standardized delivery interfaces into a PSAP, (legacy TTY, interim Web/IP-based, and i3-compliant MSRP), and is therefore deemed compliant with the voluntary carrier-NENA-APCO agreement drafted in December,2012.

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, this letter and a copy of materials presented during this meeting are being electronically filed via ECFS with your office and a copy of this submission is being provided to the meeting attendees. Please direct any questions to the undersigned.

Sincerely,

Stinson Leonard Street LLP

H. Russell Frisby, Jr

HF:SLS

Attachment

cc: David Furth
Tim May
Nicole McGinnis
Dana Zelman
David Siehl
Rasoul Safavian
Difie Osborne
Erika Olsen

Text 9-1-1 Update

4/30/2014

TCS TeleCommunication Systems
Enabling Convergent Technologies®

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Attendees

- Tim Lorello
  - Senior Vice President
- Elliott Hamilton
  - Senior Director, Strategic Planning
- Thomas Ginter (via phone)
  - Vice President, NG9-1-1
- Roger Marshall (via phone)
  - Senior Member of Technical Staff
  - Standards and CSRIC Expert

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Agenda

- Update on Deployments
- TCC-to-TCC Integration Update
- FNPRM Topics
  - Review of Proposed Models
  - Location (Network-centric vs. Device-based)
  - Roaming
  - OTT APIs

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SMS911 Deployment Update

	Carrier A	Carrier B
Intrado SMS Forwarding	**16**	
CA (Pilots)	6	
NC	1	
OH	1	
VT	8	
TCS - Direct IP	**5**	
IN	5	
TCS - TTY	**14**	
CA (Pilots)	2	
ME	2	
NY	1	
PA	4	
TX	4	
VA	1	
TCS - Web Browser/GEM9-1-1	**45**	**30**
CA (Pilots)	2	
CO	1	
GA	1	
IL	2	
MD	1	
MT	1	
NY	5	2
OH	1	
PA	2	2
SC	7	7
TX	19	19
VA	3	
Grand Total	**80**	**30**

- 110 SMS911 Deployments Completed
- 80 PSAPs
- 16 States
- 36 Deployments in Progress
- More Than 100 PSAPs in Queue
- First TCC-to-ESInet Integration in Indiana

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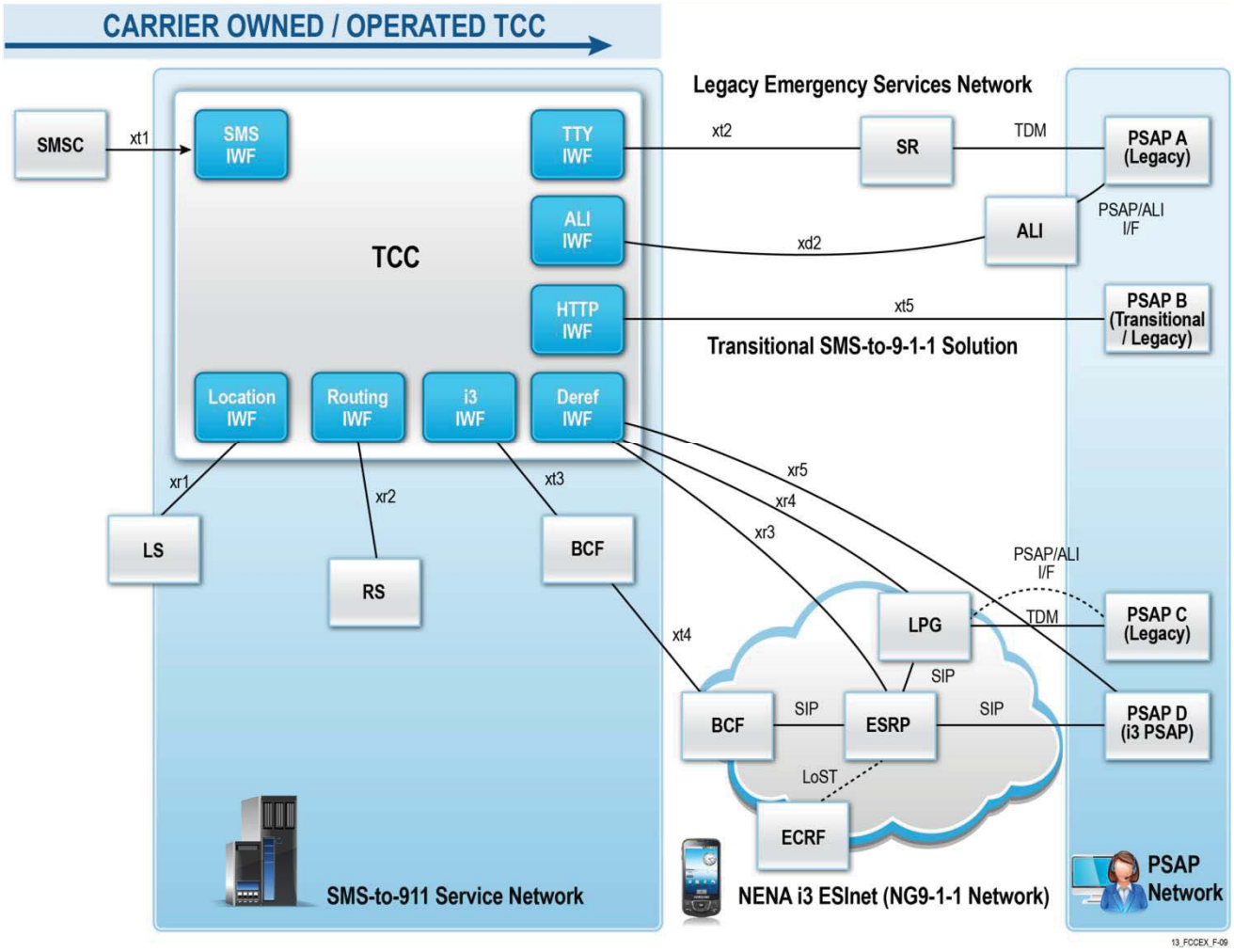
Original J-STD-110 TCC Concept



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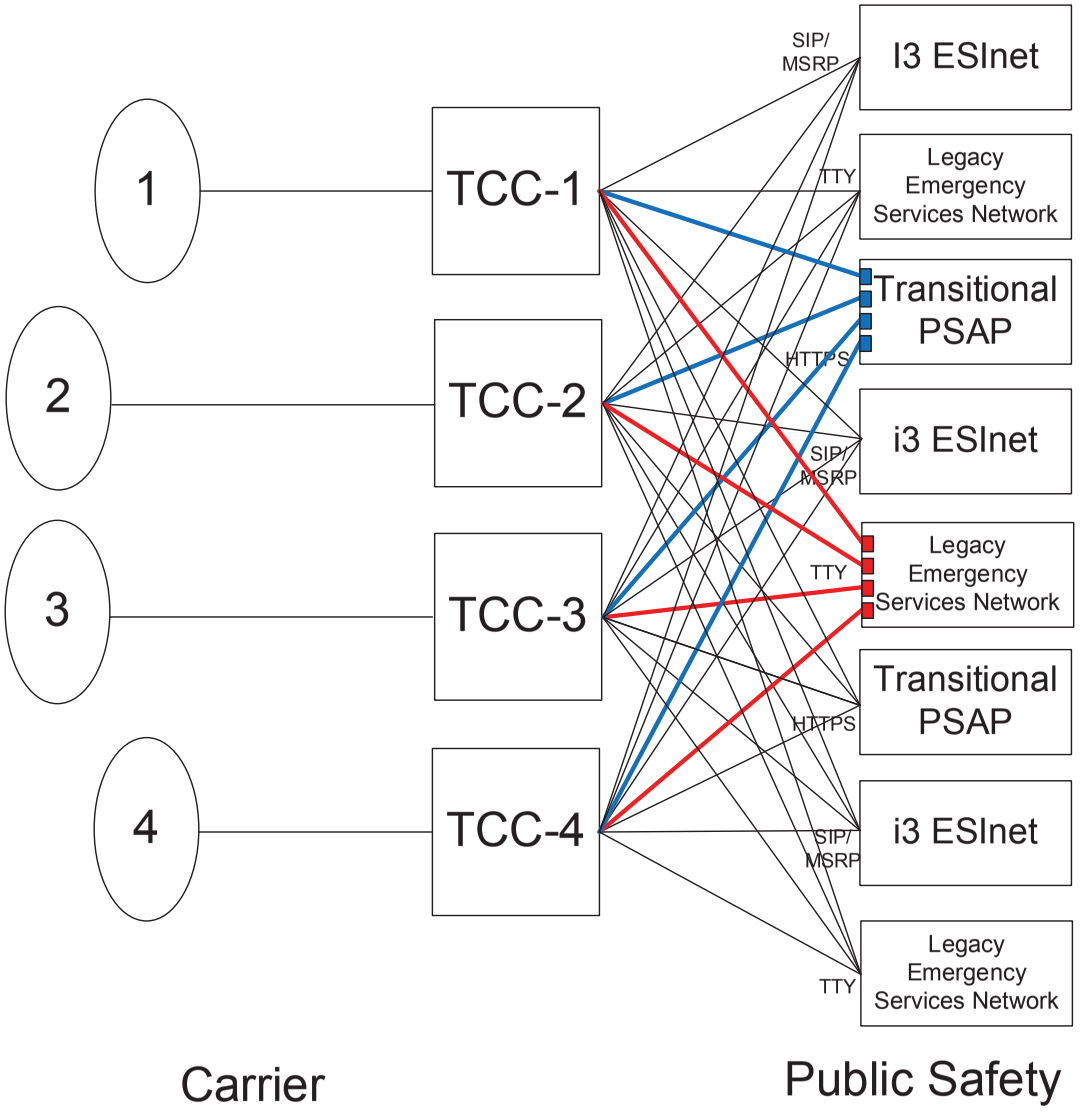
SMS-to-9-1-1: Consolidated TCC Architecture

Many-to-Many Equipment Deployment Problem



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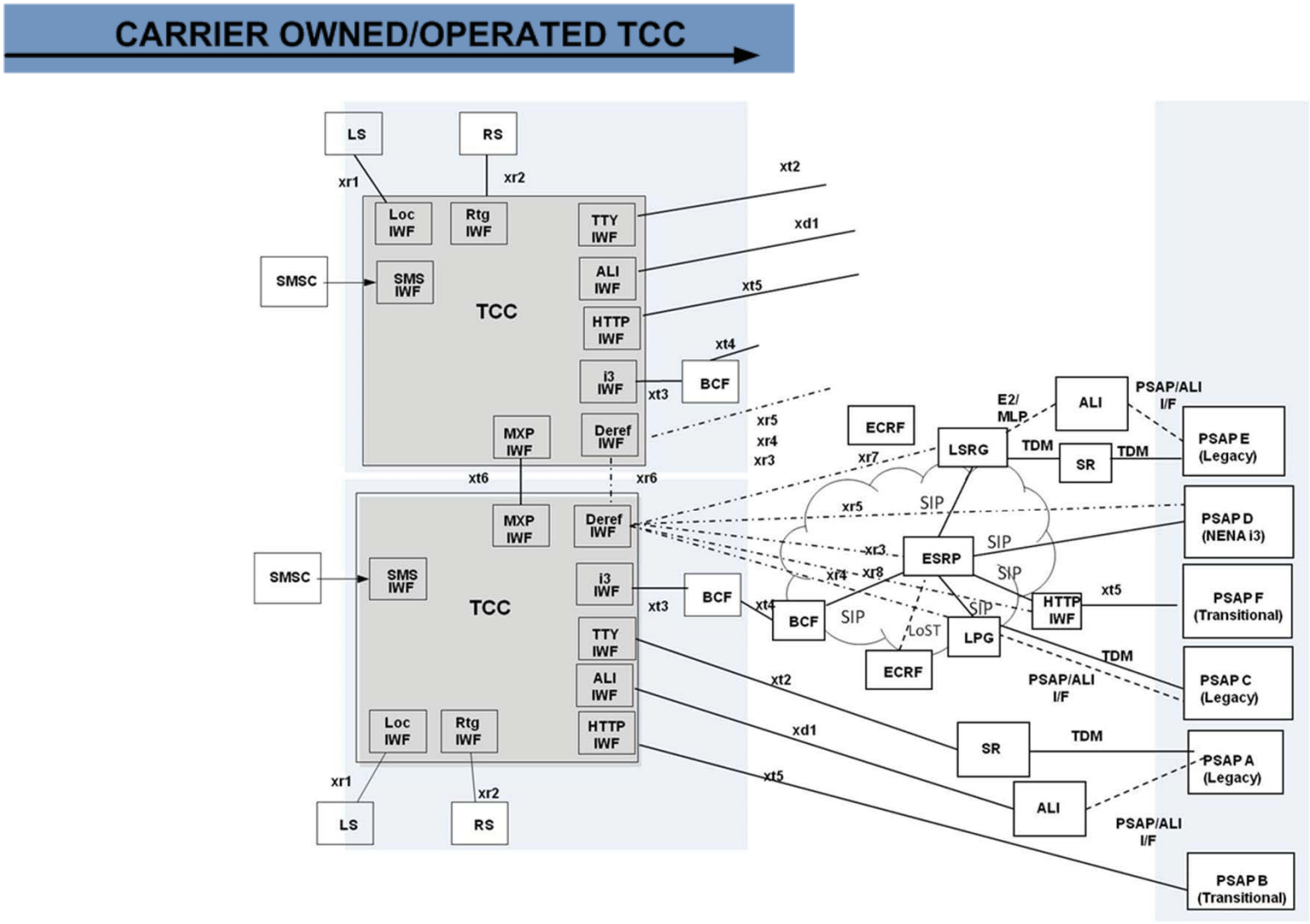
J-STD-110.a TCC-to-TCC Concept



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TCC-to-TCC Interconnect Status

- TCC-to-TCC Testing Completed and Signed Off
  - Any New Changes Now Part of Release Cycle Process
- Business Relationship and Agreement Signed and Closed
- Final VPN Configuration in Progress – Final Step

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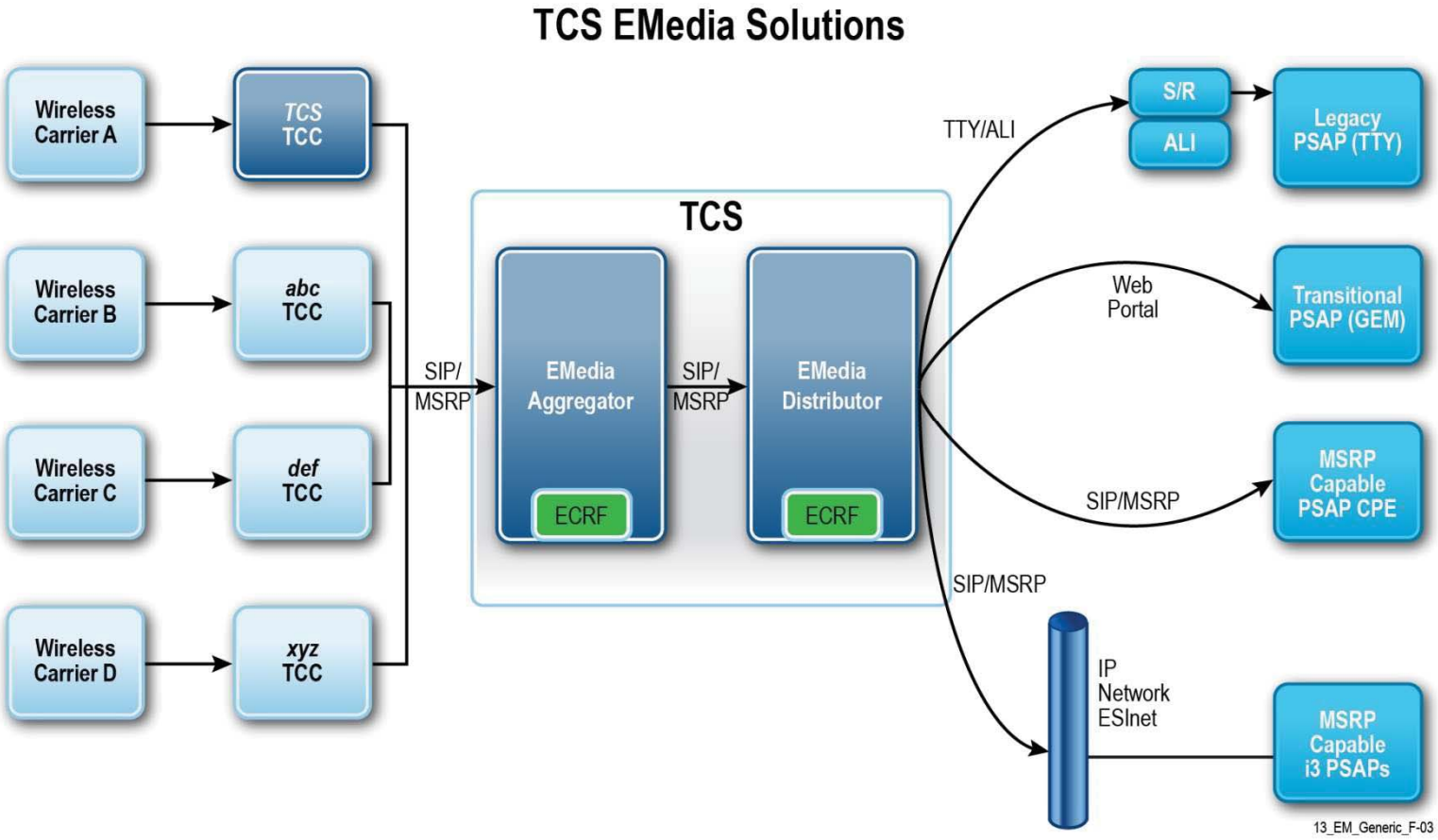
Proven Architecture Solution



Standards based Aggregation is easy – ***Intelligent Distribution*** is the key

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FNPRM TOPICS

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CMRS Network-Based FCC Model

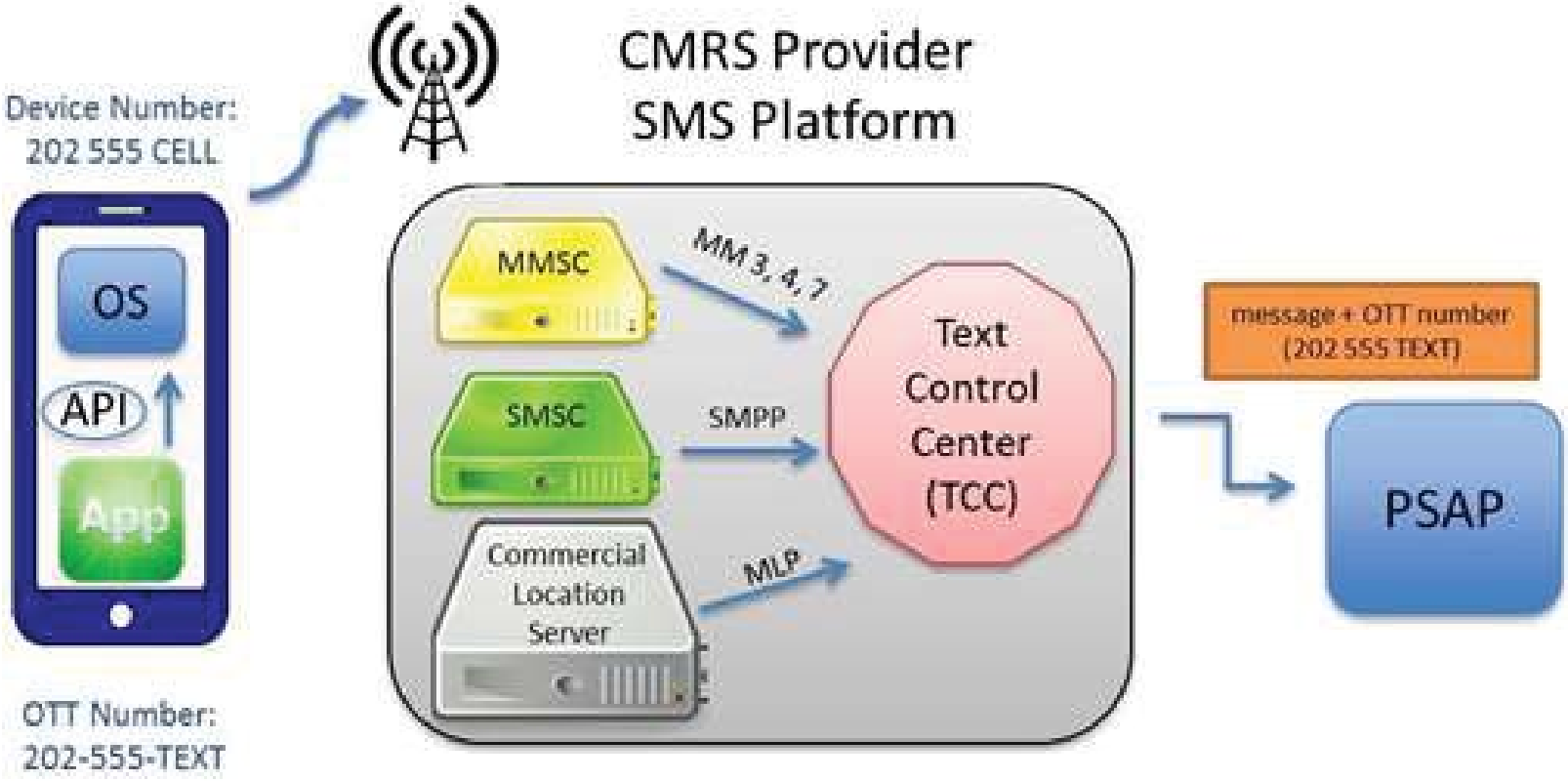

Figure 1 from FNPRM

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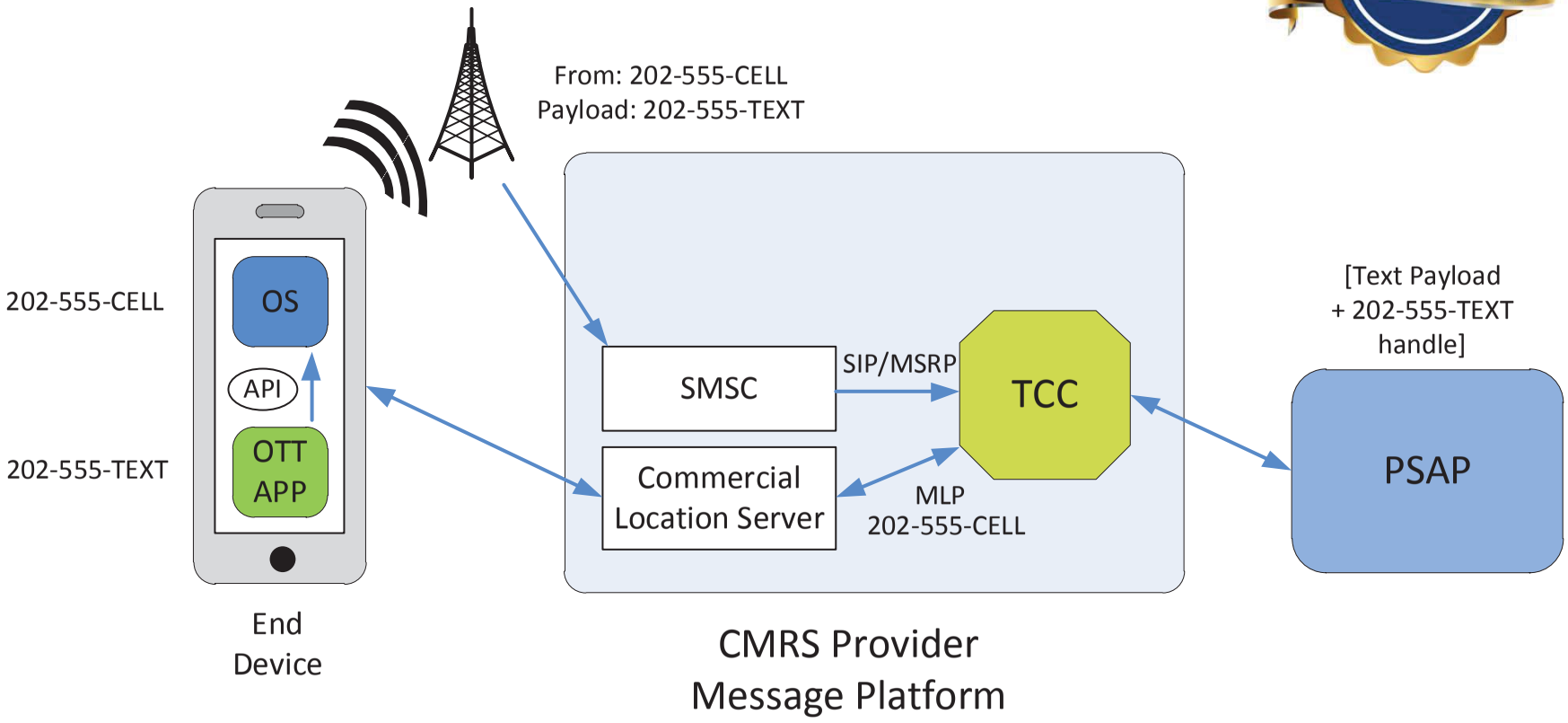
CMRS Network-Based FCC Model

Practical Deployment Model



Modified Figure 1 from FNPRM

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Server-Based Model

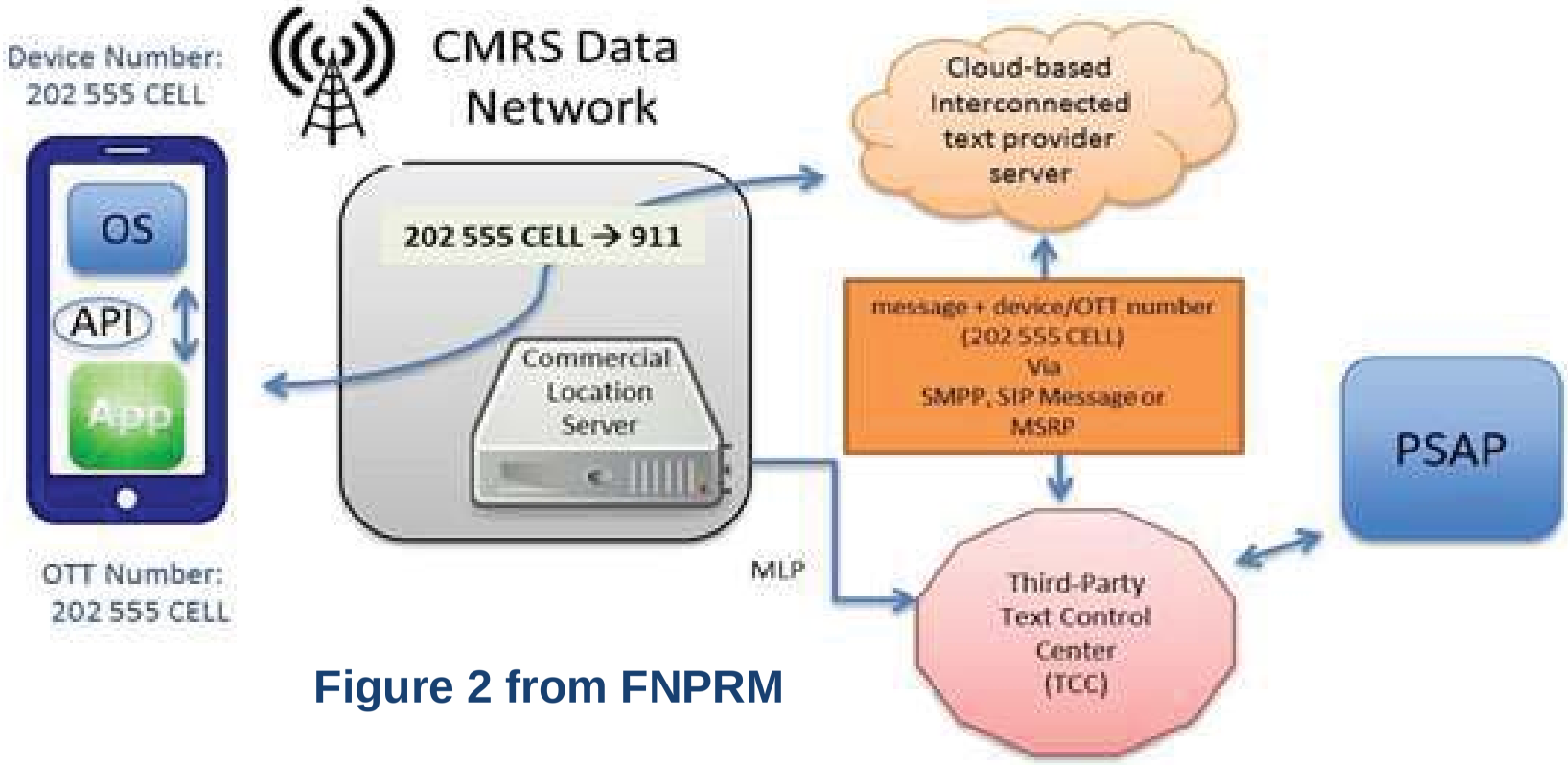

Figure 2 from FNPRM

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Server-Based Model Relying on Device Phone Number

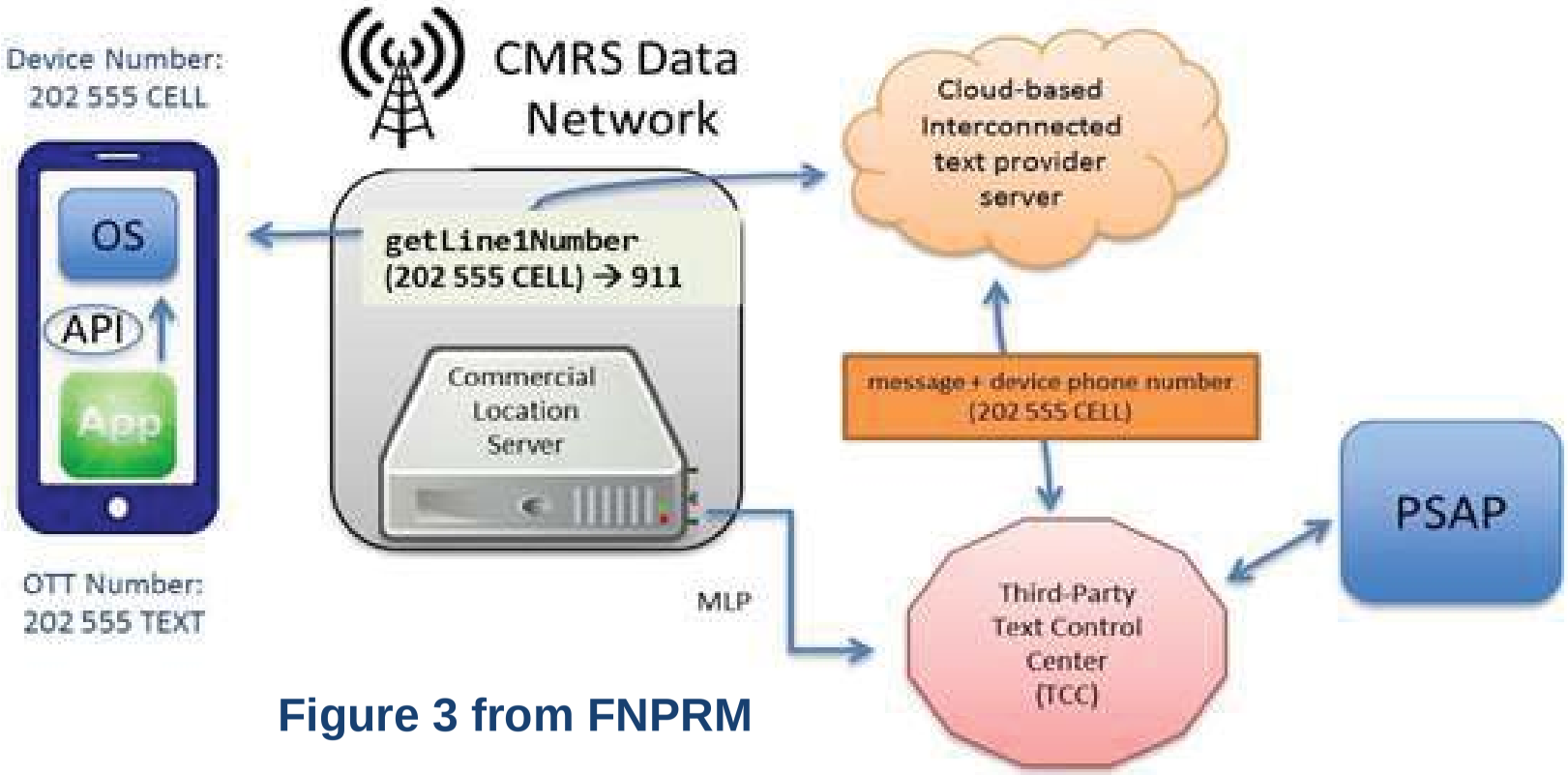

Figure 3 from FNPRM

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Server-Based Model Relying on Location API

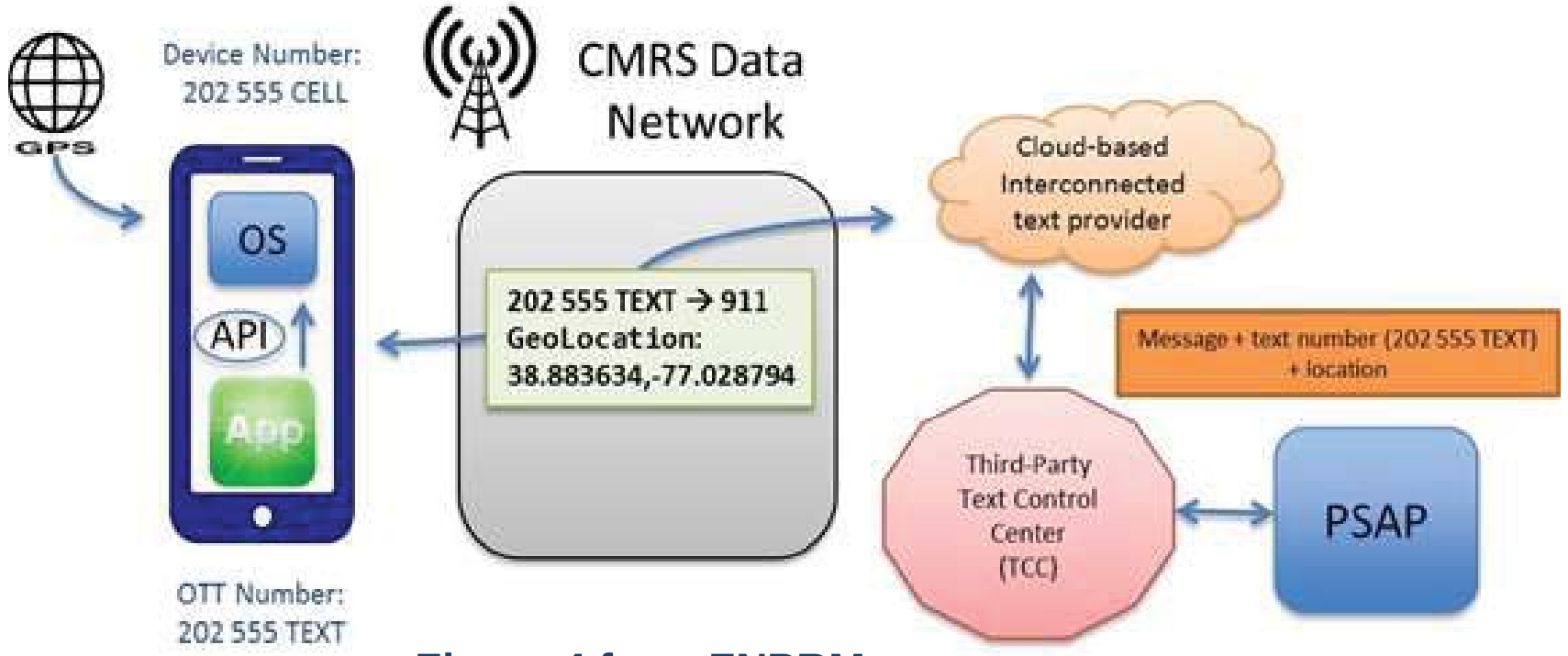

Figure 4 from FNPRM

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OTT Text Location

Device-based – Pros & Cons

- ☑ Dynamic pervasive location possible
- ☑ Matches user experience of common app usage
- ☑ Enhanced location could be used for initial routing
- ☑ Alternate approach to commercial location platform
- ⊘ Exposure to Spoofing of Location Information
- ⊘ Inconsistent Reliability of Location for Routing
- ⊘ Time To First Fix (TTFF) – Routing Delays

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OTT Text Location

Network-centric – Pros & Cons

- ☑ Coarse location not dependent on handset capability
- ☑ Trustworthy location
- ☑ Common location procedures
- ☑ Control Plane or User Plane solutions available
- ☑ Harder to spoof location
- ⊘ Enhanced location updates not guaranteed

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OTT Text Location Roaming Options

3 Approaches to Roaming Support

- Shared Cell tower data in MPC/GMLC (coarse)
  - Carriers share with each other
  - Carriers share with third party
- Shared BSA data between carriers (enhanced)
  - Carriers share with each other
  - Carriers share with third party
- OMA RLP (Roaming Location Protocol) Hub & Spoke

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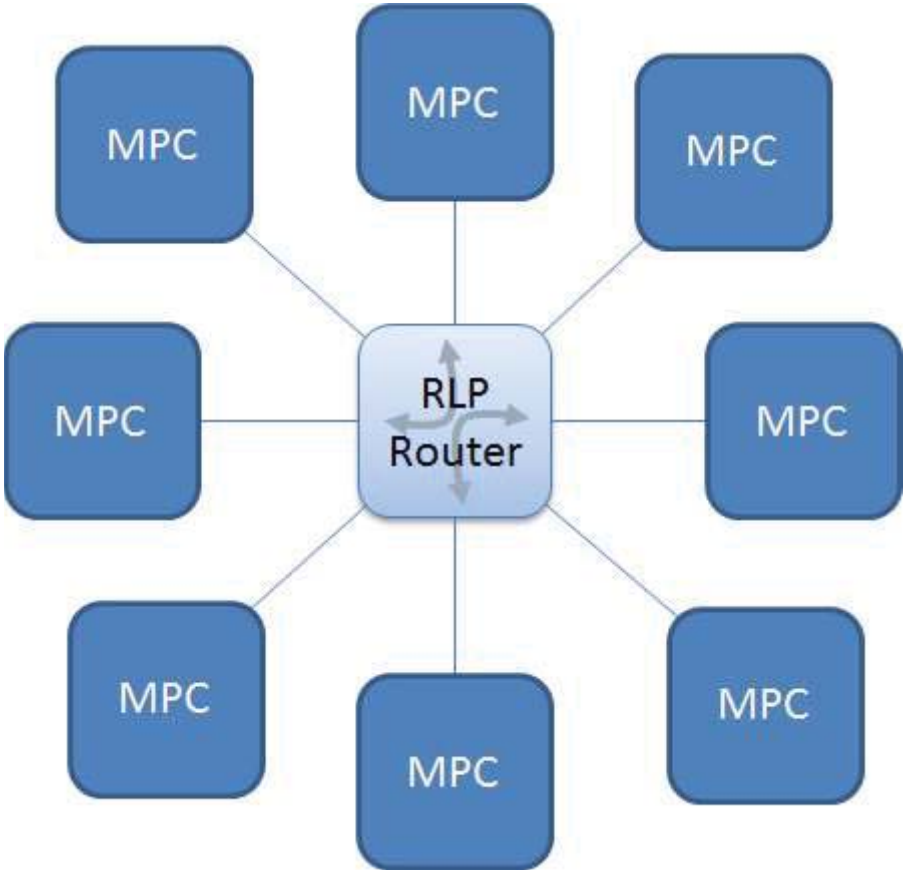
OTT Text Location – Architecture

OTT Text Roaming = Location Roaming

- RLP – Roaming Location Protocol
- OMA into 3GPP for GSM/UMTS
- OMA contribution into ANSI for CDMA
- OMA Standards architecture is a mesh
  - Hub & Spoke MPC/GMLC architecture recommended



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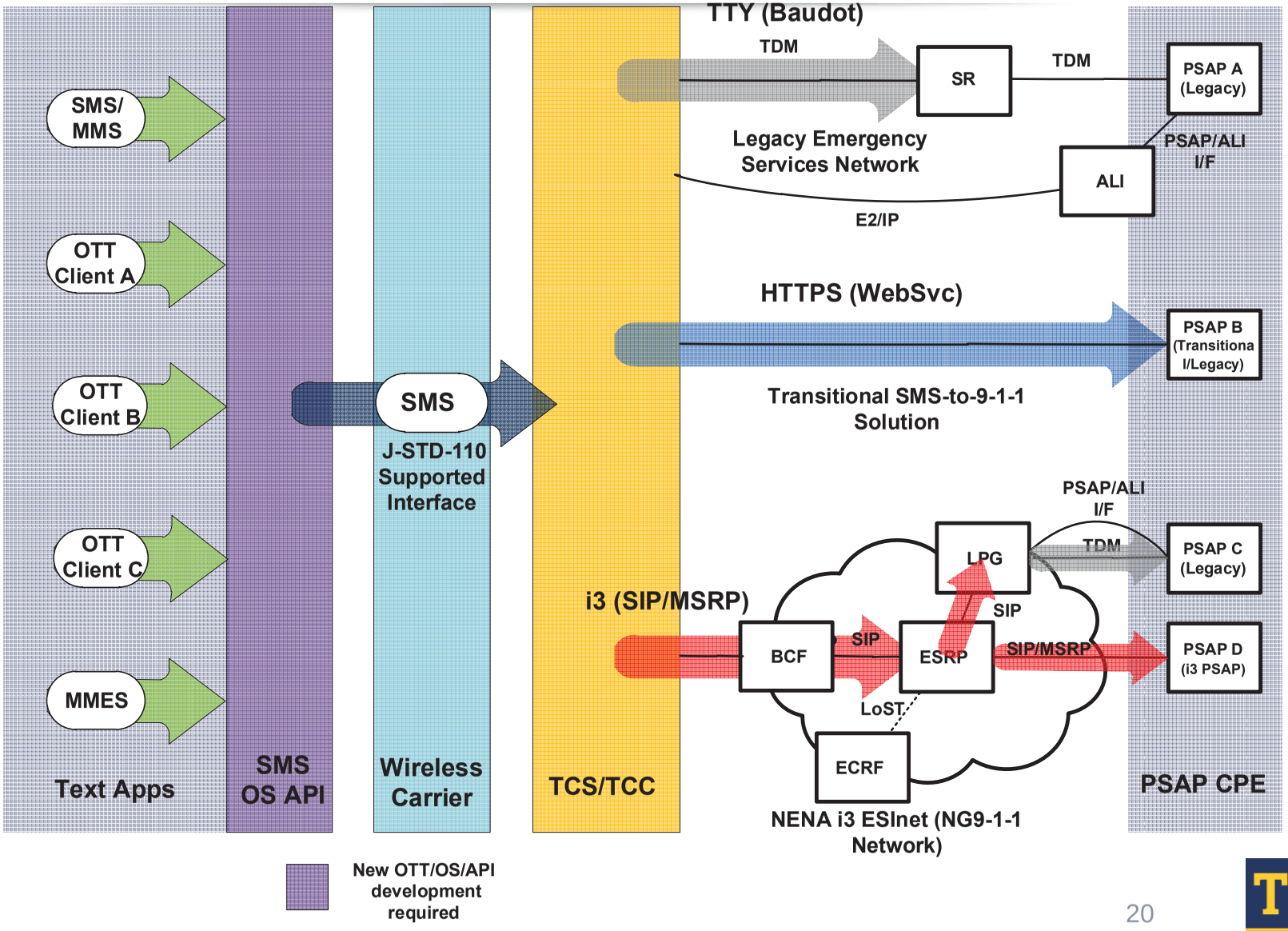
OTT Support through OEM/OS API



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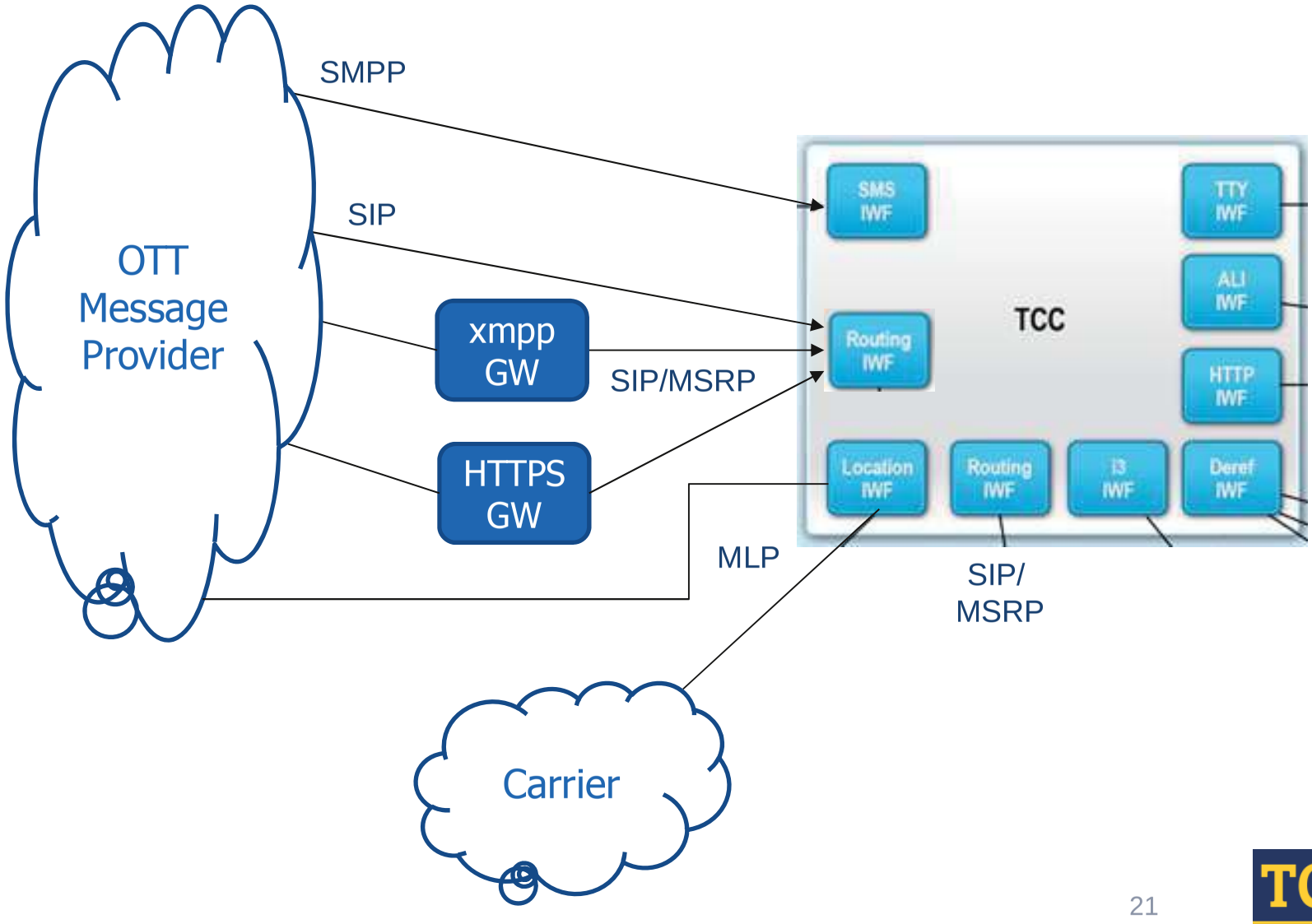
Repurpose of J-STD-110 Interfaces



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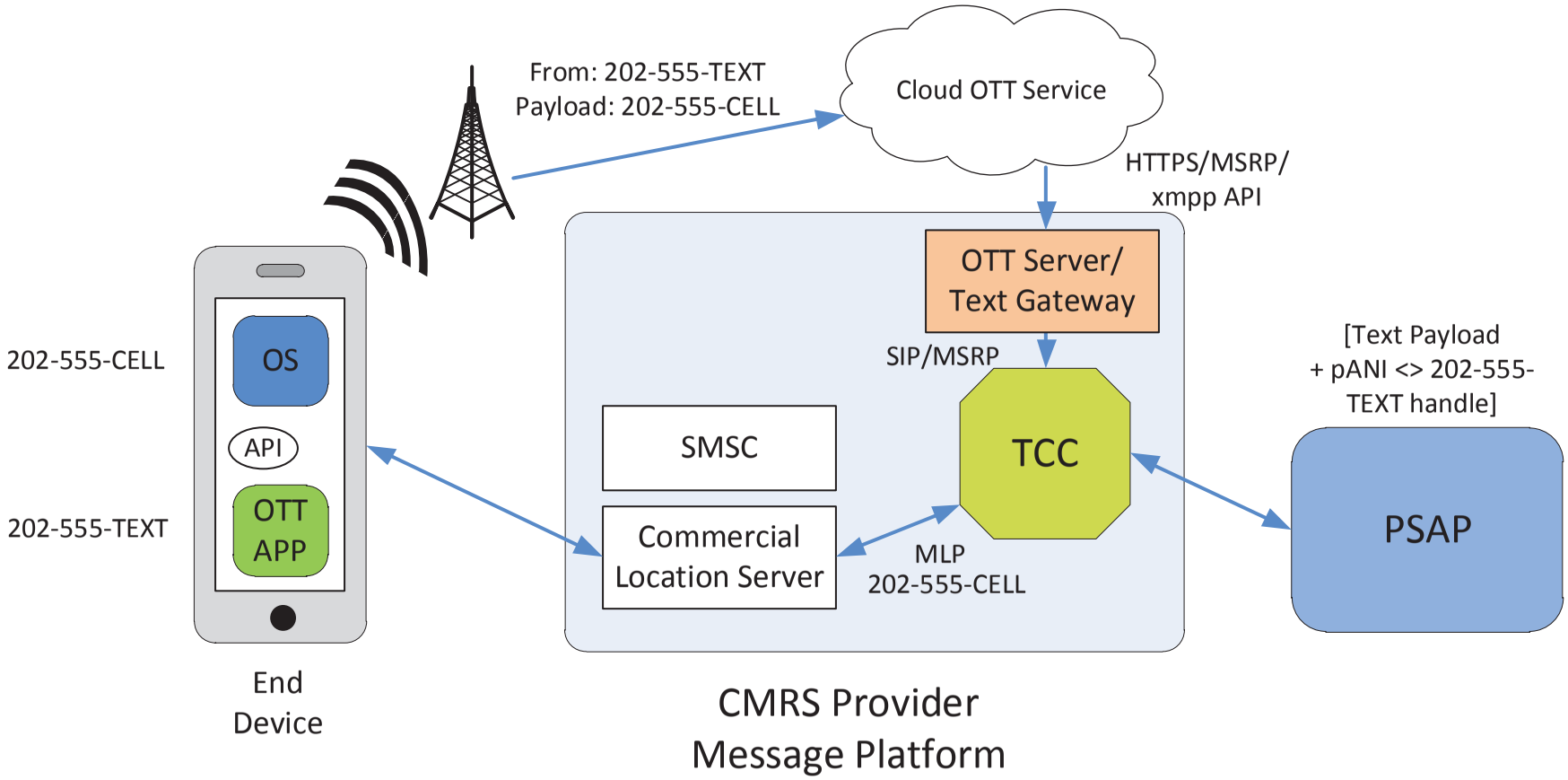
OTT Location Model Needed
(including Mobile Location Platform)



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Thank you!

Tim Lorello

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Acronyms

Acronym	Definition
ALI	Automatic Location Identifier
BCF	Border Control Function
CA	Certificate Authority
CPE	Customer Premise Equipment
Deref	Dereference
E9-1-1	Enhanced 9-1-1
ECRF	Emergency Call Routing Function
ESInet	Emergency Services Internet Protocol Network
ESRP	Emergency Services Routing Proxy
GW	Gateway
HTTP	Hypertext Transfer Protocol
I/F	Interface
IP	Internet Protocol
IWF	Interworking Function
LoST	Location to Service Translation
LPG	Legacy PSAP Gateway
LS	Location Server
MF	Multi-Frequency
MSC	Mobile Switching Center
NENA	National Emergency Number Association

Acronym	Definition
NG9-1-1	Next Generation 9-1-1
PKI	Public Key Infrastructure
PSAP	Public Safety Answering Point
RCL	Revocation of Certificates List
RS	Routing Server
SIP	Session Initiation Protocol
SMS	Short Message Service
SMSC	Short Message Service Center
SR	Selective Router
SSP	System Service Provider
TCC	Text Control Center
TCS	TeleCommunication Systems, Inc.
TDM	Time Division Multiplexing
ToIP	Text over Internet Protocol
TTY	Teletype
xr	Interface reference id (per ATIS/TIA J-STD-110)
xt	Interface reference id (per ATIS/TIA J-STD-110)

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