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February 25, 2010

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VIA ELECTRONIC DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Room TWA325
Washington, DC 20554

Re: Notice of *Ex Parte* Presentations
GN Docket No. 09-51

Dear Ms. Dortch:

On February 24, 2009, Brian Ponte, LEMKO Corporation ("LEMKO") Vice President for Business Development, and I, outside counsel to LEMKO, met with Stagg Newman of the FCC's Omnibus Broadband Team and Pat Amodio of the Commission's Public Safety & Homeland Security Bureau ("PSHSB"). Mike Iandolo of the FCC's Omnibus Broadband Team also joined the meeting by telephone. Separately, we met with Jerome Stanshine, Pat Amodio, Kurian Jacob, Ahmed Lahjouji, Yoon Chang, and Behzad Ghaffari from the PSHSB; Jon Peha, Chief Technologist of the FCC; and Stagg Newman. In these meetings, we discussed issues raised in the attached presentation related to LEMKO's 4th generation core network platform, including the public safety and disaster relief benefits of LEMKO's technology.

Pursuant to Section 1.1206 of the Commission's rules, this letter is being filed via ECFS with your office.

Respectfully submitted,

/s/ Michele C. Farquhar

Michele C. Farquhar
Counsel to LEMKO Corporation

Attachment
cc: Stagg Newman
Mike Iandolo
Jon Peha
Pat Amodio
Jerome Stanshine
Kurian Jacob
Ahmed Lahjouji
Yoon Chang
Behzad Ghaffari

Lemko - Public Safety Networks

Presented to:
Federal Communications Commission staff
February 24, 2010

Public Safety Mobile Communications

Current State

Future Goal

Current State – US Army

Gaps persist in fully utilizing broadband for public safety and homeland security purposes

Gaps	*Issues*
No nationwide public safety network	• No nationwide, interoperable broadband wireless network that is ubiquitous, redundant, and resilient • Few public safety agencies have access to commercial wireless mobile broadband • Commercial broadband does not support public safety requirements and is not cost effective
Outmoded 9-1-1 system	• 9-1-1 services utilize varied legacy communications networks • Few public safety agencies have access to broadband services to support next-generation 9-1-1
Outmoded alerting system	• Current distribution technology limits amount of audio/visual to Americans over broadcast channels • FEMA has taken steps to develop IPAWS but clear implementation milestones are needed
Critical infrastructure vulnerabilities	• Companies reported $265M+ in cyber crime-related losses • Communications providers subject to frequent attacks on critical IP-based infrastructure • Insufficient incentives and safeguards for security of critical communications assets

Source: Internet Crime Complaint Center

Creating a Nationwide Interoperable Broadband Wireless Public Safety Network

- Policy Goal: Leverage commercial technologies to capture economies of scale
  - LTE selection ensures standardization of radio interface
  - Leverages worldwide ecosystem
- Policy Goal: Ensure network capacity and resiliency
  - Centralized versus distributed
  - Economies realized in rural deployments
  - Survivability
  - Rapid replacement and capacity enhancements
- Policy Goal: Fund network construction, operation and evolution
  - Deployments outside of urban areas become cost prohibitive
  - Centralized versus distributed: impact on operating costs
  - Local control and network sharing in rural areas: public/private partnerships

Network Architecture Comparison

Traditional MSC

GGSN

SGSN

HLR

MSC

Layer 3
(Core Network)

Some control functions

Layer 2
(Controller)

BSC

BSC

Some control functions

Layer 1
(Base Station)

BTS

BTS

BTS

BTS

BTS

BTS

Conventional 4G/LTE Enhanced Packet Core

P-GW

S-GW

HLR

MME

eNodeB

eNodeB

eNodeB

eNodeB

eNodeB

Lemko Solution

Peers with Node1
to provide on/off ramp
to legacy networks
and roaming partners

MME
a-GW

Node2
(Gateway)

IP Cloud
Public/Private
Transport/Content

eNodeB
MME
S-GW
A-GW
HLR/VLR

Node1

eNodeB
MME
S-GW
A-GW
HLR/VLR

Node1

eNodeB
MME
S-GW
A-GW
HLR/VLR

Node1

**True Flat Network:
All of the functions of
the EPC and eNodeB
are collapsed into the
Node1.**

Enhancing Security Measures to Safeguard Networks and Core Infrastructure

- Policy Goal: Cyber security
  - Centralized versus distributed systems
  - Distributed inherently more secure
- Ensure survivability of critical infrastructure
  - Centralized versus distributed systems
  - Why did DARPA develop the Internet?
  - Double benefit of distributed networks
    - Local impact does not bring down entire network
    - Portability of elements provides rapid replacement
    - Internet/peering function provides rapid connectivity

Transition of 9-1-1 and Alerting

- Distributed architecture provides key enhancements
- Applications and databases are controlled at the cell level
  - Mainframe to P.C. analogy
- Resulting in:
  - Single E911 Phase II location capabilities
  - Local control of applications for local first responders
  - Controlled alerting
    - All devices locally present
    - Prioritized local devices
    - Capability includes prioritized local calling

ODC – COW Comparison

Lemko ODC

- Complete cellular system
- Local switching and routing
- Localized applications
  - E911
  - Find and recover
  - Cell broadcast
  - Call priority
- Rapid and extensive coverage
  - Nodes connect via NLOS MW
  - Satellite bandwidth only for calls outside of area
  - IP connections rapidly established

Cellular on Wheels – COW

- Cell site on wheels
  - BTS/satellite/Microwave
  - Power source
- Connection to remote switch required
  - No local control or applications
  - All calls routed to remote switch
- Coverage capabilities limited
  - Expensive backhaul
  - Remote switch connections cumbersome

Lemko vs. Colt

40W GSM/Edge, BSC, MCS

Birth of a COLT

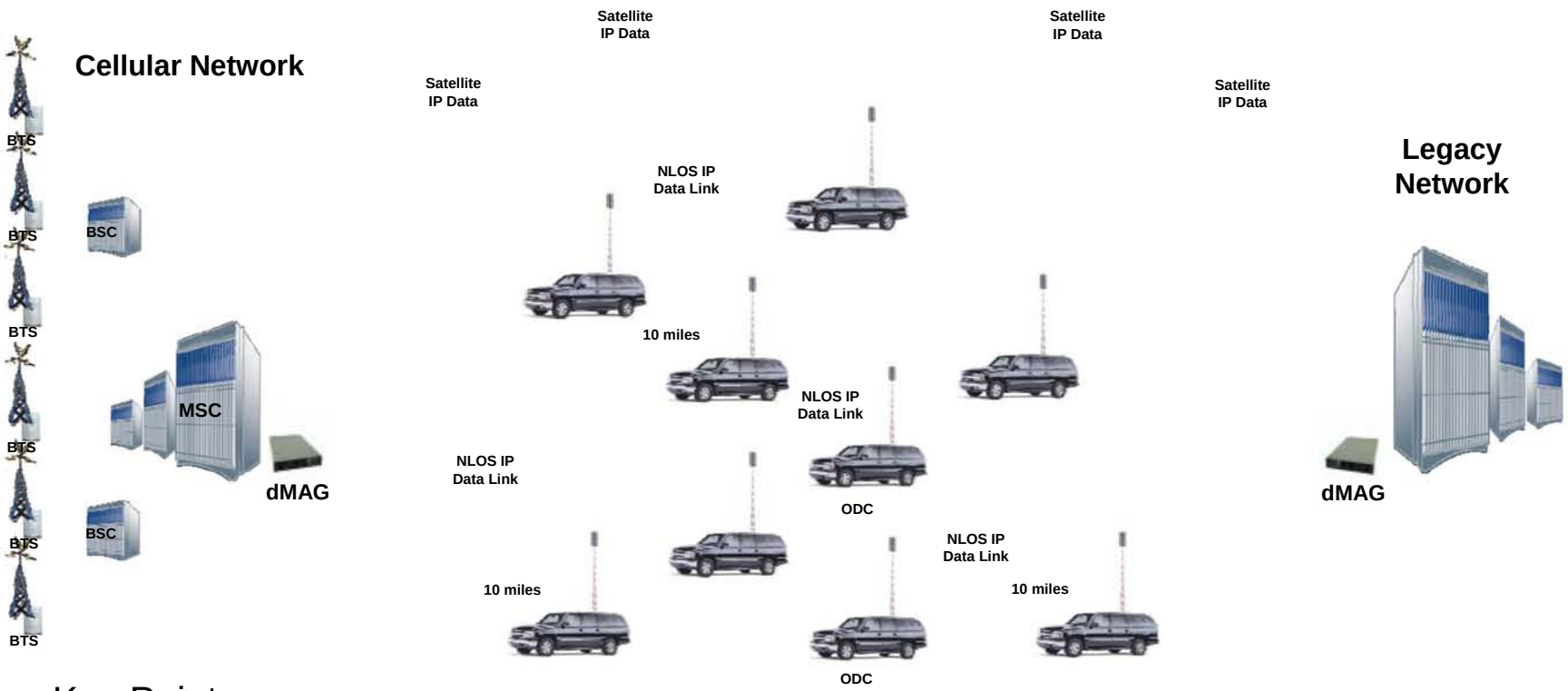
Verizon Wireless previewed its newest disaster response tool, a self-contained mobile cell site, working in Colorado. The $500,000 COLT (Cell on Light Truck) is completely self-contained, and fetaures two retractable masts, a microwave antenna, an emergency power generator and a small office. The COLT is faster to deploy than COWs (Cell sites on Wheels) because all of the equipment is built into the truck.

Lemko SUV

- **More Functionality**
- **Fraction of the Size (Fits in a SUV)**
- **Easier to Operate and Deploy**
- **Fraction of the Cost**
- **Smaller, Lower Power Configurations Available**

Swarm Networks

Rapidly Recover Cellular or Establish Cellular

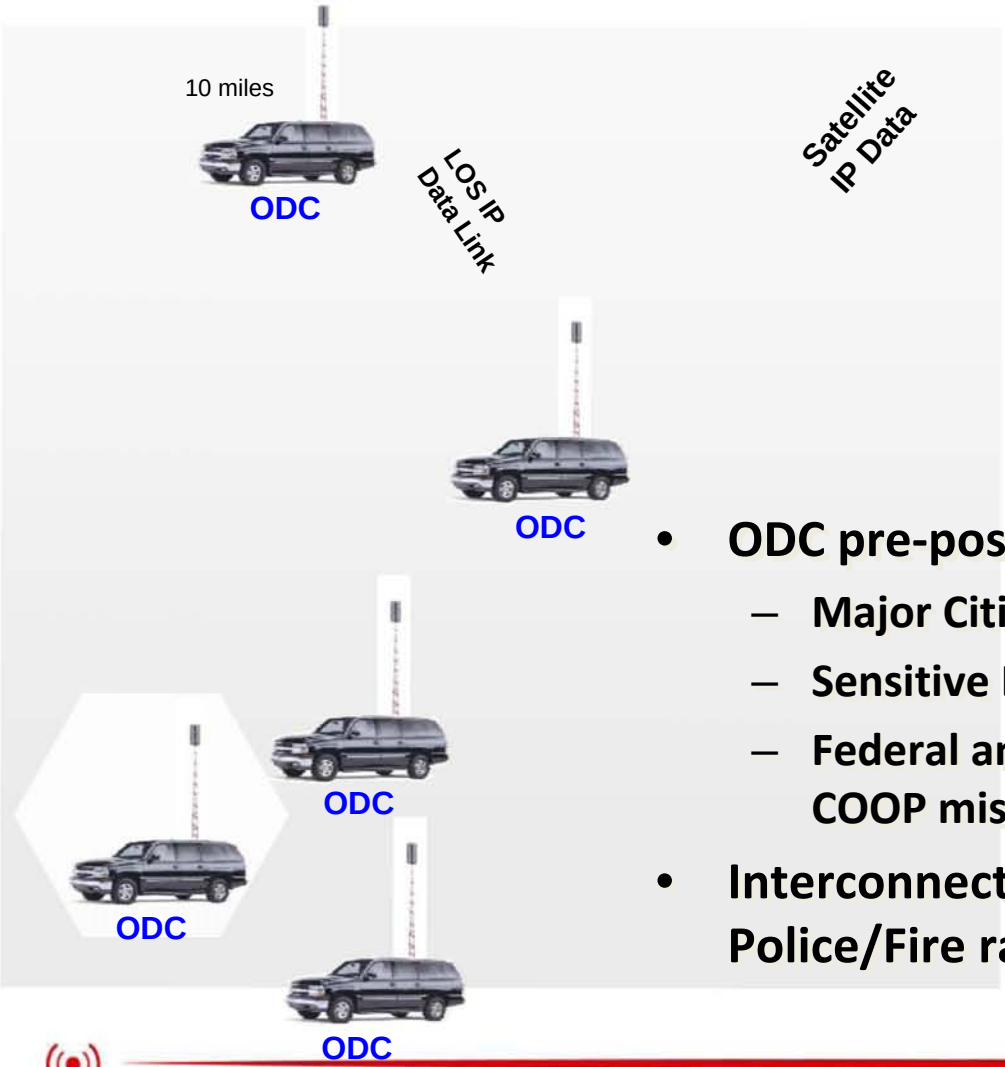


Key Points:

* Dynamic Network
* Scales to Mission
* Rolling Canopy of Coverage

Rapid Response Survivable Network

Quickly Recover Communications to SAVE lives



- **ODC pre-positioned**
  - **Major Cities**
  - **Sensitive Locations**
  - **Federal and State COOP mission**
- **Interconnected with Police/Fire radios**

Command Communications Center

Summary

There are three requirements for the network to meet the FCC's goals. They include a framework for interoperability, to be overseen by the proposed ERIC, and funding to cover public safety needs that won't be provided by a commercial network, such as rural and in-building coverage, hardness and redundancy. Finally, there must be extraordinary quickness, speed to action. We get one at-bat and one swing.

- Admiral Jamie Barnett, Public Safety and Homeland Security Bureau Chief

- Interoperability – 3G and 4G devices and applications are supported
- Funding – Better than 65% reduction in capital and operating costs for rural environments
- Rural – 3G networks being deployed in rural markets today. Network platform ready for 4G/LTE radios when available
- In-building – stay tuned…
- Hardness – U.S. Army deploying hardened systems today
- Redundancy – Distributed network leverages fundamental advantage of the Internet
- Quickness – Being deployed today with 3G. Network ready for 4G radios

Lemko – Company Overview

- Company founded in 2005 by a team of former Motorola business and technology leaders.
  - Based in Schaumburg, IL
- Currently delivering 4th generation core network platform :
  - Rural carriers in US and Canada
  - International markets
  - Military and government agencies in the US and China.
- Key milestones
  - Katrina rescue and recovery
  - China FEMA for Hanjin earthquake
  - Interconnection tested and approved by over 20 carriers worldwide
  - Commercial deployments in WI,MI, IA, AK, MT, UT, TX & ON
  - Deployed CDMA, GSM and UMTS/HSPA