

Federal Wireless Users Forum

**Lessons Learned Panel
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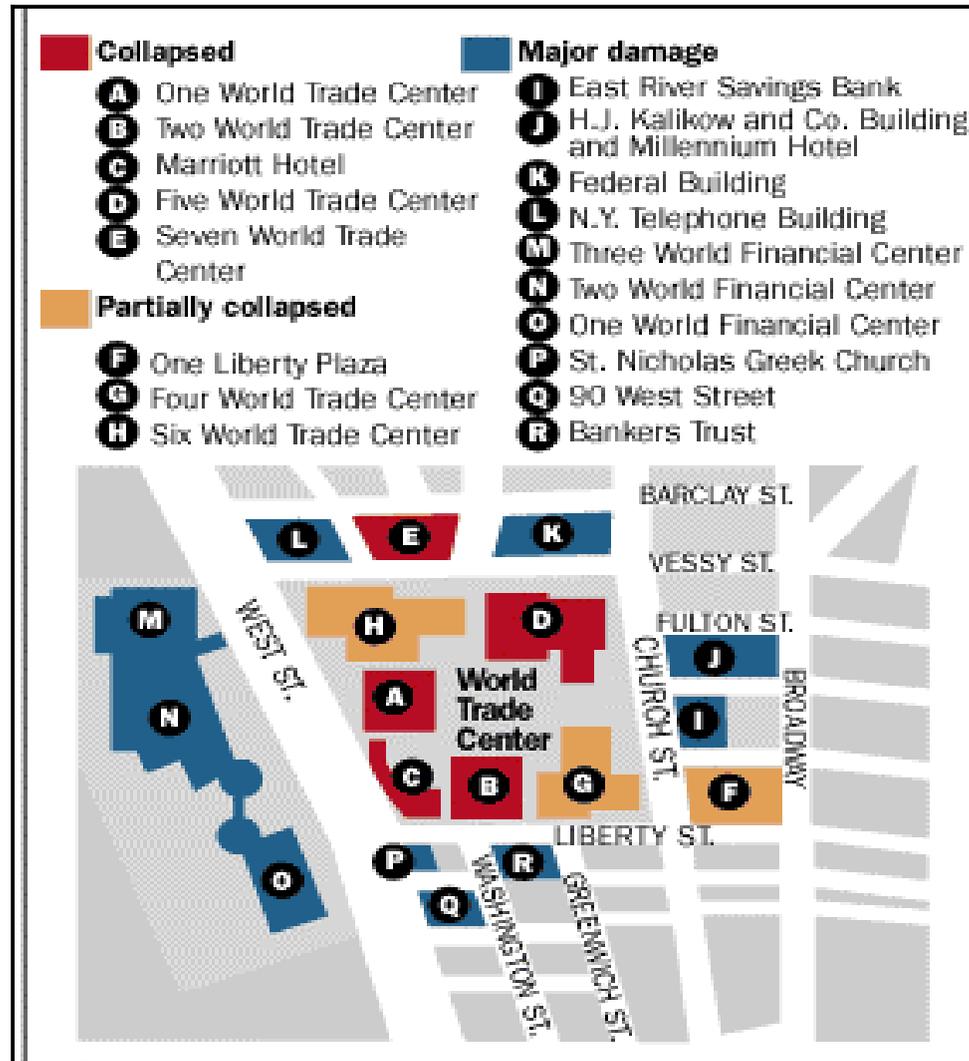
SprintPCS Sept. 11 Disaster Post Mortem

- **Nationwide overload** on MSC's for initial 24 hours
- **Manhattan 1 & 2 MSC's access problems affecting 185 cell sites for 10 days due to landline problems :**
 - **Verizon 140 West Street office heavily damaged** affecting both **T1** (cell site connectivity) & **T3** (inter MSC) links.
 - **Sprint LDD office 60 Hudson Street power problems** affected **SS7** connectivity and redundancy for MSC's throughout **Northeast USA.**
- **No PCS MSC, Cell site or Equipment directly damaged except by clogged filters from soot & dust.**
- **Difficulty in COW placement due to “urban canyon environment” of lower Manhattan**
- **Site considered “crime scene”, restricting access and operations.**

View from roof of 47 West St.



WTC Vicinity



Verizon's 140 West Street central office is located in the building labeled L

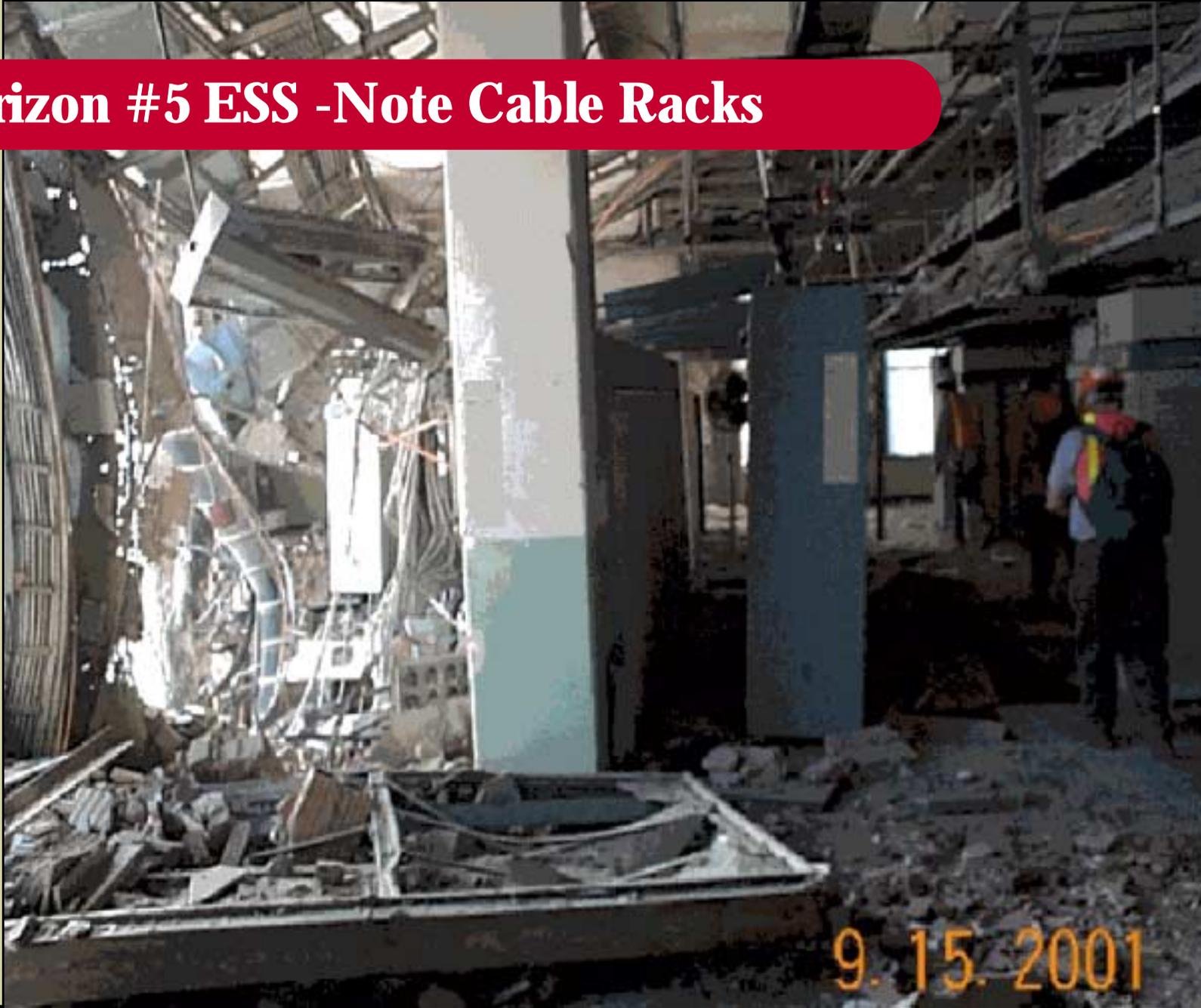
Chronology

- **Tuesday, September 11**
 - **World Trade Center towers and the Pentagon attacked (7:48 am CST)**
 - **SPCS activates the “Incident Command Structure” (8:10 am)**
 - **High call volumes nationwide. Several switches go into overload condition**
 - **Peak blocking at 10:00 am (local time)**
- **Wednesday, September 12**
 - **Collateral damage to Verizon network increases NYC BTS outages to 68 with 93 impaired**
 - **Technicians gain access to blast zone. Repeater placed near 1 Police Plaza. Serves NYPD & ground zero.**
 - **Over 300 handsets given to NYC & DC law enforcement and rescue workers**

Verizon 140 West St Central Office DSX



Verizon #5 ESS -Note Cable Racks



Chronology -2

•Thursday, September 13

- SPCS sends message to voicemail subscribers and requests **voluntary reduction of archived messages**
- Sprint Long Distance **SS7 problems isolates New York switches**

•Friday, September 14

- SLD **loss of commercial power at 60 Hudson St.-** ensuing **SS7 problems isolate 7 New York SPCS switches**

47 West St PCS Cell Site



Chronology - 3

- **Saturday - Sunday, September 15 - 16**
 - **Separate incident: Tropical storm Gabrielle makes landfall. 30 BTSs fail in Tampa, Orlando & Jacksonville.**
- **Monday, September 17**
 - **BTS #112 near blast zone restored via microwave back haul; 5 COWS on site.**
 - **NYC CDR tapes for 9/11 received, validated and processed at OSSC**
 - **Approximately 2700 handsets deployed to law enforcement and rescue personnel (incl DC)**

Rigging Microwave link to NJ on 47 West St.



PCS Major Accomplishments

- Installed a **repeater** to provide **phone service** to the New York City **Police Department at One Police Plaza** and to the rubble pile at **“ground zero”**.
- Activated four **Cell-on-Wheels (COWs)**.
- Passed out **2700 activated phones** to rescue workers (includes D.C.)
- Installed **microwave links** to **bypass downed T-1** circuits to cell sites.
- **Assisted** the Federal Emergency Management Agency (**FEMA**) in **prioritizing radio frequency (RF)** issues in damage zone.
- Replaced fans and filters on several **cell sites** that were being **affected by smoke and debris**.
- Worked with the **Wireless Emergency Response Team** to **locate potential survivors**.
- Assisted **Sprint LD** in resolving power issues at **60 Hudson switch office** and provided **PCS phones** to expedite **internal LDD communications**

SprintPCS Mobile Command Van



Positives

- Strong efforts to provide **mutual cooperation**
- **WERT** provided co-ordination of organizations
- Local **trapping of 911** calls via multiple tools.
- Use of **text messaging** to extend battery life and reduce traffic.
- Use of test equipment, portable BTS and repeaters with antennas lowered into debris to **locate** survivors and **communicate** with rescue workers
- Out-of-box thinking such as “Key Fob Transmitter” frequency checking.

Some examples of work to be done -Future Actions

- **Train 911 centers for non-GPS wireless calls**
- **Language translators “on call” for 911.**
- **Special ID for priority mobile phones**
- **Better use of text messaging by public**
- **Very low power “BEACON” mode for phones**
- **Apply model to other past disaster types & check for ‘fit’.**

PAS & GETS

Both **PAS** - Priority Access Service and **GETS**- Government Emergency Telecommunications Service, while good initiatives on their own, are still subject to the **realities of the network** in disaster situations. **Blockages** can come from **many places**.

[Http://gets.ncs.gov](http://gets.ncs.gov)

Potential Future Disaster Troublespots

1. **Radio Frequency Air Interface Blocks**
2. **Base Transceiver Station Blocks**
3. **T-1 Blocks**
4. **Switch Blocks**
5. **Public Switch Telephone Network Blocks**
6. **SS7 Blocks**
7. **Blocks on other wireless / Wireline networks**
(e.g. Verizon, Southwestern Bell, etc)

Recommendations

- Establish “**Virtual Command Center**” structures at **local, state and national** levels
 - VCC is a pre-established voice conference bridge (should be available from several providers) that can be opened by either public safety or utility companies.
- Identify **Key Players** and **Contact info** pub & pvt
 - Key Players need to be:
 - Available 24/7
 - Empowered to act quickly
 - Function as a communications hub
 - Be knowledgeable about their own organization and interdependencies

Recommendations - cont.

- Encourage continued **communications and exchange of ideas** between public and private sectors
- Ensure prompt, full and effective **Utilization of Available Resources by standardizing procedures**
 - Education of participants
 - Training on procedures
- Identify **outside resources and supplies**
 - Material and Specialists
 - Methods to Obtain both

Recommendations -cont.

- Establish **response levels** to Homeland Security Advisory System
- Define “**Emergency**” and establish threshold levels for Acts of God, major utility system losses, widespread work stoppages or any event that **undermines the safety, care or welfare of the population.**
- **Practice scenarios and mock drills**
 - **Test all methods and procedures in advance**



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