Next Generation 9-1-1

A presentation to the:

House Select Committee on the Use of 911Funds

About the Presenter

- 40 years experience in public safety
- Managed PSAPs in four states
- NC APCO Legislative Chair
- APCO Life Member
- NC 9-1-1 Study Group Member
- Former first responder

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About the Presentation

- Where it all started
- Where we are now
- PSAP Progress
- Where we are going

And a look at the technology involved

Acronyms Used

- ACN – Automatic Crash Notification
- ANI – Automatic Number Identification
- ALI – Automatic Location Identification
- APCO – Association of Public-safety Officials
- CAD – Computer Aided Dispatch
- CPE – Customer Premise Equipment
- CTI – Computer / Telephone Integration
- E 9-1-1 or Enhanced 9-1-1 – providing ANI/ALI
- GPS – Global Positioning System
- NENA – National Emergency Number Association
- NG or Next Gen – Next Generation 9-1-1
- TDD – Telecommunications Device for the Deaf
- VoIP – Voice over Internet Protocol
- XML – Extensible Markup Language

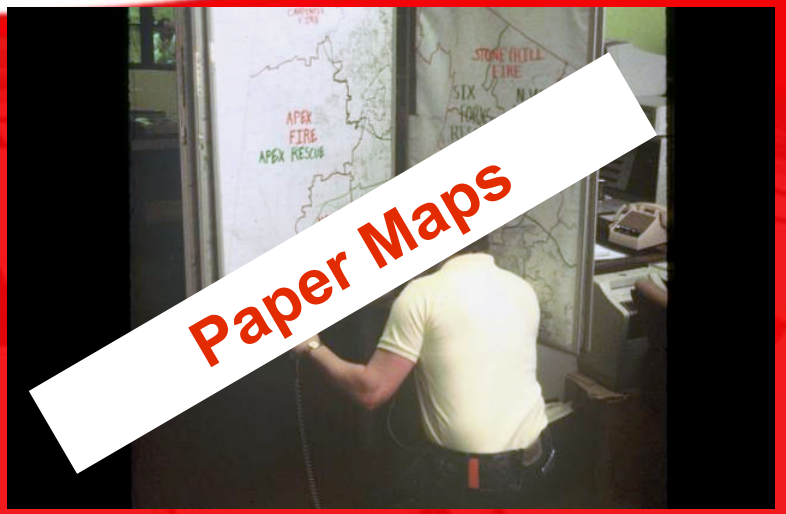
In the Beginning

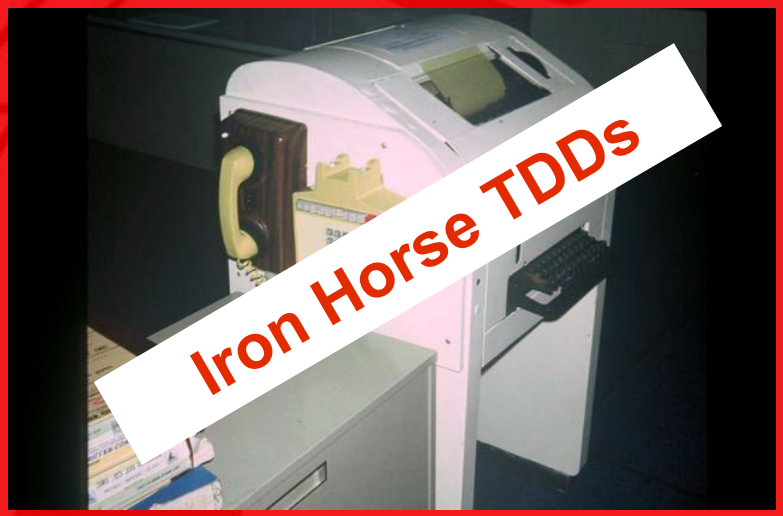
- 9-1-1 began in 1968 in Haleyville, AL.

- Easily remembered
- 9-9-9 already in Britain
- Basic service only
- Rotary Dial telephones
- Analog architecture

Much of that infrastructure design remains in place today.

PSAP – 70's Style





Move to Enhanced 9-1-1

- 1974 LEAA Grant to Alameda, CA
- 1975 Bell granted E 9-1-1 patents
- 1976 Chicago claims 1st major city E 9-1-1
- 1978 Alameda begins trials of ANI only
- 1980 AT&T works on full E 9-1-1 ANI/ALI

1980s PSAP

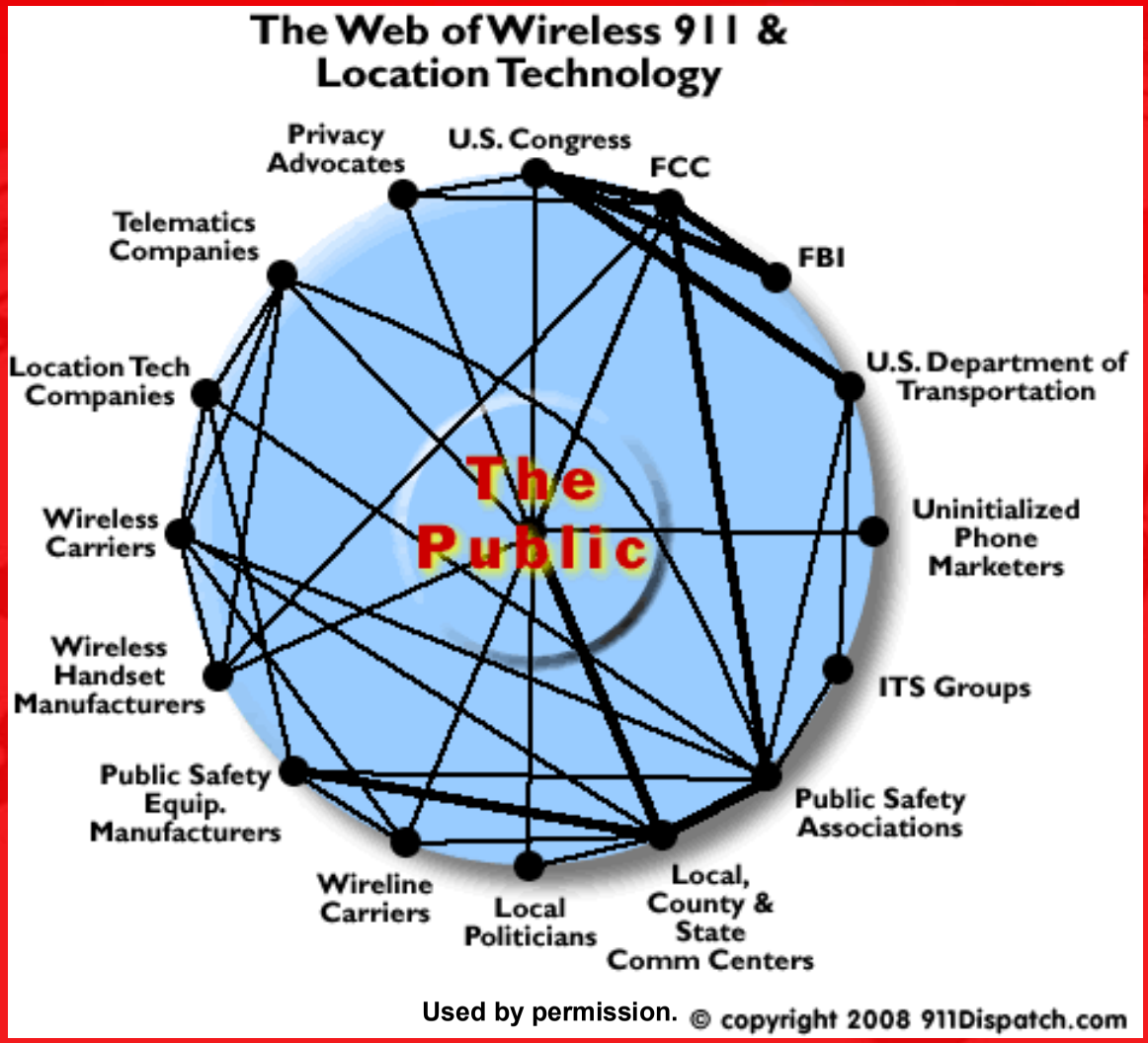
Enter E 9-1-1 and CAD

Wireless Begins

- 1996 – FCC Docket 94-102
- 1998 – First “Phase I” system
- 1999 – First “Phase II”
- 1999 – 9-1-1 Becomes official

The introduction of wireless added new location challenges and increased call clustering.

9-1-1 Moves On


The Web of Wireless 911 & Location Technology
Privacy Advocates
U.S. Congress
FCC
Telematics Companies
FBI
Location Tech Companies
U.S. Department of Transportation
The Public
Wireless Carriers
Uninitialized Phone Marketers
Wireless Handset Manufacturers
ITS Groups
Public Safety Equip. Manufacturers
Public Safety Associations
Wireline Carriers
Local Politicians
Local, County & State Comm Centers
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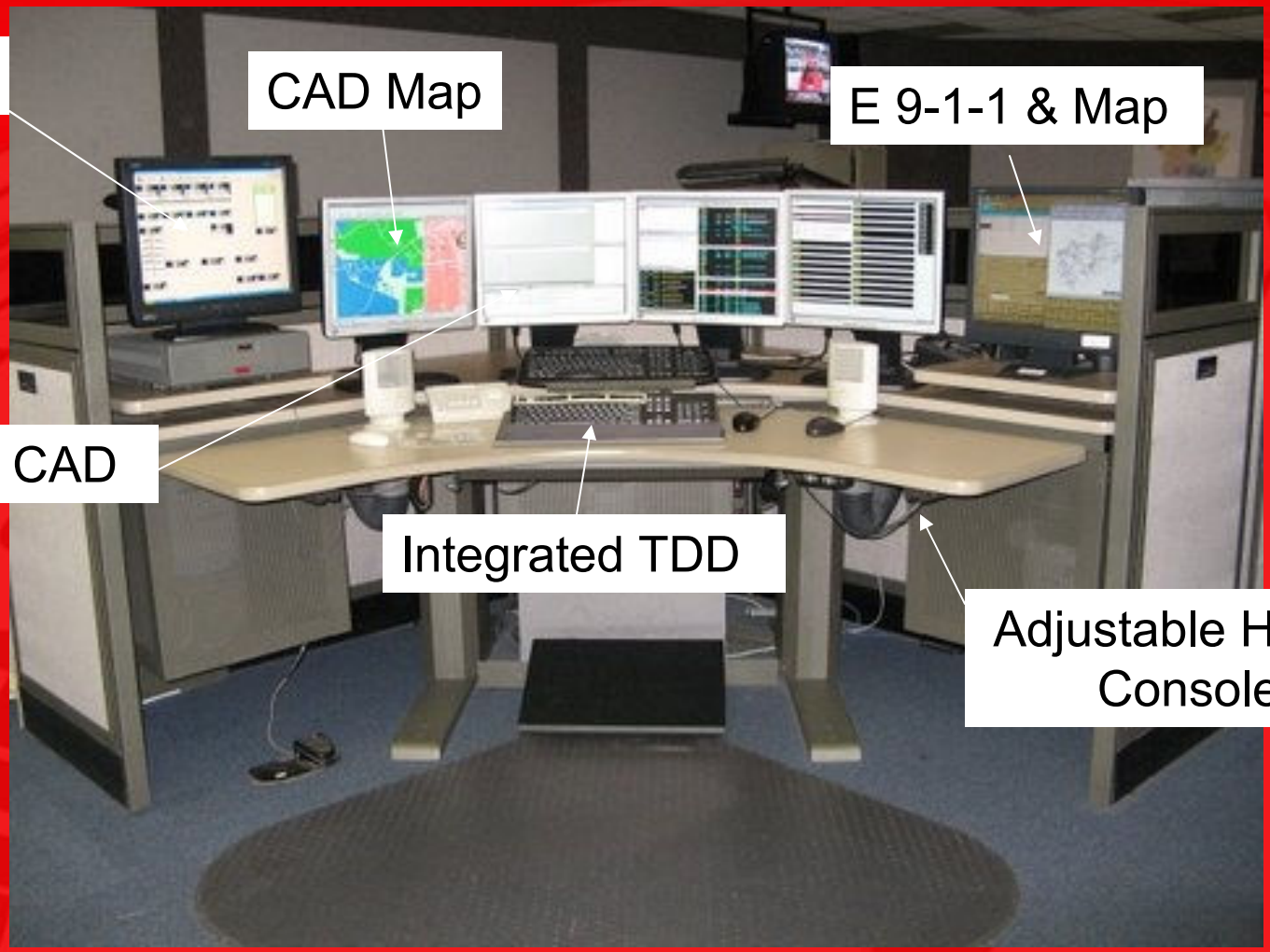
Welcome to the Web

- 2004 - VoIP providers start service
- 2007 – 911 Public Safety & Modernization Act
- 2008 – Net 9-1-1 Act

The introduction of VoIP calling brought with it initial issues concerning call delivery by providers to seven digit numbers, and long term concerns regarding the mobility of service addresses and appropriate routing.

21st Century PSAP

21st Century PSAP



What is Next Gen 9-1-1?

Next Generation 9-1-1 (abbreviated NG9-1-1) refers to an initiative aimed at updating the 9-1-1service infrastructure in the United States and Canada to improve public emergency communications services in a wireless mobile society. In addition to calling 9-1-1 from a phone, it intends to enable the public to transmit text, images, video and data to the 9-1-1 center (referred to as a Public Safety Answering Point, or PSAP). The initiative also envisions additional types of emergency communications and data transfer.

Wikipedia

What is Next Gen 9-1-1?

"EMERGENCY HELP.

- **Anytime,**
- **anywhere,**
- **any device."**

NG Issues Already Here

- Cannot transfer data universally between PSAPs
- Alarm company to CAD interface active in VA
- 9-1-1 Text messaging in use in Iowa
- Telematics – OnStar, ATX, Ford Sync
- “Tweets” now can carry location information
- Wi-fi expansion and innovation

There are currently no 100% Next Gen PSAPs, and many solutions are not truly Next Gen.

9-1-1 “call” a Misnomer

- NG 9-1-1 “call” a multimedia event
  - Digital audio
  - GPS location
  - Text
  - Video / Photos
  - Telematics / ACN

To function properly NG 9-1-1 will require a broadband digital (IP) network that supports open architecture applications.

The Future Challenge

- Interoperability not just for radios
  - PSAPs must be able to communicate
  - NG applications must be able to communicate
  - Developing “plug and play” like applications
  - All parts of a 9-1-1record must be linked
  - Staying ahead of the consumer curve
    - Internet use breaks one billion
    - Steady migration from conventional phones
    - What’s the next “big thing?”

Work In Progress

- US Department of Transportation
  - Proof of concept tests
- APCO / NENA – other partnerships
  - Developing standardized formats
    - “Emergency Incident Object”
    - “Vehicle Emergency Datatset”
- Private sector development
- FCC
  - National Broadband Plan

Key Steps on the Path

- Solutions need to deliver location and caller information to PSAPs.
- Network and CPE need to be capable of handling all solutions without degradation.
- All PSAP equipment must be NG 9-1-1 compliant and forward compatible.
- Human and legislative factors must be considered.

Things to Consider

- 9-1-1 is a national ***number***.
- NG 9-1-1 is a national ***network***.
- All PSAP equipment must be NG capable.
- Potential long term savings, BUT…
- Duplicate costs during cutover.
- Legislative change required.

In Conclusion

- Every change in telephone technology has carried with it a corresponding change and challenge to the 9-1-1 community.
- Much of our current system architecture, however, is based upon outdated design.
- Past experience has proven that we can not afford to fall behind the curve in the future, especially since the rate of change is ever increasing.

Thank-You!

- I sincerely appreciate your time.
- For further information:
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- Open invitation for all members to tour the Raleigh-Wake 9-1-1 Center.