



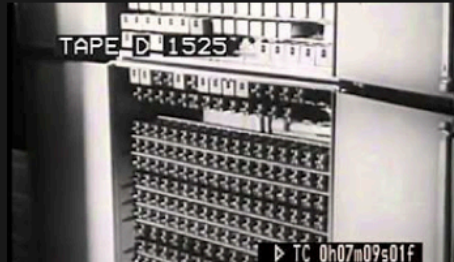
GIS SAVES LIVES

A LOOK AT NEXGEN 911 AND THE
NEED FOR **ACCURATE GIS**

Lance Terry, Oklahoma State 911 Coordinator



The Message Center's "Telephone Operator 1940s"



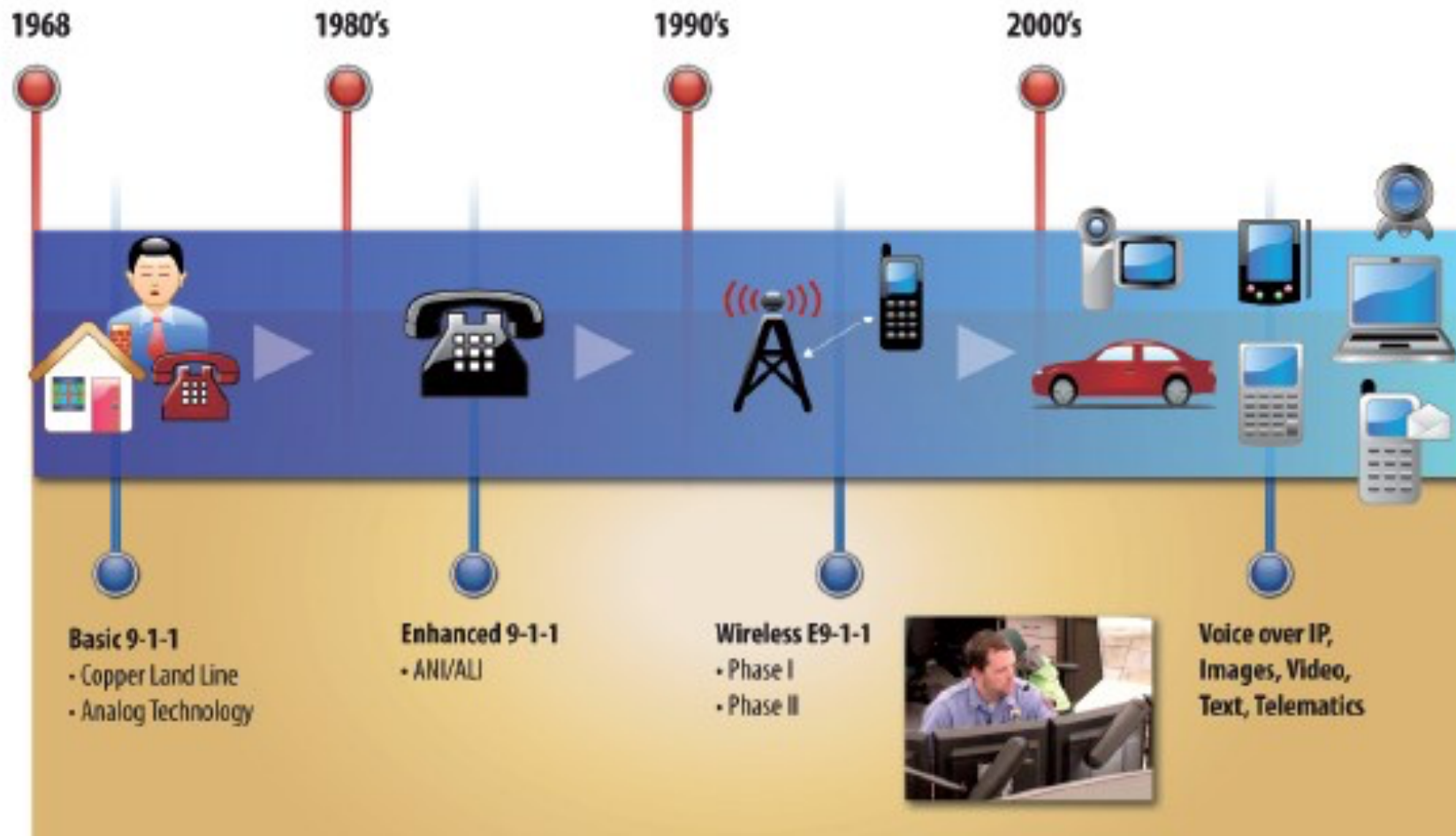
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First 911 call was placed February 16, 1968



Today versus Tomorrow

■ Today

- *A PSAP is connected to its service area via analog 911 Trunks*
- *"Enhanced" PSAPS operate on a MSAG, 911 database and selective router for call delivery and Automated Location Identification (ALI)*

■ Tomorrow (NG-911)

- *A PSAP will be connected to its service area via a digital network infrastructure.*
- *Calls will be routed to the PSAP based on **GIS information** (service boundaries, geodetic coordinates and civic address information)*
- *Presence Information Data Format location object (PIDF-LO) replaces ALI.*

Locating 911 callers today

- Master Street Alias Guide (MSAG)
 - *Automated Number Identification (ANI)*
 - *Automated Location Identification (ALI)*
 - *Pseudo Automatic Number Identification (pANI)*

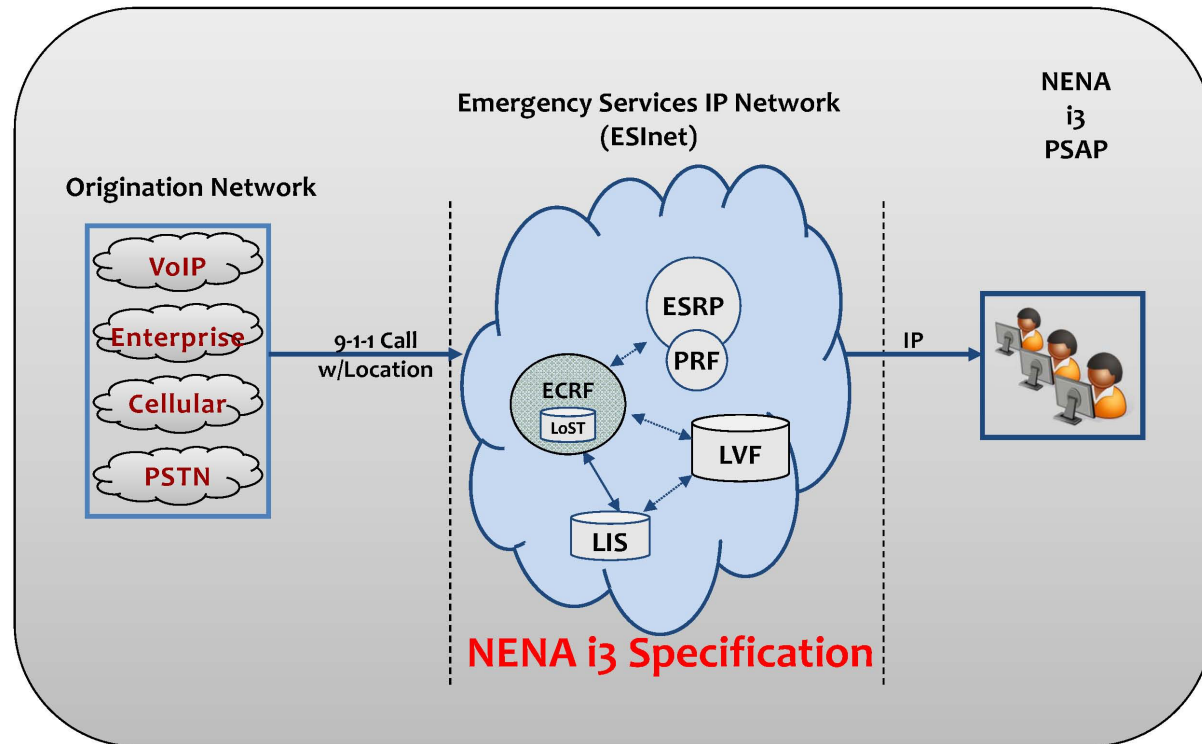
- Format 76

X Coordinate	320-328	9	AN	Longitude/ X coordinate
Y Coordinate	329-337	9	AN	Latitude/ Y coordinate
Z Coordinate	338-342	5	AN	Structure elevation
Cell ID	343-348	6	AN	Identification number indicating a geographic region of cellular coverage.
Sector ID	349	1	AN	Sub set/section of a cell.

Locating 911 callers today (wireless)

- When a call comes in a pANI number is assigned to the call
- The tower address along with a sector is delivered to the Emergency call taker
- Some include estimated distances based on the power of the tower.
- Wireless calls use triangulation and needs at least two tower sites.
 - *In some instances GPS can be delivered but is dependant on the carrier and tower technology.*
- The Emergency call taker can then rebid the system to further zoom into the caller.

NENA i3: the System Architecture



ECRF- Emergency call routing function

LoST- Location to Service translation
(Where does the call need to go)

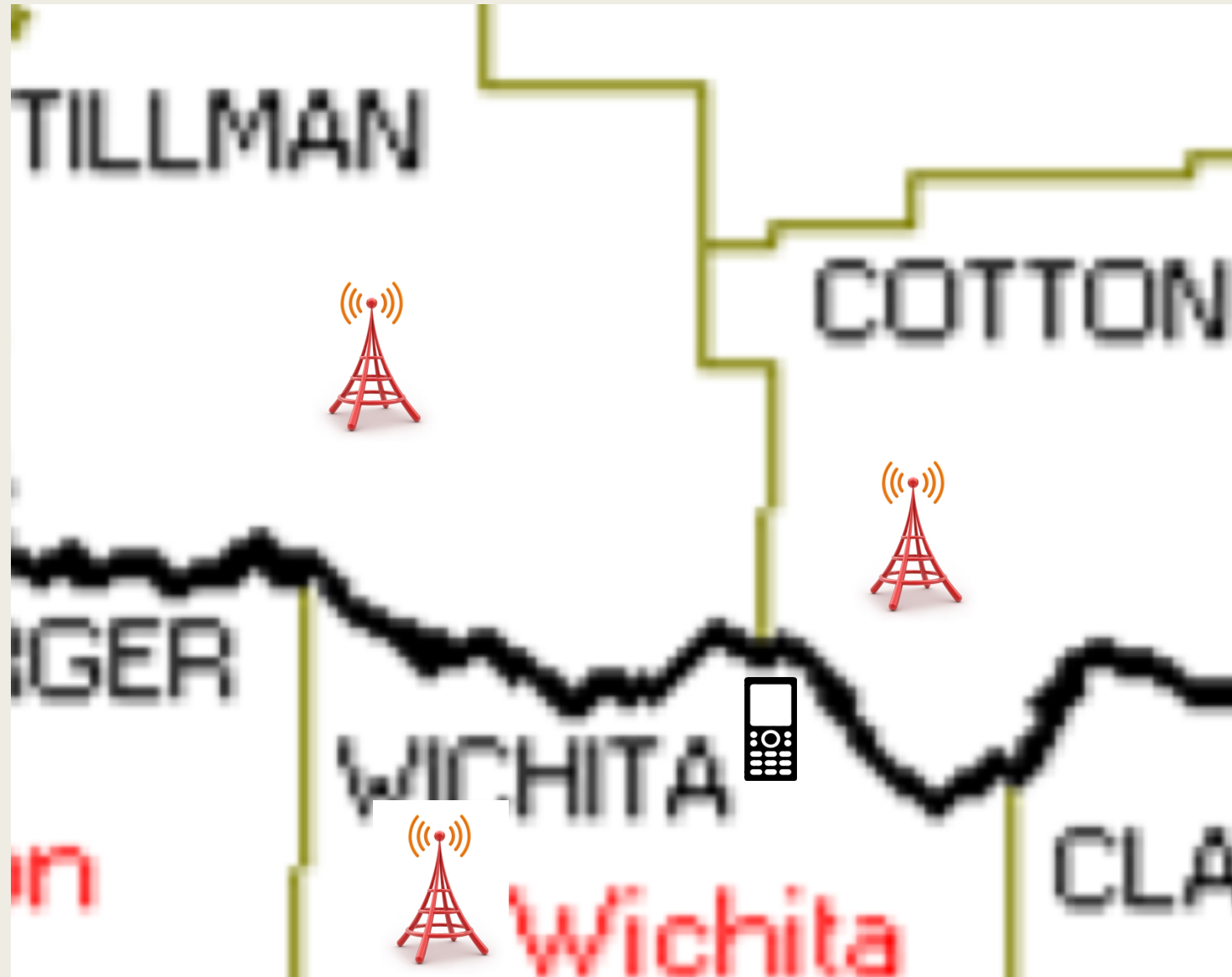
LIS- Location Information Server

LVF- Location Validation Function

ESRP- Emergency Service Routing Proxy

PRF- Policy Routing function

Future call routing



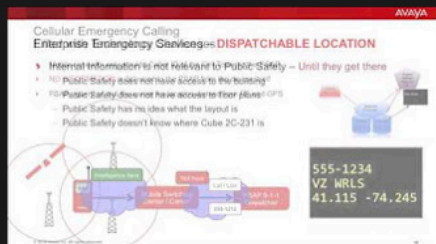
Problems with current data

- No standard for abbreviations
- Missing Street Types
- MSAG data conflicts with the GIS data or has partial matches
- ALI records do not match GIS Address Points or has partial matches
- ALI records do not match against the RCL layer or has partial matches
- Edge matching internally and with neighboring jurisdictions
- Gaps internally and between neighboring jurisdictions

Things to know.....

- NG911 GIS standard for Oklahoma is in draft form and will be released soon
 - *Unique ID*
 - *Adding fields that are Mandatory, Conditional or Optional*
- 911 will need your data along with neighboring data to find 911 callers
- NexGen 911 does not stop with streets and map points, NexGen will use many different data sets to find a caller. This will include building diagrams.
- National Emergency Address Database (NEAD) will help find people inside buildings using WIFI hot spot and blue tooth beacon addressing

911 has trouble tracking cellphone location



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