NG9-1-1 for MN:

Past ~ Present ~ Future

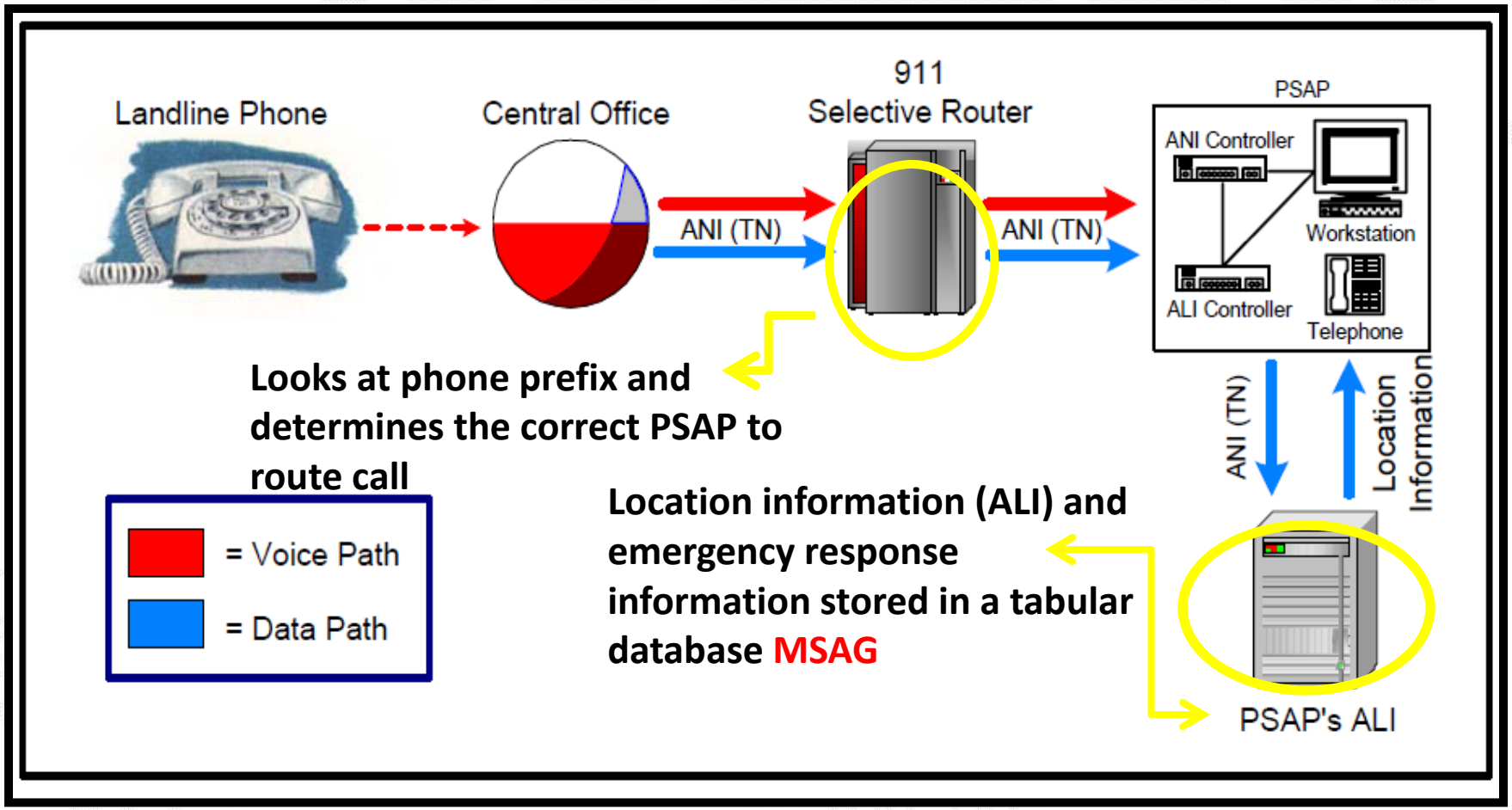
September 10 & 11, 2014

Prepared for:
SECB Strategic Planning Session

Location:
Ramada Plaza Minneapolis

Presenter:
Dana Wahlberg, DPS-ECN

~Past



Wire Line Call Flow

Use Case: Vehicle Crash ~Past

Crash on highway; tanker with hazardous materials and vehicle – voice call placed to 911 from closest available wire line phone

Calls to 911 from wire line phones provided very accurate location information *and* provided appropriate emergency response information

Bystander Calls 9-1-1

PSAP

PSAP Dispatches Responders

Police set up Road block

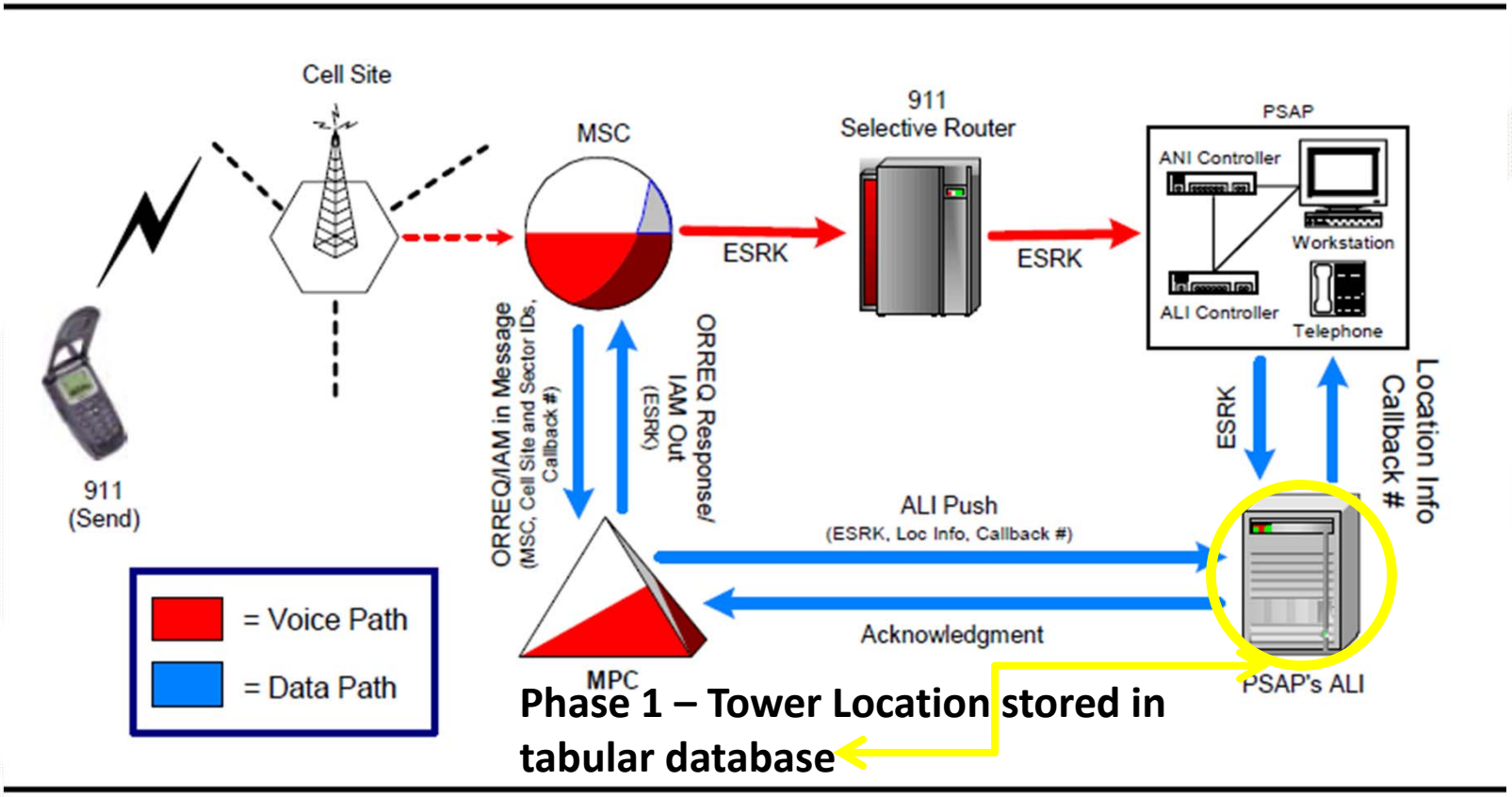
HAZMAT

Fire service reads tags; identifies HAZMAT

Hospital

EMS perform Pre-arrival instruction

~Past/Present



Phase 2 information rebid varies in location accuracy; no emergency response information

Wireless Call Flow

Use Case: Vehicle Crash ~ Present

Crash Data sent to Telemetry Service

Telematics Call Center

Operator calls 911

PSAP

Bystander makes a voice call to 911 using iPhone

Text

Photo

Video

PSAPs Dispatches First Responders/Ambulance and verbally relay telematics data

HAZMAT

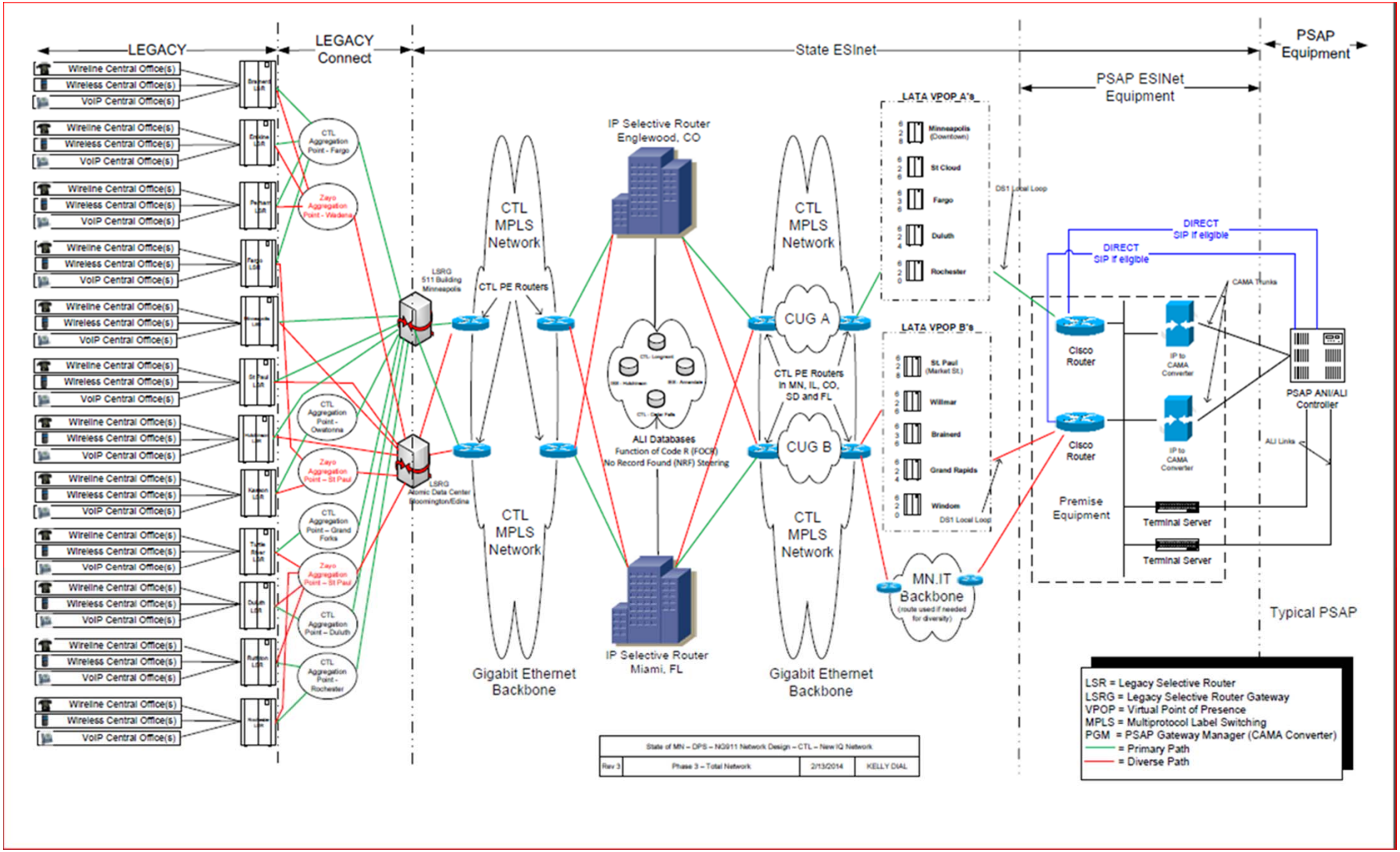
Hospital

Hospital Activates Burn Unit

Definitions

- **Next Generation 911 (NG 911)**
  - **Technology is constantly evolving faster now than ever before. It is our duty to keep up.**
  - **People expect to reach 911 no matter what and to be able to do so using text, picture, or video. They assume to be able to get help quickly from *any device at any time*.**
  - **Next Generation 911 transitions us from yesterday's technology to a faster, more flexible, resilient and scalable system enabling 911 to keep up in the future.**
  - **Consists of hardware, software, standards, policies and training.**
  - **Leads to safer, faster and more informed responses.**

~Present →Future



~Past Accomplishments

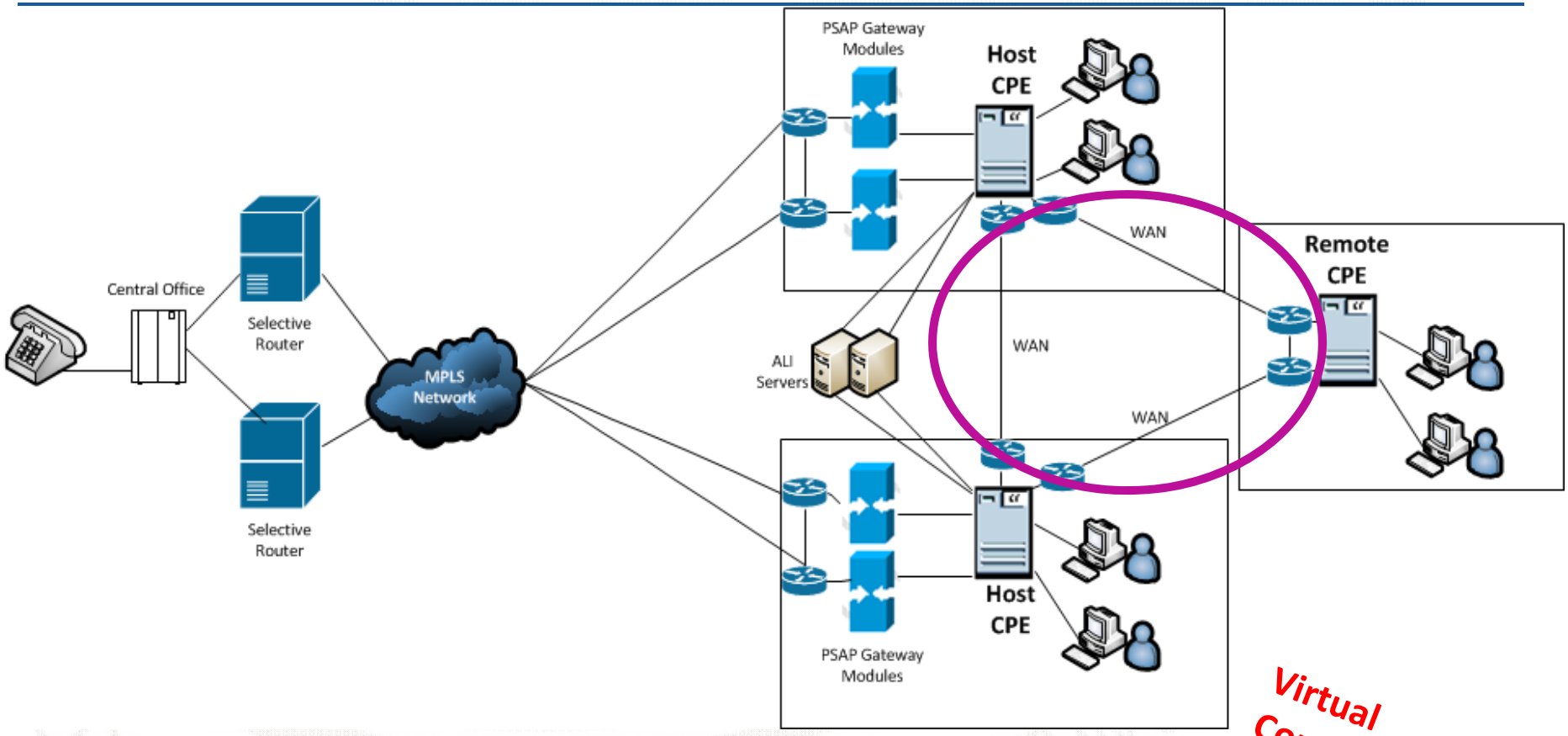
– **September 2010-August 2014**

- Achieved statewide interoperability
- Use 3 digit star codes for 911 transfers with ANI/ALI
- Diverse IP backbone to all PSAPs
- Selective routing for all wireline, wireless and VoIP calls
- All 104 MN PSAPs are connected to the ESInet
- MNIT SERVICES providing diversity for 52 PSAPs
- MNIT SERVICES providing WAN network for 3 host-remote sites

~Present Initiatives

- **IP Backbone already offers PSAPs numerous optional enhancement features to choose from**
- **Ongoing/Continuing Initiatives**
  - PSAP Direct SIP migrations
    - 3 completed, 5 testing, more on deck
  - PSAP Abandonment Device (PAD) installations
    - 6 completed, more on deck
  - PSAP Host-Remote shared call handling configurations
    - 3 completed, 1 in progress, others in consideration

~Present Initiatives



Host – Remote Configuration for 911 shared call handling

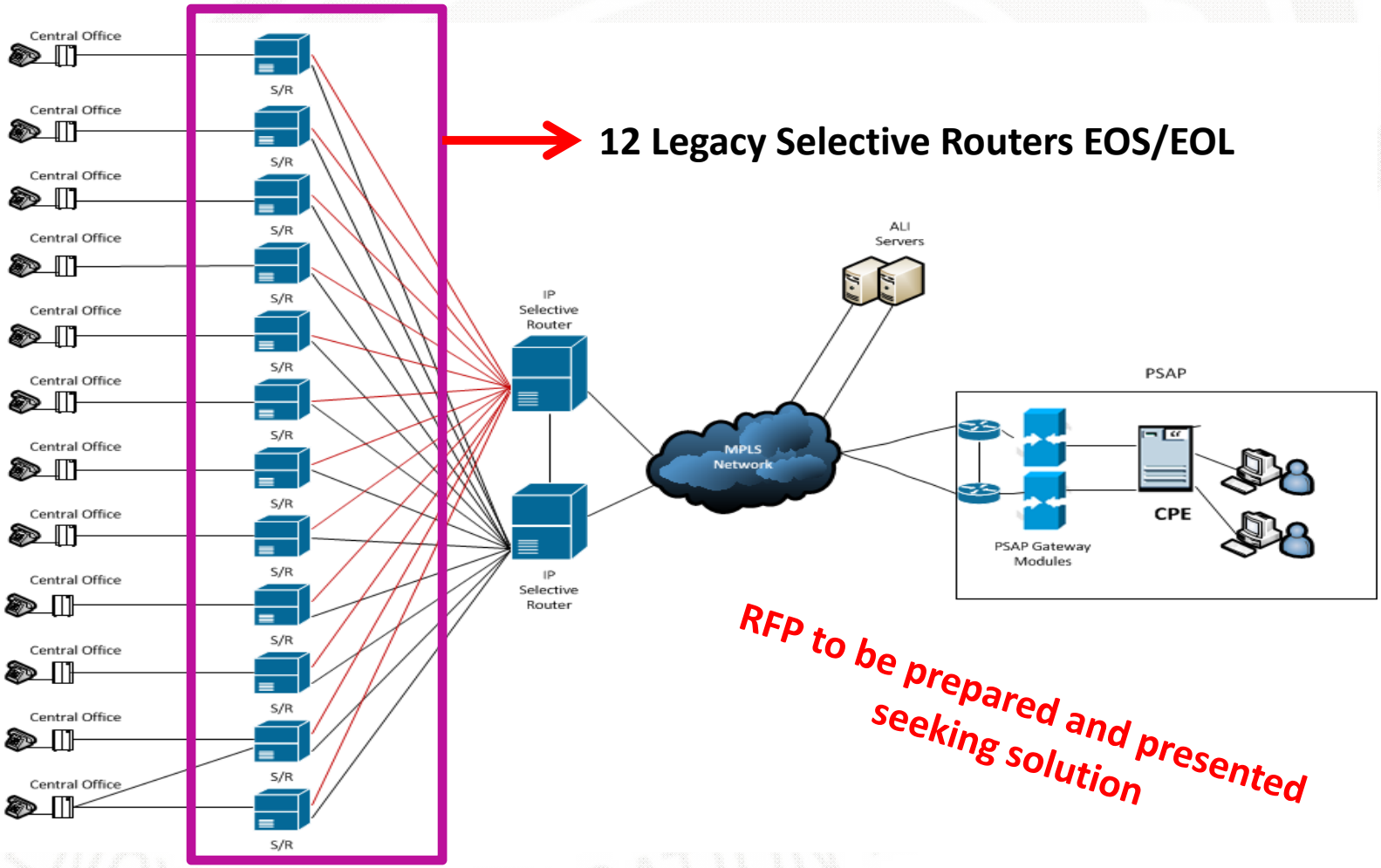
~Present Initiatives

- **Initiatives (September 2014)**
  - Publish RFP for ESInet, statewide text to 911 solution, *and* budgetary pricing for i3 features and functionality
    - Pending with MMD for Posting
  - Hire new employee to help develop a statewide GIS database to be used as 911 routing source for i3 and NG 911
    - In process as a collaborative effort with MN.Geo
    - Job Posting imminent

~Future Initiatives

- **Next Major Initiatives**
  - Re-home all MN telecommunication carriers 911 network from the 12 legacy selective routers to alternative aggregation points with newer technology
    - Estimate Implementation 2015-2017
  - Deploy Text to 911
    - Estimate Implementation 2Q 2015
  - Migrate toward geospatial call routing and NG 911
    - Estimate Implementation 2Q 2017

~MN Carrier Rehoming



~Future
Text to 911

- ***"The industry has done its part, the FCC has done its part. Now it's time for the PSAPs to do their part" – FCC Chairman Tom Wheeler***

~Future
Text to 911

- Declaring 911 access as a core value of American life, the FCC has re-stated its goal of quickly implementing text-to-911 service to the US, saying that if carriers implement it voluntarily, no additional federal regulations would be required.
- The four national carriers implemented a bounce back message to citizens who attempted to text 911 by September 30, 2013.
- The four national carriers signed an agreement pledging to deploy text-to-911 services by May 15, 2014.

Text To 9-1-1

- **NENA praised the FCC action.**
  - "To better serve individuals with hearing and speech disabilities, better protect victims of domestic violence and home invasions, and better connect with consumers when voice service is overloaded, text to 9-1-1 must be made available as widely as possible and as soon as possible."
  - Both carriers and PSAPs must move swiftly to bring this new adaptability to consumers.

National Emergency Number Association – 911 Industry Professional Organization focused on technological advancement and standards for NG911

Text To 9-1-1

- **Minnesota's Vision**
  - **Statewide implementation** using a well-planned and coordinated deployment approach, perhaps starting at a regional level
  - **Statewide public education campaign** to precede implementation
  - **Single vendor solution** for all of Minnesota
  - **Accept text to 911 from all four major wireless carrier**s and any smaller carriers capable of provisioning
  - **Integrate the solution directly into call center call answering equipment** to greatest extent possible
  - **Implement a single web based solution** for text to 911 when call center answering equipment cannot integrate
  - **Ability to transfer** text messages between PSAPs

~Future GIS For 911

- ***"As we shift focus to the future, GIS will become the hero in the next-generation world and the basis for a lot of what happens. It's really shifting the role from being a supporting role to being perhaps the heart and soul of call routing and many of the other functions." - Sean Petty , Director of Technology Practice, Mission Critical Partners***

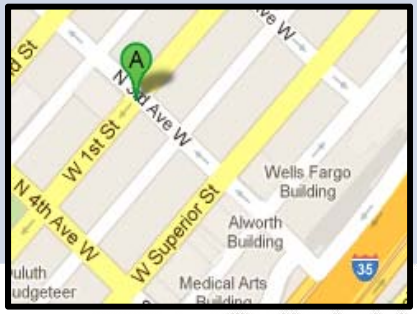
~Future
Geo Spatial 911 Call Routing

Geographic Information Systems (GIS) plays a supporting role in today's PSAP and will become increasingly more important as we move towards a Next Generation 911 system.

GIS will become the source data for the routing of 911 calls - assisting with location validation – determining the appropriate responding agencies, replacing the tabular MSAG.

911 call from:
300 W. 1st St.
-92.10309, 46.7847109

Locate call on map of routing boundaries



Send call to correct PSAP:
Voice/Data/Location

~Future GIS For 911

-Today's E9-1-1 is based on a phone number

-NG9-1-1 is based on the location of the calling device and allows voice calls, along with all types of communications media to connect with PSAPs and first responders

-With NG9-1-1 all request for emergency services are associated with a location. The location can be a street address, a geodetic shape or a longitude and latitude coordinate

-The location of the call device determines the PSAP the request for emergency services is sent to and the emergency responders who respond to the request for emergency assistance.

Geospatial Routing

- **Minnesota's Vision**
  - **Identify core geospatial data** required to support the on-going operation of NG9-1-1 throughout the state. When possible, leverage recent and on-going investments in geospatial data being made by federal, tribal, state, regional and local governments to reduce costs
  - **Define a common data model** and successfully transition collected data to the defined schema
  - **Construct a viable path** to obtain and/or develop, maintain, update, aggregate and standardize these data
  - **Actively engage** PSAPs, federal, tribal, state, and regional and local jurisdictions in Minnesota in the collection, standardization, updating aggregation, and maintenance of geospatial data required for NG9-1-1 and related PSAP and emergency responder needs

Geospatial Routing

- **Minnesota's Vision**
  - **Establish a long term communication plan** to keep participants informed
  - **Identify short-term development, long-term maintenance requirements and data custodians.**
    - Promote updating, maintenance, collaboration and coordination at local, regional, and state agencies to nurture ongoing relationships for the sake of a maintained set of data that supports NG9-1-1, public safety and other defined operations;
    - Define and implement a program, process and funding for ongoing maintenance and management of the data needed to support NG9-1-1, public safety and other defined operations.
  - **GIS Data Collection** and assessment of data with discrepancy reports sent to the providers and maintainers of the GIS data to allow continuous improvement of the data quality and data integrity.

Geospatial Routing

- **Minnesota's Vision**
  - **Identify Transition Plan** to incorporate GIS data into NG9-1-1 geospatial call routing.
  - **Coordinate with existing state of MN NG9-1-1 providers and DPS/ECN** to determine the requirements to interface with ECRF/LVF solution vendor(s) to interface according to NENA GIS Standards
  - **Develop business case** for migration from tabular MSAG legacy 9-1-1 call routing to NG9-1-1 geospatial based routing.

Summary

- Today in Minnesota:
  - » nearly 4 million calls per year traverse the ESInet
  - » More than 75% of the calls placed to 911 are wireless
  - » 5.4 Million population served
- **The implementation of NG911 features and functionality must be in place to be able to capitalize on FirstNet!!**

Use Case: Vehicle Crash ~FUTURE

Bystander calls 911 using iPhone and Sends Photos & Video of Crash to PSAP

PSAP Forwards Photos & Video Sent by 911 Caller to LE and Fire

Vehicles Send Telematics Data Directly to PSAP

DOT

PSAP Sends Data to DOT for Intelligent Traffic Reroute

PSAP

PSAP Forwards Telematics Data sent from Vehicles to Hospital and Dispatches First Responders/Ambulance Simultaneously

HAZMAT Acknowledged at time of crash

HAZMAT

Hospital

Hospital Activates Burn Unit

Challenges

- Maintaining a consistent revenue stream in light of unpredictability of 911 fees collected
- Factoring unknown/undetermined costs associated with next major initiatives especially at local level
  - » Rehoming MN Carrier network from 12 legacy selective routers to alternative aggregation points with newer technology for 911 call delivery
  - » Text to 9-1-1
  - » Development of seamless statewide GIS data and I3 databases

Questions??

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