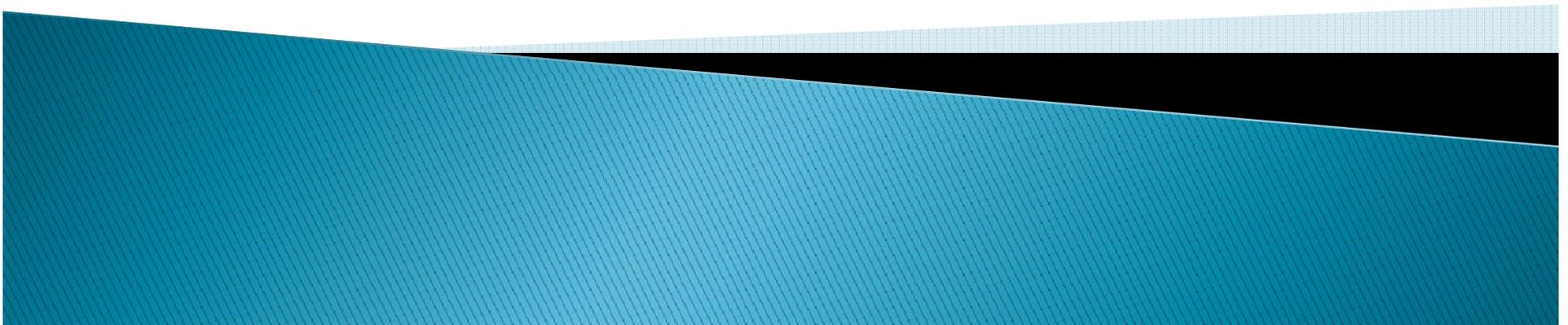


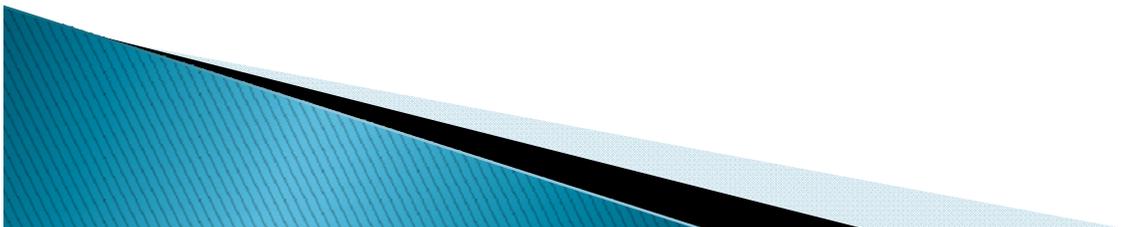
A Regional 9-1-1 System

North Central Texas
Council of Governments



9-1-1 in Texas

- ▶ Municipal Districts – formally known as Home Rule Cities
- ▶ Emergency Communications Districts
- ▶ Councils of Governments
 - Different legislation and funding models
 - Different models for administration

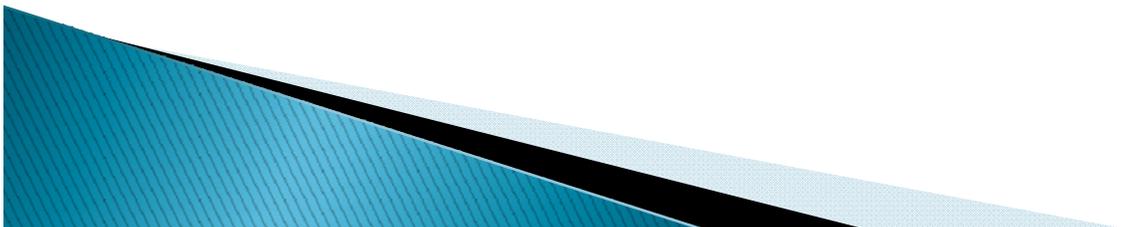


A Glance at the Region



North Central Texas Council of Governments 9-1-1

- ▶ **14 Counties** surrounding the Dallas Fort Worth Metroplex in 9-1-1 Program - 16 in Region
- ▶ **134 Cities** in the Program - 168 Cities in Region
- ▶ **44 Public Safety Answering Points (PSAPs)**
 - Enhanced 9-1-1 since 1991
 - Wireless Phase II, VoIP Pre-i2
- ▶ 12,800 Square Miles in Region
- ▶ Region is larger than 9 States
- ▶ Population in 9-1-1 Program 1.6 Million - Regional Population is 6.8 Million



NCTCOG 9-1-1 Staff & Services

- ▶ **Technical Team (8)**
 - Maintenance to 44 PSAPs
 - Preventative Maintenance
 - Technical Planning
 - Implementations
- ▶ **Operations Team (7)**
 - PSAP Relations
 - Public Education & Training
 - Database & Contingency Planning
 - Contracts & Liaison with vendors
- ▶ **Administration (2)**
 - Budgeting & Strategic Planning



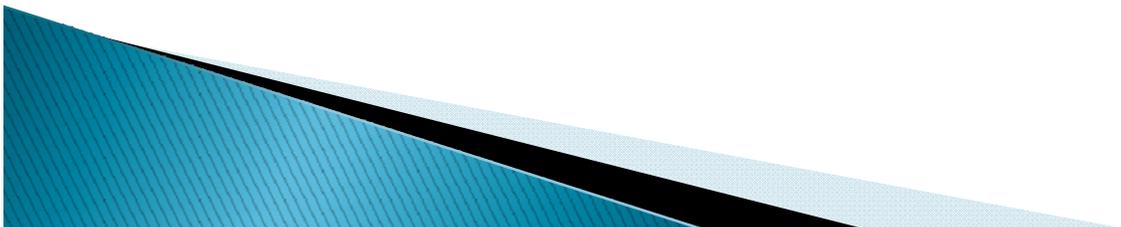
Benefits of Regional System

- ▶ Purchasing Power!!!!!!!!!!
 - Sharing costs & services=reduced costs
 - Effeciencies
- ▶ Size allows for dedicated staff
 - Not wearing multiple hats
 - Specialization
- ▶ Continuity of Services
- ▶ Shared Resources and Knowledge
- ▶ Ability to be an Early Adopter
 - Providing Improved Services



Limitations of our 9-1-1 System

- ▶ Connectivity (can't transfer calls to neighboring 9-1-1 entities with data)
- ▶ Access for Deaf/Hard of Hearing
- ▶ Lack of contingency options in a disaster scenario
- ▶ Not meeting public expectations!



Who Still Uses the Same Phone They had in 1968?



Do You Have the Same Car You
Had in 1968?



Listens to Music the Same Way?



Are You Using ANY of the Same Technology You Had in 1968?



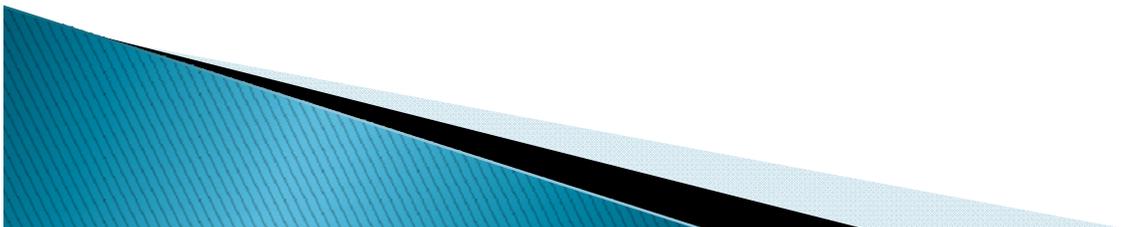
Do You Know that You Have the Same 9-1-1 System As 1968?



Wikipedia Definition

Next Generation 9-1-1

Refers to an initiative aimed at updating the 9-1-1 service infrastructure in the United States and Canada to **improve public emergency communications services** in a wireless mobile society.



Let the Journey to NG Begin

- ▶ 2007 Master Planning – Migration Path to NG9-1-1
 - *Resistance from decision makers, staff & TCs*
- ▶ 2007 RFP for IP Network & Equipment
- ▶ Local Control, but equal level of service
- ▶ 2008 Training & Implementation



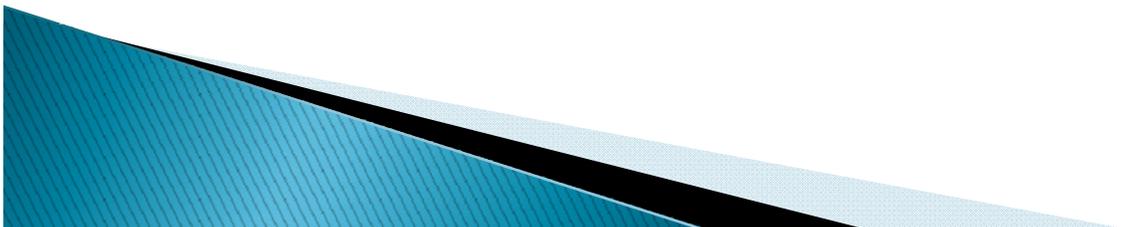
Network – Building a Foundation

- ▶ MPLS network is backbone or foundation and then we will add:
 - Features (text & video)
 - Applications (CAD, RMS, Recorders, etc)
 - Functionality (GIS Based Routing & Policy Routing)
 - Participants
 - Other 9-1-1 entities
 - Public Safety
- ▶ Solving Immediate Needs
 - Connectivity
 - Transfer Capabilities



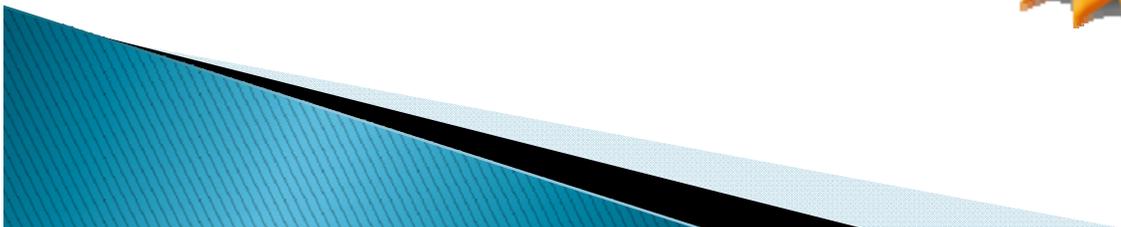
Trial Applications

- ▶ Integration of CAD, RMS and Voice Logger
 - Network hosted services
 - As agencies up for replacement, option of getting licensing of system over network (Saves \$/interoperability)
- ▶ Ability to add radio to IP network
 - “radio guys” often don’t trust cable buried in ground
 - Component of State FOA



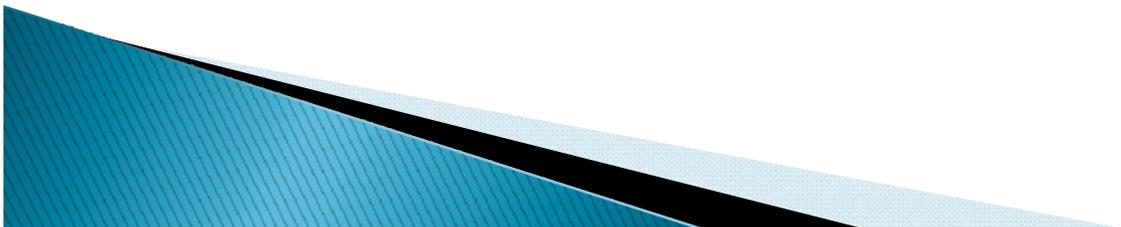
Implementing New CPE

- ▶ IP 9-1-1 Customer Premise Equipment (CPE)
 - Knew we would have to Rip and Replace
 - Training Issues
 - Needed to Maintain Reliability and Quality of Service



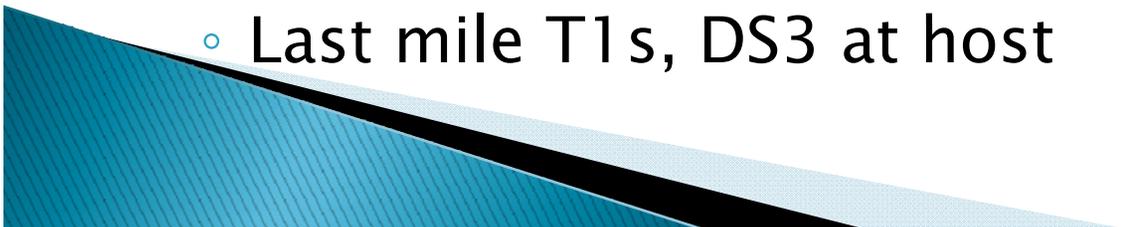
Host/Remote

- ▶ Connectivity
- ▶ Space and Real Estate for back room
- ▶ Cost Savings
- ▶ Mitigate Vulnerability
 - How many PSAPs are you willing to lose at one time?
 - Issues with geographically locating host/remotes

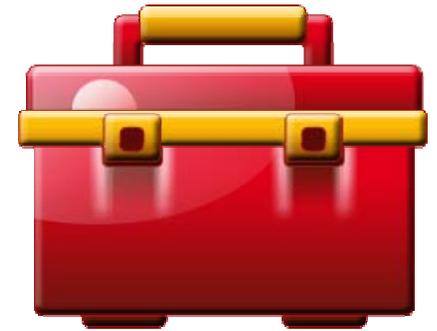


NCTCOG 9-1-1 Configuration

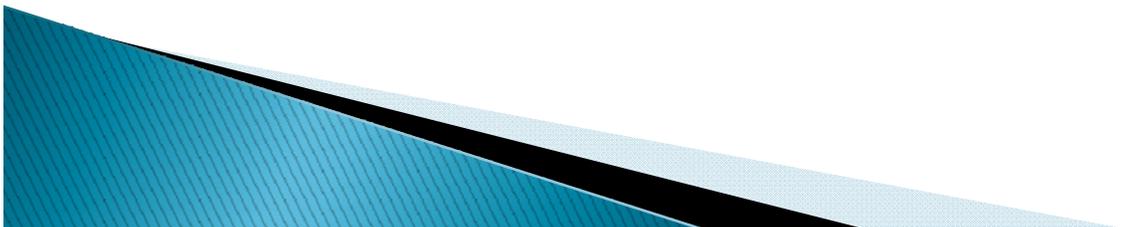
- ▶ 4 Systems
- ▶ 8 Host VIPERS (located in data centers)
 - 44 remote VIPERS
 - LAB
- ▶ 8 Hosts are connected (VIPER 2.0 & Multinode)
- ▶ Survivability
 - If remote loses connectivity to host, they can still operate
 - Some hardship to PSAP – loss of some services
 - No impact on public
- ▶ MPLS connecting 44 PSAPs
 - Last mile T1s, DS3 at host



Self Maintenance

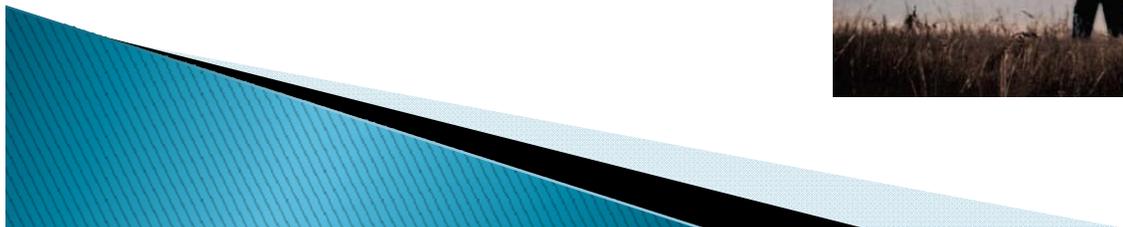


- ▶ Moved to self-maintenance
 - Contracted with vendor for installation
 - Contracted with vendor for 1st year Tier I maintenance
 - Contracted with vendor for Tier II maintenance years 2-5
 - Built into Contract – vendor to work with our technical staff and made sure warranties would not be voided
- ▶ Built technical team – CPE, Network, GIS
 - Started with retired AT&T tech – telephony skills
 - Added CPE Manufacturer tech – contemporary skills
 - Reclassified GIS analysts to technical operations



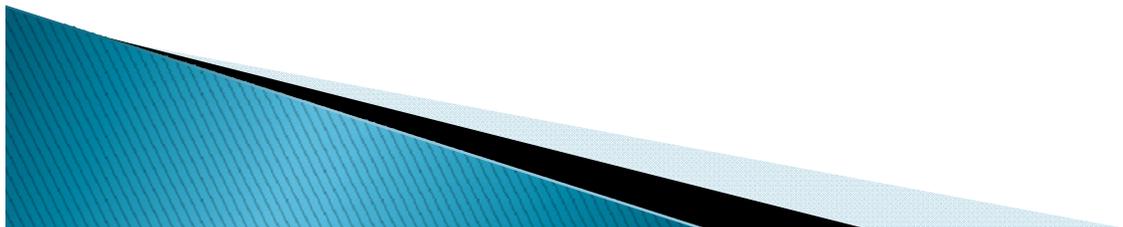
Management & Monitoring

- ▶ Ongoing element of NG9-1-1
- ▶ Can be done in house or outsourced
- ▶ Can share resources with other 9-1-1 entities
- ▶ Remember that monitoring comes with notification, but not always repair



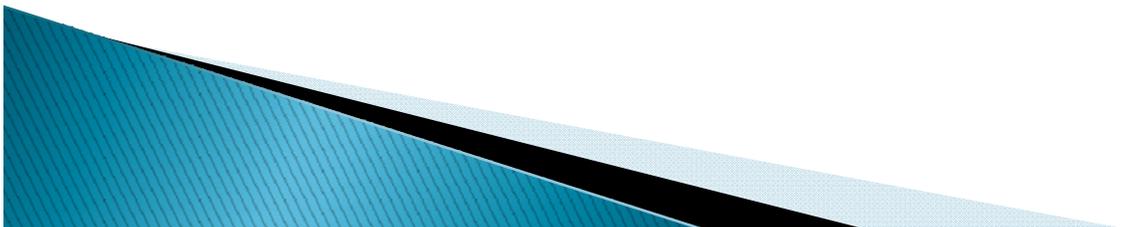
GIS in the PSAP

- ▶ Regional maps
 - Boundary rectification (local then state)
- ▶ Call routing based on GIS
 - Nice to have
 - Have to have
- ▶ MSAG to GIS compare
- ▶ Accuracy is VITAL – 98%



Teachable Moments. . .

- ▶ Can't buy enough diversity and redundancy!
- ▶ Unsuccessful in getting those outside of 9-1-1 to participate
 - TX DoT
 - Emergency Management
 - IT department
 - Workforce Development
- ▶ Didn't include IT at the local level enough
- ▶ Mitigation Strategies needed for Outages



What Have We Done Right?

- ▶ Regional System
- ▶ Hiring a consultant
- ▶ Standardization (ATP, MOPs, structured wiring & UPS)
- ▶ Moving forward & Taking risks, but with a safety net
- ▶ Mitigating Risks
- ▶ Taking baby steps towards NG9-1-1
- ▶ Self- Maintenance
- ▶ Lab and Laptops
- ▶ Networking with others



Lessons Learned – Top Ten

- ▶ #1 – Understand that this is a new world – we are stepping out of our comfort zone!
- ▶ #2 – You are responsible for the actions of your 9-1-1 team & consultants!
- ▶ #3 – Write requirements to determine the best solution for YOU!
- ▶ #4 – Don't believe everything you hear – if it is not documented in the contract, it didn't happen!
- ▶ #5 – Clearly define Service Level Agreement (SLA) in contract and consequences



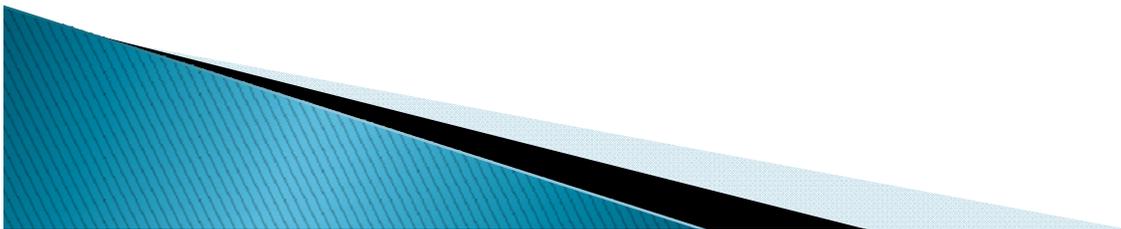
Lessons Learned – Top Ten

- ▶ #6 – Carefully consider Host/Remote – Mitigate vulnerability!
- ▶ #7 – Locate Host Equipment in Data Centers
- ▶ #8 – Accuracy of GIS becomes paramount in Next Generation 9–1–1
- ▶ #9 – Most Common point of failure on networks is local connectivity – plan accordingly!
- ▶ #10 – Take your time and do it right! Plan, Plan, Visit Others and Plan. . . .



What Are We Doing Today?

- ▶ Stabilization of system – MultiNode
- ▶ 2011 RFP for New Network & ESInet
- ▶ Backup wireless network



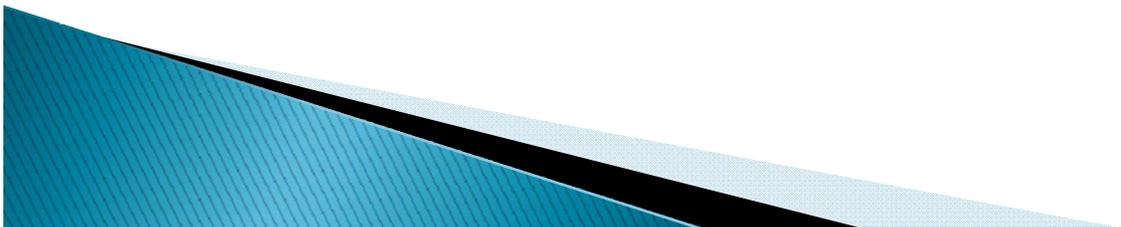
State FOA

- ▶ Top Down Approach
- ▶ Federal Grant 5.4 million dollars
 - State ESInet
 - 8–14 regional ESInets
- ▶ Legislatures cut ALL NG Funding
- ▶ Taking up & Turning Down State ESInet August 31st
- ▶ Bottom Up Approach
 - Building regional ESInets
 - Hopefully will be funded and turn state ESInet back up
- ▶ Standards based and developed minimum requirements
 - Interconnection
 - Security
 - Governance



Collaboration & Connectivity

- ▶ Need for Connectivity is now!
- ▶ Regional logistics & Ability to transfer
- ▶ Time to start building relationships
 - Neighboring 9-1-1 entities
 - Public service – first responders
 - Emergency management/homeland security
 - Transportation
 - 3rd party vendors



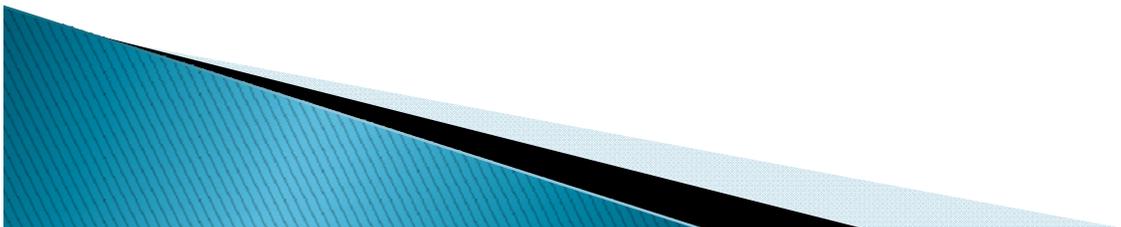
Challenges of Partnerships

- ▶ Governance
- ▶ “Control” or perceived control
- ▶ Funding – cost matrix
 - Not as simple as paying for additional bandwidth
 - When consortium being developed – percentage of expenses
 - Population
 - Positions
 - Call volume
 - Current budget
- ▶ Physical Location
- ▶ Delegation of Tasks
- ▶ Technology Choices
- ▶ SOPs
- ▶ Security



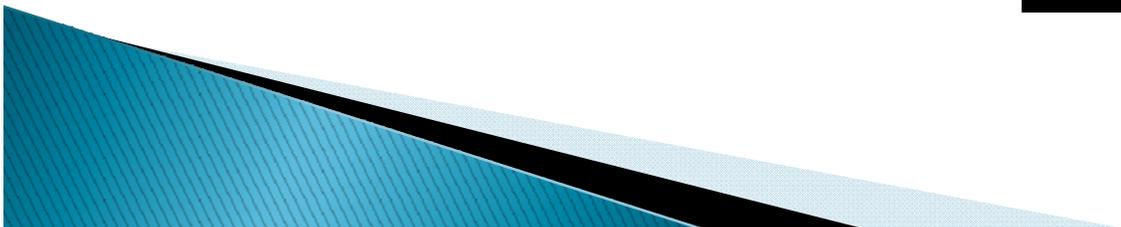
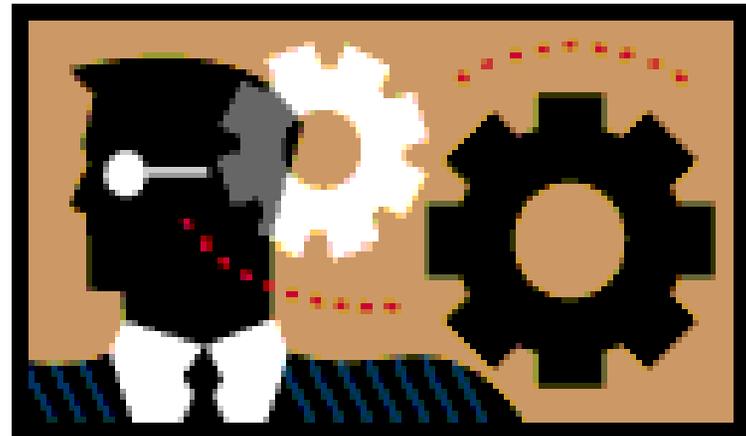
Benefits Outweigh Challenges

- ▶ System of Systems Vision
- ▶ Standards Based Solutions
- ▶ Connectivity – Sharing of Information
- ▶ Interoperability
- ▶ Efficiencies
- ▶ Collaborative Resources
- ▶ No duplication of efforts
- ▶ Opportunity to Provide Improved Services for our Community
- ▶ Decrease Costs (sharing)



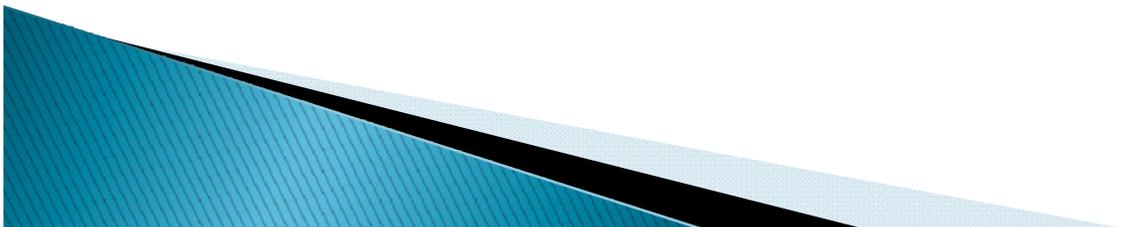
Metroplex Consortium

- ▶ Connectivity of ESInets
- ▶ Shared Costs & Services
 - NOC, SOC
 - Maintenance & spare parts
 - Increased Purchase Power
- ▶ MOUs
- ▶ Consultants
 - Administrative Plan
 - Governance Plan



Equal Level of Service

- ▶ Shared Services Offerings:
 - CPE (9-1-1 Equipment)
 - Maintenance Services
 - Network Connectivity
 - ESInet (Emergency Services IP Network)
 - GIS Services
- ▶ Current 9-1-1 Offerings
 - Public Education
 - Training



The Journey Continues. . .

NG is not a destination – it's a journey! Ready for an adventure?

Christy Williams, ENP

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