Understanding NG9-1-1 for Public Safety

Workshop for the State of Michigan

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Presenters
Glenn Roach
Joel McCamley

Email
groach@fedeng.com
Jmccamley@yesinc.net

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Workshop Agenda

- Welcome & Introductions
- NG9-1-1 Overview
- Strategic Considerations
- NG9-1-1 Technology
- Michigan NG9-1-1 Overview
- Transition to NG9-1-1
- Current NG9-1-1 Activity
- NG9-1-1 Landscape/Wireless Broadband
- Legislation and Regulations
- NG9-1-1 Stakeholders and Resources
- NG9-1-1 Community Model
- Things to Consider
- 2012 Derecho Impact
- Adjourn

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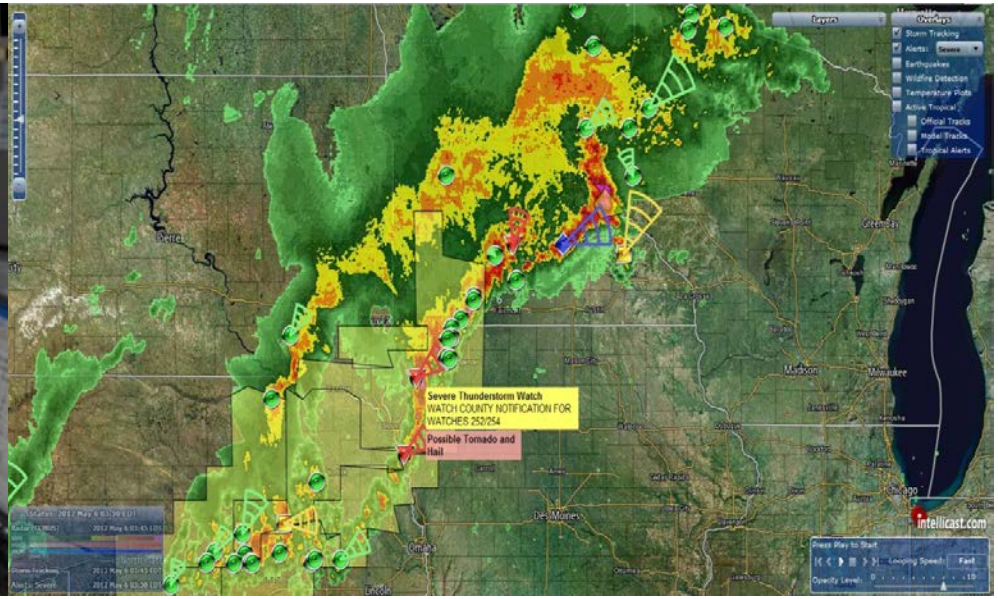
NG9-1-1Overview



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Added Capabilities and Functions

IP Based NG9-1-1 has all Capabilities and Functions of E9-1-1

Fully integrate and interoperate with other emergency systems and entities

- Other PSAPs
- EOCs
- DHS and other emergency management entities

Expand PSAPs and E9-1-1 Center capabilities

- Transfer voice and data between all NG9-1-1 PSAPs in the country
- Directly activate alternate routing to control call volume
- Access a wide range of databases to expand data sharing and facilitate emergency response and comprehensive incident management

Enhance capability of current and new originating devices

- Non-voice messaging of various types
- Text to 9-1-1
- Devices, such as sensors, generating data-only messages
- Photo and video transmission

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Strategic Considerations

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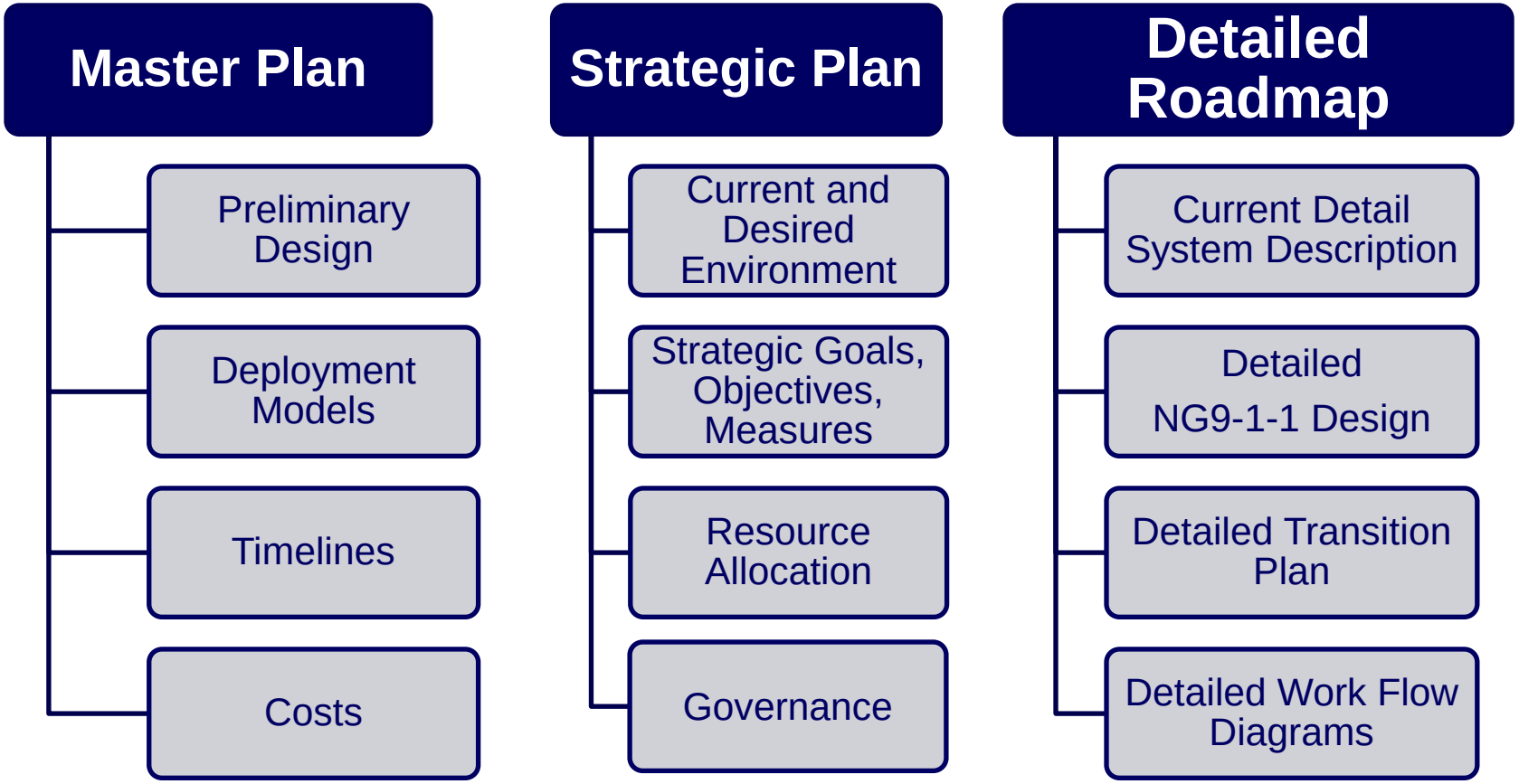
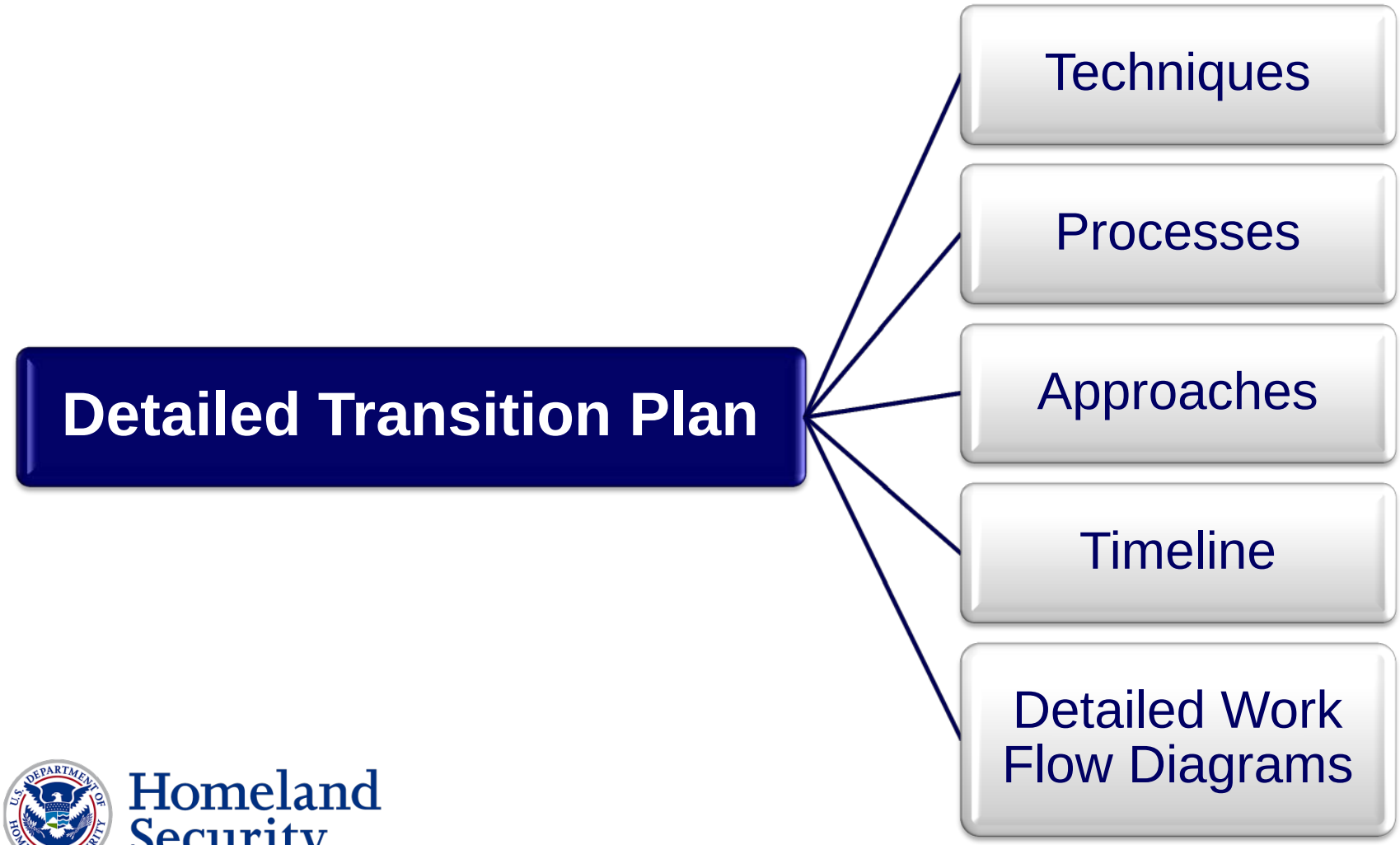

Master Plan
Preliminary Design
Deployment Models
Timelines
Costs
Strategic Plan
Current and Desired Environment
Strategic Goals, Objectives, Measures
Resource Allocation
Governance
Detailed Roadmap
Current Detail System Description
Detailed NG9-1-1 Design
Detailed Transition Plan
Detailed Work Flow Diagrams



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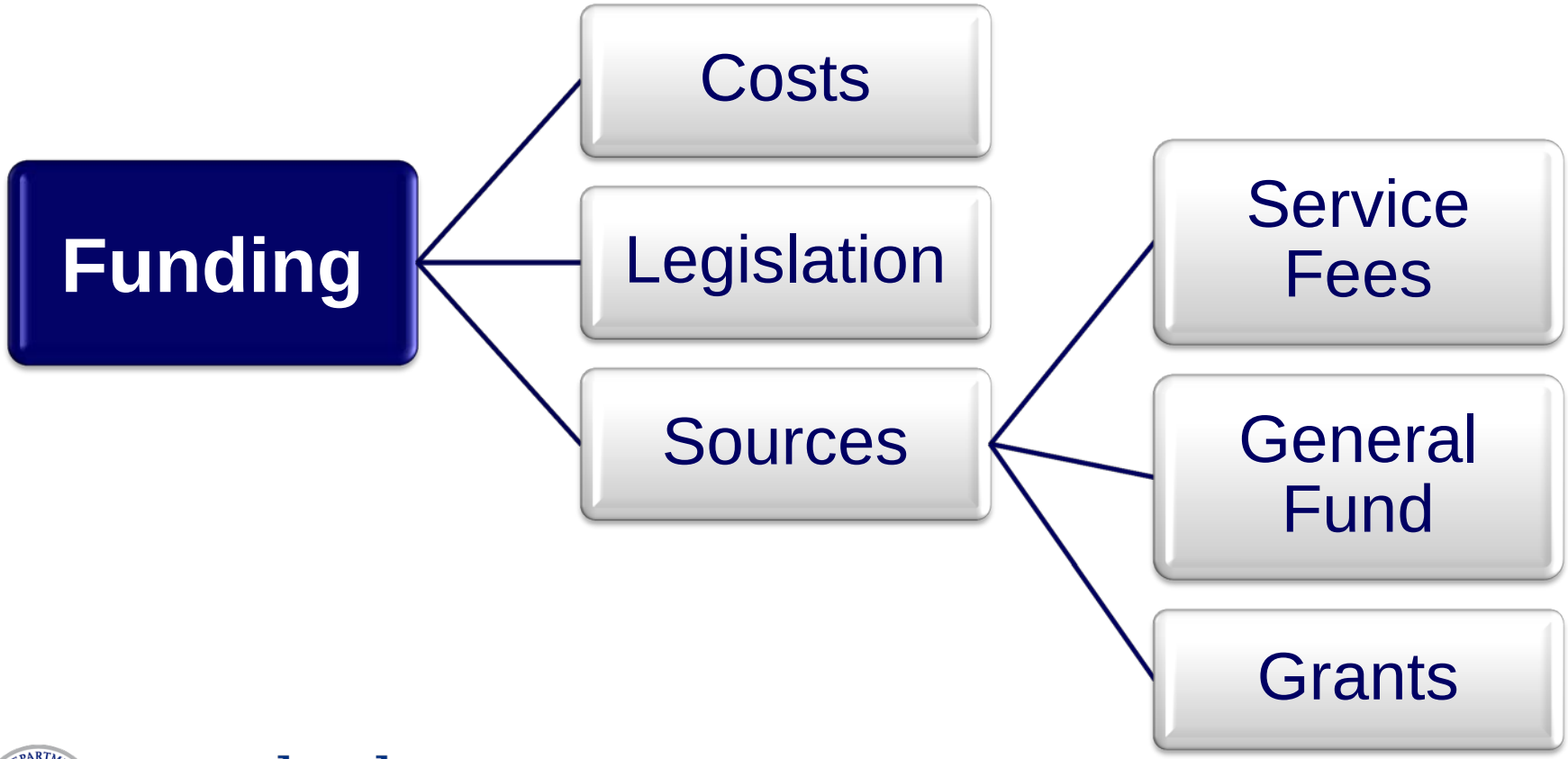
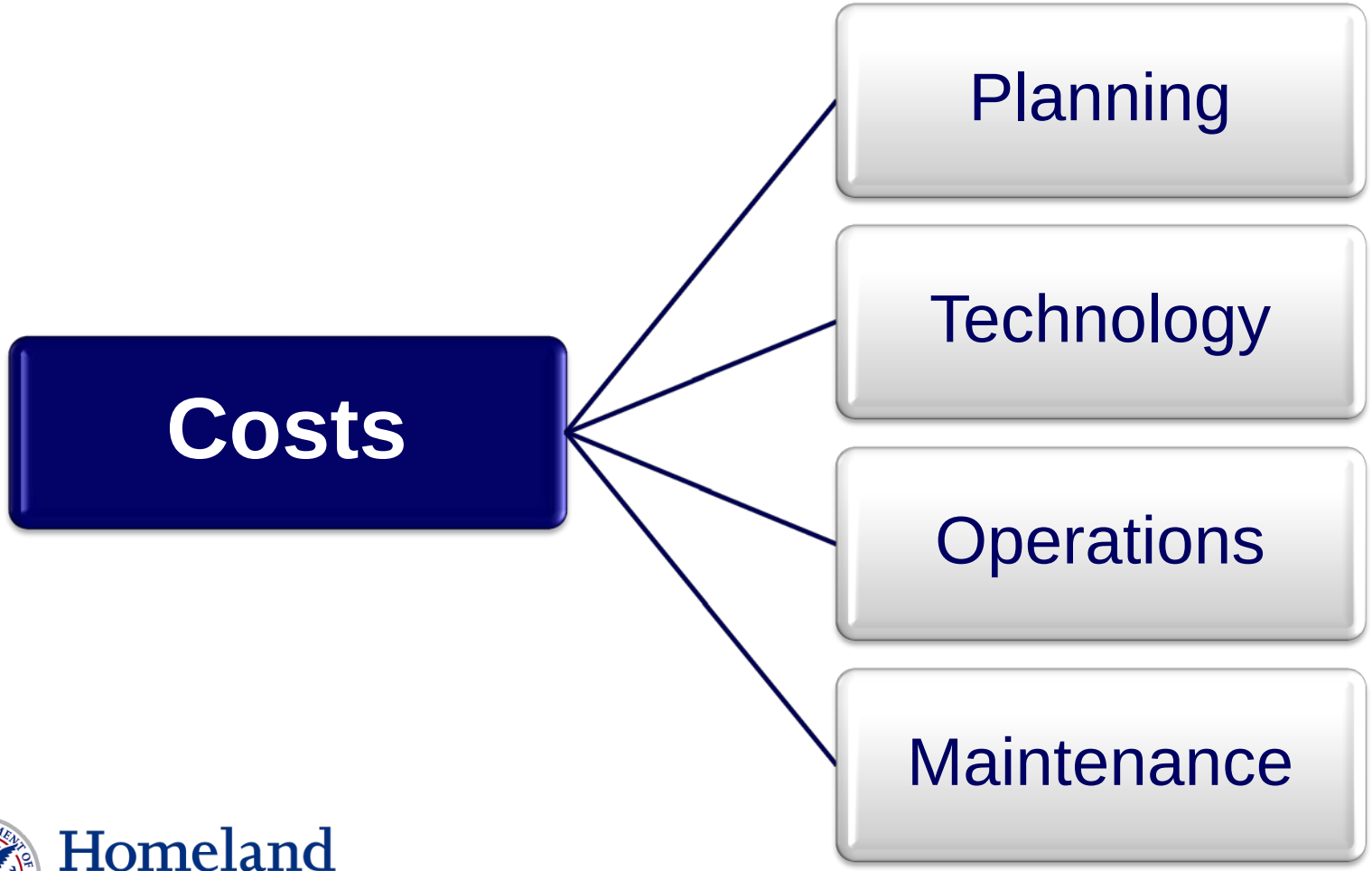
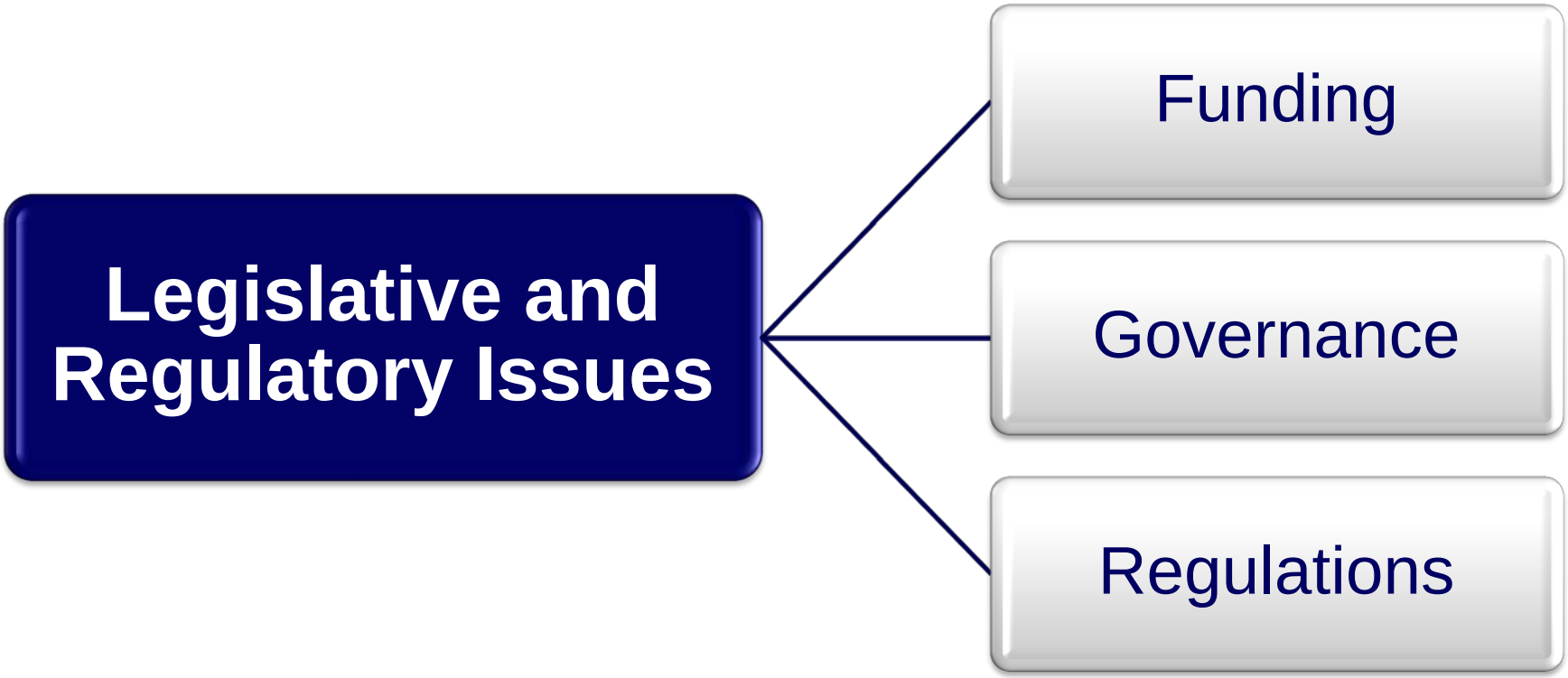
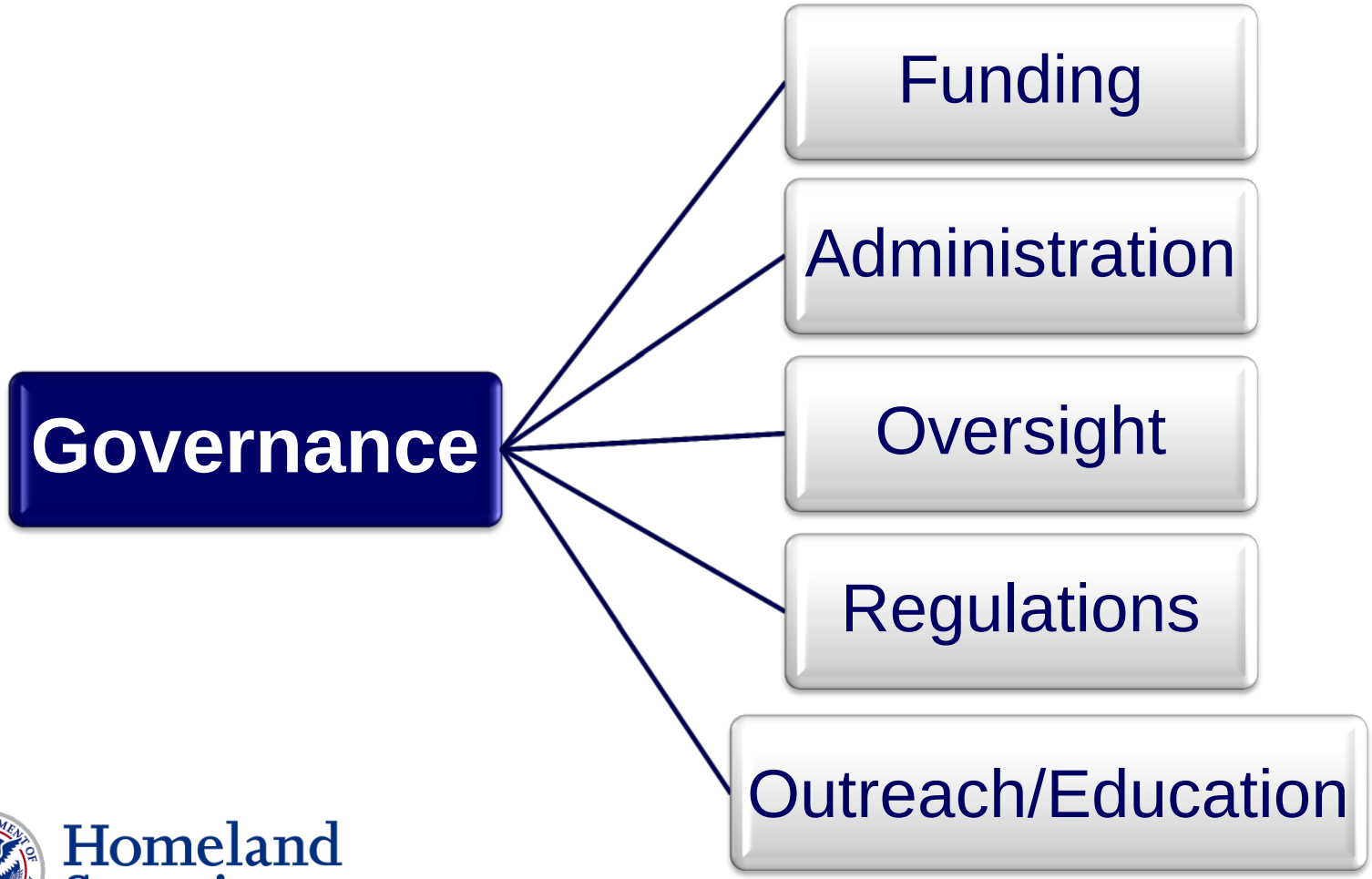

Funding
Costs
Legislation
Sources
Service Fees
General Fund
Grants


Costs
Planning
Technology
Operations
Maintenance


Legislative and Regulatory Issues
Funding
Governance
Regulations



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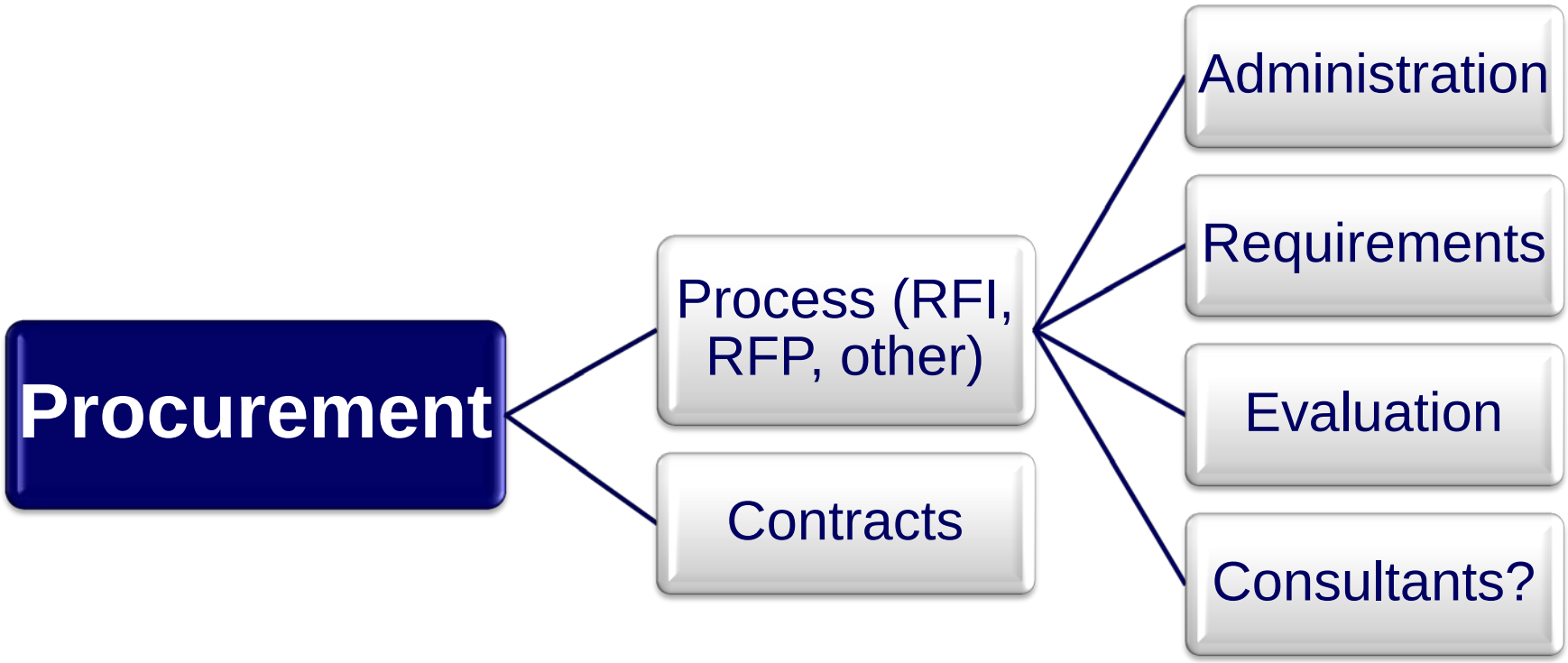
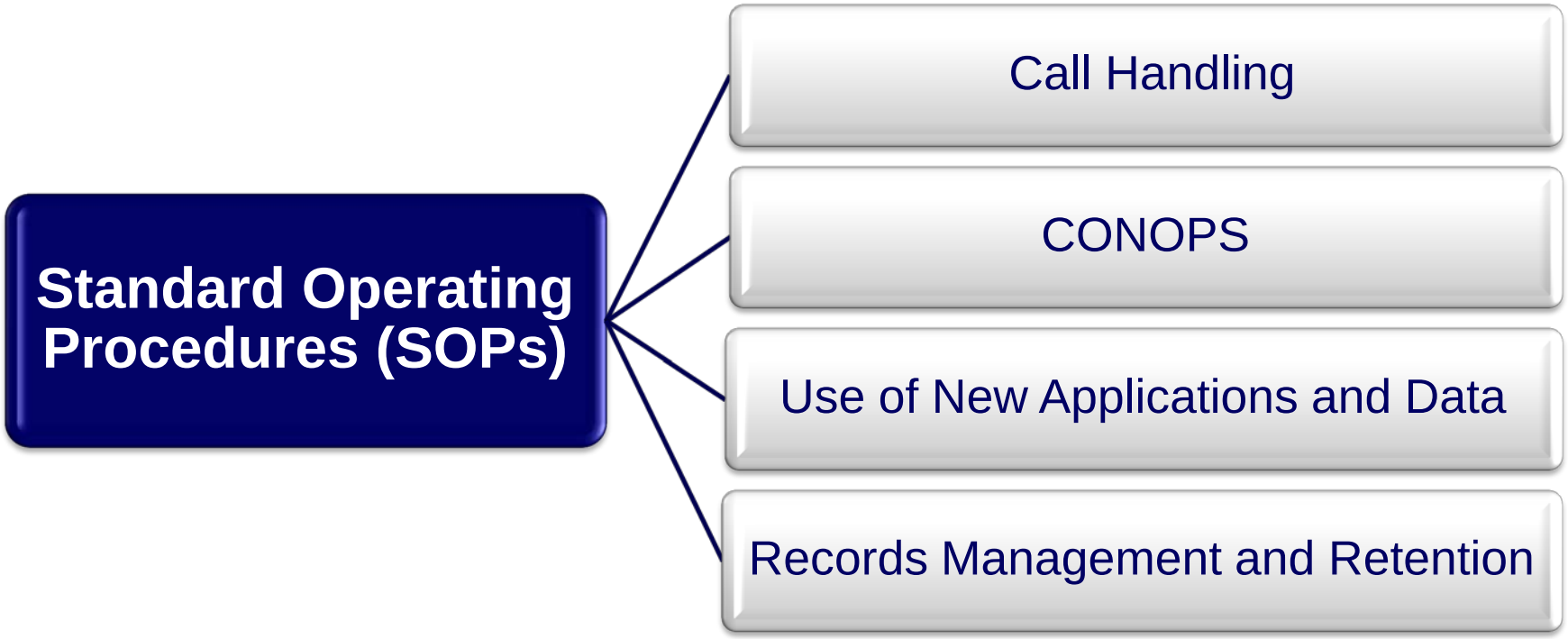
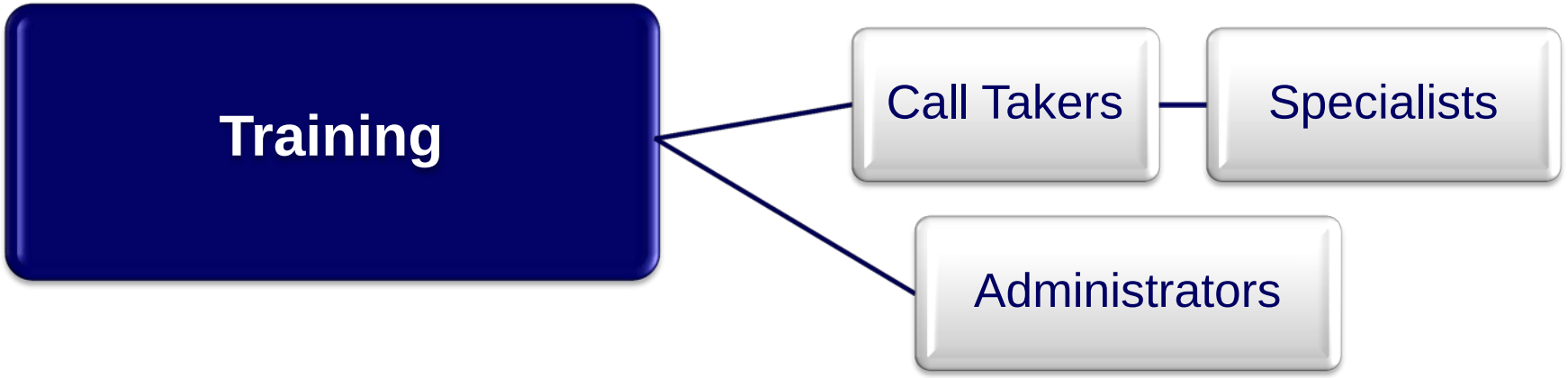

Procurement
Process (RFI, RFP, other)
Contracts
Administration
Requirements
Evaluation
Consultants?


Standard Operating Procedures (SOPs)
Call Handling
CONOPS
Use of New Applications and Data
Records Management and Retention

Strategic Considerations



Strategic Considerations: Business Models

Diverse contractual alternatives for system acquisition and operation

- Public safety implemented and operated
- Contractor provided systems and services
- A hybrid of the above

Contractor provided systems and services can take many forms

- Prime contractor or integrator solution
- Leased or provisioned facilities
- Managed (or hosted) services

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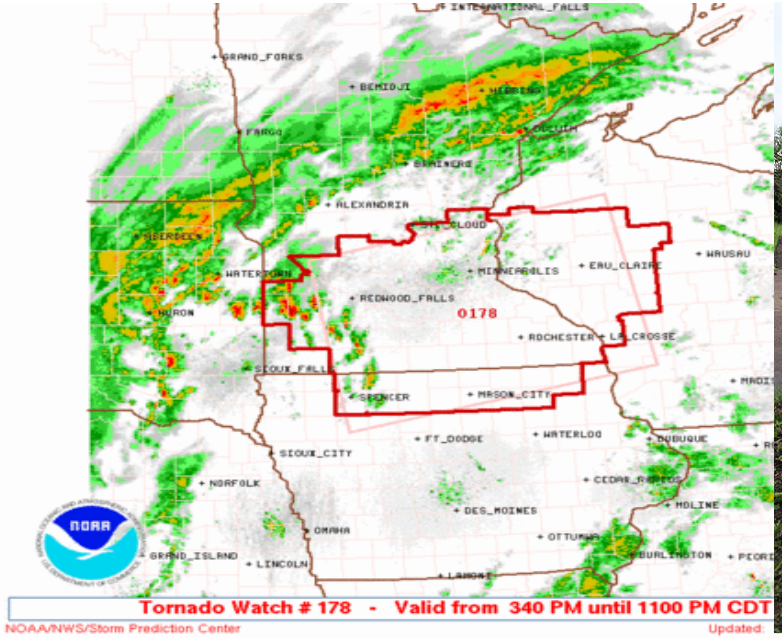
NG9-1-1 Technology



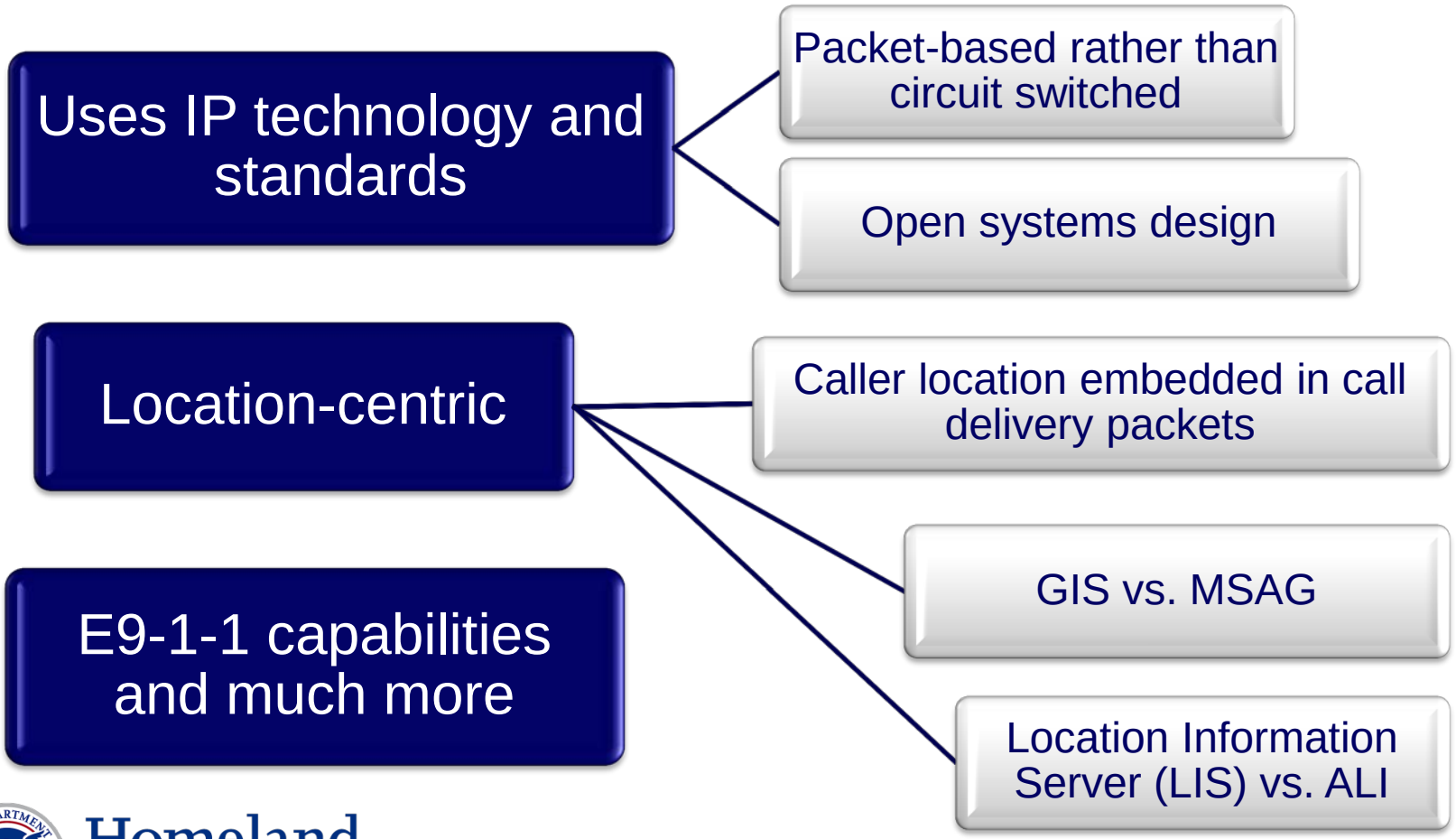
NG9-1-1 Technology: Definition

The set of network elements, software applications, databases, customer premise equipment (CPE) and operations and management procedures required to provide Next Generation emergency services

Includes the emergency services IP network and its interfaces defined in the NENA i3 standard

Includes elements outside the i3 standard including PSAP CPE, applications and operations

NG9-1-1 Technology: Differences



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E9-1-1 vs. NG9-1-1

E9-1-1	NG9-1-1
Complex Analog Trunking and Data Network	Managed Private IP Networks
Class 5 Switch for Selective Routing	IP Selective Routing
Voice Calls Only	Voice, Text, and Video
Complex Interfaces to Originating Services	Standard IP Interfaces for All Call Types
20 Character Data Limit	Broad Data Bandwidth
Routing Based on Translation from Caller Phone Number	Routing Based on Translation from Caller Location

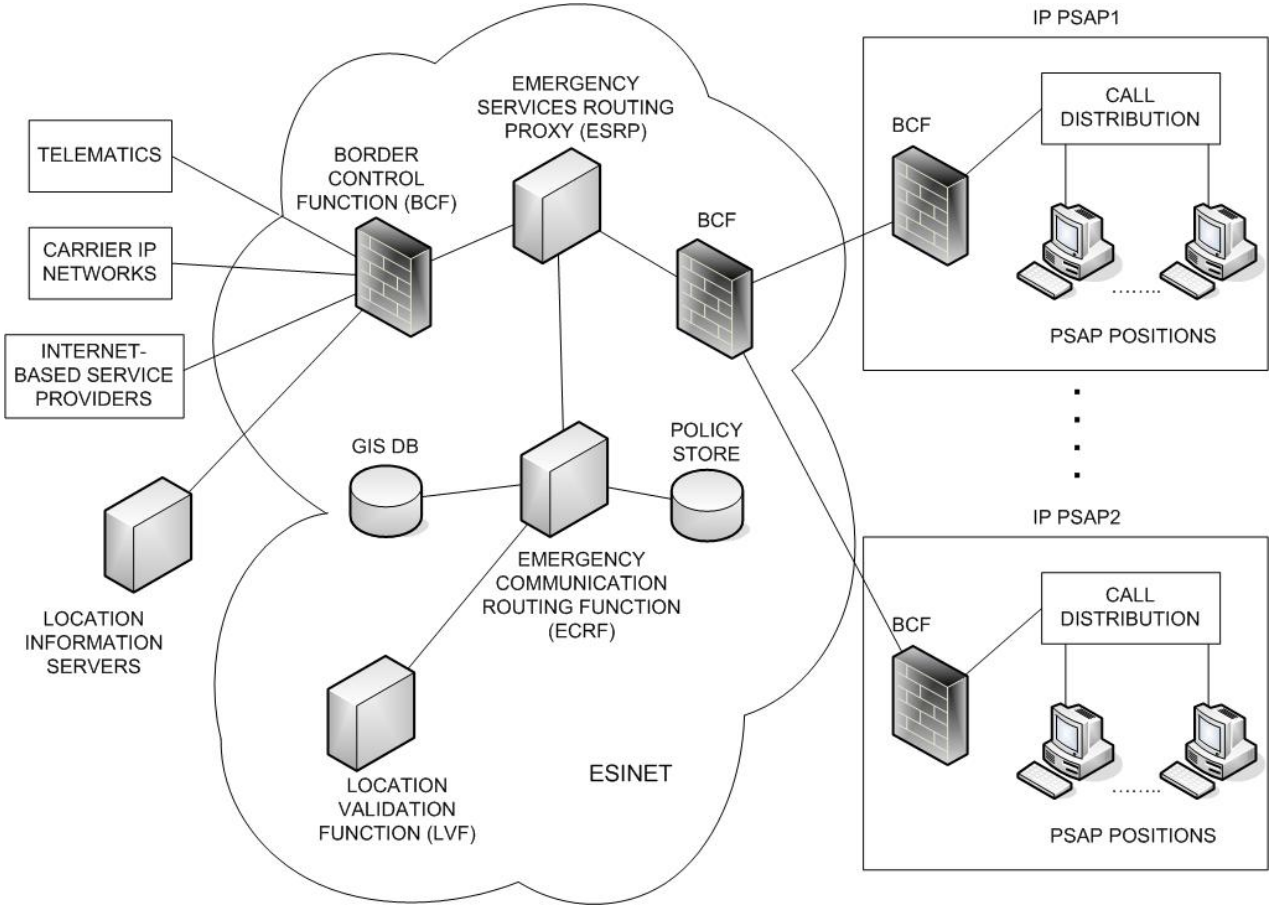
NENA i3 Standard and ESInet

The i3 Standard defines the Emergency Services IP Network (ESInet) and its interfaces

The ESInet is the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed

In order to deploy a fully operational system, specifications of technical, operational, and human elements not covered in the i3 Standard are required

NG9-1-1 Architecture



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NG9-1-1 Technology Solutions

Migrate 9-1-1 from Legacy Circuit-Switched Technology to IP solutions

Establish interconnected broadband networks for the processing and routing of calls for service and information exchange between agencies

Embed location data in each call for service (No need to query databases)

NG9-1-1 Technology Solutions (Continued)

Implement dynamic management of call routing policy

- PSAP routing based on operator loading, time-of-day, malfunctions, etc

Modernize PSAP Customer Premises Equipment (CPE) where needed

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NG9-1-1 Technology Benefits

- Support Additional Requests for Assistance types
- Greater survivability via network resilience and PSAP backup
- Flexible control of call distribution and congestion
- Improved collaboration and information sharing
- Solid foundation for advancing technology
- Potential for future cost savings

NG9-1-1 Technology Myths

The PSAP working environment will change radically overnight

Accurate location data is guaranteed

NG9-1-1 will immediately begin to save money

Harassing or malicious 9-1-1 calls will be eliminated

NG9-1-1 Technology Realities

There are many alternative paths for the migration from legacy to NG9-1-1

Detailed transition planning is critical

Coordination among participating entities during transition may be complex and challenging

Operating costs will be higher during transition because of the need to maintain legacy systems during NG9-1-1 deployment

NG9-1-1 Technology Realities (continued)

Education and training of operators and maintainers is essential for success and acceptance

NG9-1-1 standards are constantly evolving

The standard for Text to NG9-1-1 still in development

Michigan NG9-1-1 Overview

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Michigan's NG9-1-1 Goal

Transition Michigan's current state 911 network from a telephone-based, voice-only system into a fully interoperable, internet protocol (IP) based, multimedia NG911 system capable of supporting a variety of different communication devices and protocols by the end of 2018.

NG9-1-1 Transition Proposed Timeline

Recommendation:

The series of events and tasks recommended by the working group must begin at the onset of 2013 and be accomplished over the next five years in order to achieve the full benefits of an integrated interoperable NG911 public safety communications system for Michigan by the end of 2018.

Community Expectations

- Same 911 access & service regardless of location, device
- High standards and requirements
- Reliable equipment & processes, esp. in disasters
- Warning notifications on social media, multimedia devices
- Equal access for special needs community

NG9-1-1 Legislative Changes

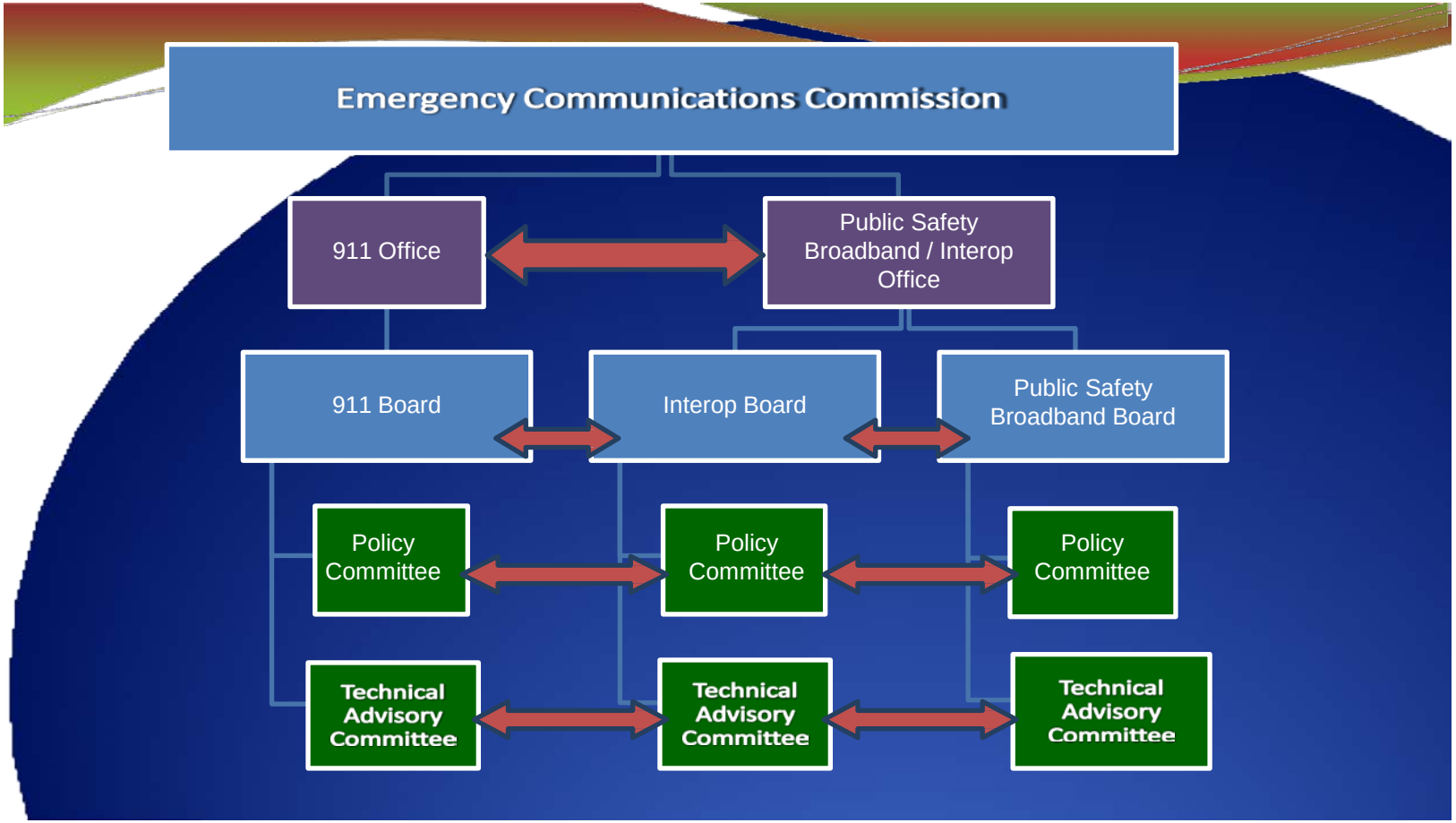
Implementation requires related legislative changes :

- Amendments to P.A. 32 of 1986 (Michigan guiding statute for 911) such as:
  - Creation of the ECC and its authority
  - Statutory protection for the 911 fees
  - The adoption of policy changes requiring 911 services and capabilities
- Statute will need to address expansion of network communication beyond telephony-based service providers

Emergency Communications Commission

- ECC Mission and Authority
  - *Design, procure, and enter into agreements*
  - *Manage interconnections between the ESInets*
  - *Set system standards*
  - *Request information*
  - *Adjust the levels of distribution of the state 911 fee*
  - *Oversee the remittance and use of 911 funds*
  - *Tie state-based funding to compliance to standards and meeting deadlines*
  - *Set systems in place to promote and facilitate effective interoperability between public safety agencies.*
- Membership has 911, emergency response, technical expertise

Emergency Communications Commission



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ECC Advisory Boards

Three Core Advisory Committees

- **911, Interoperability, Public Safety Broadband**

State 911 Office

- **911 Board**

Interoperability / Pubic Safety Broadband Office

- **Interoperability Board, Public Safety Broadband Board (PSBB)**

Board staffing levels to support technology, policy

- **Statewide NG911, Interoperability, and Public Safety Broadband**

Proposed membership of core ECC advisory boards

- **Some overlapping membership likely**

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Michigan State 911 Office Responsibilities

- 911 fund oversight
- Coordination of the ESInets and ESInet standards compliance
- Dispatcher training funds program
- Oversee cost recovery for service providers
- County and PSAP compliance reviews
- Legislative reporting
- Support to local government and the PSAP community
- ECC grant and program implementation
- Point of contact for federal entities (FCC, NTIA, NHTSA) on NG911 activities

Broadband / Interop Office Responsibilities

- Coordinate and collaborate with public safety across all levels of government
- Implement statewide strategic vision for interoperability and public safety broadband
- Oversee the daily operation of the state's interoperability efforts
- Coordinate interoperability and public safety broadband projects
- Maintain governance structures and assembling necessary working groups to develop and implement key strategic initiatives
- Develop recommendations to ECC for incorporation into statewide strategic plans and policies
- Point of contact for federal entities (DHS Office of Emergency Communications and FEMA) Michigan's status on nationwide initiatives
- Emergency Communications Commission Support and Coordination Office

911 Fees and Surcharge Mechanisms

Local 911 Surcharges

- There should be no changes to local surcharge or millage language

Technical Surcharge

- The technical surcharge should be eliminated over time (as was done with wireless cost recovery) and a common network fund, supported by all devices, should be created (similar to the cost recovery for wireless Phase I and II). The common costs of the legacy network would be paid out of this fund as would the new NG911 network.

State 911 Fee

- Should remain in place, but modify the amount and distribution formula as well as provide statutory protections for its use.

State 911 Fee Considerations

The revenue generated by the retail collection of prepaid is not yet known.

Projected distribution goals would be:

- Keep the counties whole - current state 911 funding
- Service provider MPSC U-14000 allocation will be pooled into common network costs and Innovation and Efficiency / Interoperability/NG911 (IEIN) Fund
- PSAP Training: Increase slightly
- MSP PSAPs: Remain at current levels
- 911 Office: Increase commensurate with restructure and additional duties

Innovation/Efficiency/Interoperability (IEIN) NG9-1-1 Fund

- Grants for CPE, Hosted remote solutions, and other technologies defined and approved of by the ECC
- Grants for Efficiency Efforts/Regional Plans
- NG911 Network Costs
- Common legacy network costs
- Statewide public safety interoperability

IEIN NG9-1-1 Fund (cont'd)

Statutory protections would need to be in place to prevent re-appropriation and unauthorized use.

Excess funds above the distributions to counties, PSAPs, 911 Office, and MSP would be put into the IEIN Fund

Any annual carryover would follow IEIN Fund

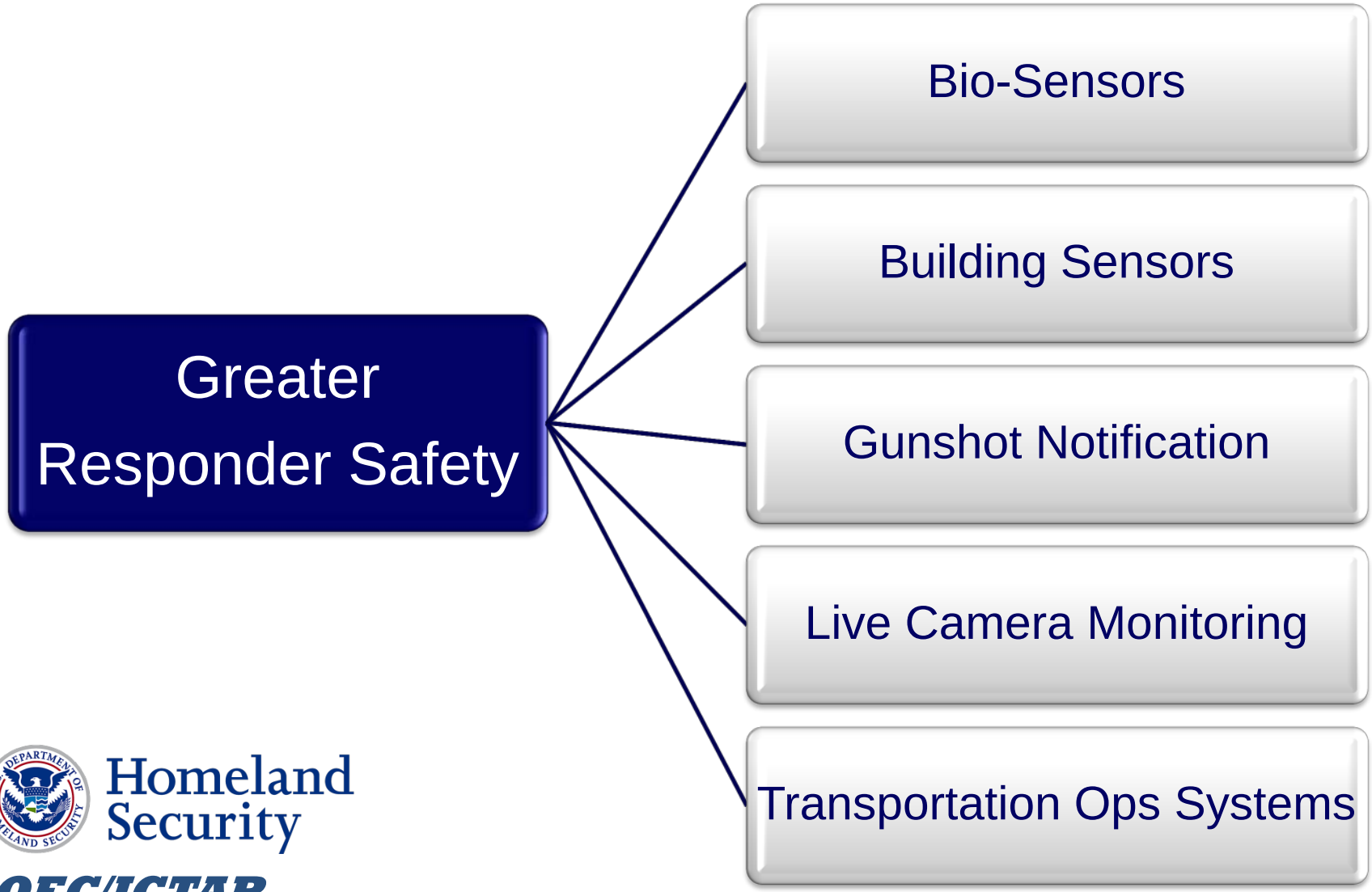
Additional Funding Factors

Counties would be left whole relative to their current distributions from state.

There would need to be a plan developed and a mechanism in place to partner for costs to bring in networks/ESInets currently being developed.

Additional collaboration needed with the telco industry on the migration away from the technical surcharge.

The ECC would have the authority to modify the distribution levels with statutory biennial reporting requirement to the Legislature its process of evaluating and setting the distributions.



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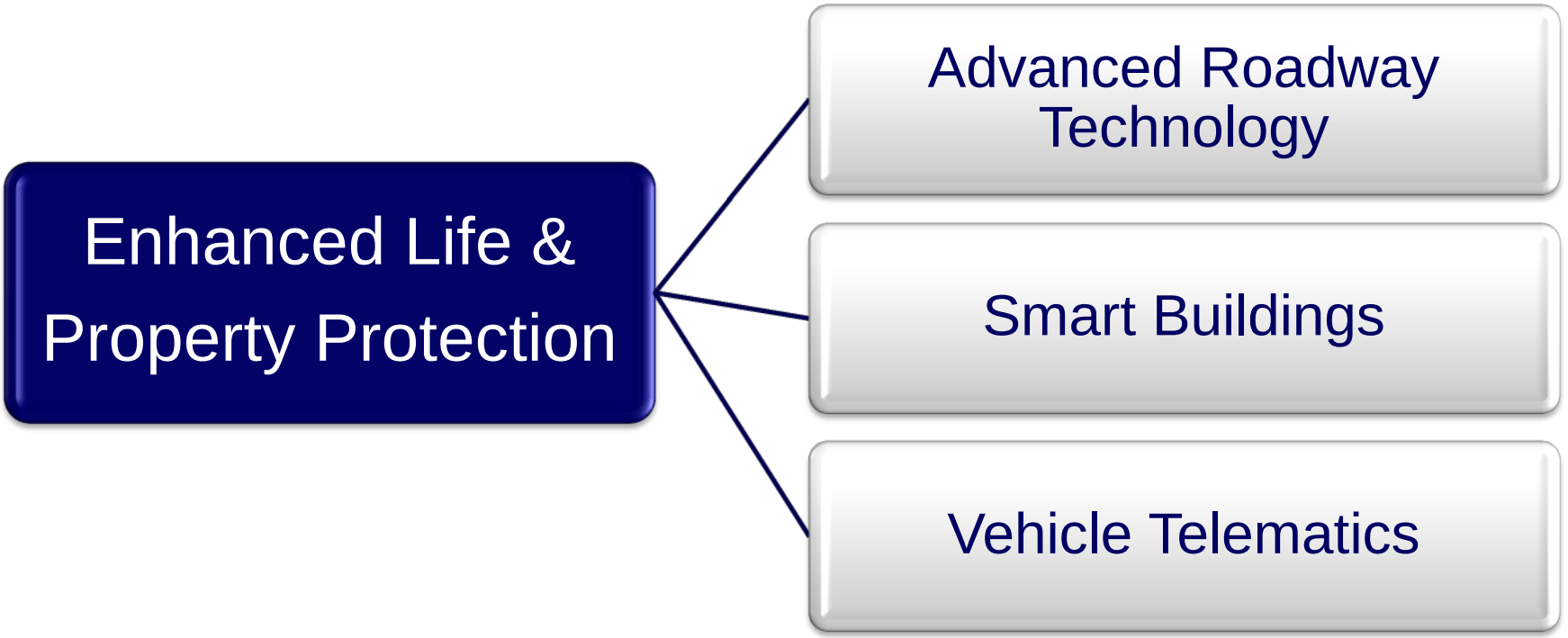
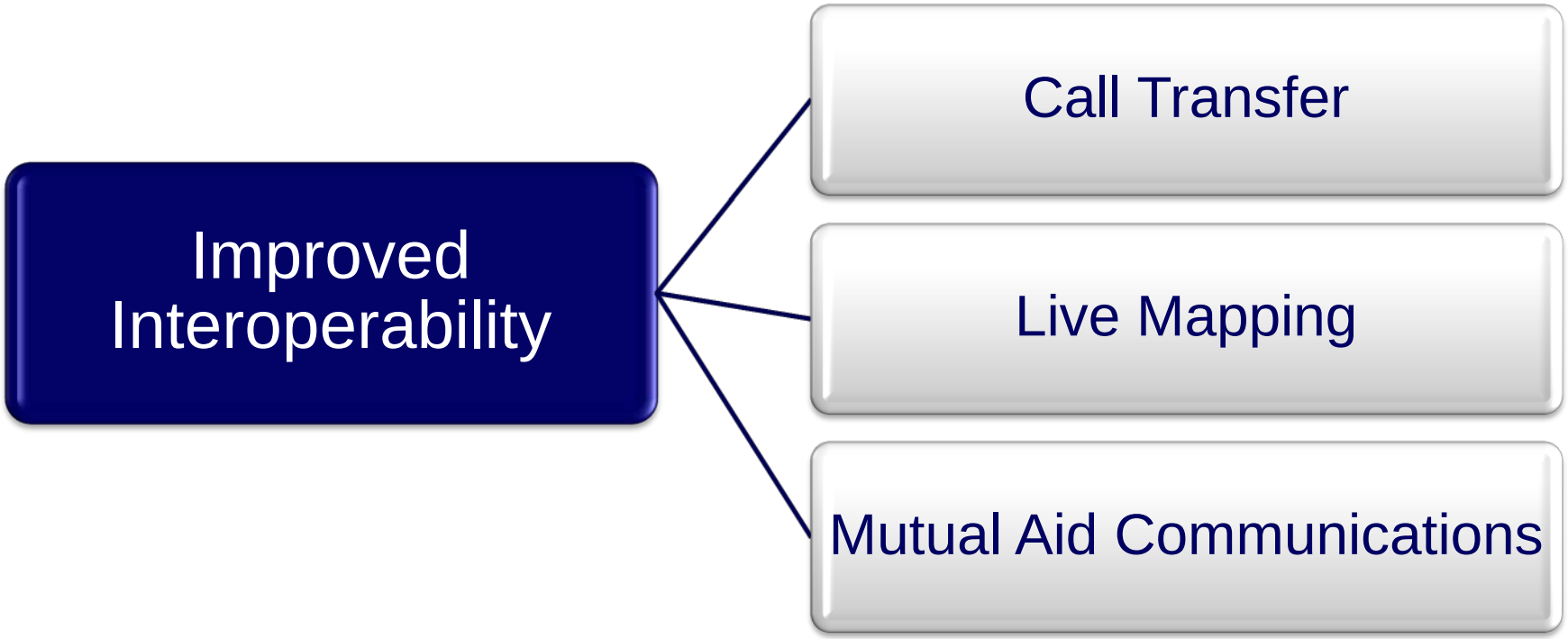
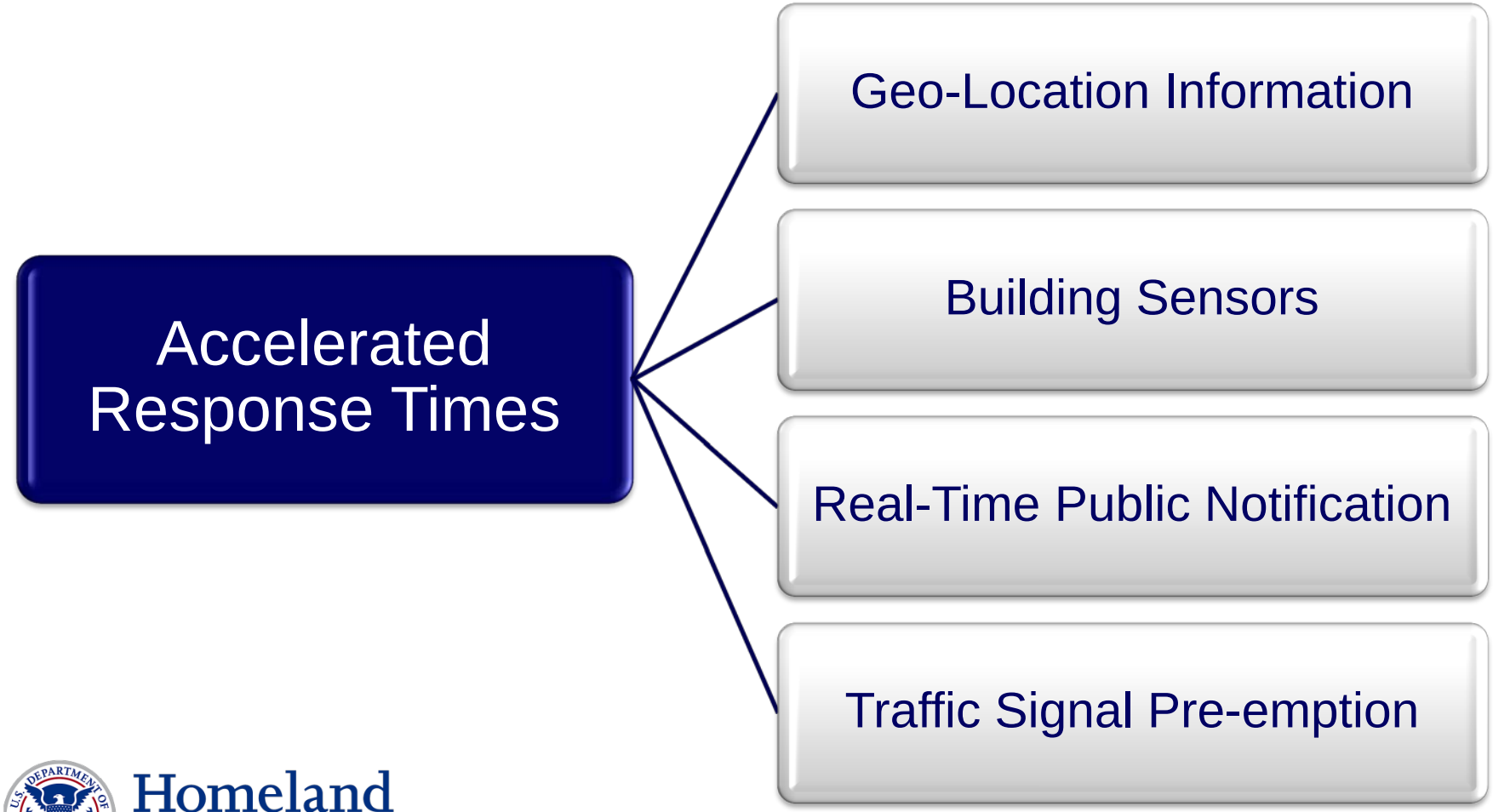

Enhanced Life & Property Protection
Advanced Roadway Technology
Smart Buildings
Vehicle Telematics


Improved Interoperability
Call Transfer
Live Mapping
Mutual Aid Communications



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Transition to NG9-1-1

Transition Considerations

The objective is a non-disruptive step-wise migration

Close coordination among all parties is essential

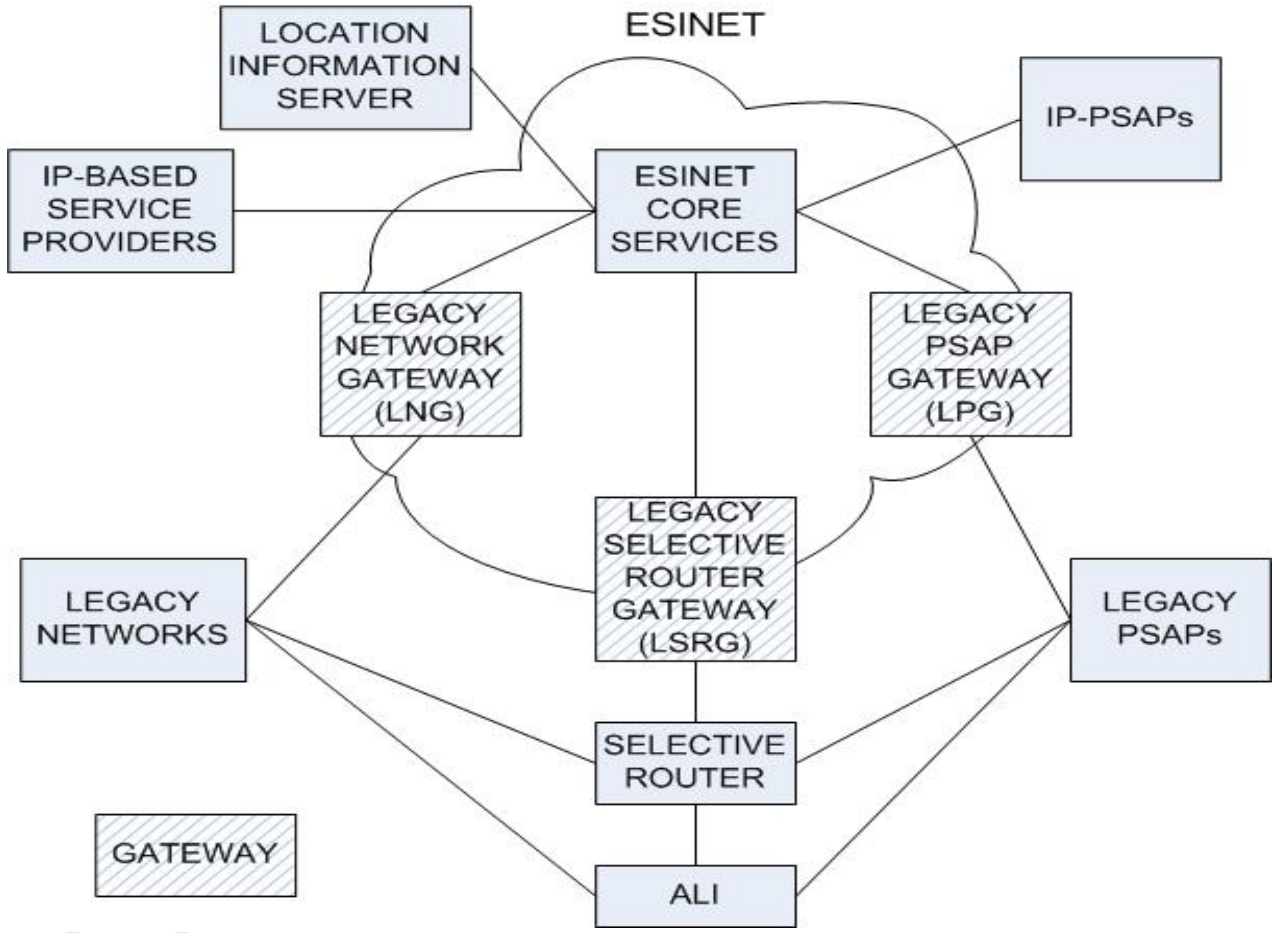
OSPs, SSP, PSAPs, and the NG9-1-1 administrator

There will be alternative paths and the most appropriate can be determined through the process leading to a detailed transition plan

Development of a detailed transition plan is critical

During the transition, the legacy databases must be maintained until the migration is complete

Transition System Flow Chart



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NG9-1-1 Transition Alternatives

Statewide flash-cut typically impractical

Two major alternatives for a phased rollout

- Each successive phase corresponds to the transition of a geographic area of the state to NG9-1-1 implementation
- Successive phases correspond to incremental advances in technology leading to full NG9-1-1 realization in the final phase

Each alternative has its advantages

- In the geographic approach, the first phase can be a pilot for proof of concept
- In the incremental technology advance, all of the PSAPs are provided with the same level of service simultaneously

NG9-1-1 Transition Alternatives (continued)

GEOGRAPHIC PROGRESSION

INCREMENTAL TECHNOLOGY PROGRESSION

Current NG9-1-1 Activity

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Public Safety Communications Evolution

60s

9-1-1

Portable Radios

80s

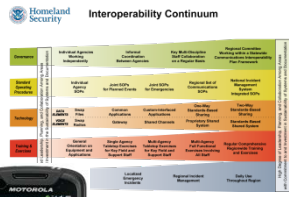
Location

Multichannel Radio

90s

Cellular

Trunking



00s

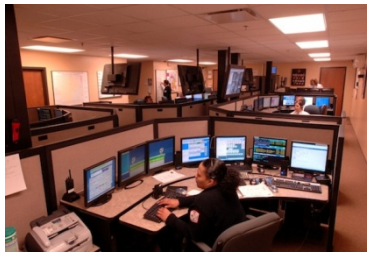
VoIP

Interoperability

10s

NG9-1-1

Broadband



NG9-1-1 Challenges

- A complex step-wise migration process described on the previous charts
- Incomplete and evolving nature of the standards process
- Future addition of more media and applications
- Business, regulatory and funding environment
- Operational impact of new capabilities
  - More complicated operating environment
  - Personnel acceptance and training

Status of State Planning & Preparation

Around thirty states have produced NG9-1-1 Master Plans or Strategic Plans

Twenty-five states beginning to deploy NG9-1-1

- The number is growing
- Many are implementing statewide IP networks
- In some cases, regional systems are leading the states

The following slides provide a small sampling of alternative implementation approaches

- In addition, a little more detail is given for Indiana and Maryland

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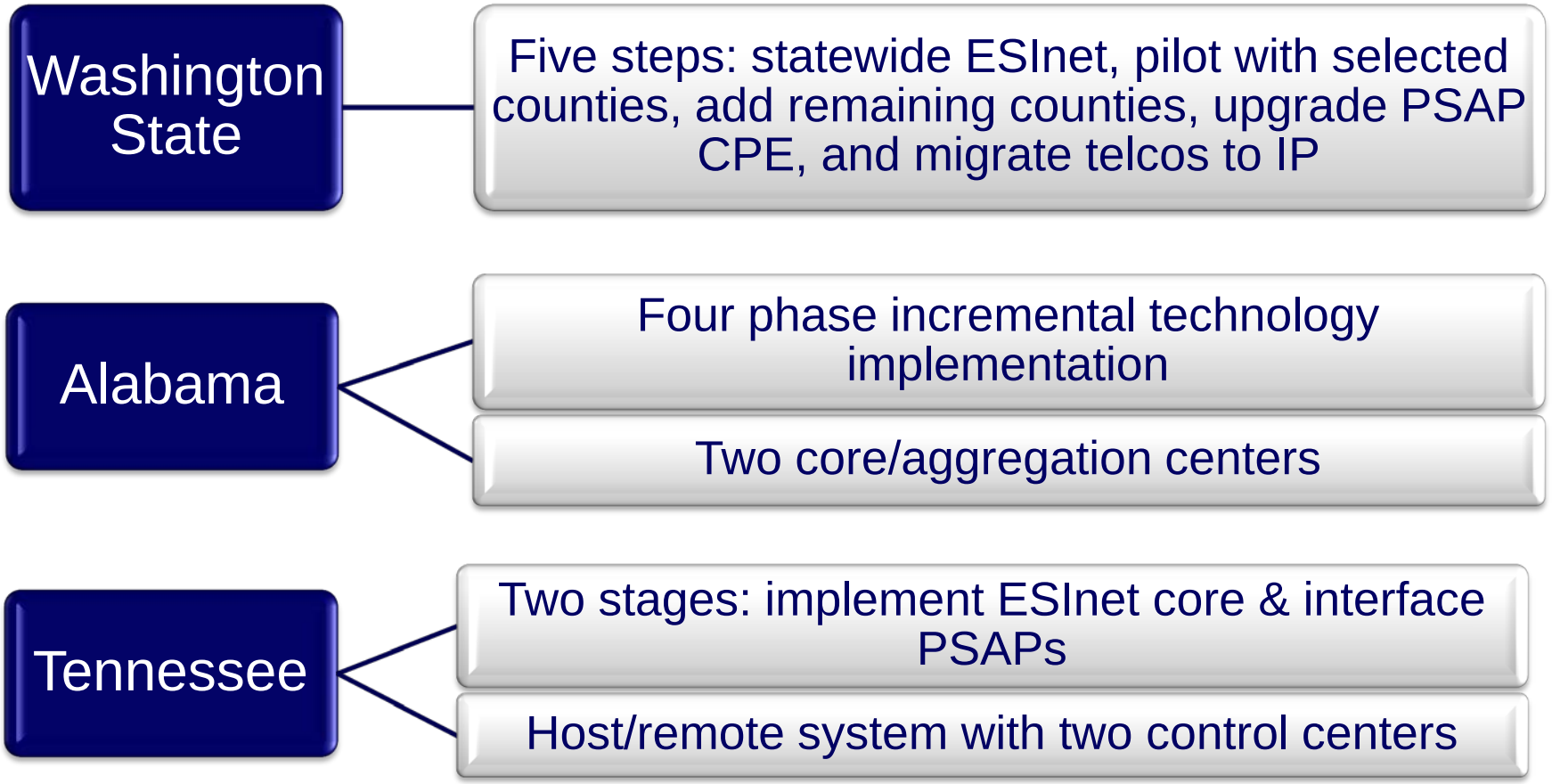
Representative Examples



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Indiana

- Based on build-out of the broadband network, IN911
- Implemented and operated by a service contractor using the Indiana Fiber Network and leased facilities
- Also provided core ESInet processing capability
- Beyond IN911, no distinct phases –evolved with NG911
- Has focused on wireless calls
- At inception, the only purview of the Indiana 9-1-1 Board was wireless

Indiana (Continued)

- There are two wireless service aggregation points
- PSAP CPE is a mix of premises and remote-hosted
- Currently 36 PSAPs are hosted
- Some wireline calls now traverse IN911, but only for hosted PSAPs
- One carrier (of three) has declined to participate
- In 2008, state mandated no more than 2 PSAPs per county by 2014
- Only 5 counties left to go

Maryland

Maryland State Police (MSP) pursuing a project to transition call handing system to NG9-1-1

Driven by need to better support call transfer from County Primary to Secondary PSAPs at the MSP barracks

Pilot underway in the Eastern Shore region of the State

Successful pilot may lead to statewide rollout of NG9-1-1 for the MSP and the counties

Pilot scheduled for completion in 2Q14

Maryland (continued)

CPE in a host remote environment permitting backup by alternative hosts

Coordination challenges created by simultaneous build-out of the pilot and the statewide broadband network, P25 radio system, and CAD system

Network and CPE must meet applicable NENA i3 standards when made available

- Call delivery regardless of the media used (landline, wireless, VoIP, etc.)

Wireless Broadband

Nationwide Public Safety Mobile Broadband

- Commercial economies of scale in public safety systems
- Benefits of mobile broadband technology applied to mission-critical first response
- 4G revolution for first response
- Nationwide applications and shared dedicated services
  - Multimedia
  - Basic communications (voice, video)
  - Situational awareness (blue force tracking, HUD information)

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NG9-1-1 Landscape Wireless Broadband

Wireless Broadband

- Applications will drive public safety acceptance
- Focus on Apps, not supporting devices and software framework
- Successful apps will be based on public safety information sharing needs
- For broad acceptance apps must meet public safety interoperability standards and common program interfaces
- Unique apps may be implemented to meet the particular needs of states and localities

Wireless Broadband (Continued)

The Video Quality in Public Safety (VQiPS)

- Initiative of the Public Safety Communications Research (PSCR) agency
- Volunteers from many disciplines focused on quality and standardization

NPSTC's Public Safety Communications Assessment identified, evaluated potential apps

In April, FirstNet issued an RFI for first responder devices, apps, and more

- Emphasizes devices and supporting software framework
- Includes location and general NG9-1-1 support

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Wireless Broadband (Continued)

APCO planning to develop standards for app integration with public safety command centers and responders

- Common interfaces that are platform agnostic

On April 23rd, APCO launched "Application Community" (AppComm) website

- Clearinghouse for public safety and emergency response apps
- Forum for evaluation of apps and ideas for new apps
- Initial listing of 60 apps selected by APCO staff

FirstNet

- Created by 2012 Middle Class Tax Relief and Job Creation Act
- Goal is to build a nationwide, public safety 4G LTE network
- Will consult with states to gather requirements and create a purpose-built network
- Can enter into partnerships with third parties
- Will develop and sponsor interoperability standards related to use of the network
- Independent entity within the National Telecommunications and Information Administration (NTIA)
  - To be run like a non-profit cellular carrier

FirstNet and NG9-1-1

Ideal match with NG9-1-1

- Each well-suited for video, text and other media requiring broadband
- PSAP operators can receive via these media and perform relay to first responders

Much to accomplish prior to realization

- A suitable protocol for the interconnection must be proven
- Other issues - prioritization, quality of service, authentication, and roaming charge tracking
- LTE support for public safety wireless features (e.g., direct mode & group calls)

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Interim (Pre-NG911) Text-to-911 Offerings

In December the FCC adopted a Further Notice of Proposed Rulemaking (FNPRM) to facilitate deployment of Text-to-911

- Summarizes cost, schedule, and technical issues
- Identifies potential solutions along with impact on carriers, vendors, and PSAPs
- Builds on voluntary commitment by the four largest wireless carriers to make Text-to-911 available by May 2014

Final comments are requested by March 11th

Interim Text-to-911 Offerings (Continued)

Options identified for PSAPs not NG911-capable are: Web browsers, Text-to-Voice Gateway Centers, Text to TTY translation, and a State/Regional approach

Some of this is based on trials conducted in Black Hawk County Iowa, the City of Durham NC, the State of Vermont, and the State of Tennessee

Most text messaging today is based on the wireless carrier's Short Messaging Service (SMS)

However, the use of Internet forms of text messaging applications using IP protocols is growing

Interim Text-to-911 Offerings (Continued)

- Adoption of pre-NG911 text-to-911 by PSAPs would be voluntary
- When requested, carriers are to provide the service within six months
- "Bounce back" messages will be sent to customers attempting to use text-to-911 where not available
- The four largest carriers committed to provide "bounce back" by June 20, 2013
- Issues include the need for uniform standards, impact on PSAP operations, and public education

Crash: Hazardous Materials Tanker v Telematics Equipped Vehicle

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

Vehicles Send Telematics Data to PSAP

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

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

Useful References

1. NG9-1-1 Transition Plan Considerations (JID), National Emergency Number Association (NENA), NENA 77-501 v1, February 24, 2011
2. NG9-1-1 System and PSAP Operational Features and Capabilities Requirements, NENA 57-750, v1 (Draft), March 2, 2011
3. Detailed Functional and Interface Specification for the NENA i3 Solution – Stage 3, NENA 08-003 v1, June 14, 2011
4. Next Generation 9-1-1 Transition Policy Implementation Handbook, Application of the Implementation Checklist, NENA, June 2011
5. i3 Technical Requirements Document, NENA 08-751, Issue 1, September 28, 2006
6. NG9-1-1 System Initiative, NG9-1-1 Preliminary Transition Plan, v1.0, USDOT April 2008
7. NENA Master Glossary of 9-1-1 Terminology, NENA 00-001 v16, August 22, 2011

Many more NENA standards and companion documents at www.nena.org

Legislation and Regulations Impacting NG9-1-1

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Legislation - Authorized

Wireless Communications and Public Safety Act of 1999 - Pub. Law 106-81

- Promote and enhance public safety through use of 9-1-1 as the universal emergency assistance number
- Further deployment of wireless 9-1-1 service
- Support of States in upgrading 9-1-1 capabilities and related functions
- Encouragement of construction and operation of seamless, ubiquitous, and reliable networks for personal wireless services, and for other purposes

Legislation – Authorized (Cont.)

ENHANCE 911 Act of 2004 - Pub. Law 108-494

- Established National E9-1-1 Implementation and Coordination Office (ICO)
  - o Charged with coordinating the implementation of 9-1-1 and E9-1-1 at the Federal, State, and local levels
  - o Administering a Federal PSAP grant program authorized to provide up to $250 million in grants per years
  - o Ensure that funds collected on telecommunications bills for enhancing emergency 9-1-1 services are used only for the purposes for which the funds are being collected

Legislation – Authorized (Cont.)

Implementing Recommendations of the 9/11 Commission Act of 2007 - Pub. Law 110-53

- Makes $43.5 million available for PSAP grants authorized by the ENHANCE 911 Act of 2004 after 180 day rulemaking to determine criteria to receive grants (Title XXIII)
- Authorizes $950 million per year for fiscal years 2008-2012 for a State Homeland Security Grant Program (Title I, Sec. 2004) and makes clear that such funds can be utilized for "supporting Public Safety Answering Points" (Title I, Sec. 2008)
- Authorizes nearly $3.5 billion in Emergency Management Performance Grants which can be used for the construction of Emergency Operations Centers (Title II)
- Establishes an Interoperable Emergency Communications Grant Program and authorizes $1.6 billion in grant funding for fiscal years 2009-2012 (Title III)

Legislation – Authorized (Cont.)

New and Emerging Technologies (NET) 911 Improvement Act of 2008 - Pub. Law 110-283

- Promotes and enhances public safety by facilitating the rapid deployment of IP-enabled 911 and E–911 services
- Encourage the Nation's transition to a national IP-enabled emergency network
- Improve 911 and E–911 access to those with disabilities

Legislation – Authorized (Cont.)

The Middle Class Tax Relief and Job Creation Act of 2012

- President Obama signed into law in February 2012
- Provides $115 million for Next Generation 9-1-1 and begins a multi-year process of building a public safety broadband network that must interconnect with NG9-1-1 systems
- Requires studies examining current 9-1-1 fees and the costs associated with Next Generation 9-1-1 that will allow Congress to address NG9-1-1 system development, deployment, and maintenance funding issues
- Funding is provided through the auction of commercial spectrum
- Proceeds are distributed in descending order of priority
- Funds are available until Sept. 30, 2022, after which they revert to the Treasury for deficit reduction

Legislation: Middle Class Tax Relief and Job Creation Act of 2012 Distribution of Funds

Title	Amount	Description
Network Construction Fund	$7 Billion	From spectrum auctions for construction, operations/maintenance/etc. Up to $2B for FirstNet startup costs
State and Local Implementation Fund	$135 Million	Grants to assist with planning & implementation. Requires 20% match coordinated through single agency/body.
NIST Public Safety Research and Development	$100 Million	Funding for NIST to support research and development of standards, technologies, and applications to advance wireless public safety communications
Deficit Reduction	$20.4 Billion	Returned to the U.S Treasury for deficit reduction
NG 9-1-1	**$115 Million**	**To support National Highway Traffic Safety Administration grant program on NG 911. Provided only after deficit reduction target is met.**
Additional NIST R&D	$200 Million	Provided only after deficit reduction target is met.

Legislation - States

- **Delaware:** SENATE BILL NO. 196 - Section 1. Amend § 10008, Title 16 - Limitation of Liability - Clarifies that the limitation of liability applies to the provision of NG9-1-1 service. This bill does not expand the current scope of the limitation but rather updates the language to account for change in the technology used to deliver 9-1-1 service

- **Maryland:** HB 1235 – Included a definition of NG9-1-1 and required Emergency Number Systems Board to develop NG9-1-1 migration plans

- **Tennessee**: Tenn. Code Ann. § 7-86-306(a)(8) – Authorized the Tennessee Emergency Communications Board to "administer the deployment of 911 service for emerging communications technologies including, but not limited to, IP-enabled service, that are capable of connecting users dialing or entering the digits 911 to public safety answering points.

Regulations

- Federal Communications Commission (FCC)
  - Report to Congress on the Legal & Regulatory Framework for NG9-1-1 Services
  - PS Docket No. 11-60 – NFPRM- Improving 9-1-1 Reliability
  - PS Docket No. 11-153 – Facilitating the Deployment of Text-to 911 and Other Next Generation Applications
  - PS Docket No. 10-255 – Framework for Next Generation 911 Deployment

FCC Recommendations to Congress

- In February, the FCC delivered their NG9-1-1 report and recommendations to Congress
  - o Provided in response to a provision in the Middle Class Tax Relief and Job Creation Act of 2012
- Focuses on three general recommendations to Congress
- First, create incentives for the states to become early NG911 adopters
  - o Accelerates NG911 migration in those states
  - o Provides basis for easier transition in other states

FCC Recommendations (Continued)

- Second, promote the development of location technologies
  - o To support response regardless of the network or the device used by the caller
- Third, assist in the identification of legacy state regulations that impede NG911 utilization
  - o Includes incentives for states to modernize their laws and regulations
  - o Both (1) liability and (2) impediments to implementation of new technology

FCC Recommendations (Continued)

- Specific Recommendations
  - Challenge grants and other funding incentive to “early adopters”
  - Encourage states to empower 911 boards (or similar) to provide guidance
  - Address instances where states lack authority to regulate elements of NG911 service
  - Require common standards for ESInet interfaces with other public safety entities
  - Include liability protection in any Federal laws related to NG911

FCC Recommendations (Continued)

- Specific recommendations (continued)
  - Enact legislation requiring network access providers to support location determination
  - Ensure security standards and best practices for NG911 network security, including funding a credentialing authority
  - Encourage states to modify regulations that impede implementation of next generation technology
  - Promote consolidated regional NG911 call centers through such incentives as preferences for grants

FCC Recommendations (Continued)

- Recommends Information tools for tracking NG911 progress
  - o Upgrade the National Master PSAP Registry and the National 911 Profile Database to include information on NG911 implementation
  - o Support the development of web-based data filing capability
  - o Provide tools for automatic report generation
- The FCC report is available at:
  - o http://www.fcc.gov/document/legal-and-regulatory-framework-ng911-services-report-congress

NG9-1-1 Stakeholders and Resources

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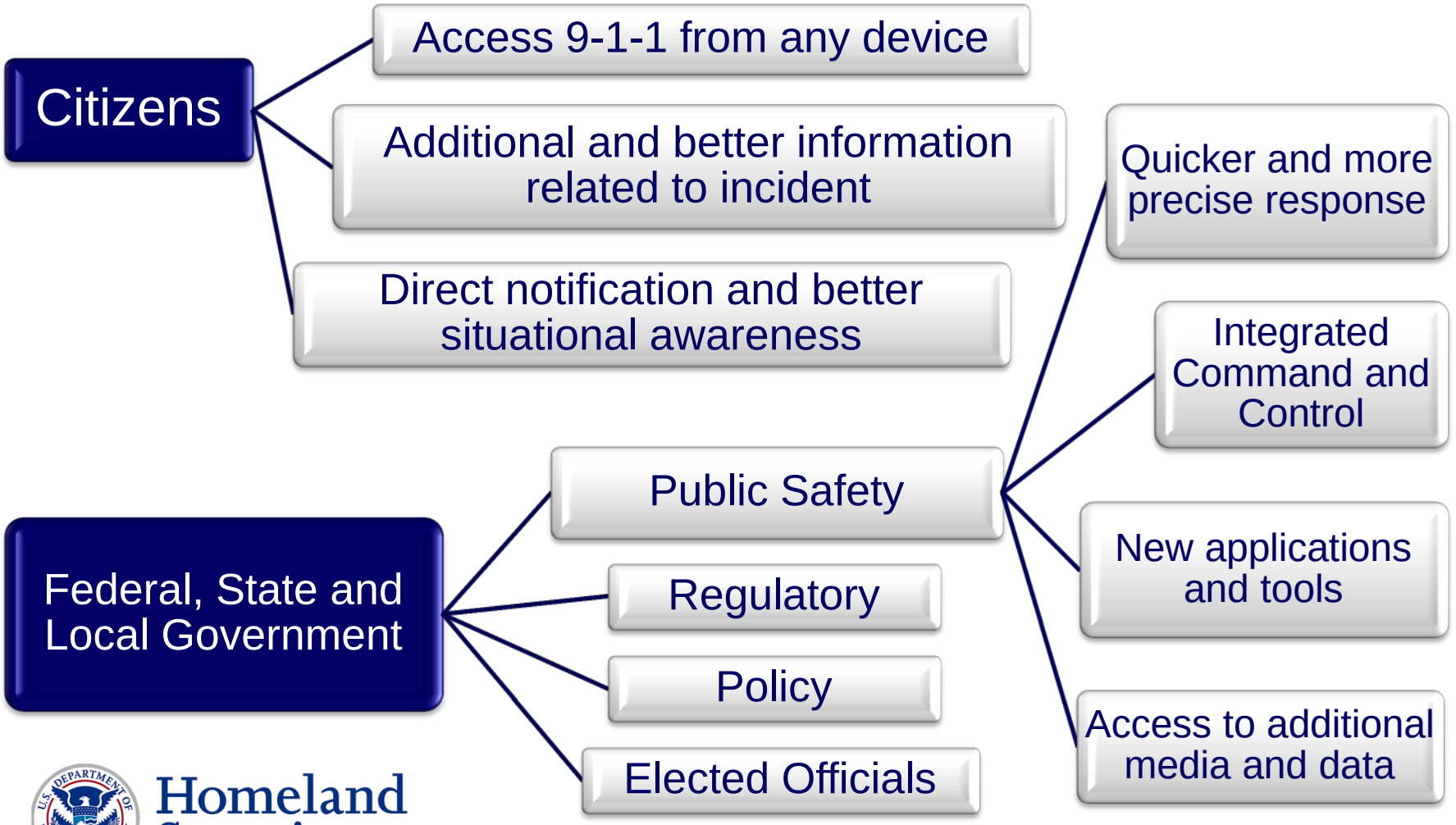
NG9-1-1 Stakeholders



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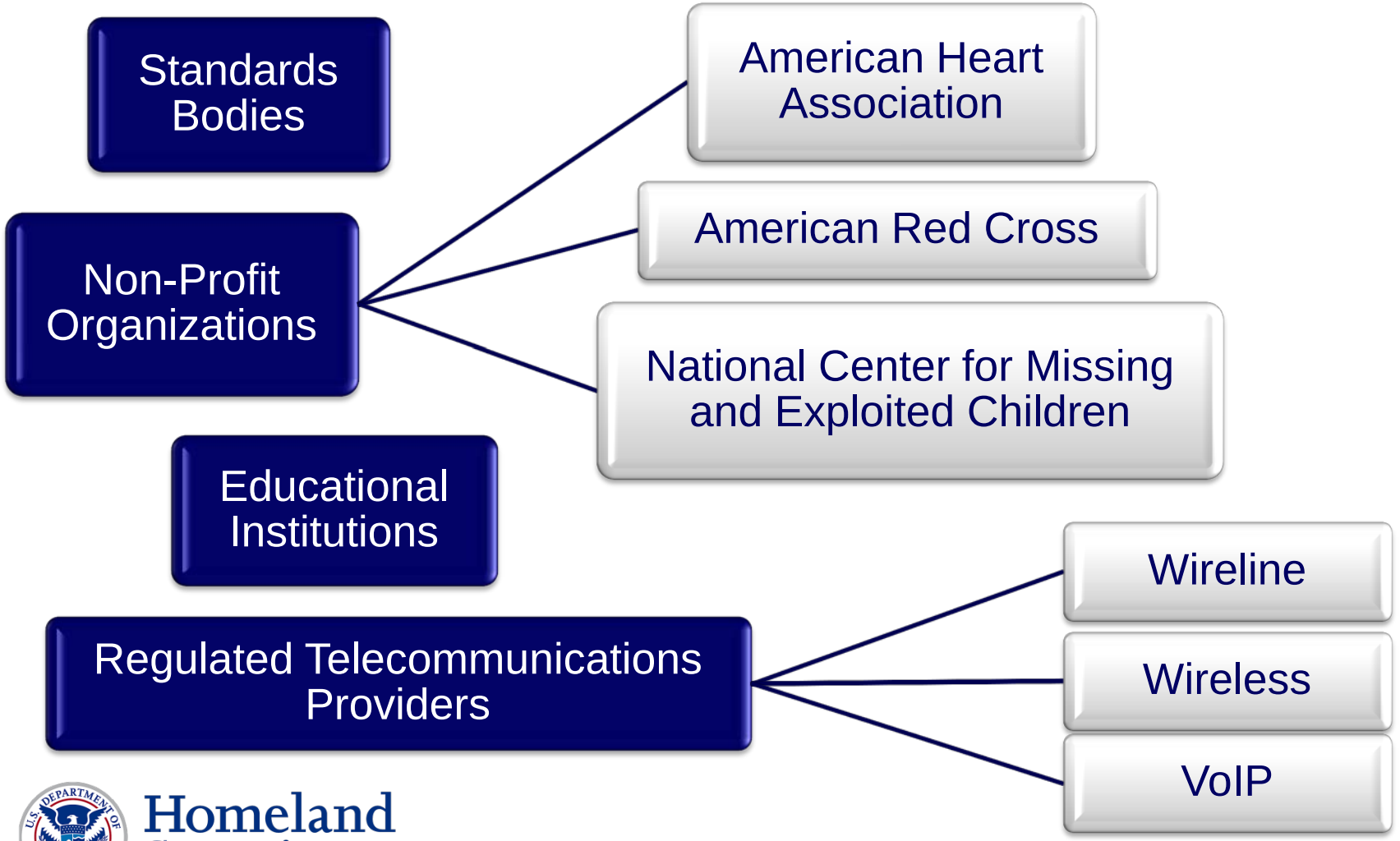
NG9-1-1 Stakeholders (continued)



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NG9-1-1 Stakeholders (continued)

9-1-1 Service Providers

- Network
- CPE
- Applications

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NG9-1-1 Community Model

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NG9-1-1 Affiliated Organizations

- **FCC:** Federal Communications Commission
  - **PSHSB:** Public Safety Homeland Security Bureau
  - **NRIC:** Network Reliability and Interoperability Council
- **DOT:** U.S. Department of Transportation
  - **NHTSA:** National Highway Traffic Safety Administration
  - **RITA**: Research and Innovative Technology Administration
  - **9-1-1.gov**: National 9-1-1 Office
- **DHS:** Department of Homeland Security
  - **OEC:** Office of Emergency Communications
- **NENA:** National Emergency Number Association
- **APCO:** Association of Public-Safety Communications Officials
- **NASNA:** National Association of State Nine-One-One Administrators
- **IETF:** Internet Engineering Task Force
- **ATIS:** Alliance for Telecommunications Industry Solutions
  - **ESIF:** Emergency Services Interconnection Forum

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NG9-1-1 Resources

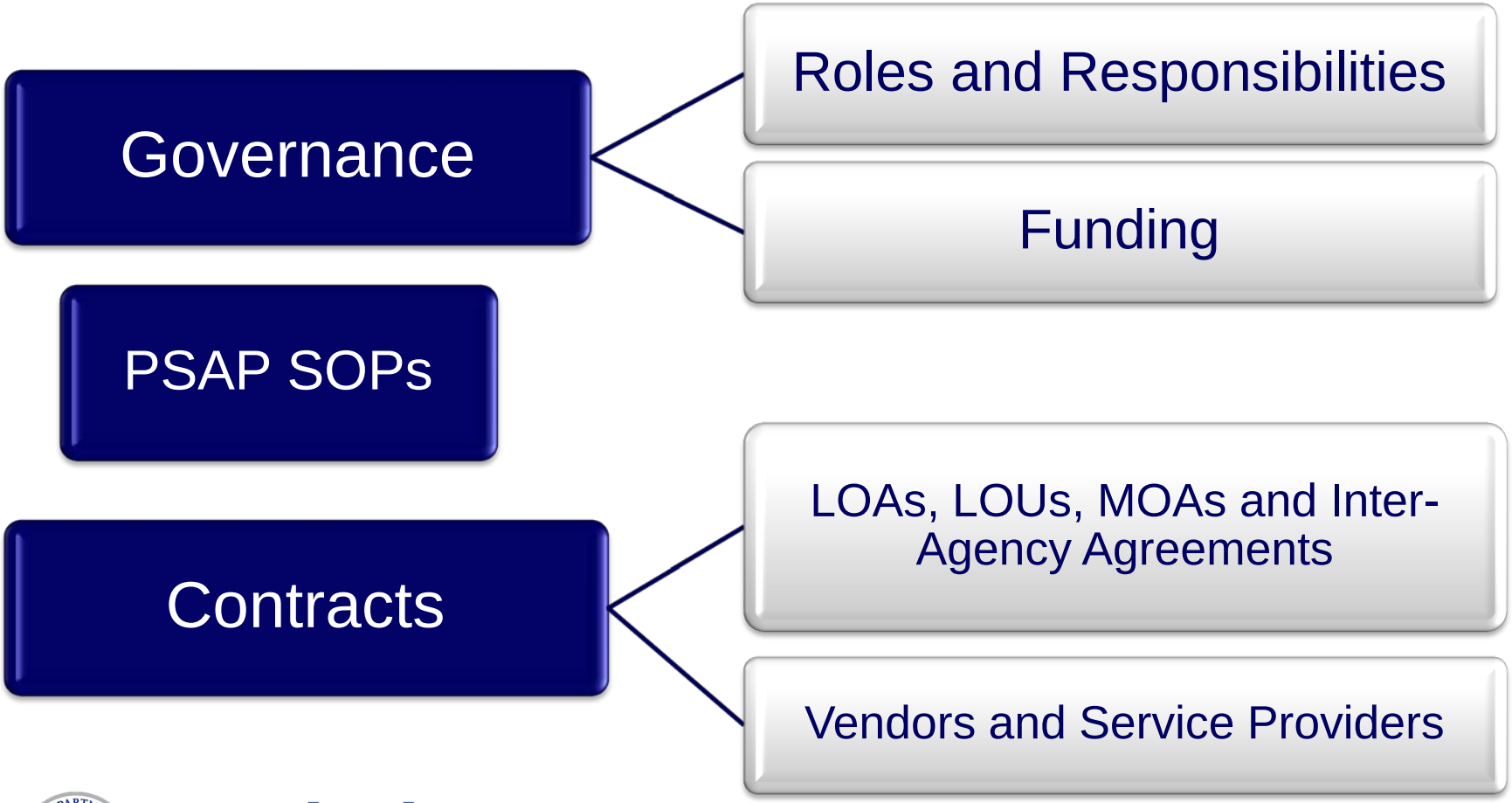
- National Telecommunications and Information Administration: http://www.ntia.doc.gov/
- DHS – National Communications System: http://www.ncs.gov/index.html
- DHS – Office of Emergency Communications: http://www.dhs.gov/xabout/structure/gc_1189774174005.shtm
- DOT – NG911 Initiative: http://www.its.dot.gov/ng911/index.htm
- Industry Council for Emergency Response Technologies (iCERT): http://www.theindustrycouncil.org/index.cfm

NG9-1-1 Resources

- NG911 Institute: http://www.e911institute.org/
- Association of Public Safety Communication Officials: http://www.apco911.org/
- National Academies of Emergency Dispatch: http://www.emergencydispatch.org/
- National Association of State Nine-One-One Administrators: http://www.nasna911.org/index.php
- National Emergency Number Association: http://www.nena.org/
  - NENA Master Glossary of 9-1-1 Terminology (00-001 V16): http://www.nena.org/?page=Glossary
- Next Generation Safety Consortium: http://www.nextgensafety.org/
- The National 911 Education Program: http://wwww.know911.org

Things to Consider

Things to Consider



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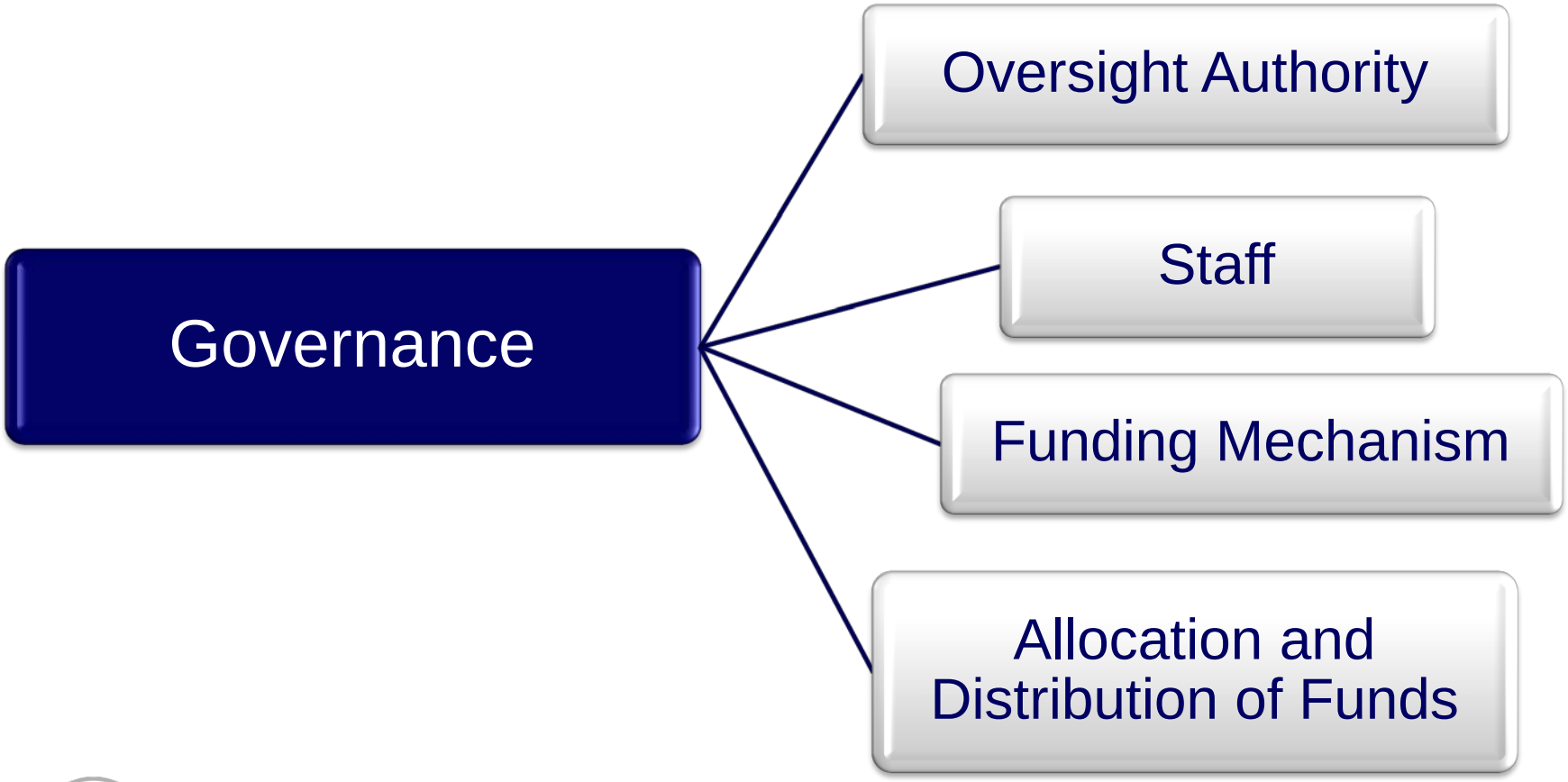
Governance and Operational Impact



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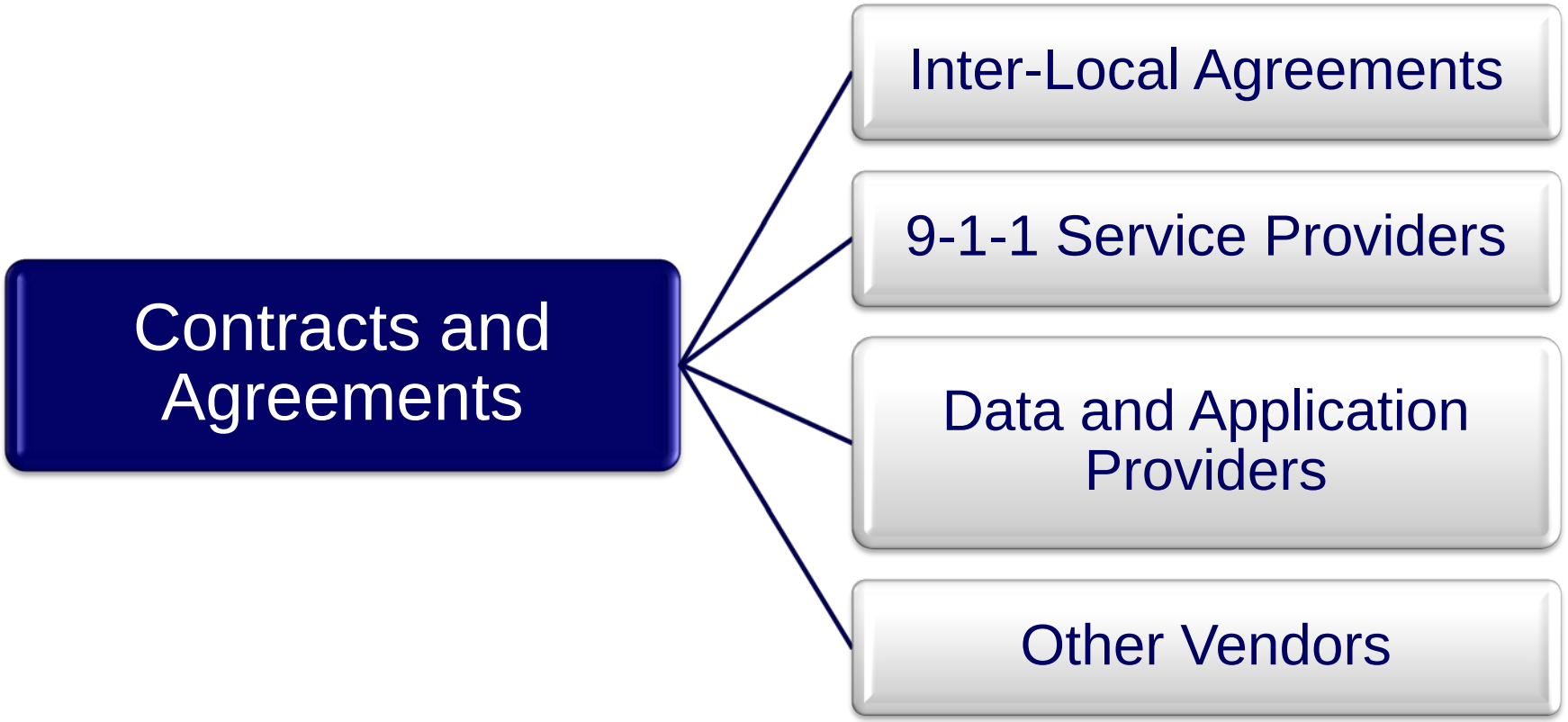

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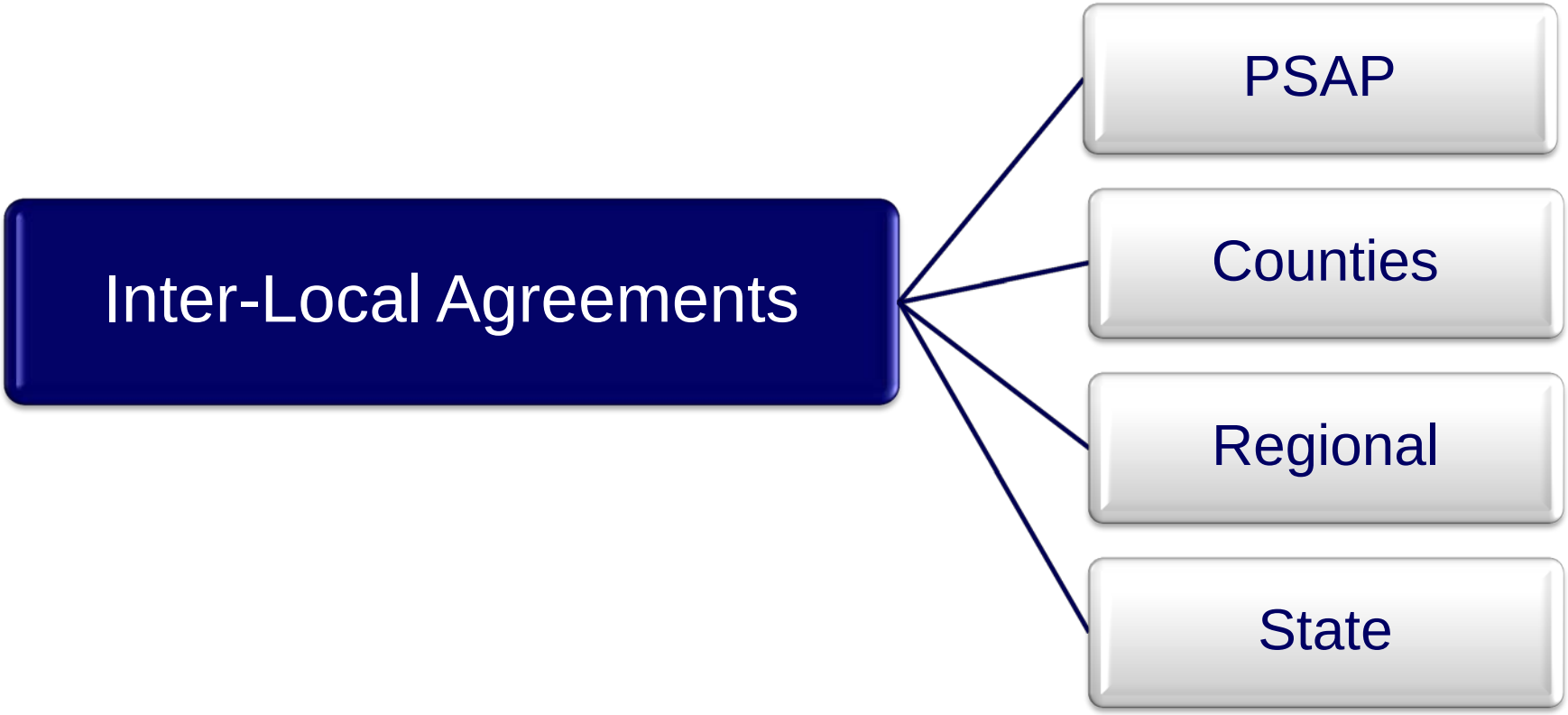
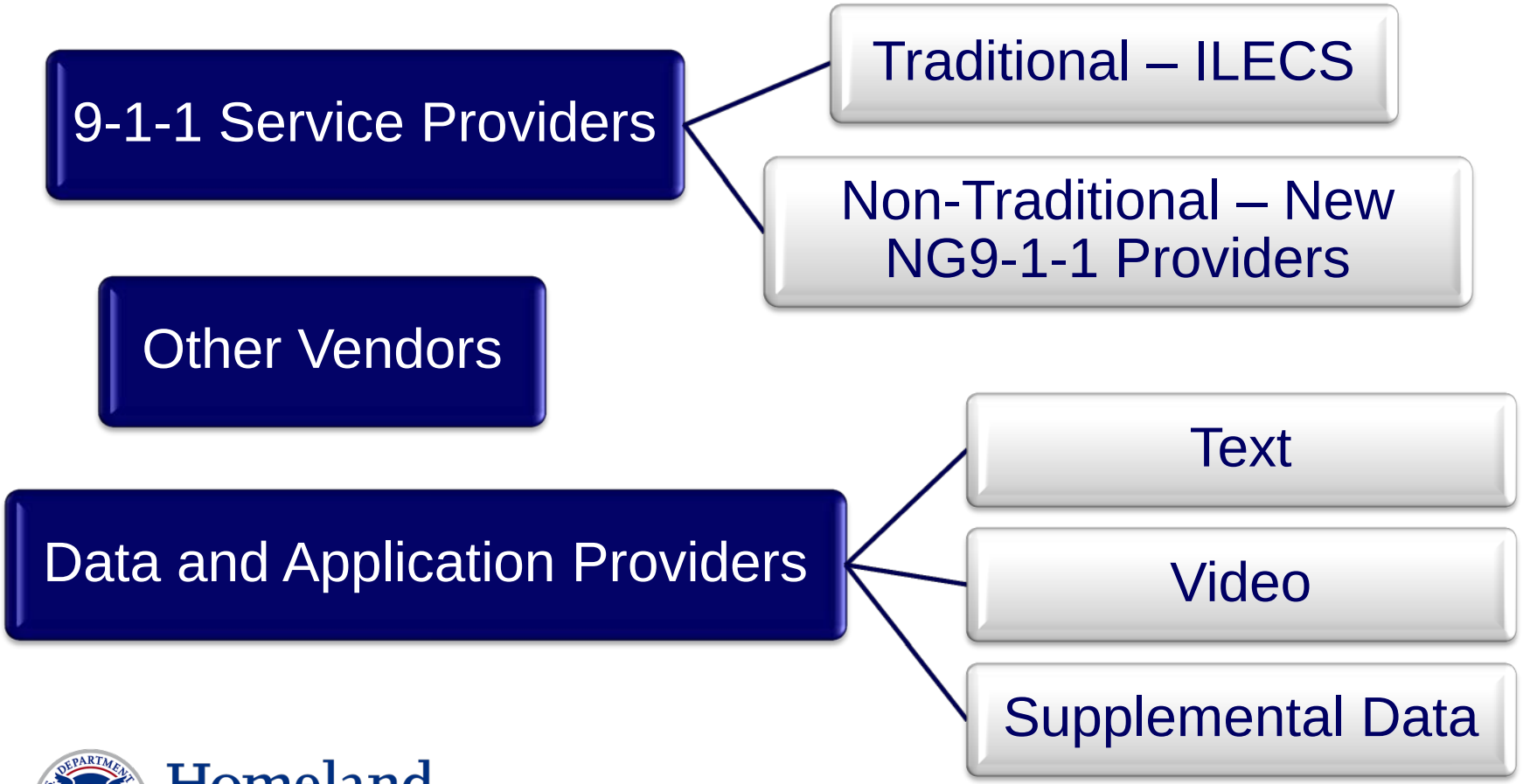


Governance and Operational Impact (continued)



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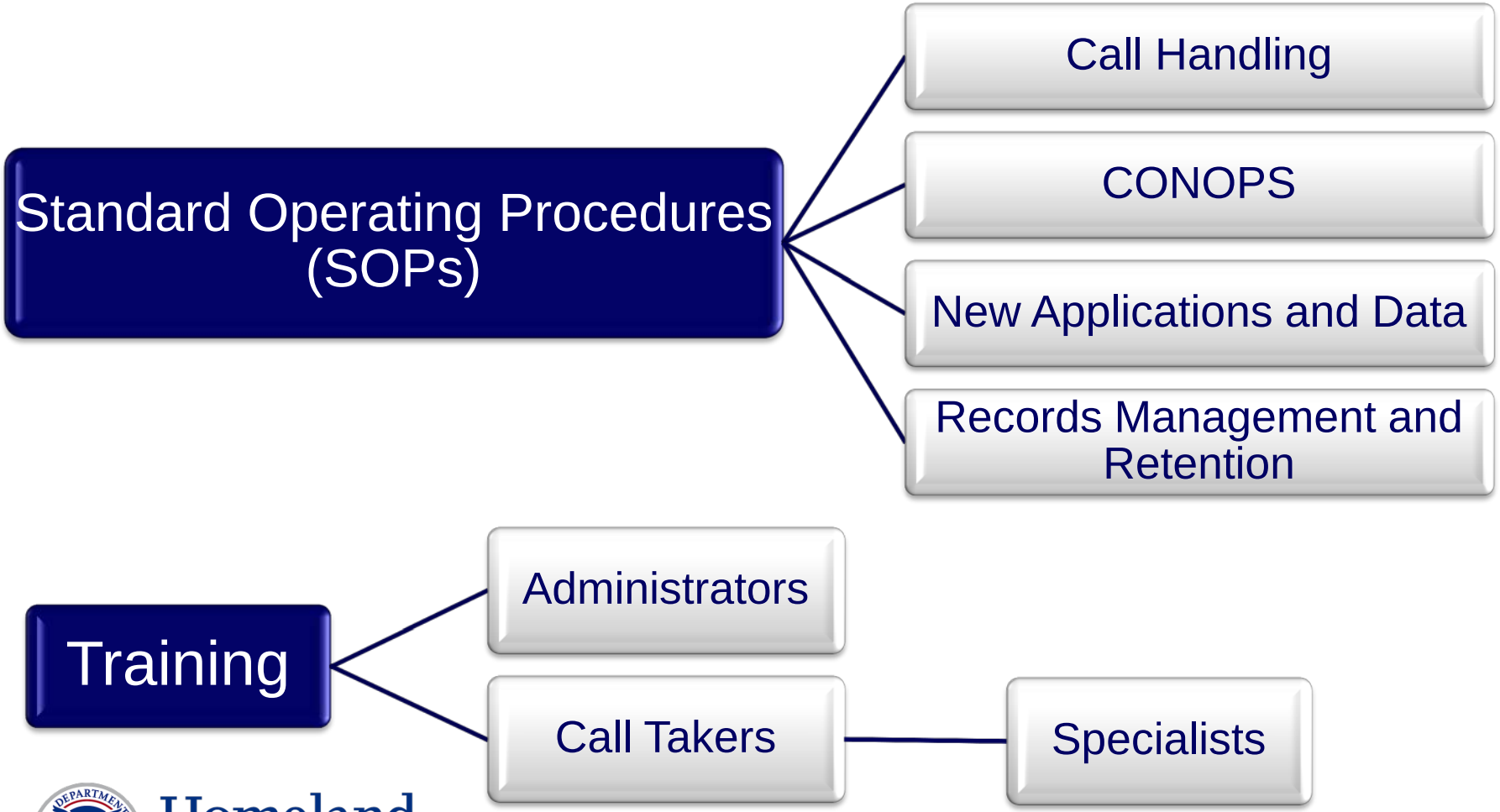

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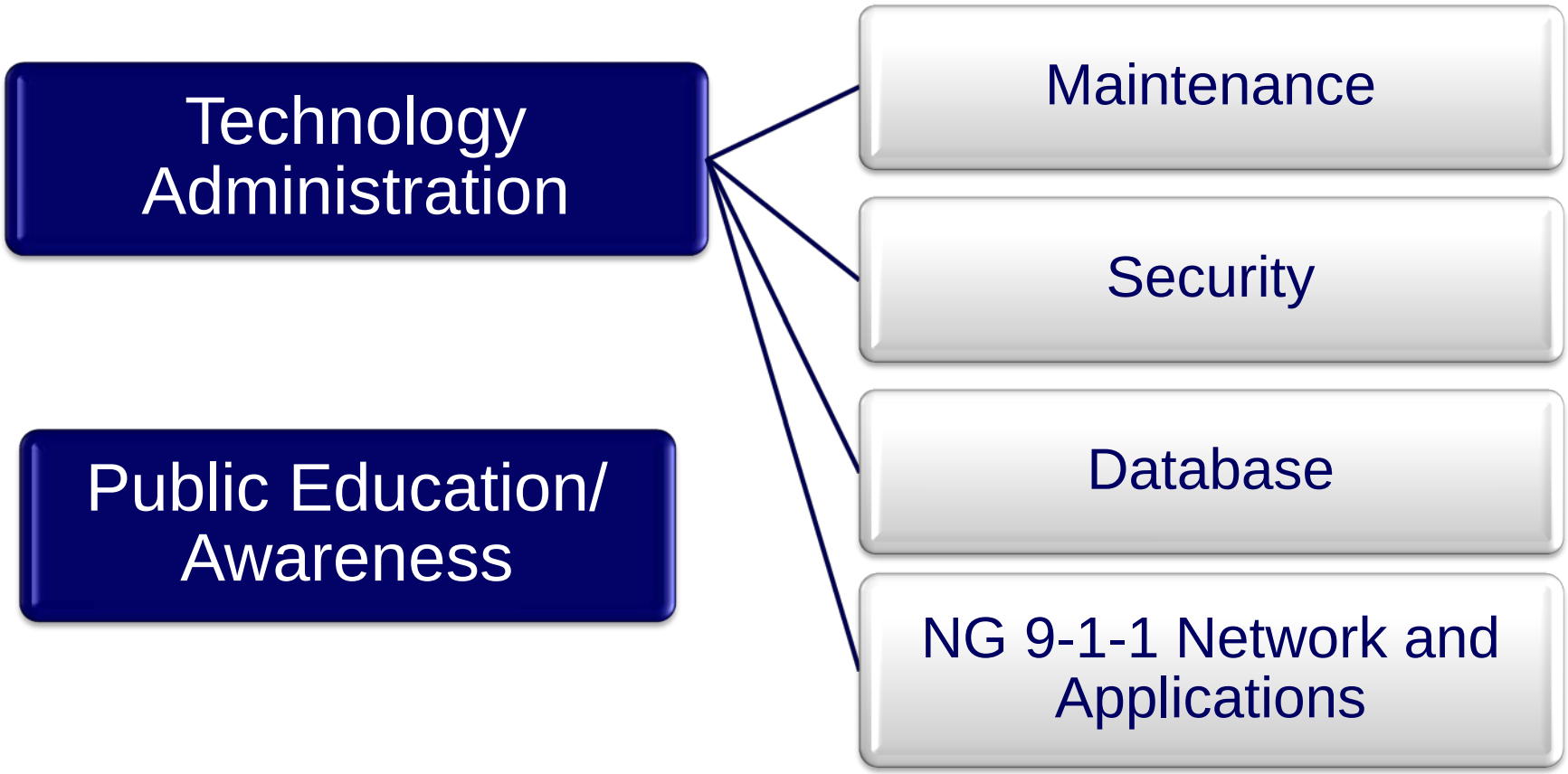
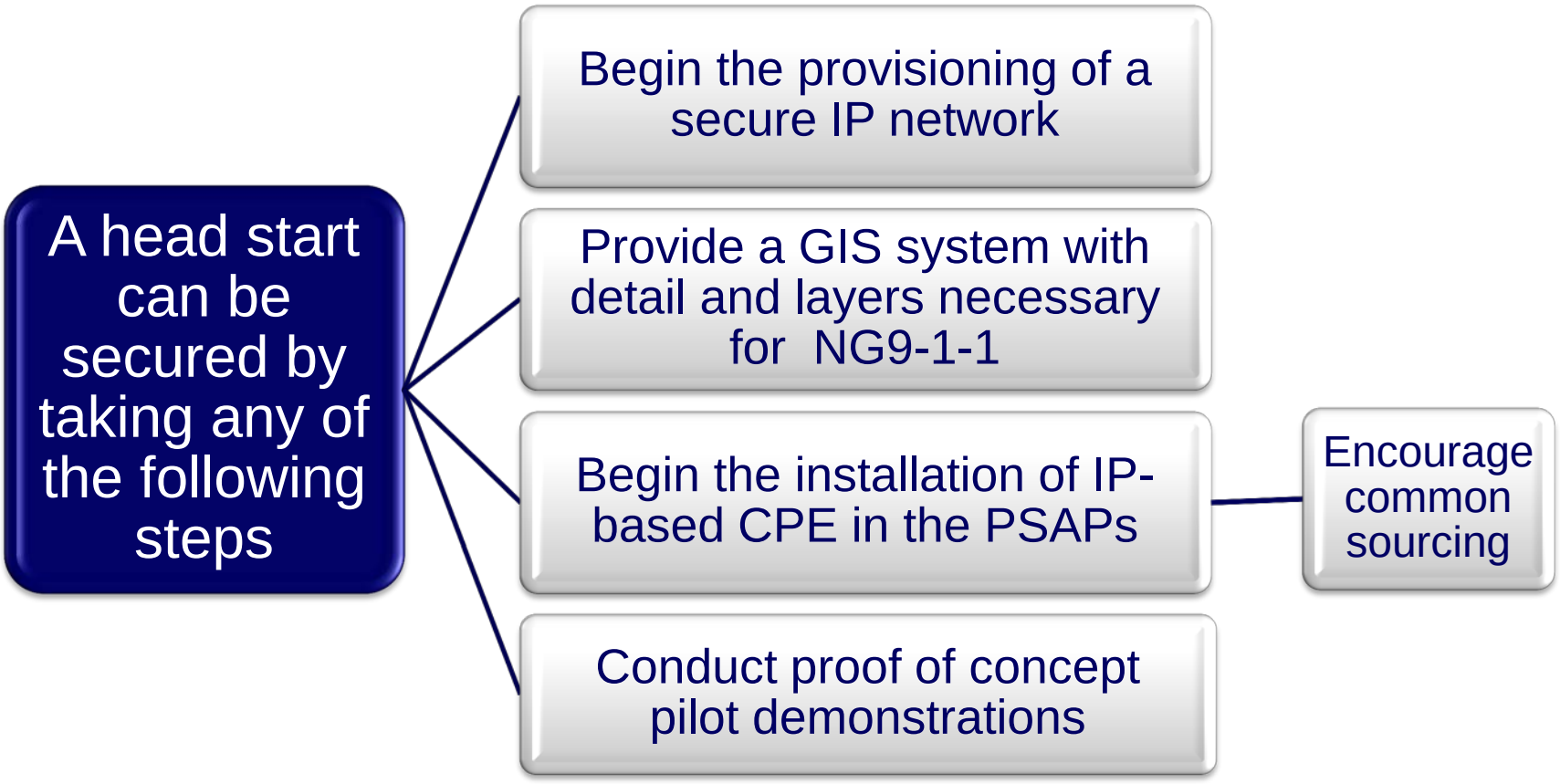
Governance and Operational Impact (continued)



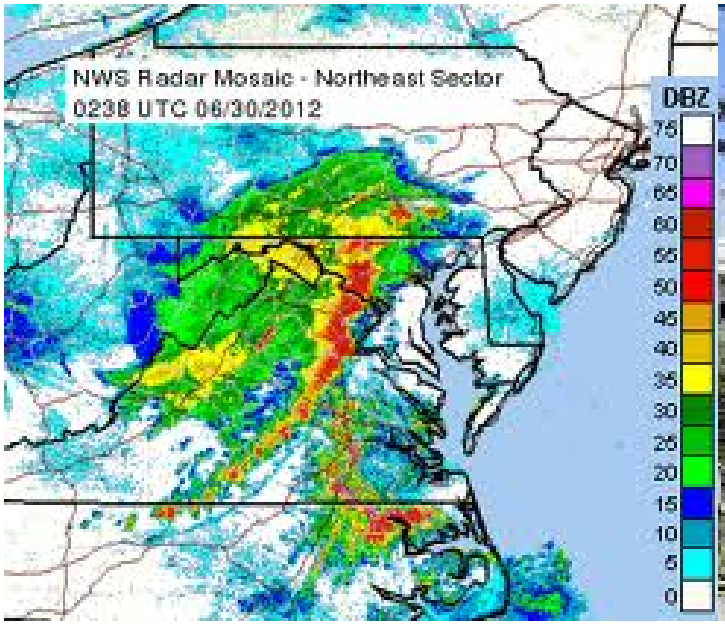
NG9-1-1 Early Start Options



QUESTIONS?

2012 Derecho

Impact of June 2012 Derecho



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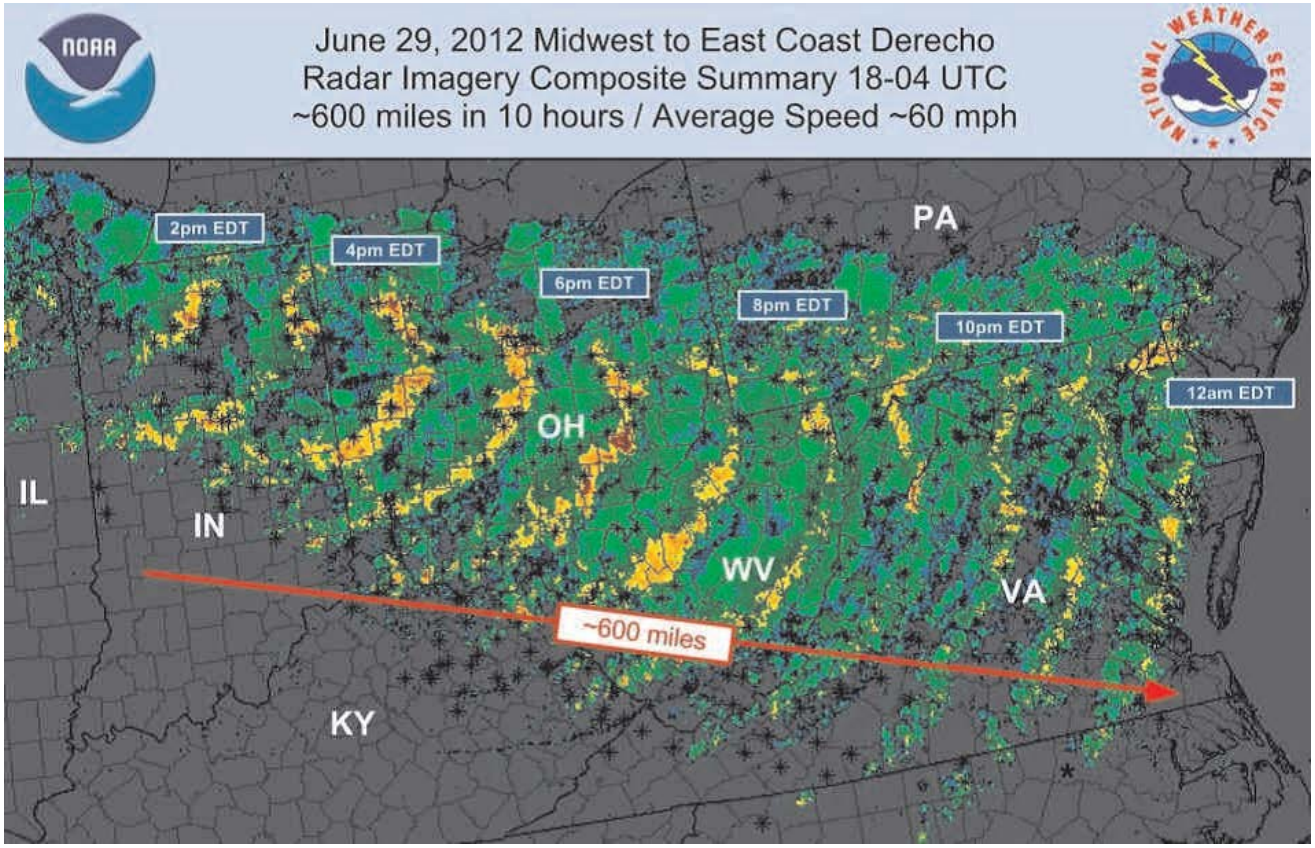
Derecho Definition

A “derecho” is a widespread, long lived, straight line windstorm that is associated with a fast moving band of severe thunderstorms.

They are a warm weather phenomenon that occur mostly in June and July in the Northern Hemisphere.

Track of the Derecho



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Overview of Service Provider Events

Northern Virginia

- Multiple Verizon switches became SS7 isolated
- Critical central office backup generator failures

West Virginia

- 126 of 230 Frontier facilities went to generator power
- Five host switches and more than 30 remote switches failed

Verizon's Provision of 9-1-1 Service to Fairfax County Normally (Before Storm, During Storm and after Tue July 3, 2012 11:00 am)

- Normal Operations

Verizon Owned and Maintained Equipment

* - Diverse Routing

Tandem 2* (Alexandria)

Verizon Central Office to Central Office Network

9-1-1 Calls

Public Network

Various Verizon Central Offices

Verizon Network Hub(Arlington)**

Electric Power

Generator 1 | Generator 2

9-1-1 Calls

Tandem 1* (Fairfax)

** - Not previously made known to Northern Virginia PSAPs

Fairfax Primary 9-1-1 Center

- Call Takers
- Dispatchers
- Equipment

Fairfax Backup 9-1-1 Center

- Equipment

- Wireline 9-1-1 = 25% of calls including VOIP (Voice over Internet Protocol)
- Wireless 9-1-1 = 75% of calls

DPSC Presentation

Verizon's Provision of 9-1-1 Service to Fairfax County (During Outage Sat June 30, 2012)

- Not Operational

Verizon Owned and Maintained Equipment

* - Diverse Routing

Tandem 2* (Alexandria)

Verizon Central Office to Central Office Network

9-1-1 Calls

Fairfax Primary 9-1-1 Center

- Call Takers
- Dispatchers
- Equipment

Public Network

Various Verizon Central Offices

Verizon Network Hub(Arlington)**

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Generator 1 | Generator 2

9-1-1 Calls

Fairfax Backup 9-1-1 Center

- Equipment

Tandem 1* (Fairfax)

** - Not previously made known to Northern Virginia PSAPs

- Wireline 9-1-1 = 25% of calls including VOIP (Voice over Internet Protocol)
- Wireless 9-1-1 = 75% of calls

DPSC Presentation

Increase in Workload
2130 hours, June 29, 2012 – 0100 hours, June 30, 2012

- 824 9-1-1 calls received (415% increase *)
- 1,224 Total calls received - Emergency & Non-Emergency (312 % increase *)
- 594 Police dispatches (31% increase **)
- 282 Fire-Rescue dispatches (2,464% increase **)
- 51 EMS dispatches (89% increase **)
- 936 Overall CAD Events (79% increase **)
- 870 Radio transmissions (116% increase **)
- 85 Minutes of radio transmissions (60% increase **)

- **=% of increase/decrease over that experienced in the same period in the previous week.*
- *** = % of increase/decrease over that experienced in the same period for the previous 3 weeks.*

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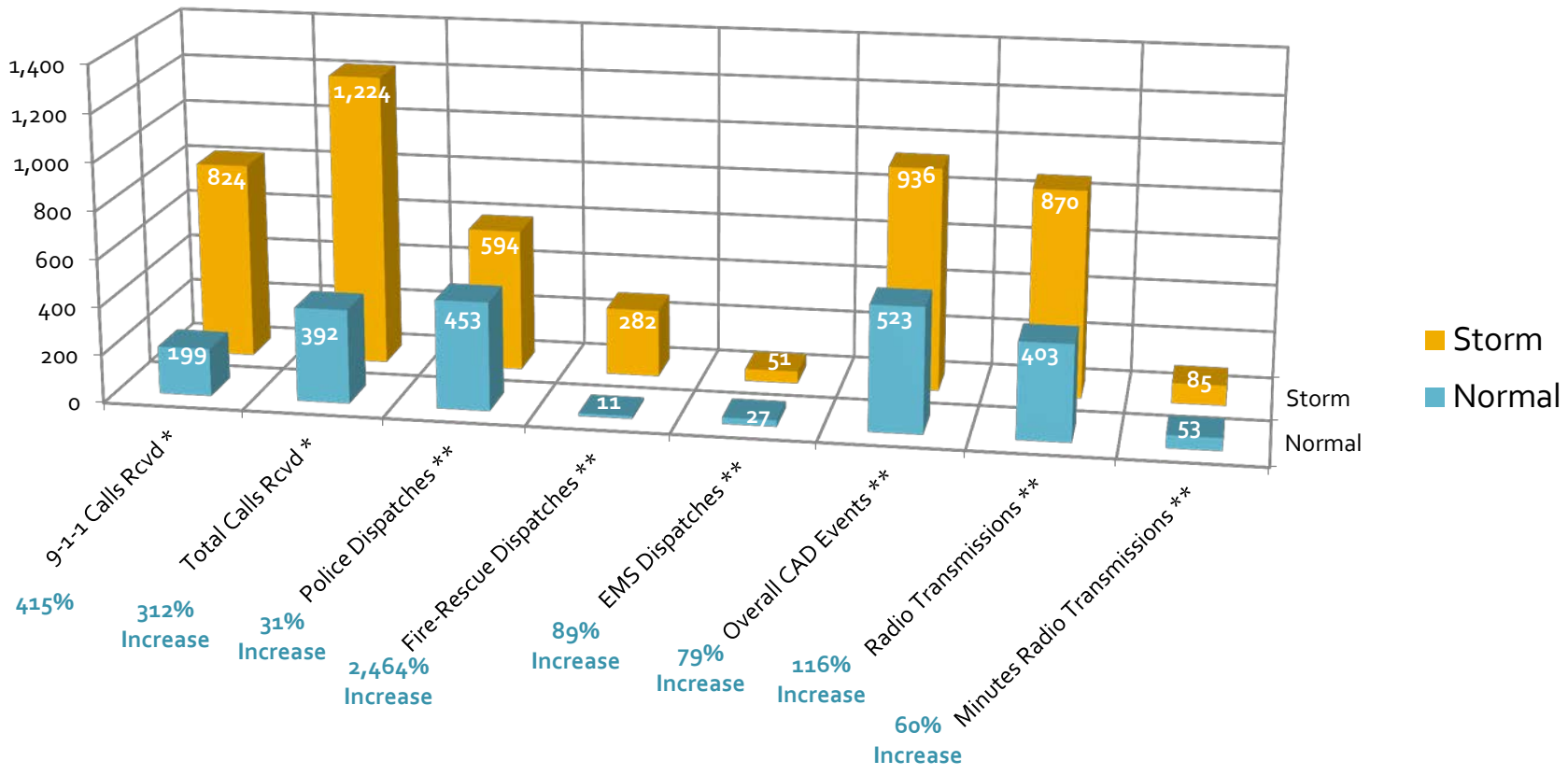
Increase in Workload



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Increase in Workload
0600 hours, June 30, 2012 – 0600 hours, July 1, 2012

- 1,226 9-1-1 calls received (8% increase *)
- 2,650 Total calls received - Emergency & Non-Emergency (15% increase *)
- 2,427 Police dispatches (5.34% increase **)
- 403 Fire-Rescue dispatches (205% increase **)
- 247 EMS dispatches (24% increase **)
- 3,175 Overall CAD Events (4.27% increase **)
- 4,732 Radio transmissions (141% increase *)
- 533 Minutes of radio transmissions (231% increase *)
- **=% of increase/decrease over that experienced in the same period in the previous week.*
- *** = % of increase/decrease over that experienced in the same period for the previous 3 weeks.*

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Regulatory Reports and Action

FCC Report

Virginia State Corporation Commission Report

Maryland Public Services Commission and Emergency Number Assistance Board

FCC Report Recommendations

- Regularly audit the physical routes of 911 circuits and ALI links
- Provide, maintain robust, resilient backup power at central offices
- Provide diverse monitor and control links throughout the network
- Revise the methods and minimum level of detail in reporting problems to PSAPs

QUESTIONS?

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