Diversity of 9-1-1 System Architectures

FCC Presentation

January 20, 2015

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Goals / Objectives

- Local Control, Budgets, and History Shape Current 9-1-1 / NG9-1-1 Deployments
- There Is No “Standard” 9-1-1 / NG9-1-1 Deployment
- Legacy 9-1-1 in Transition
- i3 / NG9-1-1 – Challenges and Opportunities
- GIS in Transition
- Discussion

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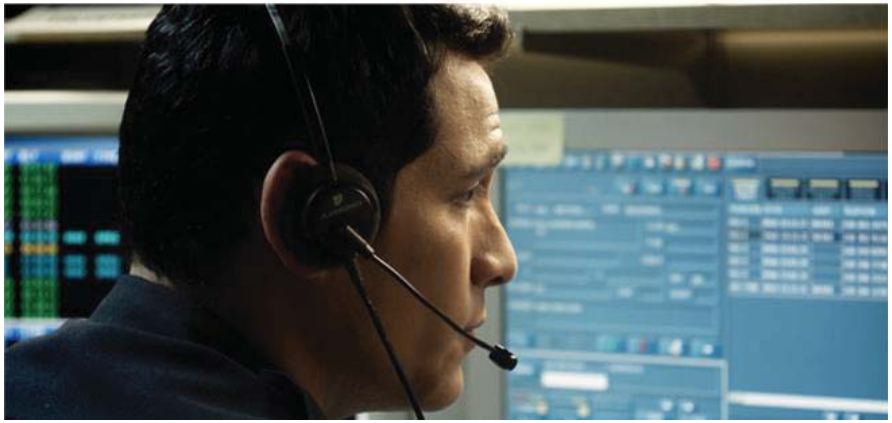
Intrado Services

- Innovative leader and pioneer of 9-1-1 technology solutions since 1979
- Provide the foundation of the nation's 9-1-1 infrastructure
- Next Generation 9-1-1 ESInets serving nearly 22 million US population
- Support the delivery of 260 million calls to 9-1-1 per year
- Processed more than 3 billion 9-1-1 calls
- Provider of 9-1-1 technology for:
  - ILECs, CLECs, wireless carriers, satellite & cable operators,
  - VoIP & Telematics providers, public safety , and
  - State and Local government agencies
- 9-1-1 voice, data and call handling equipment to 6,000 PSAPs



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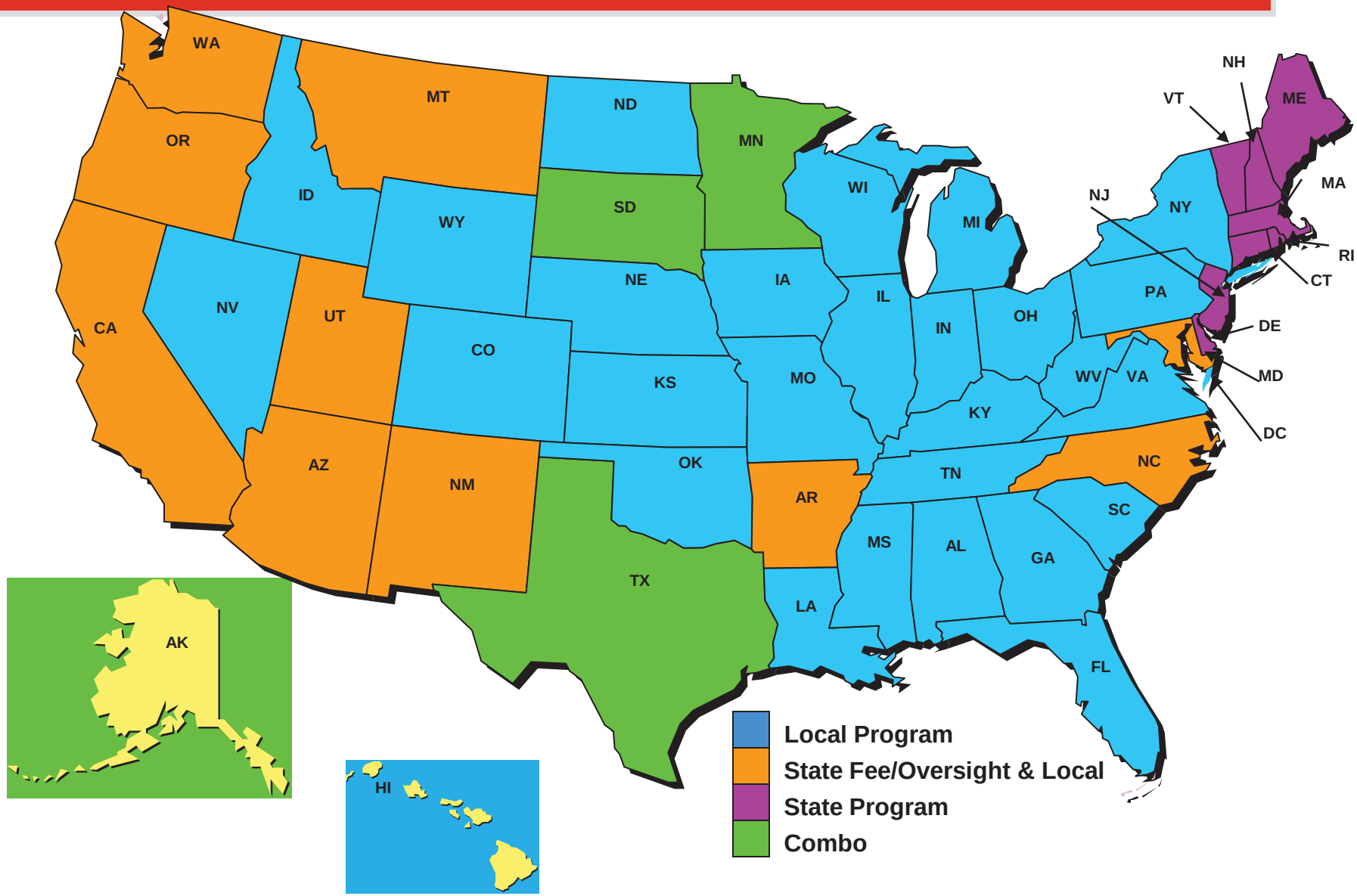
Wireline 911 Oversight - 2007 to Current



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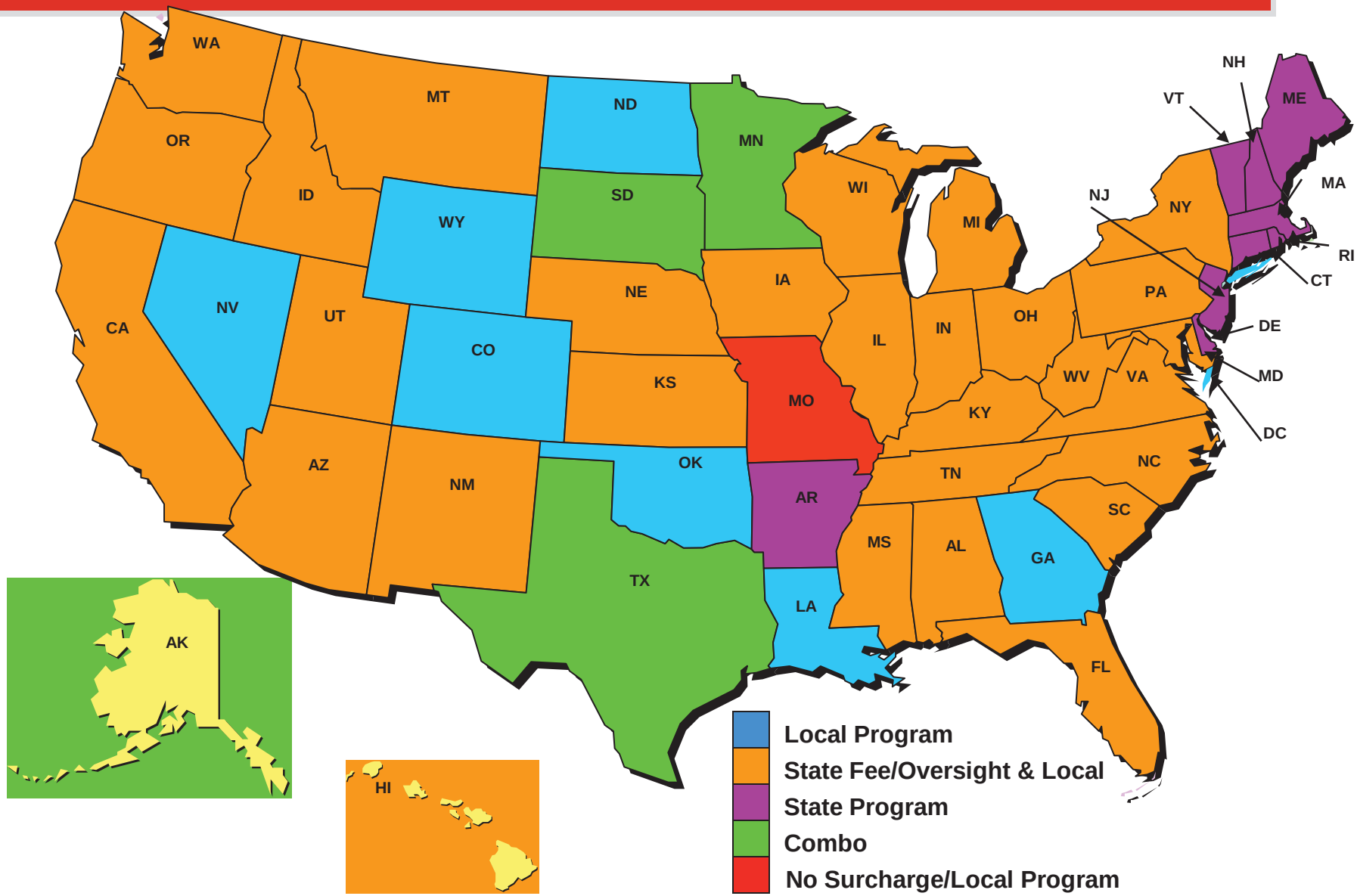
Wireless 911 Oversight - 2007 to Current



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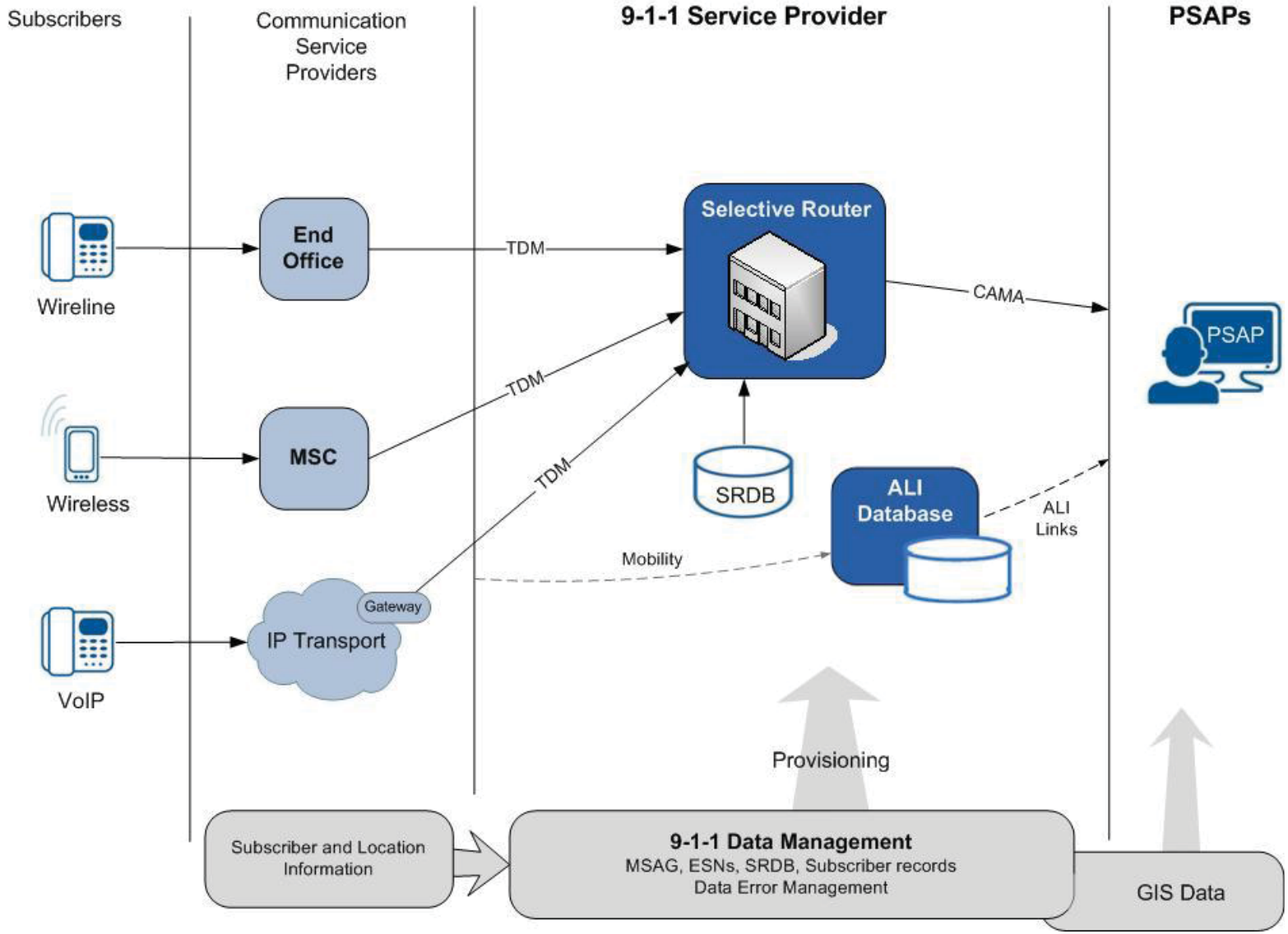
Today's Typical Legacy 9-1-1 Environment



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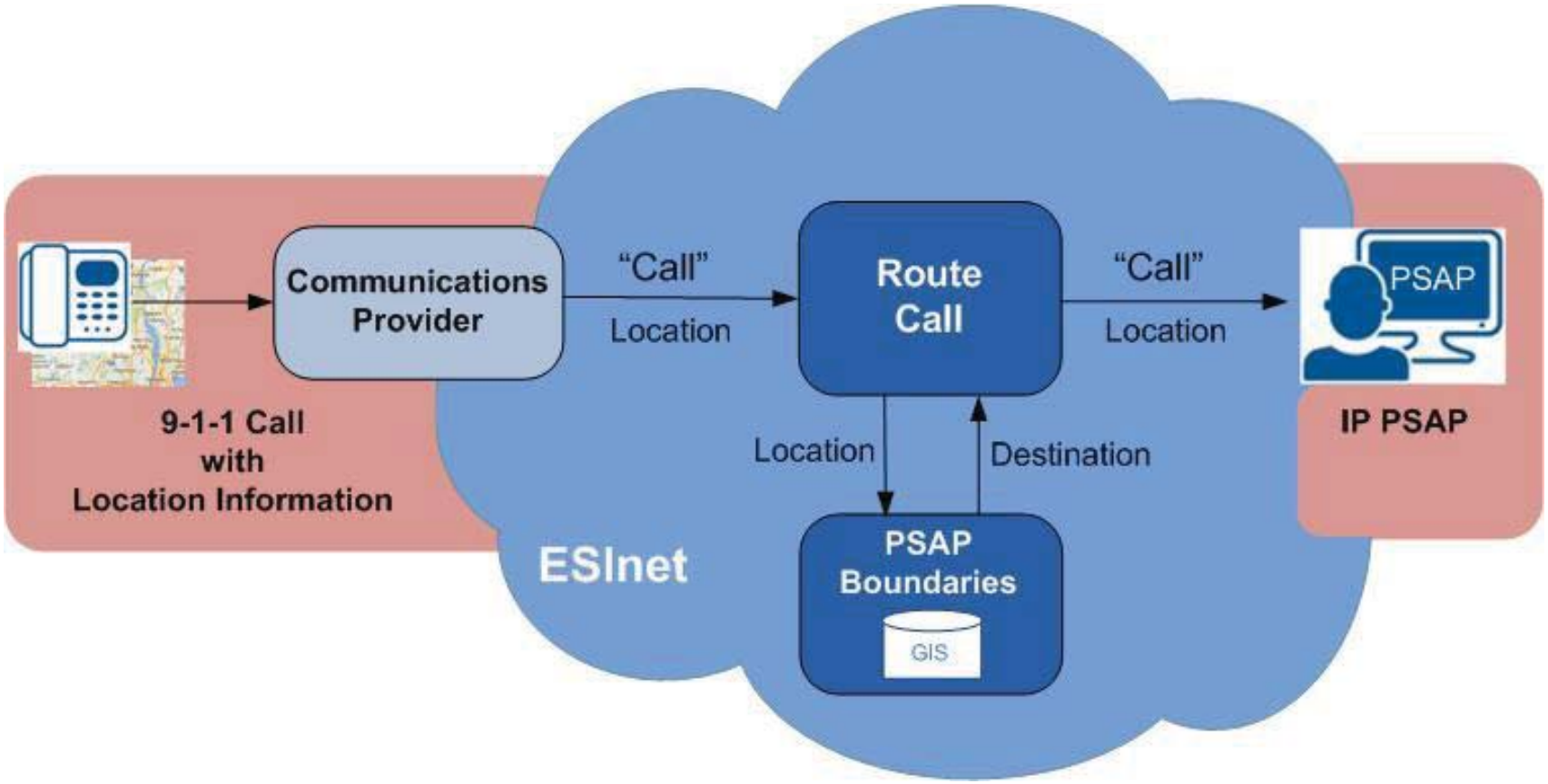
NENA i3 Target Architecture



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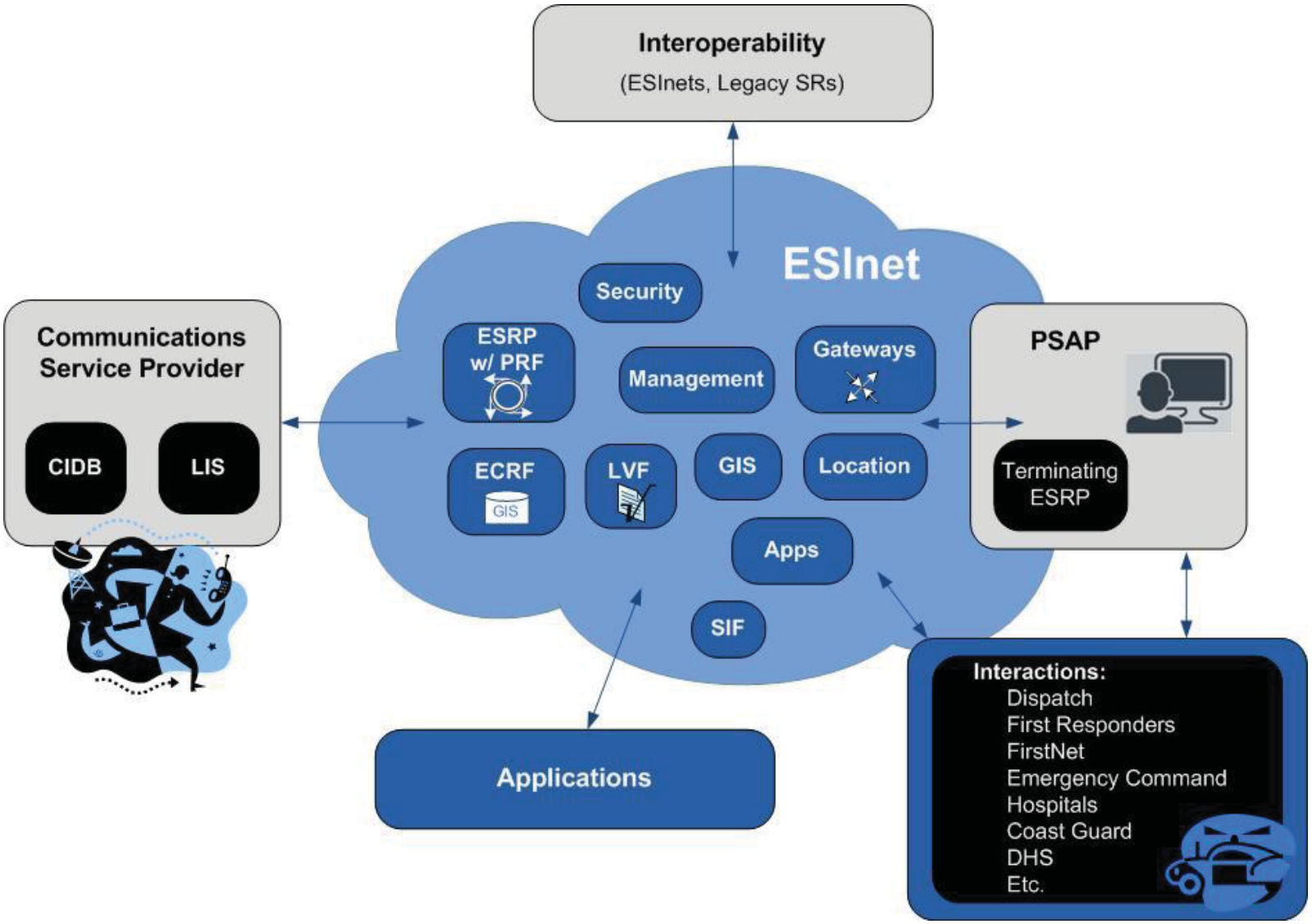
Context of NENA i3 Functions – Changing Responsibilities



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Geographic and Address Data

- Coordination of Address and Geographic Data
  - GIS Coordinators (e.g., County)
  - Postal Addresses (Civic or textual)
  - Call Taking and Dispatch (CAD)
  - ALI and MSAG (transitional)
  - Enhanced Data Services
- Routing Data
  - GIS Polygons (with Latitude and Longitude)
  - Equivalent (or better) results to current Selective Router database
- Public Internet Interconnection
  - ECRF / Forest Guide
  - Hierarchical Routing Rules

- ✓ GIS with 9-1-1 attributes
- ✓ GIS data coordination is challenging
- ✓ Need “dispatch-able” addresses
- ✓ Different GIS data can cause confusion across applications

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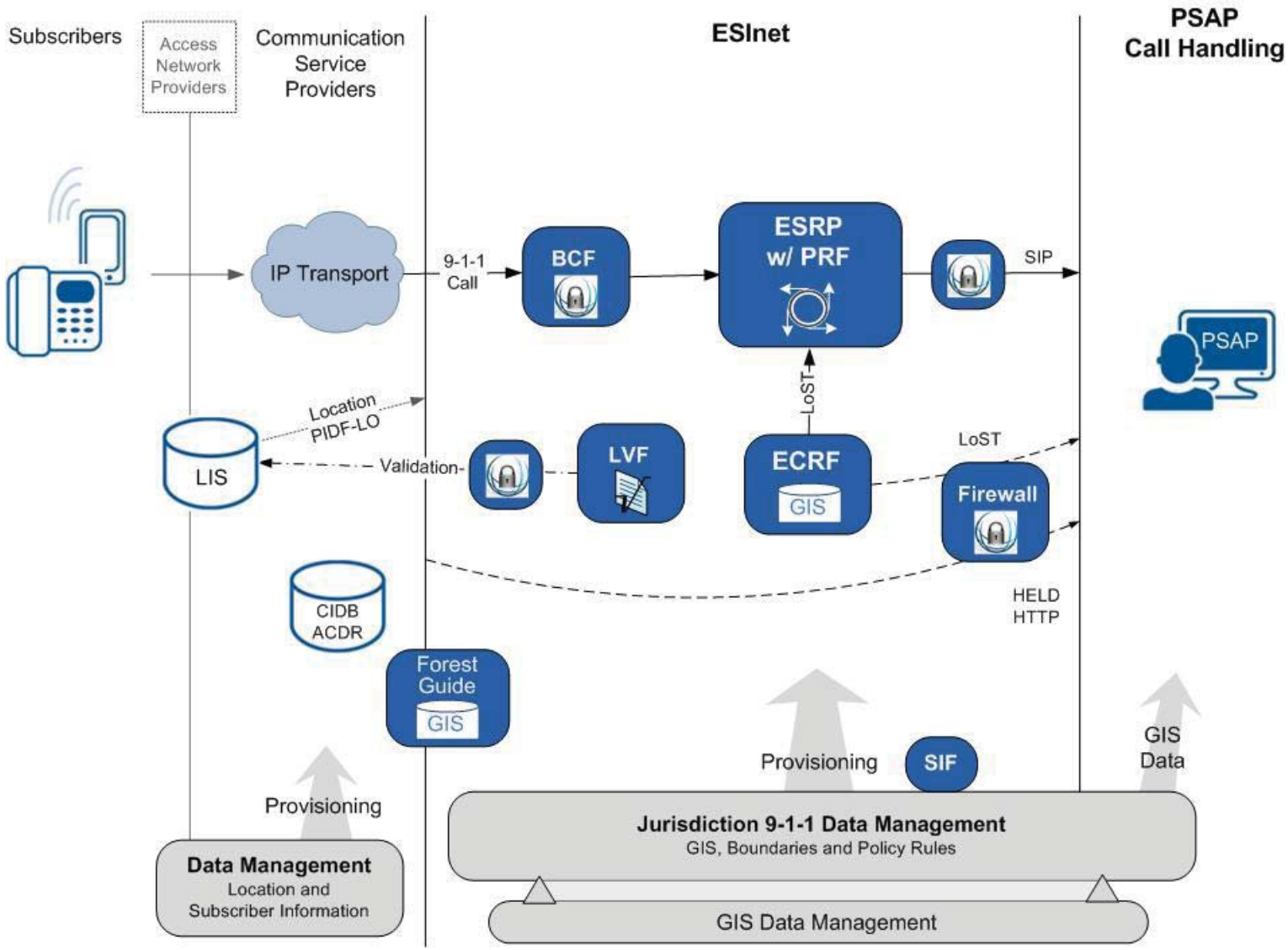
NENA i3 Vision (simplified)



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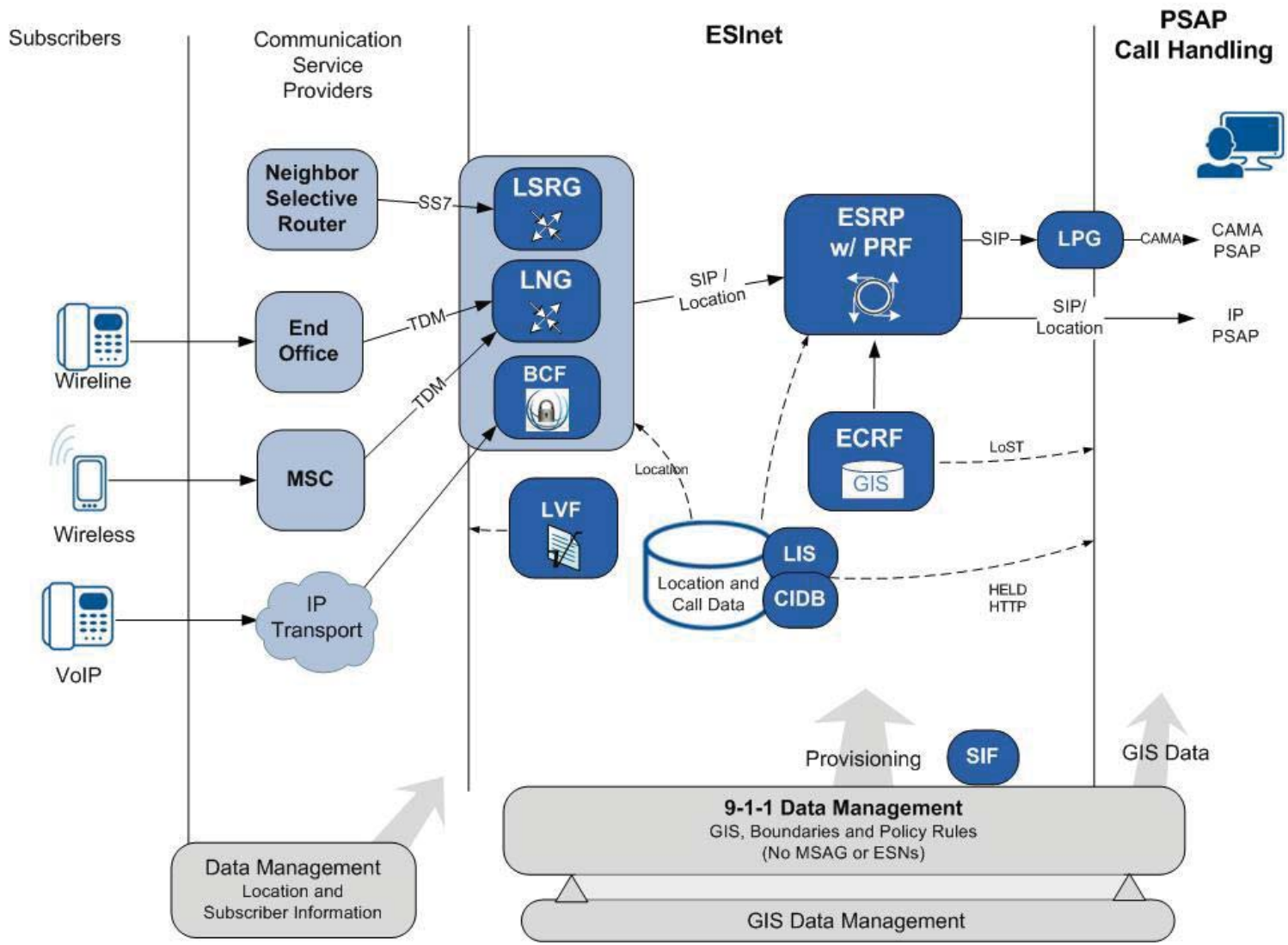
NENA i3 Transitional Elements



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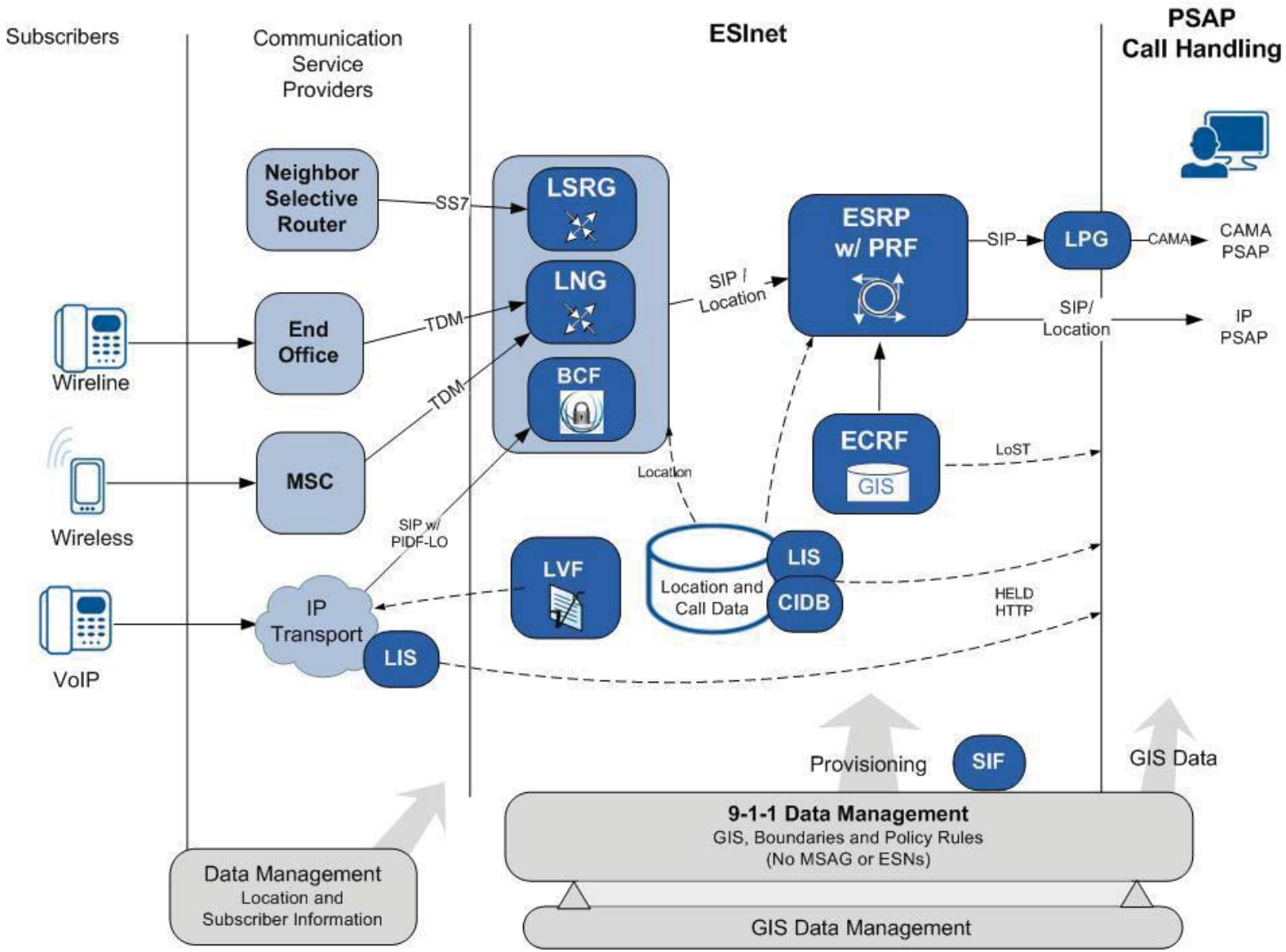
Transition – Legacy 9-1-1 to NENA i3 Vision



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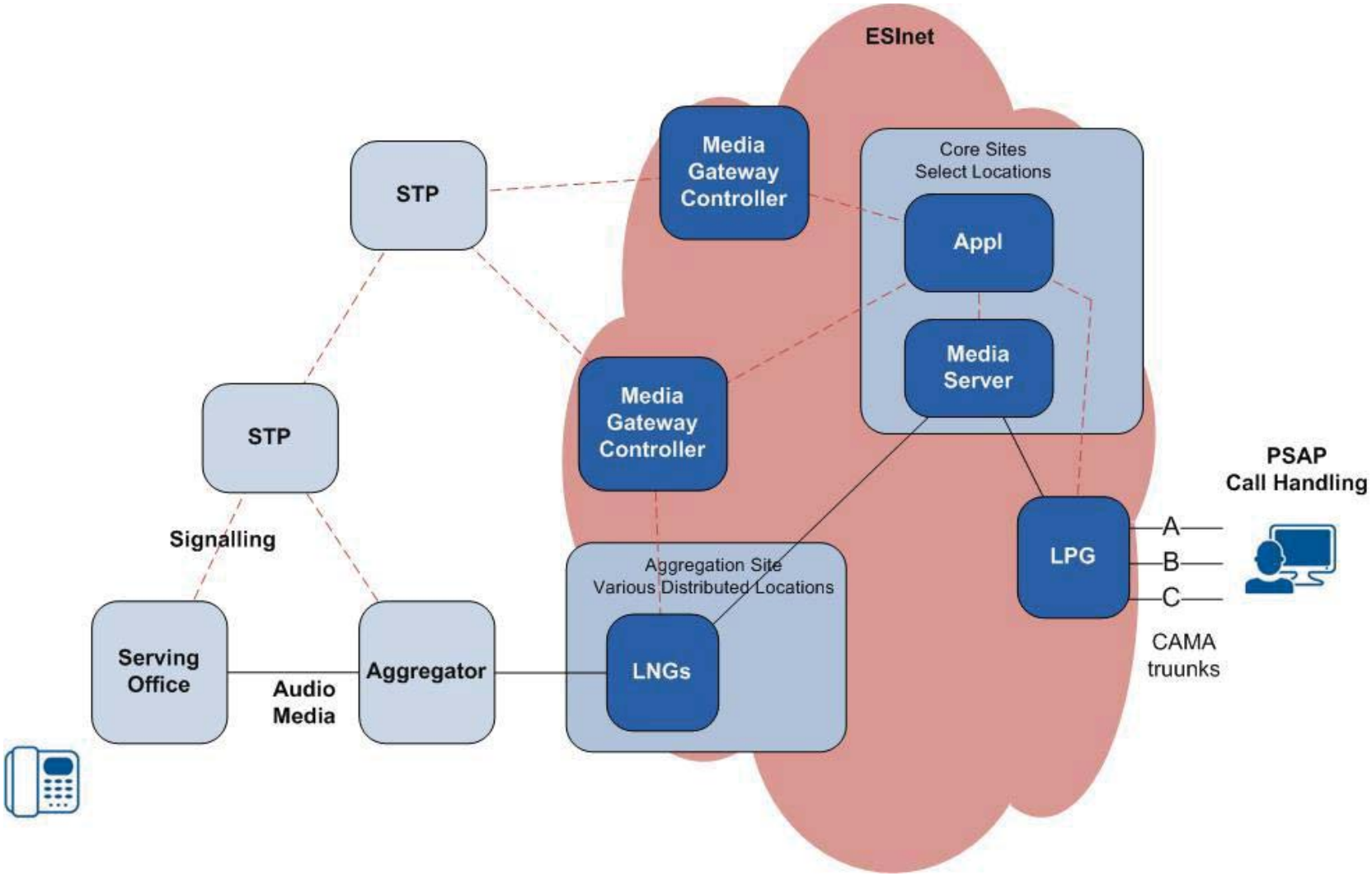
SS7 Configuration and Distributed Functions



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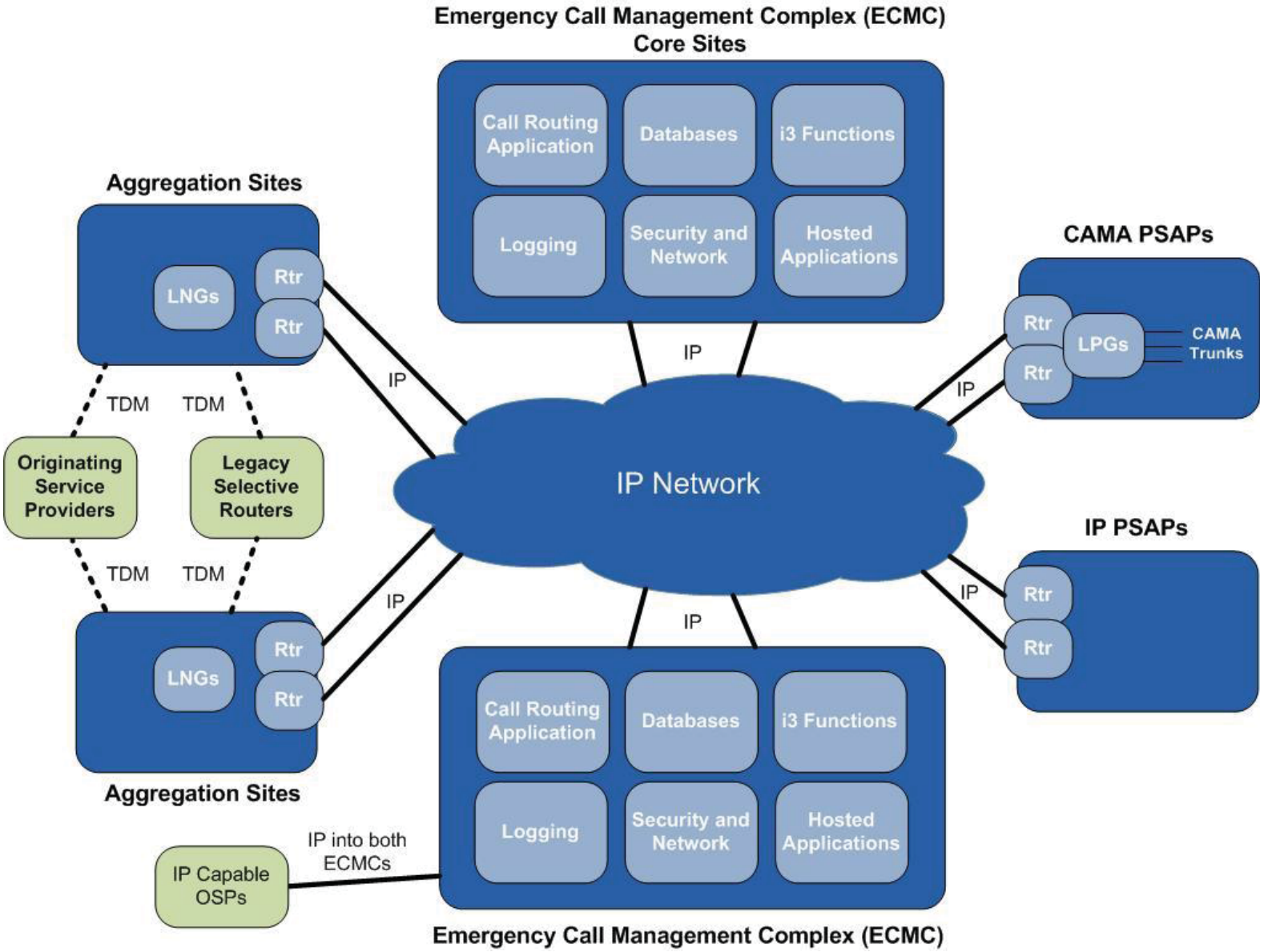
Solution Architecture



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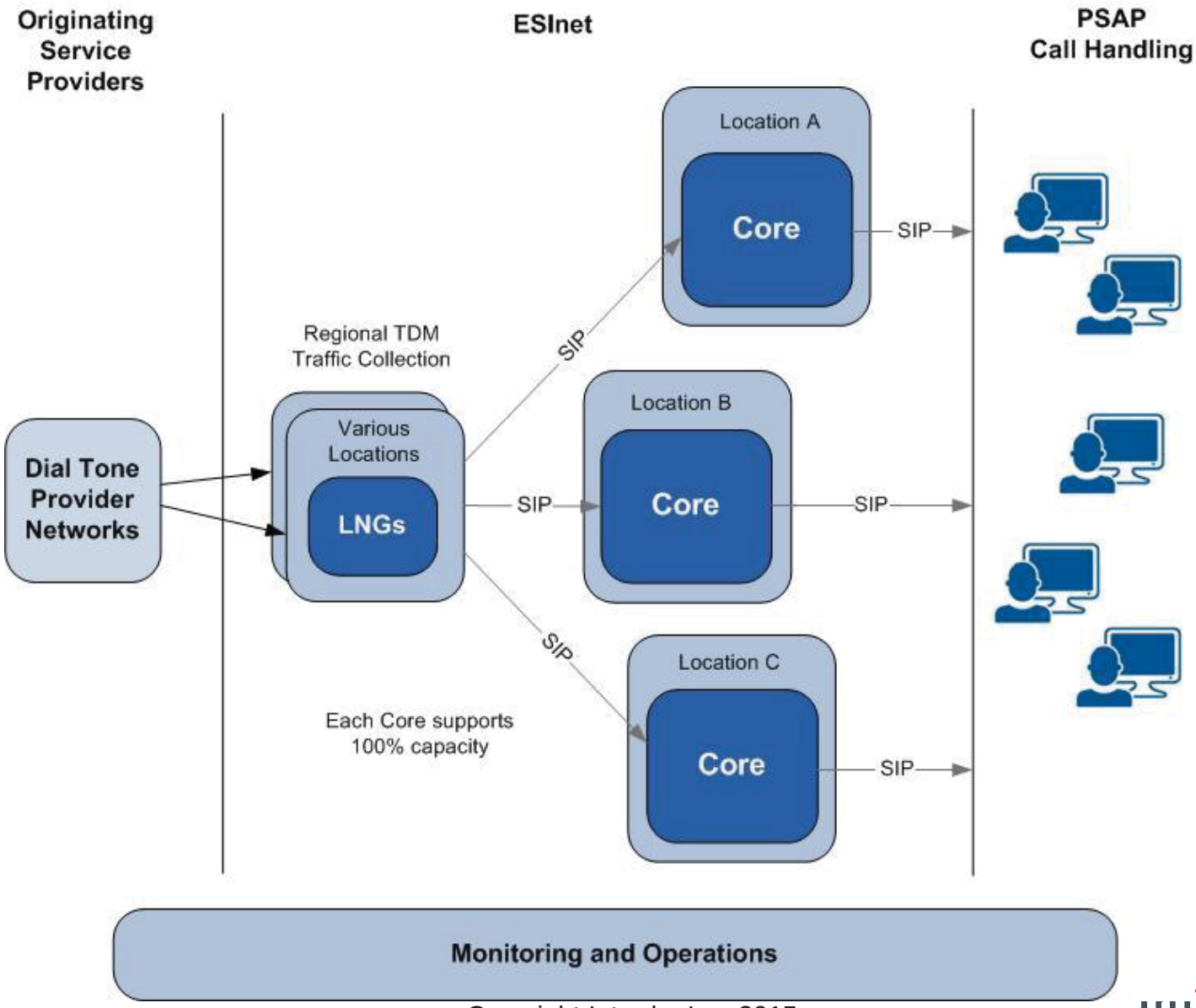
Multiple Cores Serving Multiple Geographic Regions



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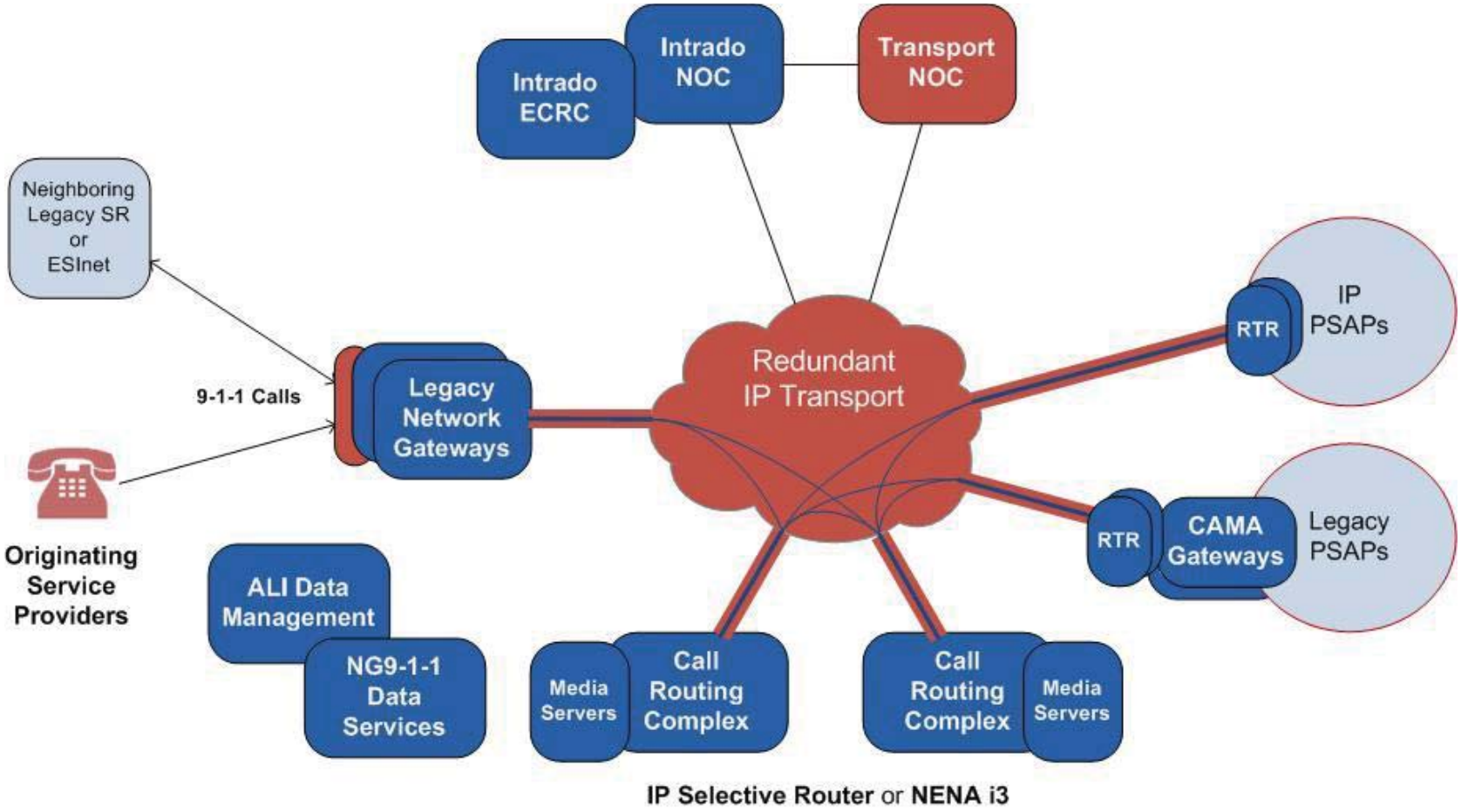
Network Responsibilities



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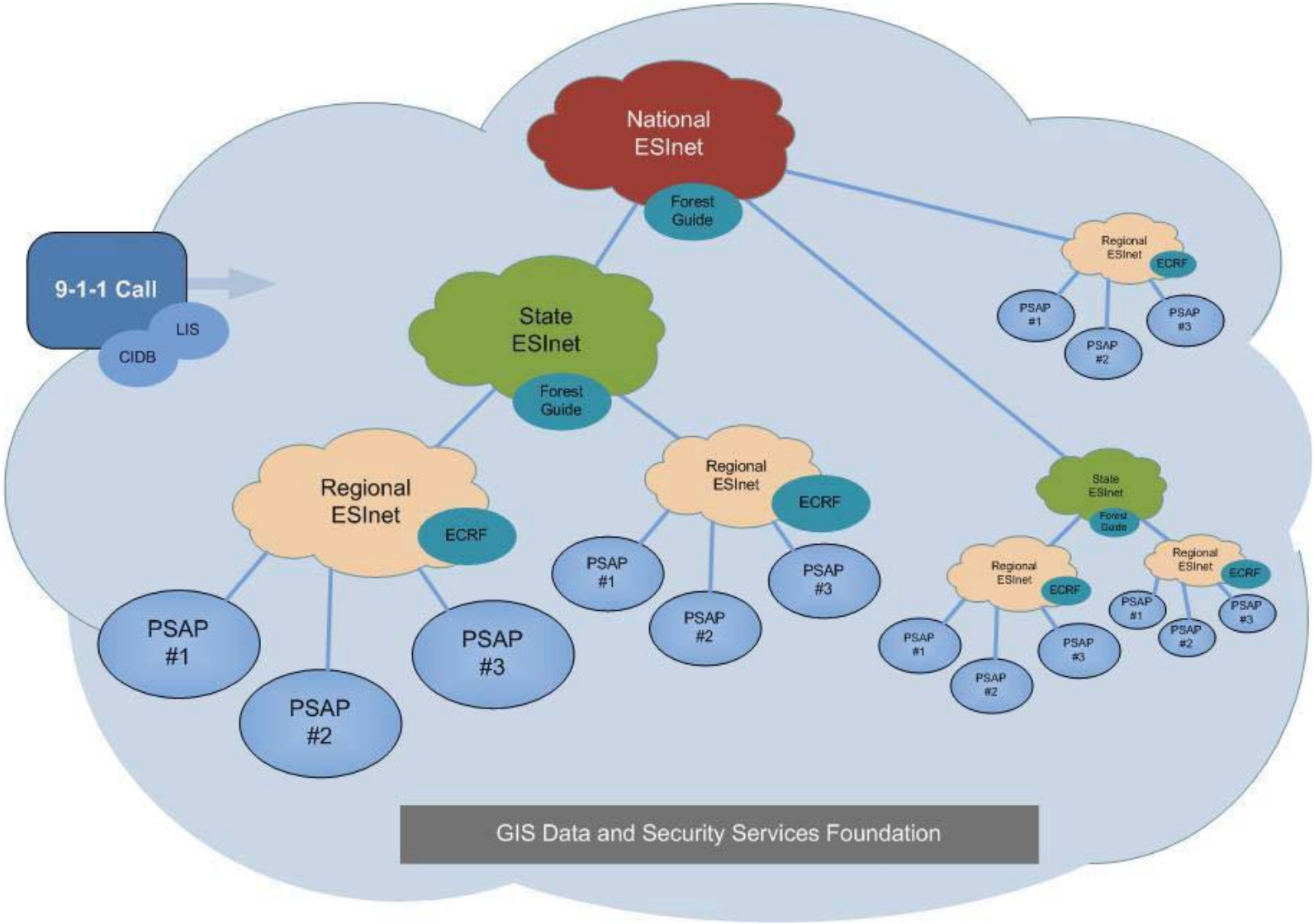
Conceptual Future ESInet Hierarchical Routing



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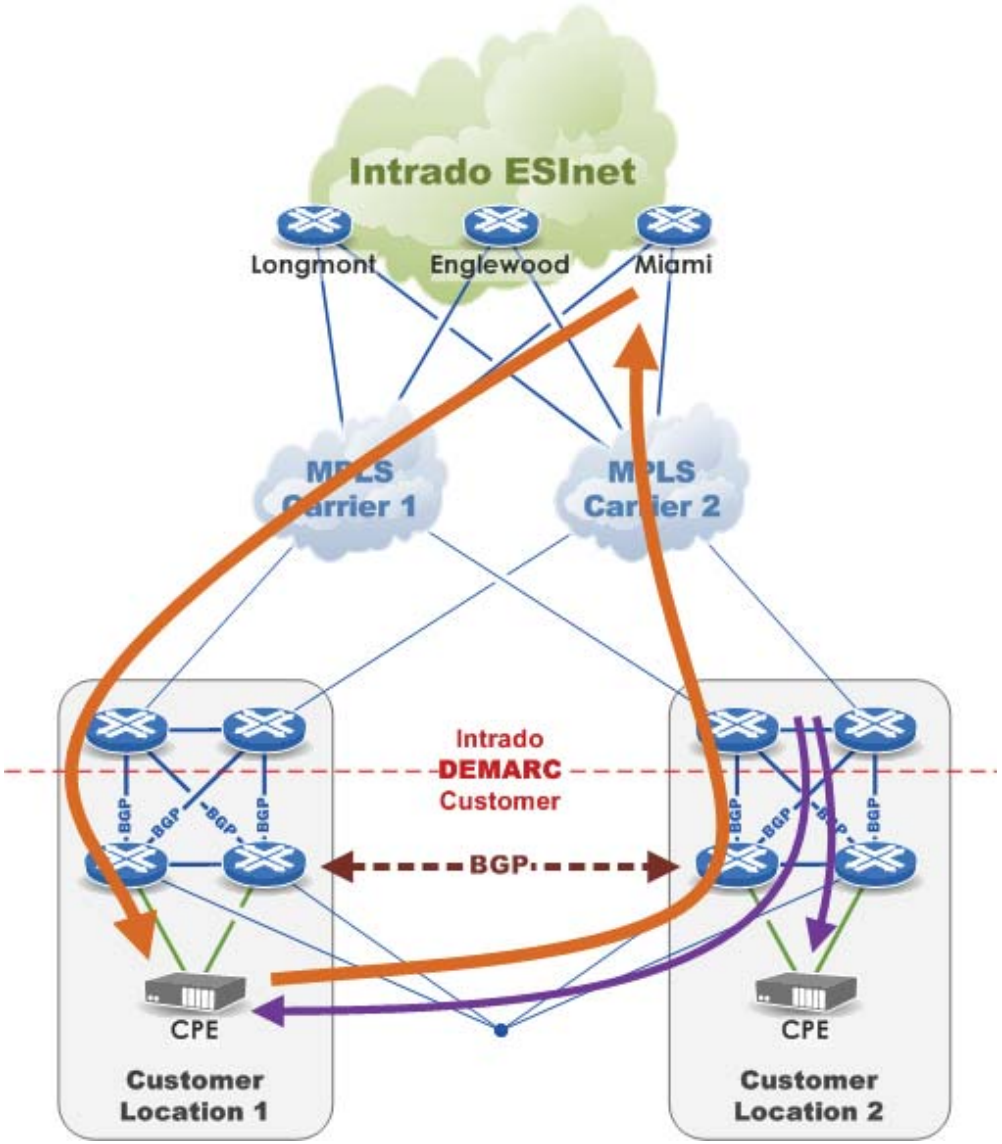
Hosted Call Handling Connection Model



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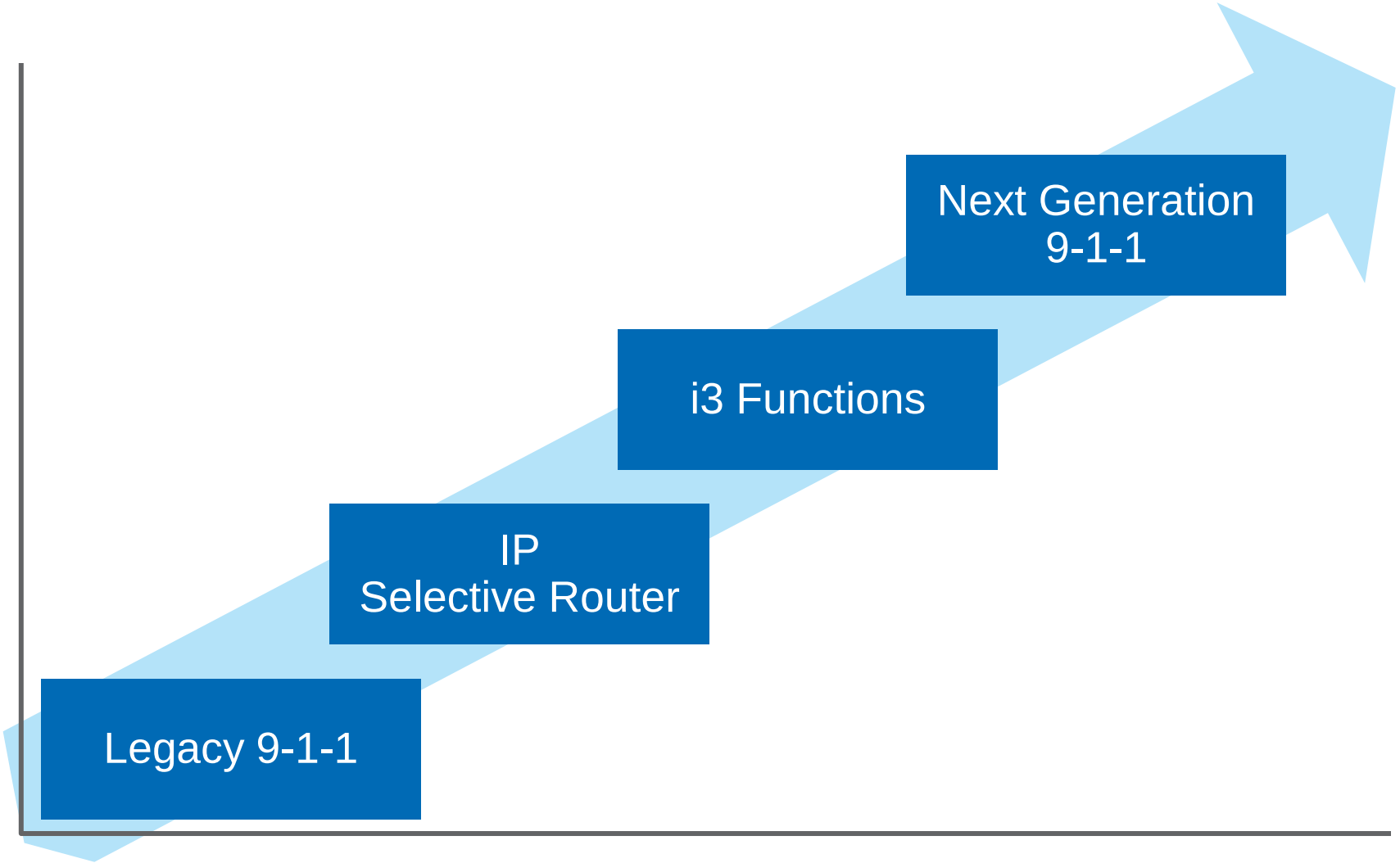
Public Safety Transition Steps



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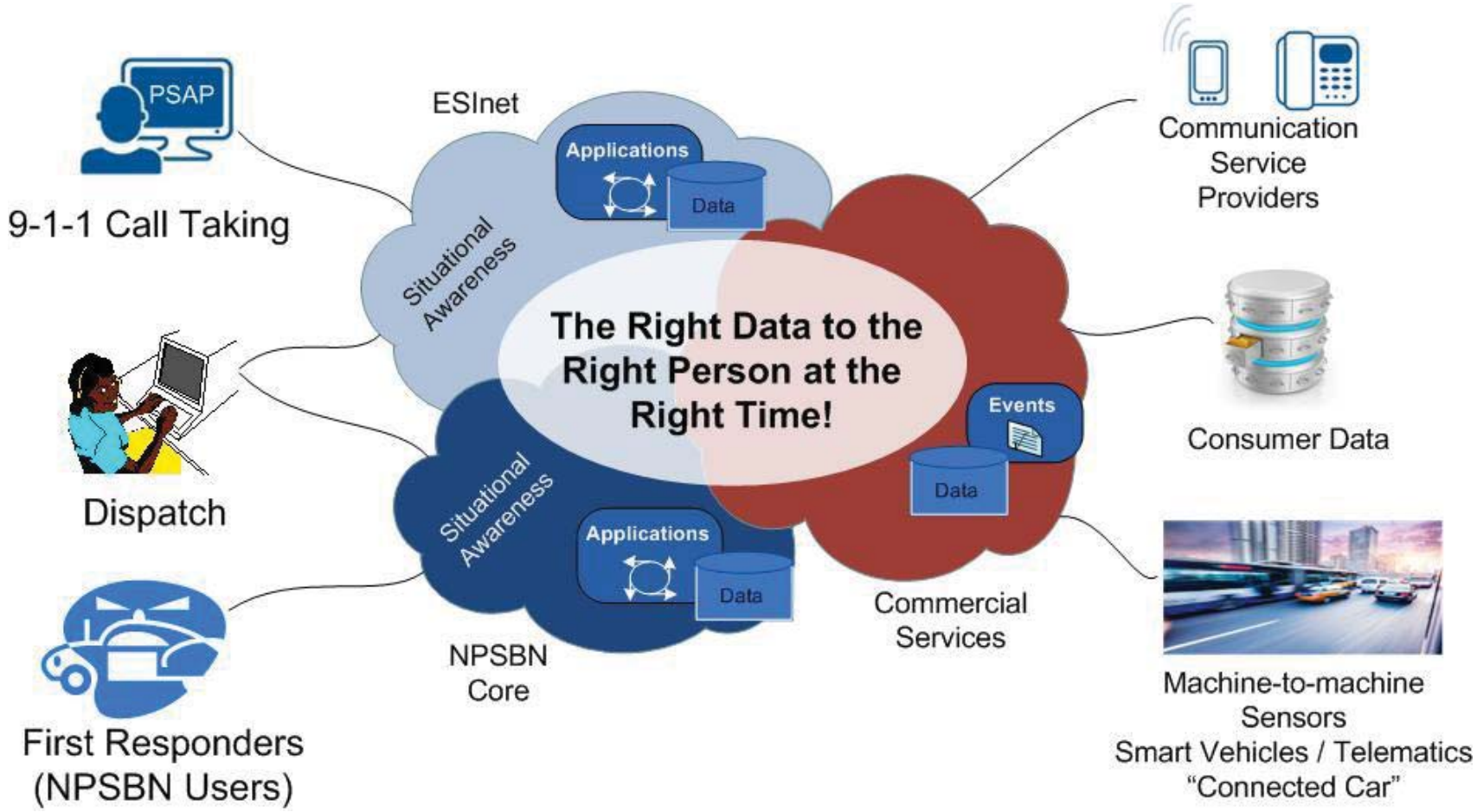
"Smart" Operating Environment



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GIS Tools and Services

Manage 9-1-1 attributes with your GIS data and migrate from current operating models to Next Generation 9-1-1

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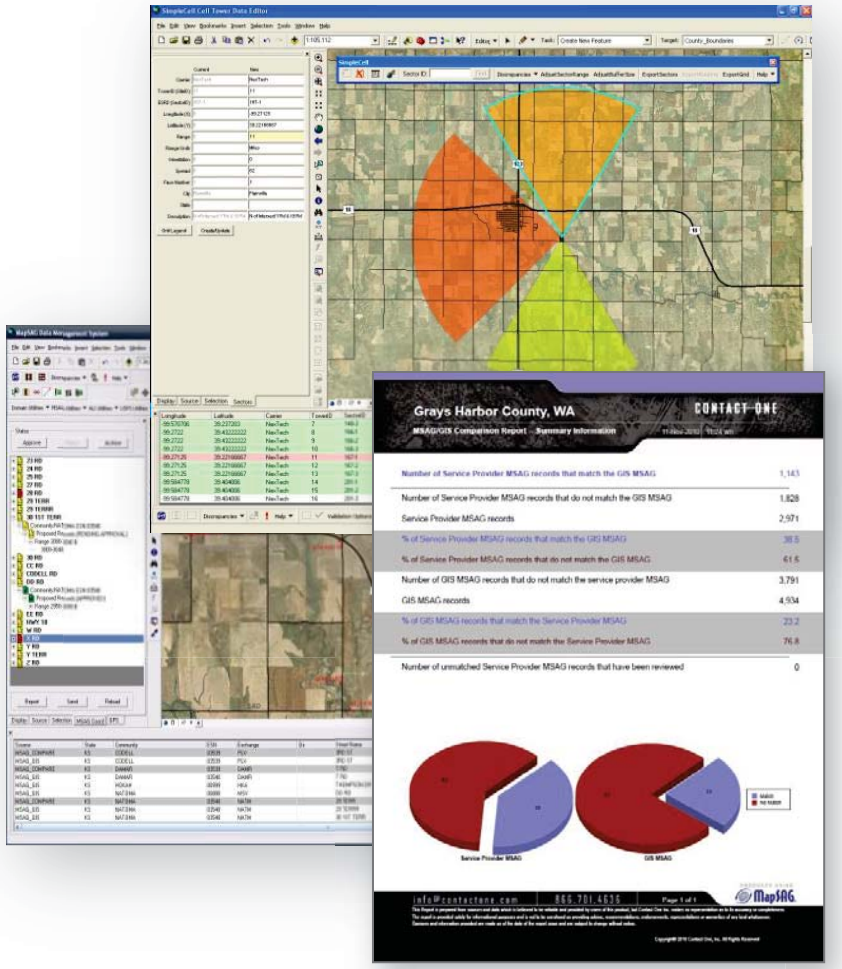
Tabular Address to GIS Data Management

- Numerous Validations
  - Address gap
  - Address overlap
  - Street point in wrong direction
  - Empty geometry
  - Address range parity
  - Address range order
  - Structure street parity
  - Structure address order



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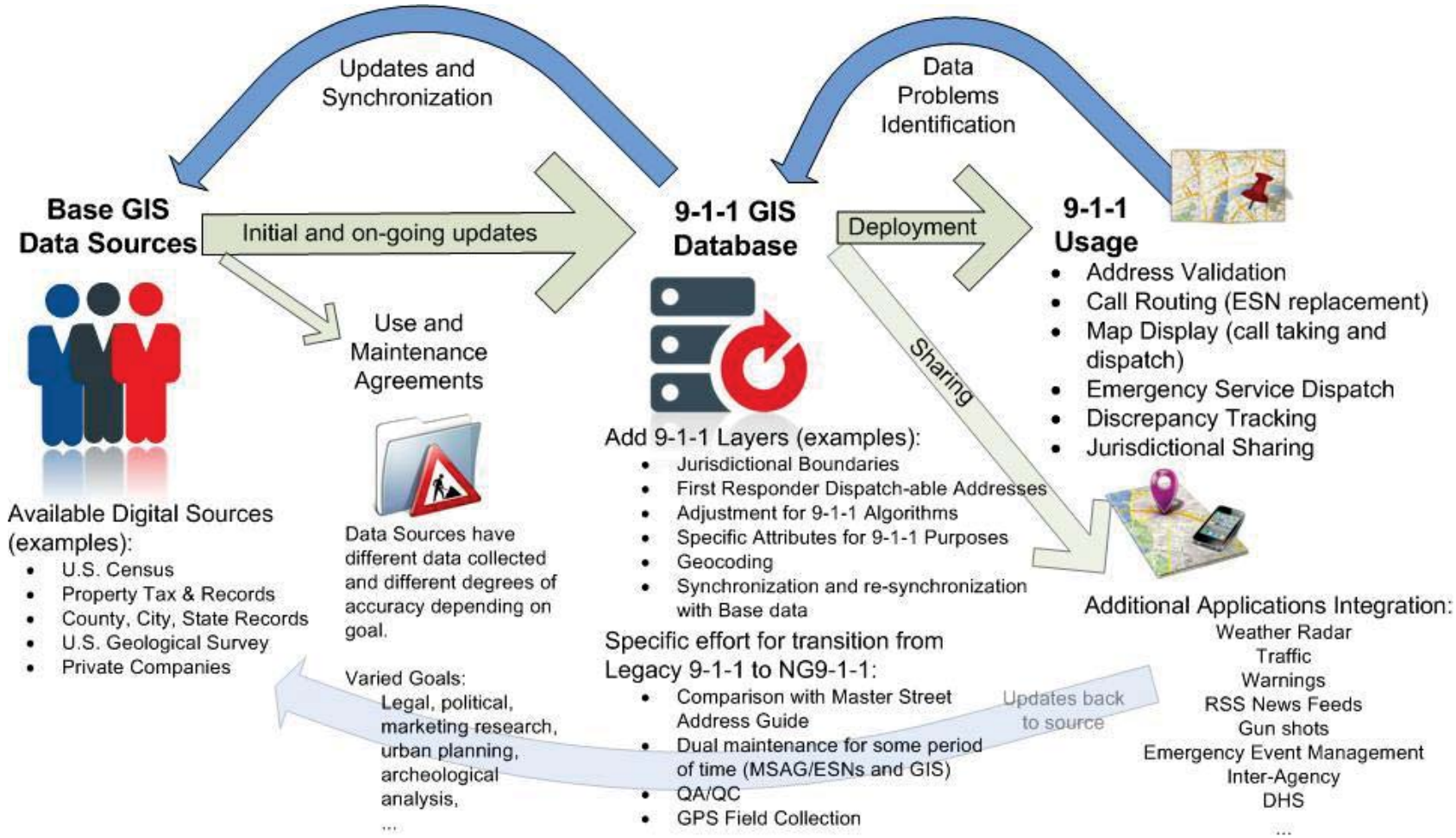
NG9-1-1 GIS Data life Cycle



9-1-1 GIS data management programs are complex

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Discussion

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