

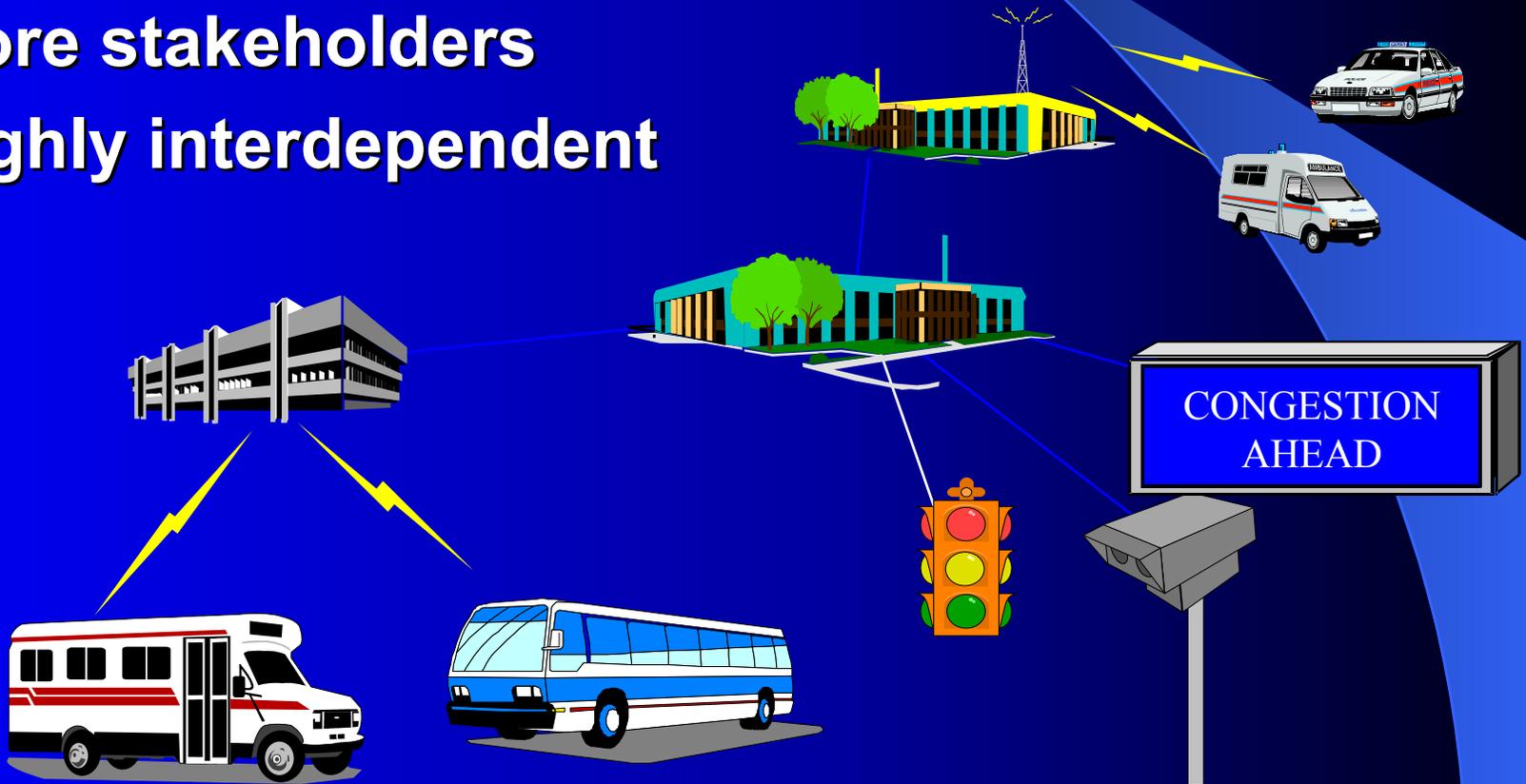
Integrating Traditional and Non-Traditional Data Sources: The GCM Gateway Traveler Information System

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***NATMEC 2002
Orlando, Florida***

Transportation Systems are Becoming More Complex

- Sophisticated systems
- More stakeholders
- Highly interdependent

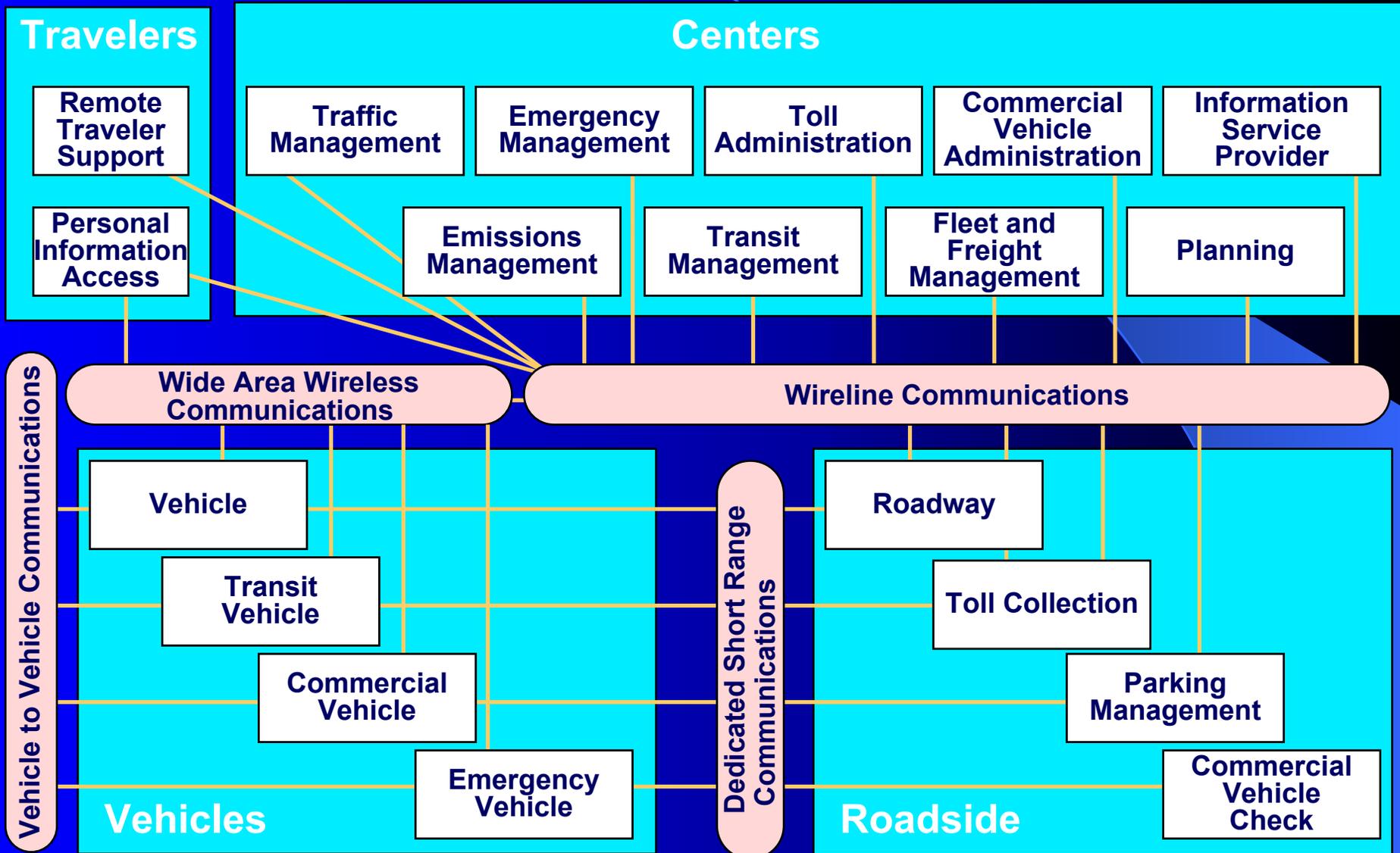


The ITS Opportunity

- Revolution in providing transportation services
- Third wave of social change (the information age) comes to transportation

Save Time, Save Lives, Save Money

ITS National Architecture



The GCM Corridor



- 3 states - IL, IN, WI
- 16 counties
- Over 10 M population
- Over 30 stakeholder agencies
- Hundreds of jurisdictions

GCM Background

- GCM Coalition ⇒ Gateway ATIS
- Multi-modal, Regional Intelligent Transportation System
- Integrated, Consistent and Comparable Data
- Support Operations/Management and Traveler Information Functions

GCM Program Activities

“Gateway”

**Public/Private
Partnerships**

**Multi-Modal
Traveler
Information
System**

**Integrated
Transit Systems**

**Incident
Management
Systems**

**Advanced
Incident
Reporting and
Mayday
Security**

**GCM Technical
and Planning
Support**

**Vehicle
Transponder
Systems**

**Traffic Signal
Integration**

**Commercial
Vehicle
Operations**

**Traffic
Management
Systems**

Focus on Operations and Management

- ◆ Effective operation and management of the transportation system requires real-time information.
- ◆ This means monitoring and surveillance of the performance of the facilities and services that make up the system.
- ◆ This is INFOSTRUCTURE

Gateway Objectives

- Collect and Fuse Data from Public and Private Sources
- Provide Means to Share Control and Monitoring of Field Devices
- Create a Corridor-wide Source of Real-Time Information
- Serve Information Needs of Operators and Travelers

Shared Data Uses

Planning and Research

ADUS

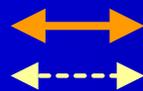
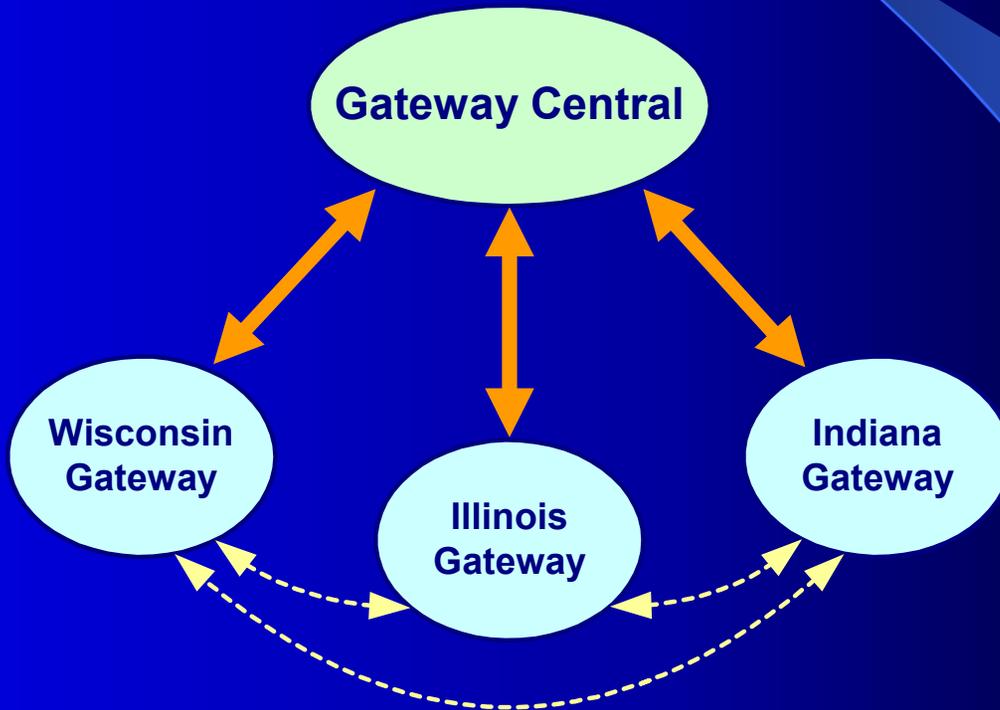
ATMS

Operations and
Management

ATIS

Traveler
Information

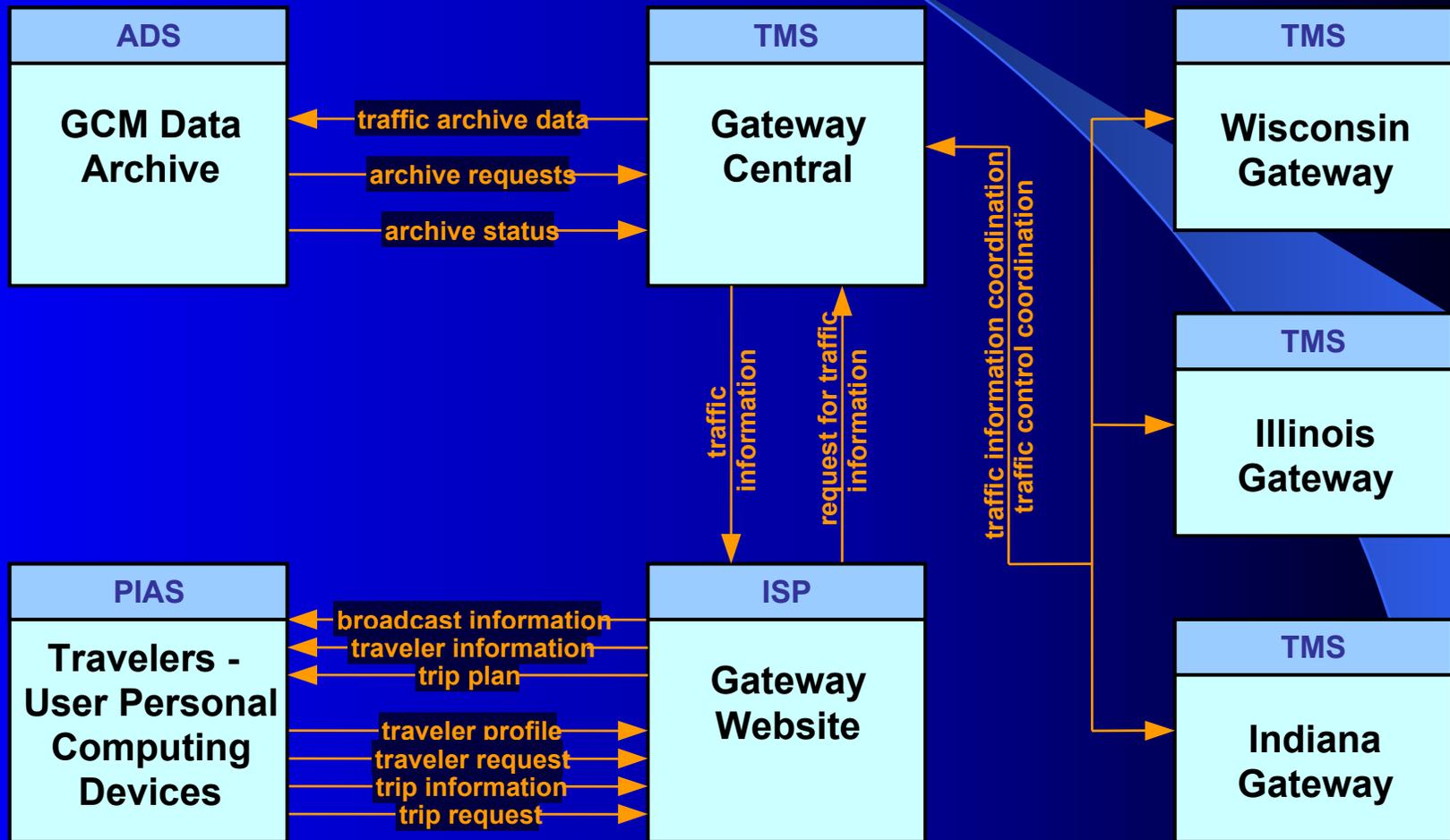
Integration Requires Communications & "INFOSTRUCTURE"



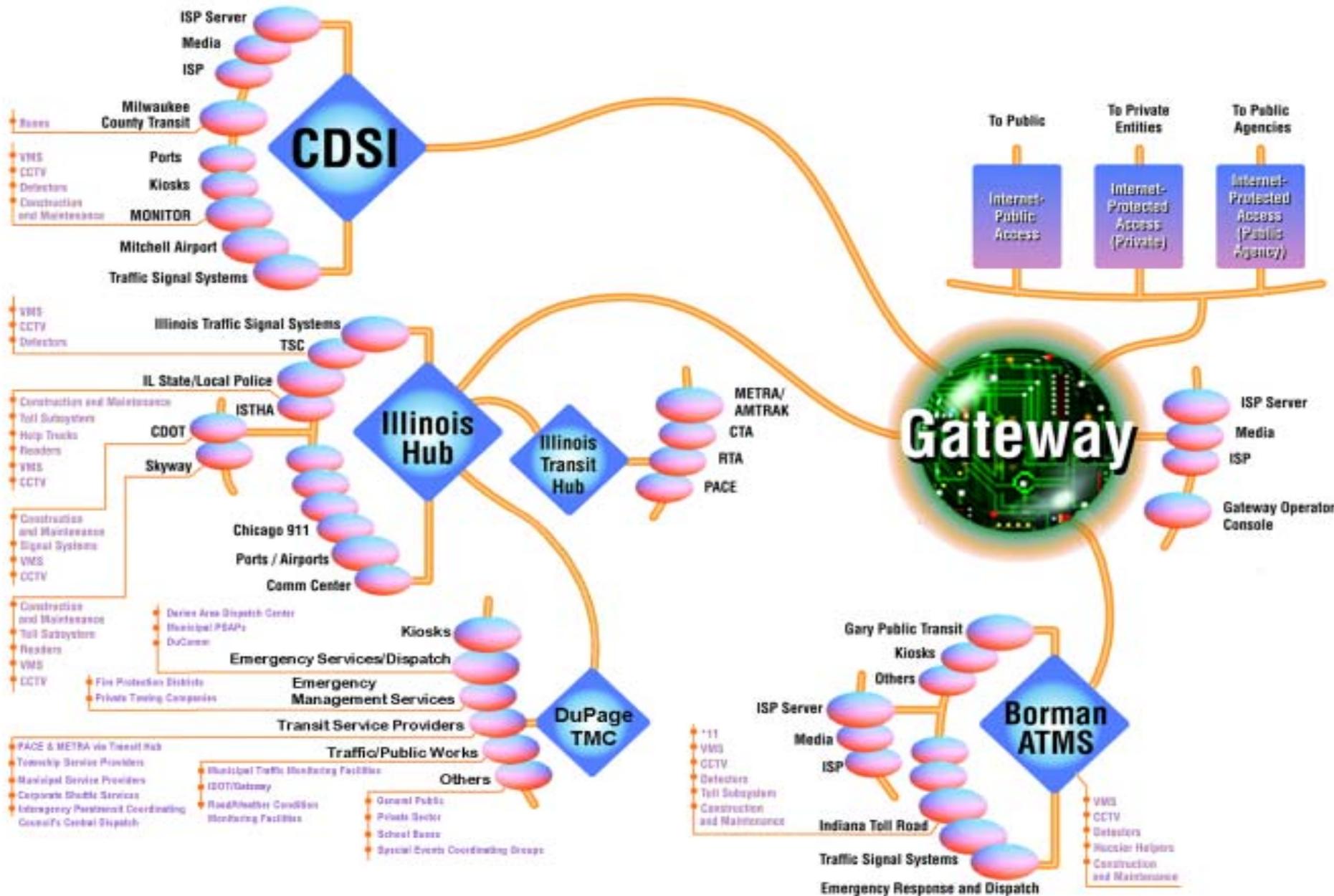
Primary Communications

Secondary/Backup Communications

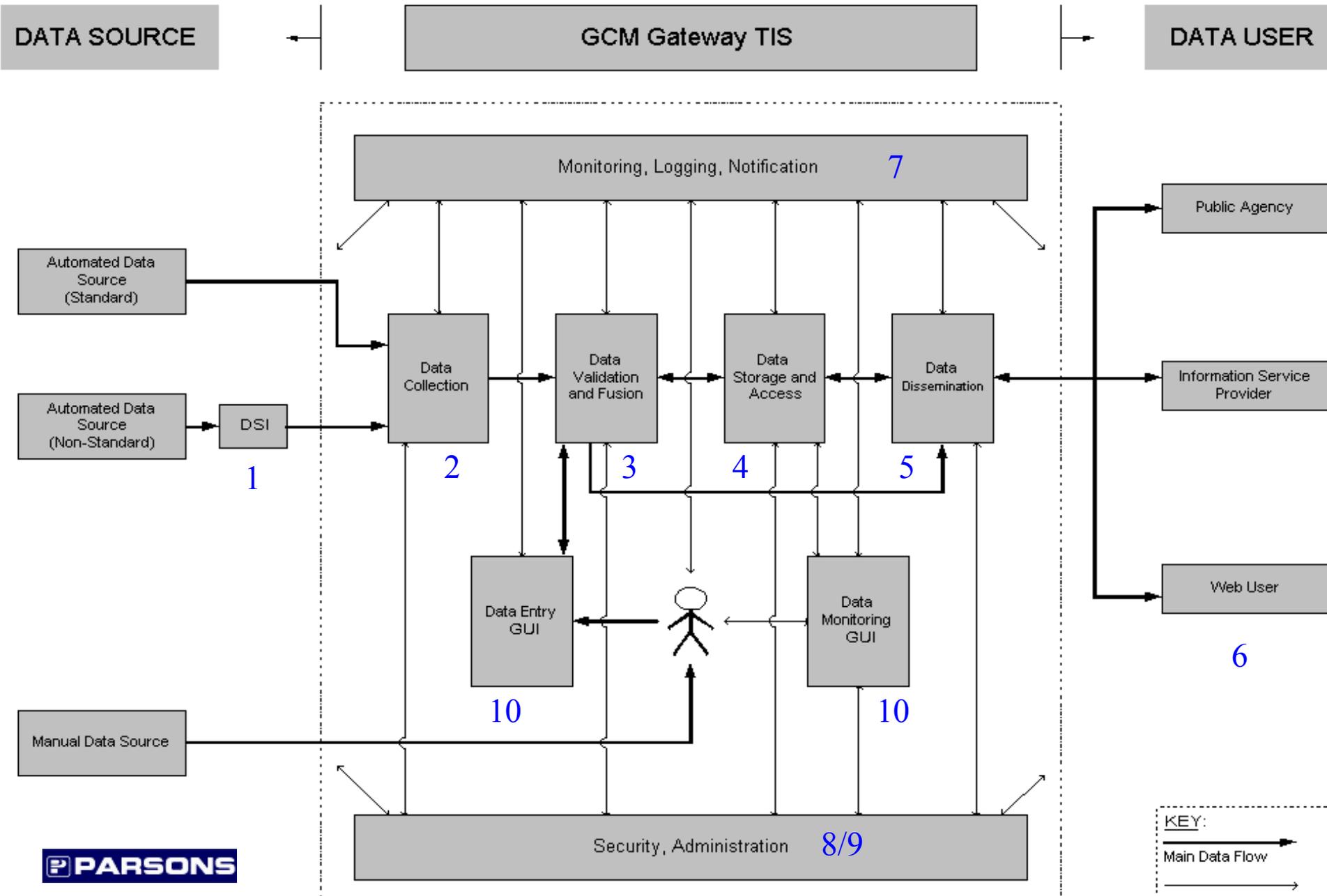
Gateway Architecture Enables Integration



ITS Gateway Architecture



Functional View of System Architecture



ITS Initiatives Underway

- **Gateway TIS and Data Source Interface**
- **Traffic Systems Center (TSC) Upgrade**
- **Expanded CCTV - Circle, Hillside, etc.**
- **Tollway TIMS**
- **RTIP - Transit Hub**
- **Subregional Hubs - Chicago, Counties**
- **Cicero Ave. Smart Corridor**
- **Buswatch, IBS, TSP, PMS, ATSS**

Interfacing Traditional Data Sources

- **Traffic Management Systems**
 - IL - Traffic Systems Center
 - IN - Borman ATMS
 - WI - Monitor
- **Characterized by:**
 - Knowledgeable peers
 - Standard traffic data (speed, volume, occupancy, incidents)

Interfacing Non-Traditional Sources

- **Variety of Systems**
 - **Emergency Service Providers (PSAP's, Police, Fire, Medical)**
 - **Weather Data Systems**
 - **Construction/Maintenance Systems**
- **Characterized by:**
 - **Less knowledgeable peers**
 - **Non-Standard, non-traffic data**

Current Gateway Data Sources

- TSC (travel times, incidents)
- Tollway (construction/maintenance)
- Borman ATMS (constr./maint.)
- Monitor (travel times, constr./maint.)
- ➔ Northwest Central Dispatch 911 (incidents)
- ➔ ISP District 15 (incidents)
- ➔ *999 (cellular reported incidents)
- ➔ Chicago 911 (DSI under development)

Non-Traditional Sources - Issues

- **Sensitive or Confidential Data**
 - **Need be Selective**
- **Custodial Relationships**
 - **Source Must Protect Data**
- **High Volume of Data**
 - **Requires Electronic Interface**
- **Customized Interface Required**
 - **Develop Data Source Interface**

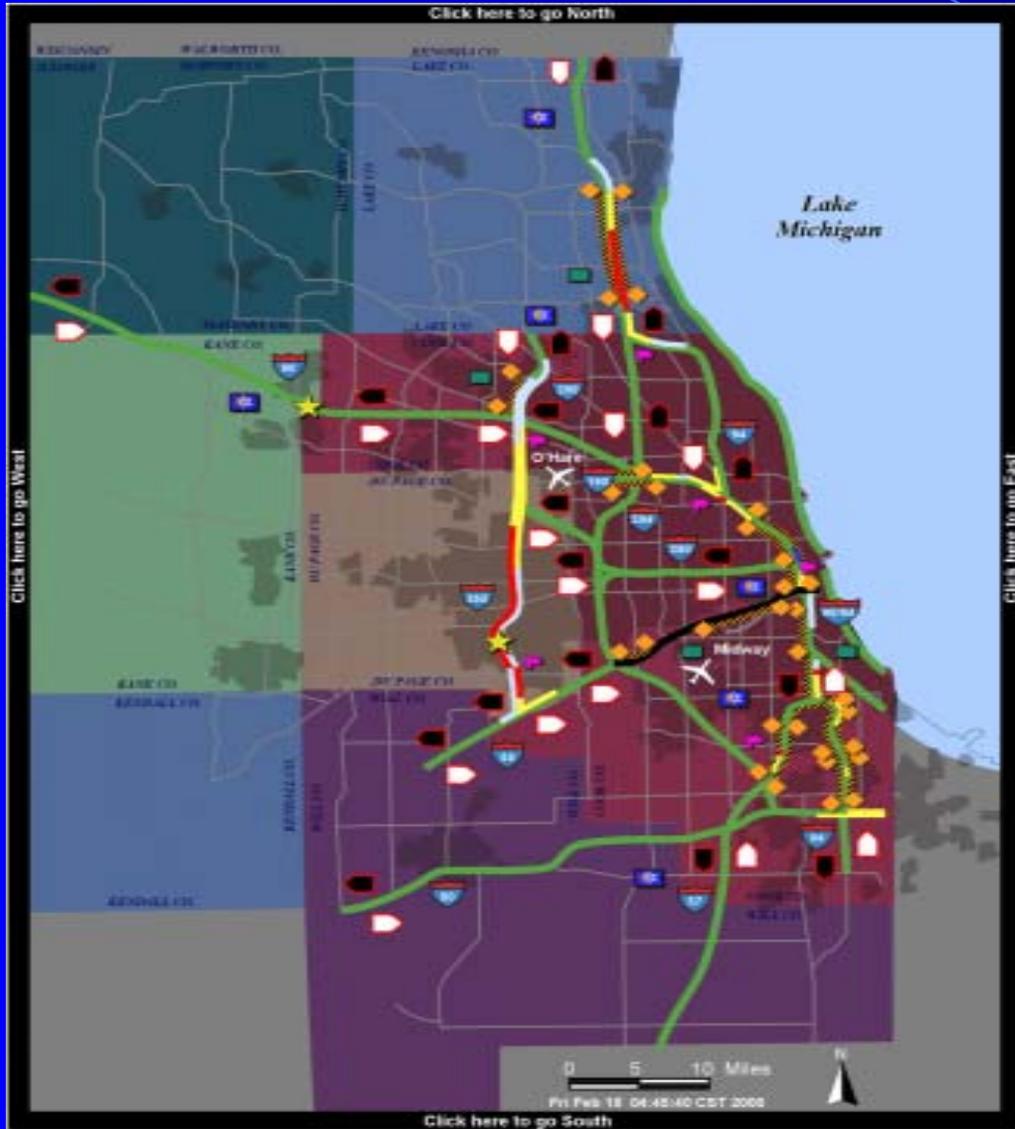
Recommended Approach

- 1) Educate Each Other**
 - about ITS, about source
- 2) Be Specific**
 - what data needed, how used
- 3) Minimize Interference**
 - use existing formats
 - process externally to the source
- 4) Maintain Security**
 - install firewalls
- 5) Create Win-Win Solutions**
 - system benefits both parties

Gateway Implementation

- **Stakeholder Outreach**
 - Encouraged Broad Participation
- **Established Structure**
 - Used GCM Committees
- **Explored, Identified Useful Data**
 - Worked Jointly
- **Created Data Source Interfaces**
- **Shared Results**
 - Provided “Warmap”

gcm.travelinfo.org



Real-time information



Improved operations



Better decisions

The Future?

I²INFO

Illinois Integrated Network For Operations