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The Integration of ICM and Tolling Strategies



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Points of Discussion

Agenda

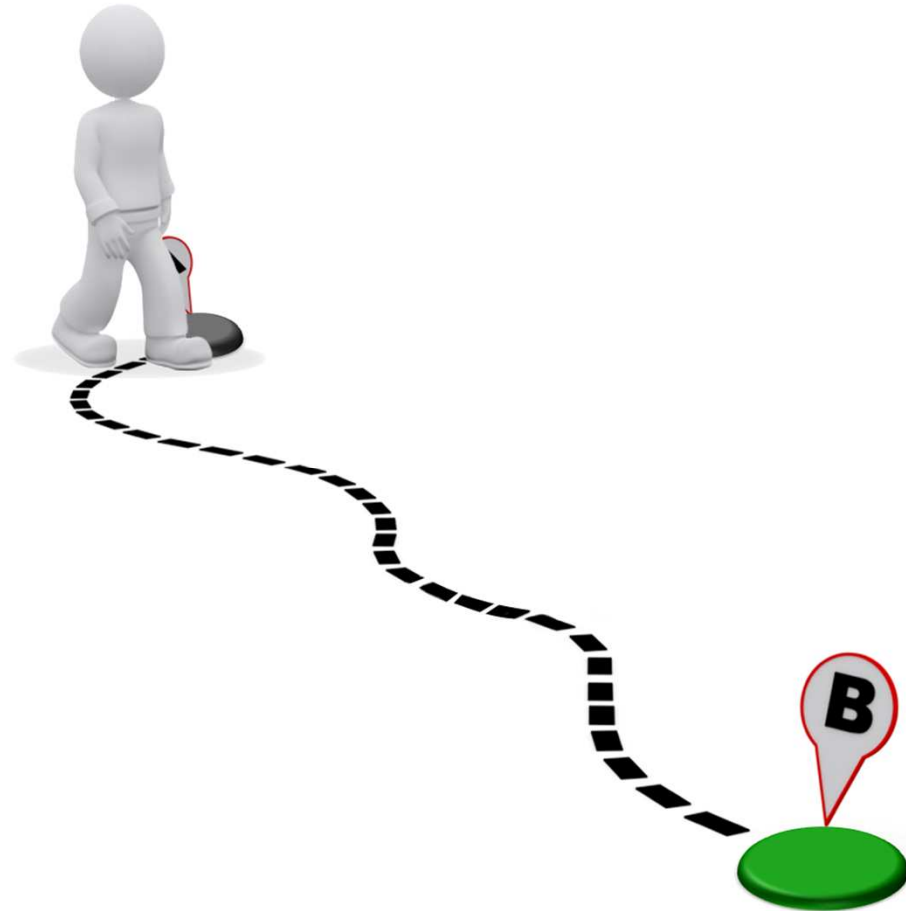
- Short overview of the problems facing Agencies and Travelers
- What is Integrated Corridor Management (ICM)?
- Why should ICM integrate with Tolling Systems?
- The problems facing implementation
- The benefits
- Questions and Answers

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Agency and Traveler Problems



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Problem Statement

- Daily traveler information is at best sporadic.
- Integrated traffic information is rarely available.
- Much of the data is insufficient, incomplete and untimely.
- Travelers have limited access to real-time and predictive data.
- Generally only freeway routes are covered.
- Travelers have to search for information to assist them in making decisions

Agencies have insufficient information to fully manage the entire transportation network and are therefore unable to disseminate accurate, timely and useful information to the traveling public.



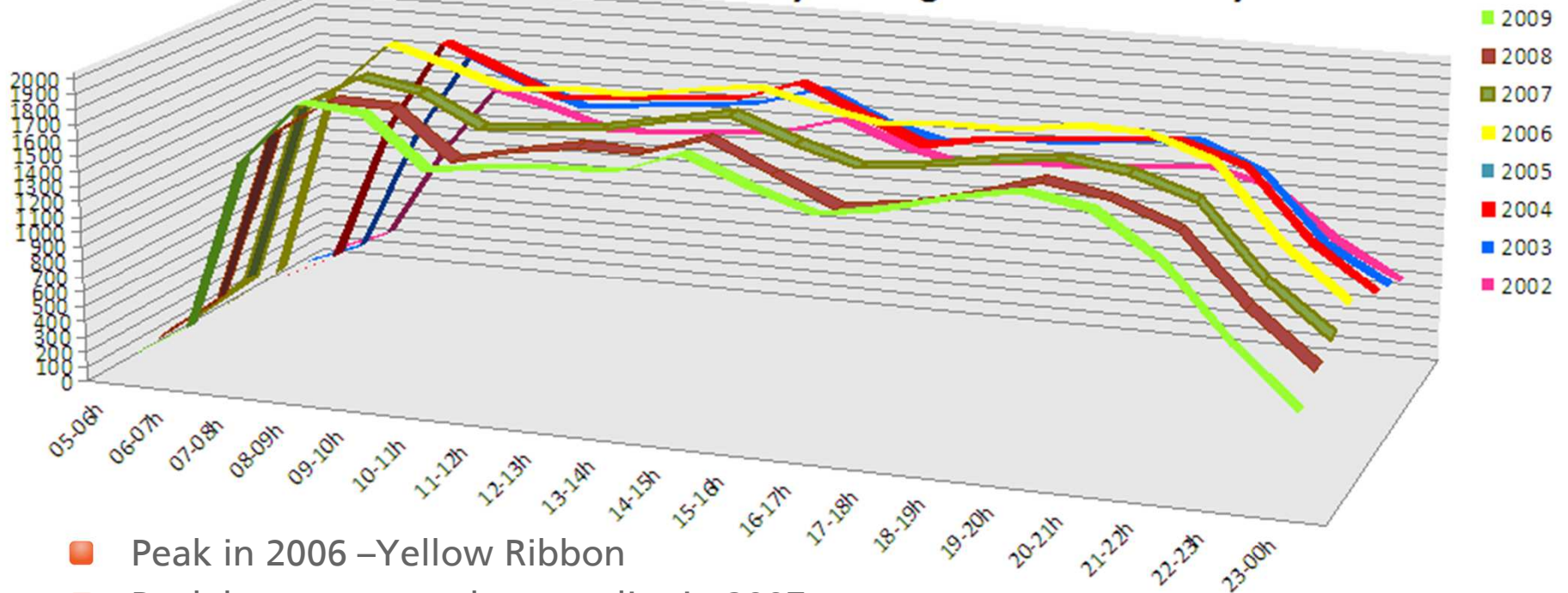


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Congestion is on the Increase

Daily average traffic intensity

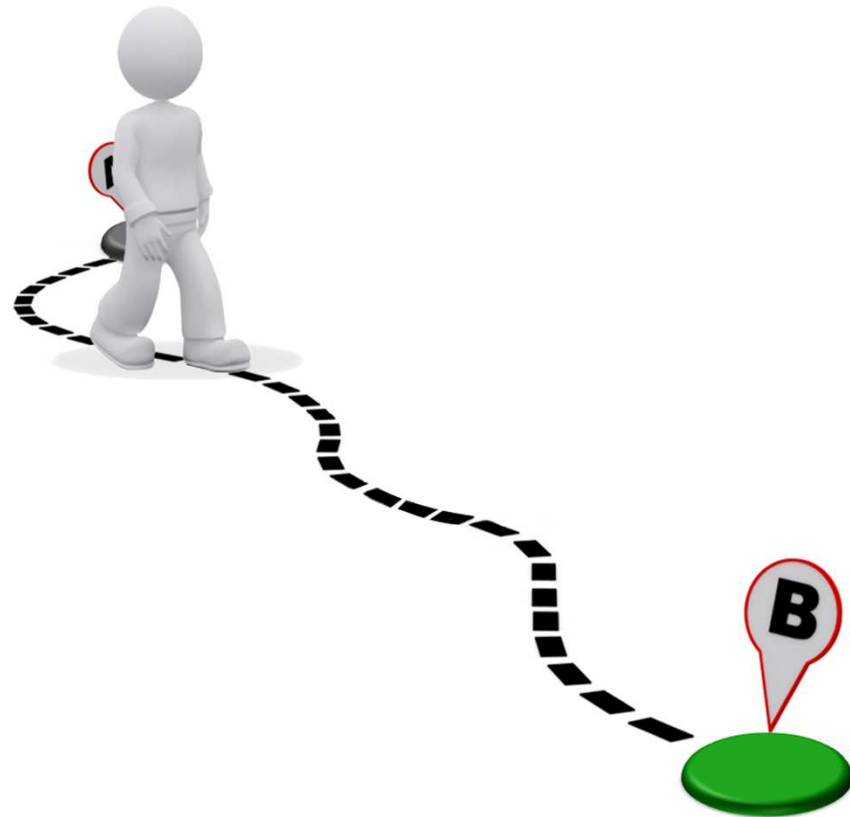


- Peak in 2006 –Yellow Ribbon
- Peak hours start an hour earlier in 2007
- Congestion continues to grow, nearing peak of 2006
- Currently starting earlier and finishing later
- Trend cannot continue



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What is ICM



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The Basics

- ICM is a tool to assist the management and planning of an entire transportation network including:
 - Incident and event management
 - Data aggregation, fusion and dissemination
 - Information portal delivery
 - Multi-channel Delivery
 - Consolidated platform for ease of solution integration
 - Traffic simulation engine
 - It can accept data from almost any source
 - It has full GIS capability

It is a fully integrated Decision Support System which enables the best possible flow across the network by encouraging and facilitating the most efficient blend of traffic, freight and transit needs



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In Reality. . . .

Integrated Corridor Management

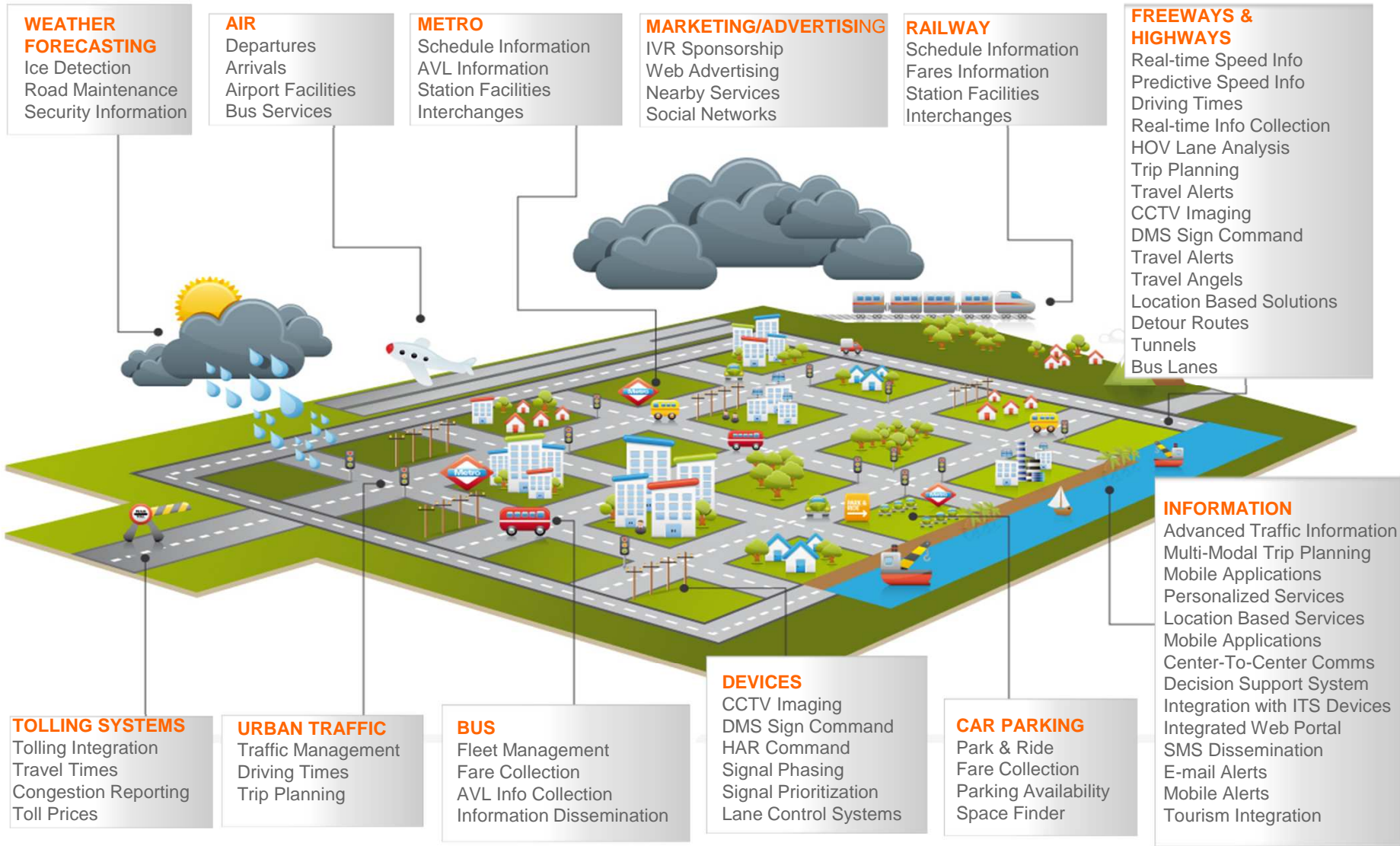
- It has the ability to actively receive data feeds from a wide variety of sources and the tools to act on the information provided including:
 - Traffic
 - Tolling Systems
 - Transit
 - Construction
 - Incidents
 - Special Events
 - Parking
 - Weather
 - Signal timing plans
 - Event scenarios
- Then provide the tools to effectively manage the network by use of:
 - DSS
 - Inter Agency Communication and Cooperation
 - Public Dissemination of information



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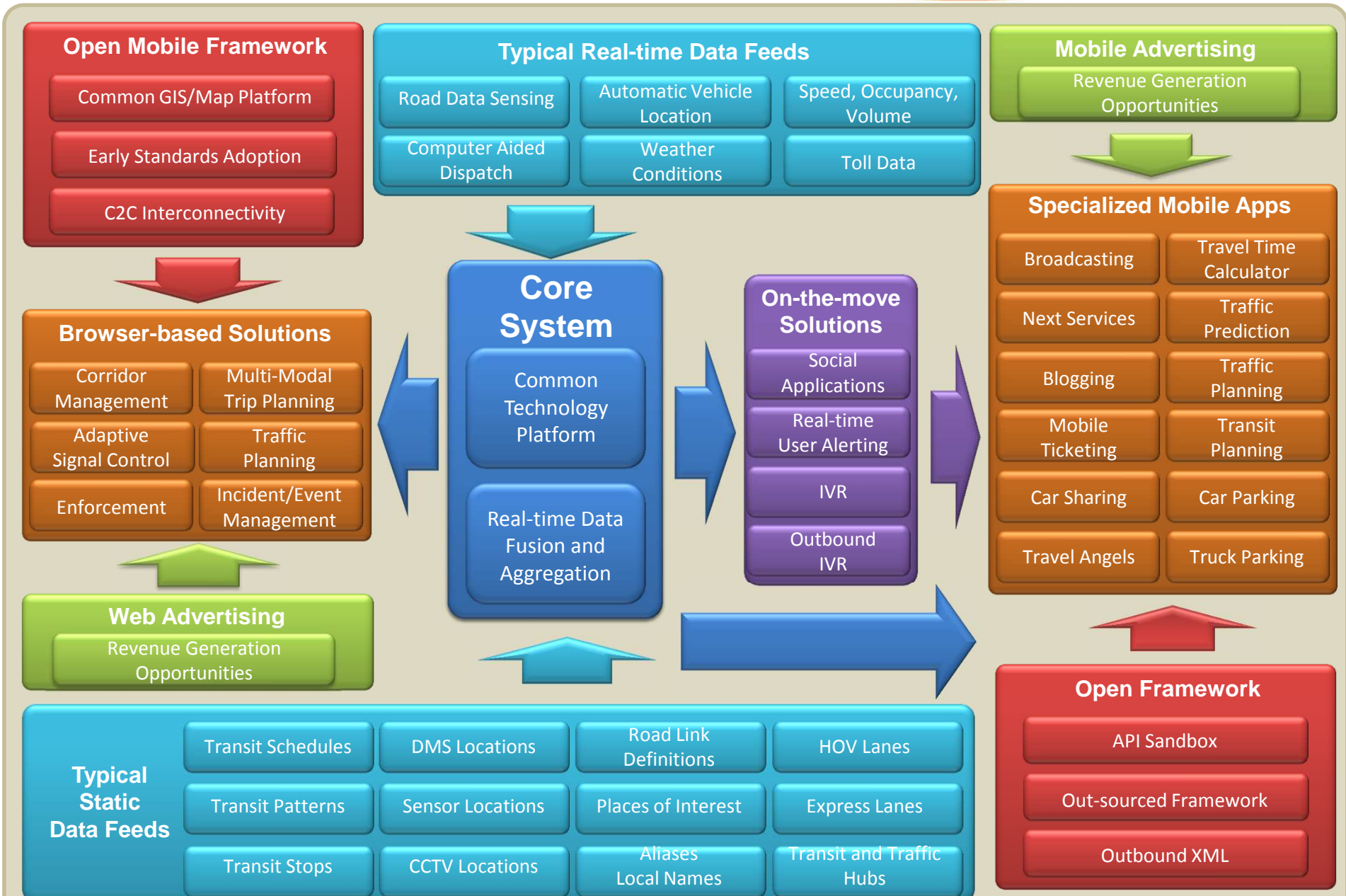


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Integrated Approach

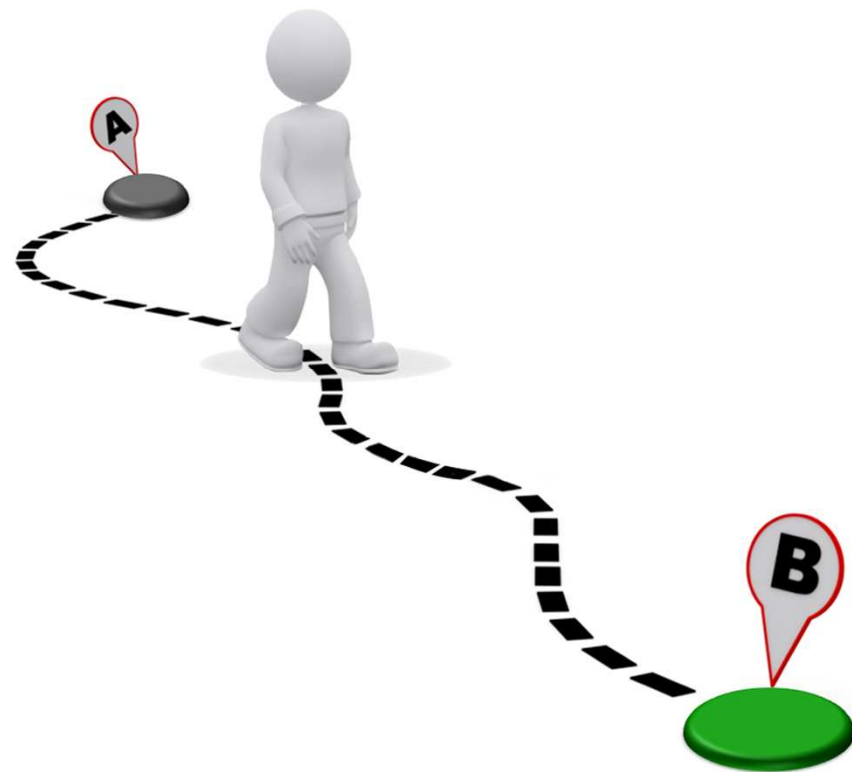


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Should ICM Integrate with Tolling Systems?



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Tolling Systems

- Traditional Tolling Systems
- Variable Priced Tolling Systems
- Congestion Pricing
- Express Lane Charging
- Freight User Charging

ICM Approach

- Operations Information and Management
- Public Person (Road User)
- Commercial Entity (Road User)
- Broader Information Dissemination
- Multi-modal Information (impact of congestion)
- Modeling for Efficient Traffic Management



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Integrating ICM and Tolling

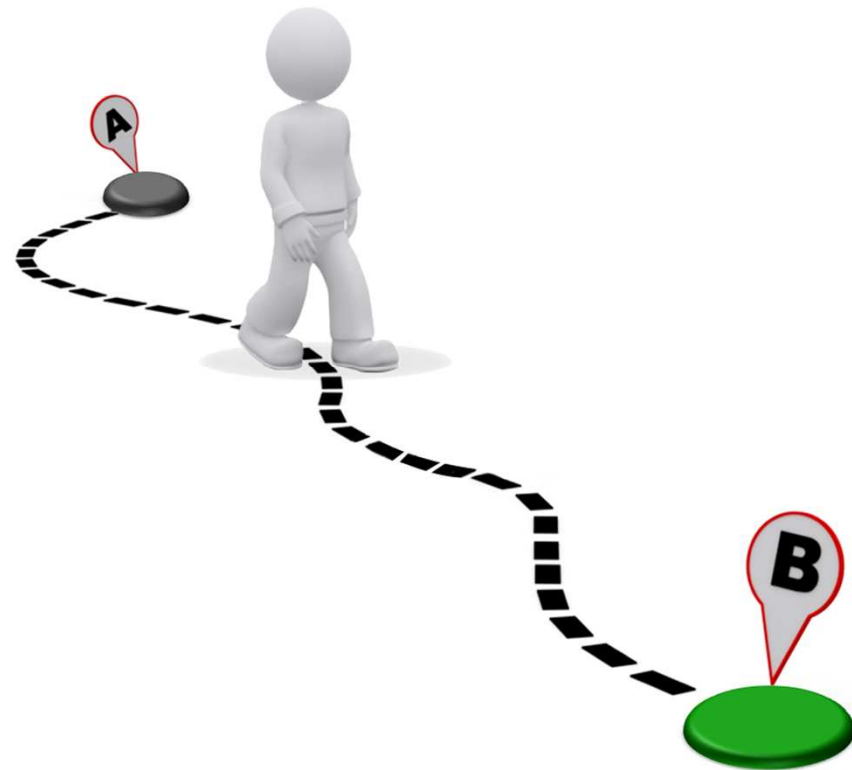
- To Maximize traffic flow across the wider network
- To define price points based on:
 - Actual data
 - Modeling
 - To enhance revenues based on defined price points and actual usage
 - Travel time by distance
- To identify when tariffs could be counter-productive
 - During emergency operations
 - During high congestion periods
 - During civil action
- To identify further Operational Opportunities
 - Freight and road usage charging
 - Scalable charging depending on usage, weight Cargo and time of day
 - Emergency management
 - Perhaps (when charges should be waived)

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Problems Facing Integration?



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Points of Discussion

- **Over Congest Arterials**
 - Arterial routes may become over congested if costs are deemed too high
 - Must balance free-flow and cost
 - Must balance benefiter and non-benefiter
- **Over charge, with no viable alternatives**
 - When arterials are congested leaving freeways as the only option
- **Must learn from other solutions**
 - Great examples of what has and has not worked
 - ▶ Congestion Charging, Singapore, London, Stockholm
 - ▶ Variable pricing, Harris County, Orange County, Birmingham M62
- **Information dissemination systems must be in place**
 - Users must be able to make informed choices
 - Real-time and predictive data
 - Dissemination sub-systems
 - Travel Alerts
 - Travel Angels
 - Personalization
 - Location aware systems



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Positioning for Success

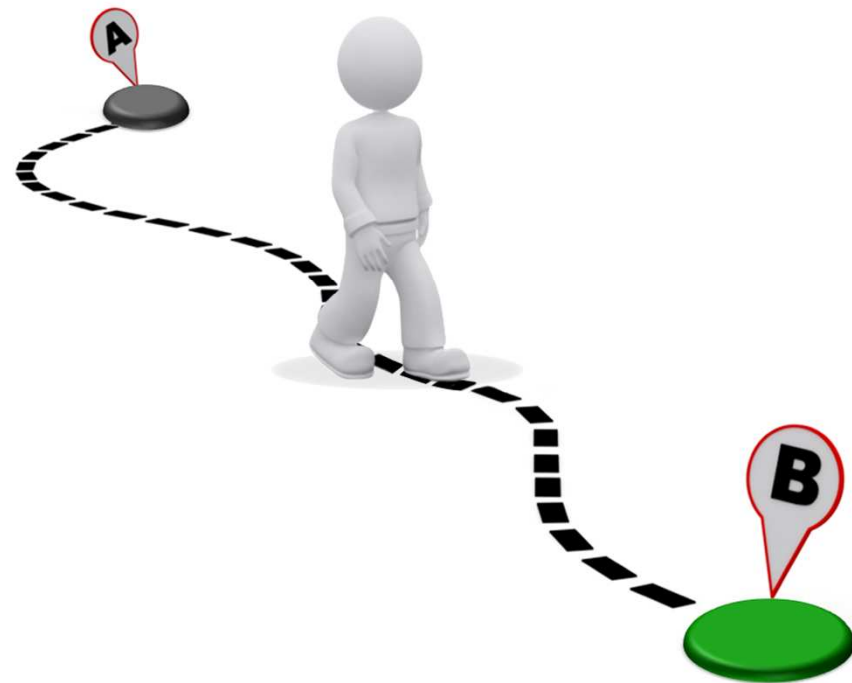
- Outreach
- Communications Program
- Identifying benefits for all groups
 - Operations
 - Rider
 - Driver
 - Shipper
- Measuring Success
 - Travel Time
 - Revenue Collected / Where Revenue is Used
 - Less Incidents
 - ▶ Cost per Incident
 - ▶ Incident Management
 - New, alternative or modified programs

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Quantifiable Benefits



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Quantifiable Benefits

■ *Operations*

- Operational control
- Incident management tools
- Operational management
- Freedom to instigate change strategies
- Revenue to fund new programs
- Information dissemination
- Real-time information collection
- Predictive analysis
- Emergency management
- Multi-Channel delivery

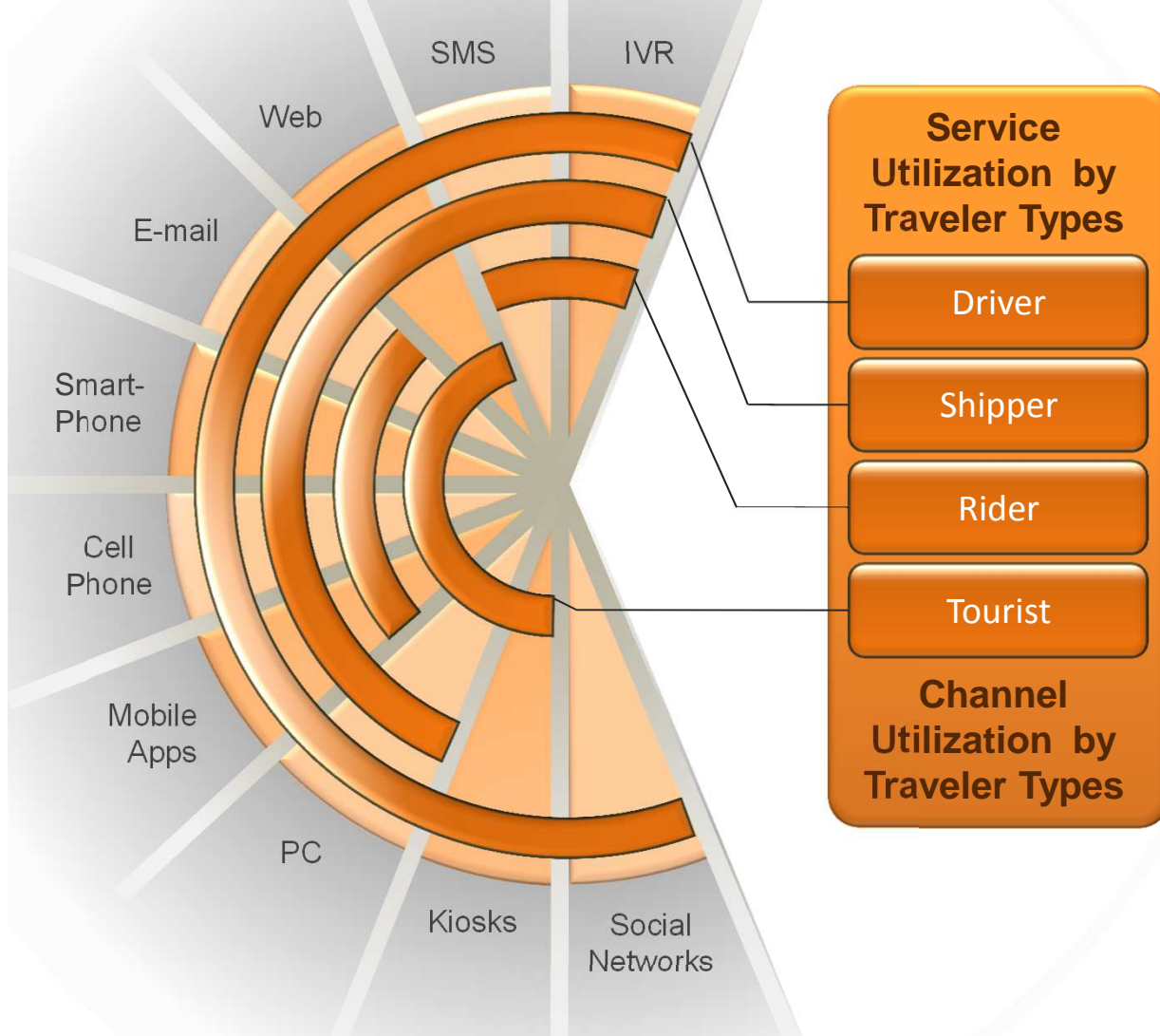
■ *Shipper*

- Accurate Travel Times
- Fully defined travel costs based on:
 - Time of day
 - Day of Week
 - Cargo and weight
- Opportunity to Plan
- Real-time and predictive Information

■ *Driver*

- Accurate Travel Times
 - Real-time
 - Predictive
- Traffic Free-flowing
- Making an Informed Decision
- Information dissemination

On-Trip Information Channels



- Must plan for different user types requiring different services
- Must differentiate between pre-trip and on-trip requirements
- Must plan for higher level of personalized services



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ICM's Role

From the Agency perspective:

- Optimizes the efficiency of the network
- Facilitates management as a fully integrated system
- Provides the structure to model the environment and identify best scenarios in the event of unexpected congestion
- Provides the ability to fully measure cause and effect

From the Traveler perspective (driver, rider, shipper):

- Provides accurate, timely, real-time, predictive and personalized information on demand!
- Provides accurate assessments of journey times
- Provides a level of service, reliability and security

Integrated, ICM provides the information essential for traffic management, free-flow and traveler choice

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Jorgen Pedersen

Director, Information and ATIS

Cell +1 240 381 1526

Jorgen.pedersen@Telvent.com

Any Questions



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Thank you