

IBTTA Annual Technology Summit 2019

Roadside Systems and Innovations

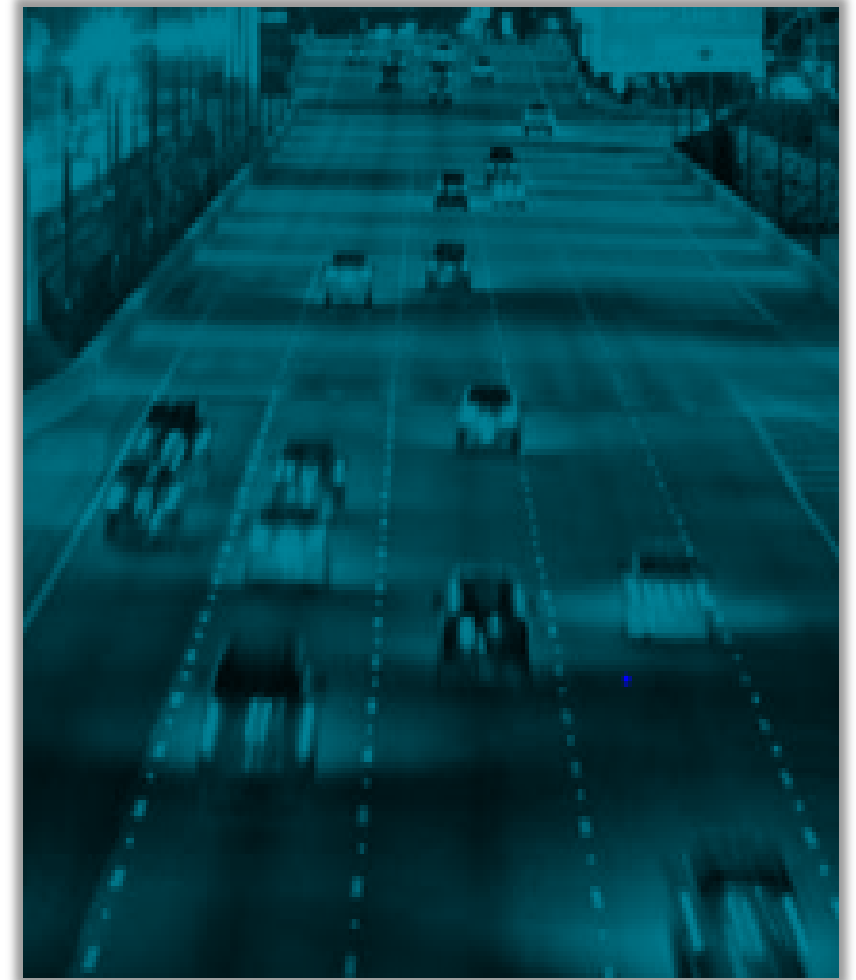
Advanced Traffic Management Systems: New Technologies to Improve Toll Operations

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Agenda

- 1 Evolution of Technology
- 2 Convergence of ITS and Tolling
- 3 Future Trends and Technologies
- 4 Questions



Evolution of Technology

Intelligent Transportation System Technologies

- Primarily used for sharing real-time information with the public to ensure safety and increase mobility
- Analysis of information gathered led to the development of several Active Traffic Management Strategies
 - Automated Incident Detection
 - Variable Speed Limits
 - Dynamic Lane Use/Merge Control
 - Adaptive Traffic Signal Control
 - Adaptive Ramp Metering
 - Reversible Lanes



Evolution of Technology

Manual Collection



- Toll Facilities
- Manual Toll Collectors
- Road Congestion
- Labor Intensive
- Toll revenue leakage

Electronic Tolling



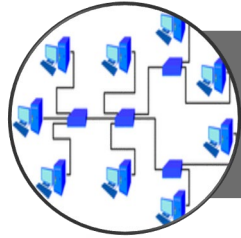
- Open Road Tolling
- Vehicle Transponders
- License Plate Readers
- Pay-by-plate Charges
- Video-based Classification
- Standard fees for all
- Customer Service Centers

Congestion Pricing



- Commuter choice for enhanced travel time
- Higher fees, greater value
- Integration of real-time data
- Use of ITS technologies

Convergence of ITS and Tolling



Communications – real-time information to traveling motorists and detection of initial toll point



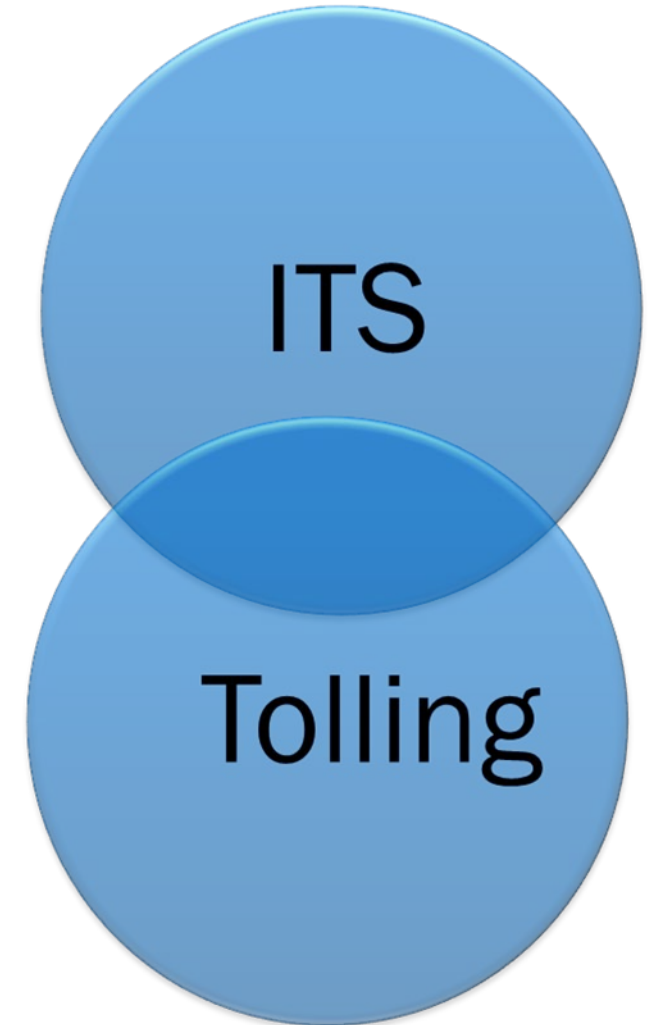
Pricing – accuracy in the detection of vehicles and determination of speeds of vehicles through toll points



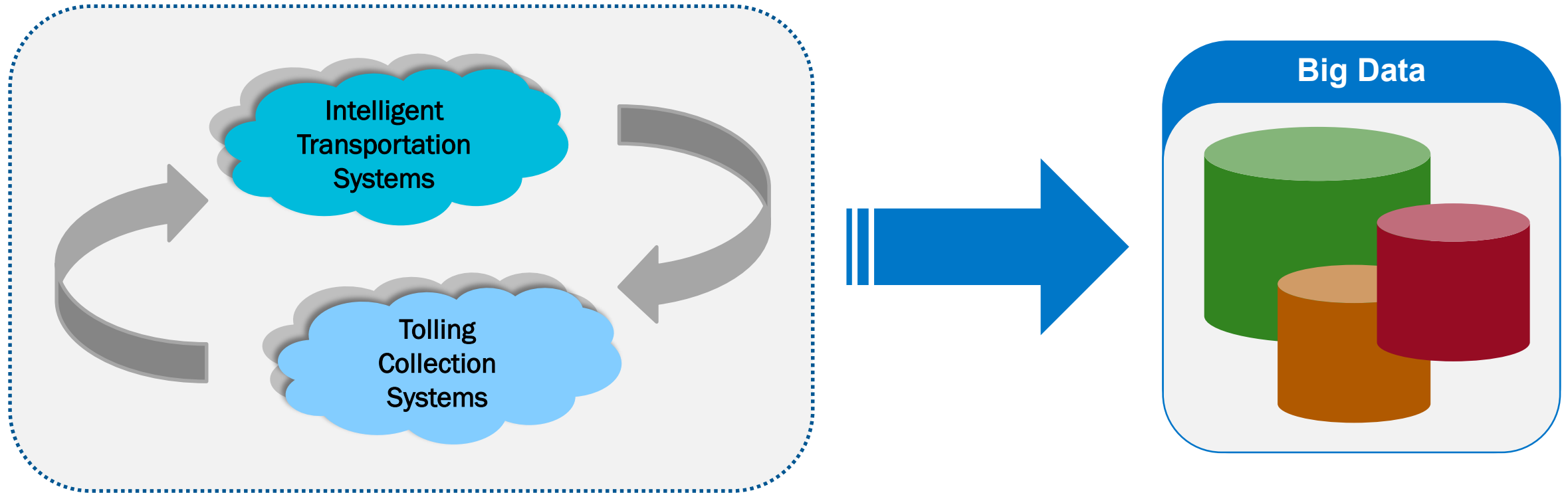
Payment – electronic tag readers and in-vehicle solutions designed for pay-per-use



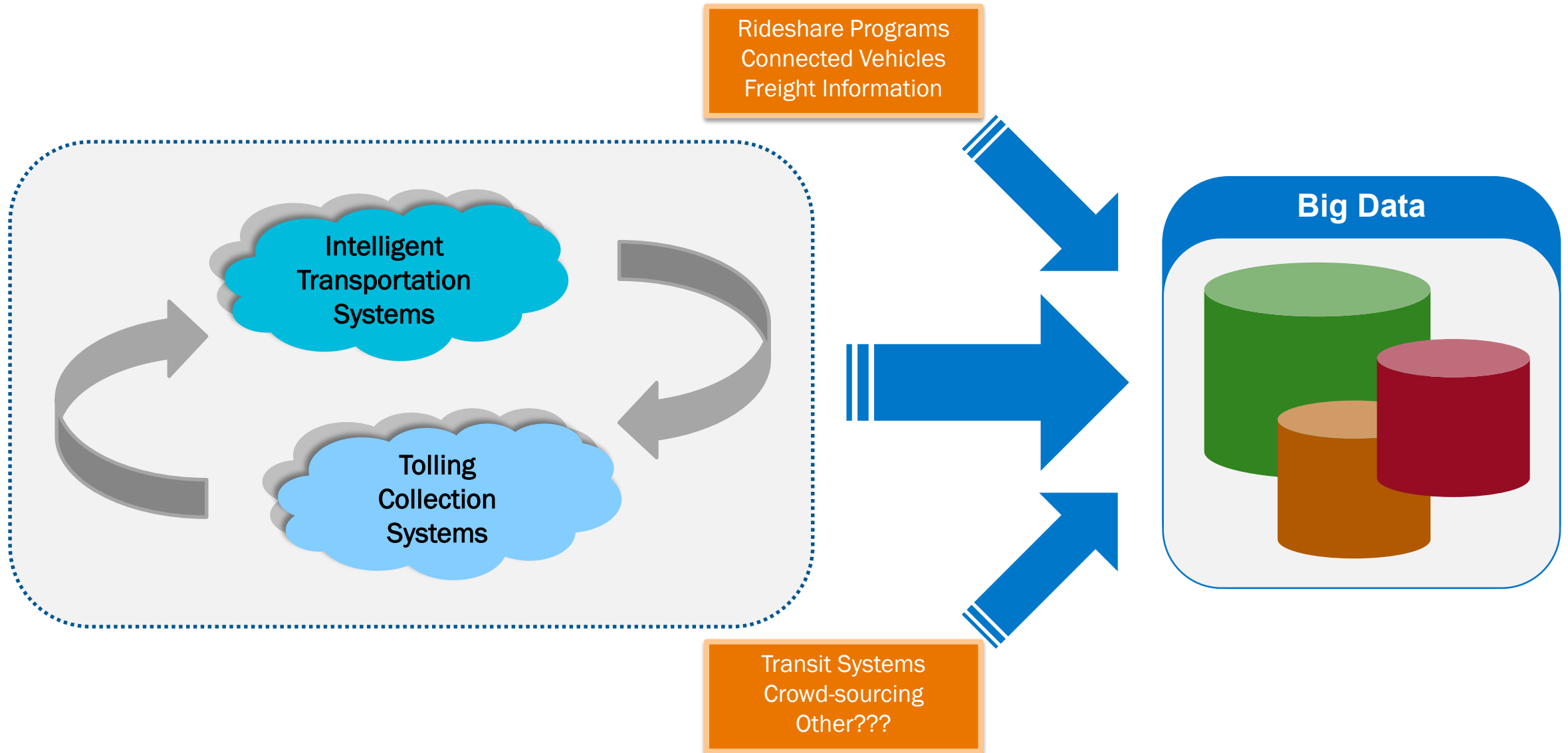
Enforcement – effective means to enable enforcement of fraud and potential evasion



Convergence of ITS and Tolling



Convergence of ITS and Tolling



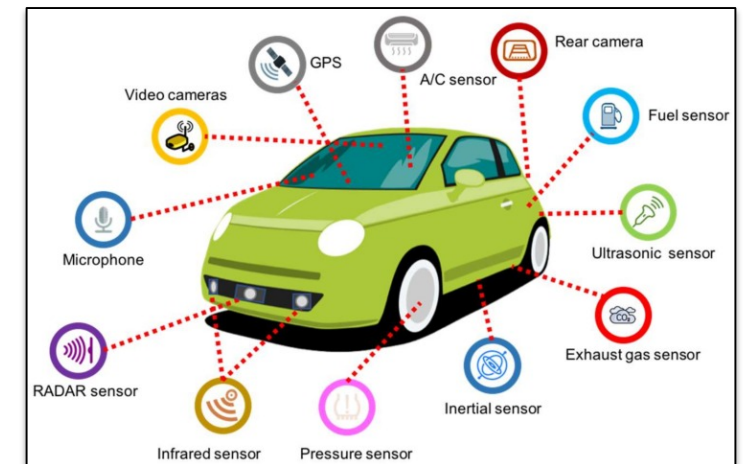
Future Technologies / Trends

Latest Trends

- Availability of connected infrastructure
- Increase in vehicle sensors (additional data)
- Use of Artificial Intelligence / Machine Learning (AI/ML)
- Enhanced traveler information to motorists

Future Applications

- DSRC/5G-based tolling to reduce costs
- Tolling transaction messages, travel times in-vehicle
- Enhanced dynamic pricing based on traffic intelligence
- Road usage charges in lieu of, or in addition to, gas/luxury taxes





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