

The Path to Toll Interoperability

**Report from the IBTTA
Interoperability (IOP) Committee**

The Path to Toll Interoperability

Report from the IBTTA Interoperability (IOP) Committee

Martin Stone, Ph.D., AICP, Committee Chairman
Martin Stone Consulting, LLC
Tampa, Florida

Where Are We?

Where Are We Going?

**How Are We Going
to Get There?**

Where Are We?



Where Are We? Going?



Where Are We? Going?

- ☐ **Registered customers with valid accounts may pay for travel on all participating toll facilities across North America with a single account and choice of payment methods**

(The focus of Committee work thus far has been US and Canada)

Where Are We? Going?

- ☐ **Registered customers with valid accounts may pay for travel on all participating toll facilities across North America with a single account and choice of payment methods**

(The focus of Committee work thus far has been US and Canada)

- ☐ **IBTTA Strategic Plan commits to make this a reality by 2016**

- ☐ **High priority for US Congress**

(The IBTTA leadership has committed to Congress to lead the way in achieving this extremely important goal)

Interoperability means ...



**Your Toll Account is
Accepted Here.**

Interoperability means ...

**Your Toll Account is
Accepted Here.**



Interoperability means ...

**Your Toll Account is
Accepted Here.**



... for participating organizations

Challenges

- ❖ Different Technologies
- ❖ Lack of Financial Infrastructure



Challenges

- ❖ Different Technologies
- ❖ Lack of Financial Infrastructure



Challenges



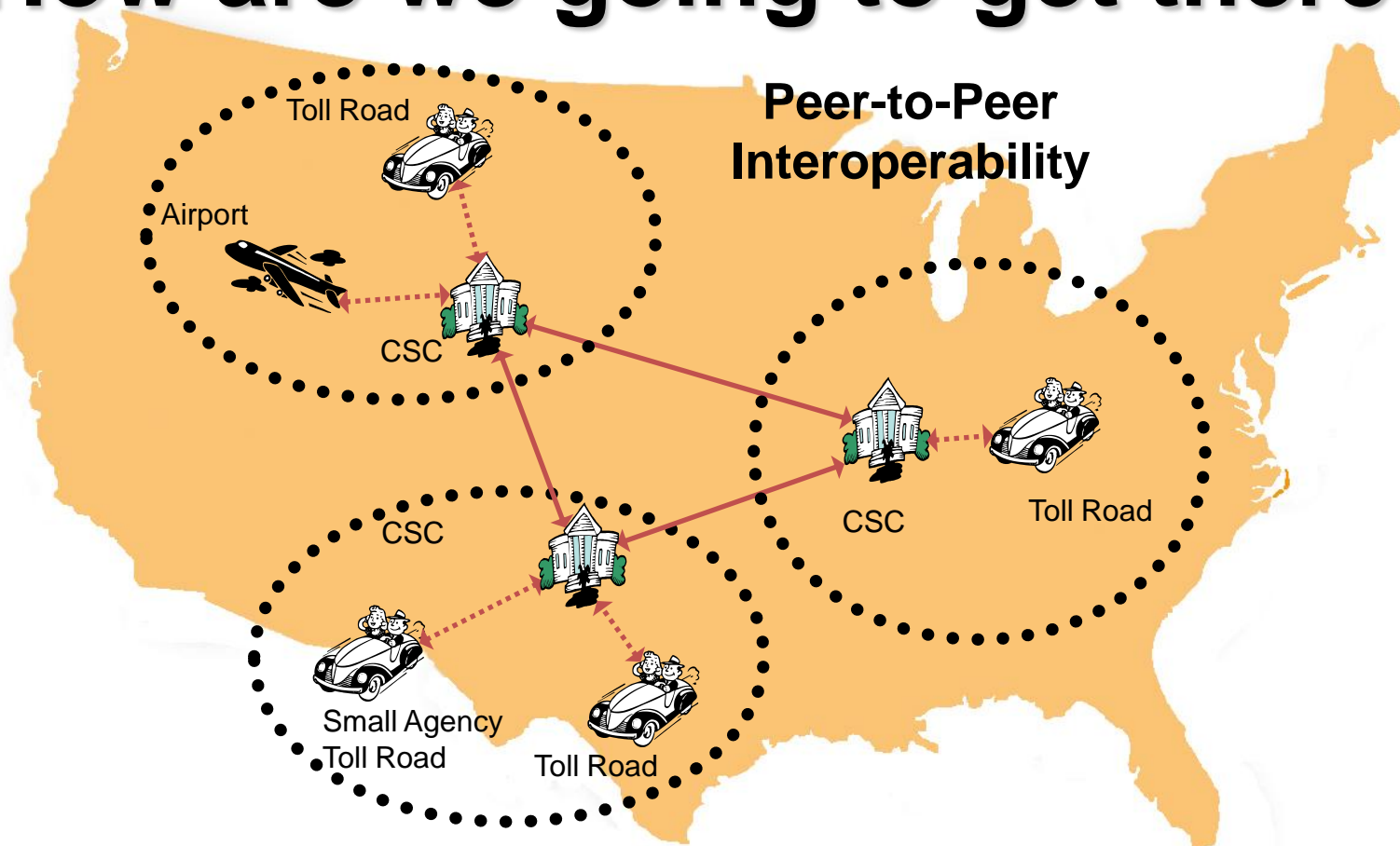
Challenges



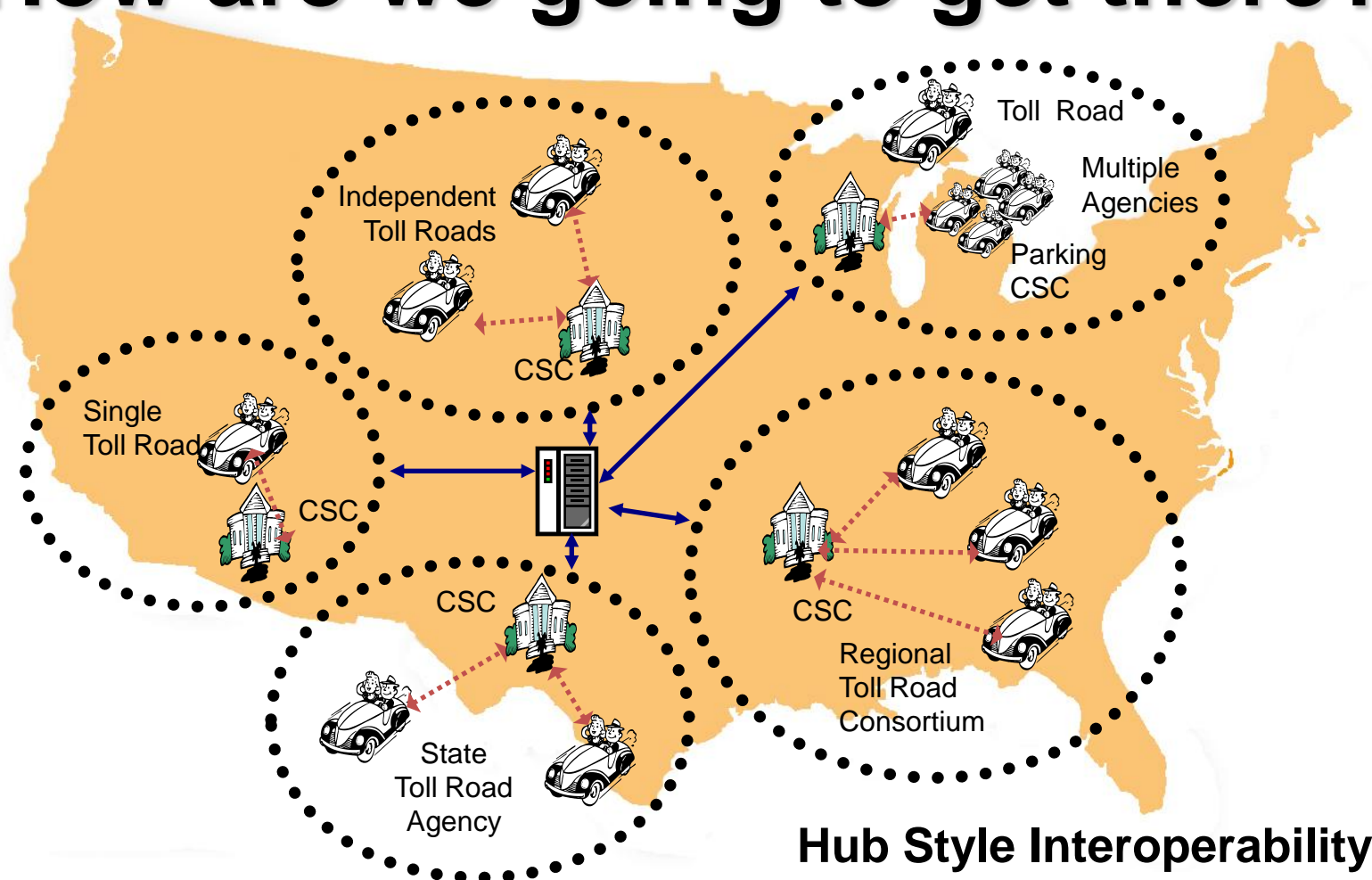
How are we going to get there?



How are we going to get there?



How are we going to get there?



How are we going to get there?



Hub Style Interoperability

How are we going to get there?

Unique Toll Industry Application?



How are we going to get there?

Unique Toll Industry Application?

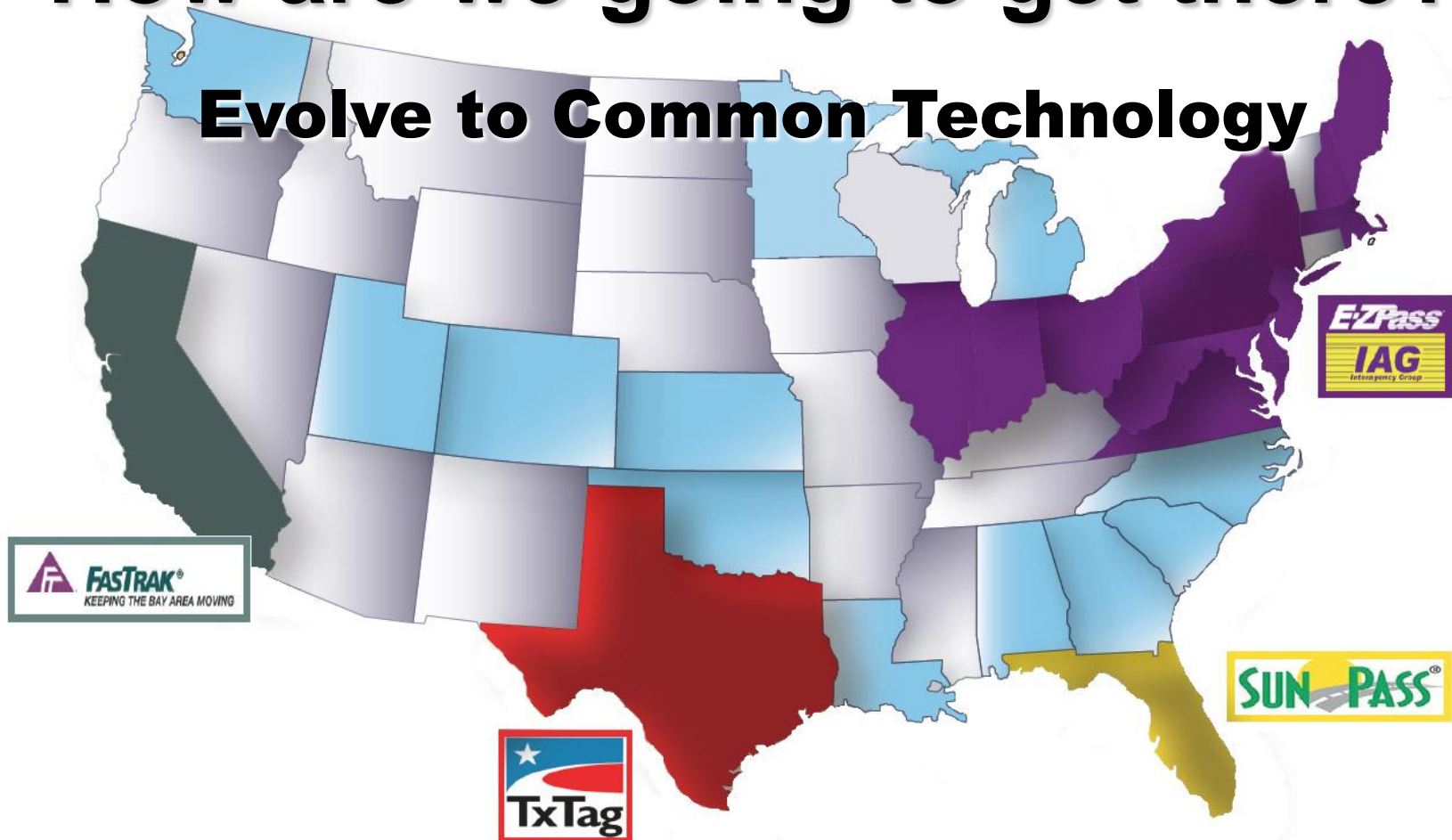


National Transportation Accounts?



How are we going to get there?

Evolve to Common Technology



How are we going to get there?

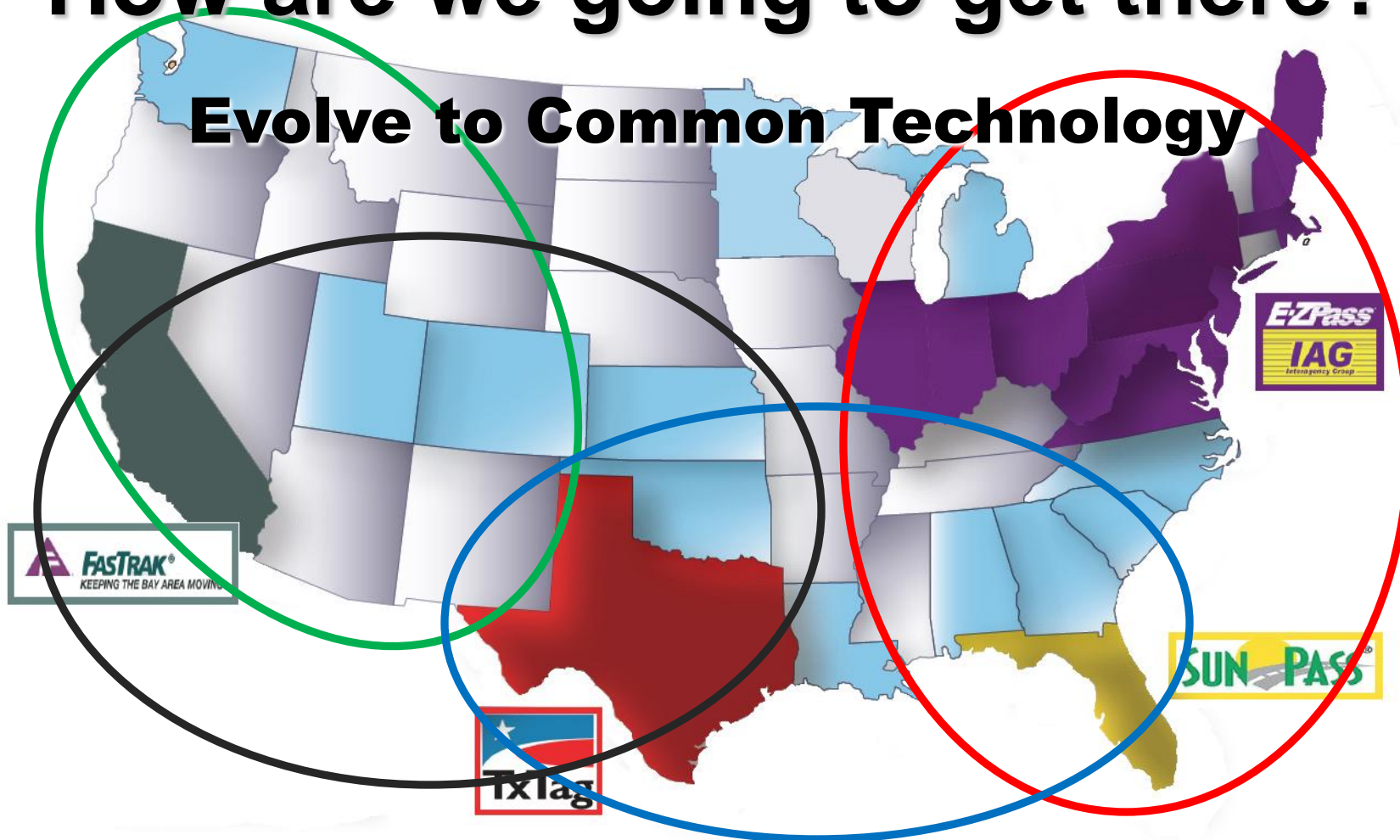
Evolve to Common Technology

- ☐ Standards
- ☐ Testing
- ☐ Certification



How are we going to get there?

Evolve to Common Technology



Interoperability Committee Activities

May, 2012 Interoperability Committee member review

- Review of Potential Paths to Interoperability
- Opportunity for Input to IOP Steering Committee

June, 2012 Interoperability Webinar/Webcast

- Review of Current IOP Plan Status/Alternative Concepts
- Advance look at Atlanta Summit IOP Activities
- Opportunity for Dialogue with IOP Steering Committee

July, 2012 AET Summit, Atlanta, GA

- General Session on Interoperability
- Presentation of Current Alternative IOP Concepts
- Discussion Sessions for Input to Steering Committee

September, 2012 IBTTA Annual Meeting, Orlando

- Committee Report on Status of Path to Interoperability Plan
- Opportunity for Board Input on Planning Process

October, 2012 Draft Plan to IBTTA Board

End of Year, 2012 Final path to interoperability Plan

The Path to Toll Interoperability

Report from the IBTTA Interoperability (IOP) Committee

Martin Stone, Ph.D., AICP, Committee Chairman
Martin Stone Consulting, LLC
Tampa, Florida

The Drive for North American Toll Interoperability

IBTTA Interoperability Status Update

ED REGAN

**Senior Vice President, CDM Smith
Subcommittee Co-Chair**

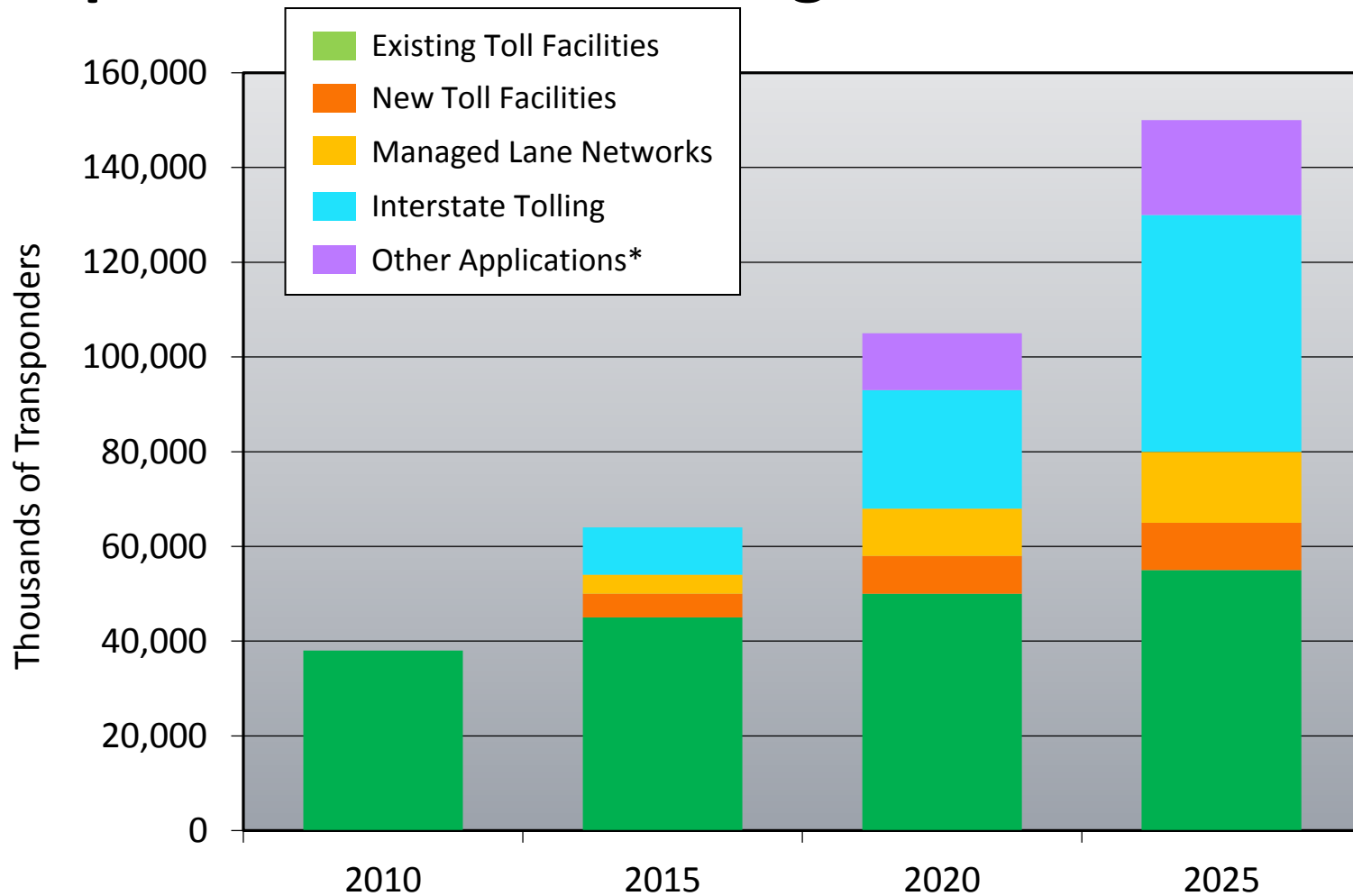
Why is it Important

- Interoperability is a laudable goal ... but is it really needed?
- Many individual drivers rarely drive on toll facilities outside their local areas
 - It would be nice to have but not really critical
- Much more important for drivers who “live on the edge”
 - Meaning close to the borders between two ETC regions
- Much, much more important to the nation’s trucking industry
 - A high percentage of truck travel is between many different tolling regions

The Four BIGGEST Reasons:

- Movement to AET places a great premium on maximizing the portion of vehicles with valid transponders
 - No more cash option for “out of towners”
 - Increasing challenges with interstate enforcement and collections for video tolls
- Compelling need for better integration of electronic tolling with other planned in-vehicle electronic services
 - Such as safety and route guidance
 - Currently manifested in the “Connected Vehicle Program”
- The coming tidal wave of interstate tolling
 - Very nature of interstate travel demands “interstate interoperability”
 - Interstate tolling will be AET...
 - Could mean interstate video collection problems on steroids
- The coming massive growth in tolling throughout North America
 - Today’s ETC market base may be just a fourth of what it will be in 2020
 - We need to set the interoperability framework for a very different (and much bigger) future toll industry

Explosive Growth Coming in E-toll Accounts



* Congestion charging, parking, etc.

Some Key Agreements by Committee

- IBTTA should lead the way in establishing a framework and migration path for North American interoperability
 - Still some uncertainty on how specific and restrictive that framework should be defined
- Interoperability only needs to be guaranteed to registered customers with valid accounts
 - Does not preclude non-registered vehicles from using AET toll facilities, but billing would continue to be by individual agency or operator
- Interoperability can be achieved, through a single account, by a combination of ETC and license plate identification, where necessary
 - At least in the short term
 - Does NOT mean all agencies must move to AET
 - More on this in a few minutes

Impediments to Interoperability

- **Manner in which electronic toll systems emerged in North America**
 - Individual agency accounts
 - Agency “ownership” of accounts
 - In some cases, interoperability measures were added later
- **Lack of national (or international) financial infrastructure for:**
 - Transaction information exchange
 - Transaction payment settlement
 - Toll violation enforcement
- **Lack of uniform ETC protocols across North America**
 - At least 7 different protocols in use

Legend:

- IAG
- Title 21
- ATA/EGO
- Alegro/SEGO
- SEGO
- 6-C
- TDMA

Map Data:

Program	States
IAG	Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
Title 21	Alaska, California, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, South Dakota, Utah, Wyoming
ATA/EGO	Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
Alegro/SEGO	Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
SEGO	Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
6-C	Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
TDMA	Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming

Two Key Issues to be Addressed in Reaching Nationwide Interoperability

- How to overcome the ETC “technology gaps” which exist in North America
 - At least until we reach a single national standard of some sort and we all use technology that is fully compatible and readable across all agencies
- How to address the “Institutional and Financial” frameworks to allow revenue exchange, payment guarantees and cross-agency enforcement
 - To assure one account works everywhere
 - At least among all “participating agencies”

Overcoming the Technology Disparity

1. Video imaging of license plate for transactions outside local market
 - All accounts have ETC and license plates linked
 - May not be viable option for trucks
 - Concerns expressed by agencies with Gates on ETC lanes and possibly “ticket systems” which rely on read-write capability
2. Have all agencies convert to a single technology
 - Perhaps control to one major technology and others switch
 - Would be extremely costly to some agencies
3. Multiprotocol readers
4. Multiprotocol transponders
 - Possible technical limitations here
5. Multiple transponders on a vehicle
 - Perhaps 3-4 devices could cover all regions
6. Combinations of the above

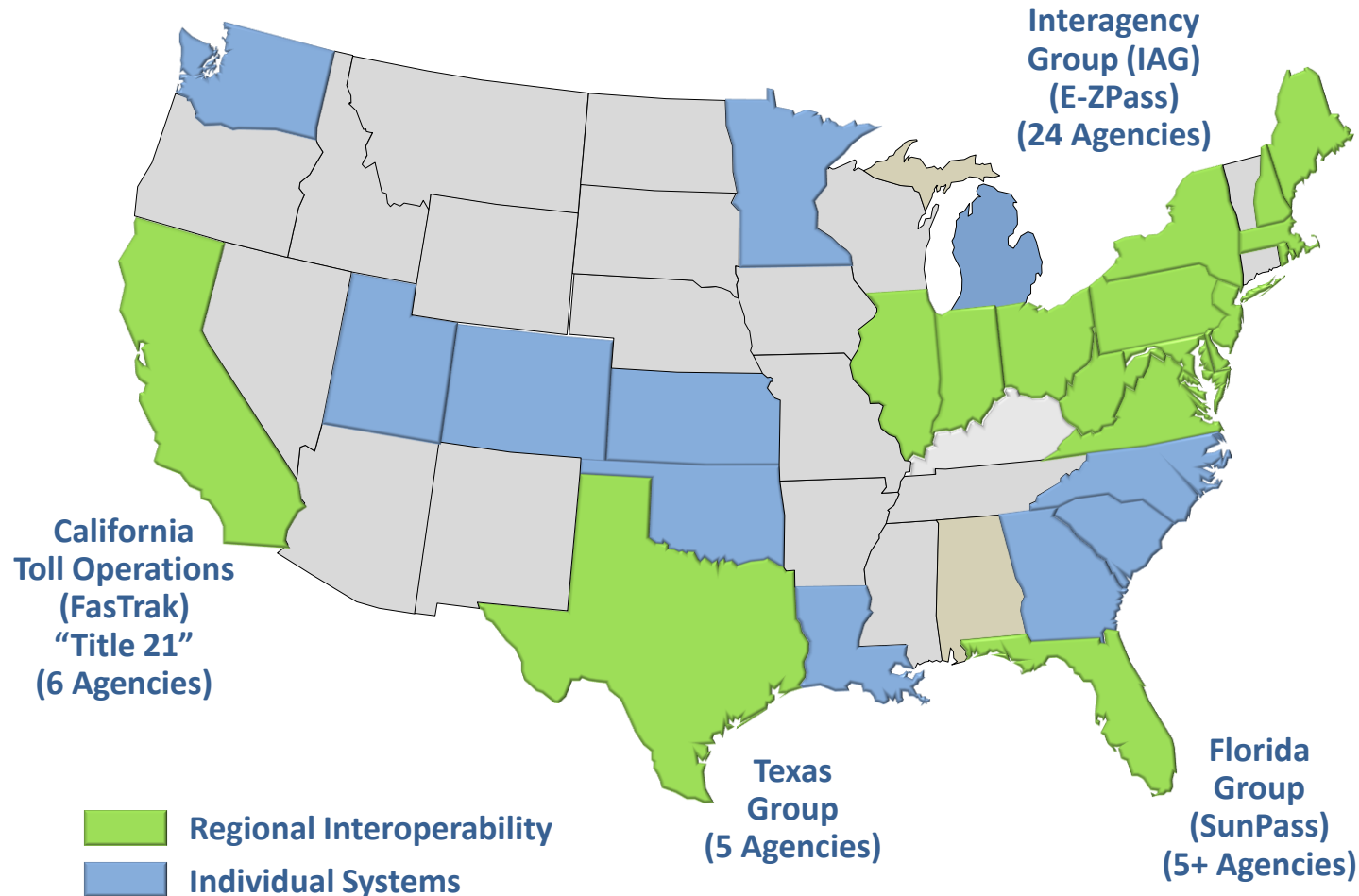
We'd Like your feedback

- Please give us your suggestion on a preferred strategy for overcoming the “technology gap” in ETC protocols that exists today
- Choose one:
 - Option 1: Use video imaging for transactions outside local technology
 - Option 2: All agencies convert to single ETC technology
 - Option 3: Agencies install multi-protocol readers
 - Option 4: Introduce multi-protocol transponders (technical limitations)
 - Option 5: Multiple transponders on a vehicle
 - Option 6: Combination of the above

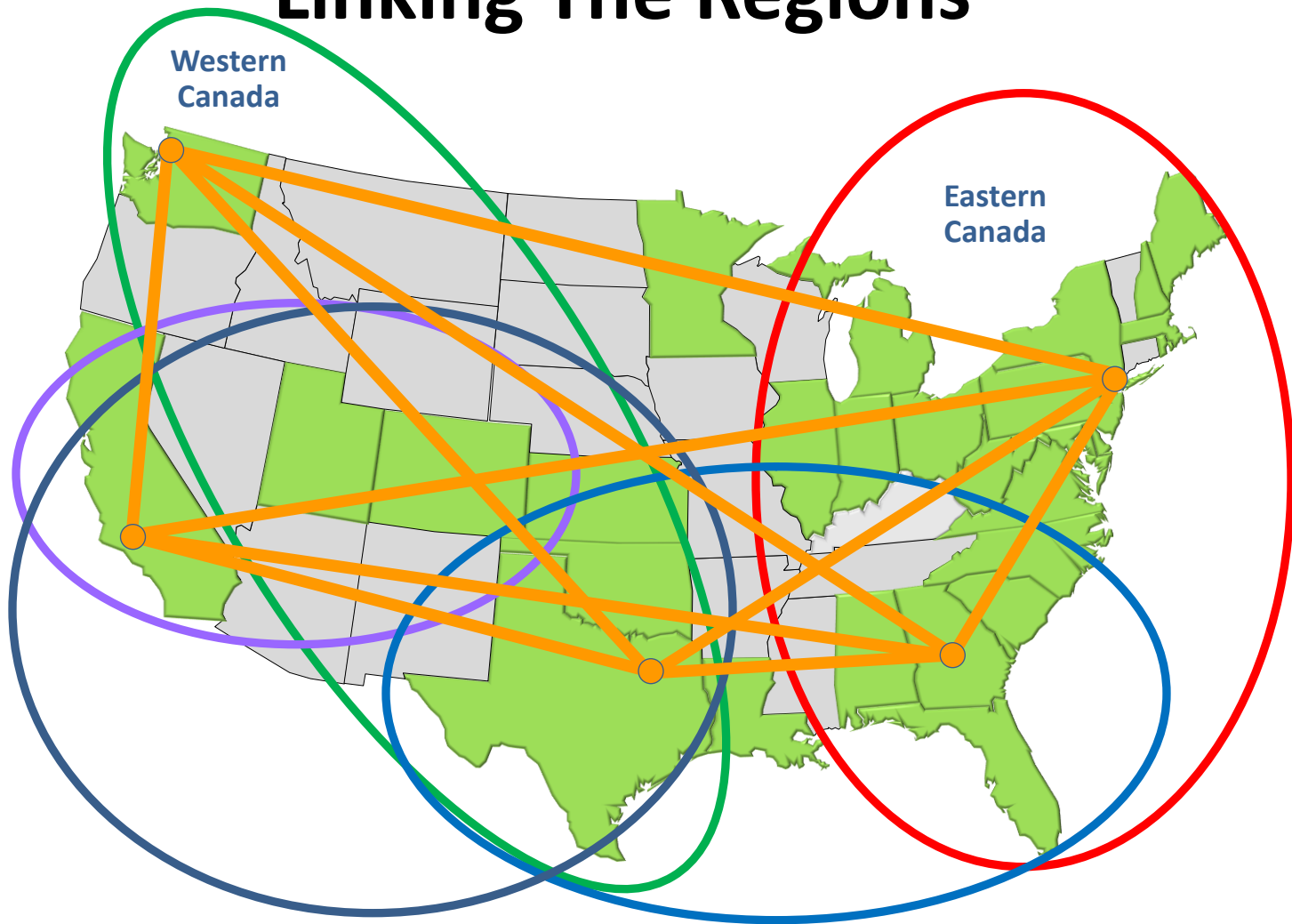
Three Possible Institutional/Financial Solutions

- **Option A: Interconnected regional networks**
- **Option B: Expanded national “Region”**
 - Expand current “peer-to-peer” cross-agency revenue guarantees across US and Canada; or
 - Establish centralized national account management and transaction clearinghouse
- **Option C: Third party national service providers**

Existing ETC Interoperability Regions



Linking The Regions



Option B: Expanded National Region

- Could simply expand the interoperability concept used in CA or IAG
 - Peer-to-peer transaction clearing
 - Continued agency “ownership” of accounts
 - Could become quite complex and inefficient
- Could establish a nationwide clearinghouse that would manage all accounts and clear all transactions
 - Might require toll agencies to give up “ownership” of accounts
 - Maybe... maybe not
 - Could possibly create a monopoly in account management and technology supply
 - Something which would have to be avoided through careful concept planning and design
 - Definitely would need to have open specification for multiple suppliers of technology
 - Should we also have multiple clearinghouses or national managers of accounts?
- Could possibly structure a single clearinghouse without changing account ownership
 - Building upon the ATI Hub concept

Option C: Third Party National Service Providers

- New uniform payment “mechanisms” established by third-party providers
 - Similar to credit card concept
 - Also similar to European EETS concept
 - IBTTA member agencies would not have to establish these... they would simply have to agree to accept the payment products and possibly establish standards
- Customers open accounts with “providers”, who issue transponders and register plates
- Providers have guaranteed payment agreements with participating agencies
 - Agencies agree to “accept” provider accounts as valid payment
- Interoperability achieved through use of third parties, for those customers who choose to enroll with third parties
 - Single Account accepted across North America

We'd Like Your Feedback

- Please give us your feedback on the preferred institutional and financial framework (or pathway to a framework)
- Choose one:
 - Option A: Interconnected regional networks
 - Option B: Expanded single National “region” or Centralized National Clearinghouse
 - Option C: Third party nationwide (North American) payment service providers – agencies “accept” new payment products
 - Option D: Start with Option A and transition to Option B
 - Option E: Start with Option A and transition to Option C

In the Longer Term

- **Technology gaps may disappear as new generations of equipment are deployed**
 - (if our industry demands it)
- **Possible future shift away from gas tax to direct mileage charging will provide full national interoperability**
 - But only if the toll industry has a place at the table when systems of the future are planned

In Closing

“True North American toll interoperability will become a reality by 2016”

- It's one of IBTTA's top goals
- It's a high priority for the US Congress
- It's an essential part of the “next generation” of tolling in North America... an imperative if *our toll industry* is to reach its fullest potential in helping solve the great North American transportation funding challenges of the future