



The State of Editing and Maintaining GeoSpatial Networks



Agenda



- LRS's position in Transportation
- Lessons learned
- LRS Issues
- The way ahead at Idaho Transportation Department



LRS's Position in Transportation



- Importance of LRS
 - Different departments store various data using different methods
 - However, all store road name and measure data
 - LRS is often the only data unifier
- LRS is a foundational application
 - Supports HPMS and other core agency business systems



Lessons Learned



- Well supported
 - Need executive support AND
 - Buy-in from stakeholders
- Custom projects
 - Can be quite expensive and time-consuming
- LRS Maintenance
 - Needs to handle data maintenance as well as it does data modeling and analysis
- Complexity
 - Need a tool that handles the tough LRS problems without being too complicated to use

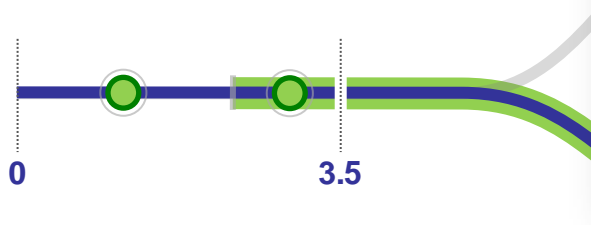
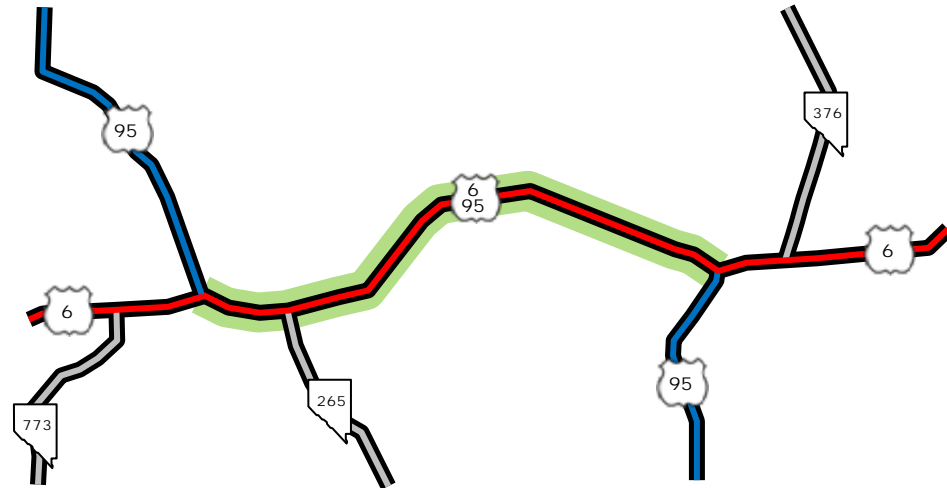


LRS Issues



- Multiple LRMs
- Concurrent Routes
- Event Location Stability
- Temporality
- Lane level support

- Ease of Use

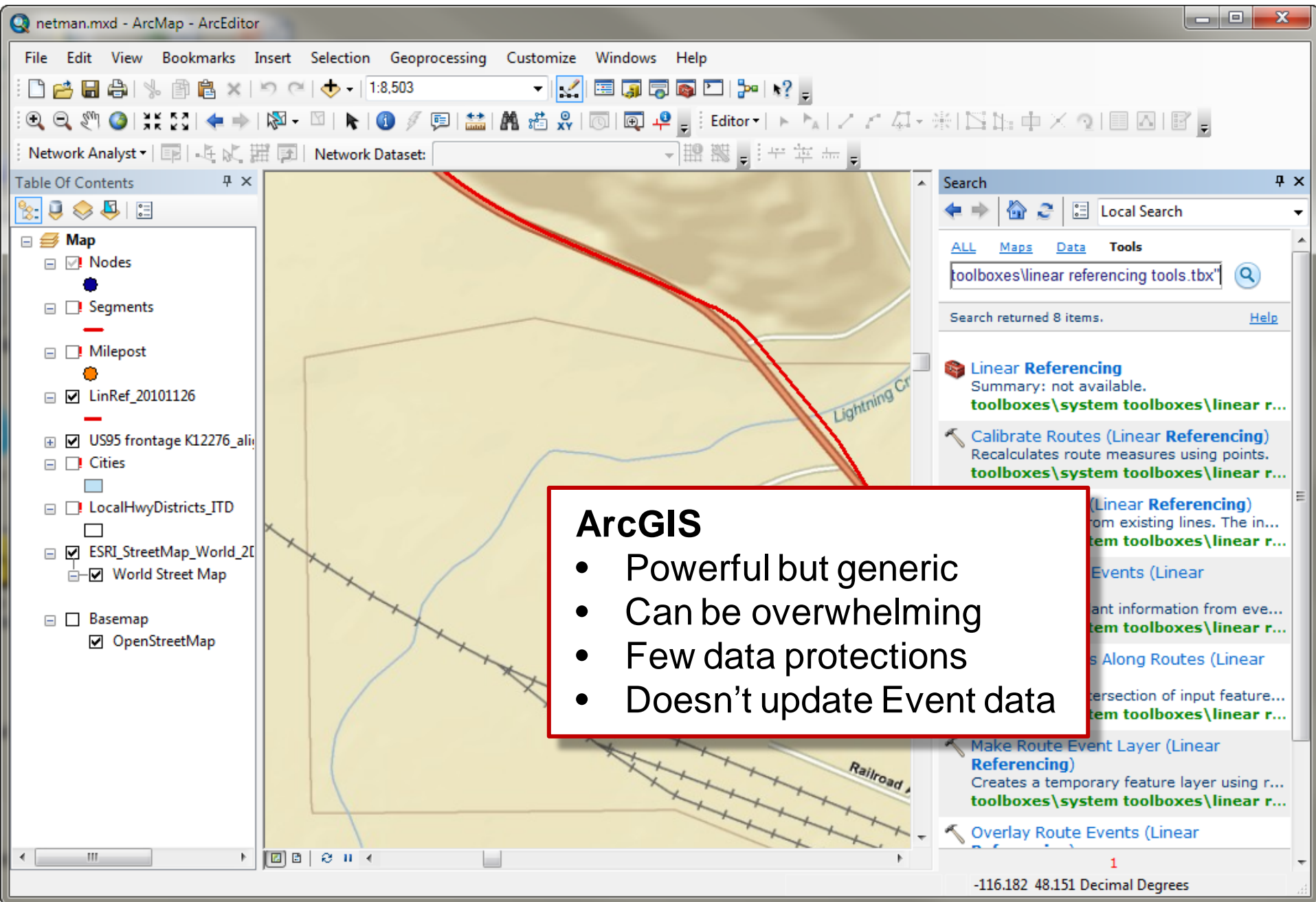




The way ahead at ITD



- Off-the-shelf. Highly configurable.
- Build on strong foundation
 - ESRI and Oracle Spatial
 - ESRI ArcGIS Engine ArcObjects Application
 - Connects to ArcSDE Instance
- **Simplicity**
 - Simplified, protected interface
 - Speaks transportation



AgileAssets Network Manager

File Setup Utilities **Network Operations** Help

Table Of Contents

- Map
 - Nodes
 - Segments
 - Milepost
 - Cities
 - LocalHwyDistricts_ITD
 - ESRI_StreetMap_World_2D
 - World Street Map
 - Basemap
 - OpenStreetMap

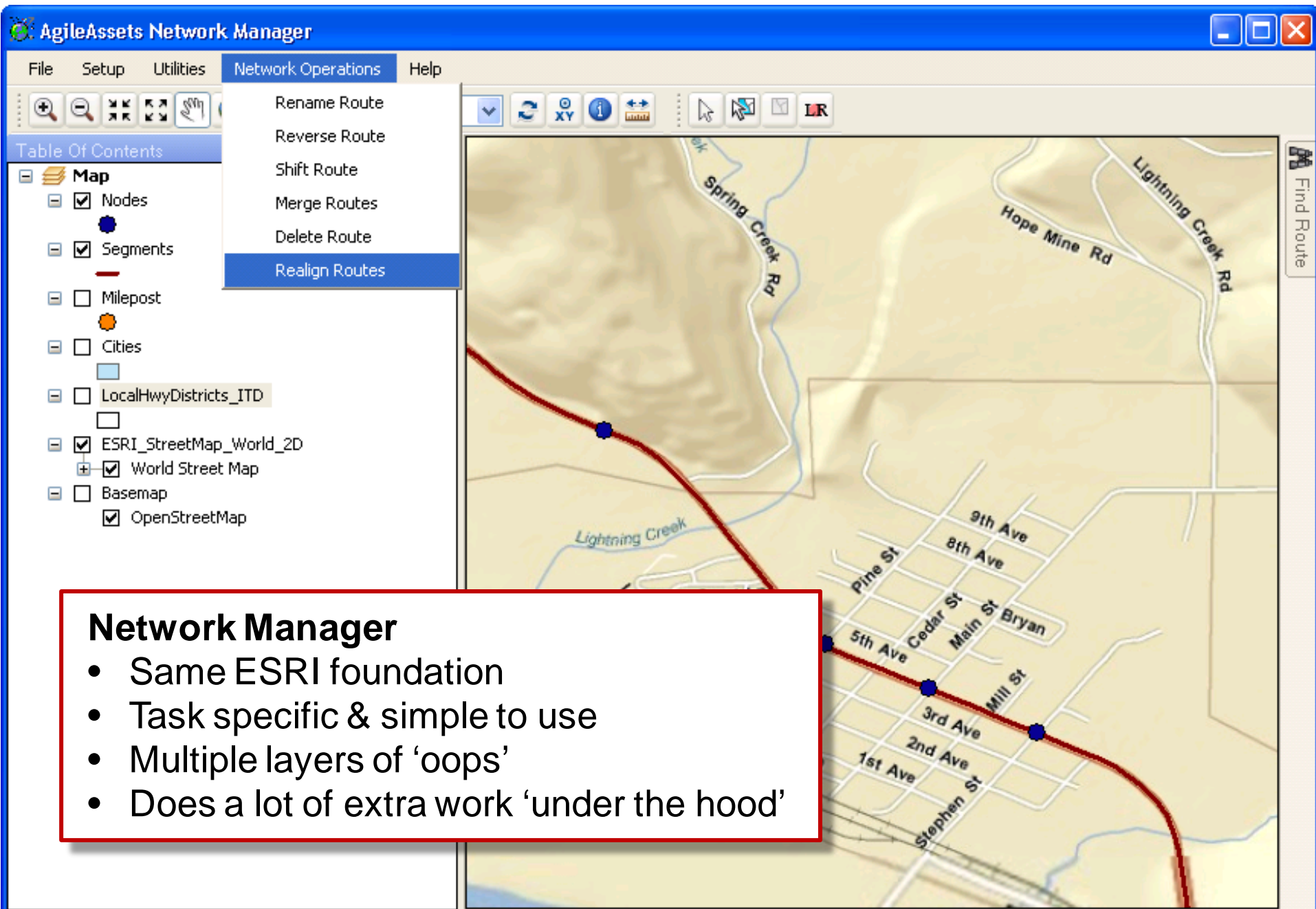
Rename Route
Reverse Route
Shift Route
Merge Routes
Delete Route
Realign Routes

Spring Creek Rd
Lightning Creek Rd
Hope Mine Rd
Lightning Creek
Pine St
9th Ave
8th Ave
5th Ave
Cedar St
Main St
Bryan
3rd Ave
2nd Ave
1st Ave
Stephen St
Mill St

Find Route

Network Manager

- Same ESRI foundation
- Task specific & simple to use
- Multiple layers of 'oops'
- Does a lot of extra work 'under the hood'

The image shows a screenshot of the AgileAssets Network Manager software interface. The window title is "AgileAssets Network Manager". The menu bar includes "File", "Setup", "Utilities", "Network Operations", and "Help". The "Network Operations" menu is open, showing options like "Rename Route", "Reverse Route", "Shift Route", "Merge Routes", "Delete Route", and "Realign Routes" (which is highlighted). On the left, there is a "Table Of Contents" panel with a "Map" section containing several layers, some of which are checked. The main area is a map showing a network of roads and a red route with blue nodes. The map includes labels for "Spring Creek Rd", "Lightning Creek Rd", "Hope Mine Rd", "Lightning Creek", and a grid of streets including "Pine St", "9th Ave", "8th Ave", "5th Ave", "Cedar St", "Main St", "Bryan", "3rd Ave", "2nd Ave", "1st Ave", "Stephen St", and "Mill St". A "Find Route" button is visible on the right side of the map. At the bottom left, there is a text box with the coordinates "-116.186, 48.161".



The way ahead at ITD



- Off-the-shelf. Highly configurable
- Build on strong foundation
 - ESRI and Oracle Spatial
 - ESRI ArcGIS Engine ArcObjects Application
 - Connects to ArcSDE Instance
- **Simplicity**
 - Simplified, protected interface
 - Speaks transportation
- **Reduce errors**
 - Multiple levels of 'oops'
 - Long term transactions (Protected editing environment)
 - Split between creating a version and using



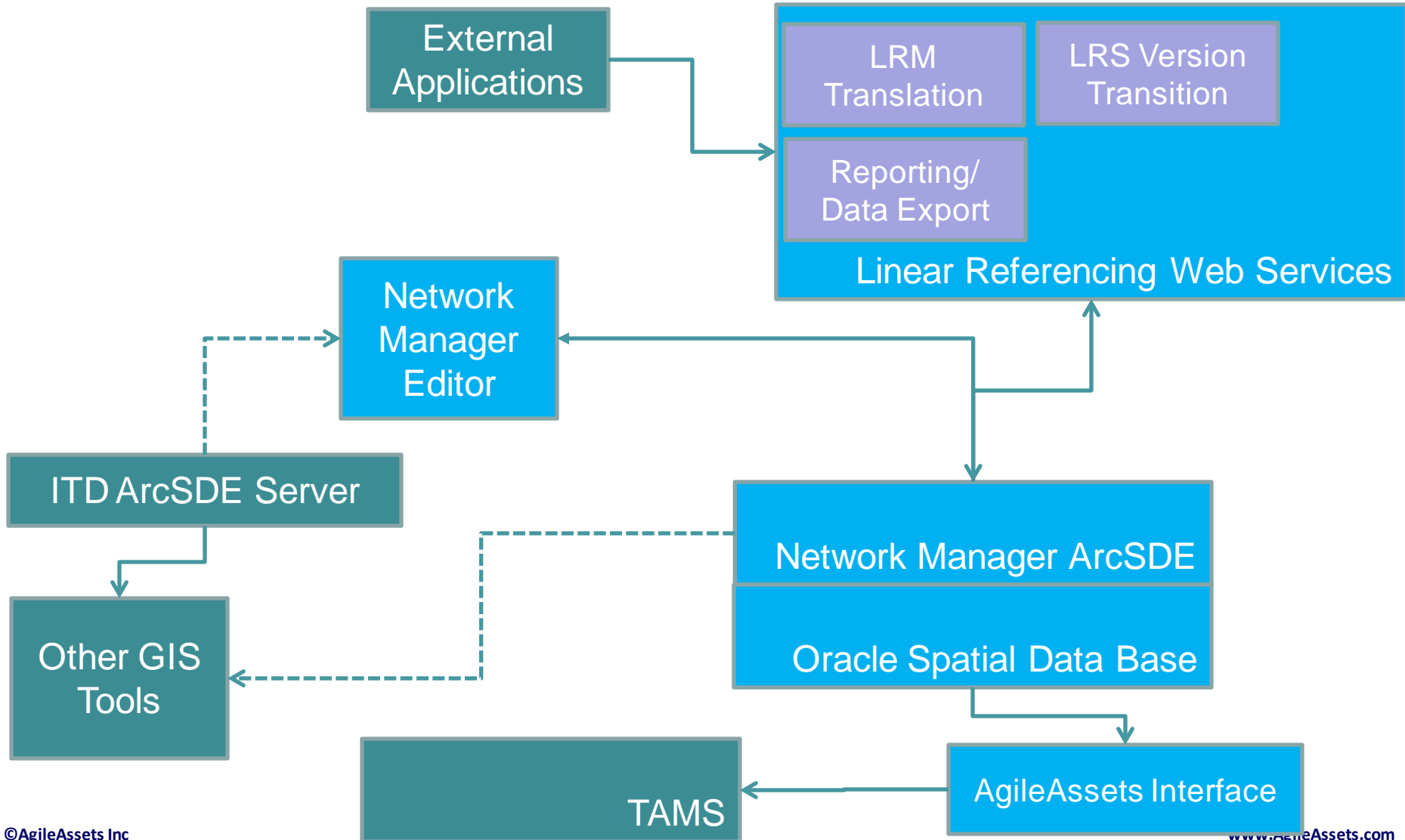
- Oracle Spatial format
- Provides core linear network data
 - Linear Network Attributes
 - Nodes – defined points
 - Links (Segments) defined paths between points
 - LRM Data – mileage, mileposts node labels and landmarks etc.
 - Editing records
 - LRS/LRM Versions
- Commit and rollback functionality
- Temporality



- Key services
 - LRM translation (translate between 2 different LRM's within a single LRS version)
 - Single translation
 - Multiple (batch) translation
 - LRS Data Provision/Reporting
 - Purpose to provide usable LRS data as exportable files

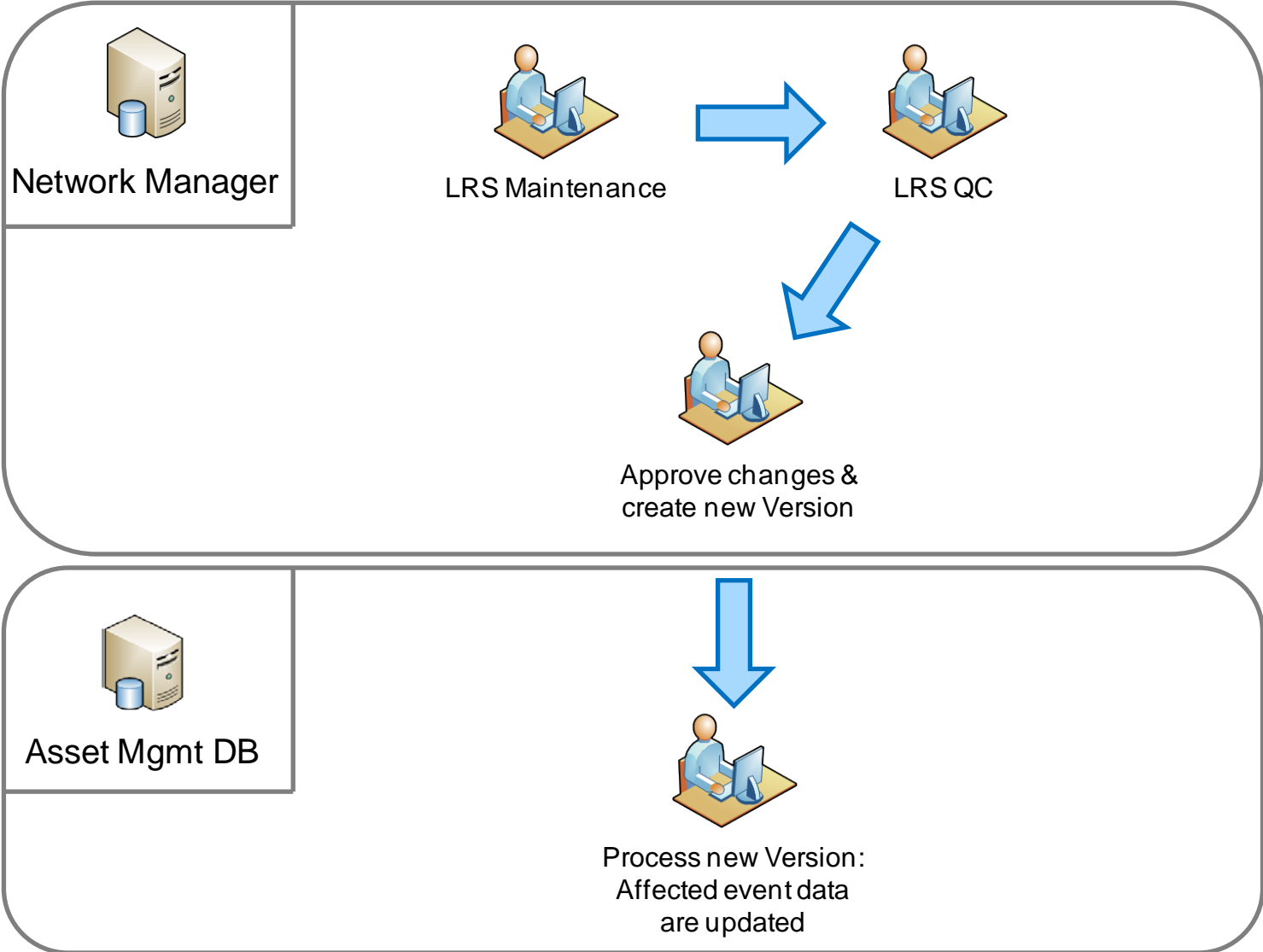


The way ahead at ITD (cont'd)





LRS Maintenance





The way ahead at ITD (cont'd)



- Event data location stability
 - Handles the tough cases
 - Both internal and external



Event Data Location Stability



SR 24 – Before Realignment

MP 0.0

MP 8.0

SR 24 – After Realignment

MP 0.0

MP 6.0



Event Data Location Stability



SR 24

MP 0.0



MP 5.0

MP 8.0

SR 24

MP 0.0



MP 3.5

MP 6.0



Event Data Location Stability



SR 24

Patching Work Order #101234

MP 0.0

MP 3.0

MP 5.5

MP 8.0

SR 24

MP 3.0

MP 4.0

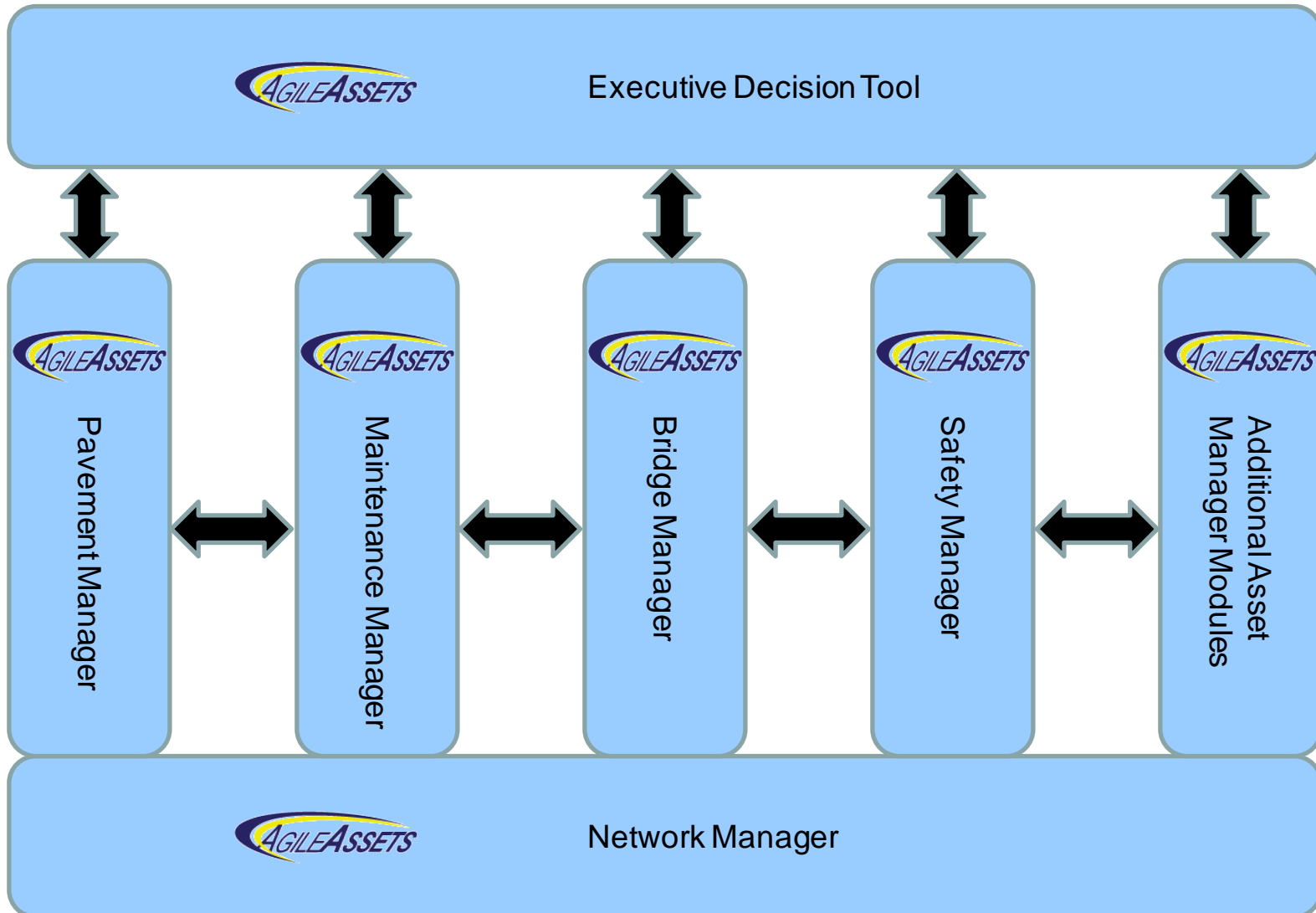
MP 0.0

Patching Work Order #101234

MP 6.0

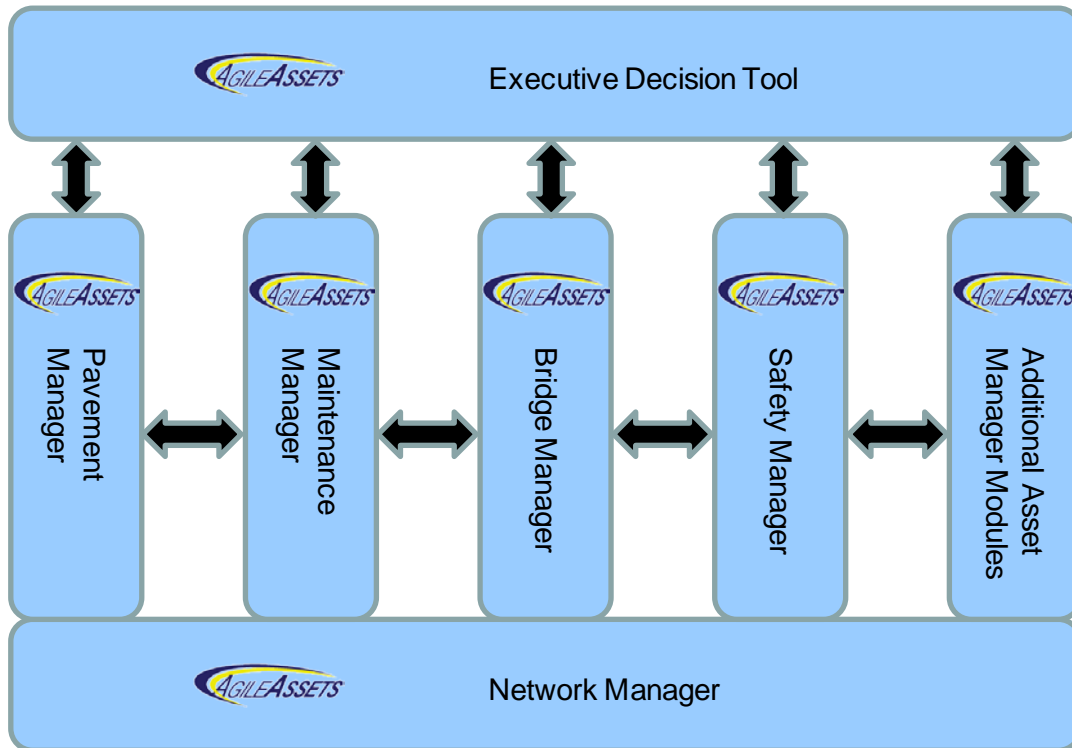


Event Data Location Stability





Event Data Location Stability



Exported LRM routes for use by External Systems



Version & LRM conversion for External systems



The way ahead at ITD (cont'd)



- Event data location stability
 - Both internal and external
 - Handles the tough cases
- Handle the tough problems
 - Concurrent routes, multiple LRMs, temporality, lane-level events



QUESTIONS & DISCUSSION

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