



PTV GROUP

the mind of movement

# PTV xServer ♦ Feature Layer

## Highlights



# Agenda

1. Introduction and
2. Demonstration



# Feature Layer Technology (FL)

## Data Layers



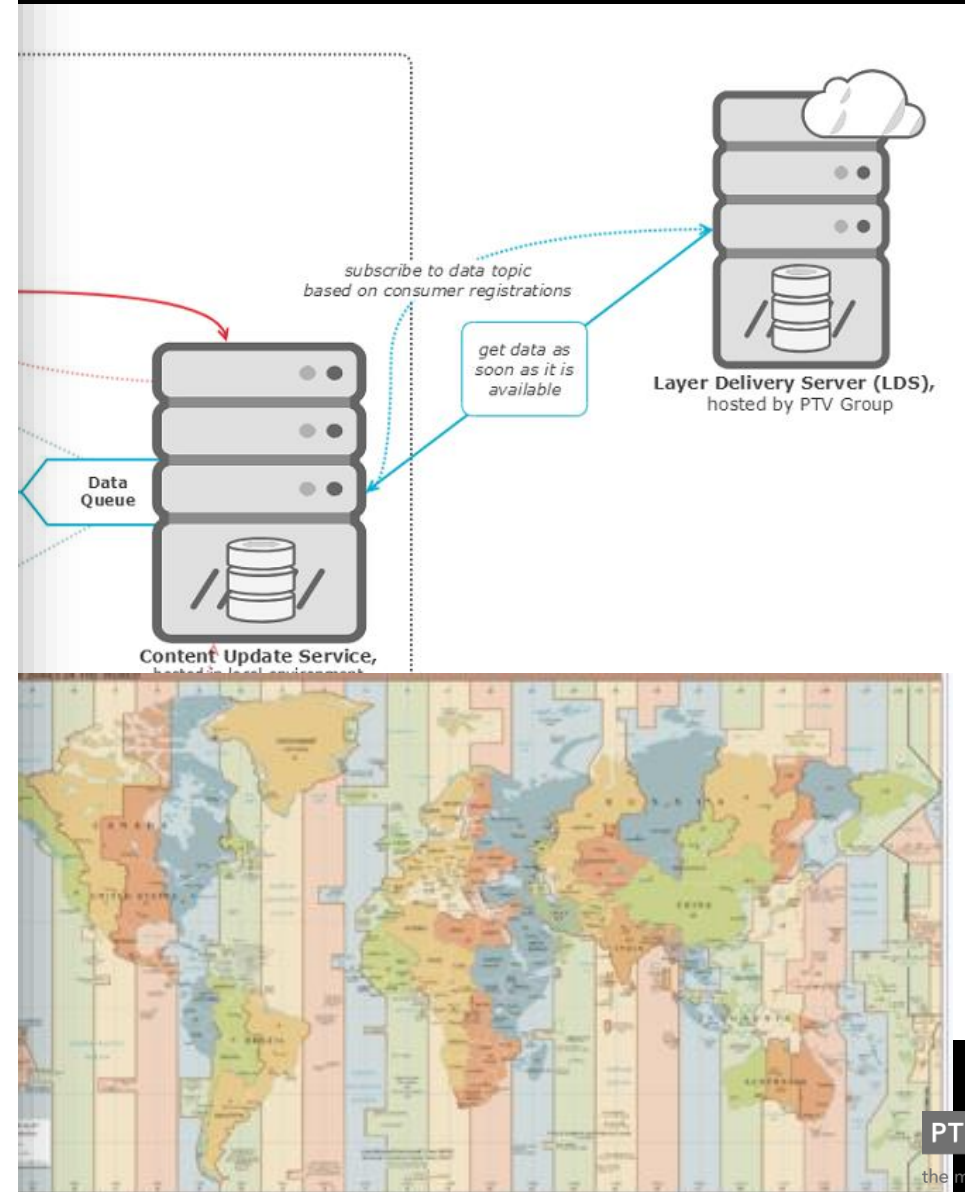
- Time Zones
- Truck Attributes
- (Truck) Speed Patterns
- Traffic Incidents
- Preferred Routes
- Restriction Zones
- Customized Feature Layer
- Truck Waiting Times at borders



# Benefits

- ❖ FL provides data content affecting the route planning
- ❖ Define multiple layers, easy to activate
- ❖ Combine, select and prioritize
- ❖ Integrated conflict-handling mechanism
- ❖ Static and dynamic FL
- ❖ Content Update Service (traffic incidents and toll)

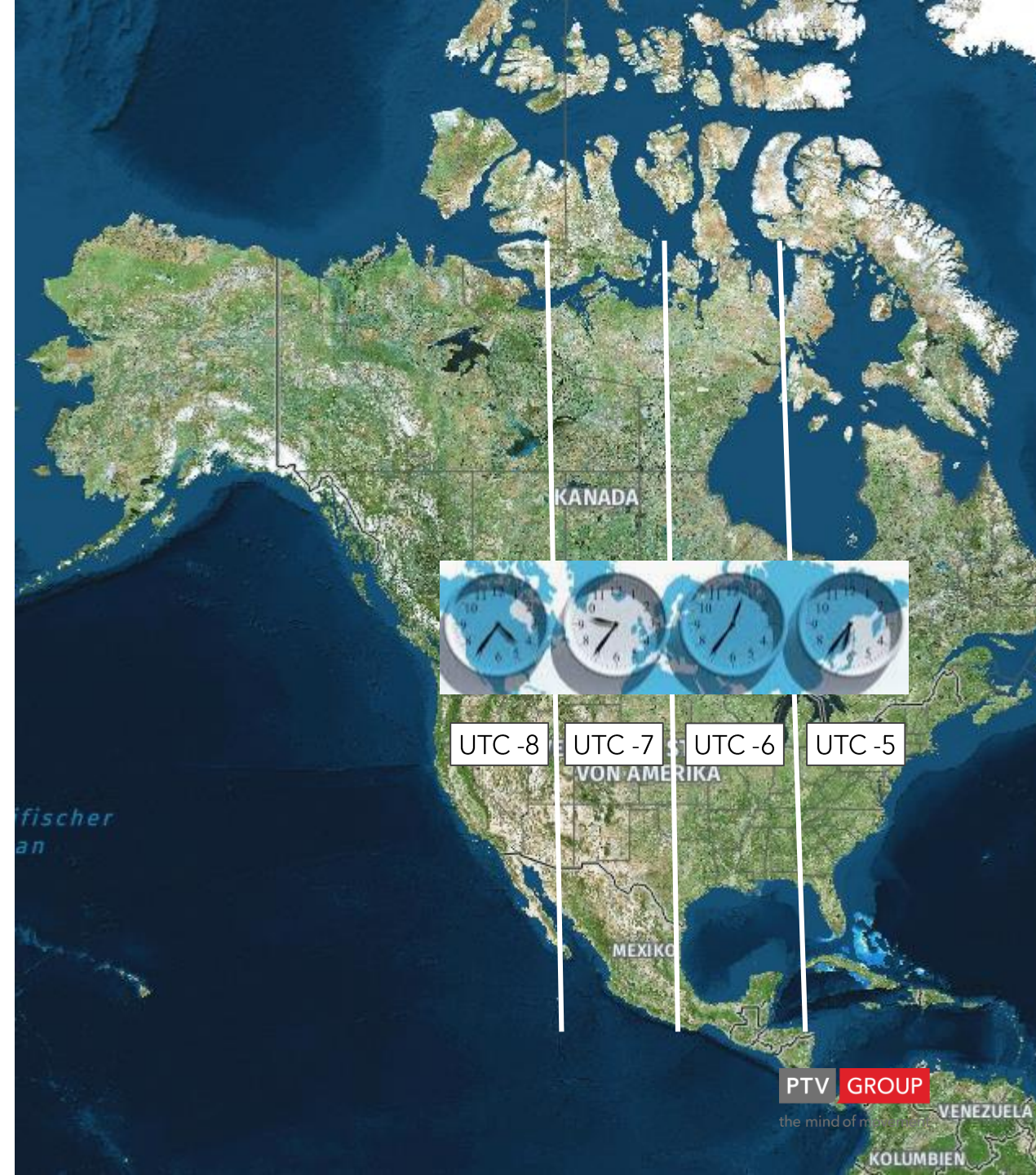
Time-dependent  
Vehicle-dependent



Time-dependent	Vehicle-dependent
No time consideration	Physical properties
Snapshot (area)	Legal parameters
Time-span consideration (48 h)	Emission classes
Exact time on road	Toll flags

# FL Time Zones

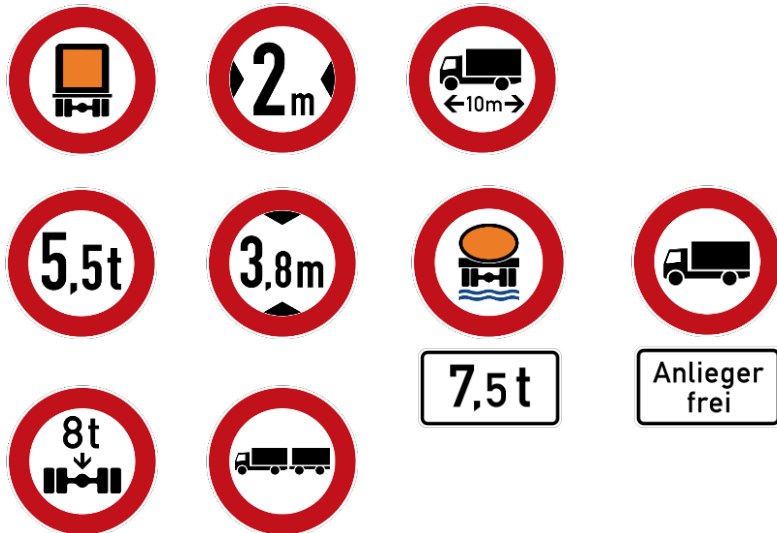
- ❖ Consider correct times
  - ❖ ETA calculation → crossing different time zones
  - ❖ Time-dependent parameters (traffic incidents, truck attributes)
  - ❖ Traffic congestions (relevant when arriving the jam zone)
  - ❖ Legal conditions: driving ban during night



# FL Truck Attributes

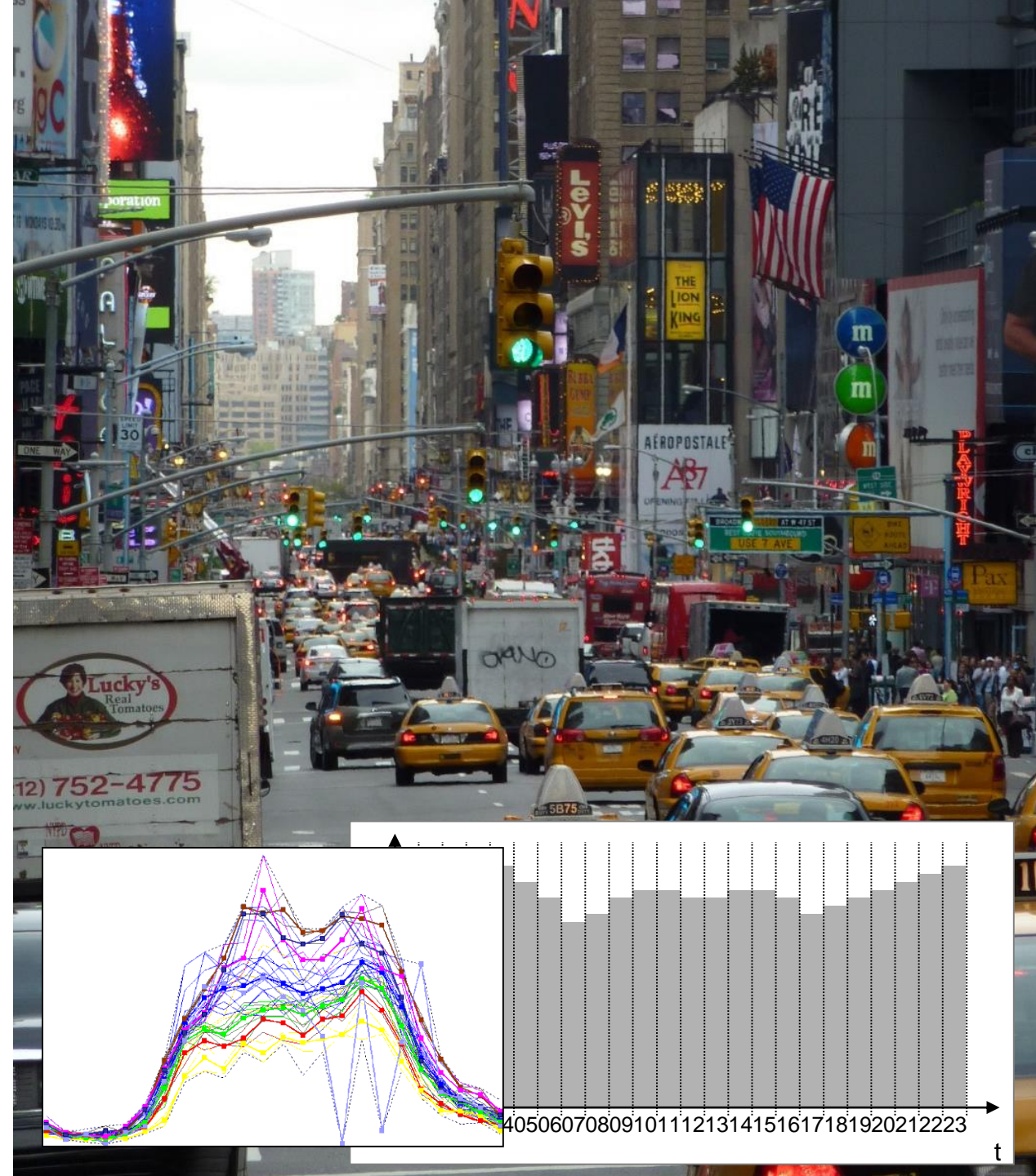
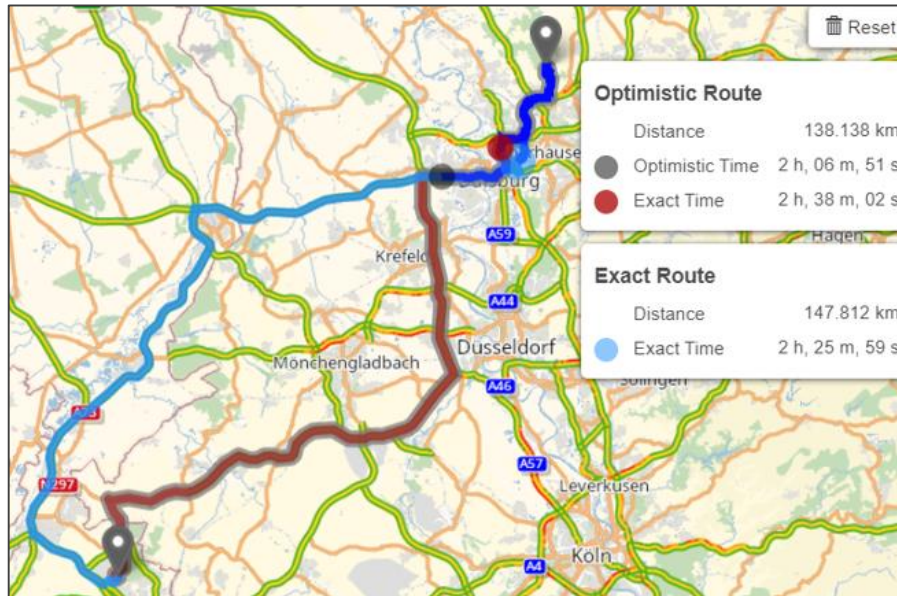
## ❖ Additional Properties:

- ❖ Physical: Dimensions, weight, ...
- ❖ Legal: Delivery, emergency, hazardous, 7.5t, private, tunnel restrictions, ...
- ❖ Warnings: curvy road



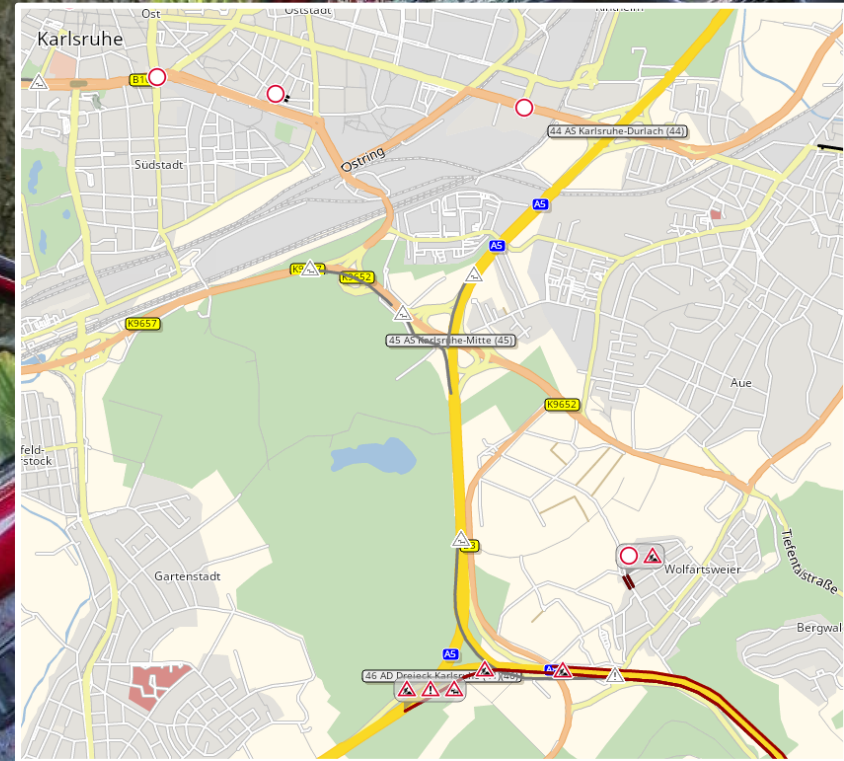
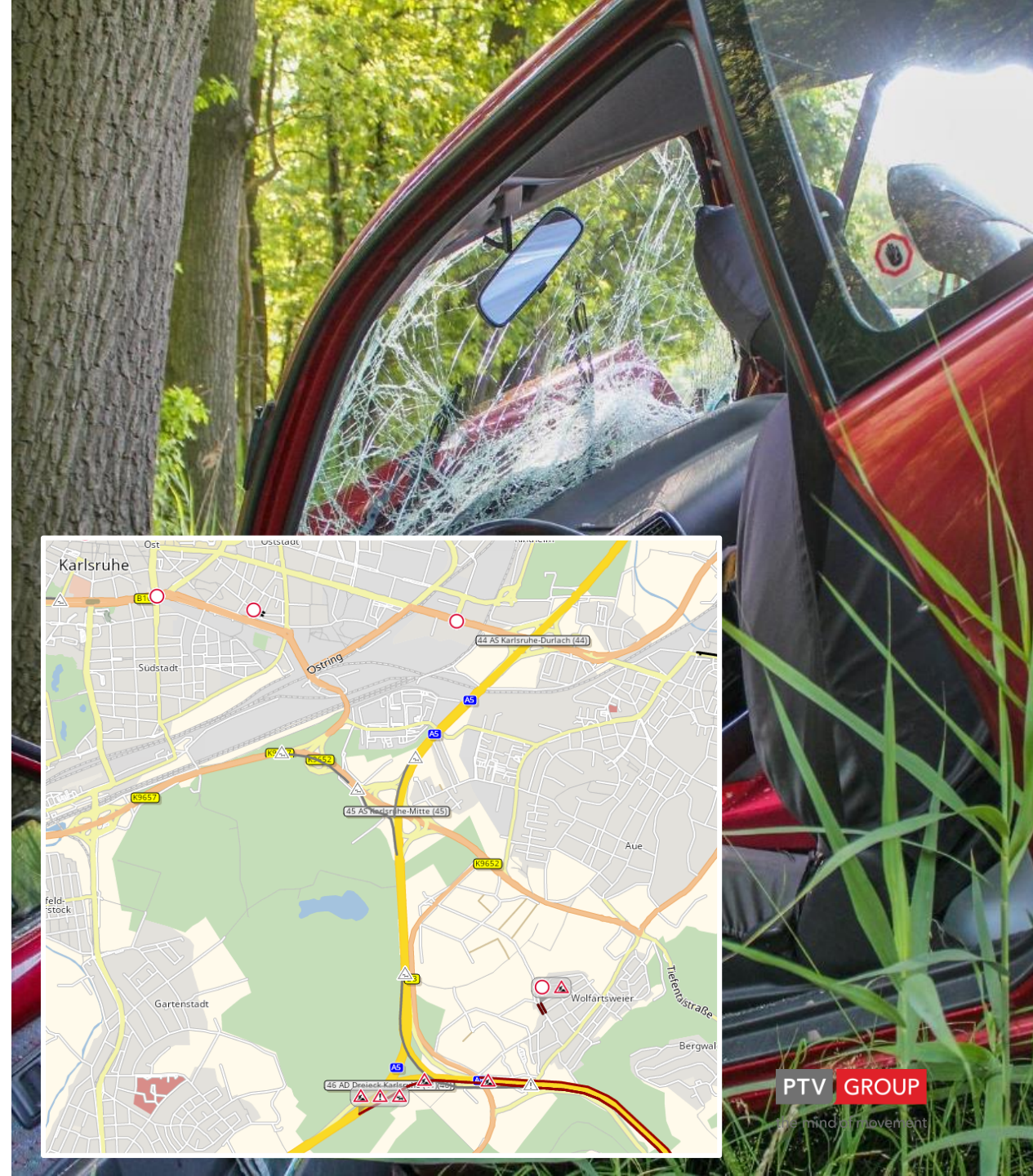
# FL Speed Patterns

- ❖ Historical traffic information:
  - ❖ Consider rush hours for ETA calculation and route optimization



# FL Traffic Incidents

- ❖ HD traffic TomTom:
  - ❖ Traffic congestions, delay, blocked, closed, accident, danger, weather, roadwork, specific incidents



# FL Preferred Routes (here)

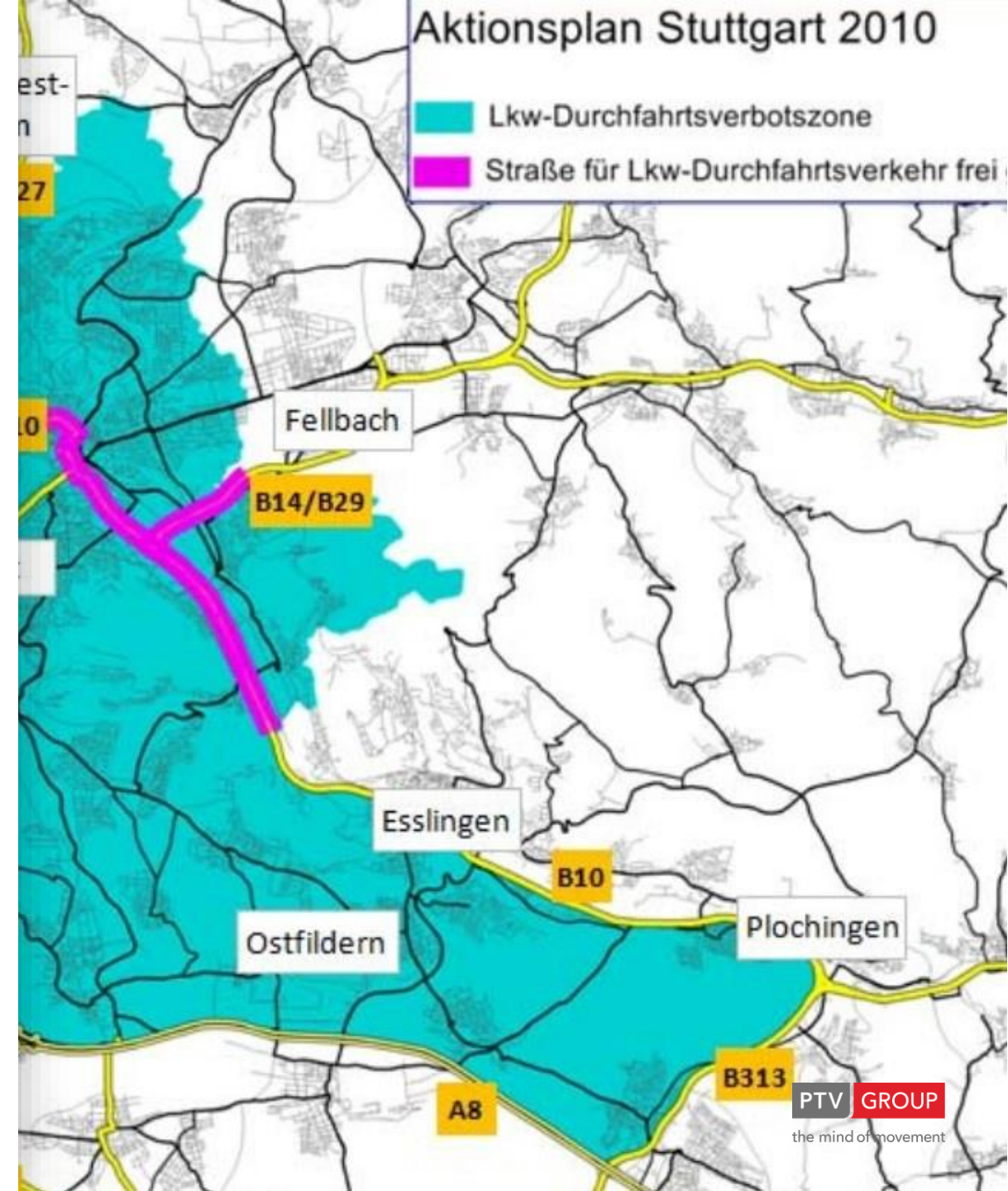
## ❖ Preferred Route Types:

- ❖ Hazardous goods, long trucks, heavy load, oversized cargo, abnormal indivisible loads
- ❖ Local transportation, private and commercial roads, truck unspecified, truck restricted
- ❖ To be avoided or not permitted to be used
- ❖ Recommended or mandatory (primary road network)



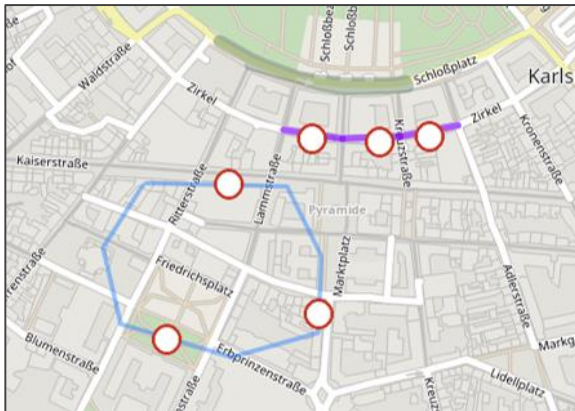
# FL Restriction Zones

- ❖ Restricted areas:
  - ❖ Transit zones for trucks based on legal properties (40t)
  - ❖ Delivery vehicles permitted to enter the source and destination (or intermediate stops)
  - ❖ Areas restricted by law (EU regulation on environmental zones for trucks larger than 7.5t)











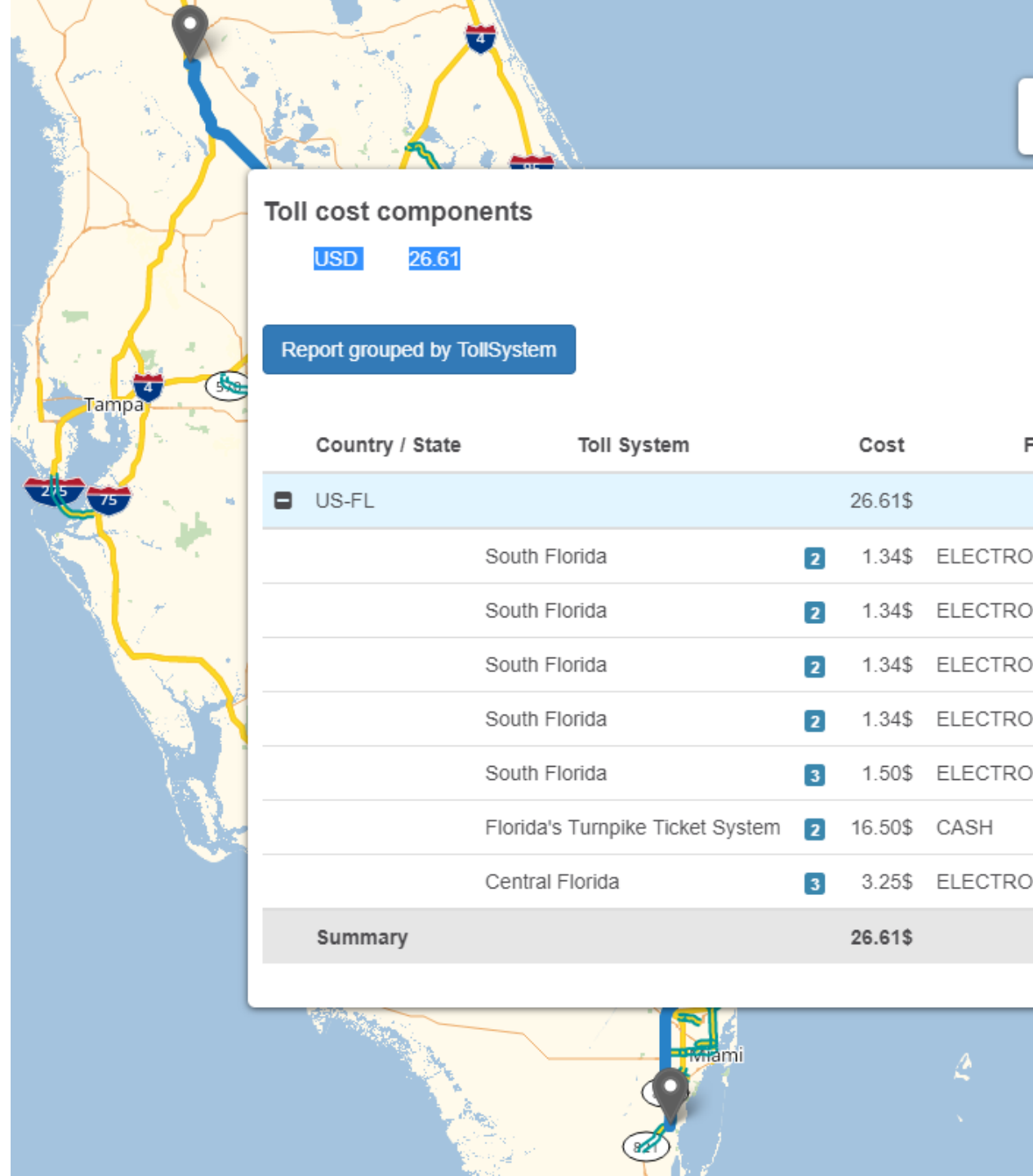
# FL Road Attributes

- ❖ Customized Feature Layer (onPrem):
  - ❖ Block and unblock roads
  - ❖ 2 modes: as binary object (only for routing, limited to 1 MB) or as persistent layer (file-based, incl. rendering, unique ID mandatory, multi-tenant)
  - ❖ Consideration of vehicle- and time-dependent properties



# Transport cost calculation

- ❖ Detailed toll calculation US (here) 
- ❖ Hours of services US 
- ❖ Driver regulations Europe 
- ❖ Considering drivers' logbooks 
- ❖ Extended toll calculation Europe 
- ❖ Cost-optimized routing 
- ❖ Performance improvements 
- ❖ Feature Layer
- ❖ ETA service 
- ❖ Combined use of time-dependent travel times and driver regulations (incl. remaining periods)



# Operational tour planning in regional areas

- ❖ Multiple Travel Time Dima
  - ❖ Taking time dependent data into account :
    - PTV\_SpeedPatterns
    - PTV\_TrafficIncidents (long-term incidents)
    - PTV\_TruckAttributes
  - ❖ HPR Support to calculate the distance matrix
- ❖ Time dependent tour planning
  - ❖ Using the multiple distance matrix
- ❖ Continuous improvement of performance

