**TRAC: An Architecture for Real-Time Dissemination of Vehicular Traffic Information**

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### PROBLEM: VEHICULAR TRAFFIC CONGESTION

Provide real-time information on traffic conditions

**Infrastructure:**
DSRC / Wi-Fi access points

Publish / Subscribe systems

**Key Ideas**
- Handle mobility
- Take advantage of locality (Tree topology of brokers)

**Virtual Publisher**
- Stateless method of publishing
- Multicast tree per data item(s)

**SIMULATION RESULTS**

**Subscriber Mobility Handling Schemes**

- **PRESUB-NBR:** Send subscriptions to neighboring APs within a radius
- **PRESUB-PRED:** Send subscriptions to APs on road segments in the subscribed path

**ARCHITECTURE AND ALGORITHMS**

**Entities in TRAC**

- **GPS / OBD**
- **802.11 / DSRC**
- **Navigation module**
- **Connection table**
- **Subscription table**
- **Cache**

**Routing of advertisements, subscriptions and publications**

- Aggregate information, Generate publications
- Mobility schemes

**Publisher / Subscriber**

- **Light Weight Agent (LWA)**

**Broker Module**

- **Routing of advertisements, subscriptions and publications**
- **Aggregate information, Generate publications**
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**Scalable Architecture**

- Latency/Diffusion time are not affected by increase in speed, number of subscribers, subscription length
- 99.5% delivery ratio at 70 mph
- Tree topology better than peer-acyclic topology