

Trajectory-based Traffic Information

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Introduction

- Trajectories contain **important traffic** information
- Trajectories **cover** most of the road-network infrastructure

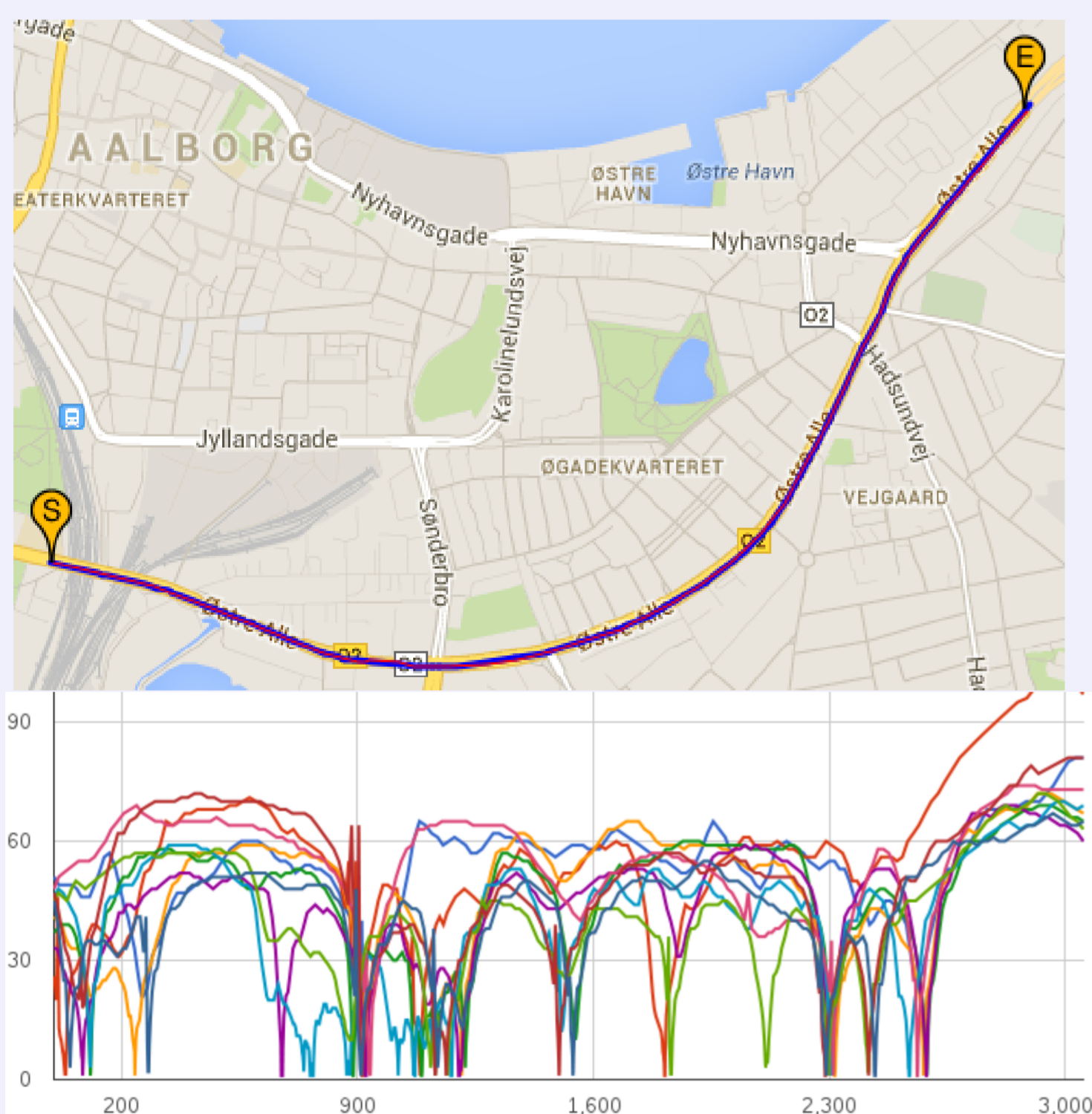


Using Trajectory Data We Can

- Determine **turn times** and **path-based travel times**
- Describe the **overall traffic** behavior
- Identify **delay factors** along a road stretch
- Evaluate **travel time estimates**



Interactive Traffic Analysis



System Overview

Data warehouse:

- PostgreSQL 9.3, Linux
- 32 cores
- 128 GB RAM
- 16 x 1 TB 7K2 RPM disks

Web server:

- PHP, Apache, Linux
- 8 cores
- 16 GB RAM

Data and Preprocessing

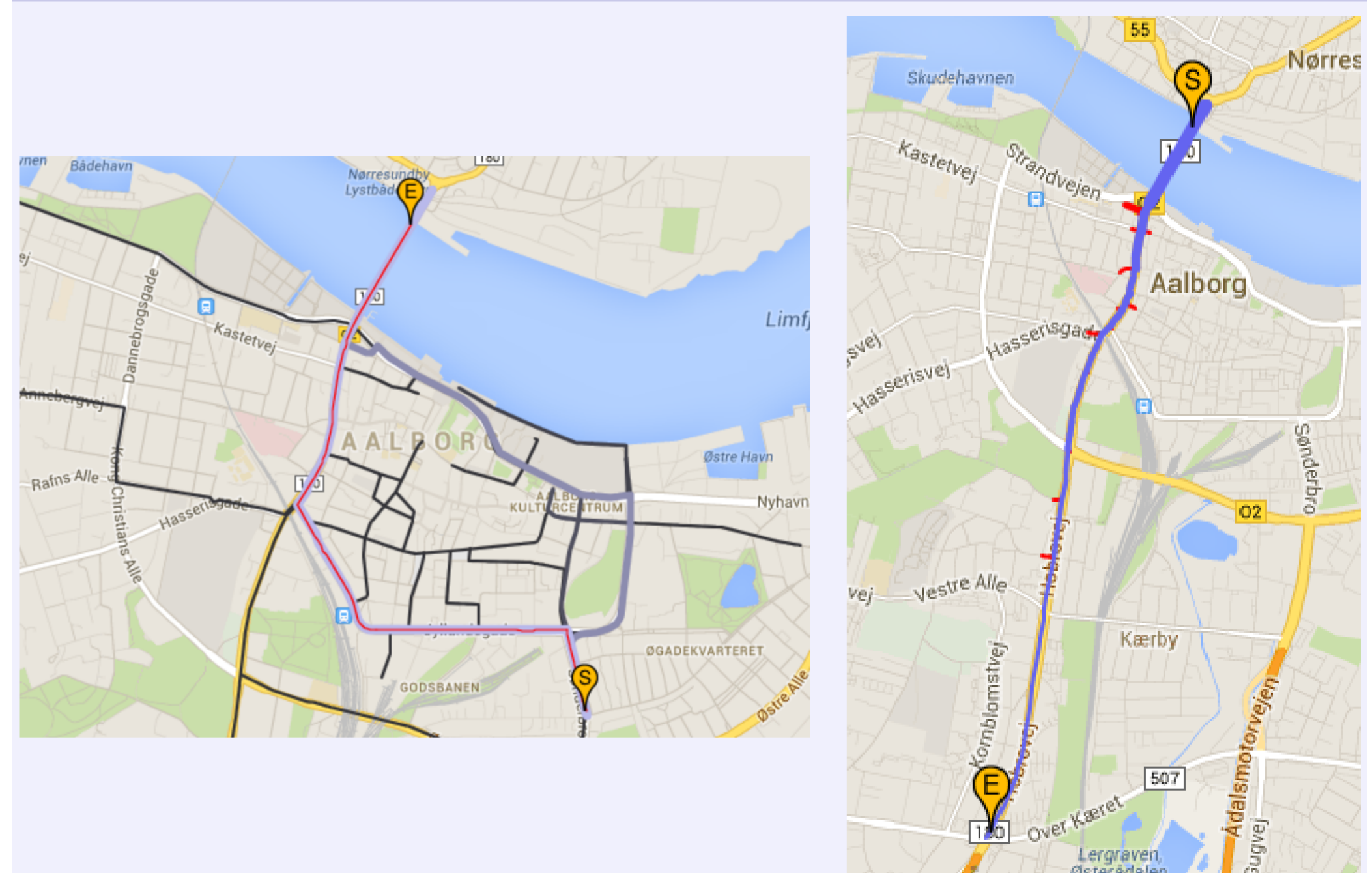
- **~ 13 000** vehicles
- **~ 2 billion** GPS records
 - 700 million records from private vehicles
 - 1.1 billion records from taxis
 - 200 million records from other vehicles (buses, trucks, etc.)
- Road network from OpenStreetMap

GPS data converted into **127 million** records such as:

trajectory id	edge id	time enter	time leave
10	22	110	120
11	33	210	230
...			



Route Choice and Traffic Flow



Summary

- A system for **interactive traffic analysis**
- **Accurate travel time** estimates (actual trips!)
- **Detailed inspection** of local traffic conditions
- **Route choice visualizations**, with traffic parameters
- Visualization of **traffic flow**