



Goals

- Implementation of a multimodal transport planner for walking, car transport and public transport for Brno and the South Moravian Region
- Architecture supporting a generic transport system, not only IDS JMK
- Seamless switching between routing services
- Integration with the Lissy application

Architecture

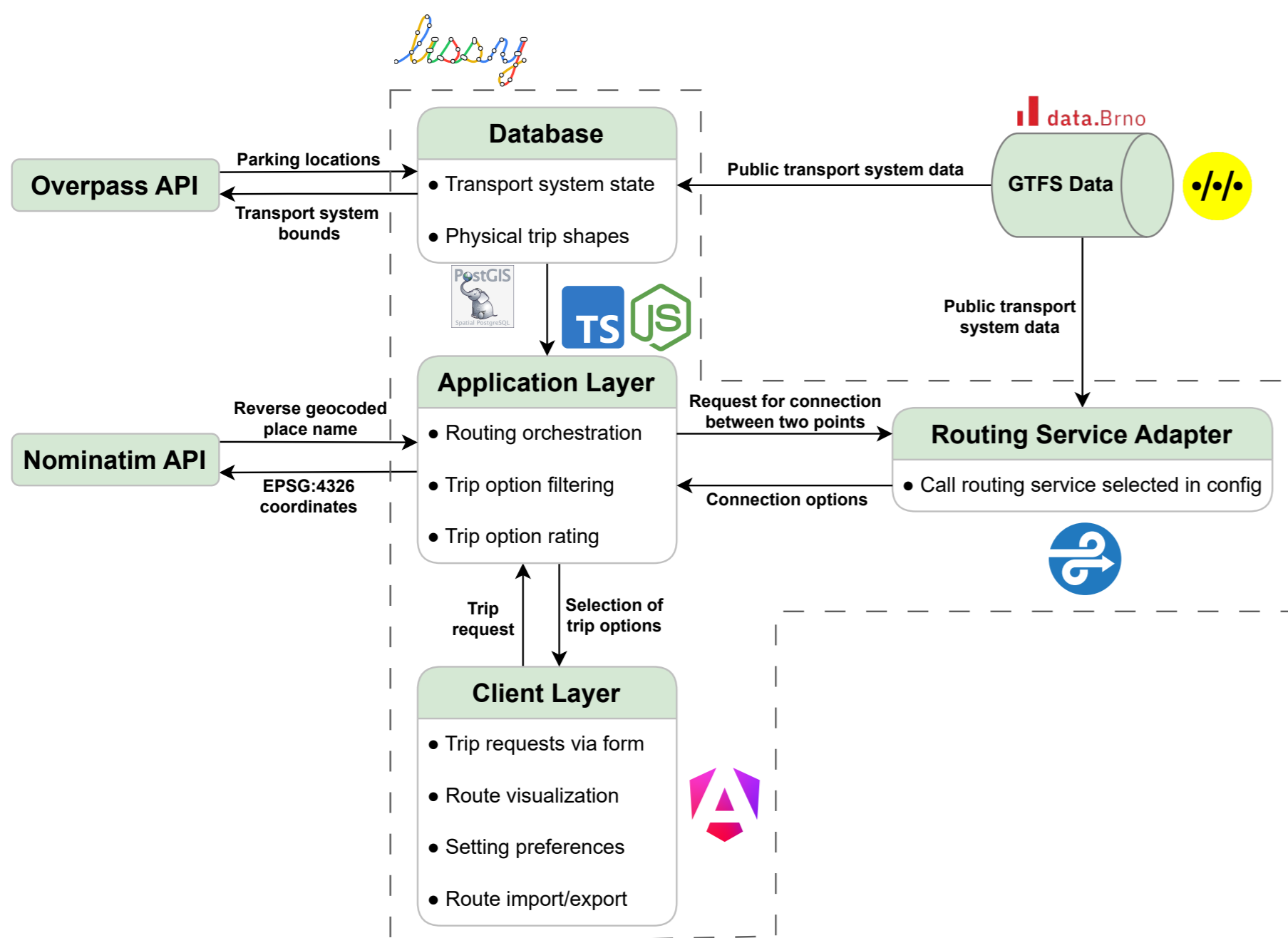


Figure 1. Full planner architecture inside the Lissy application

Routing Service Adapter

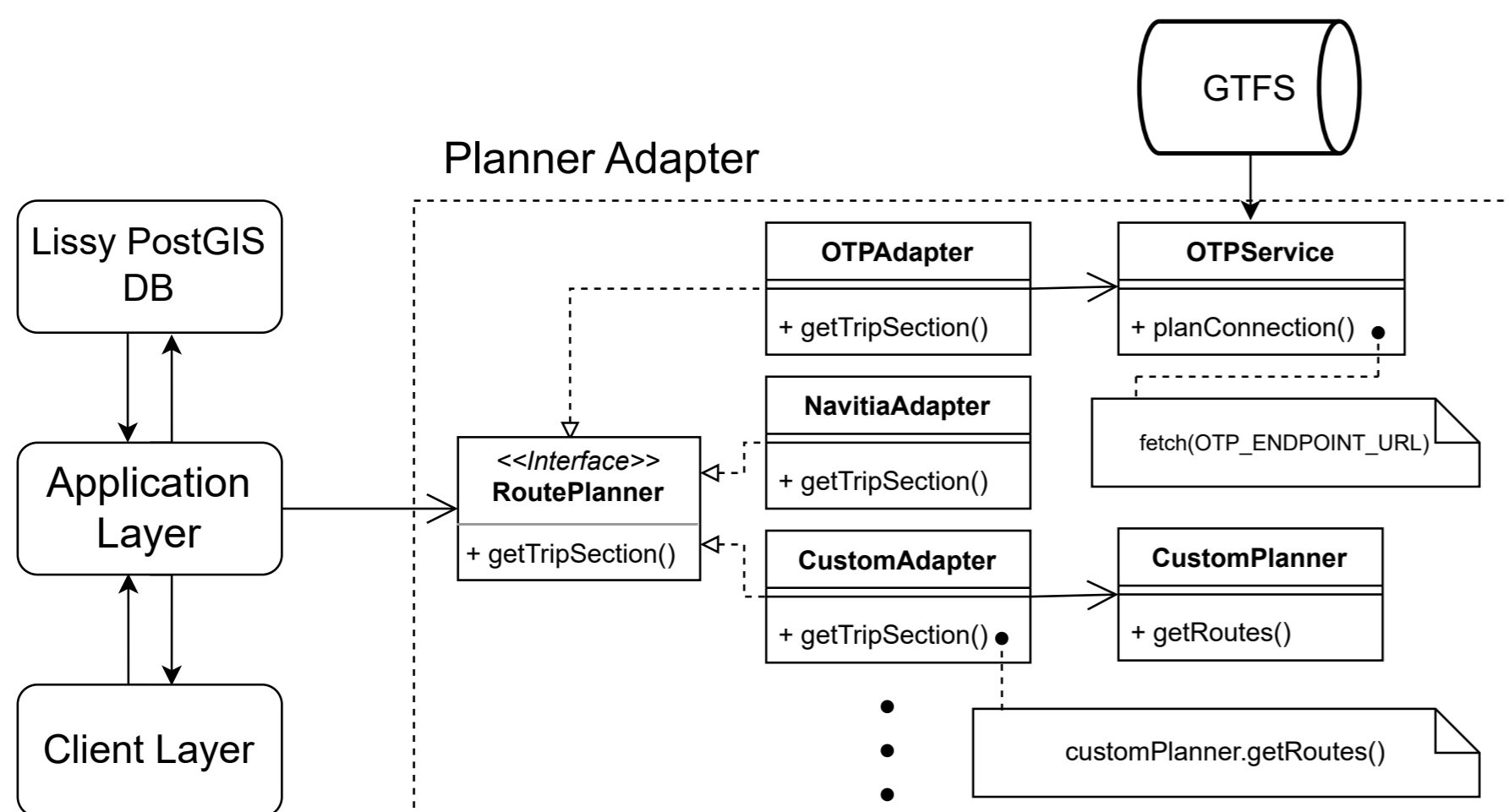


Figure 2. Adapter design pattern for seamless switching between routing services

Route Selection System

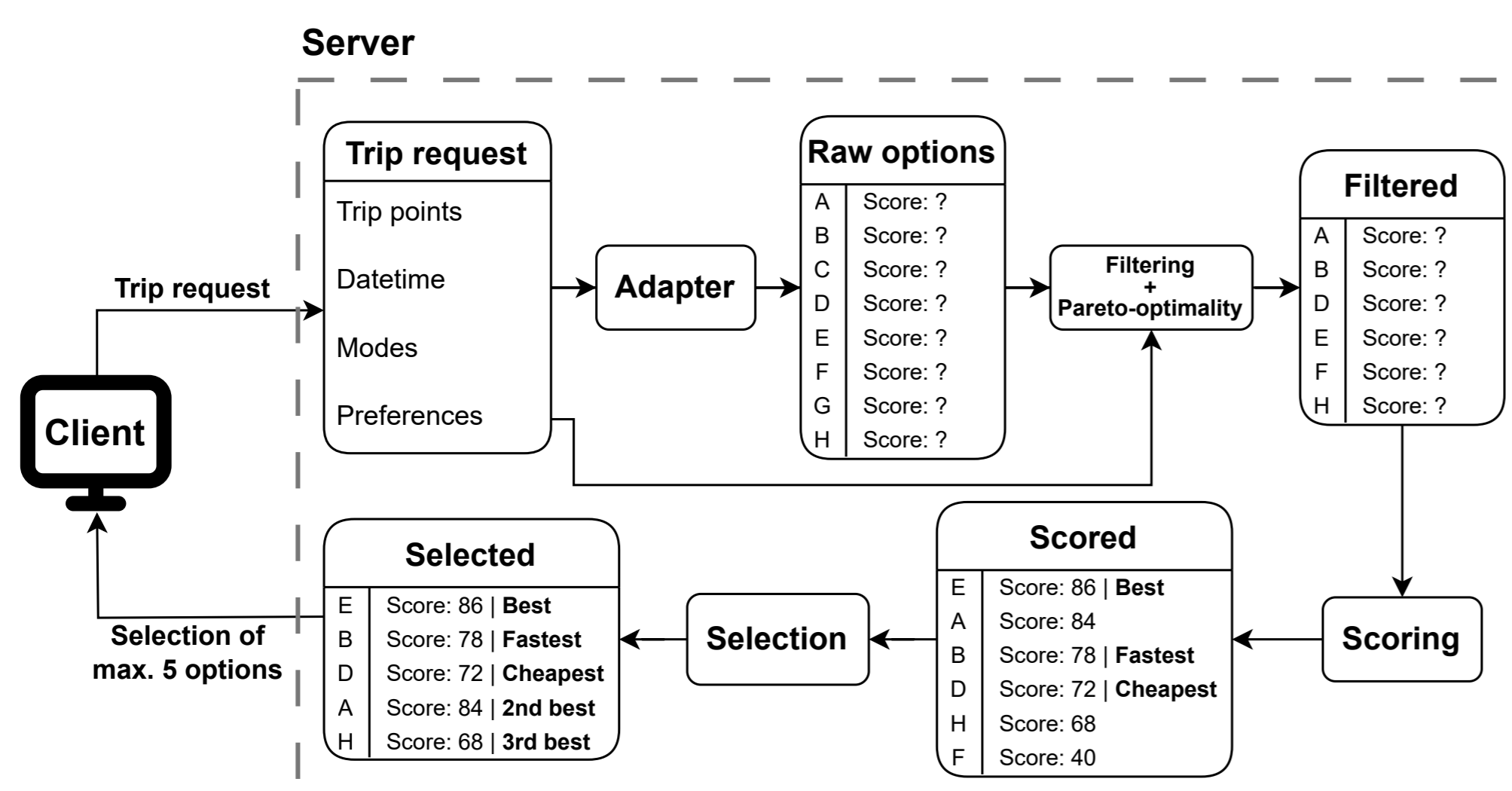


Figure 3. Diagram showing the route selection process

Criteria for scoring

- Route duration
- Number of transfers
- Cost estimation
- Emission estimation

Scoring Formula

$$\text{option_score} = \sum_{c \in C} w_c \cdot \left(\sqrt{\frac{\min_c + 1}{\text{val}_c + 1}} \cdot 100 \right) \quad (1)$$

- C – set of criteria
- w_c – weight of criterion c
- val_c – value of criterion c
- \min_c – best found value of criterion c

Park and Ride Transfer Hubs

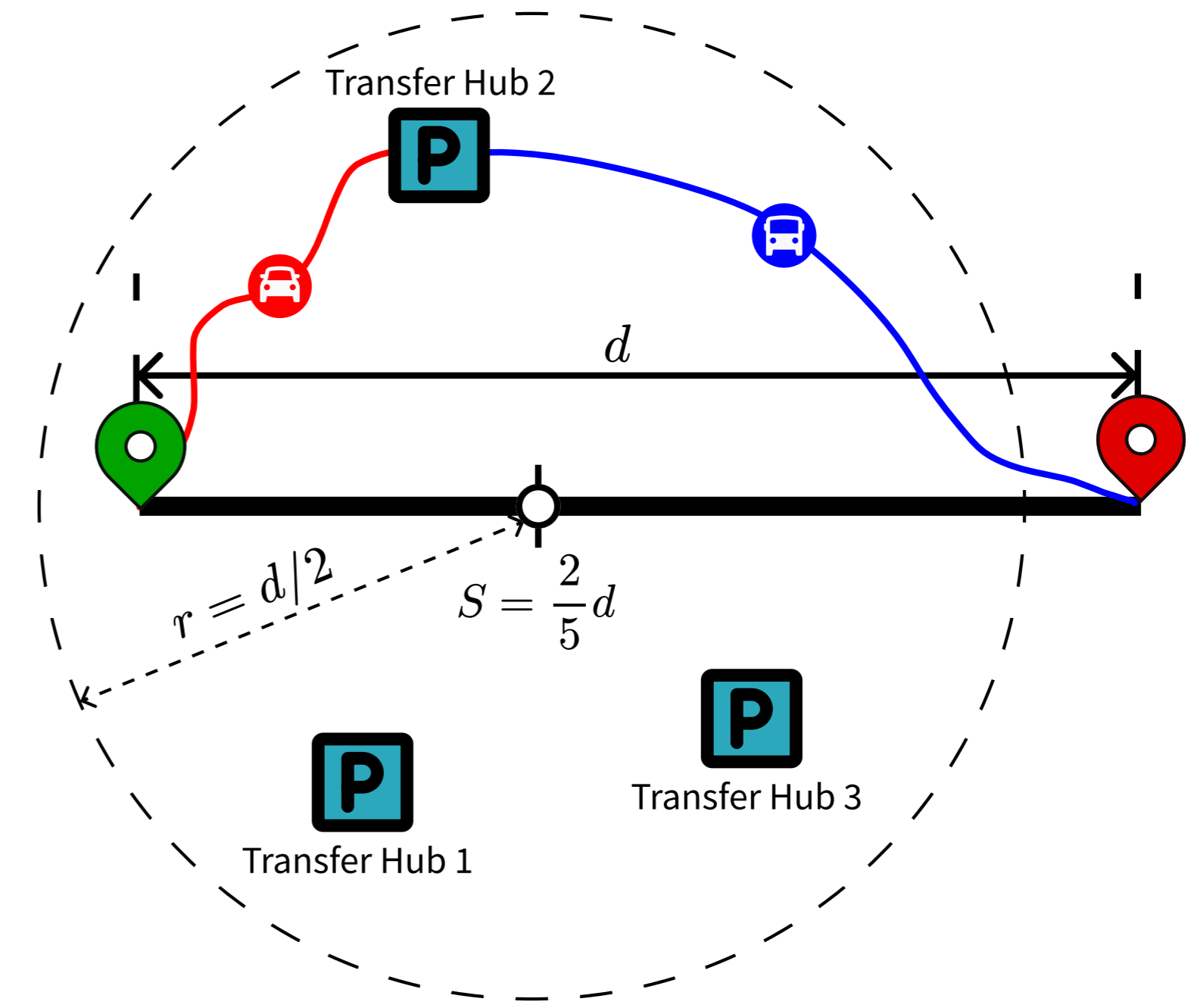


Figure 4. Diagram visualizing, how candidate P+R transfer hubs are found

Desktop Interface

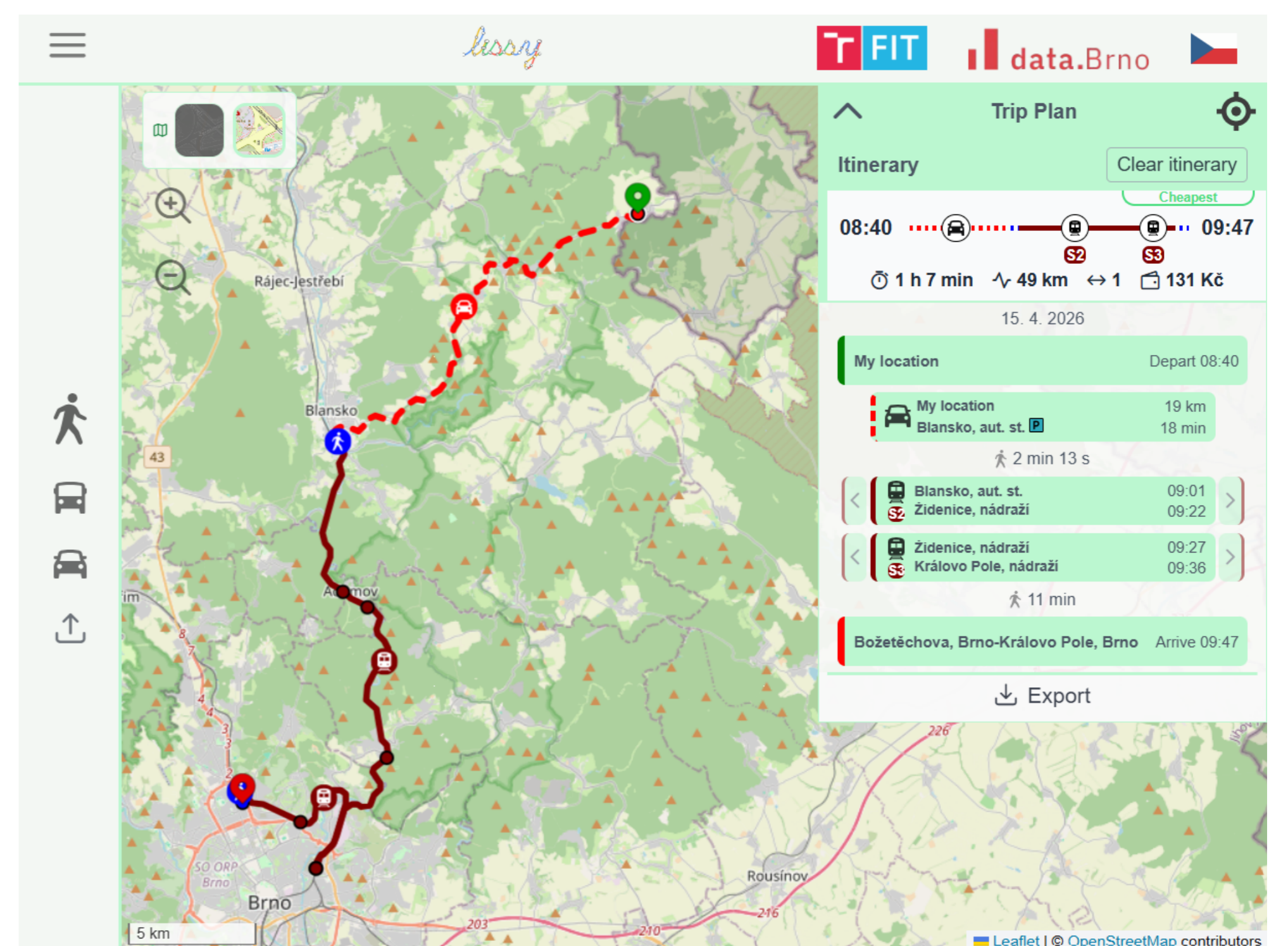


Figure 5. Desktop user interface with visualized route

Mobile Interface

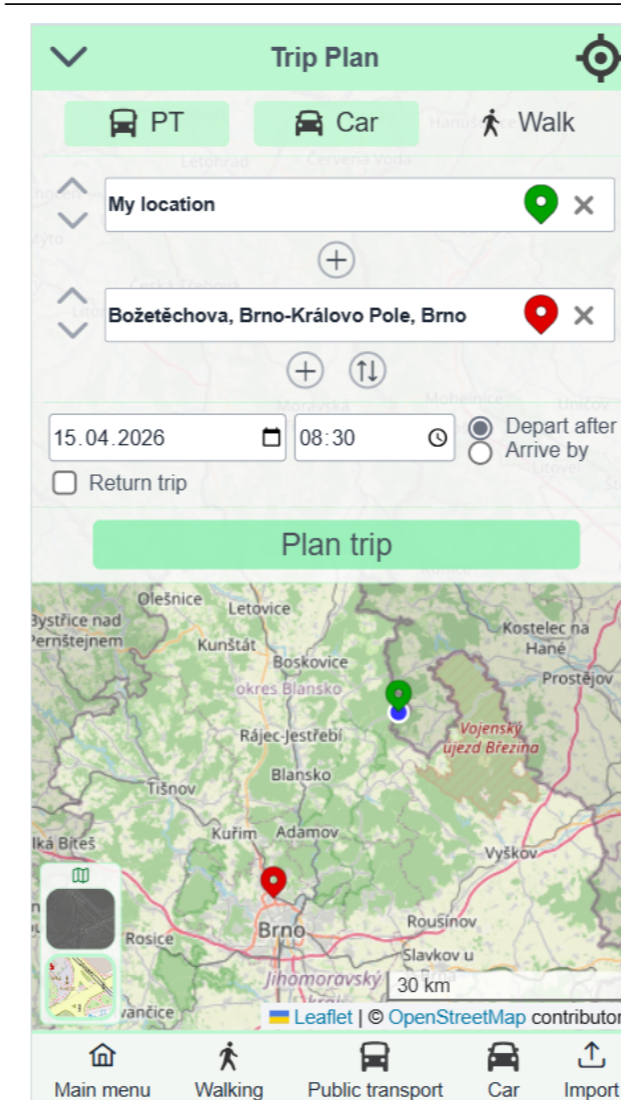


Figure 6. Filled trip form

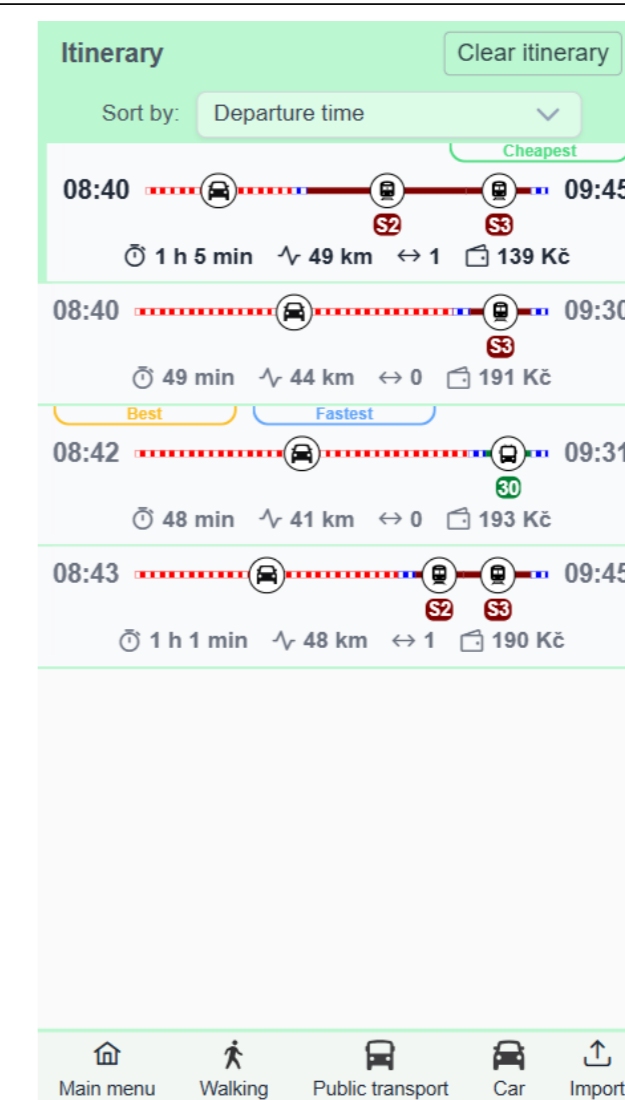


Figure 7. List of options

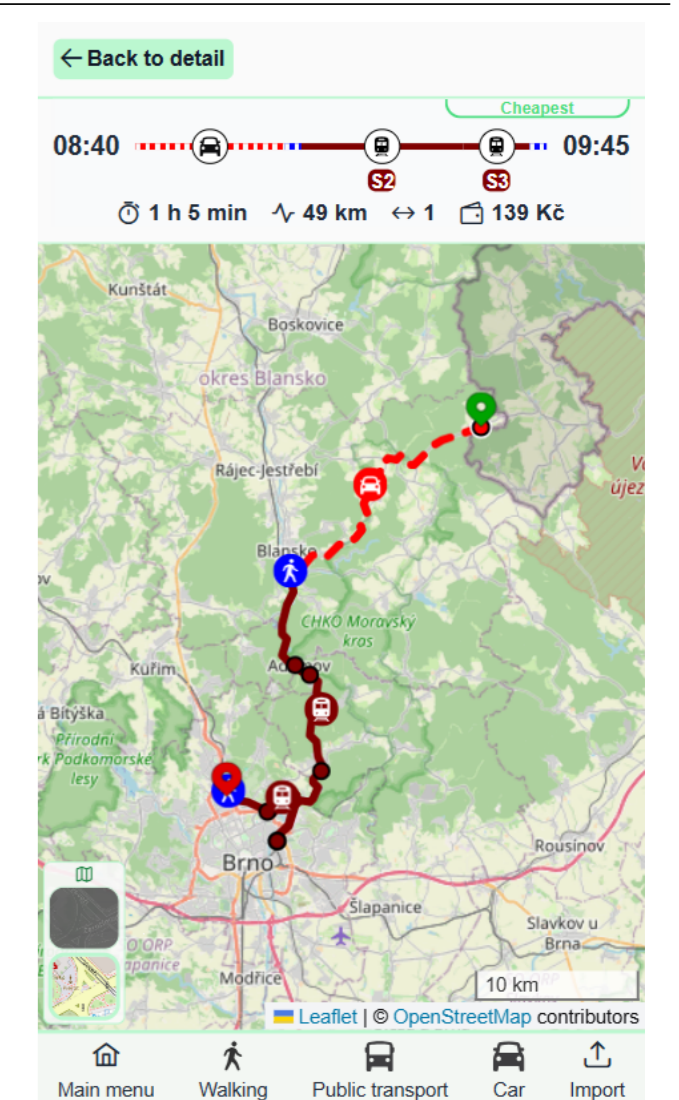


Figure 8. Rendered route

Other Key Features

- Smart combining of car transport, walking and public transport
- Return trips
- Transit leg re-routing
- Usage of devices current location
- Route importing and exporting