FLEXIBLE TRANSIT COMMUTE & TRIP PLANNING

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“If I waited 45 minutes, would I get a seat on the bus?”
FLEXIBLE TRANSIT COMMUTE & TRIP PLANNING – MOTIVATION

➤ “If I waited 45 minutes, would I get a seat on the bus?”
➤ “I want to plan a commute”
FLEXIBLE TRANSIT COMMUTE & TRIP PLANNING – MOTIVATION

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TRIP PLANNING – CURRENTLY

➤ “Get me from A to B as quickly as possible sometime soon”
  ➤ Fastest trip; Fewest transfers; Shortest walking distance
  ➤ Leave now; Depart at; Arrive by; Last available
➤ Essentially speed of route options
FLEXIBLE TRANSIT COMMUTE & TRIP PLANNING – GOALS

➤ Flexible Departure - rate routes based on:
  ➤ Bus crowding
  ➤ On-time performance
  ➤ Stop amenities (shelter, coffee)

➤ Commute-Oriented Planning:
  ➤ Consistent departure time
  ➤ Average on-time performance
  ➤ Shortest average trip over a week
PRELIMINARY PROTOTYPE

➤ Designed for TriMet data

➤ Implemented in PostgreSQL relational database (RDBMS)

➤ Status: Weighted routes function over a subset of TriMet data
LESSONS LEARNED

➤ The Good:

➤ Used data structure (schema) from the TriMet database (think GTFS)

➤ Data in PostgreSQL allows flexible querying

➤ The Bad & Ugly:

➤ Development went slow

➤ PostgreSQL User Interface very difficult to work with for graph data - severely limited progress

➤ I’d want: Graph-based User Interface, Relational data storage
DATA MANAGEMENT CHALLENGES & OPPORTUNITIES
Example: Counts of Bluetooth readings cannot be used as a volume count...
DATA MANAGEMENT CHALLENGES & OPPORTUNITIES

➤ Data Properties: Using Abstraction to Enhance the Use of Data in Decision Making

➤ Capture rate
➤ Accuracy
➤ Quality rating

➤ Capture properties and propagate through the system
DATA MANAGEMENT CHALLENGES & OPPORTUNITIES

- Data Integration
  - Varying Spatial Representations
  - Varying Time Scales (20 sec, 5 min, …)
  - Varying Levels of Data Quality
- Currently mostly ad-hoc
- Proposal: Agile Integration
  - Fast, lightweight integration
  - Integrate “on-the-fly”
Thank you. Questions?

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