Optimizing Write Performance in Decentralized Personal Data Ecosystems

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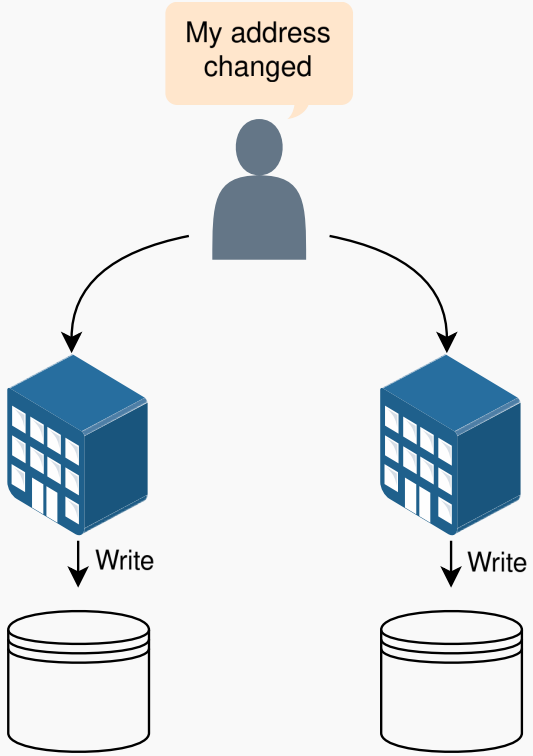
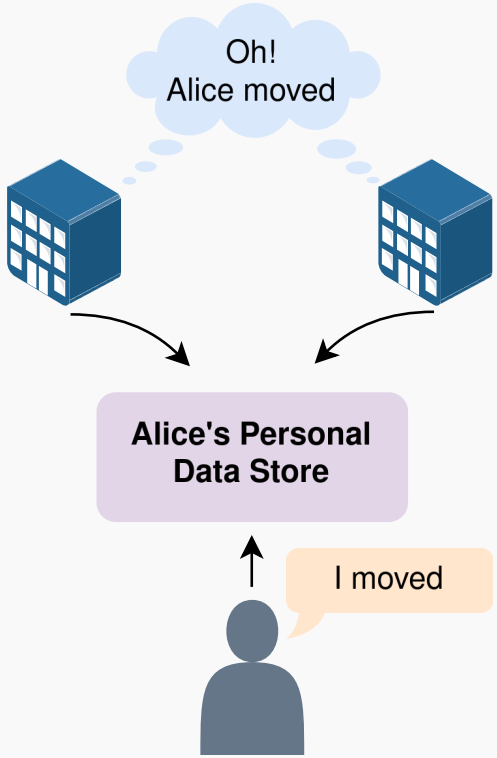
Importance of decentralized personal data ecosystems

Data around processors

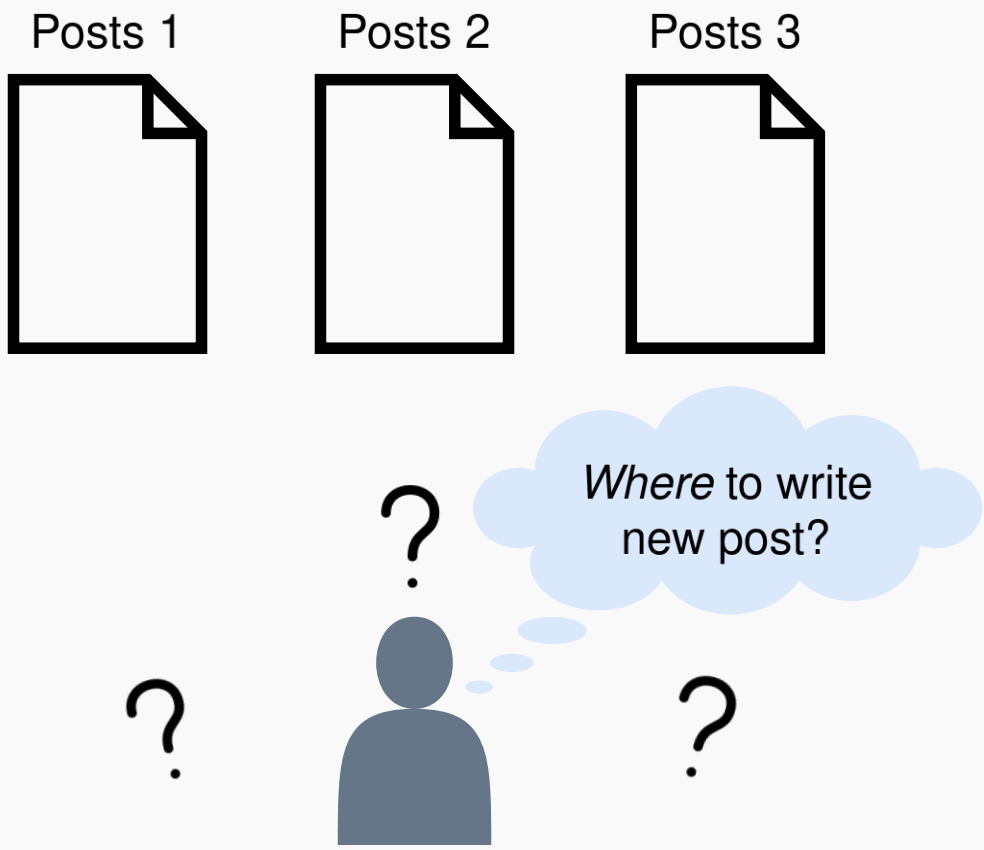


Data around producers



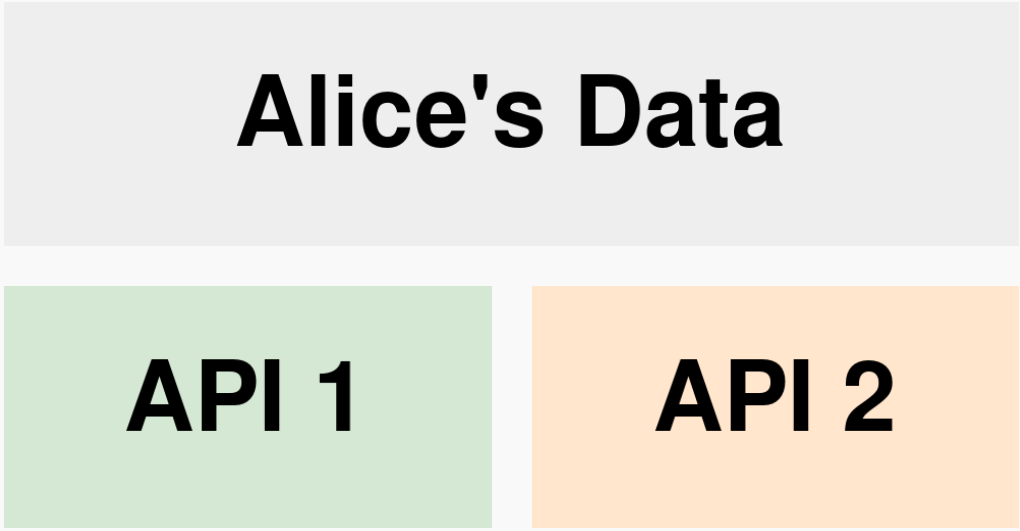
- ✓ Relieves SMEs cost
- ✓ Data quality
- ✓ Sparks innovation

More profound update issues are lurking

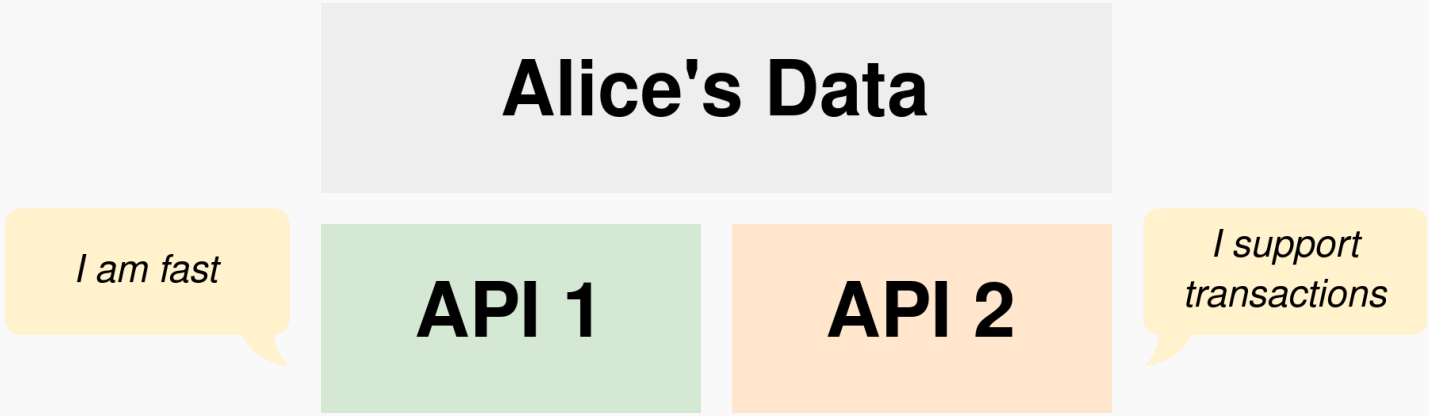


WP 1: Study of update interfaces in a decentralized environment

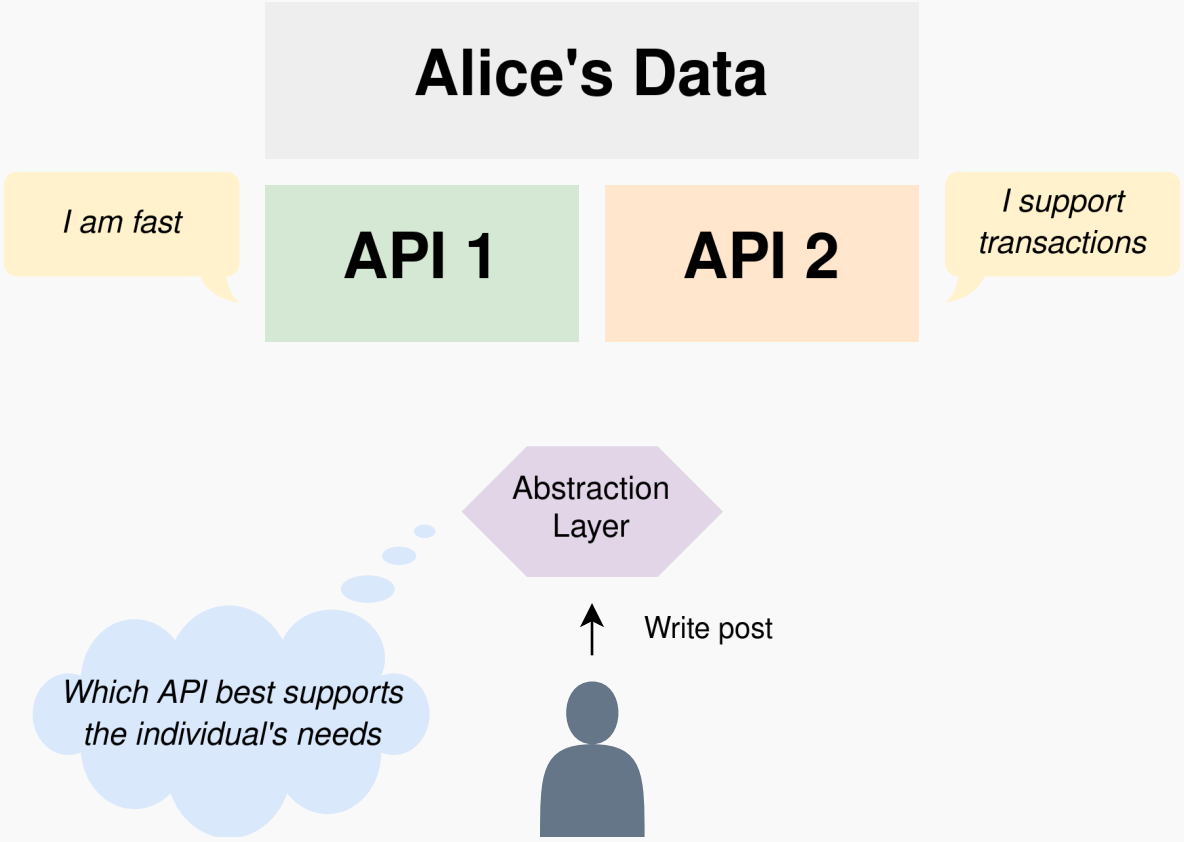
WP 1: Data store exposes multiple update interfaces



WP 2: Interfaces are self-descriptive

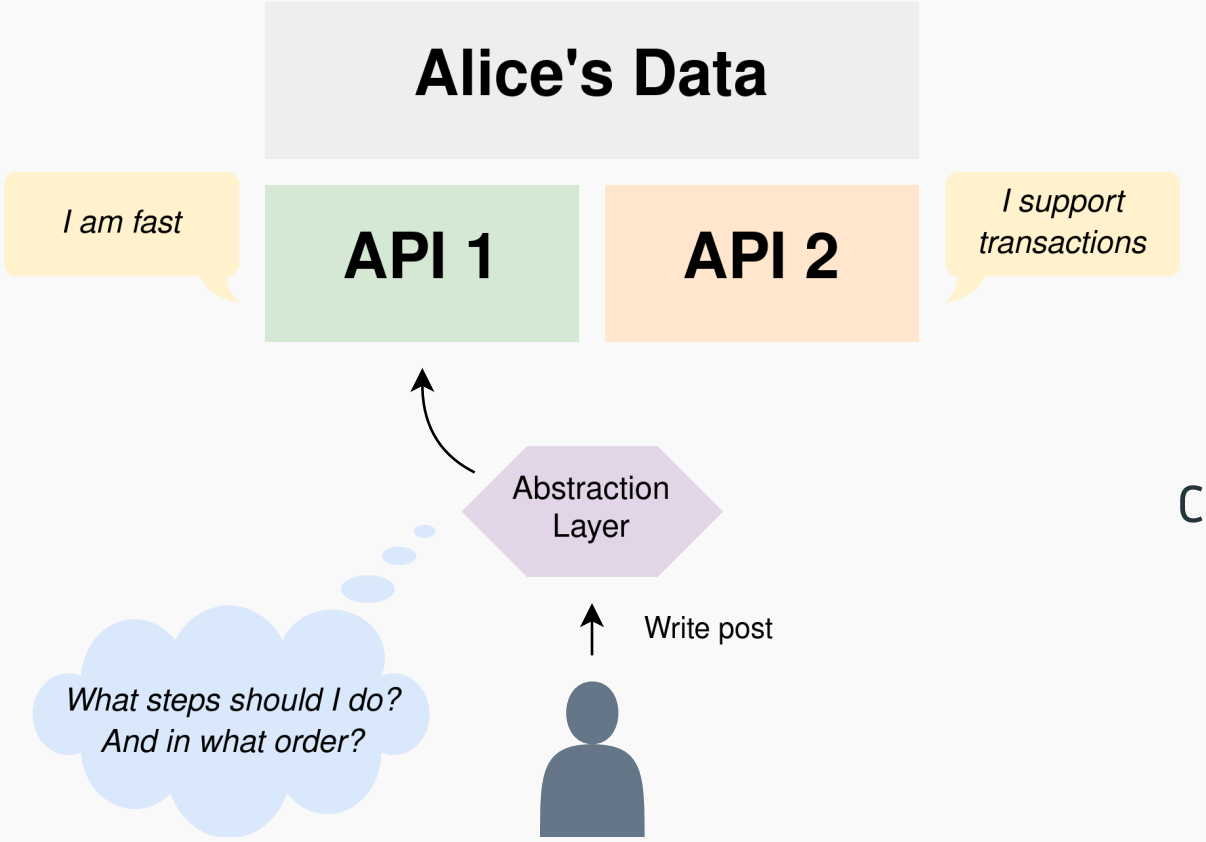


WP 2: Discover data store interfaces & select



3 years experience:

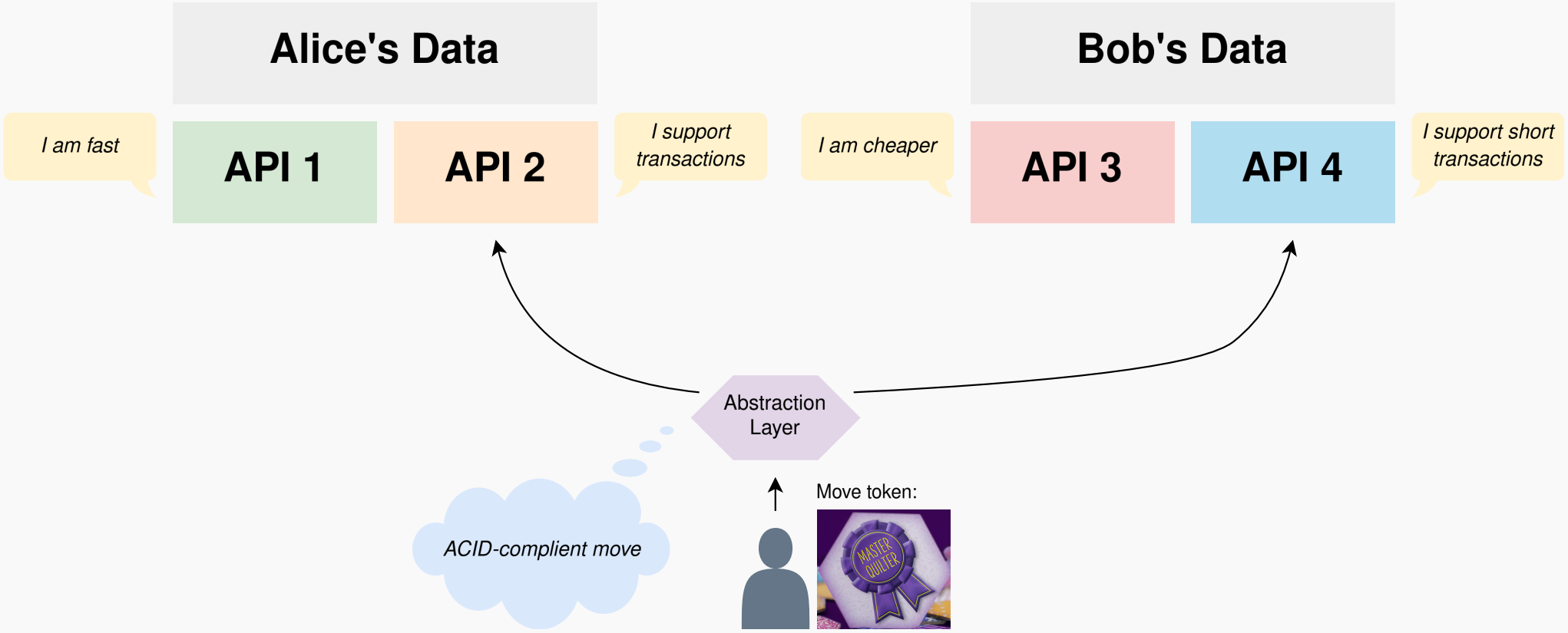
WP 2: Update query plan for a single permissioned data store



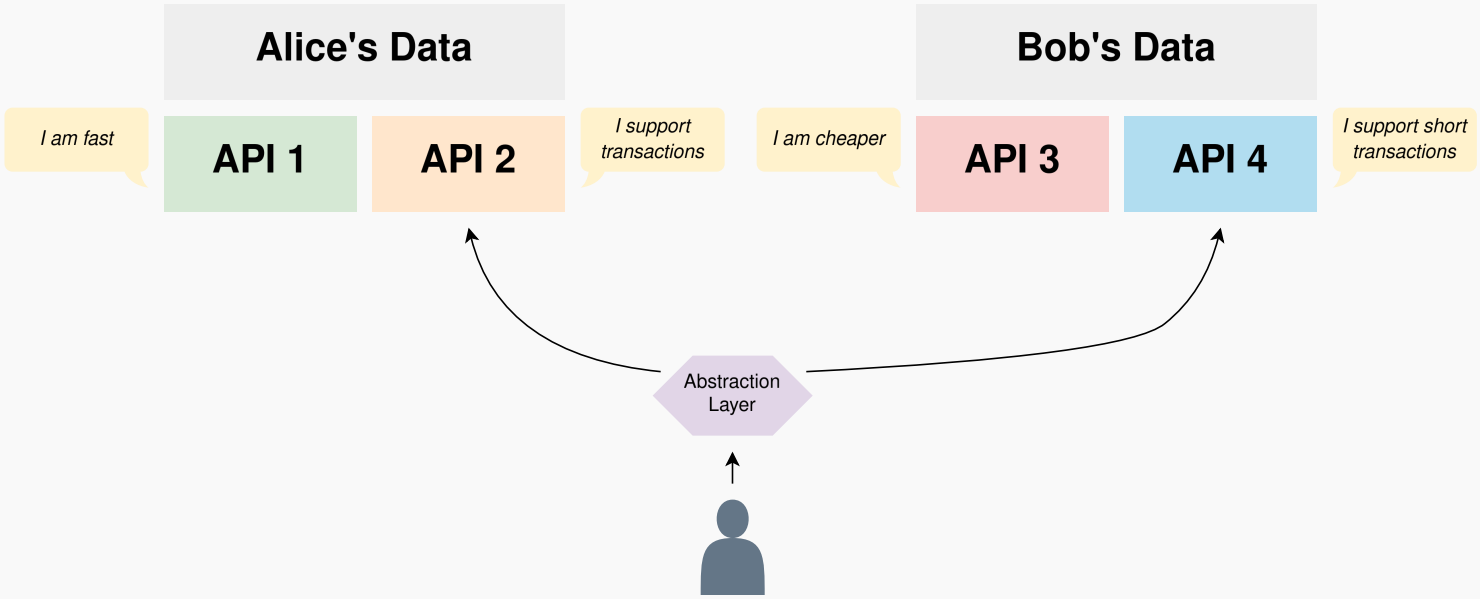
Collaboration with:

TU WIEN

WP 3: Update query processing across heterogeneous interfaces



Conclusion

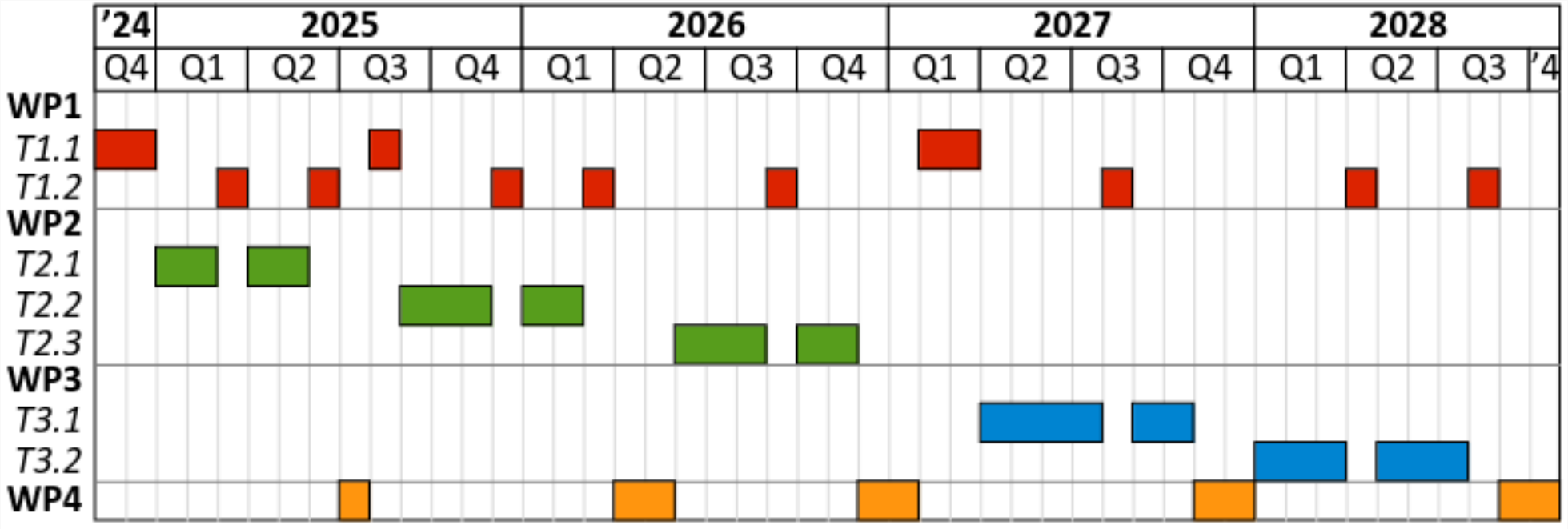


- ✓ Insight to update interfaces
- ✓ Insight to update query planning

- ✓ Relieves SMEs cost
- ✓ Data quality
- ✓ Sparks innovation

Supplemental slides

Work Plan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WP3
T3.1
T3.2
WP4

Risks

- **Expressivity turn out infeasible**
  Migration: Statistical approach
  Cost: Loss of accuracy
- **Many interesting interfaces**
  Migration: Smaller selection
  Cost: Loss of heterogeneity
- **Update query planning too complex**
  Migration: Focus on single algorithm
  Cost: Loss of quality
- **Cross interface transactions cause infeasible overhead**
  Migration: Focus on native within-data store-transactions
  Cost: Loss of innovation

AI

- RAG to a single store so the AI really becomes a companion of your life
- NLP of natural language to query

Why me?

Jitse De Smet

- Fresh graduate, ready for the challenge
- Excellent study trajectory
- 3 years of development experience with research query engine
- Deep exposure to topical complexities through Master's thesis