Invited Guest Lecture
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TRANSPORTATION INFORMATICS: from simple to advanced use cases

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About Your Lecturer...

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- 15 y. of experience in applying IT in Engineering
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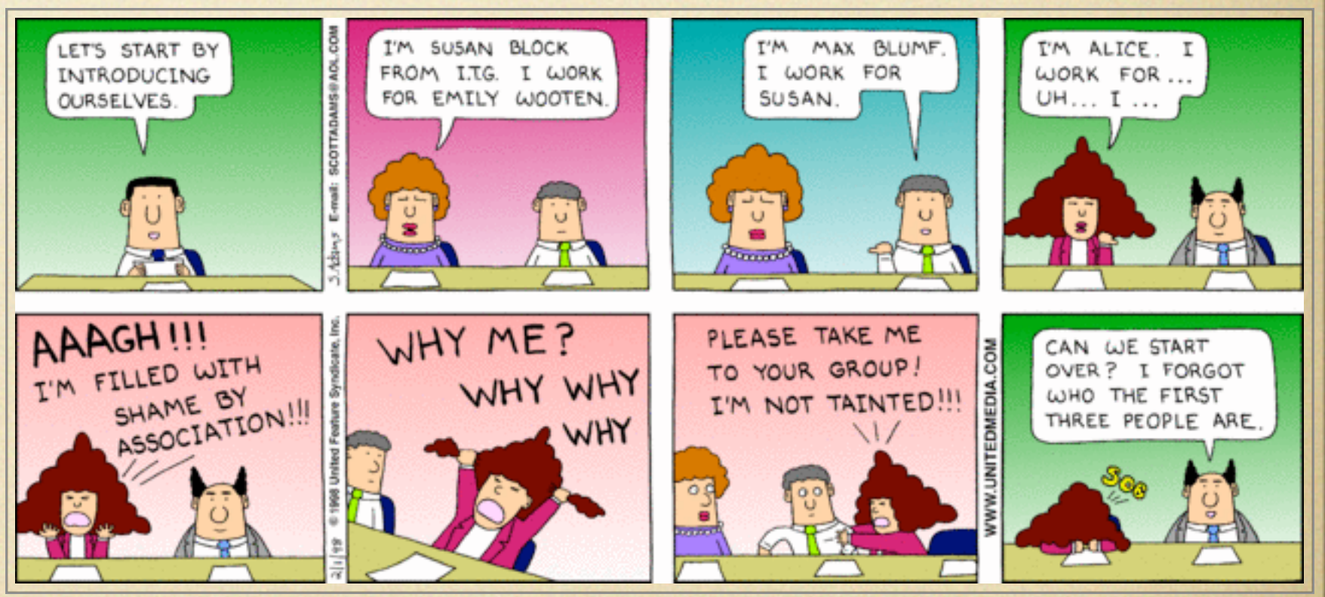
How About You...?

- Please introduce yourself?
- What are your expectations for this lecture?
- What do you want and/or need to get out of it?
- Your experience in transportation informatics?



Today's Lecture Workflow

- 1. What is transportation informatics?
- 2. Use case 1: Specification requirements for SUZA
- 3. Use case 2: Real-time GIS in public transport
- 4. Use case 3: SIJPRIS - GIS for the Management of Public Passenger Transport
- 5. Standardization of information models for public transport

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1. What is transportation informatics?

- “Transportation informatics” (alternatively “traffic informatics”, “Verkehrsinformatik” in german) is derived from the domains of traffic (technology, planning & design, traffic safety, mobility research), logistics and navigation. It aims to apply and develop computer science and informatics to solve practical and teoretical problems in these domains.
- Early beginnings:
  - GYÖRGY WESTSIK Verkehrsinformatik. - Ein Einführung. Berlin: Transpress-Verl., 1989, 1. Aufl., 109 S., brosch. (3-344-00368-2) ISBN/ISSN 3-344-00368-2.
- Today:
  - new disciplines: freight informatics
- Our research in transportation informatics:
  - TIBAUT, Andrej, KAUČIČ, Branko, REBOLJ, Danijel. A standardised approach for sustainable interoperability between public transport passenger information systems. Comput. ind.. [Print ed.], Oct. 2012, vol. 63, iss. 8, str. 788-798, doi: 10.1016/j.compind.2012.08.002.

public passenger transport

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1. What is transportation informatics?

- Some fields of application:
  - management and integration of traffic/transportation systems (ITS)
  - integration of multimodal public transport systems (train, bus, coach, metro, tramway, ferry, ski lifts, aerial trams/cable cars)
  - accessibility of public passenger transport
  - public transport demand & supply
  - electronic toll collection

What is the role of traffic engineer?

SLO: optimal radius <500m

UK: Thames cable car

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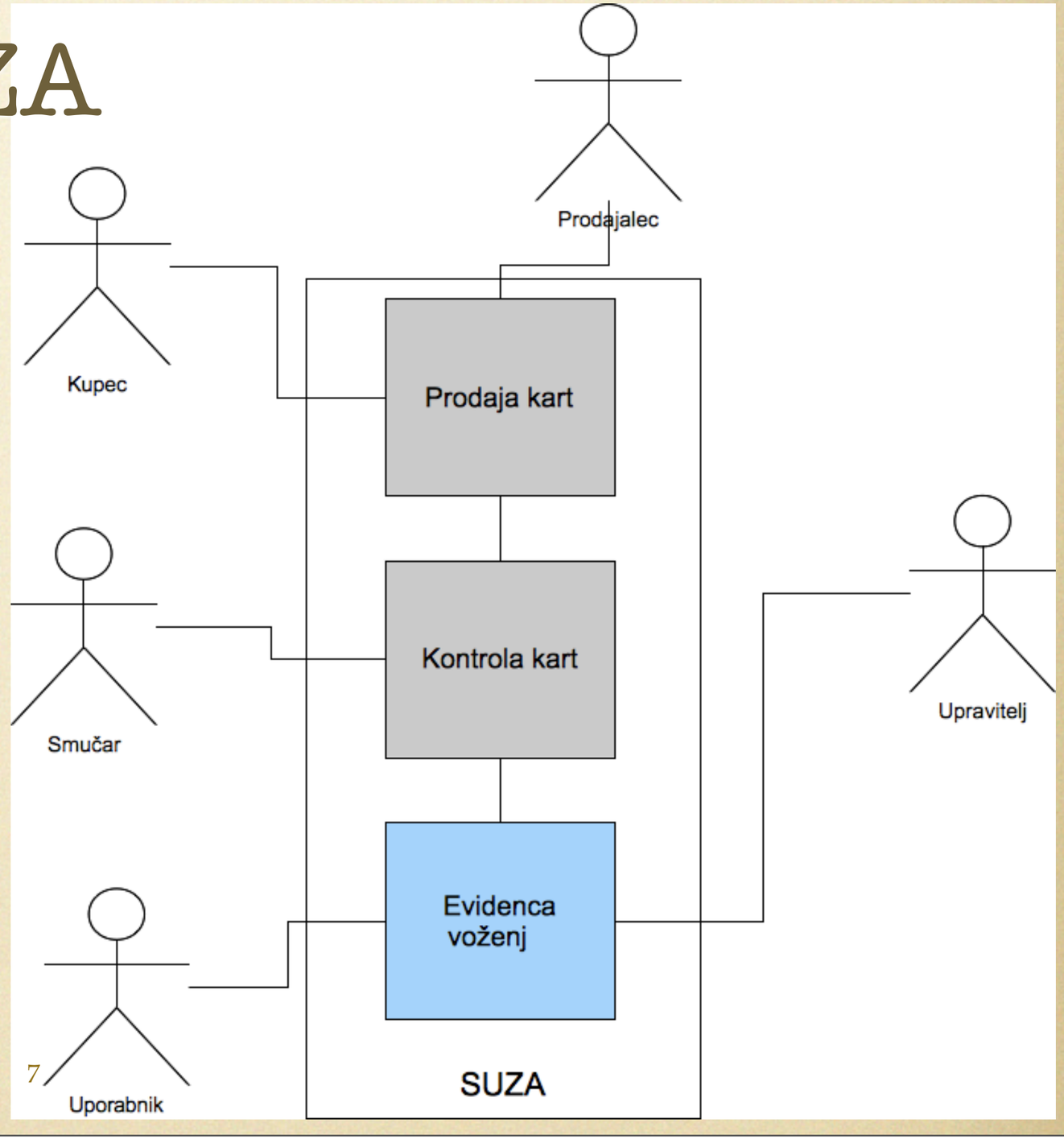
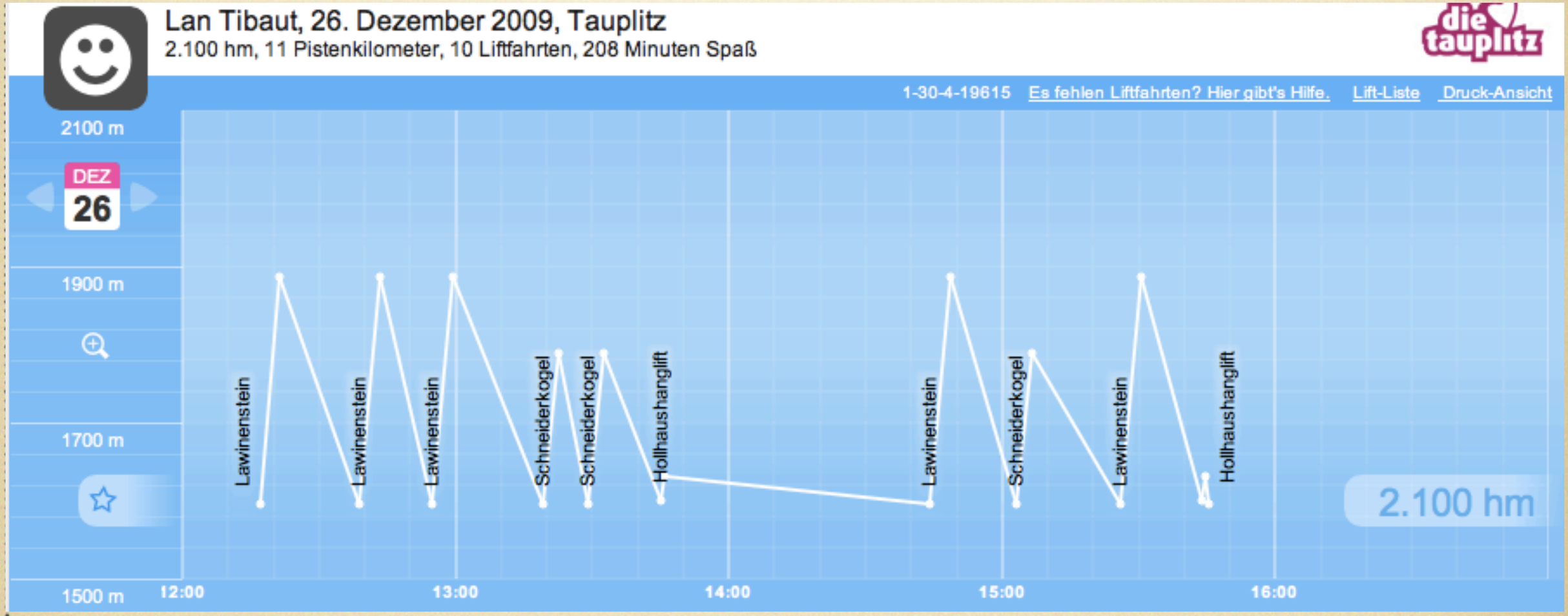
2. Use case 1: SUZA

- SUZA = Sistem za Spremljanje Uporabe Žičniških Naprav (System for monitoring of ski lift usage)

Traffic engineer contributes to the writing of Software Requirements Specification Document



2. Use case 1: SUZA



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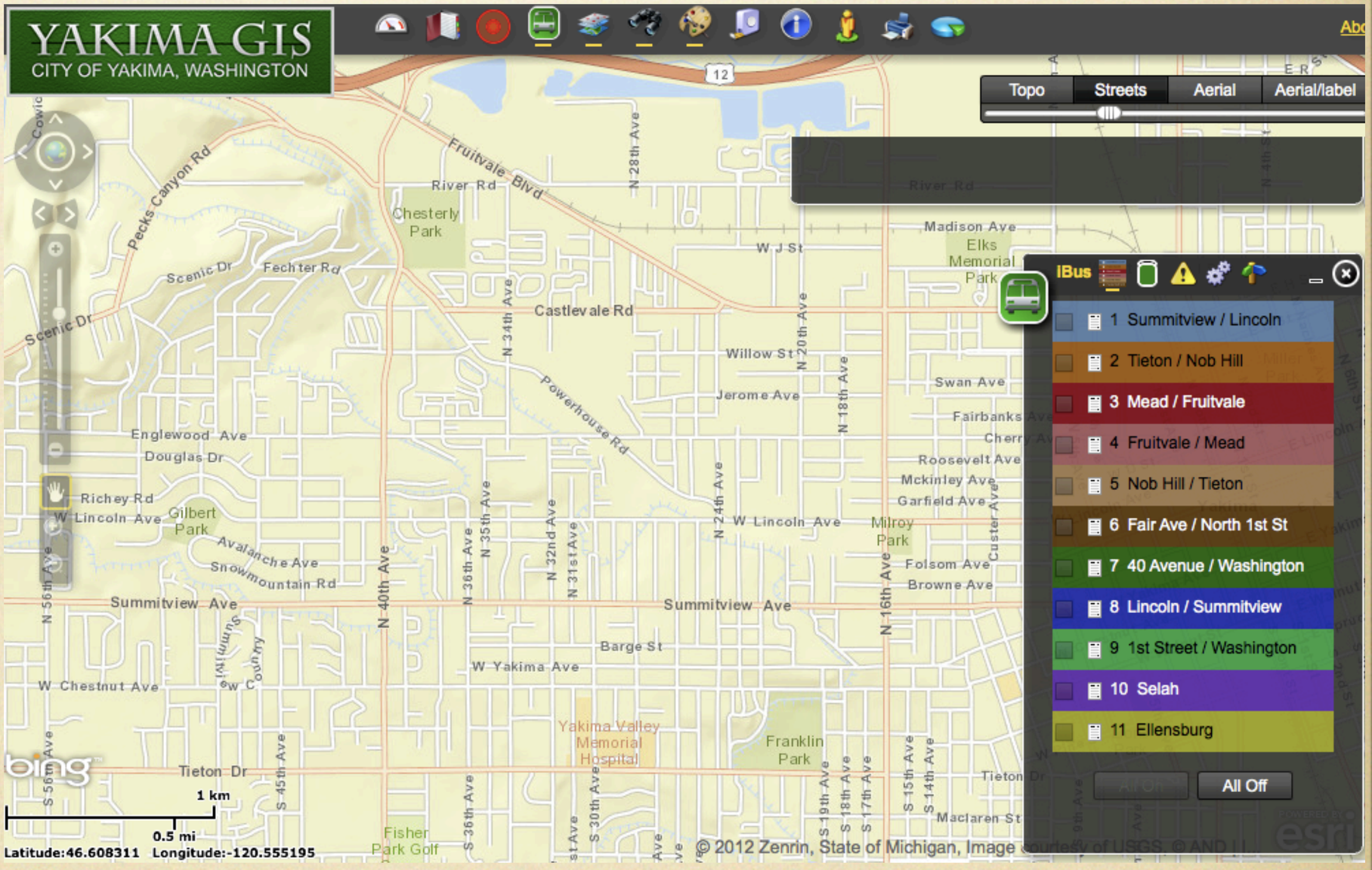
3. Use case 2: Real-time GIS in public transport

- Use of GIS (Geographic Information Systems) for realtime GIS display of bus time schedules and vehicle positions
- city of Yakima (Washington, USA)
- http://www.ci.yakima.wa.us/gis/iBus/index.html



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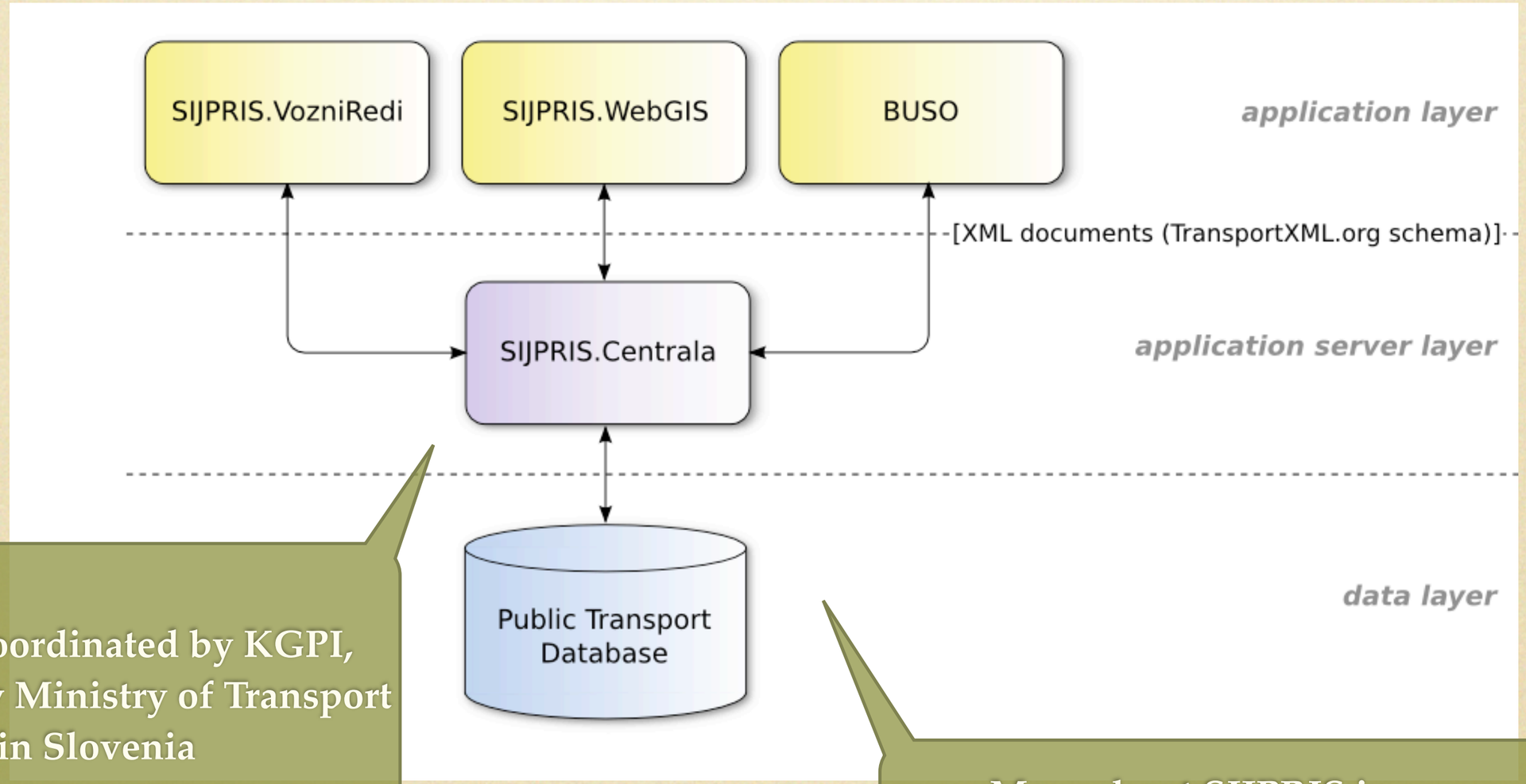
4. Use case 3: SIJPRIS - GIS for the Management of Public Passenger Transport



Project coordinated by KGPI, financed by Ministry of Transport in Slovenia

More about SIJPRIS in a paper here

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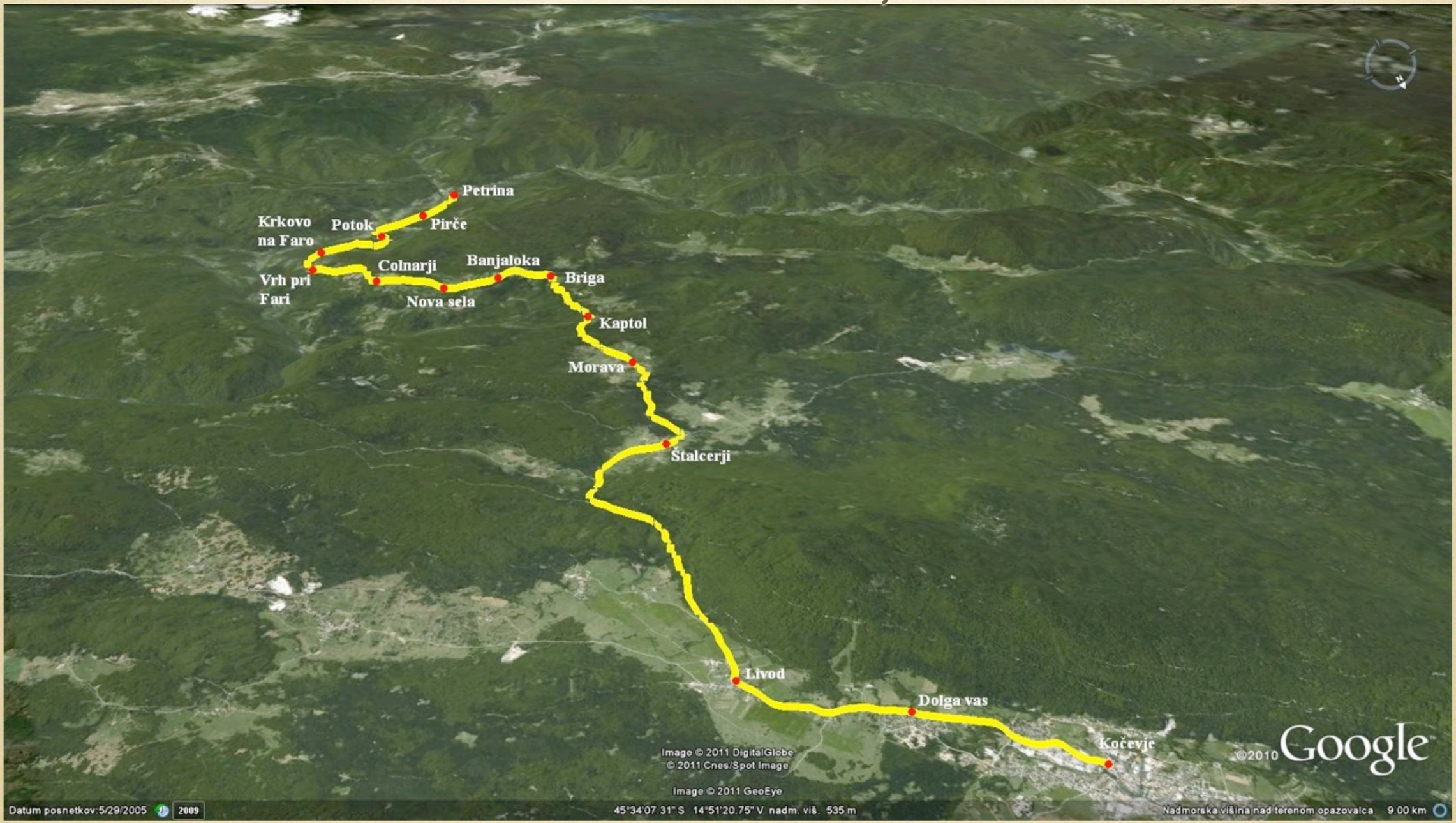
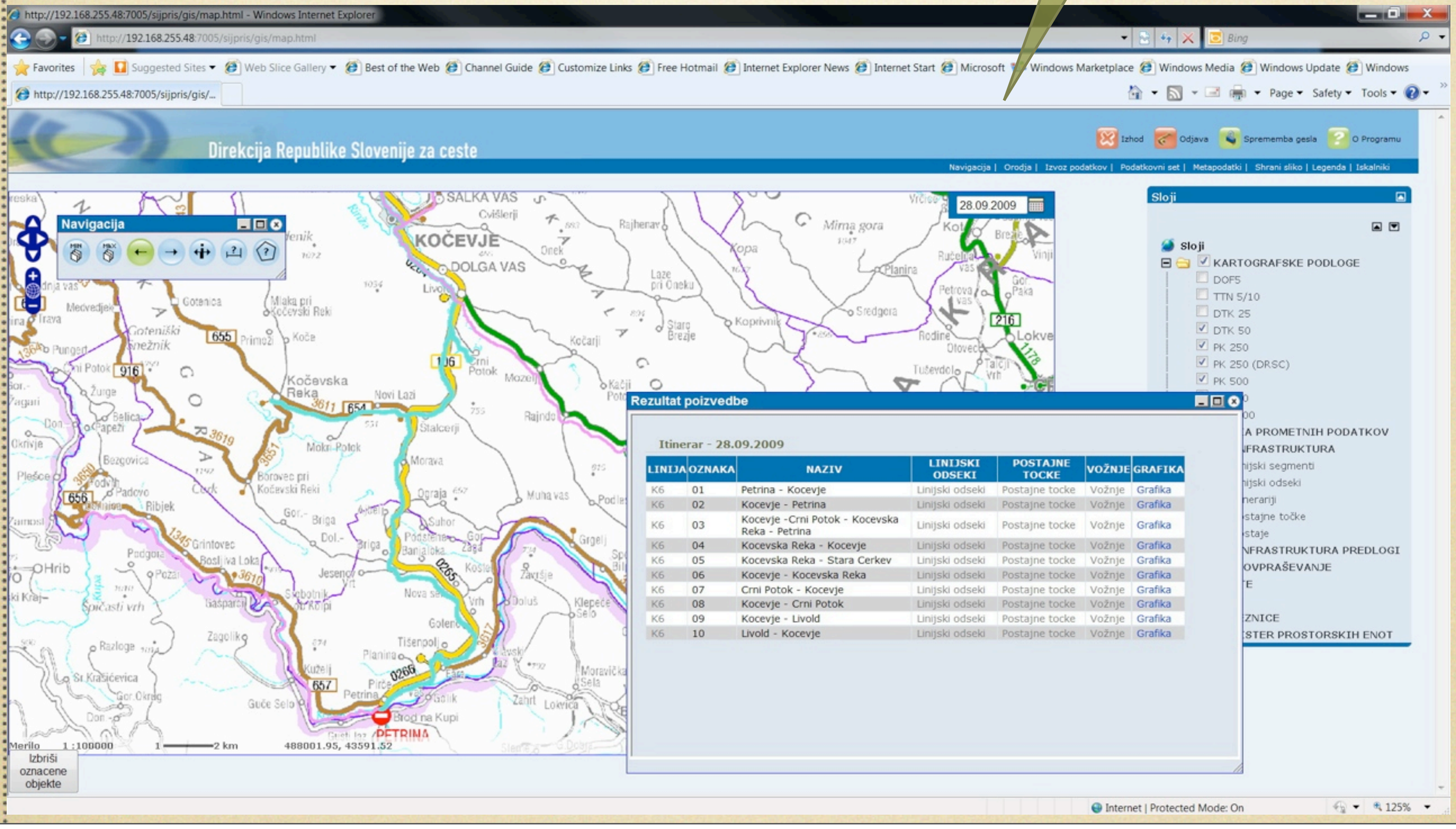
4. Use case 3: SIJPRIS, bus line K6



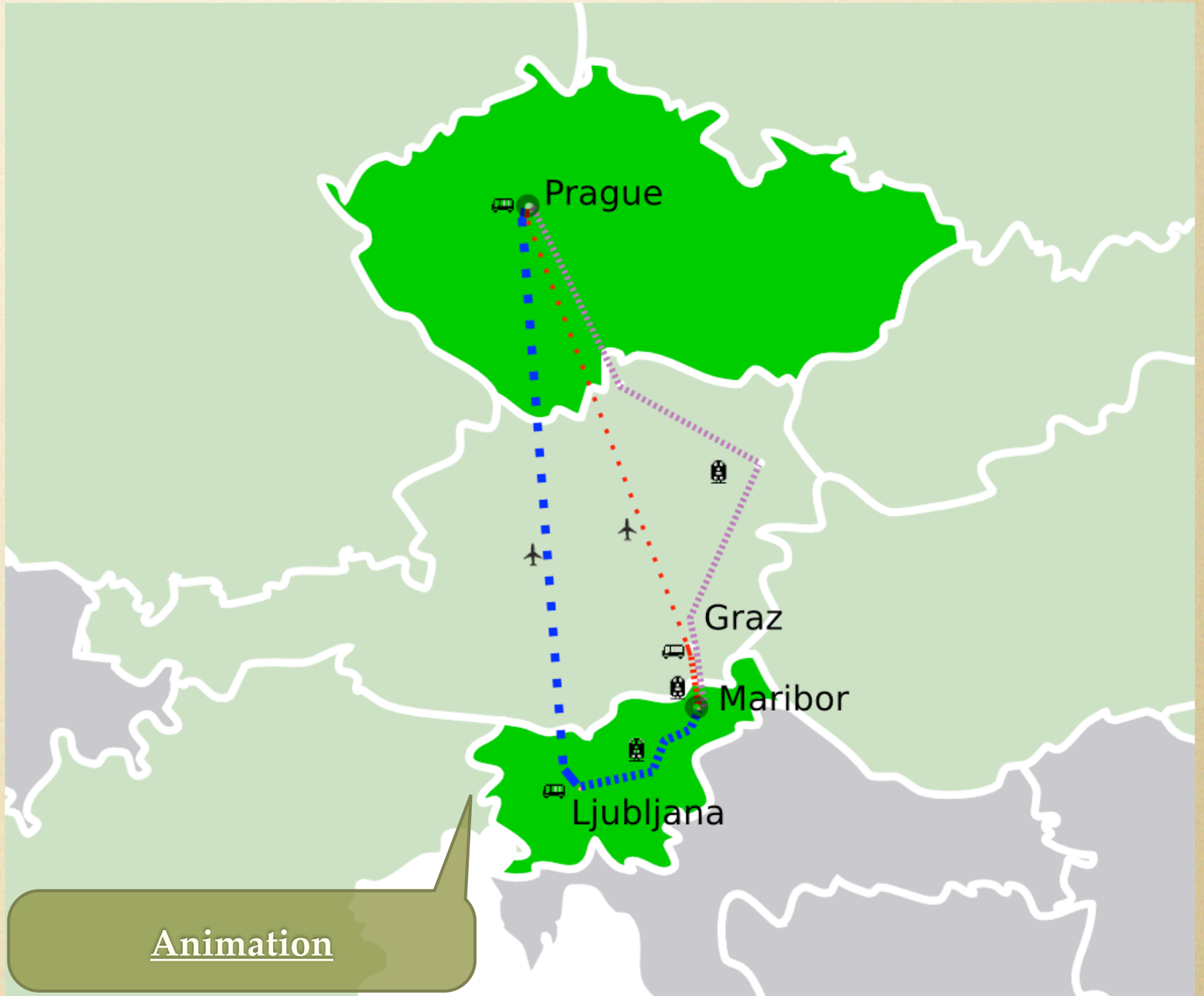
4. Use case 3: SIJPRIS

Timetable exchange



5. Standardization of information models for public transport

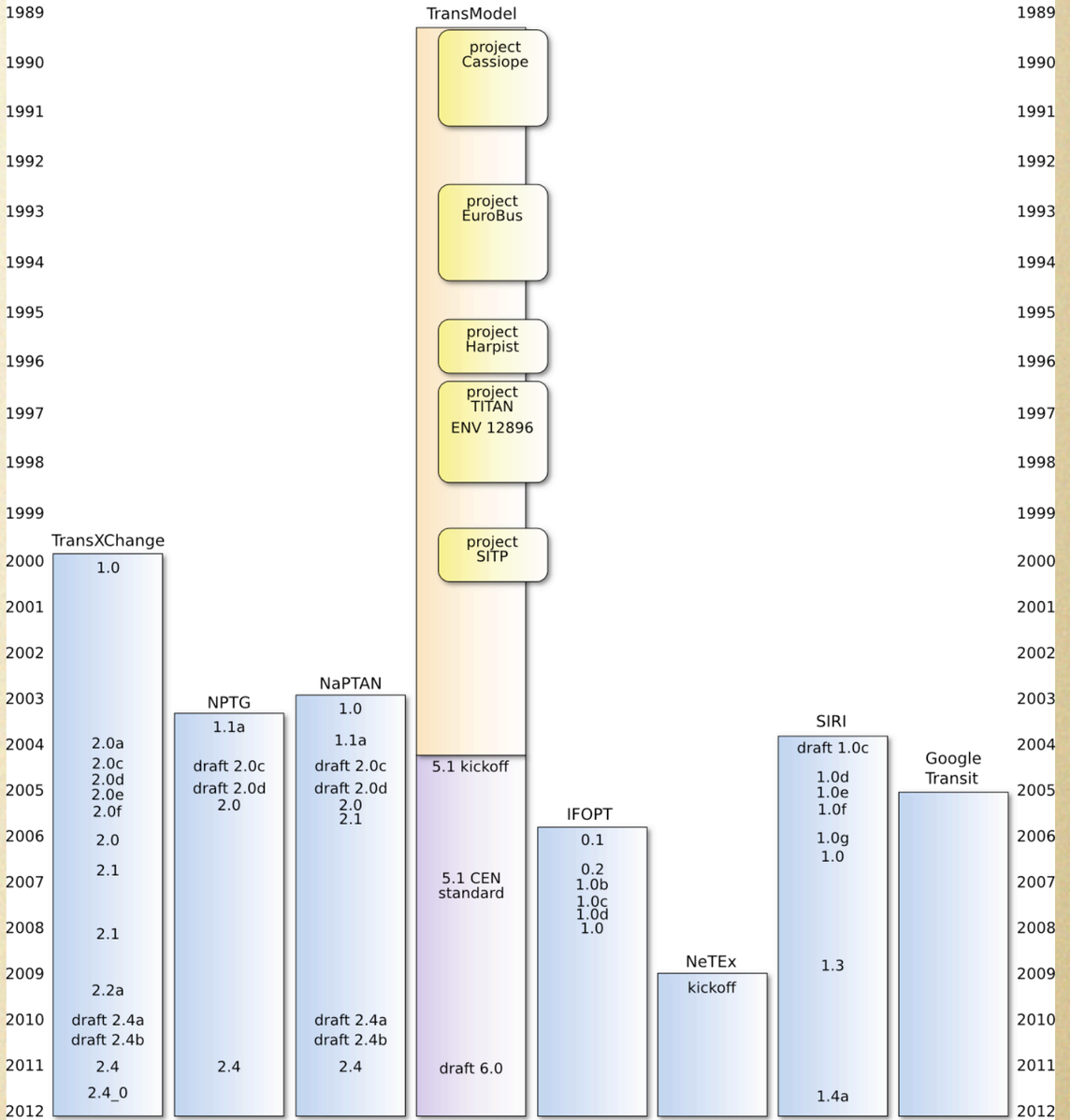
- Three possible itineraries between Maribor and Prague
- Can we use single information service to plan entire journey?
  - **NO!**
- Why not?
  - **Data are not interoperable!**
- How to integrate data from all different passenger information systems when planning a journey?



5. Standardization of information models for public transport

- Standardization work at CEN (European Committee for Standardization) enables exchange of public transport data across different public passenger information systems
- Diagram shows generations of information models in different countries for data exchange in public transport

- **More about the topic in our paper published in Computing in Industry**: TIBAUT, Andrej, KAUČIČ, Branko, REBOLJ, Danijel. A standardised approach for sustainable interoperability between public transport passenger information systems. Comput. ind.. [Print ed.], Oct. 2012, vol. 63, iss. 8, str. 788-798, doi: 10.1016/j.compind.2012.08.002.



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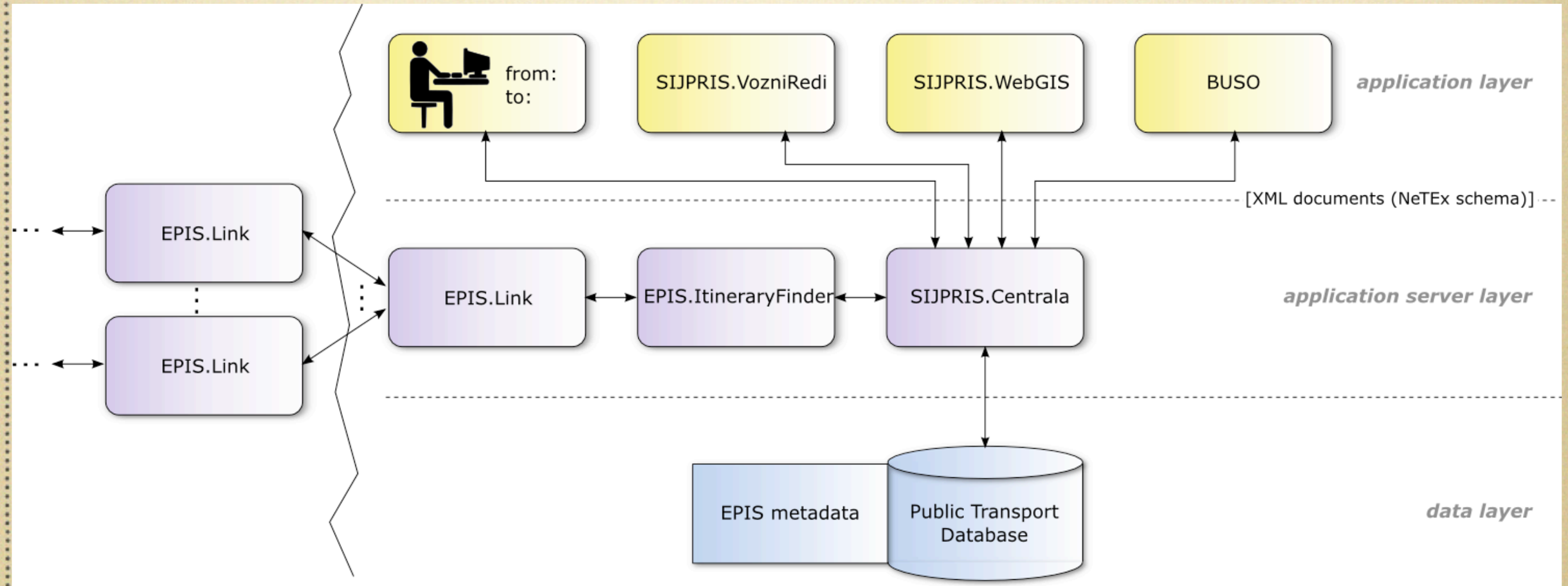
5. Standardization of information models for public transport

SIJPRIS upgrade for passenger information systems interoperability



I wish you to be great traffic engineers!

THANK YOU!

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