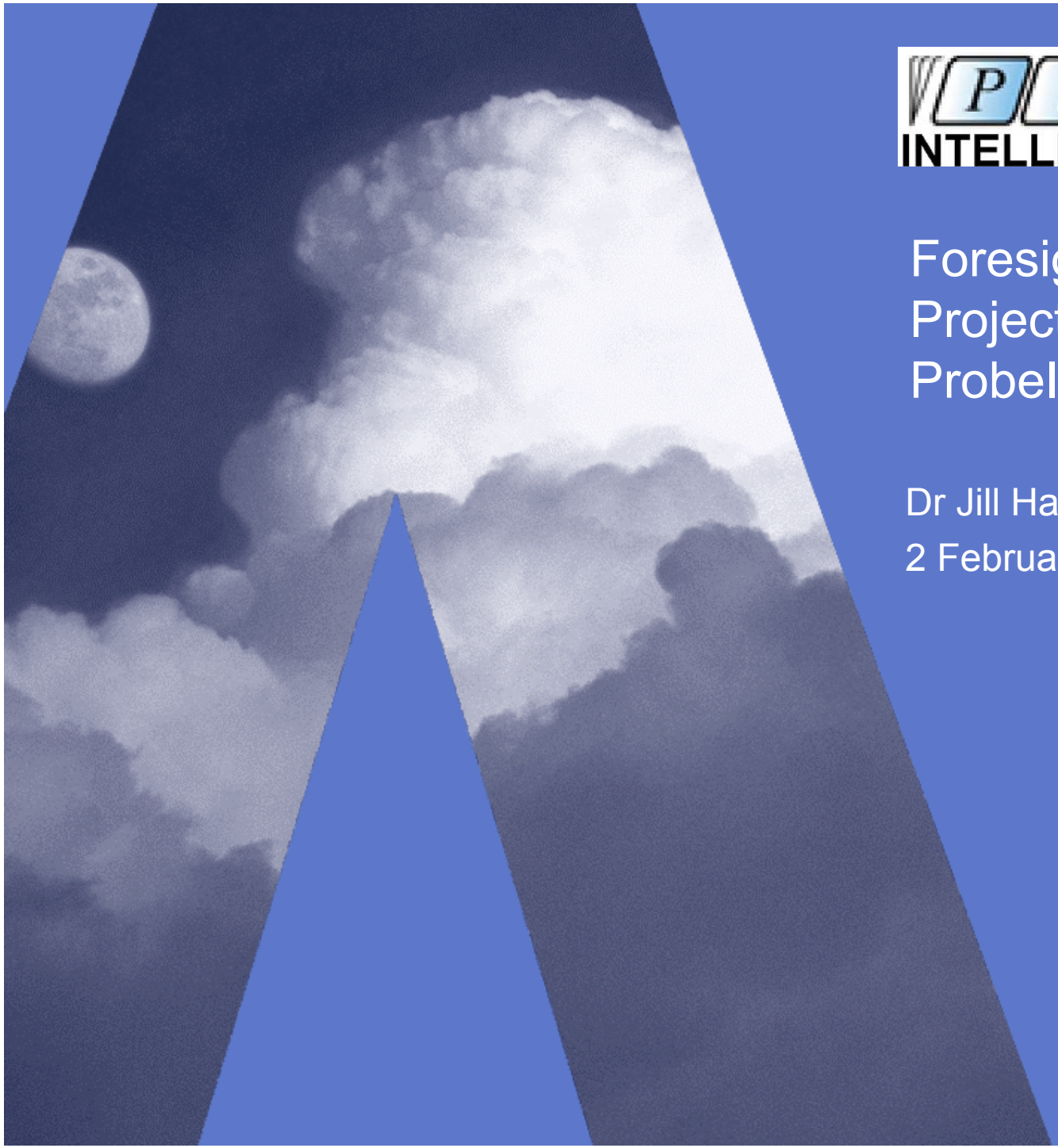


ProbeIT
INTELLIGENT TRANSPORT

Foresight Vehicle Project Completion Day: ProbeIT

Dr Jill Hayden

2 February 2006

ATKINS

Introduction

ProbeIT INTELLIGENT TRANSPORT

- ProbeIT PM was Filip Hermans
- Costs:
  - Total project spend £ 960,220
  - 50% funded by HA
- Structure of presentation:
  - Partners
  - Objectives
  - Achievements
  - Plans for the future

Consortium

ProbeIT INTELLIGENT TRANSPORT

Atkins

Navigation Technologies

Transportation Research Group

Jaguar Cars Ltd

Essex County Council

Highways Agency

Kingston University

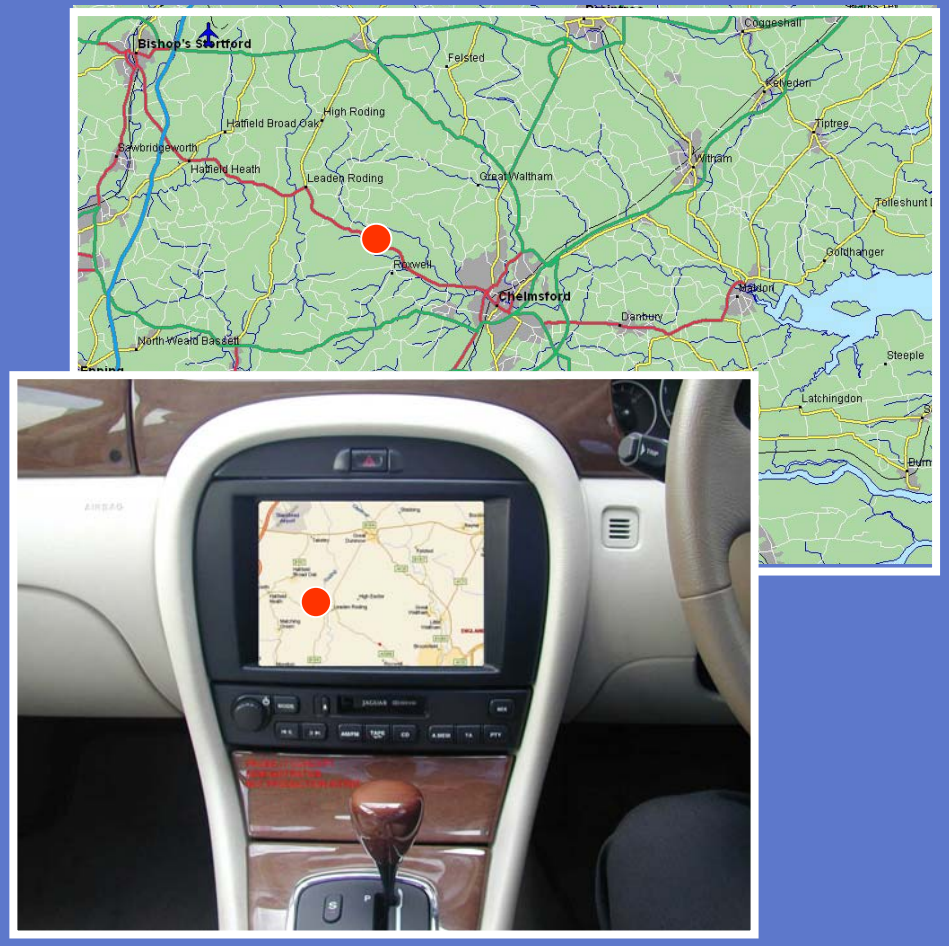
Objectives

ProbeIT INTELLIGENT TRANSPORT

- The ProbeIT objective was to develop a process (end-to-end) for the sourcing and exchange of position-related information between
  - traffic management systems
  - a uniform data source
  - vehicles
- The aim was to provide timely and accurate location based information in the vehicle using a telematic link to enable Next Generation Advanced Driver Assistance Systems (ADAS).
- Three phases
  - non-dynamic data flow
  - dynamic data flow
  - floating vehicle application

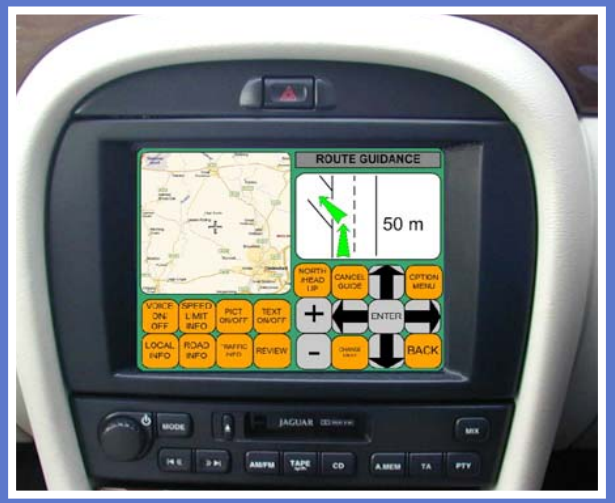
Phase 1

- Non-dynamic data flow
  - digital maps for navigation – underlying map data



Phase 2

- Dynamic data flow
  - ‘static’ speed limits and parking restrictions
  - dynamic navigation
  - real-time variable speed limit information
  - real-time traffic information



Phase 3

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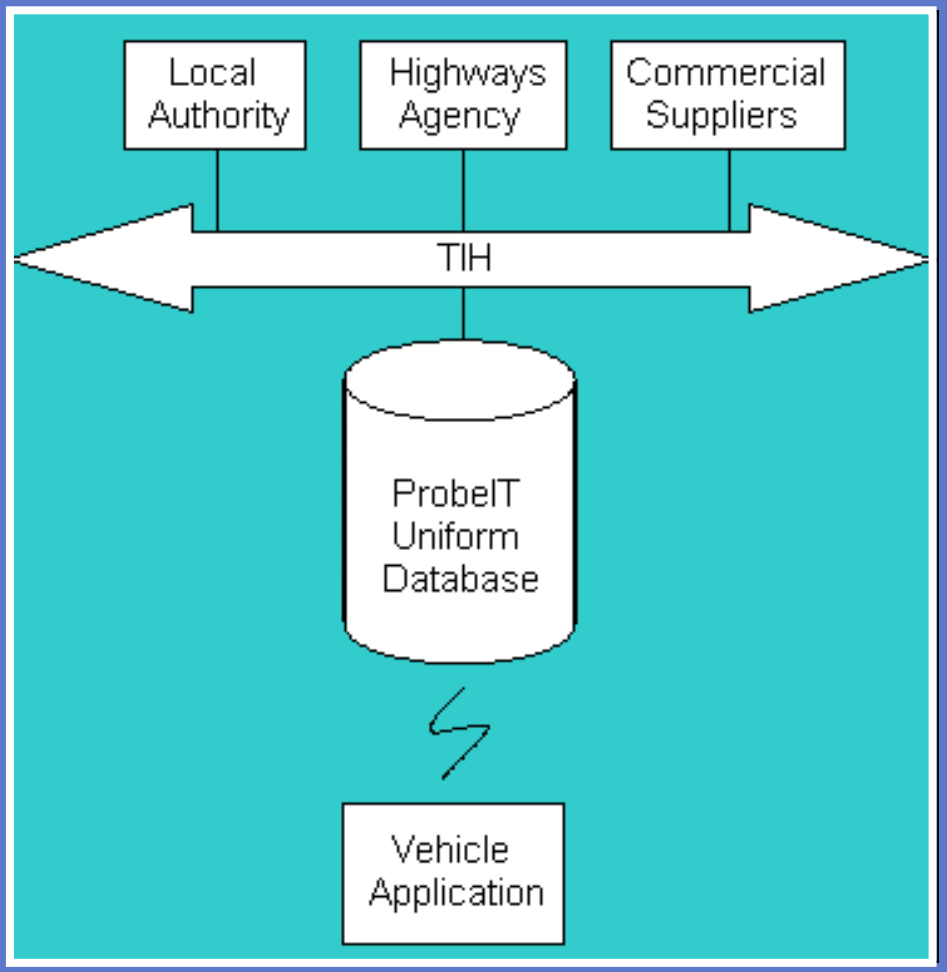
- Advanced probe vehicle information
  - roadworks
  - airbag alert

- (proved but not fully integrated during project)

Framework design

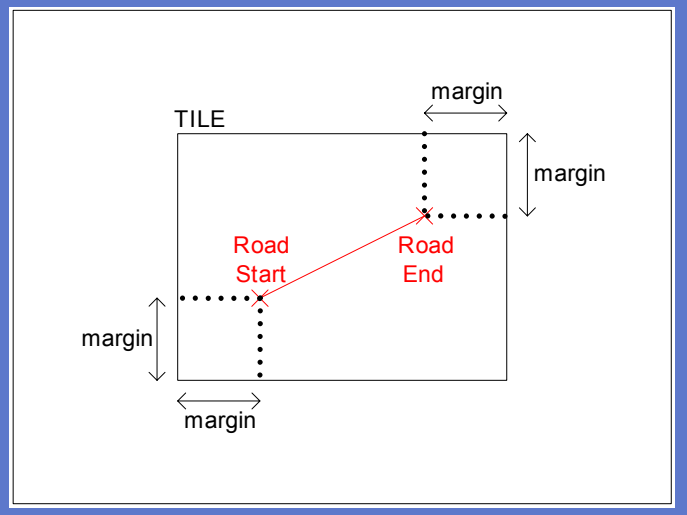
- ProbeIT open architecture model

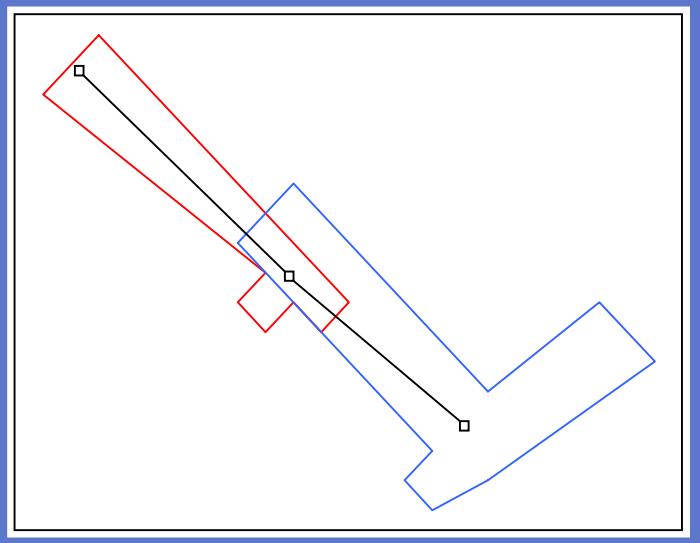


Achievements: Acquisition of static information

ProbeIT INTELLIGENT TRANSPORT

- Speed limits and waiting restrictions in Essex
- Location referencing depends on format
  - Road centrelines for speed limits – use road name and end points
  - Zones for parking restrictions – find intersections between zone and ProbeIT segments
- Match location to ProbeIT database
- Specify information type

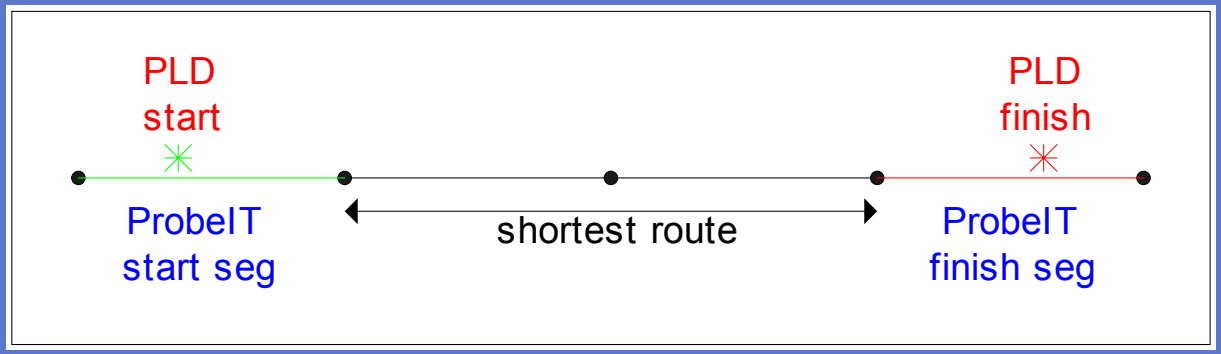




Achievements: Acquisition of dynamic information

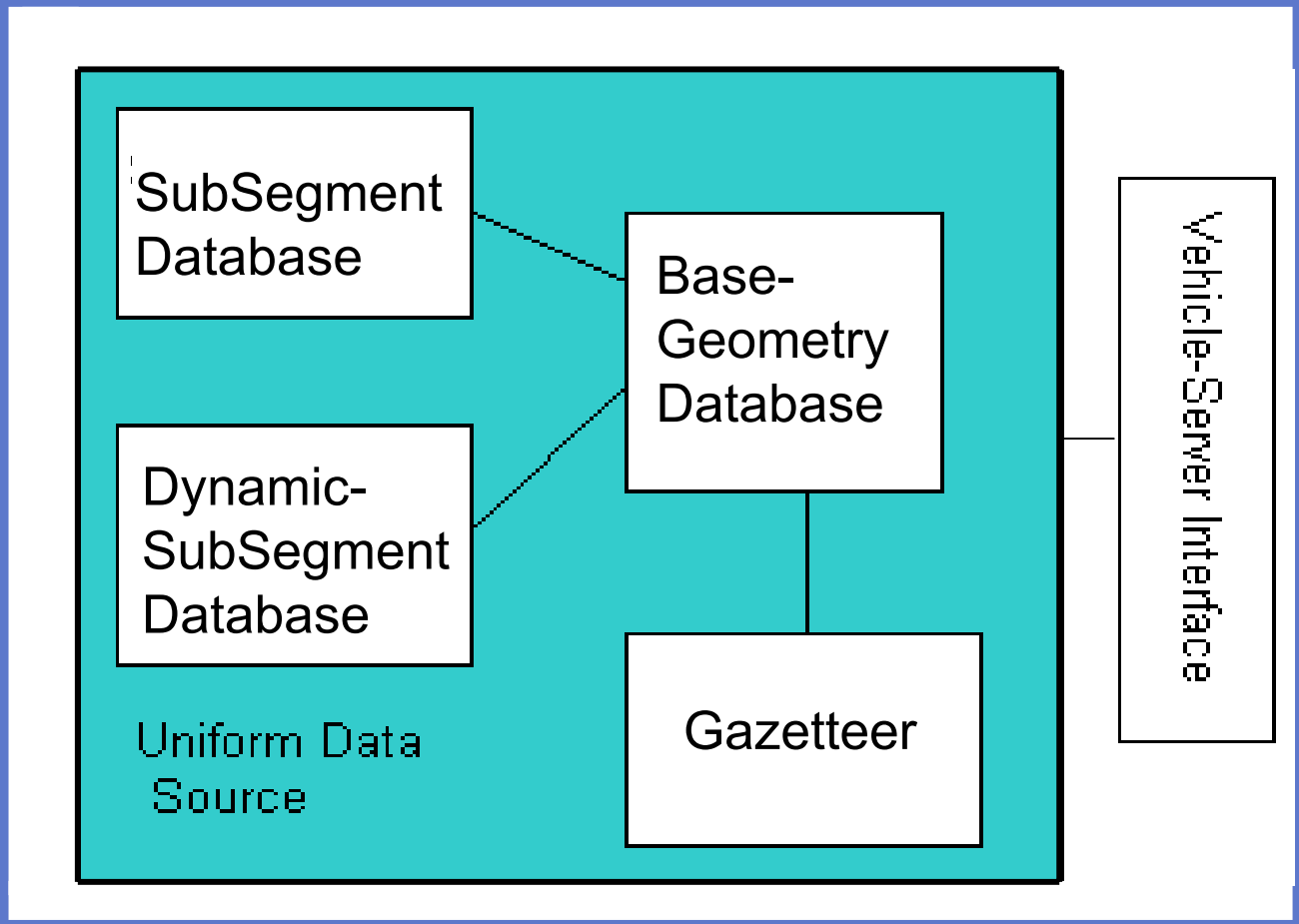
- Variable speed limits on M25
- Accessed using TIH, QMISS CORBA-based information service
- Match information to location in ProbeIT database

- Location referencing uses Point Level Database
  - Fixed Point Marker Post ID for start and end
  - Match bearing between point and segment for each PLD point
  - Identify route between start and end segment



Achievements:
Server architecture

- Uniform data source
- Sub-segment information types



Achievements:
Vehicle-server interface

ProbeIT INTELLIGENT TRANSPORT

- CORBA Interface defined in IDL methods and data structures
- Data partitioning – IDL structures
  - BaseGeometryTile
  - DynamicTile
  - MapDrawingTile
  - Lexicon
  - Gazetteer

Cellular Link

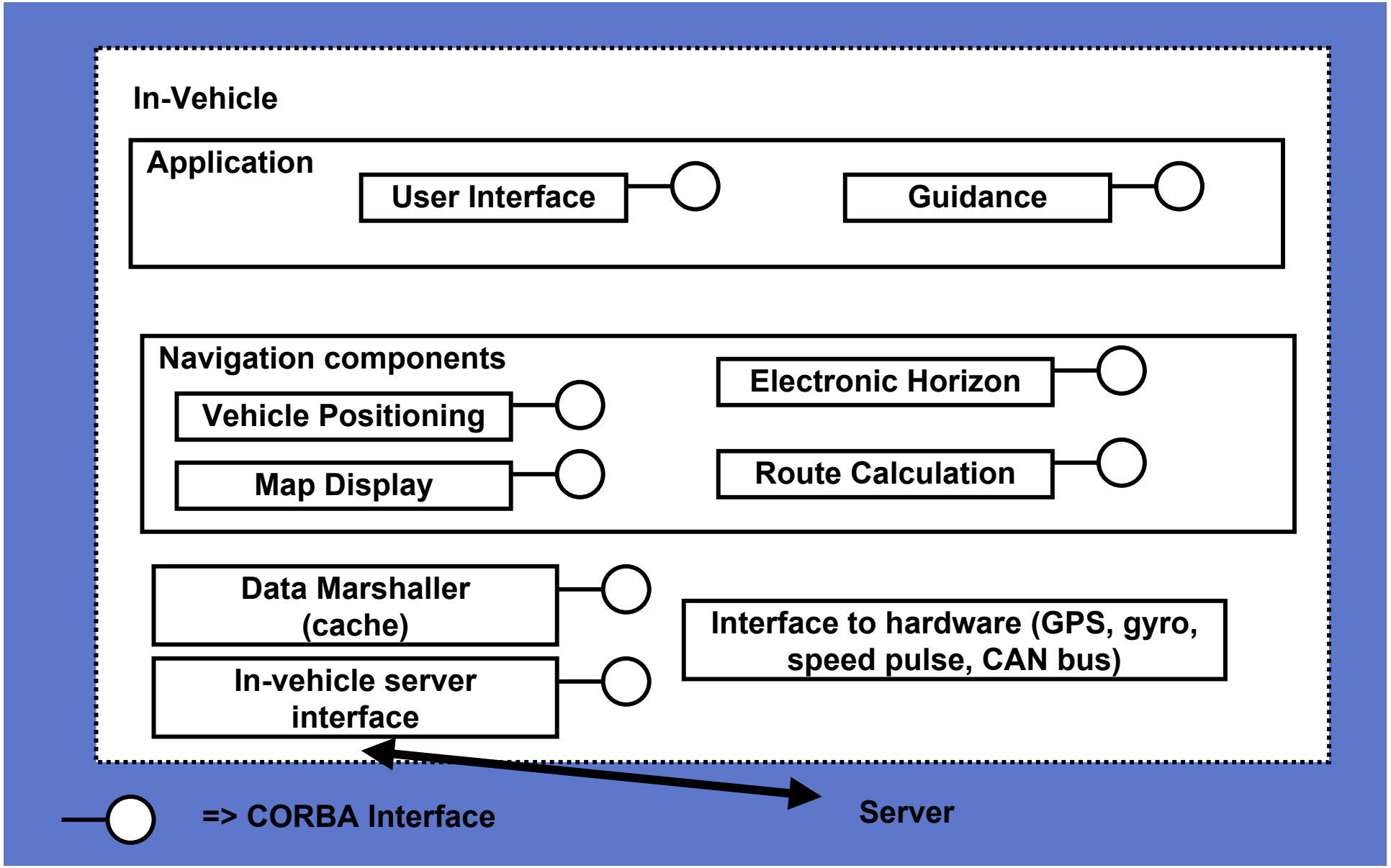
ProbeIT Server

In-vehicle server interface adapting custom protocol to CORBA IDL

Vehicle

- Custom protocol
- Raw sockets transport
- Compression

Achievements:
In-vehicle application



Further Work

ProbeIT INTELLIGENT TRANSPORT

- National speed limit database (SLD)
  - Atkins performed feasibility study for DfT
  - very positive business case
  - wide support for database and in-vehicle speed limit information
  - DfT ITS policy framework – considering options for SLD and also Road Information Framework (RIF)
- Possibility for links between ProbeIT concept and
  - ISA
  - CVHS
  - RUC
  - location-related vehicle safety applications

Further Work

PROBE IT INTELLIGENT TRANSPORT

- In-vehicle systems will be available within 3-5 years assuming the data is available
- Many manufacturers and map providers are interested

- NAVTEQ demonstrated Vehicle Infrastructure Integration (VII) technology at the ITS 2005 World Congress
  - location and severity of road hazards
  - probe vehicles provide information
  - information is processed
  - broadcast to vehicles