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## Data Aggregation in the area of traffic – concepts and realization in a service-oriented architecture

17<sup>th</sup> April 2003

In our project OVID (<http://www.ovid.uni-karlsruhe.de/>) the overall goal is to analyse the influence of information technology, especially new IT services for traffic participants and the ubiquity of information in that mobile and dynamic area, on traffic itself and on the self-organizational aspect of traffic.

The focus of this work lies on the aggregation of data in that distributed and mobile environment. Data arises on a raw level, as, e.g., sensor data or floating car data (fcd) which result from measuring of the real traffic, but also in a more elaborated form as, e.g., state of traffic nets, prognostic data about the amount of traffic, or even on a highly aggregated level of traffic data as input for simulations in political economy.

Data aggregation in the context of traffic has to be analysed, requirements, characteristics and properties of the data and their relationships have to be determined, and concepts for supporting data aggregation applying data warehousing techniques have to be worked out.

We will look at the system in a service-oriented manner. To provide access to raw data or aggregated data is the task of an information service, other services are, e.g., aggregation operators, or simulators, or prognostic tools in order to determine routing information, etc. In this sense, the information services form some sort of service hierarchy. The traffic environment implies several characteristics resulting from the mobility aspect: the vision is, that services are available at any time and at any location, but in order to reach this quality of services we have to handle with aspects of mobile services, e.g., they are partly location-dependent, are not all the time available, or we have more than one service instance for the same service, but possibly with different quality properties. In that open distributed information system, we want to find information sources in a dynamic way.

The concepts of service-oriented architectures seem to be very suitable to support information services in the traffic environment. So we propose that the prototypical implementation should be based on a recently very prominent service-oriented architecture, i.e. web services.