

REALISTIC BENCHMARKS FOR POINT CLOUD DATA MANAGEMENT SYSTEMS

Prof. Dr. Peter Van Oosterom (Delft University of Technology, The Netherlands)

Lidar, photogrammetry, and various other survey technologies enable the collection of massive point clouds. Faced with hundreds of billions or trillions of points the traditional solutions for handling point clouds usually under-perform even for classical loading and retrieving operations. To obtain insight in the features affecting performance the authors carried out single-user tests with different storage models on various systems, including Oracle Spatial and Graph, PostgreSQL-PostGIS, MonetDB and LAStools (during the second half of 2014). In the summer of 2015, the tests are further extended with the latest developments of the systems, including the new version of Point Data Abstraction Library (PDAL) with efficient compression. Web services based on point cloud data are becoming popular and they have requirements that most of the available point cloud data management systems cannot fulfil. This means that specific custom-made solutions are constructed. We identify the requirements of these web services and propose a realistic benchmark extension, including multi-user and level-of-detail queries. This helps in defining the future lines of work for more generic point cloud data management systems, supporting such increasingly demanded web services.

Biography



Peter van Oosterom obtained his MSc Technical Computer Science in 1985 at the Delft University of Technology and his PhD in 1990 at Leiden University. From 1985-1995, he worked as a computer scientist (database and GIS research projects) at TNO. In the period 1995-1999, he held the position of senior information manager at the Dutch Cadastre. In this capacity he was involved in the design of cadastral and land information systems. On January 1st, 2000 he started as professor and head of the GIS Technology department at the Delft University of Technology. Since the formal take-off in 2005, Peter van Oosterom has participated in the core drafting team 'Data Specifications and Harmonisation' of INSPIRE ('Infrastructure for Spatial Information in Europe'), which aims to harmonise spatial information across Europe. Peter van Oosterom has a leading role in the development of ISO/TC 211 Geographic information/Geomatics, Geographic information, Land Administration Domain Model (LADM), IS 19152:2012. His research interests include spatial databases, GIS architectures, generalisation, spatial analysis, querying and presentation, Internet/interoperable GIS, and land administration. He is the current chair of the FIG Working Group on '3D Cadastres'.