Building a Prototype OpenGIS® Demonstration from Interoperable GIS Components

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Abstract. A software testbed was constructed by reusing components developed for a previous demonstration and by adding new components. These components were constructed using prototypes of software implementing early versions of the OpenGIS® Simple Features Specifications. The demonstration was presented at the Open GIS Consortium booth at GEObit in Leipzig, Germany in May 1998. The original demonstration from October, 1997 and the demonstration of May 1998 are described. Several issues regarding interoperability, data modelling, data scale, and usability are discussed. Data used in the demonstration include 1:1,000,000 scale Digital Chart of the World and 1:1,000 scale cadastral data for the city of Berlin. Technical issues are discussed and user feedback is presented.

1 Introduction

1.1 Background and Intention of the OGC/FGDC Demo

In August 1997, under the sponsorship of the Open GIS Consortium (OGC), a group of OGC members embarked on an ambitious demonstration [1][3] (which has subsequently become known as the FGDC demonstration, being named after its primary sponsor, the US Federal Geographic Data Committee) of how Open GIS would benefit the construction of distributed spatial applications. The decision to attempt the demonstration was made following the acceptance by the OGC Technical Committee of the OpenGIS® Simple Features Specifications for SQL, CORBA, and OLE/COM [5]. The specifications were accompanied by prototype implementations of the interfaces contained in the specifications. These

¹ OpenGIS is a trademark or service mark, or registered trademark or service mark, of the Open GIS Consortium, Inc. in the US and other countries.
² The software used in the demonstrations has not been tested for conformance to the Open GIS Consortium specifications, particularly given the fact that no such tests have been applied to any software at the date of the demonstrations. The specifications as they were available at the time were used in the construction of some of the software in order to provide a practical test of the specifications. Therefore the authors make no claims about actual conformance to current versions of the specifications.
implementations were to be used in the subsequent October FGDC demonstration. The driving force behind the FGDC demonstration was a scenario written by Doug Nebert of the US Federal Geographic Data Committee (FGDC). That scenario called for use of a geospatial clearinghouse to discover spatial data and for the ability to instantly view the data sources without first having to download the data and load them into a local GIS. The demonstration was held in October, 1997 at the GIS/LIS exhibition in Cincinatti, Ohio in the United States.

![Architecture and setup of the original FGDC demo.](image)

**Fig. 1.** Architecture and setup of the original FGDC demo.

### 1.2 Brief Description of the Original FGDC Demo Setup

Given the short amount of time and limited funding available to construct the demonstration, it was decided to use OpenMap\textsuperscript{TM}\textsuperscript{4} which has its roots in US Defense Advanced Research Projects Agency (DARPA) research. OpenMap is a middleware system, which at the time provided most of the functionality needed to achieve the stated goals. What was missing were the various OGC vendors' implementations of the Open GIS Simple Features specifications. Four vendors (Bentley Systems, ESRI, Intergraph, and Oracle) each provided software which either implemented the nascent specification directly or which implemented portions of the specification. The vendors have subsequently upgraded much of the software that originally was used as they moved towards Open GIS conformance testing.


\textsuperscript{4} OpenMap is a United States trademark of BBN Corporation, a unit of GTE.