

ESTABLISHING A VIRTUAL NATIONAL ADDRESS DATABASE

by Serena Coetzee

Scientists from across the board have embarked on a unique research project, known as the NAD on the Grid. With this project they have combined forces to create a grid that will seamlessly integrate the various national address databases into one virtual national database.

Ten years ago, South Africa's major banks kicked off a project to create a national address database (NAD). When AfriGIS acquired it from the Naspers group in 2000, it became known as the AfriGIS NAD.

"AfriGIS has been improving and maintaining the NAD ever since, and in recent years AfriGIS has been adding at least 400 000 new street addresses to the NAD every year," says AfriGIS Managing Director, Magnus Rademeyer.

The NAD is expanded and maintained in a process in which AfriGIS receives updates, comments and requests for address data from their NAD clients and the more than 200 municipalities. These are then integrated into the single central database. Current AfriGIS NAD clients include ABSA, eBucks, FNB, Pick 'n Pay HomeShopping, SITA and MDB debt collectors. Apart from being NAD vendors, AfriGIS uses the data to supply services such as map production and location-based services, as well as consulting services, to municipalities and government institutions that create and maintain their own NADs.

AfriGIS has always supported the idea that the definitive South African NAD should ultimately be maintained and distributed by the public sector (as opposed to being aggregated and distributed by private organisations). No such national address database has yet emerged and huge controversy surrounds its custodianship.

Putting the NAD on the Grid

Current NAD databases and NAD thinking in South Africa are based on centralised data storage. However, in reality, the NAD is created and maintained at the different municipalities. When a central NAD database is established, data from the various municipalities has to be integrated into a central database in a tedious, manpower-intensive and expensive process.

Recognising the need for a faster and more streamlined process, AfriGIS has embarked on the NAD on the Grid research project, in collaboration with the University of Pretoria.

A grid is a distributed system in which a number of computers are combined to form a single virtual supercomputer where resources (memory, hard disk and processing speed) are shared and coordinated, but not subject to centralised control.

Ian Foster, who is internationally regarded as the Father of the Grid, describes a grid as having a number of distinctive characteristics. It coordinates resources that are not subject to centralised control; it uses standard, open, general-purpose protocols and interfaces; and it delivers non-trivial qualities of service.

The NAD on the Grid research project will investigate whether grid computing and related distributed database management technologies can be applied in the establishment of a virtual national address database. In other words, the NAD for each municipality still resides with each individual municipality, while the grid seamlessly integrates the various databases into a virtual national database.

Challenges that need to be addressed include the heterogeneous address formats, the availability of the NAD from smaller municipalities whose servers are not always up, as well as the issue of whose data can be trusted in terms of data integrity and quality.

The NAD on the Grid project is jointly funded by AfriGIS and the Department of Trade and Industry (DTI). [➔](#)

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For more information on the NAD on the Grid project, contact Serena at scoetzee@cs.up.ac.za.

