Business Intelligence software company uses NAG to add advanced solvers to their application

Mercur Solutions AB (www.mercur.com) is a Swedish company with over 30 years' experience of delivering solutions for performance management and business intelligence. One of their key products, Visual Mercur, is a development platform which enables calculations within data tables and the storage, extraction and selection of data from tables in the platform's built-in database. Its functionality is thus similar to both spreadsheets and relational databases. The Business Process Management / Business Intelligence application Mercur Business Control is built with Visual Mercur and is used by hundreds of companies for decentralized budgeting, forecasting and follow-up, reporting, analysis and financial consolidations, typically in a multiuser and internet-based environment.

Visual Mercur's Autocalc feature uses NAG software to solve the numerical problems that arise in the processing of the table data. More specifically, it calls routines from the F01 (Matrix Operations) and the C05 (Roots of Transcendental Equations) chapters of the NAG Library in order to solve large systems of linear and non-linear equations. Mr Sven Frenkel, who is in charge of development of Visual Mercur, says: "*We chose NAG because the NAG routines covered our needs very well, have high quality and because NAG is well-known in the academic community from where we obtain help and advice with some of the mathematics and the numerical methods that are used in the Autocalc mechanisms.*"

To illustrate the use of the Autocalc feature, consider the example shown in the figures below, which involves the calculation of sales, costs and profit over a period of five years. The user may perform a "what if" analysis by changing (say) the profit for one year to a desired value, and entering a question mark for sales in a different year. The table is then recalculated to determine the sales value which corresponds to the desired profit.

Illustration of Autocalc feature in Visual Mercur. On the left is the spreadsheet interface, allowing a user to edit one value, and indicate that another is to be recalculated. The script interface is shown on the right, which describes the relationships between the variables in the spreadsheet.

Originally written in Fortran, Visual Mercur was first developed for mainframe architectures before being ported to the Windows environment in the mid-90s. At the same time, it was translated into C++, but continues to use the Fortran implementation of the NAG Library, employing NAG's C Header Files to assist with calling the Fortran routines from within C++.