



The National Institutes of Health: Programming Support for a Growing Database Management System

Background

The National Institute of Health (NIH) identified the need to automate aspects of the administration of the large and growing number of databases and servers administrated by CIT Database Systems. A major purpose of this automation was to amplify the effectiveness of a limited staff of administrators in coping with this growth and in dealing with new demands for support of Internet Application Servers (9iAS). This was for support of NIH Center for Information Technology (CIT), Database Technologies staff (DBT), Database Systems Branch (DBSB) and Division of Computer Systems Services (DCSS).

Services Provided

Intervise supported the prime contractor by providing on-site systems related programming support for the National Institute of Health's Oracle Relational Database Management Systems (RDBMS) and middle Tier software (Oracle 9iAS) in a UNIX environment.

Intervise employees worked with NIH to devise an approach that would meet all of their critical business needs. The approach taken to this mission had two main aspects: (1) To quickly deploy solutions to pressing problems and then refine those solutions and (2) To design a more centralized longer-term approach to the automation of administration.

Some preliminary efforts were expanded, but the main focus was on solution deployment. These efforts were aimed at reducing surprises, particularly middle-of-the-night pages and simplifying long labor-intensive efforts that are prone to error. Work mainly took the form of 20 small software development projects following the solution deployment pattern.

Outcome

Several of these efforts produced small monitoring applications that informed administrators of conditions requiring attention. Examples in this category include continuous monitoring of file systems for adequate free space and monitoring of Application Server availability. Additionally, Intervise employees focused on monitoring of continuous availability of two different database services provided for UNIX based applications accessing DB2 databases running under MVS. These small monitoring applications communicate via email to pagers including PDA's. To take advantage of the PDA's, capabilities were included so email back to the application could be used to control the application (changing parameters, turning notifications on or off, etc.).

Another subset of these small admin applications automated some procedures not normally automated. Most notable of these is one that supplies SSL passwords in a secure way so that reboots that occur in the middle of the night do not require that an administrator login to supply the password for the startup of a secure application server.