



ASPEN LEAFLET

Volume 12, Number 1

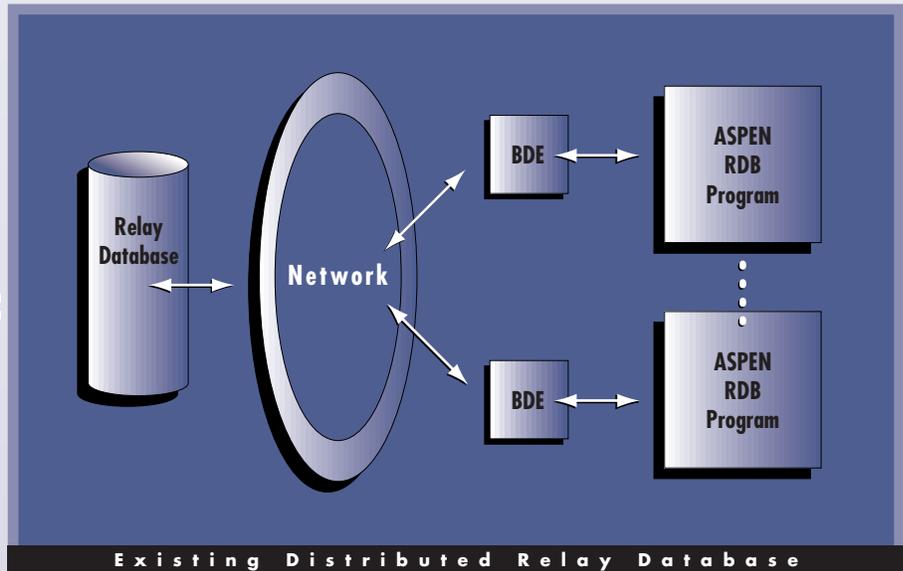
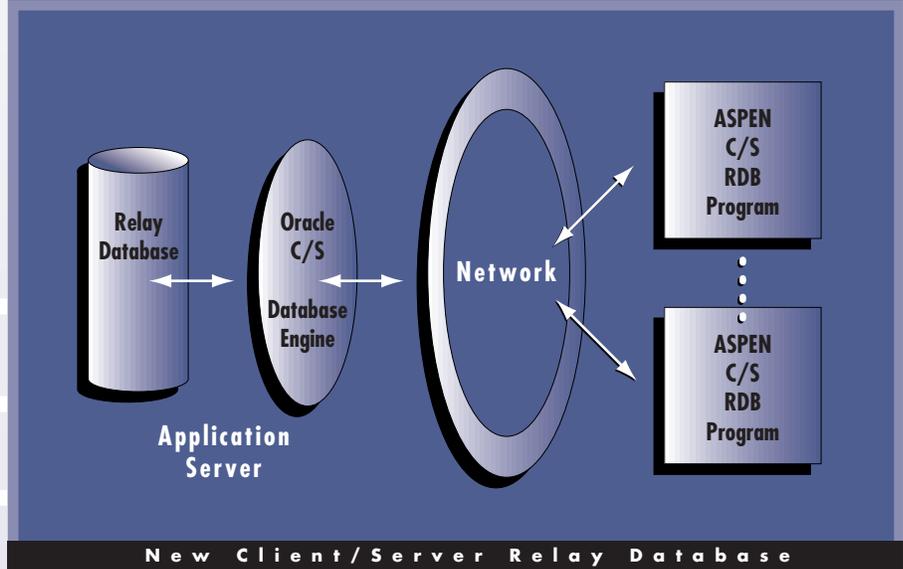
Winter 1998

Client-Server Relay Database

A client-server version of the ASPEN Relay Database™ using the Oracle database engine is being tested and will be released in the first half of 1998.

To run this client-server relay database you need an application server to host the Oracle database engine. The server can be a Windows NT server, a Unix server or even a mainframe. The Relay Database (RDB) Program at each user's PC – or client – communicates with the database server to give users access to the relay data. The Oracle server in this architecture is responsible for maintaining the database files, which usually reside in the same server. The client software's job is to communicate the users' needs to the server and maintains a user interface that shows the latest information. It never directly manipulates the database files. This division of labor between the server and the clients has shown to be a fast and robust way of maintaining a multi-user database.

In contrast to the client-server database, our existing Relay Database Program works in conjunction with a Borland Database Engine (BDE) at each user's PC to directly manipulate the database files that reside in a network directory. The



database engines constantly update a status file in the network to prevent two users from changing a record at the same time.

The existing ASPEN Relay Database with the distributed architecture has worked well in most situations, but its performance and robustness become lacking when the number of records is large (>10,000). Client-server database is the solution. To see why the client/server is more efficient, consider a simple example where a user asks to see all the relays that

protect a piece of equipment. The existing relay database finds the relays of interest by executing a series of instructions on the user's PC to examine each of the relay records in the database. The network is the bottleneck because all the relay records have to be downloaded to the user's PC through the network. In the client/server relay database, the search is done at the application server, which hosts the database engine as well as the database files. The only network traffic is (1) the origi-

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nal request, which is sent from the user's PC to the server, and (2) the result of the search, which is sent from the server back to the user.

Client-server database engines also have many robustness features built-in. Among these is the roll-back feature that cancels any transaction that cannot be completed successfully in its entirety. We have tested the robustness of the Oracle implementation with our own pull-the-plug tests. In this test, we pull the plug of the NT server that hosts the Oracle database while a record is being updated. To our amazement, the database was not corrupted in any way. When the server restarts, it rolled back the record that was being updated to its original form.

The Client-Server Relay Database works with Oracle7™ or Oracle8™. Most electric utilities are already Oracle users and have in-house MIS personnel that know how to set up Oracle databases. Customers that do not have such in house expertise can purchase from us a turn-key database server complete with Windows NT and Oracle software that is configured to work with their network. We can also provide on-site assistance in setting up the database server, if needed. For users upgrading to the Client-Server version, we provide a program that copies all existing data to the new Oracle database.

ASPEN will continue to offer the existing Relay Database and Relay Database Desktop versions. A 32-bit update to these databases will be available by this summer.

The Relay Database Client/Server will cost \$24,000 for one server. The Oracle engine is not included. Existing Relay Database users can apply 100% of the license fee already paid toward the purchase of a client/server version.

Oracle is the first client/server database offered. A version that works with the Microsoft SQL Server will be available shortly thereafter.



ASPEN Employees Profile

Those of you who called our tech support line within the last 12 months have most likely spoken to Eddy LaFon, who joined ASPEN as an application engineer in 1996. Eddy grew up in Birmingham, Alabama and served 4 years in the U.S. Navy. After that, he obtained a BSEE degree from the University of South Carolina and worked for Santee Cooper for 3 years before returning home to obtain an MSEE degree in electrical engineering from the University of Alabama at Birmingham. In addition to tech support, Eddie is responsible for maintaining program documentation and the relay library. He is also a frequent lecturer at our *OneLiner* and *DistriView* classes.

Julia Jesi Black is our latest employee. She was born and raised in Las Vegas, and went to school at the University of Nevada-Las Vegas, where she has earned an MSEE degree in electrical engineering with a thesis on flexible ac transmission-system devices. Julia worked as a protection engineer at Nevada Power Company before joining ASPEN in 1997. Julia's main responsibility is in marketing and sales. She is also an instructor in *OneLiner* and *DistriView* classes.

OneLiner Classes and Users Group Meeting

Two *OneLiner* training classes are planned for March: In Fort Worth, Texas, on March 4 through 6, and in Manchester, England, on March 25 and 26. Class schedule and registration forms are available on our web site. The next class following these will be in San Francisco in the fall.

The next *OneLiner* users group meeting will be held on Tuesday, May 5, in Atlanta, Georgia, one day before the Georgia Tech Relay Conference.

New Users

ASPEN *DistriView*

- Detroit Edison, Detroit, MI
- Nebraska Public Power District, Columbus, NE
- Ledcor Industries, Vancouver, BC, Canada
- Sonoma County Water, CA
- Technical Assistance and Services, Springville, NY
- West Kootnay Power, Trail, BC, Canada

ASPEN *OneLiner*

- City of Santa Clara, CA
- ERCOT ISO, Taylor, TX
- Hidroelectrica Del Cantabrico S.A., Oviedo, Spain
- Hoosier Energy REC, Inc., Bloomington, IN
- MERALCO, Manila, Philippines
- National Power Corp., Quezon City, Philippines
- Public Enterprise Elektroprivreda-Bosnia
- US Bureau of Reclamation, Denver, CO

ASPEN *Power Flow*

- CFE, Mexico
- City of Santa Clara, CA

ASPEN *Relay Database*

- Black & Veatch, Overland Park, KS
- CEMIG, Belo Horizonte, MG, Brazil
- Homer Electric Association, AK
- Nevada Power Company, Las Vegas, NV

