TREETIPS

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A Publication of TREEHOUSE SOFTWARE

N_2O Takes on 3GLs!

Having conquered the NATURAL Change Management problem, N_2O is now poised to enter the 3GL world with the release of N_2O Version 3.0 and the new N_2O/3GL feature.

N_2O Version 3.0 offers these new features:

- SYSERR Migrations
- Multiple Target Migrations
- XREF at the target environment during automatic target compilation
- Change Control Numbers to track user enhancement requests through the development cycle
- N_2O/3GL

What is N_2O/3GL?

N_2O/3GL supports the use of Panvalet in this version. Any object that can be stored in Panvalet, such as COBOL, JCL, or Assembler code, can be migrated using N_2O/3GL.

What Does N_2O/3GL Do?

Using ordinary N_2O migration request screens, a user may specify objects to be migrated from one environment to another. The migration request may also specify the objects to be migrated by N_2O/3GL. N_2O/3GL builds a list of Panvalet commands and submits the necessary JCL to migrate the desired objects using Panvalet.

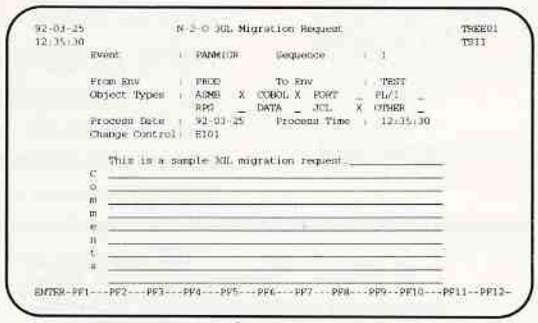

Figure 1

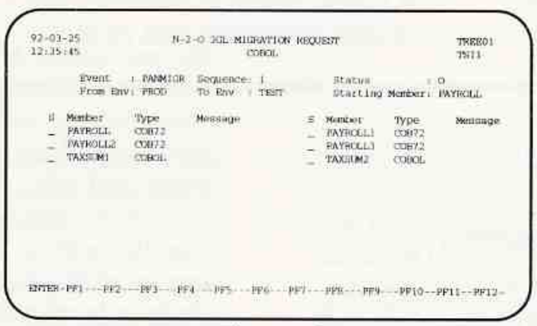

Figure 2

Software AG holds first annual Symposium! For more information, see page 3.

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How Does a User Access N_2O/3GL?

Using N_2O/3GL is not much different from using N_2O without N_2O/3GL. For example, assume that a user wishes to migrate COBOL, JCL, and Assembler objects. The user begins by entering a 3GL migration request, as shown in Figure 1.

The user will then view a selection screen for each type of object (i.e., COBOL, JCL, and Assembler), as shown in Figure 2.

On this screen, the user selects the desired COBOL objects to be migrated through N_2O/3GL. Similar screens appear for selecting JCL, Assembler, and other objects.

Important N_2O Functions Provided in N_2O/3GL

Thanks to corresponding functionality in Panvalet, important N_2O functionality is made available in N_2O/3GL, including:

- Checkout/Checkin
- Multiple levels of electronic authorization prior to migration
- Audit trails and reporting
- Automatic archiving

Support of these functions ensures that N_2O/3GL extends the benefits of N_2O outside the NATURAL

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Editor's Sproutings

by Michael Salsbury

Robert Morris in a FRENTSY Over Treehouse

Robert Morris College in Coraopolis, PA, annually holds its FRENTSY (FRee ENTerprise SYstem) banquet to highlight the company in the Tri-State area best exemplifying the free enterprise system.

Nine local companies were nominated for the **FRENTSY award**, including Treehouse Software. A panel of faculty, students, and independent businesspeople evaluated the nominees to determine the winner. We hoped to win, but are pleased to congratulate **Calgon Carbon Corporation** for winning the 1992 FRENTSY award.

Recent Trips

Our salespeople and developers attended several user group meetings around the country. A non-Treehouse speaker at one meeting canceled his presentation. Although it was short notice, TSI was pleased to provide one of our people to speak.

Clair Hamill taught a performance class in Colorado. The class discussed performance from the DBA level down to the programmer level, and did some on-line work with TRIM. TRIM spotted a FIND in a program written by one student that took 4.8 seconds to complete. Clair and the class discussed better ways to code the FIND, and soon reduced its completion time to 0.098 seconds!

Paul Correa taught a DynaDoc/PREDICT class in Delaware. Students learned to use PREDICT for documentation and to use DynaDoc to add the PREDICT information into their documentation. We plan to check in with this site in the future to see how DynaDoc has helped them improve the quality of their documentation.

Unlimited Copies of TSI Manuals for $500

Treehouse Software offers unlimited copying rights to its reference manuals for one product for $500. This one-time fee allows a customer to reproduce as many copies of the software manual for internal use as needed. The savings of purchasing the copying rights and making your own copies versus purchasing individual copies of product manuals directly from TSI can be substantial.

Treehouse Trials Involve No Obligation

One of our salespeople recently contacted a site about our products. The site wanted to try the product, but they were afraid they would have to purchase it at the end of the trial. Some vendors apparently word their trial agreements to force trial sites to purchase products. Treehouse does not use such an agreement. If you try a TSI product and do not want to purchase it, simply return it to TSI within a reasonable time after the end of the trial.

Brøderbund Builds a Treehouse

We previously highlighted Brøderbund Software's *Kid Pix*, a children's paint program. Brøderbund has a new product, called *"The Treehouse"*. *The Treehouse* teaches children about math, language arts, science, music, and more, through seven games played in and around a treehouse. Brøderbund also includes a music cassette with a "delightful sing-and-dance-along version of *The Treehouse* theme song, plus a 'rap tour' of a symphony orchestra". (We didn't know treehouses have theme songs.) Is the game about ***our*** Treehouse? No. But look at their Treehouse's logo and ours. We think there is a resemblance. But don't worry Brøderbund, we're flattered!

The Treehouse is available for the Apple II and IBM PC. Call Brøderbund at (415) 382-4530.

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This is the logo for Brøderbund's "The Treehouse" program for children:

THE TREEHOUSE

This is Treehouse Software's logo:

TREEHOUSE SOFTWARE

Are they similar? You be the judge!

First Annual SAG Symposium

Several Treehouse people attended Software AG's first annual Symposium in New Orleans. According to one user, the Symposium was "well run, and much better organized than previous years."

Facts and Figures About the Symposium

Software AG reported that approximately 1,800 people attended the Symposium. A record number of SAG affiliates' users, 400, attended. There were 140 sessions at the conference. The Symposium focused on education, with 175 enrolled in "Masters Classes". Our people said that the Symposium offered an excellent variety of class sessions and demos, and that the speakers they saw were informative and interesting.

Software AG Facts and Figures

Software AG stated at the conference that its business is to generate and to retain customers. Apparently, they are doing just that. Revenues grew 22% last year, for a total of $470 million. Software AG has 350 to 400 new accounts, most of these in Eastern Europe and South America. SAG reports that the Spain and Portugal markets are still strong, and that, in spite of the recession, their business still looks good. There has been a 14% growth in the number of ADABAS licenses. SAG reports that 35% of the Forbes 100 use ADABAS.

One attendee said, "UNIX is without question the buzzword of the week!" SAG predicts that the number of UNIX users will triple in the next four years.

In the area of staffing, Software AG reports a modest increase in the number of employees. Their hiring focus has been on revenue-generating people.

In the area of support, Software AG reports that the response time for the average support call is down from 28 hours to 4 hours.

TREETIPS

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Smithsonian Award Nominees

Two Software AG customers, Penn State University and Perdue Farms, are nominees for the Smithsonian Award.

Hot Topics at the Symposium

One attendee said, "UNIX is without question the buzzword of the week!" SAG predicts that the number of UNIX users will triple in the next 4 years. Fifty percent of the people SAG surveyed will be moving to Client/Server computing soon. From what our people could gather, not many sites are deeply involved with either, yet.

Rightsizing and downsizing also appear to be on everyone's mind. Networking was also a common topic of conversation.

Attendees discussed caching quite a bit. To determine good candidates for caching, analyzing a report of I/Os by file appears to be the best method. TRIM already provides this type of information, and TSI hopes to implement some cache-related statistics and reports in a future release of TRIM.

Treehouse Attendees Amazed

We want everyone to know that outside of the vendor booth or our hospitality suite, TSI was not at the Symposium to make sales pitches. We were there, like other attendees, to learn more about Software AG and its products. In spite of that, something amazing took place on the Symposium floor.

Many customers promoted our products to their friends, encouraging their friends to buy. Our people frequently found themselves being dragged into discussions about TSI products! We were pleased, amazed, and even a bit embarrassed. It just goes to prove the old **ada**ge that satisfied customers are a company's best salespeople. We certainly do thank our customers for helping us sell our products. We know we couldn't hire 500 better salespeople!

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Software AG Symposium

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N_2O and TRIM Demos Fill the House!

The N_2O and TRIM demos in our hospitality suite were a definite hit. Users filled the room and watched intently as our developers dialed in to Sewickley and brought N_2O and TRIM alive for them. Our suite got so full that we had to ask people to come back later (and they did). If you missed the demos, let us know and we will send someone to your site to provide one.

Technical Notes

The FNAT and FSEC files will be changed for NATURAL 2.3.

ADABAS 5.2.2 expanded files appear to be fairly stable. Really large expanded files reportedly still have some problems.

PAC Version 1.2 will be coming out. It appears to offer several improvements over previous releases. The most significant and most repeated statement about PAC seems to be "Get your programmers trained to use PAC if you want them to be effective with it."

SAG is working on a programming interface to provide performance data. This may make collecting data easier for us. Billing is still a sore point with many users. They want a better way to do it.

The object-oriented seminar was very popular. There is much interest here, but few tools exist. Dr. Jim Thomann says that even without tools we can get much benefit from the theory, which is really not very different from ways we have been coding for years if we think about it.

The Aquarium

All of our attendees especially enjoyed their visit to the "Aquarium" on Wednesday night. One attendee said it was a "great opportunity to hob nob with the NATURAL gurus of the world." Another told us it was "innovative and fun, and gave people a nice informal place to meet and talk."

Conclusion

Overall, the reaction to the conference was very positive. TSI had many conversations with users regarding their wants and needs. Our people also got the chance to speak with ADABAS, NATURAL, COM-PLETE, and PAC developers about issues affecting TSI products and general DP philosophies.

TREEHOUSE SOFTWARE

Editor's Sproutings

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New DynaDoc Literature Available

Our technicians are still busily documenting the NATURAL applications we received in response to the DynaDoc "free documentation" offer.

One site allows us to distribute their DynaDoc-generated documentation as a "generic example" of DynaDoc's capabilities. The package includes a sample application user manual, expanded program listings, map listings, and other documents produced by DynaDoc.

If you would like to receive a copy of this "Generic DynaDoc Example package", give us a call.

Dieter Storr

Dieter Storr of MaK DATA SYSTEM, our German affiliate, is in the United States through the end of June. Dieter would like to spend the month doing consulting work for ADABAS and NATURAL sites here. You might have seen one of Dieter's presentations in New Orleans or at a previous Software AG International Conference.

Dieter has over 20 years of data processing experience. He has been a COM-PLETE system programmer, ADABAS DBA, data modeler, application developer, and technical support person. He has helped develop accounting systems, the ADAMON performance monitor, and DSR, an ADABAS recovery aid. His experience includes ADABAS, NATURAL, COM-PLETE, APAS/INSIGHT, Spaceman, PLEU, IEW, PREDICT CASE, and TSI products.

His experience includes performance analysis, education, and consulting at many sites in Germany and the United States. If you would like Dieter to visit your site to provide consulting or education, please contact Treehouse Software.

TREEHOUSE SOFTWARE

Industry News

PAC Testimonial Appears!

In the November 1991 issue of TREETIPS, we stated that we never received a PAC testimonial and that we would like to hear from satisfied PAC users.

We noticed that two users were giving PAC presentations at the Software AG International Symposium. We received a call from one of these users, Larry Godec of Dr. Pepper/Seven-Up Companies, Inc. Larry states:

> "We are currently using PAC to increase quality through automated change control. It also allows us to free-up the DBA from performing program moves on a daily basis. We have found PAC to be a very useful product and version 1.2, due out in May, has many useful features."

The remainder of Larry's letter to us contained the outline of the presentation he gave at the Symposium. If you want to discuss Larry's presentation or his use of PAC, let him know.

The N_2O team wants you to know that all of their development activity is controlled by N_2O.

Larry Godec
Dr. Pepper/Seven-Up Companies, Inc.
8144 Walnut Hill Lane
Dallas, TX 75231-8144

Phone: (214) 360-7308
Fax: (214) 360-7980

If other PAC users would like to relate their experiences, we'd like to hear about them.

The article "A Multiplatform Dive into River of Change" in the May 1992 issue of *Software Magazine* contained some interesting references to PAC. We were extremely surprised that it did not mention N_2O, especially in light of the fact that *Software Magazine* has received many press releases and product overviews for N_2O over the years.

The article says that Software AG is seeking new alliances, including links to Legent's Endevor and Novell's NetWare. (Note, however, that the PAC link to ENDEVOR was announced as available in September 1991.) The article highlighted Brown University's involvement with the PAC/Endevor interface, and pictured Terri-Lynn Thayer, the database services manager at Brown.

According to the article, Brown has two NATURAL applications that the university is anxious to **test pilot** with PAC. "Our non-NATURAL systems will be covered by Endevor. Both have a place in our shop," Thayer said. She suggests that users ask prospective change management vendors if they use their own tools in the development process. "You'd be surprised," she notes, "I've run across companies that don't, or [that] use somebody else's [tools]. That doesn't say much for their product."

The N_2O development team wants you to know that **all** of their development activity is controlled by N_2O. Perhaps that's why N_2O enjoys its excellent reputation for quality and thoroughness.

Software AG People in the News

Dave MacSwain, vice president of product marketing at Software AG, was quoted in a recent article on 4GL portability. MacSwain said that "Database interoperability is essential to rightsizing." Later in the article, he stated that "The need for vendor-to-vendor relationships is very important. . . Vendors have to work together to make their products work in a more integrated fashion in the name of customer satisfaction. As a customer, I would hope that most or all of my key vendors are working together and not fighting each other." We couldn't agree more.

Software AG Customers in the News

A recent article on CASE technology highlighted BP Oil Europe. The article says that they planned to implement their new systems on IBM mainframes. These systems would have encompassed 18 business areas and required approximately 500 entities in ADABAS and NATURAL. BP used PREDICT CASE to develop the data model. According to David Jost, architecture leader for BP Oil Europe, "PREDICT CASE, running on the mainframe, allowed the analysts to share a single data model." However, when it came time to implement the model, BP developed its programs using Clipper, dBase III, and Uniface. Does this surprise you, too?

A different article discussed Depository Trust Co.'s strategic decision to move to DB2 from ADABAS, and

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Industry News

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their seven-year conversion effort. They reported that at first DB2 was "slow and a CPU pig. . . The first release was a problem, but as we learned to inspect our EXPLAIN statements and use SQL commands more efficiently, we improved our performance. Also, further releases from IBM solved many of the performance problems we initially encountered." We wonder if more sites will be converting to DB2. If your site is one of them, we hope you will share your experiences (good and bad) with *TREETIPS*.

An Old Bug in NATURAL?

We have not verified this information, but one of our overseas contacts told us that NATURAL has contained a bug since Version 1.2. According to the document we received from them, "If, in your program source, a FIND statement is placed on line 0440 or 4040, NATURAL issues an error message 'ERROR IN VALUE SPECIFICATION' although your code is correct. If you insert some comment lines which move your FIND statement to line 0490, for example, the same source code will STOW without the error message even though it hasn't changed." We wonder if it's true, and if SAG knows about it.

Super Hi-Tech Security?

John Chin's article, "Super Hi-Tech MVS Computer Security" in Technical Support magazine outlined some very stringent security procedures. He suggests that sites ask vendors to send two tapes for each product purchased, from two different locations, created by two different groups of people. This, he feels, will ensure that vendor employees cannot plant viruses or other security threats on product tapes.

Chin also suggests that, to gain access to a site's computer, "the right personnel can be bribed, blackmailed, coerced, or kidnapped and drugged or tortured to get the necessary information so that a knowledgeable criminal can log on to a system, steal information, alter processing, plant bombs and bring the system to its knees." We believe that while this might be true for the Pentagon or the CIA, such measures are extreme for the vast majority of sites. After all, when was the last time someone kidnapped and tortured your IS Director to get the password to your account?

Legent and Goal Merge

TSI has long felt that Legent, Goal, and Computer Associates would eventually run out of other computer companies to buy, and then start trying to buy up each other. We speculated in a previous issue that Computer Associates might try to buy Legent or Goal. But the recent announcement of Legent's acquisition of Goal came as some surprise.

TREEHOUSE SOFTWARE

N_2O Takes on 3GLs!

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environment while maintaining a consistent user interface for NATURAL and the 3GL world.

New 3GL Reporting Functions

The N_2O/3GL audit trail offers some new reporting options:

- History of a 3GL Member
- 3GL Event Details
- 3GL Member Details
- 3GL Checkout Report

These reports are similar to the reports provided by N_2O for the NATURAL environments under its control. The reports allow programmers, auditors, and managers to track changes to NATURAL and 3GL objects.

The Role of Panvalet in N_2O/3GL

N_2O/3GL is the interface between the NATURAL Change Management world of N_2O and the 3GL world of Panvalet. N_2O is the "engine" driving the 3GL migrations, while Panvalet is the "repository" for the code.

Panvalet maintains a central library for 3GL code, JCL, and data files. Panvalet can protect the Production programs and data files in its library against change by restricting modification of members.

Panvalet also provides complete backup capability of all 3GL objects using protection files, and offers the ability to recover previous versions of objects.

For More Information

For more information about N_2O or N_2O/3GL, contact Treehouse Software today!

TREEHOUSE SOFTWARE

Asking "Where?"

by Ralph Partlow

Editor's Note: No claims as to the accuracy or completeness of the material contained in this article are made by Treehouse Software. Readers are encouraged to make their own evaluation of the topics discussed in this article, based on their own observations and analysis. The views expressed in this article are not necessarily those of Treehouse Software, its employees, or affiliates.

Throughout the history of data processing it has been desirable to deal with data in a geographic sense. That is, people and organizations often need to be able to relate events in the real world based upon their geographic relationship to another event or to a geographic boundary -- either real or imagined.

Zip Codes: The Traditional Solution

Traditional data processing deals with data geographically only in the sense that data which already exists within the record can be utilized in a manner to represent some sort of spatial relationship. Zip Codes are the most common element used in the past. Zip Codes however, are quite arbitrary with regard to size, shape, population, or coverage. Furthermore, they provide no spatial relationship at all.

Given a City Name and Street Address, many systems, through tabular lookups, are able to provide a Zip Code. Zip Code is often then used for selecting records with the intent of achieving some level of geographic meaning. Virtually all organizations using Zip Codes in this fashion are aware of the limitations and are dissatisfied with the results. To date there has been no practical way of dealing with data geographically other than by Zip Codes, State, City Names, and, less frequently, Area Code.

Complex Tables: A Rigid, Costly Approach

Some Emergency Service organizations have developed huge tables of street names joined to tables of intersections thereby achieving the ability to relate the sequence in which streets occur. The intersection table in such a scheme will carry the house number ranges which begin/end at that intersection. It is possible then to manually assign each entry in the street name table to a Primary, Secondary, etc., servicing center (such as a fire station).

Such a scheme, while being extremely costly to implement and even more costly to maintain, offers no expandability beyond the purpose for which it was built. The reason for this is that it still provides no spatial relationship -- only a sequential relationship. None of these systems provide information about the distance and direction from one point to the other.

Only when it is possible to provide a distance and direction between two previously undefined points will it be possible to deal with data in a true geographic sense.

Enter Mapping Systems

Over the past few years various types of Geographic Information Systems (GIS) have been developed and are working their way into the market place. The most successful of these have been the Mapping systems and the Land Use Management systems. Mapping systems were developed to produce maps to support such activities as mining, oil exploration, flood-plane study, forestry, excavation, etc. Land use management, used on a broader scale, provides support for city/county/state planning, road building, topology, etc.

People need to be able to relate events in the real world based upon their geographic relationship to another event or to a geographic boundary.

Mapping Systems: Poor Performers

Attempts to use these systems for high-volume business applications often fail because the systems were not designed to support these applications. When faced with hundreds or even thousands of events per minute, these systems are unable to respond quickly due to the level of processing time and disk access required to resolve each event.

The Geographic Needs of Business

There are many ways of viewing the surface of the Earth as defined by topographies, streams, fields, mountain ranges, etc. It turns out though, that the only way to deal with data geographically in a business sense is by overlaying a street network on the Earth's surface. Most business data relates in one way or another to a street location. A business-oriented geographic system, therefore, must be able to relate a street address to a geographic point on the Earth's surface.

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TRIM Developments

The TRIM development team has been steadily enhancing and improving the product. TRIM has received a facelift, along with new features.

The Facelift

The TRIM Real-time Monitor (RTM) appearance has been redesigned to be consistent with that of the SECURITRE RTM and N_2O. The new appearance also provides for easier enhancement of the RTM, allowing new functions and their corresponding PF-Keys to be more easily added.

ADABAS 5.2 Support

TRIM has been updated to support ADABAS 5.2.

Security-Ids Now Available

The TRIM RTM can now display the Security User-Id (that is, the TOP SECRET, ACF2, or RACF User-Id) on appropriate screens. This information is often more meaningful than the cryptic User-Ids used by ADABAS.

Help Facility Added

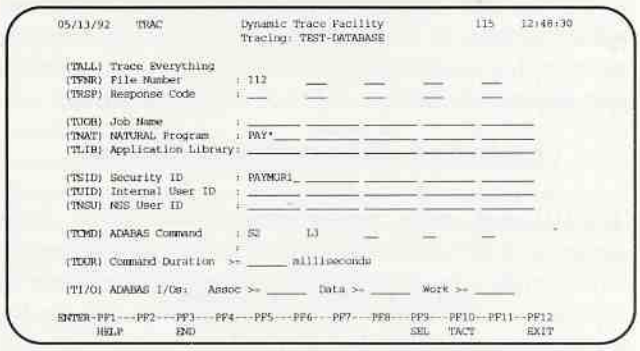
TRIM RTM screens now provide Help upon request. For example, on the QUQE screen, TRIM provides the following Help:

In addition to the new Help facility, TRIM will also provide selection lists to assist the user in determining the information to monitor. For example, if the user must select an ADABAS file number to be monitored, TRIM can provide a list of all currently active files.

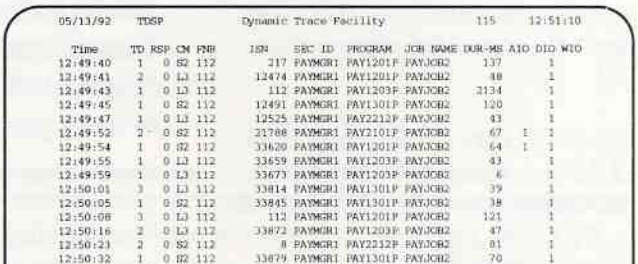
Trace Facility Changes

Users have asked for enhancements to the TRIM Trace Facility. Considerable effort has gone into making the Trace Facility more flexible and dynamic. It is now possible to trace on several categories.

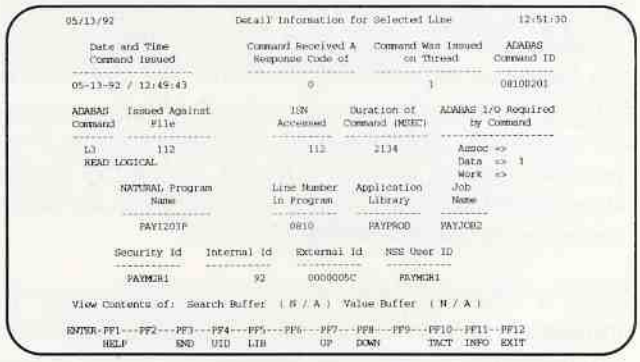
This new tracing capability greatly benefits both DBAs and programmers. For example, assume that the DBA views TRIM command duration statistics and determines that a particular program issues many commands of extremely long duration. The DBA decides to trace the program and determine the problem. The DBA may trace on combinations of up to five categories. Assume the DBA wishes to trace "All S2 and L3 commands issued against File 112 by Security User-Id PAYMGR1 running programs whose names start with PAY". The following data would be entered on the Trace Selection Screen:



Upon hitting ENTER, TRIM presents a list of the commands captured by the DBA's trace:



TRIM provides up to 85 lines of trace information, and the DBA may scroll through the list to locate the desired information. If the DBA determines that the command issued at 12:49:43 is the problem, the DBA may want detailed information about the command and presses PF11 to view the following information:



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SECURITRE News

If you are keeping up with SECURITRE development through TREETIPS, you know that SECURITRE is a complete package already. However, the SECURITRE development team continues to increase the SECURITRE functionality through enhancements such as Field Level Security, NSS Conversion Tools, and Run-time DDM Security.

Field Level Security

Developers are putting the finishing touches on Field Level Security. TSI expects to offer this new feature in SECURITRE Version 2.2, scheduled for release in August 1992.

Field Level Security (FLS) will be in effect for all fields identified by the Security Administrator. Fields to be secured are defined through a new STRFNR parameter, FIELDS. To secure fields AA, D1, and EF on file 123, the Security Administrator would code the following STRFNR statement:

```
STRFNR FILE=123,FIELDS=(AA,SALARY,
       D1,BONUS,EF,EXTRAPAY)
```

In the example statement above, the words "SALARY", "BONUS", and "EXTRAPAY" are alias names for the fields AA, D1, and EF, respectively. SECURITRE uses the alias names in place of the real two-character names when contacting the SSF to verify access to these fields. If there is no need for the SSF to distinguish between the three fields (i.e., access is always granted to all three, or none of the three), all could be given the same alias, requiring only one rule to be coded in the SSF.

Developers are putting the finishing touches on Field Level Security.

Before checking FLS, SECURITRE determines if the user has access to the file. If so, SECURITRE determines whether to process FLS based on parameters set by the Security Administrator.

To make FLS as efficient as possible, SECURITRE maintains an "intelligent table" of field access information. This table is similar to the table used by SECURITRE file level security to reduce the number of System Security Facility (SSF) calls required.

FLS normally adds little overhead. The overhead generated is dependent upon the number of fields on a file requiring field level security and the number of files on a database requiring field level security.

NSS Conversion Tools

Software AG's NATURAL Security System (NSS) stores access rules in an ADABAS file. Sites converting from NSS to SECURITRE need a utility to convert NSS rules into RACF, ACF2, or TOP SECRET rules. TSI developers are designing a set of tools and procedures to perform this conversion. You will hear more about this as it develops.

Run-time DDM Security

Both SECURITRE and NSS provide compile-time DDM access controls. Before allowing a NATURAL program to compile, they check to see if the user is allowed to access DDM information. Compile-time security has advantages and limitations.

SECURITRE for NATURAL prevents users from executing NATURAL programs without authorization. SECURITRE for ADABAS limits users' run-time access to ADABAS files. However, neither NSS nor SECURITRE currently secure DDMs at run-time.

Run-time DDM security is important because a single ADABAS file may contain sensitive data and "ordinary" data. The "EMPLOYEE" file, for example, may contain "ordinary" information like employee phone numbers, as well as sensitive information such as salaries. The Personnel application that updates less sensitive information may use the DDM "PERSONNEL", while the Payroll application uses the DDM "PAYDATA".

A clerk with access to the EMPLOYEE file to update biographical information (i.e., addresses, telephone numbers, etc.) might attempt to execute a NATURAL program that uses the PAYDATA DDM to change employee salaries. Because the user has been given access to the EMPLOYEE file, that user could attempt to fraudulently update employee salaries. If this user's access to the PAYDATA DDM could be checked at run-time, this update would not be permitted.

Run-time DDM security involves passing the DDM name from SECURITRE for NATURAL to SECURITRE for ADABAS. SECURITRE for ADABAS determines if the user may access the DDM. If access is granted, database access proceeds. If access is denied, the program will receive a non-zero response code.

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SECURITRE News

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The SECURITRE team recently completed the design of this new feature. Although we do not yet know when run-time DDM security will be released, we will not release it before it is thorough, efficient, tested, and well documented.

Questions and Answers About SECURITRE

Our salespeople constantly communicate with the ADABAS user community. Often, users ask questions that we want to share with others. The following questions come from recent correspondence between our salespeople and potential SECURITRE customers.

Q. ***Does NATURAL Session Initialization Security provide a way to force a user who specifies a given FUSER file to use a corresponding FDIC file?***

A. SECURITRE currently provides the capability to force a user to specify corresponding FUSER and FDIC files. Consider this example:

In order to initiate a NATURAL session, the user must specify an authorized set of FNAT, FUSER, and FDIC files

A site uses three NATURAL modules, one for the TEST environment, the next for the STAGE environment, and the last for the PROD environment. The Security Administrator codes the following SECURITRE for NATURAL parameters for the TEST environment:

```
STNPARM PREFIX='NATURAL',QUAL='TEST',
        DELIM='.',NSIORDR=(FILE)
STNFILE TST,DBID=123,FNR=200    (TEST FDIC)
STNFILE TST,DBID=123,FNR=201    (TEST FNAT)
STNFILE TST,DBID=123,FNR=202    (TEST FUSER)
```

To grant access to the TEST environment, the Security Administrator grants a user access to the following pseudo dataset name in the SSF:

```
NATURAL.TEST.TST
```

If the user attempts to initiate a session from the TEST NATURAL module using the TEST FNAT, STAGE FDIC, and PROD FUSER, SECURITRE verifies access to these pseudo dataset names:

```
NATURAL.TEST.TST
NATURAL.TEST.STG
NATURAL.TEST.PRD
```

Because the Security Administrator did not grant the user access to all three of these dataset names, the session will not begin. In order to initiate a NATURAL session, the user must specify an authorized set of FNAT, FUSER, and FDIC files.

Q. ***Must a site specify STNFILE parameters for ALL files, including data files?***

A. No. If STNFILE parameters are not specified, SECURITRE generates default pseudo dataset names based on the DBID/FNR combination. STNFILE statements provide "alias" names for files to simplify security administration. For example, rather than granting access to the cryptic pseudo dataset name "D213F123", the Security Administrator can grant access to the more meaningful database name "TEST" and file "PAYROLL". The resulting pseudo dataset name is "TEST.PAYROLL".

Q. ***What library name is placed in the pseudo dataset name when a user executes a program from a STEPLIBed library?***

A. Currently, SECURITRE inserts the name of the library onto which the user is logged. We can provide a zap to insert the name of the library where the program resides if needed.

Q. ***If USRMODE=OFF is specified for a library in the STNLIB parameters, and a user logs on to that library (Lib-A), then logs on to another library (Lib-B), and runs a program that sets NC=OFF (equivalent to USRMODE=ON), will the user be able to log back on the Lib-A and execute NATURAL commands?***

A. No. When the user logs back on to Lib-A, SECURITRE sets NC=ON (USRMODE=OFF).

Q. ***In programs with highly sensitive data, we would like to re-verify the user's password before the user is allowed to examine or modify data. Can SECURITRE help with this?***

A. Yes. In your programs, before data is displayed or modified, you can request the password from the user and code a call to STRNAT. The pseudo dataset name might look like this:

```
NATURAL.PASSWORD.pswd
```

In the above example "pswd" is the password entered by the user. If the SSF grants the user access to this dataset, the program can assume this is the correct password for this user and allow the user to display or to modify the data. This provides

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SECURITRE News

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the advantages of ensuring that the password given by the user is correct and that the user giving the password is actually authorized to use that password.

Q. *We use APAS. Does SECURITRE co-exist with APAS?*

A. Several Treehouse customers run SECURITRE with APAS, and none of them report any co-existence problems. We do not currently know of any co-existence problems between APAS and any Treehouse product.

SECURITRE does not determine what will be secured, you do...SECURITRE will grow and change with your site's security needs.

Q. *We recently received correspondence from SAG and Goal which referred to "standardized user exits", and talked about a zap to ADARUN. What does "standardized user exits" mean to Treehouse? Will this zap to ADARUN affect SECURITRE Utility Security?*

Goal's standardization of user exits does not affect TSI. The zap to ADARUN will not cause problems for TSI because SECURITRE Utility Security completes its execution before invoking ADARUN. However, you must apply the zap to ADARUN before linking it to the SECURITRE Utility Security module.

Q. *If I add a DDM to the FDIC and forget to grant a user access to the DDM, must CICS be brought down to give that user access to the DDM?*

A. No. Grant the user access to the DDM through the System Security Facility and purge the user's entry from the SECURITRE internal table using the Real-time Monitor. The user will have access to the DDM on the user's next attempt.

Q. *I notice that SECURITRE has a very impressive list of features, including several levels of NATURAL access control, such as Program and Library Level security. If I install SECURITRE, do I have to use all of these features?*

A. No. SECURITRE does not determine what will be secured, you do. The various features may be used separately. For example, you might use only Session Initialization and Program Level security on the NATURAL side, and choose not to use DDM Level security. If you later decide to discontinue use of Program Level security, or to begin using DDM Level security, you may do so. SECURITRE will grow and change with your site's security needs.

Treehouse Software will be happy to answer *your* SECURITRE questions. Just tell us what they are!

TREEHOUSE SOFTWARE

TRIM Developments

(continued from page 8)

The DBA may contact the programmer who wrote PAY1203P and discuss the NATURAL READ LOGICAL statement on line 0810 that issued this command.

We believe that this enhanced Trace Facility will quickly become one of the most frequently-used functions of TRIM.

To Be Continued...

The development effort for TRIM continues. You can expect to see many more enhancements. If you have any suggestions for improving TRIM, please share them with us. If you have no suggestions, it sounds like you are ready for a free 30-day trial...

TREEHOUSE SOFTWARE

N_2O/3GL is available at half price as a special introductory offer. Contact TSI or your local TSI affiliate for details!

ADABAS I/O Response

by Edwin Lilienborg, State of Idaho Auditor's Office

Editor's Note: No claims as to the accuracy or completeness of the material contained in this article are made by Treehouse Software. Readers are encouraged to make their own evaluation of the topics discussed in this article, based on their own observations and analysis. The views expressed in this article are not necessarily those of Treehouse Software, its employees, or affiliates.

Introduction -- a Problem

By way of introduction, I will relate to you what prompted me to develop this measure.

We daily run six ADABAS (V.5.1.9, soon to be 5.2.2) on-line systems on our IBM 3090/200J using MVS/ESA. Five of these, for testing, development and training, are usually lightly loaded (a few thousand to a couple of million commands per day). With these data bases, we mostly just watch for seriously abnormal response codes and for flagrant performance violators.

Our production data base (ADAPROD), using about 12,000 of non-hardware-cached cylinders of IBM 3390 storage (formatted as "8390"), runs about 6 to 15 million commands a day. We watch the statistics for this data base a lot more carefully, both for poorly performing applications and for deficiencies in the running of the data base itself.

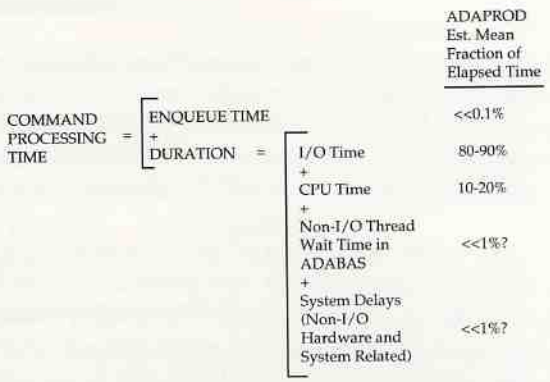
We became aware, towards mid-1991, that ADAPROD was not performing well -- or that some application or other factor was causing it to appear not to do so. Mean durations, overall and on-line, were high, though erratic. Users sporadically complained about response time.

I also became aware that we had no consistent quantitative measure of our pain. However, a solid clue as to the cause of the poor performance appeared in some I/O device activity reports from IBM's Resource Measurement Facility (RMF). These reports showed frequent and severe contention for the two Associator volumes, with some mean half-hourly response times well over 100 milliseconds. (Candle's OMEGAMON II for MVS qualitatively corroborated this.) These data suggested to me a better method of measuring how well, or how poorly, the data base handles its I/O, and also a method for solving the problem at hand. To solve our problem, we redistributed the Associator over three volumes. Measuring data base I/O performance -- in general and as illustrated in this particular instance -- is the main burden of this narrative.

Developing a Measure

As I investigated this problem further, I was emphatically reminded of how I/O dominates ADABAS performance. Mean total I/O counts per command for ADAPROD vary, from day to day, all over the lot (from 0.27 to 0.89 over a ten-month period), depending on job mix, runaway tasks, some ADARUN parameter settings and other things. But those counts seemed to carry, more or less, mean processing times with them.

I quantify I/O times in terms of the following schematic, which also shows our typical fractional value ranges:



Mean enqueue times, durations and approximate cpu times, as well as I/O counts, may be obtained in our shop through the Goal Systems APAS monitor. In addition, SMF data supply more accurate cpu times for entire ADABAS sessions. There are two other quantities -- mean non-I/O thread wait times and system delays -- which we do not measure, but which I believe represent very small fractions of command processing time. Mean I/O times also are not measured directly, but the schematic suggests a way to derive them. They can be approximated as large residuals by simply subtracting mean command cpu time from mean command duration.

Note the above focus on mean per-command quantities. When we deal with I/O, we also need to weigh mean per-I/O (per EXCP) quantities, retaining, however, mean I/O-per-command as an important variable that we may choose to ignore or treat as independent for certain purposes. This even makes intuitive sense -- consider, for instance, commands that never cause I/Os, others that may or may not (due to cacheing, etc.), and still others that may cause a buffer flush -- all of

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ADABAS I/O Response

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these can muddle I/O-per-command figures. Anyway, I came up with the following definition:

$$\text{Mean ADABAS I/O Response} = \frac{\text{(Total Duration - Total CPU Time)}}{\text{(Total I/O Count)}}$$

This formula is intended to apply to complete ADABAS sessions or major command subsets thereof, such as an 8-hour shift or a CICS session. The formula is not intended for use with individual ADABAS batch jobs, say, or terminal sessions. Another caution: You may need to compute this manually, because none of the three major ADABAS monitors can handle it. (I wish I had a convenient ADABAS-to-PC-spreadsheet interface!)

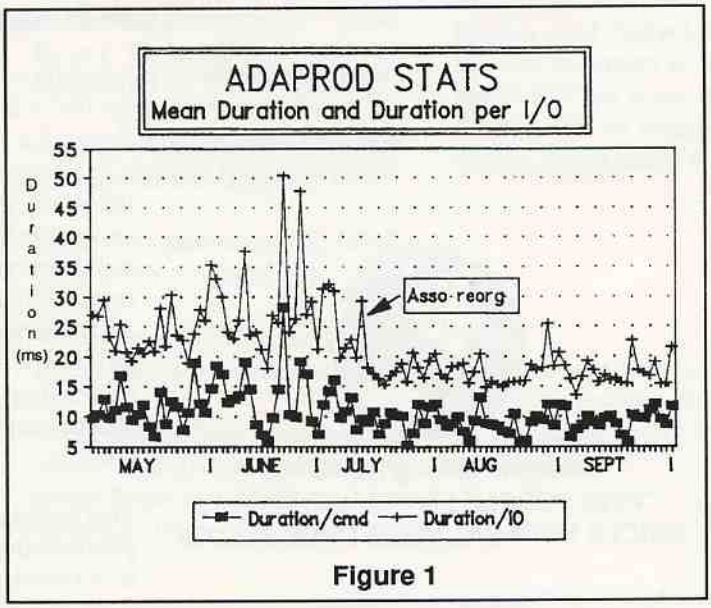

Figure 1

Results

We shall rate the above-defined measure a success, I think, if we can tell from a glance at its value whether a data base has been struggling with its I/O, and if so, by about how much.

Note in Figure 1 how ADABAS I/O response settled down considerably after our Associator reorganization on July 14. Note also the behavior of the (lower) duration-per-command graph -- more erratic, and poorly reflecting the reorganization. Finally, note the I/O response's behavior after July 14 -- still occasional peaks, indicating room for improvement. We have, since that time, reorganized further, redistributing the Associator and Data Storage each to four volumes. ADABAS I/O response has reflected this, settling down to a more steady 14.5 - 17.5 range. RMF data confirm this improvement, with half-hourly mean responses now rarely exceeding 30 milliseconds.

Conclusion

Mean ADABAS I/O response (or mean ADABAS duration per I/O) as above defined, has been very useful to us in tracking how efficiently ADABAS handles its I/O. Duration per command, by contrast, is a much poorer measure for this purpose. I believe ADABAS I/O response deserves to be routinely reported (by APAS, TRIM, and REVIEW) and used in any ADABAS installation where I/O efficiency is valued.

Edwin Lilienborg is a systems programmer with the Idaho State Auditor's Office. He is responsible for the installation and maintenance of Software AG products. He has been in data processing since 1962, and has used Software AG products since 1979.

Asking "Where?"

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The Required Approach

An approach is required which will accomplish the following:

- Provide true geographic relationships between two events
- Support high-volume business transaction rates
- Provide the ability to define new areas (coverages) and then relate previously existing events to these new areas
- Be expandable in that it will be able to deal with the data in a geographic sense without regard to the previous uses of that facility
- Be readily maintainable so that business organizations will not find themselves in the "Mapping" business

A major west coast newspaper implemented this approach. The newspaper's system allows it to input a Street Address, with or without the City Name and Zip Code, and assign that Street Address to a geographic location. Resolution often requires no human involvement except the initial entry of the address. Attributes such as delivery agent are assigned to geography on an area basis (coverages). Once the

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Asking "Where?"

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system identifies an address geographically, the attributes assigned to that point of geography are instantly available.

Applying the Theory

Given a street address, the system can return the correct delivery agent, City Name, Zip Code, and other information. Further, new areas (coverages) may be defined and immediately made available to find all events (customers, complaints, etc.) which have existed or have occurred within that area. A customer can call the newspaper, give an address such as "100 Main Street" (there are 42 100 Main Streets in this paper's home delivery area) and a nearby cross street, or Zip Code, or City Name, or maybe nothing more.

If provided with a nearby cross street or Zip Code, the system returns the correct location almost 95% of the time. In many of the remaining cases, the system provides a list from which the operator may choose the correct location by asking the customer a simple question. The more information provided to the system, the more likely the system will provide the exact correct location on the first try. Transactions are received, entered into the system, and resolved at rates as high as 6000 per hour.

Note that resolving such a query involves no access to the customer files. The application system can, of course, access the customer's record but with an assurance that it located the correct customer.

New Levels of Information Become Available

The newspaper can provide access to its customer base in a way never before possible. Given a new coverage, the paper can immediately determine how many subscribers are in that area. A prospective advertiser may ask -- "How many subscribers do you have within five miles of my location?" Salespeople can answer that question within a few hours. Incidentally, they are also able to provide a graphic, multi-color map showing the customers' locations, with dots printed to show the nearby subscribers.

Adding Geography Doesn't Alter the Data

In this implementation, as soon as a new area is defined and assigned some sort of attribute, that attribute effectively becomes a part of the data for each subscriber or event record. All this occurs without adding anything to the Subscriber and event records (after the initial installation activity). The newspaper has suddenly added the ability to assign new attributes to data WITHOUT ALTERING the data. This ability never existed before.

The potential of dealing with data in this fashion is enormous.

Some Examples

Consider the ability to take a file of names and addresses -- possibly a very large file -- containing millions of records. Pass this file through a system of this nature, assigning each address to a geographic location. Then, using any area or combination of areas (finding records that exist within overlaps is possible), either pre-existing or newly defined, in addition to data which already exists within the records themselves, select a subset of those records which meet all the criteria.

Imagine asking ADABAS: "FIND PEOPLE LIVING WITHIN THIS CIRCLE WITH SALARIES OVER $35,000"

This facility would provide new power to demographics. Imagine if advertisers could draw an outline on a map, then ask questions like "How many people with incomes between 35 and 75 thousand per year, with college-level education, with more than one TV, live within that area?" The "live within that area" has been missing in the past and is a whole new way of dealing with data. Multiple coverages can be defined which overlap each other and combinations of coverages can be used to select records based upon multiples of areas. For example, "How many families with incomes of $35,000 to $70,000 and two cars live within 5 miles of a particular point, and which are within an area served by a particular express delivery carrier?"

These examples may be obscure but provide insight to the enormous processing power of such an implementation of GIS technology.

While being of extreme benefit in emergency services and dispatching applications, and of tremendous benefit in a demographics application, the greatest marketplace for this capability has yet to be defined.

Ralph Partlow is an independent consultant with 30 years of data processing experience. He has been involved with Software AG products for most of his career. To reach Ralph, contact Treehouse Software.

Treehouse Data Processing Glossary

In the last issue of TREETIPS, we printed a list of 12 data processing terms and their definitions. We received only a few from our readers (some of which we could not print). Those we could print are included below:

Absolute Address: Where you are certain that you live.

ASCII: What you should do before borrowing something. *(from Roger Cole, University of Delaware)*

Code: A sinus problem, as in "I can't come to work, I have a bad code."

Database Migration: What you call it when ADABAS goes south for the winter.

Internal Reader: A member of the staff who understands printed words.

ISAM: What you tell Sam when he asks you what makes him able to see *(from Roger Cole, University of Delaware)*

Megahertz: Really painful injuries.

Paradox: Two user manuals, or two physicians.

Panvalet: The person who brings you your cookware when you are ready to leave the party.

Truncate: Count of items stored in the car, as in "I got all of the boxes in. Ten in the back seat, and in the truncate."

Workstation: The radio network you listen to at the office.

Vaporware: A garment that gives off a bad odor.

If you have additions to this list, please pass them along. If we print your definition in TREETIPS, you will receive a Treehouse coffee mug, or the equivalent.

TREEHOUSE SOFTWARE

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