Find out what our customers are saying:

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Free, On-line Demos of Treehouse Products

Would you like to see Treehouse products in action before you request a trial? To set up a live, on-line demonstration of any product, simply fill out the short form on the Treehouse Software website at **www.treehouse.com/ onlinedemoform.html**. All you need is an Internet connection to view how Treehouse products work right on your PC screen.

Real World Series *(Part 12 of Many)*

by Joseph Brady and John St. Peter

### Fast-tracking a mainframe system to its new home...

This is the 12th installment in a continuing series of articles featuring **Data Propagation System (DPS)**, Treehouse Software's ADABAS-to-RDBMS product implementation, in several "real world" environments.

DPS is a robust product that provides modeling and data migration of legacy ADABAS data into modern RDBMS-based platforms for Internet/Intranet/Business Intelligence applications. **DPS**'s modeling and mapping facility (**tRelational**) auto-generates complete RDBMS schema from existing ADABAS files and allows for easy mapping of ADABAS fields to already existing data warehouse or ERP schema. After the mapping is completed, **DPS** can materialize (initially load) and

tcACCESS and tcVISION: Replicating Mainframe Data While Minimizing Mainframe CPU Cycles

by Chris Rudolph and Joseph Brady
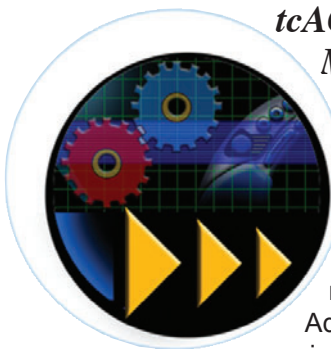
As many customers have discovered, Treehouse Software has the right product (or combination of products) to meet any conceivable mainframe data migration, replication, or integration requirement. Additionally, Treehouse can provide skilled supporting services to ensure the success of your project.

Since the mid-1990s, Treehouse Software has dominated the ADABAS-to-RDBMS data migration and integration market, with its proven and powerful ETL, CDC, and real-time replication solutions. More recently, the addition of expanded capabilities with our two mainframe integration products: **tcACCESS** and **tcVISION**, enable the migration of virtually any mainframe database or data source in a cost effective manner.

Today's organizations deal with any number of challenges, including heterogeneous IT environments, legacy applications, high-availability information systems, data silos, increasing data volumes, and escalating costs.

These factors make it imperative that IT departments find cost-effective solutions for enterprise-wide data management, preferably using intelligent data integration and efficient data synchronization.

This is where Treehouse Software comes in with proven mainframe integration

tsi
Treehouse Software, Inc.

Above: Treehouse Software's **Mitch Doricich***, National Sales Manager (Left) and* **Chris Rudolph***, Technical Representative (Right) man the booth at SHARE.*

Treehouse Software is pleased to welcome Bsecure, the Mainframe & Security Company, of Madrid, Spain as our marketing representative. Bsecure is authorized to sell and support TSI products in Spain, Portugal, Brazil, Argentina, Mexico, Peru, and Uruguay. Visit their website at: **http://www.go2bsecure.com/engine/**.

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Treehouse Software's ADABAS/NATURAL Open Systems Toolkit...

Today's Enterprise is looking for ways to reduce IT spending, and one way Software AG sites are doing this, is by re-hosting their mainframe NATURAL/ADABAS applications to Open Systems.

Since the cost savings for moving to an open systems platform can be significant, momentum is building for this option. Of course, one of the first considerations must be how to best move existing mainframe NATURAL/ADABAS data—but that's just the beginning.

Treehouse Software can help. If you are considering re-hosting your NATURAL/ADABAS applications to the UNIX, Linux, or Windows platforms, we have the tools and expertise to make it happen.

The **Treehouse ADABAS/NATURAL Open Systems Toolkit** consists of a set of our proven products:

- **ADAMAGIC** - Easily migrate your mainframe ADABAS data to UNIX, Linux, or Windows without using ANY mainframe CPU or additional mainframe DASD. Already running ADABAS on Open Systems? **ADAMAGIC** is the equivalent of **ADASTRIP** for Open Systems. Extract data from ADABCK backups, or directly from an online ADABAS database.

- **ADAREORG** - Reorganize and restructure ADABAS files.

- **CHART** - Analyze and document NATURAL applications.

- **EspControl** - Change control for NATURAL on Open Systems.

- **NatQuery** - Intelligently generate NATURAL code to handle all of the complexities of data extraction from ADABAS, including change data capture.

- **NatCDCSP** - Add-on to NatQuery designed to create immediately-usable data out of the ADABAS PLOG. Propagates changes from ADABAS on the mainframe to ADABAS on Open Systems.

*Contact Treehouse today for special package pricing!*

propagate (keep synchronized) the ADABAS data into the RDBMS without requiring direct access to ADABAS.

Whether a site is completely replacing a legacy ADABAS system with an RDBMS-based system as was done at the University of Maine, or if the need is a long-term data transfer and synchronization solution for data warehousing/Internet/Intranet/ERP applications, **DPS** is the answer.
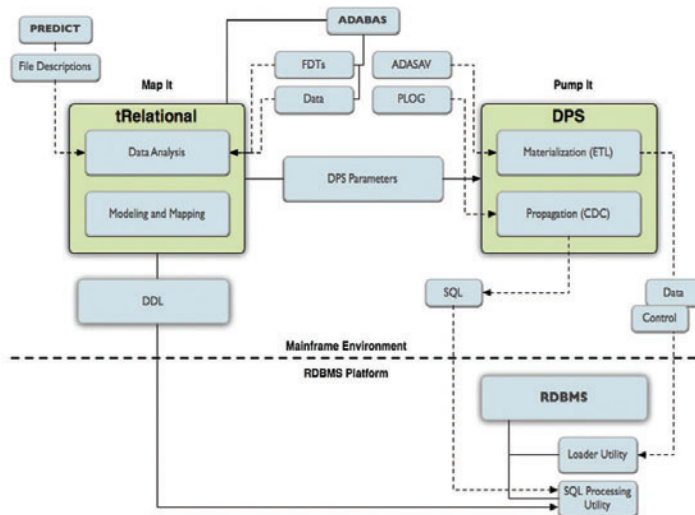
John St. Peter, Lead Database Administrator at the University of Maine System, illustrates how **DPS**, Treehouse Software's best-of-breed product, helped put the University's mainframe system on the fast track to its new home—on time and under budget. The University of Maine System chose **DPS** for migration of their legacy ADABAS data as part of their plan to move from the mainframe by the end of 2009. John writes to us:

The University of Maine System consists of 7 unique universities with a student body of 32,000. Certain administrative systems are centrally managed for all universities by the University of Maine System.

The large majority of ADABAS files supported three ADABAS applications:

1. The student system (ISIS)
2. The financial aid system (Financier)
3. The accounting system

Additionally, there were a few other files supporting some smaller in-house applications.

Nearly all students and faculty, and a large number of administrative staff, used systems that accessed the data stored in ADABAS, 24x7. The student and the financial aid systems were the lifeblood of the University system.

The mainframe ADABAS systems consisted of over 200 ADABAS files and 100 million records of data. The University of Maine System had been a Software AG customer since 1987 and used ADABAS and Natural extensively. The student system was written in COBOL, but all reporting was done with Natural, and the financial aid and financials systems were written in Natural.

The mainframe ran both VM/CMS and VSE as operating systems. Depending on the applications, on-line access to the data was through web, IVR, and CICS systems. Batch access was done via CMS and VSE, with all large batch jobs running in VSE.

On Target, and On Track…

While our products had served us well, they were well past the end of their useful product cycle. Neither VSE nor ADABAS were seen by ERP vendors as a major program platform. The University of Maine System was concluding a multi-year effort to migrate to an ERP system and when that was finished, the mainframe would be retired. But the data in the ADABAS database was still of value. Whether due to regulatory requirements for retaining data, or because it did not convert readily to the new systems, much of the legacy data had value outside of the new applications. Even data that had been converted, it was decided, had value in its original form for a few more years, and the decision was made to convert virtually all the legacy data to Oracle, with the target system being Oracle version 10.2 running on a Sun Solaris platform.

Fully involved with our ERP implementation, we had neither the staff nor the time to manually do all the preparatory work in migrating the hundreds of files and tens of thousands of fields to Oracle, so it was decided to look for a vendor solution. It was a very easy decision to go with Treehouse Software. They came in with the best price, had the tools to meet our needs, and in our case, had a proven track record, as we had been satisfied long-time users of their **TRIM** and **AUDITRE** products for over 20 years.

Race Against Time…

At the start of the migration project, we were faced with several challenges:

- We had a tight timeframe. The mainframe went out the door December 31, but the data was still being accessed until mid-December. Therefore, we had to make sure the final push of the data went fine and the data was accurately converted because we would not be able to come back and do it later.

- Our legacy data was not as clean as it should be. Not only did some of our older applications not do data integrity checks, but some fields were purposely in a format other than defined – binary values in a character field, for example.

- Doing anything 200 times takes time. Doing lots of things 200 times takes lots of time.

- Our environmental architecture complicated the issue.

Our mainframe operating systems and underlying products had essentially been frozen once they were made Y2K-compliant in the late 1990s, so they did not have current features and it was unclear how well they would work with the vendor solutions. Our version of VSE didn't have FTP capabilities for example, so data would have to get moved from VSE to VM/CMS before we could FTP it off the mainframe. Also, our VSE systems had only a small amount of intermediate disk space, so large files would need to be moved in pieces, and their starting point (ADASAV files) would need to be on tape. So the 100 million rows of data would need to be touched several times on the way from the starting destination on ADABAS to the final home on Oracle. Space concerns also meant we essentially had to move one ADABAS file at a time from start to finish.

University of Maine System Data Migration

Moving 100 million rows of data seven times, along with the additional rows created to support PEs and MUs, meant pushing more than one billion rows of data around, so we didn't have time to fix problems on the fly during our final push. Treehouse's products had to run quickly, and they had to run well... And they did.

Since some of our systems made good use of the non-relational ADABAS PE and MU features, we didn't know how well or how easily these would convert to Oracle.

Treehouse Software Provides a Smooth and Fast Ride

The Treehouse products were absolutely essential to the success of the project. The modeling features of **tRelational** made it very straightforward to generate models and DDL for the 300 Oracle tables built from the original 160 ADABAS files that we opted to convert (child tables were created from PE and MU groups in the ADABAS files). Many of our ADABAS files had multiple record types which we could have had the modeling tool easily convert into multiple Oracle tables, but we made a conscious decision to keep our original structure as much as possible. Natural date/time conversions happened by

default and worked flawlessly. Working with our special fields that needed to be converted to something other than their default ADABAS format also turned out to be a simple process thanks to the several built-in conversion choices offered. When we chose on occasion to split or merge or take substrings of ADABAS fields when converting them to Oracle, the modeling tool made those actions easy.

The materialization steps also went smoothly for us. Because of our time constraints and because of the number of points our data had to go through, it was important that these steps go quickly and flawlessly during our final push. On our system, **DPS** could perform the materialization at speeds over 1 million rows per minute depending on the file. We were also able to have **DPS** work with our largest files by working on just a part of the data with each pass, usually about 2 million records at a time.
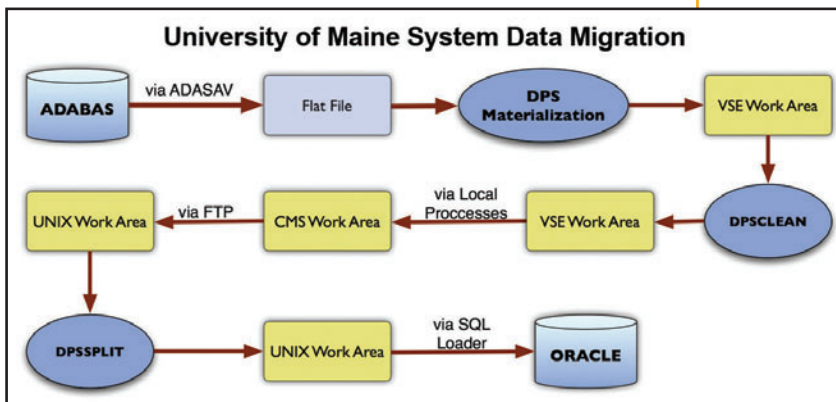
We took advantage of another **DPS** feature to help ensure that our final push would work as smoothly as possible. Ahead of the final push, we had **DPS** do a practice materialization and report on non-character data in character fields, which could disrupt the later FTP or SQL Loader steps. Identifying and resolving the patterns of bad data turned out to be more time-intensive than we thought and no one solution was right for all data, although one option that **DPS** could perform, and which we used on some files, was for **DPS** to clean up the data itself. Using **DPS** in practice runs to check on bad data meant that data issue surprises were kept to a minimum during our final push to Oracle.

Whether we had design choices with the modeling tool or questions about **DPS**, Treehouse would respond promptly and accurately, so we were never delayed by the tools.

Success Leads to a Parting of Ways

We couldn't be happier with our experience with Treehouse Software. The products worked as advertised and with no surprises. The tech rep that came on-site to help us install and learn the products was knowledgeable about both his products and our environment.

Just one example of the support that Treehouse Software provided occurred when a useful feature of their modeling program was not available in the version we were using (we needed to use the previous version of the tool because of our environment). On his own initiative, the technical rep onsite contacted support, and within just a few hours, that feature had been retrofitted to the earlier version of the product and the patch was sent to us and applied. I have only rarely experienced a vendor going to those lengths for a customer. One of the drawbacks of the movement off ADABAS and Natural for us is that after 20 years of working with Treehouse we no longer have them as a vendor. •

Many sites worldwide continue to depend on TRIM and N2O

If a sign of a product's success is the longevity of use by customers, then Treehouse's **TRIM** and **N2O** qualify as world champs. Since 1983 Treehouse Software has been offering the world's best Software AG related tools and utilities, and in particular, **TRIM** (ADABAS/NATURAL performance monitor) and **N2O** (NATURAL change management system) have been at the forefront of those software products.

Approximately 700 customers in the U.S. and dozens of other countries have grown to depend on Treehouse Software's rock-solid products and responsive customer support.

As has been the case over the long history of **TRIM** and **N2O**, the Treehouse development staff continues their outstanding tradition of product maintenance, enhancement, and support. If you've been thinking of taking a look at these products, now is a great time to give them a try, since the latest upgrades have just been released.

"You folks at Treehouse Software have done a tremendous job for us. There are not too many vendors I can recall that have been as responsive and helpful as your team. Your efforts have been invaluable to us, and we really appreciate all that you have done."

IT Director and TRIM Customer from a U.S.-Based University

TRIM v8.1.3 is Released!

We are pleased to announce that **TRIM** v8.1.3 has been released. **TRIM** is Treehouse Software's time tested, industry standard performance monitor for ADABAS and NATURAL that provides robust on-line statistics about ADABAS and NATURAL use and performance. Its batch facilities provide total resource utilization statistics from summary or detail log data. Over 150 sites worldwide use **TRIM**.

TRIM v8.1.3 has been thoroughly tested using ADABAS v8.1.4, and supports NATURAL 4.x and above.

The latest enhancements to **TRIM** include: ADABAS 8.1 support; storage areas to maintain the **TRIM** statistics are now obtained dynamically during initialization and are allocated from above the line; increased counter sizes (up to 16E) for session statistics; and work area and file buffer storage for **TRIM** Batch is now obtained from above the line, eliminating the need to reduce volume for batch accounting and analysis.

Have You Downloaded N2O v5.2.1?

If you are a current N2O customer, you'll want to head to the Treehouse website and download the latest release. And for those who are not N2O users already, you'll be impressed with Treehouse Software's leading change management system for NATURAL. An easy-to-use, non-intrusive solution, N2O migrates NATURAL programs, PREDICT objects, and SYSERR messages across local and remote nodes. N2O provides on-line and batch migrations of source and object code, multiple levels of authorization, audit trails, reporting, target compilation, XREF integration, automatic archiving, source code scanning, program compare, check-out/check-in of source code, documentation tools, and a project tracking subsystem.

Treehouse also sells N2O/3GL, a separately-priced N2O feature that supports the migration of 3GL objects, such as COBOL and JCL stored in PANVALET, LIBRARIAN, ENDEVOR or partitioned data sets (PDSs).

The latest enhancements to N2O include:

- Increased sequence number field, to handle up to 9,999,999 events per Master Event.

- Sites can define a migration profile to migrate source and object code, then delete only source code or only object from the "From" environment/library.

- Recently used input fields will now be retained between N2O screens.

- PF11 Functionality has been added to the Checkout Utility screen.

- Long SYSERR messages can now be checked out to remote environment.

- The Cancel Checkout Utility has been modified to allow a user to optionally specify Checkout Date, Current Environment, and Current Library, when cancelling a checkout.

- The History of an Object report now shows all events related to an object (previous releases did not include open events). Online, PF5 can be used to toggle between all history, closed history, or open history. A batch run permits the user to specify what types of Events should be displayed.

- N2OPURGE will allow purging and archiving of SYSERRs and DDMs.

- Several new APIs have been added to allow sites to create and modify N2O Events outside of the normal N2O screens.

- And more...

Download or Demo Treehouse Products Today!

To download TRIM or N2O, current customers can go to the Treehouse support page at **www.treehouse.com/service.shtml** and click on the "Download Products" link.

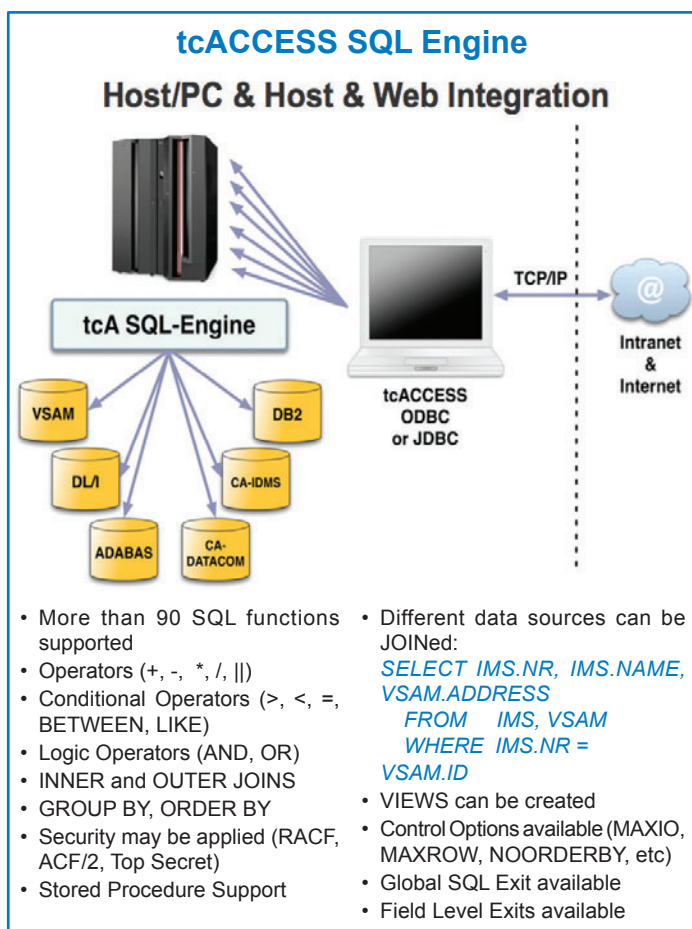To request a free, online demo of TRIM or N2O, visit the Treehouse online product demonstration request page at **www.treehouse.com/onlinedemoform.html** and just fill out the short form. •

products. This article provides a high-level overview of the functionality of **tcACCESS** and **tcVISION**.
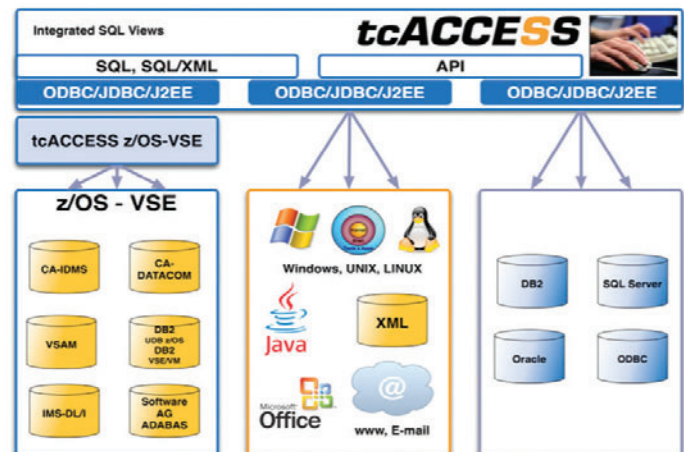
Enterprise Data Integration with tcACCESS

tcACCESS is a powerful integration platform (mainframe software, workstation software, middleware) for IBM mainframes, enabling transparent integration of mainframe data sources and programs into open-systems applications using industry standards like SQL, ODBC, JDBC, and .NET. A modular software solution, **tcACCESS** comprises a base system that can either be implemented as a CICS transaction or as a VTAM application, and provides its own communication modules. The heart of the system is the **tcACCESS** SQL Engine, which allows access to mainframe data sources using SQL statements, and features:

- Bi-directional data-exchange across heterogeneous systems
- Direct data access across heterogeneous systems
- Data transformation for data analysis and exchange
- Relational access to legacy data and applications
- Data federation – heterogeneous data views
- Integration of mainframe files and DBMS structures
- Data federation between mainframe and Windows/ Open Systems data

tcACCESS SQL Engine

Host/PC & Host & Web Integration

- More than 90 SQL functions supported
- Operators (+, -, *, /, ||)
- Conditional Operators (>, <, =, BETWEEN, LIKE)
- Logic Operators (AND, OR)
- INNER and OUTER JOINS
- GROUP BY, ORDER BY
- Security may be applied (RACF, ACF/2, Top Secret)
- Stored Procedure Support

- Different data sources can be JOINed:
  SELECT IMS.NR, IMS.NAME, VSAM.ADDRESS
  FROM IMS, VSAM
  WHERE IMS.NR = VSAM.ID
- VIEWS can be created
- Control Options available (MAXIO, MAXROW, NOORDERBY, etc)
- Global SQL Exit available
- Field Level Exits available

The following diagram illustrates the **tcACCESS** *architecture:*

CDC Replication with tcVISION

The Problems:

- Different data formats
- Different data models
- Large data volumes
- Limited batch window
- Extract programs are costly to run in a chargeback environment
- Requirement for up-to-date information

The Solution:

- Moving/replicating data...
- as much as needed
- as little as possible
- as transparent as possible
- as flexible as possible
- as secure as possible
- using as little mainframe CPU as possible
- with **tcVISION**

tcVISION is a flexible data replication product that focuses on changed data from virtually any mainframe data source and transfers information between mainframe and workstations or open systems–in bulk, either through batch Changed Data Capture (CDC) or in real time. Mainframe data exchange processes are considerably simplified using **tcVISION**. The structure of the existing mainframe data is analyzed by special processors, and the data mapping information is presented in a user-friendly and transparent format – even for users with no mainframe knowledge–and captured in a metadata repository.

tcVISION's unique "stage processing" architecture allows for most (and in some cases ALL) of the ETL and CDC processing to be performed on a Windows, UNIX, or Linux platform. This is an especially attractive feature for sites
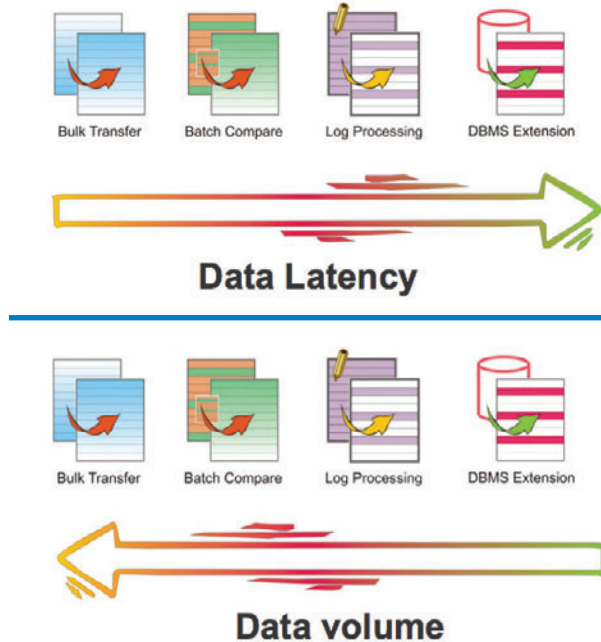
that are already at 100% utilization of their mainframe CPU, or have a chargeback system in place.

tcVISION's Windows-based Control Board provides an easy-to-use facility to configure and administer the data flow. **tcVISION** provides a variety of interfaces to allow seamless integration with ETL or EAI solutions.

A look at tcVISION's CDC Process...

Bulk Transfer
- Efficient transfer of entire databases
- Analysis for data consistency
- Best for Initial Load prior to log processing
- Best for periodic mass data transfer
- One step data transfer

Batch Compare
- Comparison of data snapshots
- Efficient transfer of changed data since last processing
- IMS/DB, DL/I, VSAM, DB/2, ADABAS, CA-IDMS, DATACOM, sequential files
- Flexible processing options (SORT etc.)
- Automatic creation of deltas by tcVISION

Log Processing
- Uses the DBMS logging capabilities
- IMS/DB, VSAM, DB/2, DL/I, ADABAS, IDMS, DATACOM
- Transfer of changed data in scheduled time frame
- Best for batch window
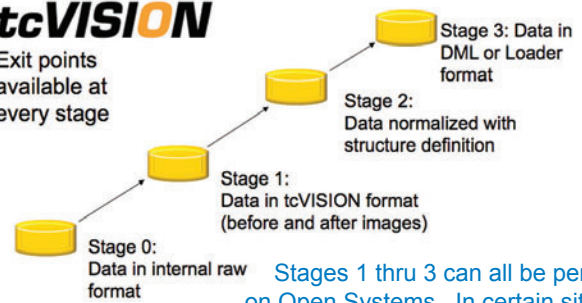- Best for processing right after logfile creation

DBMS Extension
- Realtime capture of changed data
- Changes directly obtained from DBMS
- CA-IDMS, IMS/DB, VSAM, DB/2, DATACOM, ADABAS
- Secure data storage even across DBMS restart
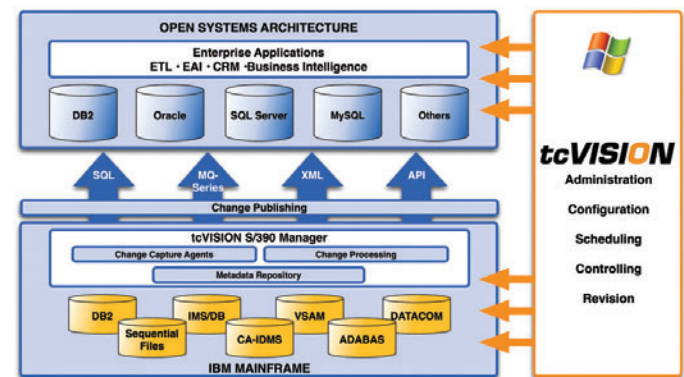- Flexible propagation methods

The following diagrams illustrate **tcVISION**'s staged processing and architecture:
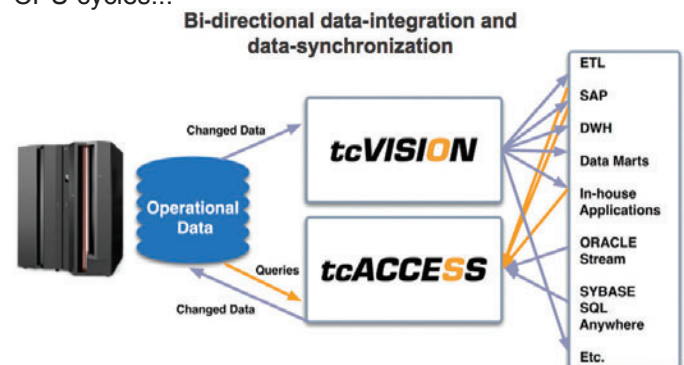

Stages 1 thru 3 can all be performed on Open Systems. In certain situations (such as Log Processing), Stage 0 can also be performed on Open Systems, which ensures no mainframe CPU is used.

Summary

tcACCESS & **tcVISION** offer a complete bi-directional data integration solution while minimizing use of mainframe CPU cycles...

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Treehouse Software Products

Legacy Data Modernization:

DPS - ADABAS-to-RDBMS data materialization (ETL), replication, and propagation (CDC) software

DPS X-Link - Instant XML-based read/write access to ADABAS

DPSync - Real-time ADABAS-to-RDBMS data propagation (CDC) software product set

tRelational - ADABAS modeling, mapping, and data analysis tool; DPS parameter generator

tRelationalPC - Windows-based graphical interface to make the tasks of modeling and mapping even simpler

Treehouse Remote Access (TRA) - Middleware that allows tRelationalPC to communicate with tRelational on the mainframe.

NatQuery - GUI-based tool that intelligently generates NATURAL code to handle all of the complexities of data extraction from ADABAS

NatCDCSP - Add-on to NatQuery designed to create immediately-usable data out of the ADABAS PLOG

tcACCESS - powerful integration platform for users of IBM mainframes, allowing a transparent integration of mainframe data sources and mainframe programs into open system applications

tcVISION - Data replication product that focuses on changed data when transferring information between mainframe and workstations or open systems

Software AG Related:

ADAMAGIC - Tool for converting mainframe ADABAS files into ADABAS for UNIX/Linux/Windows, flat file, or comma-delimited formats

ADAREORG - File reorganization tool for ADABAS

ADASTRIP - Data extraction utility for ADABAS

AUDITRE - Generalized ADABAS auditing facility

CHART for NATURAL - NATURAL application analysis and documentation tool

EspControl - Change control system for NATURAL on open systems

N2O - NATURAL application change management system

N2O/3GL - 3GL support within N2O for PANVALET, LIBRARIAN, ENDEVOR, and PDSs

PROFILER for NATURAL - NATURAL quality assurance and testing tool

SECURITRE - ADABAS and NATURAL security interface to RACF, ACF2, and TOP SECRET

TRIM - ADABAS and NATURAL performance monitor

Mainframe Emulation:

SEDIT - XEDIT and ISPF/PDF compatible editor for UNIX and Windows

S/REXX - REXX-compatible language for UNIX and Windows

S/REXX Debugger - Optional graphical debugger for S/REXX programs

Telemetree Systems
A branch of Treehouse Software, Inc.

Cubeware - Everything needed for easy-to-use, self-service business intelligence for decision makers, managers, and departmental users

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