Transoft evolutionary solutions

HP e3000 | White Paper

Transoft HP e3000 Application Migration & Modernization

By Geoff Baker, Product Strategy Director

Executive Summary

With the HP e3000 end-of-life announcement, not only does your IT management have its pressing new business requirements to consider, but also how to get off the HP e3000 platform. How can both priorities continue to be met?

The options for moving off the HP e3000 are application replacement, either through a package implementation or re-development, or application migration. Why migrate? HP e3000 applications typically contain decades of business process refinement and value, are reliable and scalable; Transoft helps you migrate these applications to an open systems platform, faster with reduced risk compared to any application replacement option. It leverages these applications to meet process improvement (for example, e-business) through integration with the latest technologies (Java or .NET) *now* or after migration. Such an approach retains the value and increases the ROI of these core applications.

The decision process to migrate will obviously include which open system platform you wish to go to and the costs and timescales; but you also need to plan for all facets of the migration, not simply the "code-conversion". Transoft helps with this decision making by providing a process-oriented approach, identifying at the outset all key considerations, the Transoft and client responsibilities, and the means of project communication. The migration is a tools-based project that results in a native implementation on the open system platform.

The Transoft Legacy Liberator HP e3000 toolset is a comprehensive set of tools and facilities to automate as much as possible the migration process; not only for the application code but also the database, user interface, job control language and the data to your platform of choice. Legacy Liberator offers you a wide choice of user interface from character screens to modern graphical thin client or browser environments, and also takes your IMAGE data to the clone Eloquence or a modern relational database management system.

Transoft views migration as the first step towards being able to obtain business process improvement or even business-on-demand offered by new technologies on open system platforms. This is achieved through Transoft application modernization and integration products and services to build new business processes from the existing application services, allowing you to extend these processes beyond your traditional organizational boundaries, leading to improved customer service and reduced transaction costs. See how this can be achieved *now* and after migration.

Introduction

With Hewlett Packard's announcement, in November 2001, that it is phasing out its HP e3000 proprietary platform, in addition to your new business and technology requirements another key IT priority has to be to get off this platform.

The options for moving off the HP e3000 are application replacement, either through a package implementation or re-development, or application migration.

HP e3000 applications typically contain decades of business process refinement and value. They fundamentally meet the processing needs of the organization, but usually there are new drivers that are best suited to modern technologies.

These new business and technology drivers fall into the following broad requirements:

- e-Business enabling the application
- Transforming the user interface of the application
- Changing the application's database technology
- Integrating the application with other enterprise systems
- Being in a position to easily meet changing business functions or models.

This is by no means a complete list but it does represent some common themes among HP e3000 users.

Some organizations with pressing business requirements would like, if it were possible, to take advantage of new technology solutions even before moving from the HP e3000.

Implement package, re-develop or migrate?

The implementation of a package or the re-development of the application may initially seem attractive routes to obtain new business and technology needs. But there is one thing organizations frequently overlook. That is, unless business processes have changed significantly, the minimum requirement of a new application is that it does all the things the existing application does – if it doesn't then you will never get to the point where you can turn off the existing system.

The experience of many organizations has been that often large modifications have to be made to a packaged solution. This functionality shortfall can frequently elongate package implementation projects and of course drive up the costs. Add to this the technical learning curve and the users' learning curve, and an organization can be presented with a scale of project that at the very least will impact its daily operations for a period of time, and in extreme cases could actually seriously affect its overall performance.

The 'green field' re-development approach has the compelling promise to deliver a solution that will meet the new technology requirements, additional functionality requirements and still leave the company in control of its IT direction for the future. However, a re-development strategy is without question the most risky, and probably the most expensive, option to take.

Unfortunately the IT industry has a poor reputation for turning in projects on time or on budget.

Also, frequently while these new developments are in progress, the existing systems are left with little or no maintenance resource and therefore start to fall even further behind the business needs. This in turn results in even more pressure for the new system. This forces corners to be cut to speed-up delivery, or costs to be escalated by throwing more resources at the new development project, with the belief this will speed-up completion.

The bottom line is that in the current business climate, there is just not the IT budget available to undertake large-scale package replacement or re-development. CEOs are demanding greater ROI from existing assets, including those in IT.

However, there is now another approach available. Application migration and modernization is rapidly being seen as the only really viable alternative to the *slash and burn* approach of replacing existing applications with packages, or through grandiose new development projects. The principles behind an application migration and modernization solution are based on the optimum re-use of valuable existing business logic and data combined with the marriage of new technology where appropriate.

The Aberdeen Group summarizes it this way:

"*Today's pressure on IT departments to use existing resources cost-effectively continues to increase… the answer is to leverage existing business-critical applications and information more effectively.*"

In the case of HP e3000 applications, a generally ideal approach is firstly the migration of these applications to Linux, UNIX, Windows or IBM iSeries servers. Next to, optionally, deploy new e-business or distributed solutions, using such technologies as Java/J2EE or Microsoft .NET, that integrate with the key business services and data from the migrated application.

Transoft Application Migration & Modernization solutions

Transoft, a leading expert in application migration and modernization solutions, has more than 15 years' experience migrating some 150 proprietary systems, including not only HP e3000, but also IBM mainframe, DEC VAX, Data General MV, Prime, NCR VRX, Bull GCOS and other proprietary systems to open systems platforms. Our application migration, modernization and integration technologies in addition to our services enable you to not only safely move your core applications, but to also improve and add functionality to them during the process.

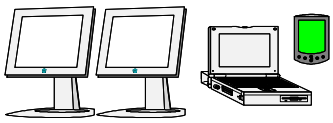
For example, with the Transoft Legacy Liberator migration toolset, we can take your HP e3000 character screen applications into a graphical user interface, thin client or browser environment and take your IMAGE data to a modern relational database management system.

Steel Warehouse spent several months evaluating migration options for its HP e3000; the company looked at several offerings before selecting the Transoft solution. "Transoft was the only firm that offered a complete package", said Dovid Samber, Steel Warehouse's MIS director. "Other migrations seemed to be based on just emulating the HP 3000 environment on a new platform. With Transoft, we are getting a port to the native UNIX and RDBMS environment, which means we won't be left in another dead-end," he explained.

We can also provide, using other Transoft products and services, *now* or after you migrate, the opportunity to add new business processes, such as B2B e-business, making use of the business logic and data from your HP e3000 applications delivered via the new technologies of Java/J2EE or Microsoft .NET.

In all cases, our approach emphasizes reduction of any risk associated with change while helping you to plan for future development and integration with today's technology. Such an approach retains the value and increases the ROI of your core applications.

"We are a key leader in the healthcare industry for HP", said Al Gain, AMISYS vice president of product development. "And we needed to pick a leading partner that could help us quickly and easily move our COBOL-based programs and jobs to an open systems environment. After an intensive selection process, it became clear to us that Transoft, with its open technology road-map methodology and excellent record in migration solutions, would be the perfect partner."



Transoft HP e3000 migration project approach

Transoft's approach to HP e3000 migration and modernization projects consists of the following phases:

Project Phase	General Tasks
Discovery	Requirements Definition; Roadmap; High Level Architecture; Scope
Inception	Establish Project Team & Set-Up; General Analysis; 3rd Party Tool Evaluation
Design	Architecture; Database & ETL (Extract, Transform, Load); Prototypes; Test Plans
Technical Set-Up	Product Installation & Configuration; Tool Set-up; Construction Procedures
Construction/ Development	COBOL Conversion; Intrinsics; Database Build; I/O Module, Interfaces
Testing	Unit and System Integration
Deployment	Documentation & Implementation

These key considerations include:

- Is the migration intended to be a tactical solution, or a long-term foundation for business enhancement?
- What platform, user interface, database and new technology environment do you wish to go to?
- Have you planned for all facets of the migration, or simply "code-conversion"?
- Is your IT team ready to support the new technical environment?
- Do you have a change management plan?
- How do you intend to accept the application?
- What is your data migration strategy?

One of the outcomes of the Discovery

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Transoft Legacy Liberator - HP e3000 migration toolset

Transoft Legacy Liberator consists of a set of migration tools and facilities that automates, as far as possible, the migration process providing the widest possible choice of taking **every aspect** of your HP e3000 applications to an open systems platform,

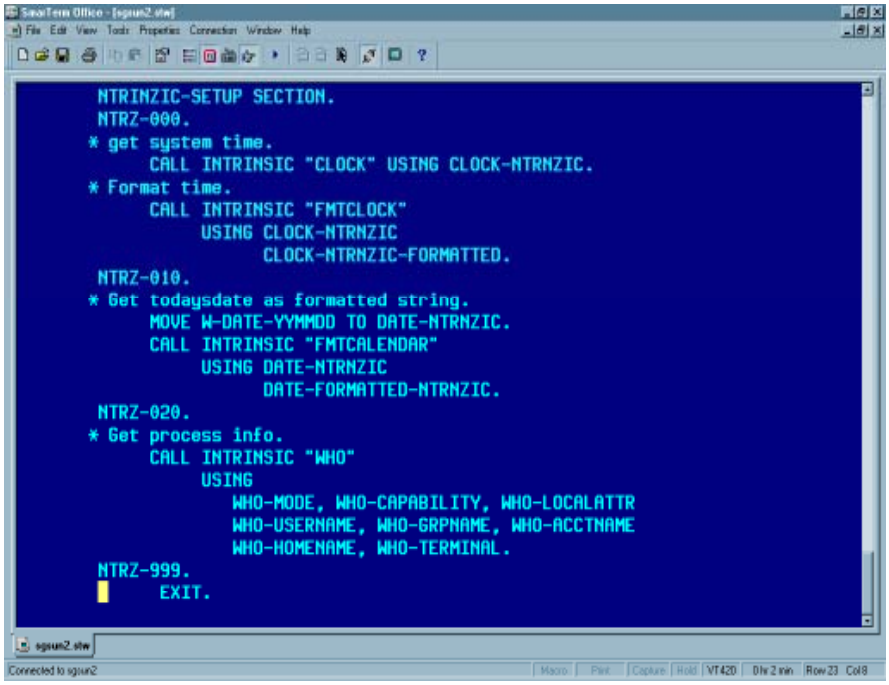
- VPLUS forms conversion, using Transoft Graphical Adapter (TGA), to character screens, and/or under Windows as browser delivered ASP.NET or Visual Basic forms, or in the Java world as browser delivered JSP

Migrating application code - not only COBOL but also Fortran, C, RPG, etc

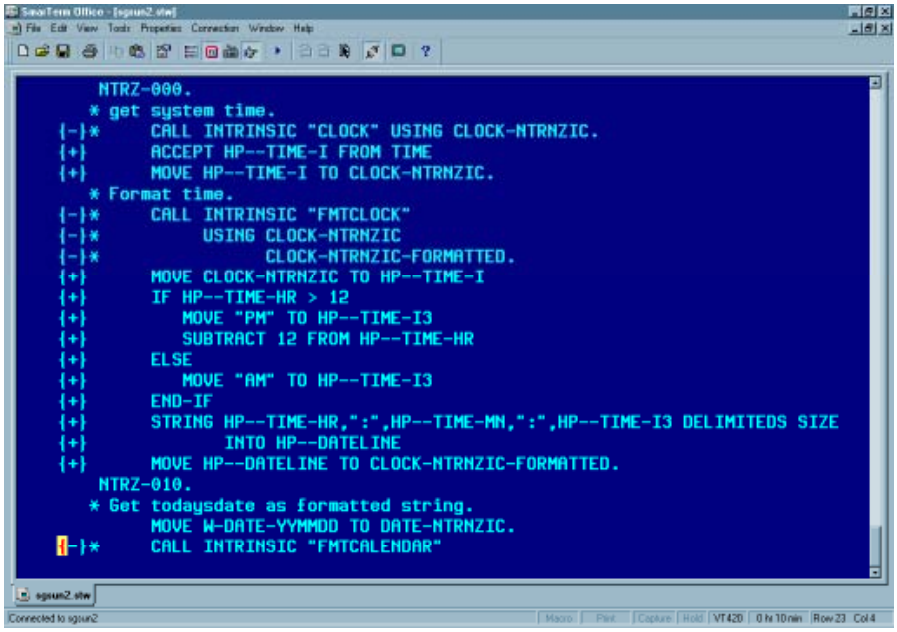
Although Transoft provides migration tools for languages, such as, Fortran, C, RPG, and so on, the majority of applications have been developed in COBOL. The **COBOL Converter**, part of Transoft Legacy Liberator, migrates HP e3000 COBOL programs to an ANSI standard open systems COBOL, such as ACUCOBOL, from Acucorp, Net Express or Server Express, from Micro Focus, and .NET COBOL from Fujitsu, all leading COBOL compiler vendors.

HP e3000 Intrinsics are either converted directly to COBOL, by the COBOL Converter, or to equivalent open systems callable routines.

HP e3000 Intrinsic System Calls – Pre-Migration



HP e3000 Intrinsic System Calls – Post-Migration



Migrating VPLUS screens

The HP e3000 application user interface is more often than not developed around the VPLUS screen management package. This screen I/O management layer typically runs the application screens in block mode. In other words, the screen form input is completed by the user and submitted to the COBOL program which processes the input and then the program outputs a form back to the user through the interface with the VPLUS screen I/O manager.

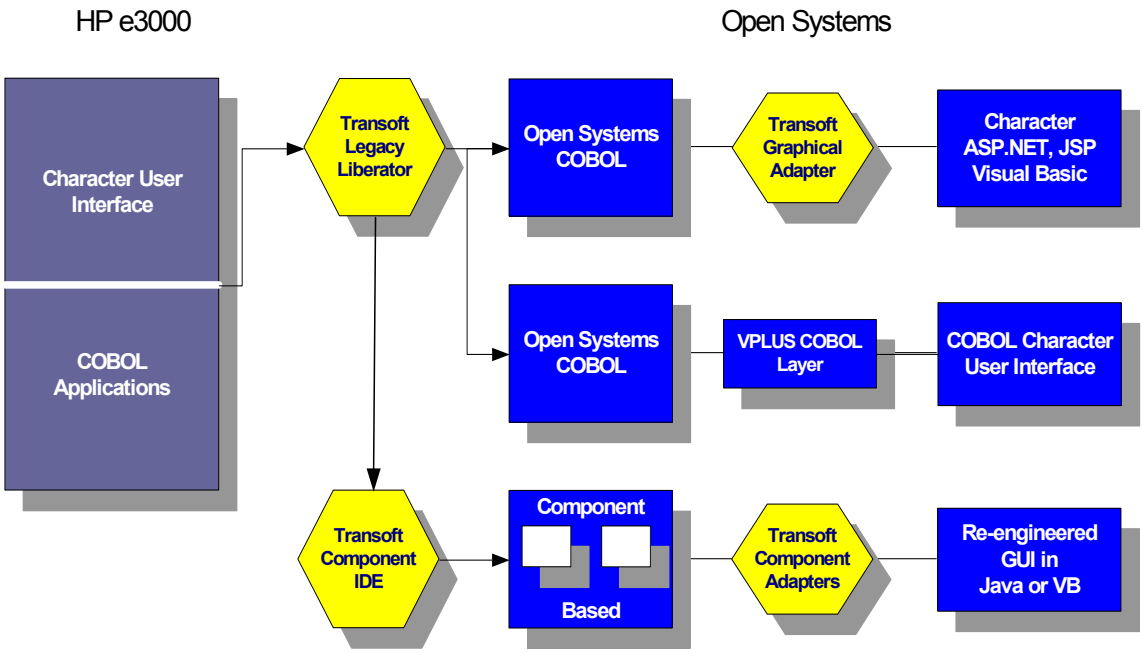
Transoft Legacy Liberator provides the widest number of choices for modernizing your application's user interface.

Firstly, Transoft Legacy Liberator contains **Transoft's Graphical Adapter** that processes the HP e3000 VPLUS FormSpec files, to automatically provide support for the 'green-screen' character user interface your users are used to. This means no change for your user community, no re-training and you do not even have to replace your existing HP700 terminals.

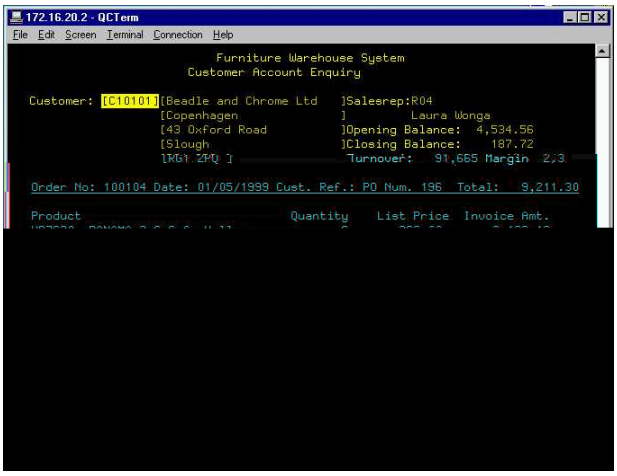
Secondly, the Transoft Graphical Adapter can also automatically generate 'thin' Visual Basic forms for Windows deployment and ASP.NET (Active Server Pages.NET) or JSP (Java Server Pages) forms for browser deployment. Typically the generated forms will then be 'enhanced' with additional features not available in the HP e3000 application. For example, the organization's 'house style' or pictures could be added, using an appropriate tool such as Microsoft Visual Studio or Macromedia Dreamweaver.

Thirdly, if a totally COBOL solution is demanded, then Transoft Legacy Liberator will generate COBOL programs for each VPLUS screen that are controlled via a VPLUS COBOL manager layer. Once in COBOL, the features of the particular open systems COBOL chosen can be utilized to further enhance the user interface.

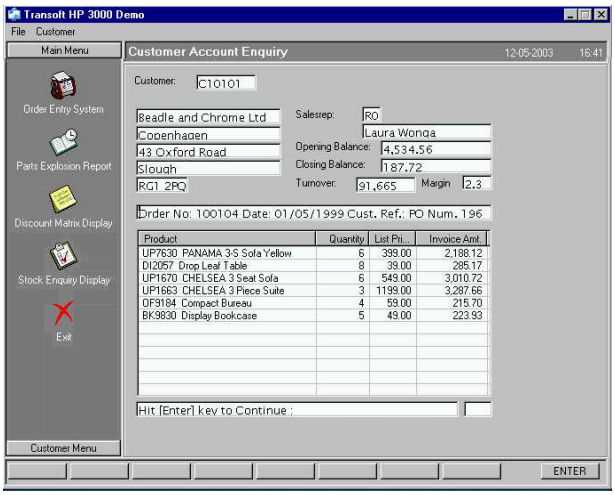
Lastly, all or part of the existing user interface can be completely replaced by a re-engineered new graphical or browser-based application, which can be developed in a native GUI tool such as Visual Basic or Java and integrated with the original COBOL application using the **Transoft Component Adapters** product set. More on this later.



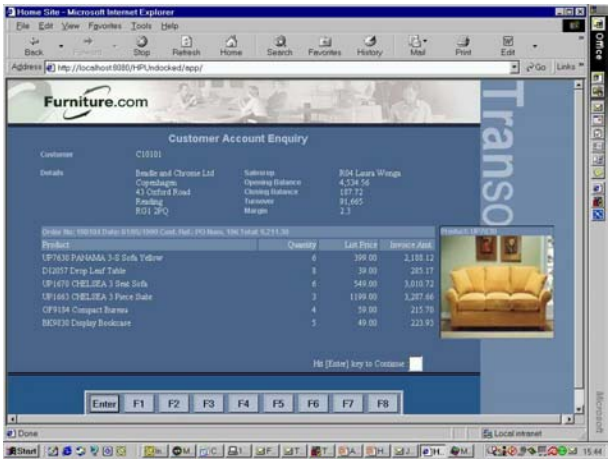
Transoft Legacy Liberator - choice of user interface



Character based screen



Visual Basic form



JSP or ASP.NET browser based screen

In summary, Transoft Legacy Liberator provides the following support for migrated VPLUS screen forms:

- Via Transoft Graphical Adapter
  - Character screens, and
  - ASP.NET (Active Server Pages.NET) browser delivery, and
  - JSP (Java Server Pages) browser delivery, and
  - Visual Basic 'thin' forms.
- 'Pure' COBOL screens replacing the VPLUS FormSpec files entirely.

Finally, you can obtain the benefit of a graphical user interface and browser deployment, *before you migrate*, by using the Transoft Graphical Adapter to create ASP.NET, JSP or Visual Basic forms and deploy them on the HP e3000.

Migrating the IMAGE database

The HP e3000 IMAGE database provides users' applications with high performance index-based data access. Transoft offers the options of migrating to a market-leading relational database (RDBMS), such as Oracle, SQL Server or DB2, or Eloquence, the IMAGE clone.

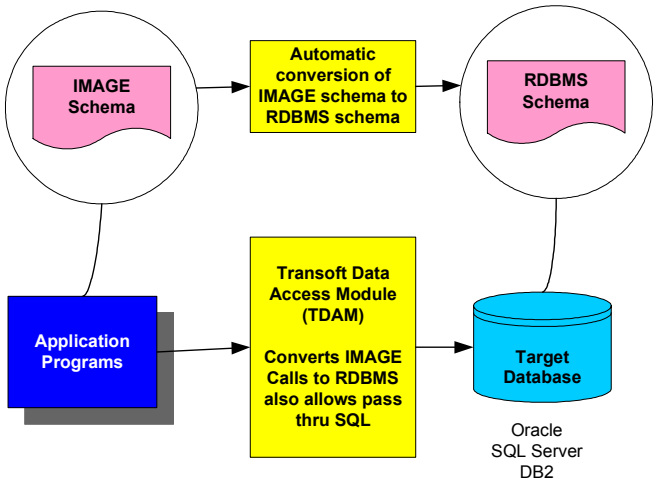
Transoft has a 10-year history of successfully migrating proprietary database applications to open systems, replacing the database with an RDBMS.

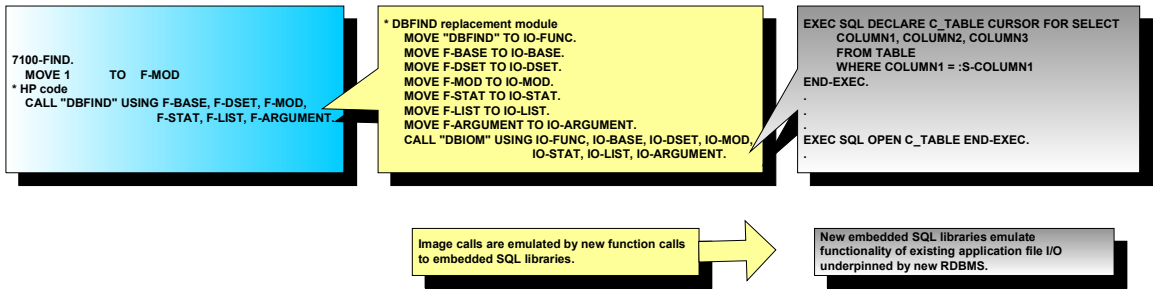
To achieve this, Transoft Legacy Liberator analyzes the IMAGE data structures and file I/O requirements of the existing application, and normalizes these data structures to become a corresponding relational model.

Then the **Transoft Data Access Module** (TDAM) is normally used in conjunction with the IMAGE Intrinsic Library to automatically map the existing file I/O statements in the COBOL programs with the appropriate RDBMS calls. By optimizing the index structures of the database and using the power of SQL the existing COBOL programs can run with minimum change on a new relational database.

Optionally, COBOL SQL I/O services can be generated, to provide the functional I/O requirements of the application. Although this option is all COBOL, the potential increased support effort needs to be taken into account.

Transoft Database Access Module
for automatic IMAGE to RDBMS conversion

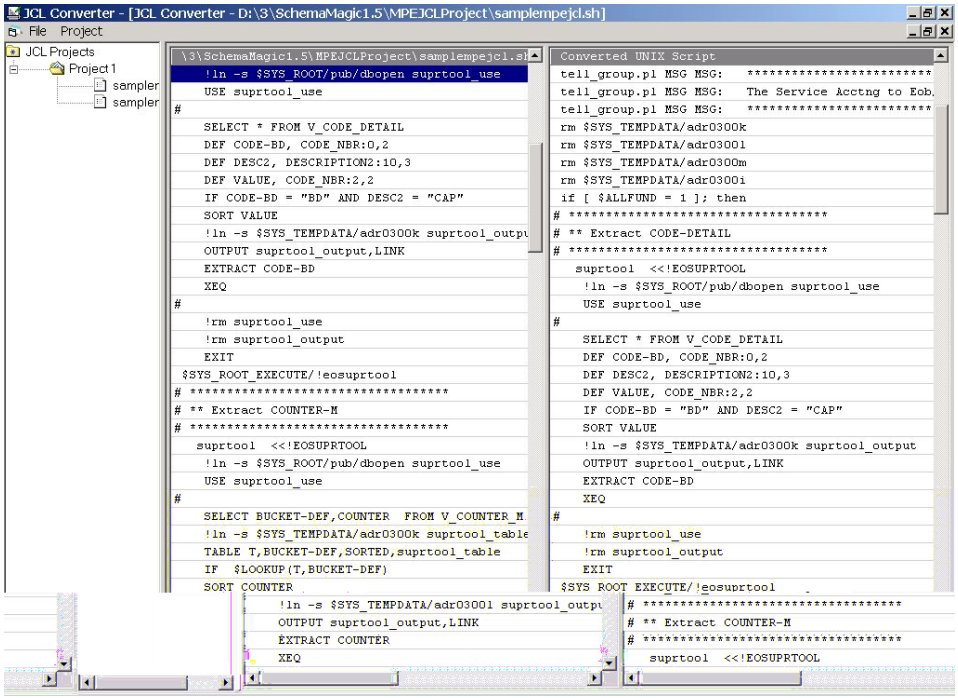




RDBMS accessed via COBOL SQL I/O libraries

Migrating Job Control Language (JCL)

HP e3000 JCL macros are converted, by Transoft Legacy Liberator, to either a native UNIX shell script environment, or on Windows into Perl scripts.

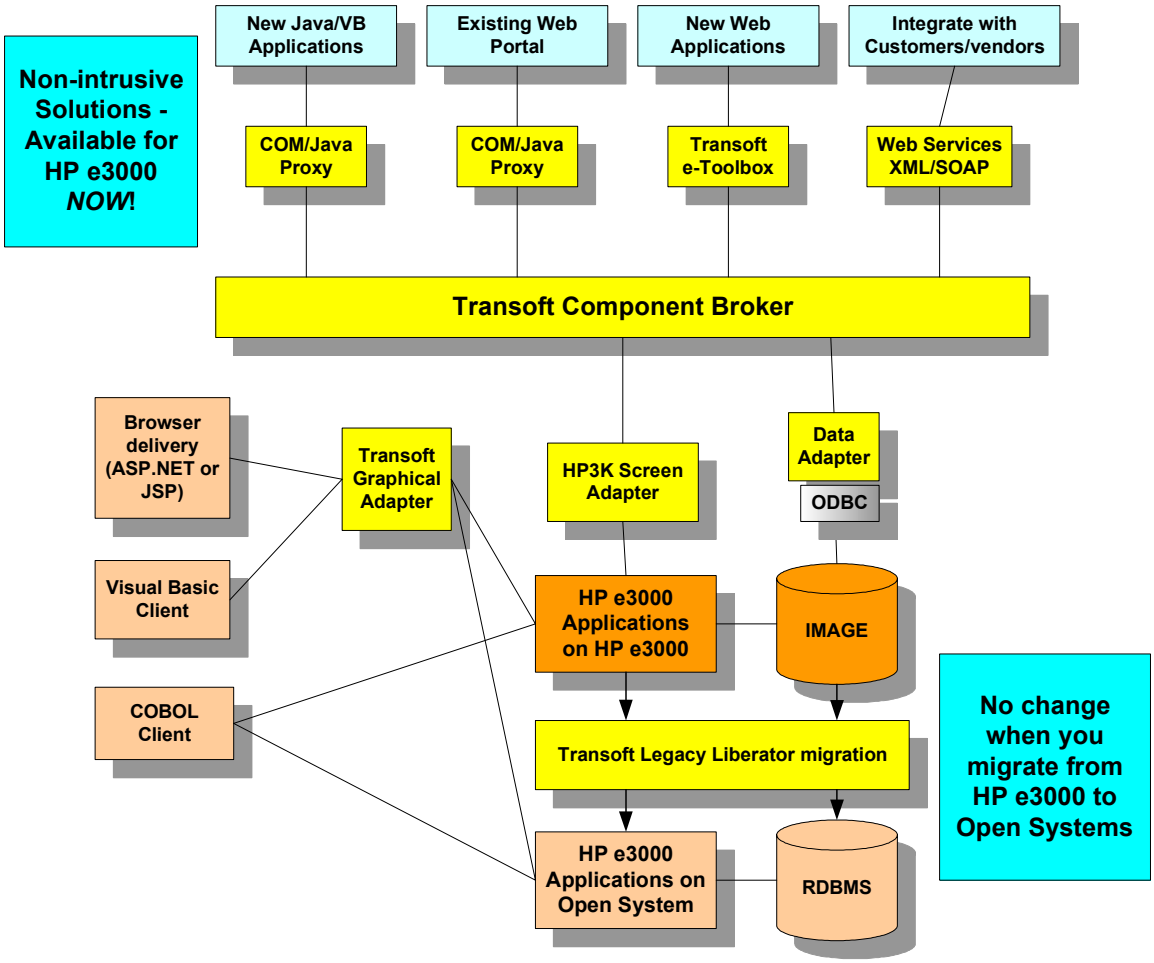


Data migration

Transoft Legacy Liberator provides Extraction tools for both IMAGE and KSAM data and corresponding Load tools for populating your new relational database (RDBMS) and ISAM files, respectively.

For very large data volumes, and where synchronization with the existing IMAGE database and the new RDBMS is to be maintained, Transoft also offers the BridgeWare product from Taurus, which is integrated into Legacy Liberator.

Implement new business processes - now and after migration



Integrate new business processes now and after migration

As previously discussed, in the section *Migrating VPLUS screens*, the Transoft Graphical Adapter can be deployed on the HP e3000 to gain the benefit of a graphical user interface or browser deployment, *before you migrate*.

Similarly, if you need to deploy new business processes, such as Web applications in new technologies, now before considering a migration, then the Transoft Screen Component and Data Component Adapters for HP e3000 applications can help you. This product set gives companies that run critical applications on the HP e3000 platform the ability to make the existing business rules and data in these applications available via a seamless, scalable and non-intrusive interface layer between the existing MPE applications and new application modules developed in, say, either J2EE or Microsoft .NET services.

Once deployed these new application modules will also operate without change when you do decide to migrate from the HP e3000 to an open systems platform.

Additionally, should your real aim be redevelopment of your MPE application rather than migration, then by providing organizations with a way to interoperate new systems with the existing HP e3000 applications, a redevelopment project can be phased in and gradually replace the original MPE application over time -- removing the risks of wholesale re-engineering projects.

"Some companies want to redevelop their HP e3000 applications. Often this is seen as an opportunity to provide new functionality. Yet companies frequently forget they cannot deploy a new application until they have developed it to a point where it performs all the functions the existing application does", comments Paul Holland, CEO of Transoft Inc. "Our proven adapter technology has been used by many companies to provide a bridging layer between the new and the old business rules. As a result, organizations can implement new functionality modules as soon as they are available, while still keeping on-line the areas of functionality which haven't yet been re-written."

These non-intrusive Transoft Screen Component and Data Component Adapters are part of the family of Transoft Component Adapter products. The Transoft Language Component Adapter provides a further option, post migration, to componentize existing critical COBOL code to be used as high performance, re-usable 'application services'.

The Screen, Data and Language Component Adapters deliver their application services via the Transoft Component Broker and can be exposed as J2EE compliant JavaBeans, COM objects for use with Visual Basic or XML-based Web services, for integration with new or other enterprise applications.

e-Business B2B or B2C solutions

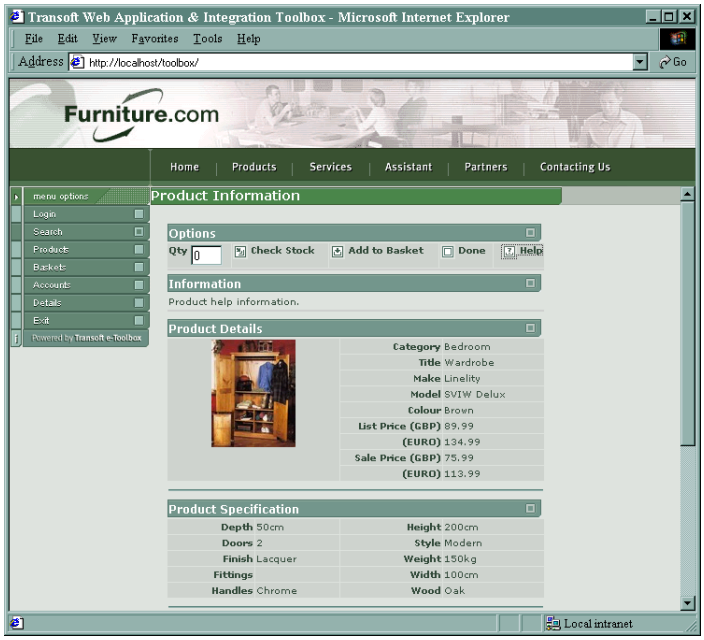
Corporations are under increasing pressure to *quickly* deploy business-to-business (B2B) and/or business-to-consumer (B2C) Web-delivered solutions to reach new and existing customers and suppliers with improved services. It is also essential that these e-business solutions are not only easy to use, but are fully integrated with the existing core business applications providing *`real-time' straight-through processing*.

For any organization, the idea of building an e-business solution from scratch is daunting. There are many conflicting technologies and all the issues of security need considering, including user logon, user privileges, data encryption, context and state information, page-to-

page integrity and integrity of the core application business services driving the e-business application.

Transoft has successfully addressed these issues with its unique **Transoft e-Toolbox** framework. This toolbox provides a Web server and platform-independent e-trading template application that will provide you 'off the shelf' with the majority of your e-business application. It is easy and flexible enough to be changed to meet your exact requirements. It also uses the Transoft Component Adapters and Component Broker middleware to ensure your existing core business application services are integrated into your Web application with `real-time' straight-through processing.

Again, Transoft e-Toolbox based Web applications can be implemented *now* or after you migrate your HP e3000 applications.



Example B2B page using Transoft e-Toolbox

The high return, low risk option

Transoft's Application Migration and Modernization solutions for HP e3000 users provides a high return on the investment you have made in your existing applications. Because these solutions are based on your existing code and data they also provide a low risk approach to moving your application off the HP e3000, while providing you with an unequalled number of options for user interface technology, enterprise application integration and distributed application architectures.

About Transoft

Since 1986 Transoft has been helping organizations to **evolve new solutions** from their existing applications, delivering **improved business processes** - **faster**, with **less risk** and at **lower cost**.

Transoft's specialist tools and services have enabled thousands of companies to adopt the latest technologies as part of the development lifecycle of their existing applications. They have been able to keep applications productive and relevant to changing business needs for longer, therefore providing a continued return on investment.

Transoft provides application mining, migration, modernization and integration solutions to customers in every region of the world, from offices in the USA and Europe, and with local business partners.

Transoft enables you to deliver improved solutions - faster, with less risk and at demonstrably lower cost.

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