white paper

HEWLETT® PACKARD

HP | e3000 Business Servers | Graphical User Interfaces

Enhancing the HP e3000 User Interface

HP e3000

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Introduction

Until recently, the predominant user interface on the HP e3000 was a terminal-based connection. Today, computer users require a more robust, user-friendly interface. Graphical user interfaces (GUIs) now provide a low learning curve, better ease of use and a more attractive interface than simple ASCII text. With the explosion of the Internet, a browser-based user interface is often required.

The purpose of this paper is to explore the various types of enhanced user interfaces, in particular GUIs, for the HP e3000. Also discussed are some of the concepts to consider when selecting an approach to enhance the user interface. There are no graphics capabilities available on the HP e3000 to provide native GUIs. However, third-party vendors offer a variety of products that provide more up-to-date user interfaces. Information on these third-party products is available in the paper's Appendices.

Background

The traditional interface to the HP e3000 has been through a simple terminal. Today, the three basic types of terminal connections on the current MPE/iX version of the HP e3000 are:

- A distributed terminal controller (DTC) to connect a terminal or other serial device.
- NS-VT, a proprietary network protocol that runs over the TCP/IP stack. On a workstation, a terminal emulator connects to the HP e3000 over the network.
- Using telnet, a standards-based network protocol that runs on the TCP/IP stack. Again, on a workstation, a terminal emulator connects to the HP e3000 over the network.

Although most ASCII terminals can connect to the HP e3000, the majority of HP e3000 software requires the support of a HP style of terminal for block mode, function keys and other unique terminal functions. These terminals and terminal emulators also should support the ROMAN8 (or ROMAN9) character set, HP's extension to the ASCII character set. Most desktop devices support the Latin-1 character set (ISO 8859-1). Latin-1 and ROMAN8 are the same for English characters, but non-English characters are mapped differently, and the terminal emulators normally handle these conversions.

A session normally supports a terminal connection in which the user logs onto the HP e3000 and is provided his or her own environment. Sessions are a natural environment for the HP e3000, and security and system management is designed to work with them.

The three most common ways to generate a simple terminal interface are:

- **VPlus**. This screen forms-management package, bundled with the MPE/iX operating system, offers easy availability and high performance. Many applications have been written to use it.
- **4GL**. Forth Generation Languages have been available on the HP e3000 since early in the platform s history. These third-party products provide a terminal interface as part of their offerings.
- **Homegrown**. In addition to VPlus and 4GL, users have created their own user interfaces using the features of the MPE/iX operating system, a 3GL and a HP e3000 terminal.

Style of Access: Desktop-based and Session-based

Before examining the different approaches to the HP e3000 terminal interface, it is useful to consider two design concepts: desktop-based and session-based. Some user interface technologies run out of a session, while others connect to a daemon job.

Session-based access style relies on establishing a logon session. In this type of access, the HP e3000 controls security and program flow, while user interface enhancements are available from the standard session.

Choosing a session-based access style allows for an easier evolution of the user's environment. Legacy applications can be accessed as before, and do not need to be migrated to a new access style. Security and program flow can be the same as they are for users today. Migration of an application also is simpler because a terminal display is always available if necessary.

On the other hand, by connecting through a daemon job, the user can initiate a connection from a desktop program without logging on as a session. This desktop-based style of access provides all interactions with the HP e3000 from a desktop application other than a terminal emulator.

The desktop-based access style requires that users move to a different access paradigm, with security and program flow controlled from the desktop. The HP e3000 acts only as an application server, and users may never need to log on directly to it. Migrating an application to use only desktop-based access requires that all terminal displays be replaced. For example, error messages could be sent to a log file. Desktop-based access also allows for easier migration to Web-based access.

Web Access

Most implementations of the user interface enhancement methods are being expanded to include Web access. Additional security and data encryption must be addressed when adding Web access. These methods can be desktop- or session-based, depending on their specific implementations. They also can have Web-based deployment capabilities.

For more information on this topic, see the HP white paper, "Web Enabling Your HP e3000 Applications and Data Access."

Enhanced User Interface Methodologies

There are many ways to evolve the simple terminal user interface of the HP e3000 application. The following are different available approaches. Please note that some implementations use a combination of these methodologies.

VPlus Conversions

With so many HP e3000 programs using VPlus, which is part of the MPE/iX operating system, it is a natural starting point for user interface evolution. The VPlus forms file is used as source and is converted into a graphical interface. Since the calling program is not changed, the VPlus API is used as the client/server protocol. (Please Appendix A for third-party VPlus conversion tools for the HP e3000.)

Enhanced Terminal Emulators

Some vendors are enhancing the capabilities of terminal emulators that run on a PC to provide HP e3000 programs with access to additional terminal emulator features. These features range from pull-down menus and radio buttons to display of graphics files and sound files. (Please see Appendix B for available enhancement products.)

Client/Server Conversions

A more radical approach is to change the program to use a heterogeneous client/server computing environment. Although other methodologies use a client/server environment as an implementation technique, doing so is hidden from the developer. The client/server approach exposes the developer to network calls or to middleware that resides on top of the network. The program is modified to use network/middleware solutions to communicate with a client running on a desktop. (Appendix C lists client/server and middleware solutions.)

4GL

4GL is available on the HP e3000 and provides an easy way to develop GUIs. Most 4GL providers have migration paths for their existing users to move to the GUI interface, often with client/server implementation. 4GLs can also allow users to integrate the power of the 4GL with their legacy code. (Please see Appendix D for advanced 4GL products.)

Screen Intercept

Vendors are providing a way for a desktop process to run a terminal session. The desktop program is able to retrieve and enter data on the pseudo terminal. Using this legacy interface and mixing in other data sources, the user is presented with a refreshed and enhanced interface. (Please see in Appendix E for products to provide screen intercept.)

Windows Applications

Applications also have been developed for the HP e3000 with a Windows user interface. These applications make it easy to perform MPE/iX activities from a Windows-based interface. (Please see Appendix F for a list of tools to create, edit, enhance or simplify HP e3000 applications from a user-friendly Windows desktop.)

Summary

Many third-party products and tools exist to provide enhanced user interfaces and GUIs to HP e3000 users. However, there is no single universal product or method that addresses all concerns. The user's unique requirements should dictate the particular method or technology chosen. HP encourages users to review the possibilities, and then follow up independently with the individual third-party vendors.

Appendix A: VPlus Conversions

Bradmark vb-view™

vb-view revolutionizes VPlus applications by allowing you to painlessly migrate from your old terminal emulator to a fully functional GUI environment.

vb-view leverages existing applications on the HP e3000 by providing a migration path from Hewlett Packard's VPlus terminal-based applications to a true client/server environment. vb-view utilizes the information embedded in Hewlett Packard forms files as input to a Visual Basic project generator. The generated project compiles, executes, and is ready to use "straight out of the box".

Only standard Microsoft VB controls such as buttons, labels, and text boxes are utilized. The resulting project can then be enhanced with the full range of Visual Basic features and custom controls including task bars, tool tips, shortcut menus, calendar processing or bar charts, making VPlus applications quicker and easier to use.

On the HP e3000, vb-view appears to be a session. HP UDCs are still executed. MPE/iX and third party security systems are enforced. Each session has it's own temporary file domain.

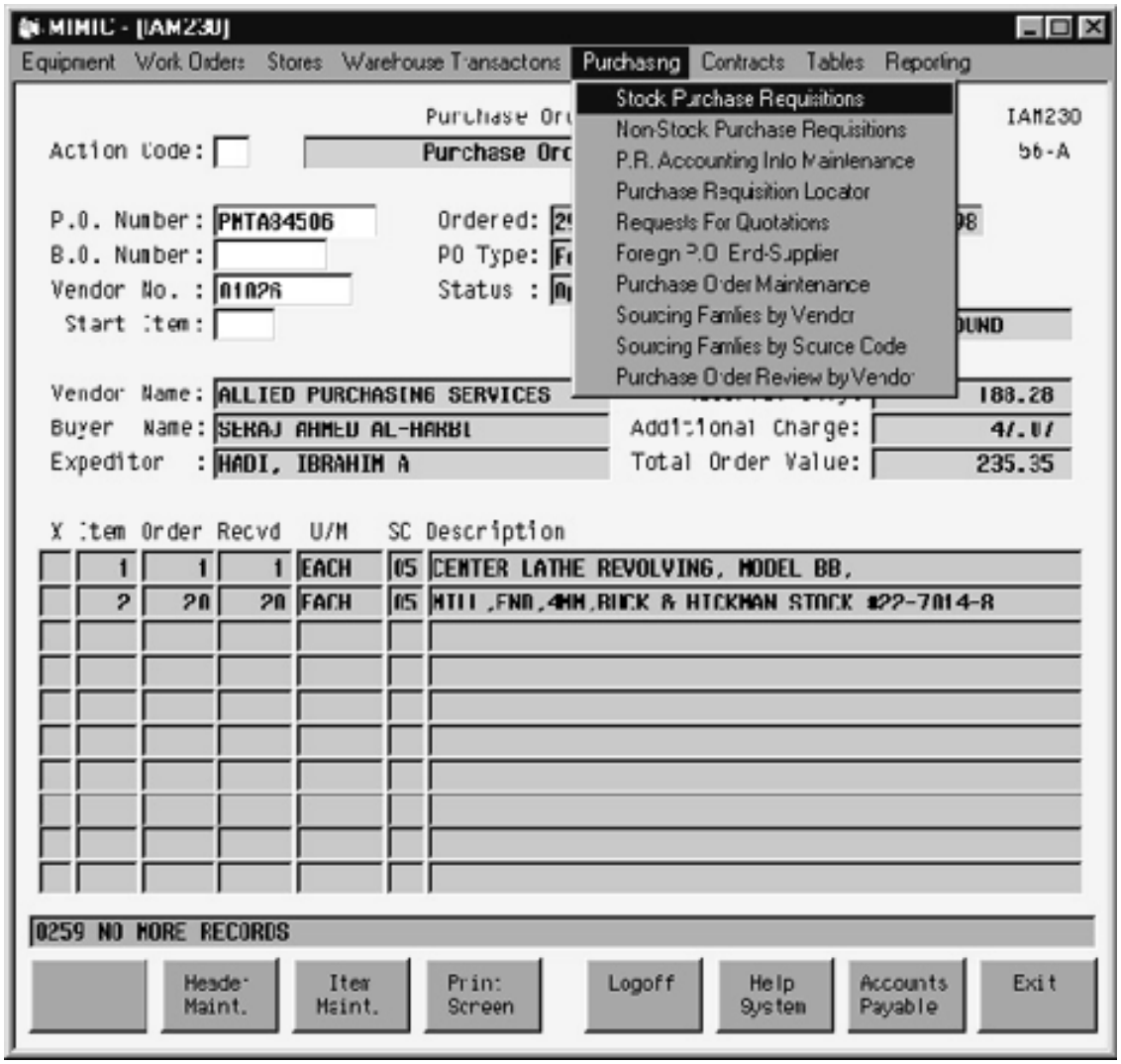
vb-view separates the functionality of the HP e3000 from the user interface. It keeps the stable, reliable product in the background and adds a modern, PC-based front end. The well-known forms remain the same, and are used in the same manner as they are on a dumb terminal. But now, with vb-view, the user can:

- Navigate with a mouse
- Use drop-down list boxes to facilitate the selection of codes
- Obtain micro-help on individual fields
- Use calendars for date input
- View easy-to-read color screens
- Easily rearrange and customize forms
- Take advantage of the document management capabilities that vb-view adds to VPlus applications

Some of the benefits to HP e3000 customers who use vb-view include:

- Extending the life of your HP e3000 and your current applications
- Decreasing cost of program changes
- vb-view connects with middleware, rather than ODBC, making vb-view very fast
- Reducing the cost of staff training
- Attracting and retaining staff
- Increasing user and customer satisfaction

In short, moving to Bradmark s vb-view allows you to leverage your existing HP e3000 server-centric applications.



For more information, please visit: www.bradmark.com

LegacyJ HP e3000 Java Remote Client

An introductory article describing overview information about the HP e3000 Java remote client concept and architecture.

Overview

Our computing environments continue to evolve and many of the issues we address in our journey are those of speed (throughput), reliability, maintainability, security, accessibility and cost of operation. The HP e3000 is an important component of our computing infrastructure. It may be the only computing component of the infrastructure, or it may be one of many computing components. In the evolution of a computing environment, the roles of our traditional legacy systems may remain the same or they may evolve based on demand. Batch processes still must be done, accomplished largely without interactions generating the information used to run our businesses. Transaction systems that tie business data to interactive processes in most instances require a connection of heterogeneous environments to provide information access. The introduction of the Internet, Windows PCs, Linux and other platforms just add to the complexity and the list of platforms which require access to traditional data.

VPlus

The HP VPlus technology is an extremely powerful text based screen interface. VPlus services are tied to MPE system intrinsics delivering flexible screen definition and user interaction support. Developers can create screens that will validate input, mask data, transition between screens, and that interface to multiple types of application.

Terms such as FORMSPEC, VFORM file, VFAST file and Process specifications are familiar to those who create VPlus applications for their HP e3000 server. Ideally, these terms should also be issues that a migration tool will consider and address as it enables VPlus functionality outboard from that offered by the traditional terminal.

Client Alternatives

There are a variety of alternatives that deliver client support from terminal extensions, platform specific clients, or the use of a browser. Ideally, the solution selected should be flexible, have features not available in text based terminals, and be cost effective.

Some alternatives available are platform specific interfaces like those written with Microsoft Visual Basic, using a browser or using Java graphical user interfaces in the form of applications or applets. Vendors may offer migration FROM VPlus as “Services”, or as part of a tool package, and other vendors might offer a non-disruptive solution that integrates into the current VPlus infrastructure.

Each alternative will have merits, but ideally the alternative selected should enable features, functions, scalability, reliability and be available at a price that makes sense.

Server Support

LegacyJ Corporation, in conjunction with HP, has created a non-disruptive architecture that allows current VPlus applications to continue to function while routing the client interface to a remote client. The architecture adds intrinsic intercepts for the VPlus services, VPlus Java runtimes (providing system services) and this uses the LegacyJ Viewj communication software for transmitting information to the remote clients.

The architecture incorporates into the existing infrastructure. It is scalable and extends capabilities of the business environment and allows for the evolution of business applications.

No runtime or user runtime fee is required to use the remote client connectivity.

Middleware

ViewJ is the middleware component of the MPE remote client software enabling the VPlus applications to communicate with the remote client from the HP e3000.

ViewJ is a peer-to-peer communications package that uses standard TCP/IP links to communicate between server and client. ViewJ has a server side sender/receiver communications component and a like client side sender/receiver component. The client side component also provides a client presentation manager that controls the transition between screens.

Client

LegacyJ Corporation wants customers to see and begin using the converted VPlus screens. Conversion of VPlus screens can be done from VPlus Fast or Slow Form. VPlus conversions process the VPlus Processing specification so that a completed conversion will function consistently with the way it was originally defined. Converted screens can be browsed using the VDRIVER utility provided with the remote client Java screens.

The deliverables from the conversion process are: Java graphical screens, ViewJ (MPE to client communications), VPlus intrinsic intercepts and the Java VPlus Runtimes.

Scripting

The converted screens can be modified and enhanced using BlueJ (graphical application user interface development tool). COBOL or Java can be used as the application programming language. The PC (or other graphical platform) is used to add new graphical elements or change any element of the converted screens. If COBOL is the desired programming language, LegacyJ PERCobol is used to modify and extend the new graphical screens. PERCobol supports all of the capabilities needed to enhance or modify screens.

BlueJ is required if you would like to modify any of the converted screens, and PERCobol is required if you desire to develop extensions to user interface in COBOL.

Results

MPE/iX Remote Client enables the migration to platform independent graphical clients that will execute on any graphical client platform. The migration from VPlus will generate either Java applications or applets. Applications are platform independent and can take on the graphical characteristics of the platform. Applets are viewable in an Internet browser and enable dynamic distribution of program changes as they are modified.

Contact information for LegacyJ:
Sales@legacyj.com and a link to our web at http://www.legacyj.com

VPLUS+

VPLUS+ is a set of Java classes that can communicate with existing VPLUS applications running on your HP e3000. VPLUS+ allows you to use Java to web-enabled, or use the Java foundation classes to place a graphical front-end on your VPLUS applications. Usually NO programming changes need to be made to your existing application. We redirect the VPLUS intrinsic call to communicate with our Java classes. A Java programmer would use these objects to communicate with a VPLUS application from an applet, application or Java Server Page (JSP). NO Middleware is required. We communicate directly via TCP/IP from the Java Client to the VPLUS server application.

A set of conversion programs is provided that convert existing formsfiles into Java applets, or applications. Very minimal code is added to the Java applet, or application to identify the VPLUS program, launch the program, and communicate with the program. You may use your favorite IDE tool such as Symantec Café, to develop a whole new look-and-feel. As long as you use our extended components, the VPUTBUFFER and VGETBUFFER will be handled automatically.

Using Java as the front-end for your VPLUS applications will also allow you to open your VPLUS application to other applications, real-time. You can populate choice boxes from other data sources on other platforms. From our experience with HP e3000 customer‘s we see a lot of older application that require dual entry. VPLUS+ eliminates this by using a Java front-end to communicate with two different applications from one Java application.

It’s so easy to use. We have converted entire applications in just hours.

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Appendix B: Enhanced Terminal Emulators

AICS QC Term—The Next Generation Terminal Emulator

Simplicity and Instant Compatibility

The oldest and most common interface to an HP e3000 is a standard HP terminal. The terminal interface has intrinsic advantages in that it is exceptionally efficient and easy to program. More importantly, a terminal is automatically compatible with any programming language. COBOL and BASIC are as readily useful in this environment as are Java or C++.

The rush to "webify" HP e3000 applications is being driven by the simplicity of use and brightly colored attractiveness of a web browser's interface. But there is nothing about the HTTP protocol that makes OLTP programming simple; indeed, the very nature of HTTP's statelessness adds a great deal of programming complexity and inefficiency ñ as well as often substantially increasing the number of points of failure.

As you will discover, it is far easier to bring extraordinary graphics capabilities to a terminal than it is to convert a web browser into the equivalent of an OLTP terminal. QCTerm has three modes of operation: as 1) a standard terminal emulator, 2) a standard terminal emulator with graphical "wallpapers" drawn in the background, and 3) a fully graphical terminal.

The intention behind the design of QCTerm is to allow application developers to put together exceptionally attractive, IMAGE-based applications with the greatest ease possible. A sampling of applications that are possible are available at: aics-research.com/qcterm/demo.html

The Free Use & Distribution of QCTerm

QCTerm is a full-function HP 700/92 terminal emulator, competitive with other currently available terminal emulators, the only difference being that QCTerm may be freely distributed to as many users as you wish. QCTerm is made available to all HP e3000 users for their personal and corporate use, without time limit or any form of obligation being incurred by any party.

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AICS Van Gogh

Van Gogh

The Automatic Code Generator for QCTerm

Van Gogh is the accompanying development environment for QCTerm, designed to be as simple to use as possible and so inexpensive as to allow it to readily affordable by anyone.

Two modes exist in QCTerm: that of 1) a standard HP 700/92 terminal emulator and 2) a much enhanced graphical interface mode, called "Van Gogh." It is this second mode that will change your mind regarding what's possible when creating an HP e3000 interface.

"Software that won't cost you an arm and a leg."

Although all of the specifications for writing QCTerm's graphical Van Gogh code are published on the web and can be accomplished without the use of Van Gogh Code Generator, writing the code by hand can be tedious, particularly when long forms are involved. Van Gogh is a drag-and-drop visual forms generator that automatically creates the necessary code on your PC, ready for immediate uploading as a flat file onto the HP e3000.

Demonstrations of a variety of HP e3000-based QCTerm graphical applications are available on-line at: aics-research.com/qcterm/demo.html

Van Gogh is priced at $89 per user. Updates are included for a period of one year following initial purchase. Updates may be obtained during subsequent for $89 per year. Unlimited consulting services regarding forms design may be purchased for $1500/annum per user, although the intention is to provide sufficient on-line documentation so that consultations will not be necessary.

Available 2nd Quarter, 2000.

Contact Information:
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E-mail: atmar@aics-research.com

ScreenJet™—A New View for Your HP e3000

GUI (Graphical User Interface) for New and Existing Applications

ScreenJet allows HP e3000 users to move painlessly to a GUI interface with maximum impact and minimum disruption.

Information

ScreenJet is only available from the Internet at: www.millware.com

Features

- FREE 700/92 terminal emulator
- FREE technical support (with free registration)
- Instant GUI for VPLUS applications
- 5 minute implementation time
- Pop up VPLUS Error Messages
- Thin Client (new app release is host controlled)
- Drag & Drop design onto V+ screens
- Only modify screens that want enhancement
- Full Graphics in your applications
- Can run within a Web Browser
- No changes to V+ applications
- Develop new apps in COBOL and ScreenJet using V+ skills

Evolution Not Revolution

ScreenJet enables existing HP e3000 applications to have a Graphical User Interface and Windows functionality without application modification. It comprises three elements:

1. An intelligent Thin Client that contains an HP 700/92 terminal emulator, an AutoGui™ that puts a sculptured look and feel to all VPLUS applications, and the logic to support Windows functions such as Combo Boxes, Radio Buttons, Check Boxes, Images etc.
2. Drag n Drop Designer to add Windows functions to enhance VPLUS screens. Only screens that you wish to enhance need be put through Designer, all other screens are still automatically enhanced via the AutoGui. For New or Non VPLUS applications, ScreenJet Designer can be used to create Graphical Screens and STANDARD VPLUS calls will read them.
3. A Runtime Interceptor puts VPLUS error messages in to a Pop-up Window. Applications enhanced by Designer automatically take advantage of the new GUI screen. The Interceptor dynamically formats data into and out of the application buffer. Enhanced screens can thus look radically different to their VPLUS original AND FULL APPLICATION COMPATIBILITY IS MAINTAINED.

As the ScreenJet Client contains an HP 700/92 Emulator, all the applications used by a client will be automatically enhanced via the AutoGui whether written in-house or supplied as a package. Likewise Designer can be used to add enhancements to a supplied package application for which no source code is available. For the application Developer a Compiler function within Designer allows a Runtime file to be generated and distributed to clients who only need to have the ScreenJet Client and Intercept XL installed.

Internet/Intranet Usage

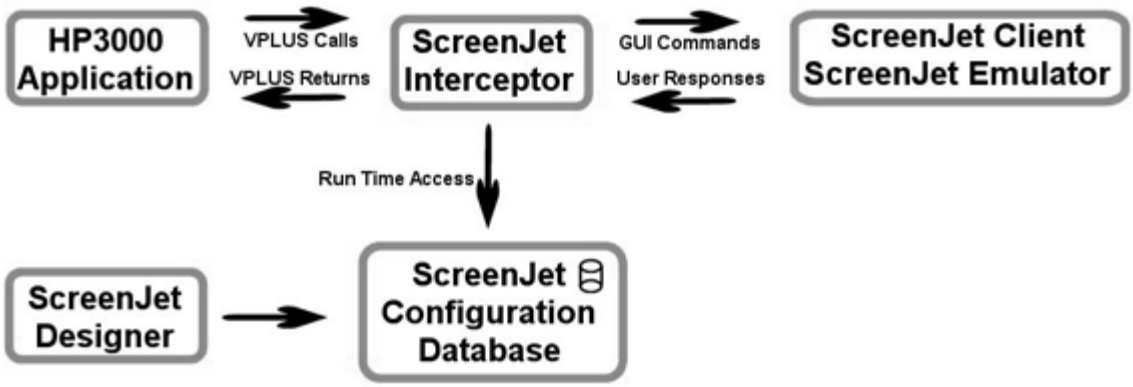
ScreenJet Client can optionally run within a Browser.

No Risk Implementation

As existing applications remain unchanged, an enhanced application can be rolled out in a controlled manner, safe in the knowledge that at anytime a user can revert to using the standard application on a terminal or via an emulator. In fact the Intercept itself on detecting an error will revert to outputting the original VPLUS screen to the client

Implementation support is available form a global list of trained partners

How it works



For more information, please visit: www.millware.com

Minisoft
Connectivity solutions for the world.®

Minisoft User Interface Products—Javelin and Web Dimension

Javelin delivers legacy host information to the desktop via the point-and-click interface of Internet browsers. In just a 90K Java applet, Javelin provides precise emulation of HP2392A and HP700/9X terminals allowing for quick and reliable connectivity to HP, or UNIX host applications from PC, Macintosh, Linux and UNIX workstations.

Web Dimension is an application server and a collection of Java components for designing and deploying web and client/server applications on the HP e3000 and other platforms. The main components of Web Dimension are: a platform independent application server that can be use with or without a web server; Java components for building applications and user interfaces; and a platform independent user interface (UI) viewer that runs applications from the application server.

For legacy applications Web Dimension accesses and controls existing HP e3000 legacy transparently through built-in 700/92 emulation. The legacy application requires no changes to be used by the Web Dimension legacy application access component. Information from the legacy application's user interface can be used in new Web Dimension user interface pages. There are a number of pre-built Web Dimension applications included that will run typical HP e3000 legacy applications as-is.

A database access and custom object access component allows Web Dimension application to access databases through the JDBC API. Using this component will allow access to many popular databases, such as TurboIMAGE, Oracle, SQL Server, Informix, Sybase, and DB2. These databases can be accessed on a variety of platforms. Custom object component can be written in any language.

Combinations of any of these components can be used in the same Web Dimension application. Web Dimension applications can very powerfully combine legacy applications, data, and objects from a wide variety of computers. All the components are standard Java Beans, so they can be accessed and configured with visual development environments such as Visual Café and JBuilder.

This is an example of a new graphical user interface created for an existing HP e3000 legacy application. There are many deployment options, however in this case, the user interface is delivered from a web server, (or the HP e3000).

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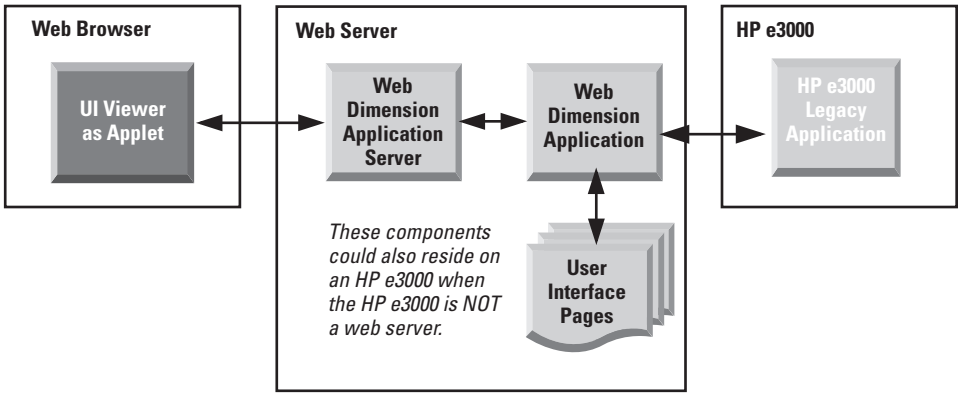

WRQ Reflection

This white paper explains how WRQ Reflection products provide an ideal solution for HP e3000 customers who wish to modernize the look and feel of their current host applications.

There is no question that host systems like the HP e3000 continue to be important—it is estimated that today, approximately 70% of valuable information and business logic is stored on legacy systems. IT managers depend on the HP e3000 to provide reliable high-performance access to different types of host applications. Businesses have spent millions of dollars acquiring and developing these host systems, making it a high priority to protect these investments and realize greater benefits from them in the future.

As host access continues to evolve, from terminals to Windows- and Web-based terminal emulation, WRQ's innovative products are there to help. With WRQ Reflection as part of the solution, HP e3000 customers can save money and make their business more competitive and efficient.

WRQ Reflection for HP combines high-quality terminal emulation with productivity tools and features that allow users to access critical applications on HP e3000 host systems and incorporate this information in their Windows applications.

- WRQ Reflection products include administrative tools that make managing host access more economical. For example, the improved Reflection Deployment Manager facilitates the process of deploying, configuring, and updating WRQ Reflection in multi-user environments. The Reflection Event Scheduler lets users map an event, such as "At a time of day," to an action, such as transferring a file ñ without leaving a macro running.
- WRQ Reflection s built-in Visual Basic for Applications (VBA) 6.0 enables administrators to integrate Reflection with other VBA-enabled applications, such as Microsoft Access, Word and Excel. Fully integrated VBA 6.0 allows staff familiar with Microsoft Visual Basic to easily automate and control tasks between PCs and host systems. The result is a desktop customized to help end-users interact more effectively with your host systems. Another example: Reflection products can be installed from a web page, and terminal emulation sessions can be launched from within a web page.
- WRQ Reflection is part of a complete set of host-access products that, together, allow organizations to gain competitive advantage with newer technologies, such as the Web and Windows 2000. WRQ Reflection is the only terminal emulation software that has received the "Certified for Windows 2000" logo from Microsoft and also runs on Windows NT 4.0 (including Windows Terminal Server Edition), Windows 98, and Windows 95. For companies who are ready to implement e-service, WRQ Reflection for the Web allows you to leverage your most important asset, the information and applications on your HP e3000 host system, and make that data available via the Web.
- WRQ has been providing reliable host access solutions for almost 20 years and is the leader in the HP e3000 terminal emulation market. Our customer satisfaction ratings are among the highest in the industry, and we are proud to be partnered with those in the HP e3000 community. With WRQ solutions, you get a skilled partner that can help you capitalize on existing and emerging technologies as you move into the future.

As host systems find new roles to play in the emerging world of e-business, WRQ is there to help. With WRQ Reflection products, you have a choice between WRQ Reflection for HP featuring Windows-based terminal emulation or WRQ Reflection for the Web, which provides web-based terminal emulation. WRQ continues to evolve its products and services to meet customers' host access needs.

For more information about WRQ terminal emulation solutions, please see http://www.wrq.com.

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Appendix C: Client/Server Conversions

Level 8—Web-enabling the HP e3000 Platform

Geneva Message Queuing

Since 1996, Level 8 has been working with Microsoft to meet the interoperability needs of enterprise developers. The result is Geneva Message Queuing (GMQ)—the simple, reliable, cost effective Windows messaging solution for the enterprise.

Microsoft Message Queue Server (MSMQ) is the popular message queuing subsystem integrated with the Windows family of products. MSMQ provides loosely coupled and reliable network communications services based on messaging queuing. MSMQ makes it easy to integrate applications, implement a push-style business event delivery environment between applications, and build reliable applications that work over unreliable but cost-effective networks. Because of MSMQ's ease-of-use, integrated and comprehensive feature set, Microsoft recommends MSMQ when choosing a message queuing technology for Windows-based applications.

Microsoft's only recommended implementation of MSMQ on non-Microsoft operating system platforms is Geneva Message Queuing. Geneva Message Queuing extends full MSMQ functionality from the Windows environment to encompass the full range of non-Windows operating systems, including HP e3000.

To make it easier for Windows developers to create cross-platform applications, Microsoft includes the Level 8 message queuing connector with Windows 2000. This message queuing connector enables Windows-based MSMQ applications to exchange MSMQ messages with non-Windows Geneva Message Queuing applications.

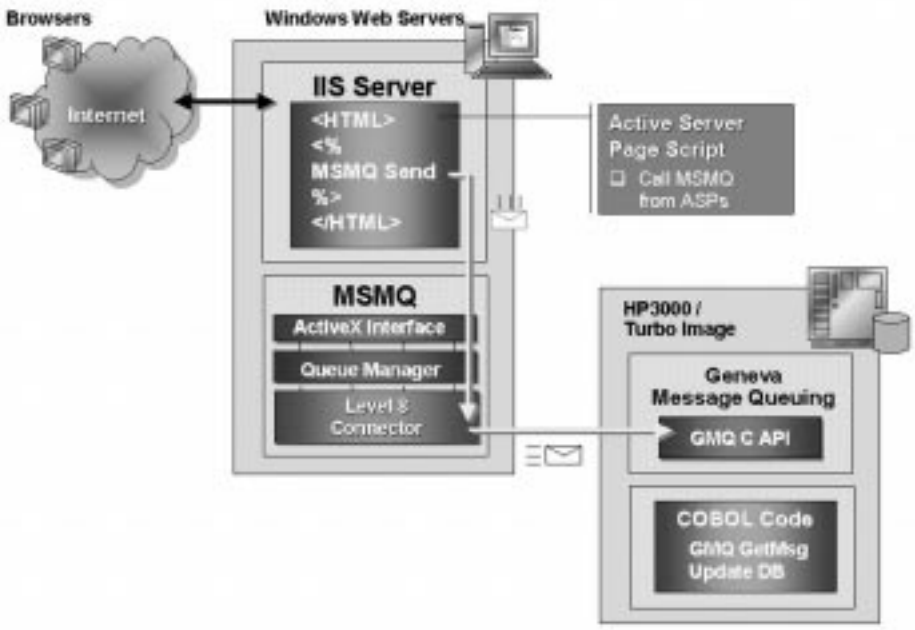
Solution Pattern

Developers tasked with delivering new web-based applications are migrating to the Windows platform for the obvious reasons:

- Simple, easy to use Web development tools and technologies including ASP, COM, IIS, MSMQ etc.
- A wide range of technical support from Microsoft including conferences, MSDN and TechNet web sites, etc.
- Since the tools necessary are included with the Windows platform the technologies are widely available and accessible to a large pool of developers

But as everyone knows this is not a Windows only world, therefore many times a developer may have to access a database or other information resource running on a non-Windows system such as HP e3000.

This type of scenario is what Geneva Message Queuing is uniquely suited for. The diagram below shows some of the components of this common solution pattern.



Solution Pattern Implementation

On the front-end or presentation tier of this multi-tier application we see a browser-based client application using Microsoft's Active Server Page (ASP) technology. Active Server is Microsoft's Web Server based technology for embedding "Server Side" scripts in otherwise static HTML code (used for presentation on the browser).

The Active Server Script on the Web Server calls the Microsoft ActiveX MSMQ control, which provides the programming interface from the Active Server Script to MSMQ).

This puts MSMQ into action sending a message to a queue. What the Active Server Page does not know is that the destination queue for this message is actually an MSMQ queue that resides on UNIX server somewhere on the network. The message is delivered to this remote queue using the Windows 2000 provided Message Queuing Connector and the Level 8 Geneva Message Queuing product. Once delivered to the remote queue, the message can be retrieved by a COBOL application using the COBOL API provided by Geneva Message Queuing.

OSCAR C/S Workbench for MPE

OSCAR's development, productivity and run-time management tools allow you to harvest, revitalize and indefinitely extend the useful life of legacy HP e3000 applications in:

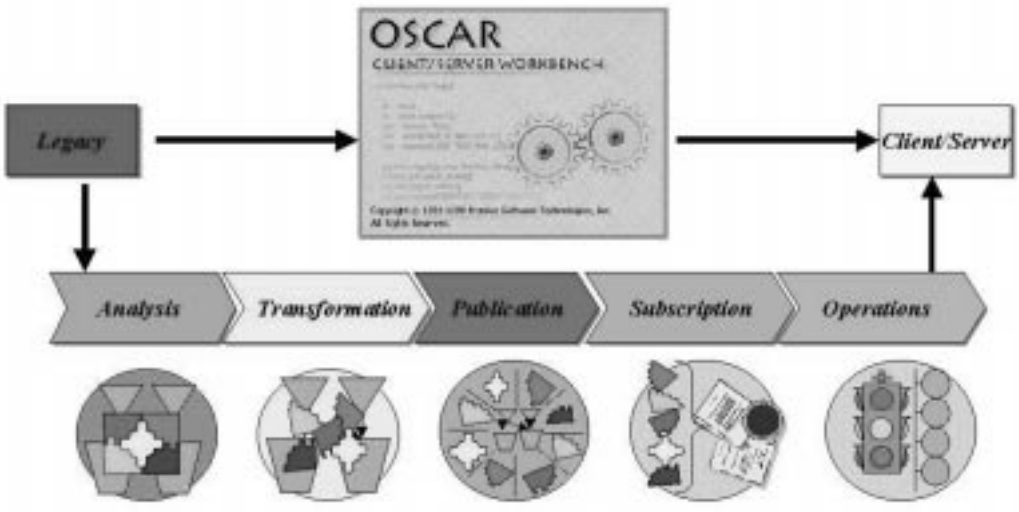
- New client/server development,
- E-Commerce via the Web, and
- Peer-2-Peer integration of applications—turnkey, ERPs, legacy—on one or a combination of mid-range server platforms (e.g. MPE, UNIX, NT, AS/400)

With the OSCAR Client/Server Workbench for MPE, companies can convert their MPE legacy systems into Client/Server solutions, choosing from an unprecedented number of development tools to engineer new User Interfaces—thus better future-proofing MPE applications from inevitable technological change in the User Interface technology market. OSCAR's conversion of MPE applications into Client/Server applications results in the deployment of a new Business & Data Server on the HP e3000. The existing application can run side by side with the new Business Server, providing an easy migration path. Single functions at a time can be converted, allowing developers to incrementally migrate an application to the new C/S architecture.

The Process

The developer uses OSCAR for each step in the conversion process (see Figure 1).

- Existing MPE data and logic are analyzed and transformed into subroutines.
- Using the subroutine interface, OSCAR publishes the routines as shared networked services.
- In parallel, User Interface developers subscribe, to these shared services. OSCAR will provide the User Interface developer with the necessary code enabling the developer to use (invoke) the services from within their User Interface environment.
- As an ongoing operation, developers will find that, OSCAR has cataloged these services, acting as an organized central librarian of all your company's reusable software components.



During analysis, OSCAR is capturing Application information and component subroutine information such that OSCAR can generate encapsulation middleware. The middleware is necessary to network-enable each subroutine with a distributed API. User Interfaces developers, upon registering use of a services, also receive the "client" middleware, in 100% generated form. The "client" middleware is generated to match the User Interface platform and language told to OSCAR by the developer.

User Interface Languages

- COBOL, C, C++, VB, CGI, 4GLs on: UNIX, MPE, Win32
- COM-Active/X enabled languages
- SAP ABAP/4, PeopleSoft Peoplecode

On an ongoing basis developers will find that OSCAR has cataloged these services, acting as an organized central repository of all your company's reusable software components. OSCAR can be leveraged for small to large projects, from 1 to 100 developers.

In Summary

The push of a button generates legacy encapsulation layers, middleware, and code that bridges dissimilar application environments.

- Eliminates the need for client/server middleware coding
- Provides read/write capability while protecting the integrity of the underlying data
- Generates custom CGI/C++ programs, enabling back-end MPE services to be used immediately through the web
- Migrates block mode applications to 3-tier client/server solutions using GUI tools to create graphical front ends
- Able to generate Active/X objects for pulling MPE data into Word, Excel, Access and other Microsoft products.

Supported Platforms

- Development Clients: Windows 95/98, Windows NT, and WWW
- Development Servers: Windows NT, HP-UX
- Run-time Clients: Windows 95/98, Windows NT, UNIX, MPE, and WWW
- Run-time Servers: Windows NT, UNIX, MPE

Premier consulting services can assist companies in assessing their legacy applications. For more information on this and other Premier products and services:

Premier Software Technologies, Inc.
Auburn, California
Cupertino, California
Tel: (408) 257-8757
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E-mail: mail@premiersoft.com
http://www.premiersoft.com

Quest Software—NFS/iX and NetBase Client

"Webify" Existing Applications

Quest Software's Middleware Solutions for MPE provide a gateway to open systems environments that is flexible and easy to use, allowing heterogeneous platforms and relational database management systems or file structures to coexist with seamless efficiency. These solutions make resources on any system on the network available to all users. Files, databases, printers, and programs can be transparently shared among users on the network configuration, regardless of geographic location.

MPE and open systems coexistence provides transparent programmatic access to transactions with intelligent mapping facilities designed to provide continuous, seamless, and real-time or scheduled movement of data from MPE to other platforms and RDBMS. Quest Software addresses these needs with the following middleware solutions: NFS/iX and NetBase Client.

NetBase® Client provides a strategic solution for legacy systems to interface with open systems and emerging e-business applications. Using Quest Software's NetBase caching, NetBase Client significantly increases access speeds and minimizes overhead. NetBase Client simplifies the programmer's job of creating client/server applications or re-engineering of existing applications. NetBase Client offers a complete set of APIs that give UNIX, DOS, and Windows 95/NT client/server applications direct read and write access through standard 16- or 32-bit TurboIMAGE, OMNIDEX or MPE intrinsic calls to data residing in MPE files, KSAM files and TurboIMAGE databases on HP e3000 systems.

By implementing NetBase Client APIs with UNIX or Windows applications, IS managers can cut development time in half. NetBase Client APIs help IS staff quickly implement applications that are tightly integrated with existing HP e3000 systems using simple recompiles with DLLs (e.g., Oracle, Informix, Sybase, COBOL, Microfocus, Excel, Visual Basic, PowerBuilder, or any of the other DOS/UNIX/Windows tools available). Finally, NetBase Client allows RPC calls to be executed on the HP e3000 via the NBRPC interface.

NFS/iX™ allows HP e3000 systems to coexist with open systems in the same network by allowing transparent access to and from its file system. NFS s client/server design opens files for distributed access between different systems without demanding network transfers. This simple file mount accomplishes data availability between heterogeneous platforms. UNIX file access is possible from MPE operating systems with full POSIX shell user commands. Web applications can simply mount data files extracted or permanent to feed information to the web-application. Since an Apache web-server is built on POSiX Quest's NFS/iX would be a good fit to allow the mounting of flat files to the Apache environment that are HP e3000 based.

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Bradmark Technologies StarMan™

StarMan, from Bradmark Technologies, Inc., takes CA-MANMAN into the future by bringing web-enabled functionality to the HP e3000. Via a unique distributed processing model, StarMan eliminates the need for direct connection to the HP e3000, and brings data processing for CA-MANMAN into a GUI environment.

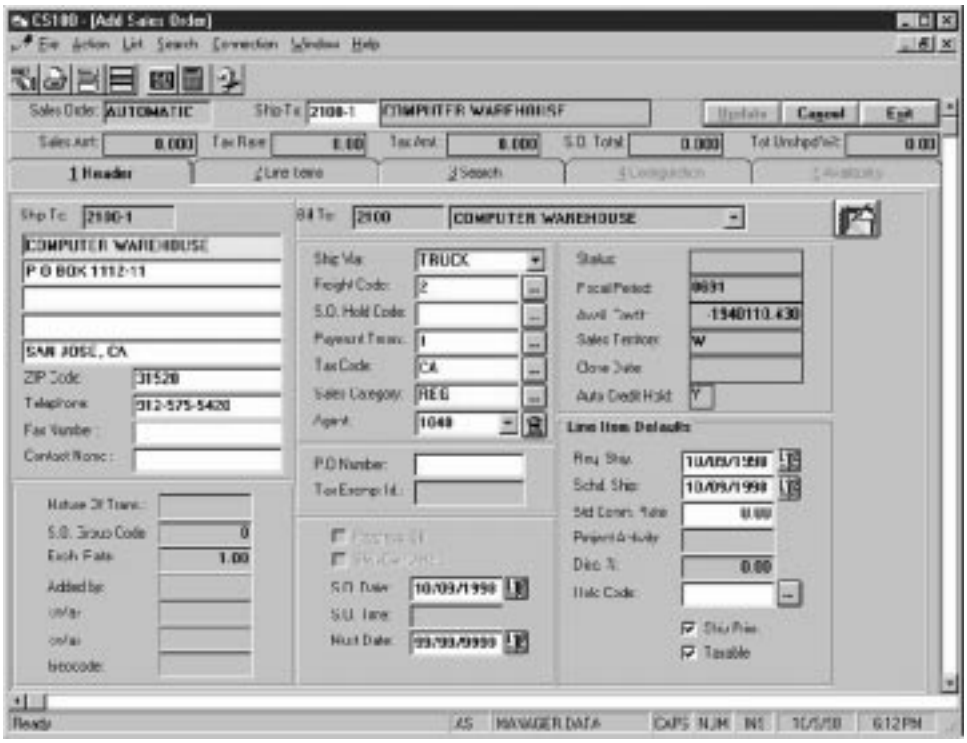
StarMan utilizes PC-GUI technology to replace terminal screens providing users a faster, more intuitive interface. StarMan supports the most popular CA-MANMAN modules, bringing point and click ease-of-use, as well as offering functionality not currently available in CA-MANMAN packages, such as RMA Authorization, Order Quotation, and Purchase Requisition. By bringing Windows functionality to CA-MANMAN, StarMan eliminates the common practice of generating multiple sessions for data retrieval. In most cases, StarMan is plug-and-play. Existing CA-MANMAN terminal screens may still be used for workstations without PCs.

StarMan utilizes a state-of-the-art GUI interface that brings a true client/server relationship to the CA-MANMAN product. StarMan works with the existing CA-MANMAN architecture, while allowing true distributed processing. This is accomplished by utilizing the Quantum Transaction Server (QTS), which is a native mode application running on the HP e3000 that fulfills the requests from the clients. The server and the client can communicate in a predefined protocol that enables applications to function in a heterogeneous environment.

StarMan works in conjunction with the existing organizational structure. In organizations that are replacing their antiquated CA-MANMAN video display terminals with PC-based systems, StarMan becomes the bridge that ties PCs to current CA-MANMAN systems. StarMan operates through a windows-based client that initiates various CA-MANMAN services using GUI screens and the PC client to communicate with the conventional CA-MANMAN back-end programs. For those users that have customized CA-MANMAN versions, StarMan incorporates provisions that allow users to conform to modified CA-MANMAN code.

StarMan does not require additional processing overhead. By distributing the processing load between the PC and the HP e3000, the user can experience a 30-50% improvement in performance. StarMan uses connectivity middleware, which provides lightning-fast messaging between the client and the server. This middleware is an efficient message transport subsystem that places very little overhead on the HP e3000 server. In addition, the system demand caused by the terminal or emulation software is almost entirely eliminated, adding back performance resources that could be used for other purposes, such as adding new users without upgrading the system.

StarMan's design philosophy assists CA-MANMAN users in performing their daily tasks without adversely impacting the business process.



For more information, please visit: www.bradmark.com

Appendix D: Advanced 4GL Products

Cognos™ PowerHouse™—Web, Windows and Terminal Interfaces From a Single Program

Cognos has been providing its high-productivity PowerHouse application development tools to the HP e3000 community for over 20 years. PowerHouse is widely used to build and maintain core business applications as it often delivers developer productivity gains of up to 90% when compared with traditional 3GLs such as COBOL. Most of these applications still rely on the very flexible screen formatting capabilities within PowerHouse to deliver an attractive user interface on traditional character-cell terminals, or via terminal emulation software. However, in these days of Web browsers and Windows client/server applications, the traditional terminal interface is often regarded by end-users as "old fashioned"—even if it is still the most efficient user interface for the task at hand. You now need to deliver your organization's core business applications with an attractive, easy-to-use Web or Windows interface while retaining the power and reliability of your HP e3000 servers.

PowerHouse Web—Adding an Open HTML User Interface to PowerHouse Applications

PowerHouse Web is the new deployment environment from Cognos that enables your users to access mission-critical applications, built using the proven developer productivity of PowerHouse 4GL, via any standard Web browser.

Internal corporate users as well as external customers, prospects and suppliers can now be given a simple, intuitive, graphical user interface to robust applications that requires zero training. New features introduced with PowerHouse 4GL Version 8.2 enable your developers to generate an open HTML user interface for both new and existing PowerHouse screen programs. The generated HTML user interface can be further enhanced with HTML, XML, JavaScript, VBScript, ActiveX, etc., using either your regular program editor or favorite Web authoring tool, such as Microsoft FrontPage or Macromedia Dreamweaver. The applications are then deployed across one or more PowerHouse Web platforms, including the HP e3000, with native access to all of the traditional data stored there or in any of the supported relational databases.

The PowerHouse Web Dispatcher additionally provides a flexible request distribution and load balancing mechanism. This ensures that incoming application requests received by your site's Web server are quickly executed by a local PowerHouse Web Server process, or else routed to another PowerHouse Web Dispatcher elsewhere in your network for execution by a remote PowerHouse Web Server. And security for your Web-based transactions is provided through the use of industry standards such as SSL and HTTPS.

Windows-Based Development with Web, Windows and Terminal Deployment

Axiant 4GL, a core member of the PowerHouse family, provides a robust and highly productive Windows-based integrated development environment (IDE) for building and maintaining PowerHouse applications that, from a single source, can be deployed in a variety of flexible and scalable Web-based, Windows client/server, or terminal-based server topologies.

Existing terminal-based PowerHouse applications (both data definitions and programs) are easily imported into the Axiant IDE. Data dictionary definitions for IMAGE, KSAM, MPE and relational data can then be maintained through Axiant's easy-to-use graphical user interface, and a new data dictionary can be built on your PowerHouse server with just the click of a button.

Axiant automatically creates an instantly usable Windows interface for imported PowerHouse programs, while at the same time retaining all of the existing data access and business processing logic. New programs are quickly created through Axiant's built-in Wizards. The user interface created for both new and existing programs is based upon style sheets and default forms provided with Axiant, or that you have modified to implement your own corporate look-and-feel. The user interface can be used as is, and is easily enhanced with traditional Windows-style edit controls. Axiant's powerful use of object-oriented inheritance means that changing the look-and-feel of an entire application is done by simply modifying the property sheet of the inherited styles. The imported application is then deployed back to the original PowerHouse server, where the resulting PowerHouse program can be used simultaneously with both the original terminal user interface and the new Windows user interface. This ensures a smooth transition for your users, together with the simplicity and productivity for your developers that comes from maintaining just one program regardless of the user interface being used.

Naturally, Axiant supports all of the new features introduced with PowerHouse 4GL 8.2 for the creation of open HTML user interfaces ñ so that applications can also be deployed from Axiant to the new PowerHouse Web environment for access by users through any standard Web browser.

Through the use of object-oriented techniques such as inheritance and reuse, and the same sophisticated default business processing models and flexible specification-based and procedural overrides as the rest of the PowerHouse family, Axiant provides the most productive visual IDE available today for building and maintaining data-driven business application for deployment to the Web, Windows and traditional character-cell terminals.

For further information about the Cognos PowerHouse family of high-productivity development tools for the HP e3000, please visit our web site at http://www.cognos.com/HP e3000 or contact your local Cognos office.

Speedware Autobahn—The Leader in Web-enabling HP e3000 Applications

Speedware Autobahn offers the first and only Web Application Server specifically designed for the HP e3000. Speedware Autobahn's Open Web Architecture integrates current Web technology into your HP e3000 environment while leaving the door open for future technologies.

Productivity

The robust development environment also accelerates the application development cycle since it contains many time-saving wizards; applications can now be Web-enabled in a matter of hours; complete projects in a matter of days.

Open to Change

Speedware Autobahn's Open Web architecture isolates the program code from the presentation layer and lets developers focus on application requirements instead of Web integration issues. This Open Web architecture protects your environment from technological change since it allows for the integration of the latest and the greatest Web technologies on the market such as Java, ActiveX, JavaScript, VB Script, Flash, VRML, XML, HDML, NSAPI, ISAPI, Dreamweaver, FrontPage, Apache, LINUX and many more..

Architecture for Scalable Distributed Computing

Speedware Autobahn's n-tier model of scalability allows you to precisely adjust your application's capacity to a multi-platform environment that incorporates configuration parameters such as firewalls, secure networks and multiple server platforms. Speedware Autobahn's auto-deployment feature automatically distributes application components to the appropriate platforms. This development environment supports secure e-commerce servers that encrypt transmissions between business servers and Web browsers.

Speedware Web Application Server

Speedware Autobahn supports a unique application server architecture that offers HP e3000 users a key advantage: Web applications can run natively on the HP e3000 providing accessibility to all local databases including Image, ALLBASE, KSAM, KSAMXL etc.

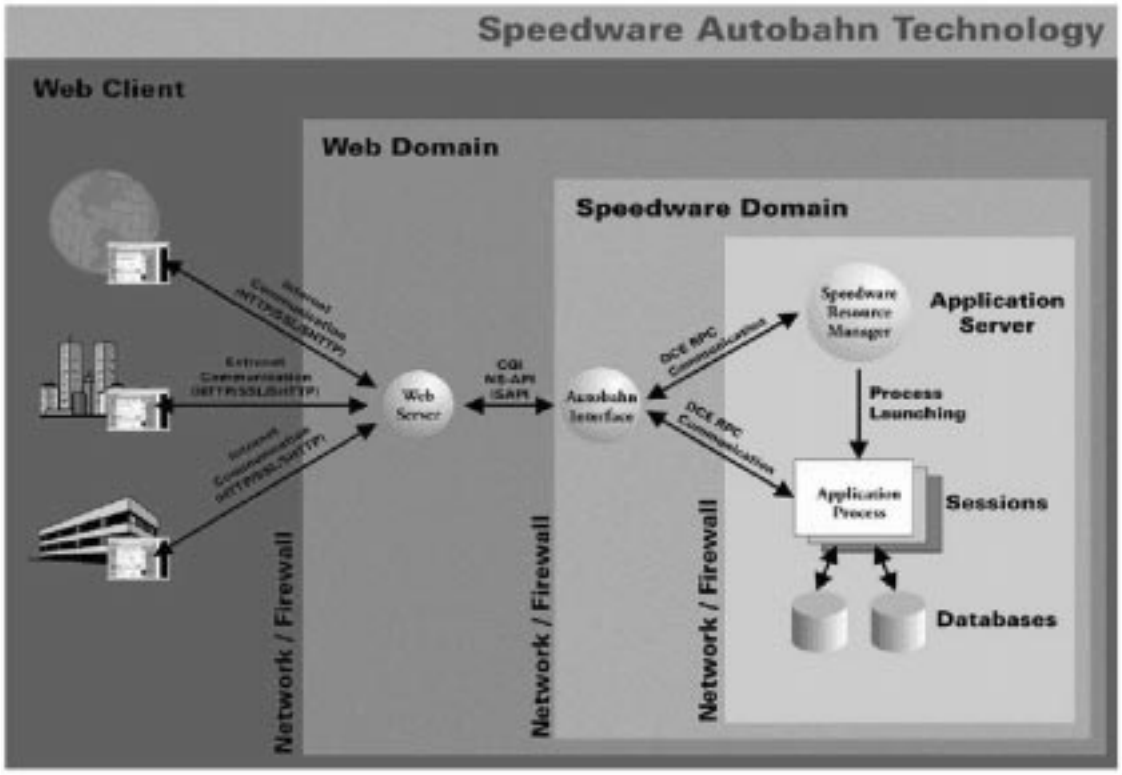
The Speedware development environment make full use of all HP e3000 resources while supporting vital development functions such as calling subroutines (written for your OS or in other languages such as C or COBOL), launching batch processes, integrating existing legacy systems, executing operating system commands and running other programs.

Session Persistence and State Management

The Web is connectionless or in other words stateless—links between Web browsers and Servers are not maintained. Speedware Autobahn overcomes this limitation by incorporating state management that distinguishes user sessions and tracks where a user is at any time within an application. This is ideal for e-commerce and e-service solutions since it securely maintains the integrity of individual transactions.

Security

Speedware Autobahn incorporates two additional layers of Web application security to the industry's standard measures. Multiple built-in security functions restrict initial access to transaction-oriented Web applications while Re-access Authentication ensures that the initial user is the only one who can re-access that process. Speedware Autobahn provides you with the means to securely do business on the Web.



Conclusion

Move up to market leadership, take advantage of innovative technology, speed up your development cycle for HP e3000 Web based applications and reap the rewards of your Web-enabled applications today! Explore the possibilities with Speedware Autobahn—the best choice in bringing your business to the Web!

For more information and to see who's benefiting from Speedware Autobahn right now, visit us at www.speedware.com.

Visual Speedware—Graphical Enterprise Client-Server Solutions

See the Difference with Visual Speedware

Visual Speedware is the only development tool that fully integrates Microsoft Visual Basic on your HP e3000 and expands its power to an enterprise client-server environment. With Visual Speedware you create and deploy robust applications with a graphical interface that users prefer.

Graphical Development

Visual Speedware helps you produce user-friendly graphical applications in a graphical development environment. Enjoy the functionality of Visual Basic forms as a developer and a user. Helpful wizards graphically guide you through the development simplifying the creation of applications. Forget the archaic green screens and go GUI with Visual Speedware.

Enterprise Scalability for VB

Visual Speedware liberates the scalability limitations of Visual Basic and scales its power to an enterprise level. The integration of Visual Basic's Client-side strengths to Speedware's Server-side capabilities extends application scalability to Windows NT, UNIX, and MPE environments. This opens the door to the n-tier distributed computing architecture making your graphical applications accessible to all your present and future users.

No Deployment Costs

Eliminate deployment costs with Visual Speedware's auto-deployment feature. This feature automatically distributes updated client components of an application from a server to the end users. This simplifies updating applications in a distributed computing model saving you time and personnel power. Visual Speedware also supports remote deployment of server components providing you with flexibility when dealing with multiple platforms.

Leverage Existing Systems

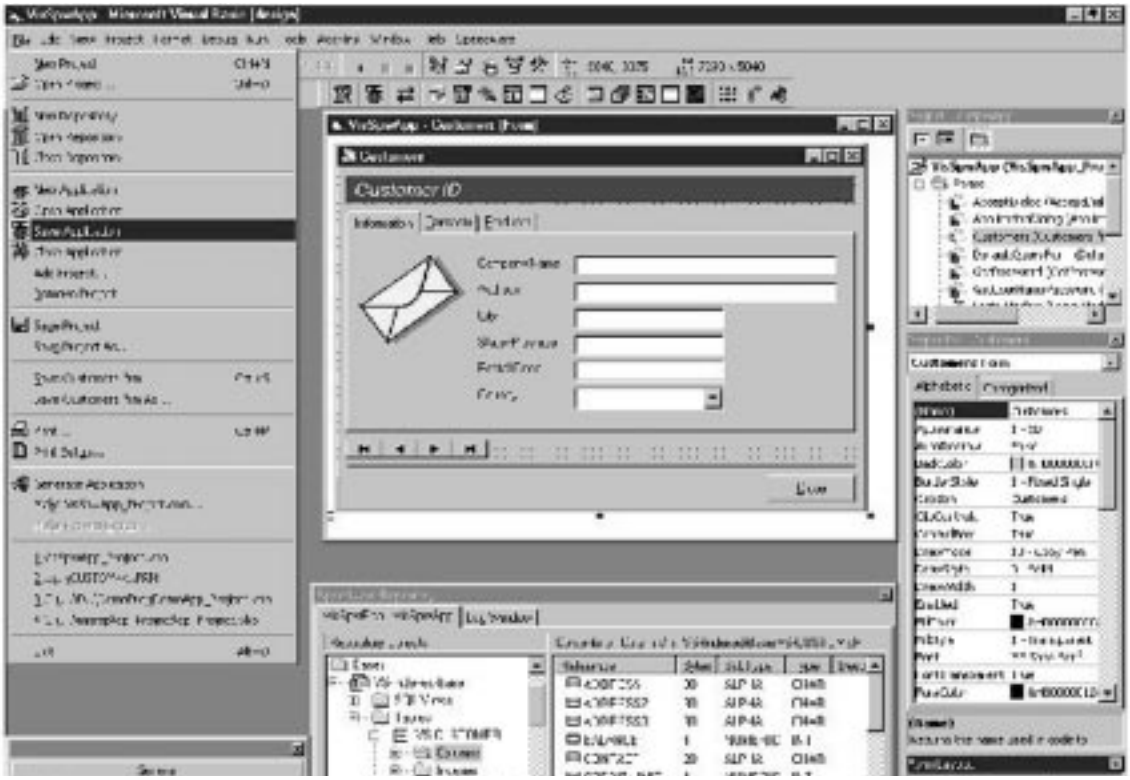
Visual Speedware offers native support for a wide array of the most popular databases and file systems and also provides ODBC support as well. Your Visual Speedware applications can easily access your legacy data regardless of where it resides.

Total Control over Logic Partitioning

Gain full power in partitioning your program logic with Visual Speedware's Client-Server development environment. Let Visual Speedware help you make the most efficient use of your resources. Visual Speedware also integrates a user security interface that expands Visual Basic to an enterprise scale environment.

Cut Development Time

Visual Speedware integrates application development for both client and server components in one tool. Several timesaving wizards simplify such vital tasks such as defining and prototyping databases, designing forms, creating code, and binding graphical objects to variables and non-procedural activities.



Put a New Face on Your HP e3000!

The days of the “green screen” are gone. It’s time to look for new Windows of opportunity with user friendly applications created in a flexible development architecture. Go graphical with Visual Speedware!

Contact Information:
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Marketing Communications
Speedware Corp.
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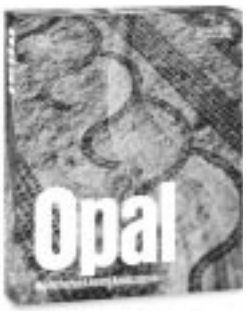
Appendix E: Screen Intercept

Computer Associates Opal



Opal embraces the huge investment associated with character-based applications, including those on the HP e3000 platform. Opal is a set of products that modernize legacy applications by giving them a modern GUI interface, allowing them to be deployed on the web, and by integrating multiple screens, applications and data from ODBC databases. Opal addresses the need of organizations to get more use and productivity from their existing investments in applications for mainframe, HP e3000, AS/400 and UNIX systems. Opal increases the value of legacy applications by extending their life expectancy, streamlining business processing and providing an easy to use, intuitive user interface that goes beyond today's traditional GUI-based applications. And this application integration can be delivered with both low cost and low risk. Opal provides solution synergy by extending and combining legacy applications without altering them in any way.

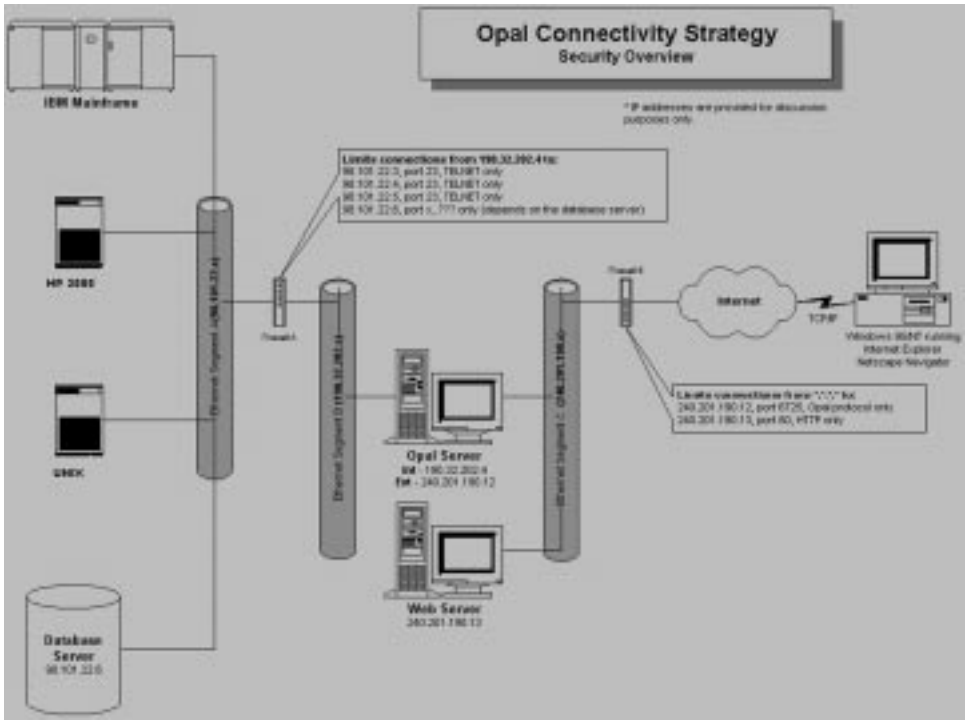
Opal's advanced user interface technology allows the addition of multimedia—graphics, sound, and video—to existing applications. By replacing the character-based interface with a modern GUI, the application can be easier to use and require less support and training. Opal's ability to deploy to both desktop and web environments allows organizations to get applications to users more easily. With web deployment, there's no need to configure terminal emulators or ODBC drivers on the client, and the Opal applications themselves are updated centrally on a web server. Web deployment also gives customers the ability to use their existing applications to do business over the Internet.

Opal's integration abilities allow new applications with better workflow—few menus, cleaner screens - to be built on top of existing applications without requiring changes to them. Integrating multiple character applications together—even if they are on different platforms - allows a single Opal application to find and update information on multiple systems - a more and more common situation in today's IT chaos. Finally, the ability to pull information (and images) from databases allows the construction of extended applications that provide features—like data lookup or images—that simply aren't supported in the underlying application.

Opal applications are built with Opal Integrator, an object-oriented, drag-and-drop development tool that can build complex applications with no traditional coding. Opal Integrator has built in graphical "themes" to provide a consistent look and feel to Opal applications—themes that can be customized for a particular client's "look and feel." Testing and debugging can be done from within the Opal Integrator environment, simplifying and speeding development.

Opal Server provides communication and licensing services to the Opal Player clients. Using Opal Server, all host and database communications are moved from the client to the Opal Server, simplifying client setup and security—primary benefits of thin client computing.

Opal Players are available in desktop configurations for Windows and also as browser plug-ins for Netscape Navigator and Microsoft Internet Explorer.



Success study: interBiz's MANMAN/Insight

MANMAN™ is a manufacturing and ERP product now in its 11th release. MANMAN/Insight, available on both the HP-3000 and VAX platforms, brings the ease of Windows applications, the power of multimedia, and the capabilities of the Internet to MANMAN. MANMAN/Insight was developed using Opal, and is now successfully in production in a number of client sites. As the illustrations below demonstrate, the Opal interface adds an entirely new dimension to the powerful features of this mission critical application.

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Visual Magic

Empowering your HP e3000 applications for the Web

Visual Magic allows you to:

- Use normal terminal emulation for the HP e3000
- Convert MPE VPlus applications into 2-tier client server architecture
- Web-enable HP e3000 applications using 3-tier architecture
- Transfer data to Excel and integrate applications

Terminal Emulation and Electronic File Transfer

In a conventional MPE interface the application runs on the MPE host and accessed by the user through a dumb terminal or through an emulation (like Reflection) software on a desktop computer like PC or UNIX. The interfaces in the terminal can be either character mode or block mode. These terminal interfaces are available over HP proprietary VT-MGR and telnet protocol over TCP/IP. In Magic, we offer similar interfaces like Reflection. This includes terminal emulation and electronic file transfer. Terminal emulation in Magic supports both VT-MGR and telnet over TCP/IP. However, Magic does not support the local field validation as supported by HP native terminal.

MPE Application Access Through HP Terminal Using Visual Magic

2-tier Client/Server Application

Using the VB wizard in Magic, we convert the presentation layer into a Visual Basic application. Using this framework we convert the single tier MPE legacy application into a two-tier Client/Server application. The Magic VB wizard generates VB code, which replicates the presentation of the legacy application exactly in the same way as the dumb terminal. The server continues to do business processing and logically unaware of the change in the interface in the presentation layer. The VPlus screens are converted into VB MDI (multi document interface) forms. As a part of Magic infrastructure we offer an adapter called AACom (Application Adapter Component) which allows the VB application in the client to communicate to the legacy application in a seamless fashion. The VB wizard generates a VB project and necessary VB code to interface with the AACom.

This VB application in the client can now be customized to add graphical interface or modified to integrate and interoperate with other applications. During the conversion, Magic looks at the legacy application as an object, and looks at the MPE application through the eyes of the users (not the application developer). Therefore, it may be useful to customize the MDI forms into SDI forms. This client VB application will then be released to the end users.

Form Loader

Visual Magic provides a tool called FormLoader. This tool runs on the Windows platform and looks into the MPE formspec file in the HP e3000. It downloads the formspec file into a local database, and offers the facility of preview by which the user can view the VPlus screens on the Windows platform. Using this utility, user can generate the Client/Server VB application offline. User can include all the VPlus forms in the client VB application or some specific forms from the formspec file.

3-tier Web-enabled Architecture

Visual Magic also provides a framework where we allow the presentation layer to be converted into a multi-tier Web enabled presentation.

In this approach the presentation layer is converted into ActiveX documents and component. These components are hosted in an Internet Server. The Internet servers tested so far are IIS (Internet Information Server) from Microsoft and Apache in UNIX (Linux). The end user can now use the MPE application through a Web Browser. The browser tested so far is Microsoft Internet Explorer. With ActiveX plug-ins (available from www.ncompasslab.com and www.fob-stech.com) the same MPE application can be used through Netscape as well.

Excel Interface

Visual Magic offers an Excel wizard. By using the Excel wizard, data from a MPE screen can be directly transferred into Microsoft Excel workbooks. This MPE data can be integrated with other data from other MPE and non-MPE applications. As a part of this facility a workflow feature is also offered. In this facility a user can send the Excel workbook through email. The address of the recipients of the mail is obtained by looking into the organizational database using Microsoft OLE-DB interface.

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San Jose, CA 95110
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Contact: Dibyendu Mukherjee (dibyendu@usininc.com)

Appendix F: Windows Applications

Bradmark's Command Center

The use of multiple systems has increased the complexity of managing a computer environment. Operating just a single system requires a number of tasks that take time and effort to accomplish. The HP e3000 MPE/iX operating system remains a command-line driven environment, which challenges the efficiency and effectiveness of system managers. The character-based interface remains on par with the DOS interface for PCs where many tasks can be performed, but not with the ease and simplicity to which today's Windows GUI users are accustomed.

System management faces a daunting task when it comes to working in this character-based environment. It is often necessary to launch multiple applications to resolve system status and issues. Only within a Windows environment can this task be accomplished from a single console.

Logging onto and off of systems is a time consuming task for system managers. Single passwords for all systems leave the entire network vulnerable while unique passwords for every system slows the management down and invites vulnerability when passwords are kept on cheat sheets and left open to prying eyes.

Even the task of determining system health is tedious, requiring that applications be independently run, then reviewed. Without a single monitoring capability, system operators must check each system and application to ensure proper operation, losing time reviewing healthy systems rather than responding to systems in distress.

With Bradmark's Command Center, HP e3000 users can now manage, from a single-console Windows environment, the tasks system management faces when working in the character-based HP e3000 MPE/iX operating environment. By mapping all systems into the Command Center, each system can be completely managed from a single location, which need not be adjacent to the system. Console messages, system health, command windows and more are available from a singe workstation.

The Server Agent sends console messages to the Command Center for full review by the system operator. No time is wasted returning to the physical system console to review and reply to messages. This is accomplished without the need to redirect the console from the terminal. Command Center allows the system operator to view message priority in different colors by specifying message filters. As a result, system operators can quickly view and respond to messages that require immediate attention. In addition, the Command Center has the ability to monitor multiple servers at the same time.

Launching applications from the Command Center requires only a few simple clicks. Applications are configured on a per platform basis, providing quick and direct access to the tools needed to manage each system.

With Bradmark s Command Center, HP e3000 customers are now able to:

- Monitor system performance and health—Tracking the vital signs of the operating system is automatic, freeing operators from reviewing each system individually. Now management is by exception, allowing time to perform other tasks.
- Centralize all console messages—Console messages can be viewed in centralized locations. Color-coded filtering feature allows for message prioritization and alerting.
- Quickly identify and correct distressed systems—As soon as a system's vital signs show a problem with system performance, a visual alert is created for the system in trouble. Operators can quickly identify the system through a visual alarm and then launch an application to resolve the problem using the context of that system.
- Create a logical hierarchy of the network—By defining user maps and dragging and dropping server objects onto them, a network can be described visually. Each map can contain a user-defined background image. Monitor and interact with your HP e3000 systems across the enterprise.

Bradmark's WinMPE

Bradmark's WinMPE takes the tedious task of managing or using the Command Line Interpreter in MPE/iX into the simple and efficient world of a Windows interface. From moving and copying files to managing accounts, users, groups, and more, WinMPE provides the easiest way to perform MPE/iX tasks.

The use of multiple systems has increased the complexity of managing a computer environment. Operating just a single system requires a number of tasks that take time and effort to accomplish. The HP e3000 MPE/iX operating system remains a command-line driven environment, which challenges the efficiency and effectiveness of system managers. The character-based interface remains on par with the DOS interface for PCs where many tasks can be performed, but not with the ease and simplicity to which today's Windows GUI users are accustomed.

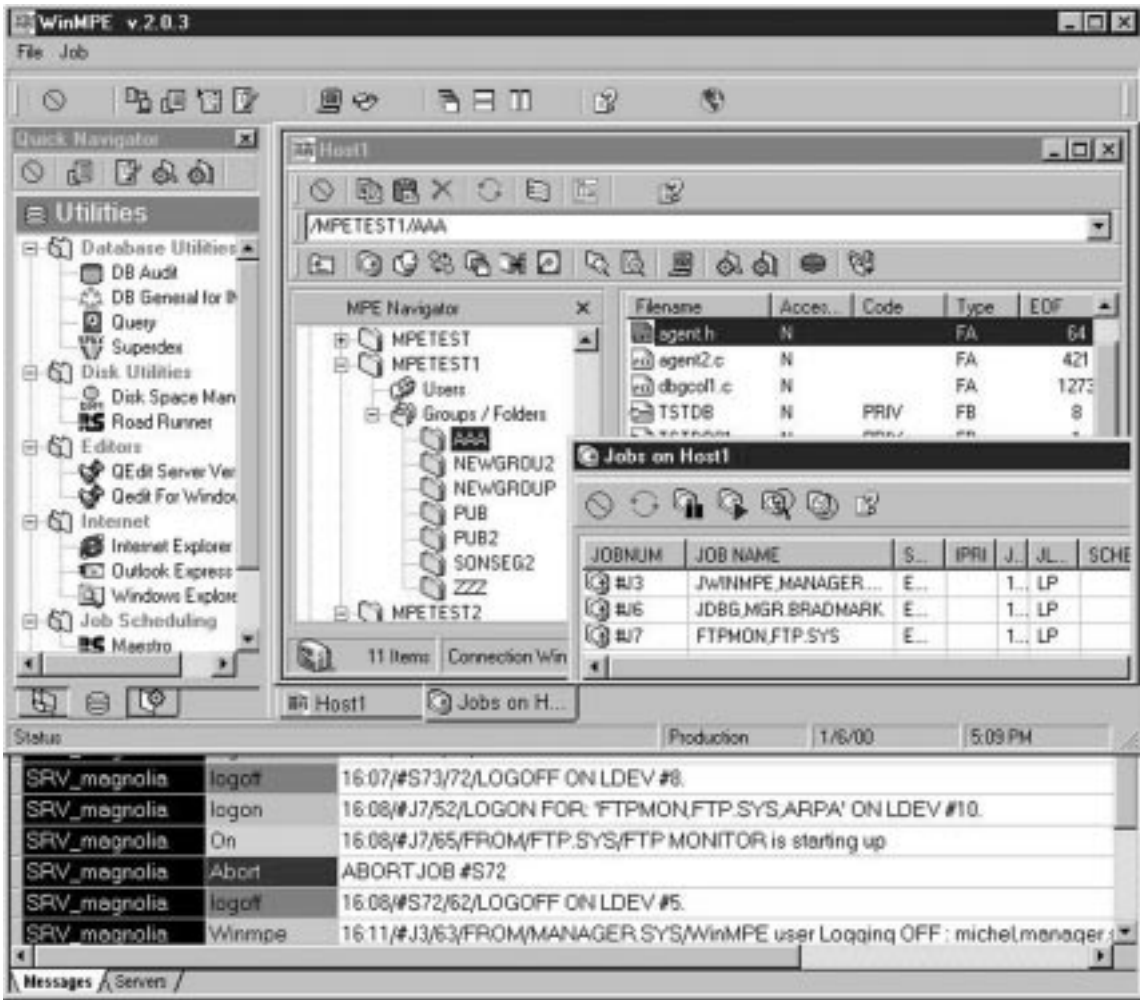
Frequent changes to accounts, users and groups that are precipitated by normal business activities make performing the tasks through the MPE/iX Command Line Interpreter (CLI) a process open to error and challenge. Developers constructing replicated application environments, especially on test systems, are faced with executing numerous commands to complete the task. In a Windows GUI environment, these tasks are reduced to a drag and drop function. Merely selecting the required element, an account, user, group, or files through the easily recognized Windows selection process, then following the Windows protocol to move or copy, creates and executes all of the required MPE/iX commands necessary to perform the task.

With Win MPE, system operators, mangers, and even users will find their daily interactions with the operating system enhanced because they no longer are challenged to remember the correct command and syntax for the action that needs to be accomplished. With the integration of other applications, the fast launch capability saves time and effort to work within the MPE/iX CLI.

For HP e3000 customers, some of the key benefits of using Bradmark s WinMPE include:

- Quick and transparent logons between systems—System managers can store encrypted passwords for each system and then simply click an application to begin a new session on the host system without manually entering logon information.
- Server agent technology executes commands quickly and efficiently—The time for commands to be entered and processed is reduced through the use of server agents that simultaneously support multiple operations. System Managers can perform multiple tasks, improving their effectiveness.
- Fully integrated application launcher—Launching applications on a host system or in WinMPE requires only a few simple clicks. Application information is taken from the Windows interface and passed on, so user interaction is kept to single points of data entry or execution.

With Bradmark's WinMPE, HP e3000 customers can perform tasks based on results desired ó not commands required. With a few clicks of the mouse, they can copy or move complete application environments across accounts and servers. WinMPE has an interface that is easily understood and familiar to the newest generation of Windows users and is able to perform the majority of system administrator and operator tasks through the Windows GUI. WinMPE brings the power and flexibility of Windows technology to the HP e3000 world.



For more information, please visit: www.bradmark.com

Millware TheDash™—A New View Into Your HP e3000

The Dash is free of charge and provides an intuitive interface to manage and control your HP e3000 and its users and applications. Chargeable modules will be introduced to provide increased depth of functionality.

Information

TheDash is only available from the Internet at www.millware.com

Features

- One click launch of favorite applications (requires FREE ScreenJet client)
- Browser enabled so you can manage your HP e3000 across the Internet
- Easy to read statistics Response, CPU, Disc I/O, Transaction data
- Quick display of major users and activity
- Application Warning Lights for Proactive Management
- Date/Time elapsed
- Current system usage displays
- System Warning Lights for immediate attention
- On board computer to provide detailed statistics (chargeable)
- Auto dynamically manages system to maximize throughput (chargeable)
- FREE technical support (with free registration)

Revolution in System Management

TheDash provides a new interface to the HP e3000. It is designed to sit on the System Managers Desktop and provide all of the information required to manage an HP e3000 with a single click.

What it Does

TheDash consists of a system monitor on the HP e3000 and a GUI client on the desktop.

The GUI interface allows single click commands and program launches to be executed via the monitor. This can save substantial time when executing common applications.

All important system status information is displayed in easy to see dials using the analogy of an auto dash to make it easier to learn.

Internet/Intranet Usage

TheDash is designed to be runnable from within a browser. If your HP e3000 is web enabled then you can use TheDash to provide remote system diagnostics and management.

The web connection can be identified as an application and the status will be displayed on the monitor permanently. When the status changes (for example if JINETD aborted), an audible warning can be programmed as well as being displayed as a red light.

Additional Functions

TheDash will be enhanced over time. Plans are already in hand to add:

- Predictive Analysis
- Database monitoring
- Detailed performance statistics with drill down
- Automatic System Management ñ optimizes system parameters dynamically for maximum throughput day (sessions) and night (batch)
- More MPE command replacement

No Risk Implementation

TheDash does not require any system parameters to be changed. It is absolutely safe to use.

Implementation support is available from a global list of trained partners some of whom are trained to provide further detailed performance support. See web site for partner lists.

Free Software

Get your free copy of TheDash from www.millware.com

GUI3000—Modernizing the HP e3000 Interface

The purpose of this paper is to show how to "modernize" the user interface to your HP e3000. As HP e3000 skills unfortunately become scarcer, and the use of Windows PCs extends to an extent that a great percentage of the population is familiar with the interface, GUI3000 attempts to bridge the gap.

GUI3000 presents the user with the familiar "explorer" type interface from Microsoft for every day management of files on the HP e3000. With the file explorer , you can :

- Create/copy/purge account, group, user and file properties easily.
- Use drag and drop to move or copy files from group to group or account to account.
- View, print, edit and download your files, as well as streaming and scheduling jobs.
- Run a program by double-clicking on the file

We realize that HP e3000 users do much more than just work with files, so GUI3000 contains several more modules that allow you to:

- Replace most MPE/iX commands with windows style screens and mouse operations
- Control jobs and sessions easily without knowing #S / #J numbers
- Manage your spool queue effortlessly without knowing #O numbers, plus save them as text or Adobe PDF format
- Find files based on content, size, access/modified/creation date, code, etc
- Sort file/job/spool listings in name, ID, size or date order with just one mouse click
- View files, spool files and jobs $STDIN or $STDLIST with one mouse click
- Highlight user specified conditions in $STDLIST files, such as IF/ENDIF pairs, or CI errors
- View and extract information in a variety of formats quickly and easily from Image databases without ODBC or programming
- Graphically view disk, file and Image dataset sizes
- Automatically monitor for outstanding replies and pop-up a screen to allow you to reply to them.

This gives us several benefits over the traditional “dumb screen” interface.

- Safety—GUI3000 utilizes Windows point-and-click to select files / jobs / spool files so ID s are never accidentally aborted, printed or purged!
- Improved productivity—GUI3000 allows you to monitor and control multiple HP e3000 spool or job queues through one single window
- Provides new functionality unobtainable from existing MPE commands by utilizing Windows controls such as Cut-and-Paste and Drag-and-Drop
- No need to learn MPE—instant understanding using a common Windows interface
- Links to 3rd party software (MPEX, STREAMX, ADAGER and QEDIT) to provide additional functionality
- More efficient and resource friendly than using MPE C.I. commands

GUI3000 is a powerful client-server solution for HP e3000 systems administration. It supports multiple users and multiple hosts, it does not require sessions on your HP e3000, and is blisteringly fast.

GUI3000 makes the administration of your HP e3000 enterprise as simple as managing your own Windows PC!

GUI3000 is currently at version 3. Version 4 is well under development, and will contain many features requested by the existing user base. Selected highlights are:

- Support for HP/UX and Samba—Drag and drop between HP e3000s and HP 9000s
- Enhanced monitoring of your servers, and conditions on your servers
- POSIX and HFS support
- Enhanced Image retrieval.
- E-mail HP e3000 files and reports
- Integration with more third party software
- Automatic connection to any servers running GUI3000

For more information, please visit: www.gui3000.com

Robelle Qedit™ for Windows™—Windows-enabling the HP e3000

Qedit for Windows client/server software provides a modern Windows interface to HP e3000 source code development and text file editing. Consisting of a Windows editing client and an MPE/iX editing server which are connected seamlessly through the TCP/IP protocol, Qedit for Windows can edit any type of file available on the HP e3000. To accommodate today's multi-platform environment, the Qedit server is also available on HP-UX—extending multiple file capability to MPE, HP-UX, and Windows.

Client/Server Architecture

Qedit's client/server architecture utilizes a seamless TCP/IP connection, which translates into instant access to host HP e3000 files. The host files are not transferred to the PC; instead they remain resident on the host HP e3000 or HP-UX system. Qedit for Windows uses Robelle's "smart caching" technology to send just the desired portion of the file to the client, filling up the user's screen around those lines. When changes are made, the client sends the minimum amount of information back across the connection where the Qedit server applies the changes directly to the file on the host HP system. Simply put, the Qedit client handles the user interface while the Qedit server performs the editing operations—and all the mechanics are invisible to the user.

Ease of Use

Qedit's graphical user interface shortens the journey to productivity in HP e3000 usage and development, especially for newcomers to the platform. All the standard "Windows-y" editing functions such as cut/copy/paste are available. These functions work on all types of files supported by Qedit for Windows—local and network PC files, HP e3000 and HP-UX files. Other productivity-enhancing features include split screen, rectangular selection for column editing, multiple files, easy file selection, powerful search and replace, auto-indent, etc.

Performance

Because Qedit's unique client/server design transfers only the required parts of the file and not the whole file, access is virtually instant with minimal demands on the network. There is no need to wait for long downloads and uploads when opening and saving host files.

Scalability

Qedit for Windows offers high scalability in two areas: file size and network connection. Qedit for Windows can handle huge files such as spoolfiles, datacomm traces, data files, and COPYLIBS. Current capabilities are files up to 99,999,999 lines long and 8,172 characters wide. Additionally, Qedit offers high-speed performance scalable from fast local networks to slower remote connections. Designed to serve a distributed computing environment, Qedit allows users at remote sites to access their host files over a modem via TCP/IP or via an Internet connection.

Flexibility

Qedit's flexible design accommodates a wide range of work methodologies "out of the box." For more in-depth customization, Qedit comes with its own scripting language (the "Qedit Scripting Language" or "QSL") which allows users to customize the software so that it understands their IT environment: servers and configurations; IT processes; and departmental rules and standards. Rather than forcing the IT department to change to suit the software, Qedit can be customized to suit each company's environment. Users can write Qedit scripts to address common editing tasks, which can be integrated into a Qedit for Windows menu to become site-specific commands.

Process Automation

The second cornerstone of the Qedit Scripting Language is process improvement. The QSL can be used to automate any repetitive task that has an editing component. For example, say, every week you make a change to a particular file that needs to be propagated to a number of servers. A short Qedit script can be deployed to deliver the file to the necessary computers at a specified time—in a hands-free operation.

System Management Issues

One of the big concerns for MPE Systems Managers is their HP e3000 security. Qedit for Windows does not put the system at risk for unlimited access. Qedit obeys the access rights granted by the system manager and offers full login security (username and password) provided by MPE/iX. Qedit for Windows is also compatible with most third-party security packages such as Vesoft's Security/3000. System management is also simplified by the fact that the Qedit for Windows server does not need an HP e3000 batch job running in the background. On HP-UX, the Qedit Server runs as a standard daemon process.

Windows Integration

Qedit for Windows can be configured as the editor of choice for other Windows applications. For example, Microsoft Internet Explorer can be configured to use Qedit as the default editor instead of Notepad. Qedit for Windows is also integrated with other HP e3000 software such as Bradmark's MPE Command Center and Pete Vickers' GUI/3000.

For more information on Qedit for Windows or a free 30-day demo, please visit the Robelle website at http://www.robelle.com/products/qwin/.

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Whisper Technology's Whisper Programmer Studio—The State-of-the-Art Editor and Integrated Development Environment (IDE) for HP e3000 Programmers

Traditionally, HP e3000 programmers have used Editor, Quad, Qedit, or other terminal based editor for application development.

Meanwhile on windows platforms, the development toolkits have evolved into the sophisticated Integrated Development Environments (IDE) available today, such as Microsoft Visual Studio and Borland's Delphi.

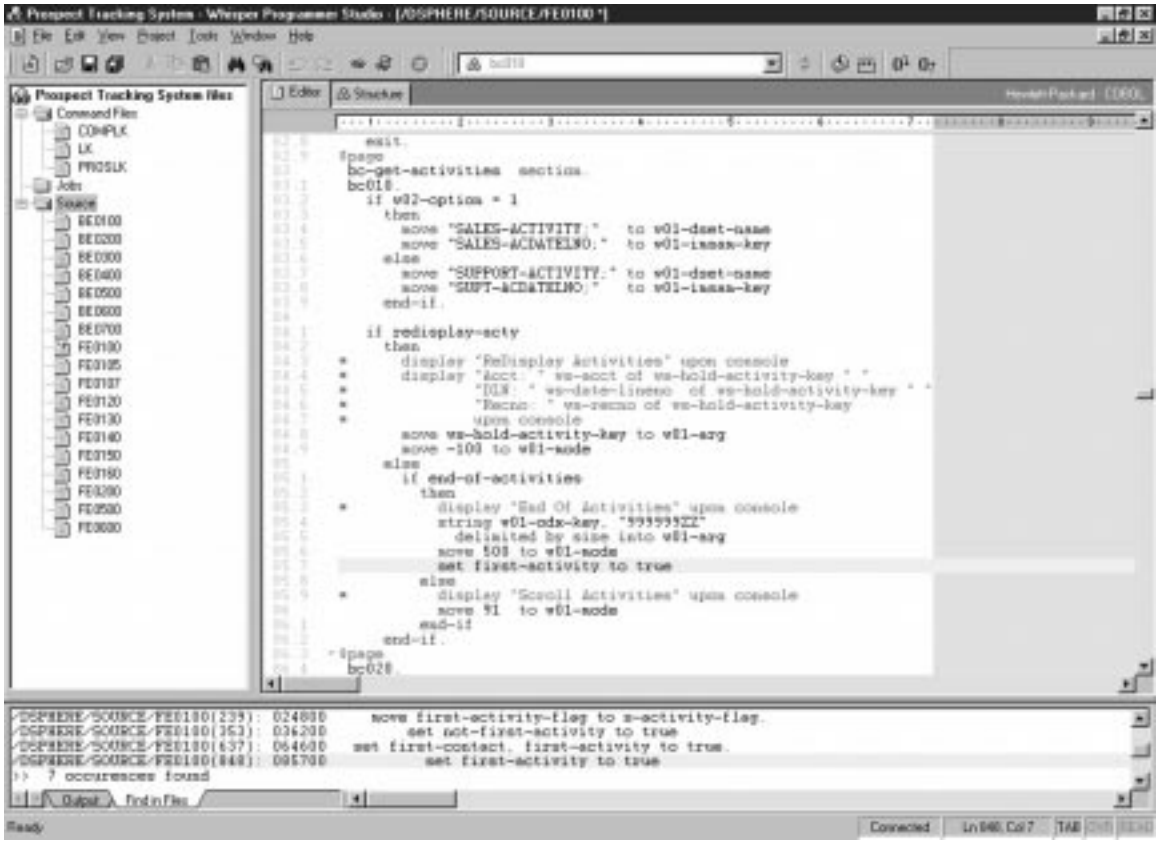
Now, Whisper Programmer Studio provides the first and only Windows based IDE specifically designed for HP e3000 programmers.

Productivity

Programmer Studio enables your existing base of experienced programming staff to become immediately more productive, benefiting from a modern windows IDE. And new staff will no longer have a learning curve for entering and editing source code.

Features

- Fully featured editor with unlimited undo/redo, auto indenting, etc.
- Customizable color syntax highlighting
- Code Navigator support for COBOL, JAVA, C, SPL, Powerhouse, Fortran, Pascal, etc,
- Comprehensive support for COBOL options, copy libraries, Qedit files, etc.
- Visual File Compare
- Multi-platform support for development across all HP platforms, MPE/iX, HP-UX, NT and Linux
- Search using Regular Expressions and Find-in-Files
- Code friendly spell checker
- One-click compile with real-time output and automatic error highlighting
- Ability to logically structure projects in a tree-view hierarchy.



Further details and a fully functional 30-day evaluation copy of Whisper Programmer Studio can found on our web site: www.whispertech.com

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