Northern California Cancer Center (NCCC)

HP e3000

Migration Case Study

Business Overview

hp e3000 transition solutions

- Nonprofit cancer research and information center
- Dedicated to understanding the causes, prevention and detection of cancer and to improving the quality of life for individuals living with cancer.
- Collaborates with scientists, educators, patients, clinicians, community leaders, and other individuals from many organizations and community groups
- Based in Union City, California
- Website: www.nccc.org

Pre-Migration IT Environment

- Platforms: HP e3000 and Windows NT
- Applications
  - 80% Speedware
  - 15% COBOL
  - 5% other
- Third-party utilities - Various
- Database management systems
  - TurboImage, KSAM, flat-files, MS Access
  - Datanow, SuprTool
- Personnel resources
  - 1 DBA
  - 2 Speedware/COBOL programmers

Migration Challenges

- To migrate NCCC's mission-critical cancer information application written in Speedware from the HP e3000 to Windows.
  - Without disrupting critical operations
  - By outsourcing complete project ownership as NCCC's technical resources are scarce.
- To port TurboImage and KSAM databases to MS SQL Server.

Solutions Considered

- Re-writing of mission-critical Speedware application to an alternative language (such as VB) was briefly considered but quickly discounted as an option.
  - Company felt that their custom-built application met their needs better than any other option.
- Migration to Windows environment was only option considered, as NCCC believed Windows to be the most cost-effective and flexible solution.

Adopted Solution

- Migration of character-based Speedware application to Visual Speedware on the Windows platform.
  - Phase 1: “Compatibility mode” chosen to reduce changes
  - Phase 2: Enhancement of the applications by using more graphical controls.
- Migration to Windows environment as per original plan.

About Visual Speedware

- Innovative multi-developer environment built on MS Visual Basic to rapidly create and deploy complex multi-user graphical client/server applications.
- Combines the client-side strength of Microsoft Visual Basic with Speedware's powerful server-side enterprise technology.

Visual Speedware

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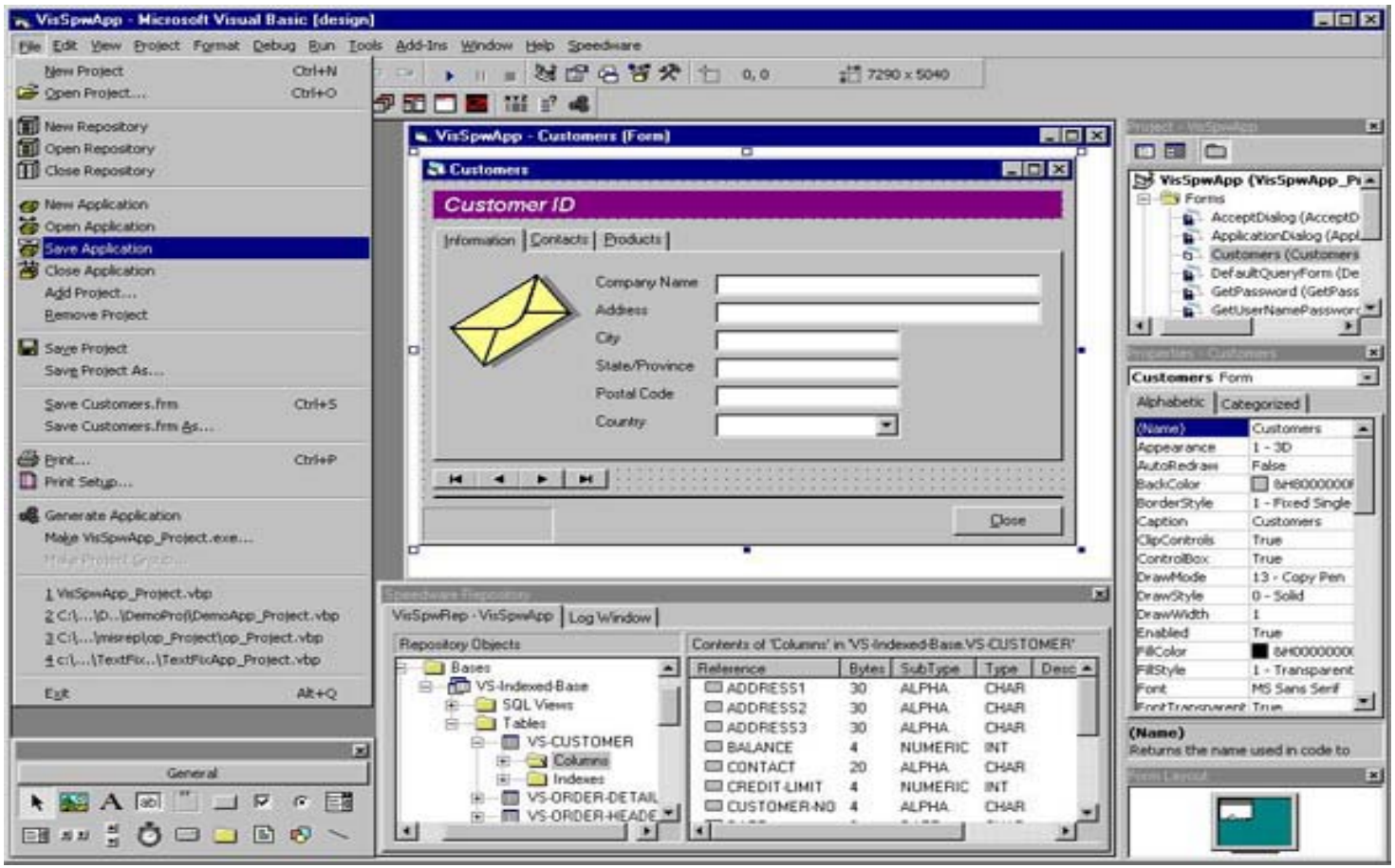

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Benefits Enjoyed by NCCC

- End-users benefited from a powerful, user-friendly graphical application interface (Microsoft VB front-end).
- Simplified and reduced data entry time with integrated screens.
- Ensured data validation and integrity through graphical controls.
- Saved valuable time and money by salvaging the application code and preserving core processes, maximizing initial investments.
- Maintained data security.
- Access to strong pool of affordable migration expertise by undertaking migration project early.

Lessons Learned

- Obtain support from management and end-users alike from the start is very important to maximize project success.
- Extensive application testing prior to deployment is key to identify all potential problems before the actual migration.
- When working with consultants, it is important to understand all deliverables included in the “scope-of-work”.
- In-house expertise with the new platform is key. Even if an application migration runs very smoothly, issues can arise from working in an unfamiliar environment,

Lessons Learned

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"Entrusting the entire project to Speedware is the best thing we could have done. It would have otherwise been absolutely impossible to meet our objectives and still manage day-to-day business."

Frannie Casella

Manager, Registry Information Systems

Northern California Cancer Center

Resources

- Project outsourced completely to Speedware's professional services team.
  - NCCC reviewed results along the way to refine content.
- Budget ≈ $500,000

Results

- Deadline of moving off the HP e3000 platform met.
- Main portion of key application up and running, with its graphical user interface greatly enhanced.
- Integration issues still remain with some components.

Next Steps

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- Continued enhancements to graphical interface of new Visual Speedware applications.
- Addition of Windows-based data reporting tool.
- Migration of secondary COBOL applications from the HP e3000.

Other Facelift Technologies

- GUI-enablement solutions for 3GLs
  - VPLUS
    - edWin (Ordina Denkart)
    - Screenjet (to go to AcuBench GUI for AcuCobol)
    - ExegeClient (Exegesys)
    - Transport (AD Technologies)

edWin™

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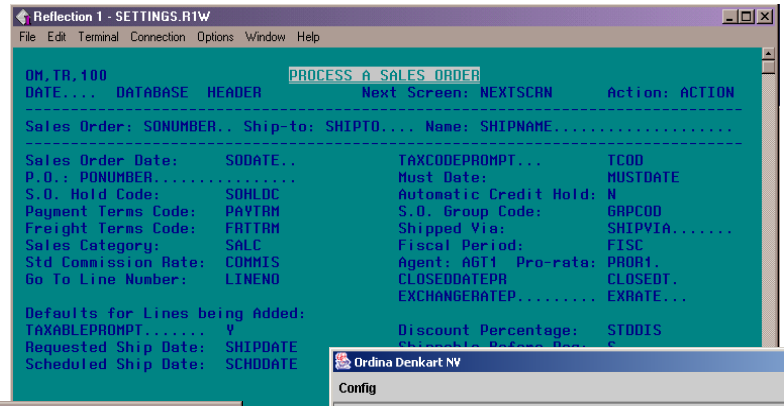
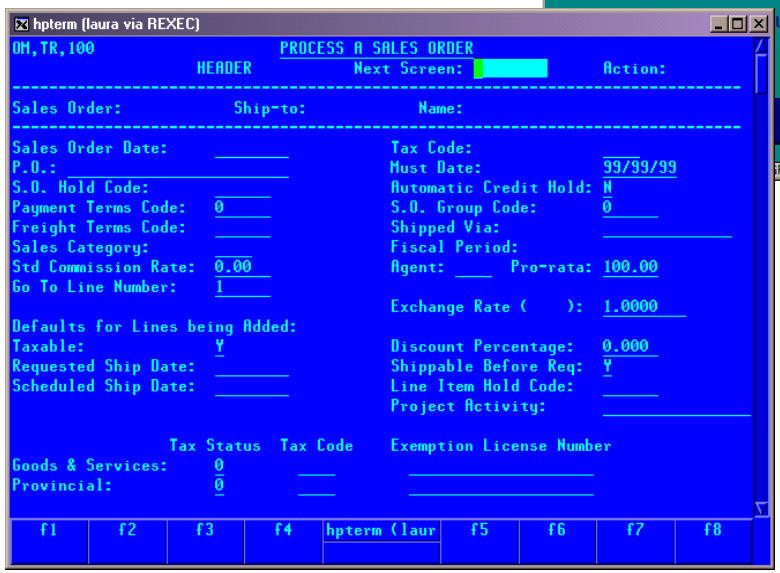
Migrates VPlus

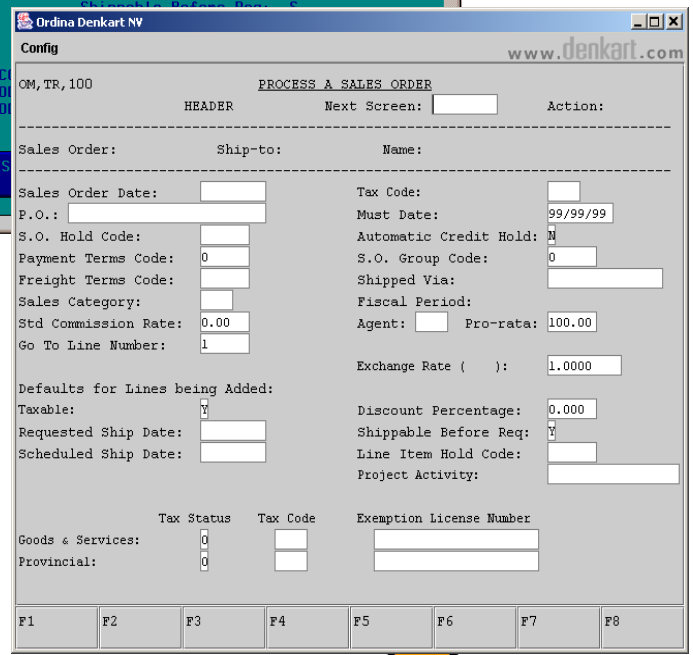
Completely

&

Automatically







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LUND

mbs

MB Foster

SPEEDWARE

hp e3000

City of Pomona

HP e3000

Migration Case Study

Business Overview

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- One of Southern California's major cities
- Its information systems department manages mission-critical systems
- www.ci.pomona.ca.us

Characteristics of IT Environment

- >100 users rely on the city's systems
- 20 key applications written in Speedware with secondary COBOL applications.
- CrystalReports used for form creation
- Reflection scripts used to run reports from Crystal.
- Omnidex

Migration Challenges

- Migrate 20 key applications from the HP e3000 to the Windows platform by October 1, 2003 (aggressive City-imposed deadline).
- Eliminate Omnidex by replacing functionality with SQL Server scripts.

Solution

hp e3000 transition solutions

- Applications ported to Windows platform (central back-end deployment)
- Enhancements to the graphical user interface of the applications using SpeedWeb.
- Databases migrated using manual scripts (somewhat convoluted)
  - No more funds to buy automated migration tools
- External access to Crystal reports via Reflection replaced with SpeedWeb integration to Crystal for the Web

About SpeedWeb

- Automatically web-enables Speedware V7 applications with no code modifications.
- Cost-effectively breathes new life into legacy applications by adding images, menus, colors, buttons and other visual elements.
- Provides application access through a web browser.
- May be used in a variety of network environments.

Application | Orders | Help

Place an order ▸ | Order Invoice | Order Approval

Select products | List all products | Show order

SPEEDWARE

Product Cat

Select f
below.

- Network Accessories
- Office Supplies
- Presentation Materials
- Printer Accessories
- Printers
- Storage Media

Product Details

Product Code: 1151
Product Type: PENCILS
Units : Box of 5
Manufacturer: Pensyl

Description:
Pensyl mechanical pencil
Mechanical pencils 0.5mm.

Product Listing(M)

Number of products

Select		Product Type	Descripton	Price	Supplier
Y/N	N	BINDERS	Bind-It 3-Ring binders	25.00	Pens 'N' Paper
Y/N	N	PENCILS	Pensyl mechanical pencil	10.00	E-Supplies.com
Y/N	N	PENCILS	Pensyl wooden pencils	10.00	Pens 'N' Paper
Y/N	N	PENS	Write-On Stainless Steel Pen	8.00	Pens 'N' Paper
Y/N	N	PENS	Write-On disposable pens, red	10.00	E-Supplies.com
Y/N	N	PENS	Write-On disposable pens, blue	10.00	Pens 'N' Paper

Product Details | Purchase List

Make a selection :

INS

Benefits Enjoyed by the City

- The robustness of a centrally-managed Windows application that offers a rich, web-enabled GUI.
- Application migration with SpeedWeb allowed the city to salvage its application code, maximizing its initial investments. (Legacy applications with a facelift)

Lessons Learned

- It pays to spend time evaluating all aspects of the project before finalizing the budget.
  - User Interface
  - Interface to external routines / programs
  - Tools and migration methods
- Support from Platinum Partner throughout the project is key.
- ACUCOBOL limitations caused problems
  - Cannot move code to DLLs / shared libraries
  - Work-arounds had to be invented to support functionality

Results

- Only 2 full-time programmers required
- Extensive support from Platinum Partner used
- The City expects to have completed the migration of all 20 applications and related SQL scripts by October 1.
- Cost reductions
  - No longer dependent on Omnidex (elimination of related license and support fees)

Next Steps

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- Further enhancement of the visual interface of the city's applications, including the addition of hyperlinks and GUI controls.

Financial Institution

HP e3000

Migration Case Study

Financial Industry – Loan System

hp e3000 transition solutions

- MPE/iX to HP-UX
- HP Turbo Image to Oracle 8i
- PowerHouse Application contains:
  - 80 tables containing 5 GB data
  - 200 quick-screens
  - 115 QTP jobs
  - 130 QUIZ reports
  - 90 USE files
  - 75 shell-scripts
- Time Span – 8 months

Financial Industry – Loan System

- Hours Worked – 2900
  - 2000 Programming
  - 600 Testing
  - 300 Coordination
- Team involved
  - 2 Project Coordinators
  - 5 Programmers
  - 3 – 5 Testers
- Skills: PowerHouse, Oracle DBA, Unix Shell Script

Financial Industry – Collection System

- MPE/iX to HP-UX
- HP Turbo Image to Oracle 8i
- PowerHouse Application contains:
  - 230 tables containing 30 GB data
  - 280 quick-screens
  - 360 QTP jobs
  - 150 QUIZ reports
  - 130 USE files
  - 115 shell-scripts
- Time Span – 9 Months

Financial Industry – Collection System

- Hours Worked – 8000
  - 5000 Programming
  - 2000 Testing
  - 1000 Coordination
- Team involved
  - 1 Project Manager
  - 2 Project Coordinators
  - 10 Programmers
  - 5 – 7 Testers
- Skills: PowerHouse, Oracle DBA, Unix Shell Script

PowerHouse Migrations

PowerHouse Migrations

hp e3000 transition solutions

- Cognos is working closely with HP and its global partner network to provide customers with a smooth migration path from the HP e3000 for their PowerHouse applications.
- Cognos is also aligning with other partners who can provide application and database migration consulting.

PowerHouse Migration Options

- Wait and See
  - Rely on third party maintenance after HP support ends
  - OpenMPE?
- Making the Decision to Migrate
  - Move to a new platform manually
  - Port PowerHouse Applications using Axiant
- Platform Options
  - UNIX, OpenVMS, Windows NT/2000/XP
- New Database Option
  - Eloquence

PowerHouse Applications Platform/Database grid

HPe3000 – MPE/iX	**Image (with Omnidex or Superdex)** **Allbase** **KSAM, Native Mode KSAM, MPE**
HP9000 – HP-UX	**Oracle** **DB2 (coming in version 8.43)** **Sybase SQL Server** **Allbase** **CISAM** **Eloquence (coming in 2003)**
IBM RS600 – AIX	**Oracle** **DB2 (coming in version 8.43)** **Sybase SQL Server** **CISAM**

PowerHouse Applications Platform/Database grid

Windows NT/2000/XP	**MS SQL Server** **Oracle** **DB2 (Coming in version 8.43)** **Sybase SQL Server** **DISAM** **Eloquence (Coming in 2003)** **ODBC (for all other dbms types)**
Sun - Solaris	**Oracle** **DB2 (Coming in version 8.43)** **Sybase SQL Server** **CISAM**
Tru64 - UNIX	**Oracle** **Sybase SQL Server** **CISAM**

PowerHouse Applications Platform/Database grid

OpenVMS - Alpha	Oracle Rdb Oracle RMS
IBM – OS/400	DDS OS/400 DB2

PowerHouse Applications Product Portability grid

PowerHouse	**HPe3000 – MPE/iX** **HP9000 – HP-UX** **IBM RS/6000 - AIX** **Sun – Solaris** **Tru64 – UNIX** **Windows NT/2000/XP** **OpenVMS – Alpha**
Axiant Development **Axiant Deployment**	**Windows 98/Me/NT/2000/XP** **HPe3000 – MPE/iX** **HP9000 – HP-UX** **IBM RS/6000 – AIX** **Sun – Solaris** **Tru64 – UNIX** **Windows NT/2000/XP** **OpenVMS – Alpha**
PHWeb	**HPe3000 – MPE/iX** **HP9000 – HP-UX** **IBM RS/6000 - AIX** **Sun - Solaris** **Tru64 - UNIX** **Windows NT/2000/XP** **OpenVMS - Alpha**

PowerHouse Migration Tools

- Axiant 4GL
  - Helps you migrate your applications
  - GUI Development environment
  - Multi-environment deployment
    - Terminal
    - Thin Client
    - Fat Client (Database on the LAN)
    - Mobile (Everything on the PC)
    - Web

PowerHouse Migration Tools

- Axiant Imports From:
  - PowerHouse dictionary
  - Relational metadata
  - QUIZ, QTP, and QUICK source code

PowerHouse Migration Process

To bring your application into Axiant:

- On MPE
  - Collect the source files (PDL, QK, QZ, QTP) to be moved
  - Save the data in portable subfiles, using QTP
  - Transfer the source code to Windows
  - Transfer the subfiles to the target machine

PowerHouse Migration Process

To bring your application into Axiant:

- Use Axiant's migration tools to:
  - Create a migration profile: for example MPE/Image to Oracle/UNIX
  - Import the PDL and generate the database
  - Import the programs, converting to PH UNIX/relational

PowerHouse Migration Process

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To bring your application from Axiant to UNIX:

- Use Axiant's tools to generate the target PDL and SQL.
- Use Axiant to compile the programs on the PC to get modified source code
- Use FTP to transfer the PDL, SQL and source files to UNIX.

PowerHouse Migration Process

To assemble the application on UNIX:

- RDBMS tools – create database from SQL.
- PDL – create dictionary from PDL source file.
- QUTIL – create indexed and sequential files.
- QTP – load subfiles into database and files.
- Programs – modify to match the data changes, then test.
- Optionally enhance the application to be more relational.
- Translate any MPE command scripts and test.

PowerHouse Migration Issues

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- Eloquence requires no coding changes
- Relational Databases
  - Data structure differences: arrays, substructures, redefines, automatic masters
  - Relational features: triggers, views
  - Within PowerHouse: SQL and cursors, transaction control (‘locking’), nulls, stored procedures
- KSAM to CISAM
- Relative to Direct, Sequential or Indexed
- UDC’s need to be converted to scripts

PowerHouse Migration Issues

- Batch Sections and Command Statements
  - Need to be re-written for new environment
- Calls to 3GL Applications
  - MPE/iX specific options need to be re-written
- Database porting
  - Axiant does most of the work
  - Some manual intervention
  - Omnidex support for Eloquence to be investigated

Client/Server Enablement

- Is Client/Server in your future? Consider Axiant
  - Not only helps you migrate.
  - GUI development environment.
  - Deploy a Windows GUI application
    - Thin Client
    - Fat Client (Database on the LAN)
    - Mobile (Everything on the PC)

PowerHouse Web Enablement

- Developing Web Applications? Consider PowerHouse Web
  - Quickly build dynamic data driven Web applications.
  - Eliminate traditional client/server overhead using Web browsers.
  - Extends the reach of your enterprise to provide improved customer service, additional sales channels, and alternate communication channels to customers and suppliers.

PowerHouse 4GL

3 User Interfaces…But Only 1 Language

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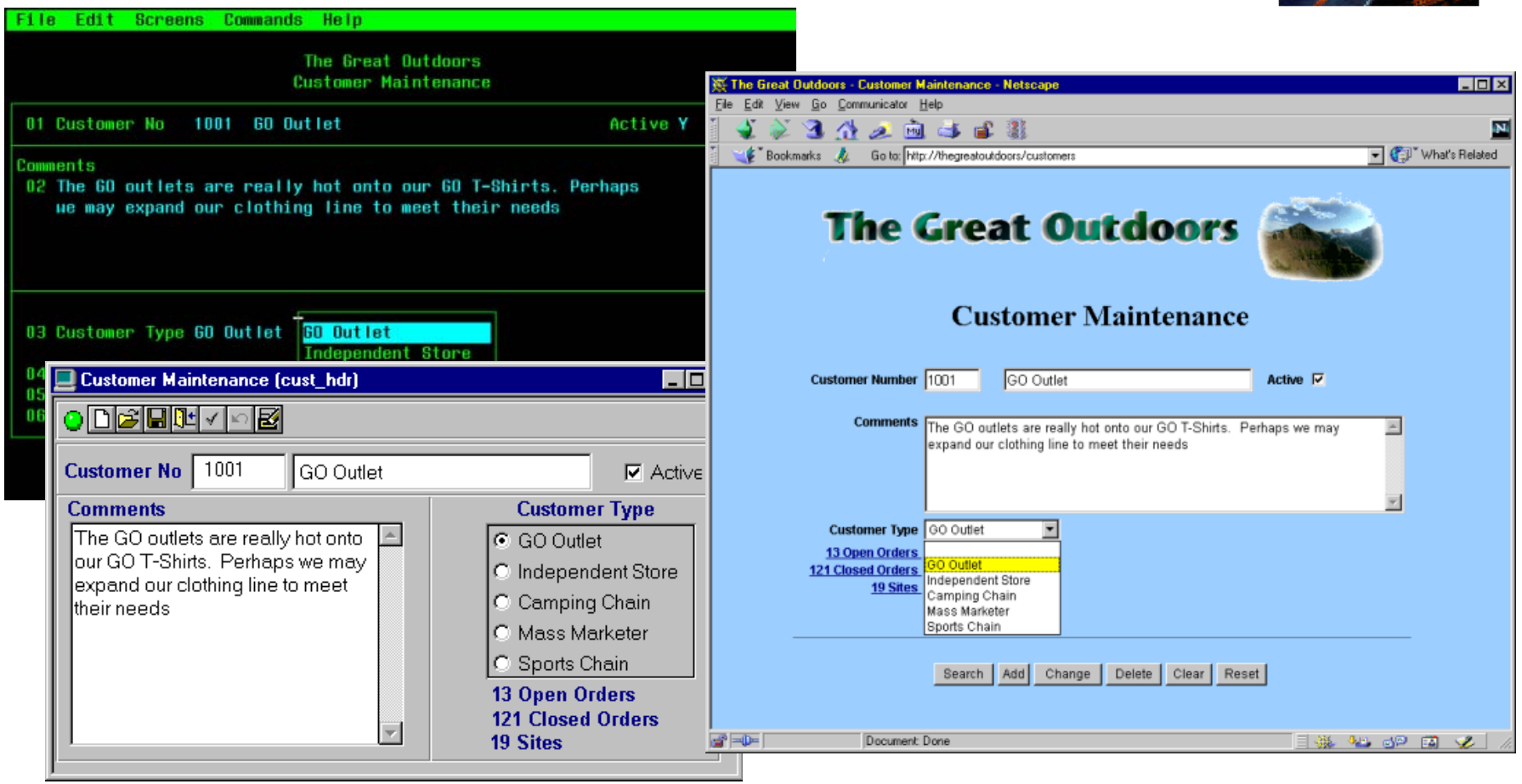

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PowerHouse Customer Training

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- New Migration Course Available:
  - Use Axiant to:
    - Migrate your application from HP3000 to HPUX
    - Migrate your database from IMAGE to Relational
  - Free copy of Axiant with the course
- Existing courses that can help:
  - Understanding Relational Databases
  - Porting PowerHouse Applications
  - Relational Interface Courses (Part I and II)

PowerHouse Migration Support

hp e3000 transition solutions

Recommended companies with the knowledge, expertise and migration skills with PowerHouse, Axiant, HP/UX, UNIX and NT/Win2000

Managed Business Solutions

MB Foster

HP

Minglewood Consulting

Bookwood Systems

In Business

Intertech Business Solutions

Seward Consulting

Sector 7

Creative Computing

AD Technologies

Lawinger Consulting

C.R. DeYoung & Associates

Visibility

and more…

hp e3000

Cognos Migration Assistance

- For even more information:
  - http://powerhouse.cognos.com
- For platform and database support:
  - http://support.cognos.com/support/products/ph_software_environments.html

Cognos Migration Assistance

hp e3000 transition solutions

- For pricing information:
  - Charlie Maloney at 781 – 313 – 2305
  - Bob Berry at 781 – 313 – 2270

- For technical information:
  - Christina Hasse at 847 – 285 - 2905

CT3, Inc.

HP e3000

Migration Case Study

CT3, Inc. – Business Overview

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- Established in 1992 to meet the business and software needs of the timber and wood product industry

Challenges

hp e3000 transition solutions

- Migrate from an HP e3000 to HP 9000 for large customer
- 1995, HP-UX fairly new OS

Characterize the HP e3000 Environment

- 3000 programs
- 1M lines of code
  - 100% Speedware

Solution

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- Conversion from the HP e3000 to HP 9000 servers
- Speedware/Designer
- Oracle database
- Started August 1994, completed January 1995

Lessons learned

- Take advantage of training and education despite aggressive implementation schedules
- Code written in Speedware/4GL
  - Very little difficulty porting the code from one platform to another
- Calls to the operating system
  - Import / export data in file format
  - MPE commands replaced with UNIX commands
  - Lower case

Lessons Learned - Importing/exporting files

- MPE has fixed record structures, like mainframes
- UNIX files don't have a record structure
  - Byte stream files
  - Wrote a C program to pad files so they could be treated like fixed length records
  - Porting the code was simple
  - Porting the data was "a surprise"

Database / File Interface

- Replacing Image, KSAM, and specialized flat files with alternatives on other platforms creates new challenges
  - Data Structure Changes
  - Data Type Changes
  - Variable Name Changes
  - Database / File Access Changes
  - Data Migration

Lessons Learned - Batch jobs

- MPE has a very consistent and predictable way of handling them
- Unix uses cron
  - Behaves differently from MPE
  - Consistent but not what we're used to
  - Jobs don't necessarily process in the order in which they were initiated
- Job scheduling systems
  - Built own job management system
- Solving the problem with the right tool for the job:
  - Multiple Job Queues
  - Mass-launches

Lessons Learned – From TurboIMAGE to Oracle

- Not prepared for wealth of features and functionality provided by Oracle
  - Didn't want to take advantage of many of these features.
  - Use Oracle like Image
  - Managing growth in Oracle
- The solutions weren't difficult but we didn't know what the issues were.
- The environment today:
  - Better tools
  - Better training

Comparing Oracle to TurboIMAGE

- TurboIMAGE does one thing very well.
  - Simple Online Transaction Processing
- Oracle does a lot of things very well
  - Simple Online Transaction Processing
  - Complex Online Transaction Processing
  - Ad Hoc Queries
  - Data Warehousing
  - Easier integration with PC-based packages (MS/Office, etc.)
  - etc. etc. etc.

Let's Face It

- Oracle is a much more full-featured product than TurboIMAGE is.
  - It can do a lot of things better than TurboIMAGE
  - Therefore, it needs more system resources than TurboIMAGE.
- So what are your performance options?

Migrating Speedware Applications

hp e3000 transition solutions

- Every Speedware development toolset offers cross-platform portability as one of its core features.
- Most applications built with Speedware technology can be easily ported to any other supported platform without modifying the code at all.
- Operating System Switches permit developers to write OS-specific code in applications designed for multiple platform deployment facilitating gradual migrations.

Database Migrations

- Databases can be easily ported through the Speedware development environments.
  - Database layers are abstracted away from the code permitting application to be database portable.
  - Speedware's development tools are able to reconstruct identical database structure in other database types
- The database porting process is relatively simple
- DBmotion further simplifies database migrations

DBMotion - [Database Definition]

File Edit View Tools Window Help

Source - Columns - EducTe

Categorized

Property	Value
Name	CRS-CODE
Physical	
Data Typ	
Data Type	X4
Key Options	
Key Type	STANDARD
Primary	YES
Unique	YES
Sort Item	
Master	

Source Database:

- Bases
  - EducTest
    - Tables
      - CRSMASTER
        - Columns
          - CRS-CODE
          - CREDITS
          - CURRENT-PRICE
          - INST-QUAL-NO
          - MAX-STUDENTS
          - NAME
          - PASSING-GRADE
          - PREREQ-CRS-CODE
          - STATUS
          - TOTAL-HRS
        - Indexes
      - INSTRUCTORS
        - Columns
          - INSTRUCTOR-NO
          - ADDR-CITY
          - ADDR-POSTAL
          - ADDR-STATE
          - ADDR-STREET
          - NAME
          - QUAL-ARRAY
          - SALARY
        - Indexes
      - STUDENT-MASTER

Target Database:

- CRSMASTER
  - Columns
    - CRS-CODE
    - CREDITS
    - CURRENT-PRICE
    - INST-QUAL-NO
    - MAX-STUDENTS
    - NAME
    - PASSING-GRADE
    - PREREQ-CRS-CODE
    - STATUS
    - TOTAL-HRS
  - Indexes
- INSTRUCTORS
  - Columns
    - INSTRUCTOR-NO
    - ADDR-CITY
    - ADDR-POSTAL-CODE
    - ADDR-STATE

Target - Columns - EducTest.CRSMAS

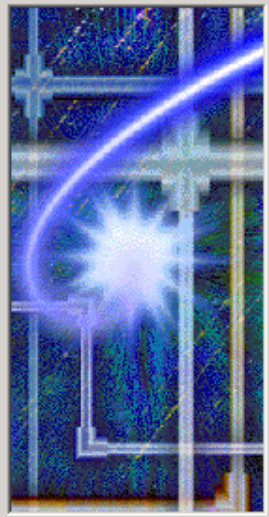
Categorized

Property	Value
Name	CRS-CODE
Physical	
Null Support	NO
Data Type Op	
Data Type	CHAR(4)
Type	CHAR(p)
Precision	4
Scale	0
Key Options	
Key Type	STANDARD
Primary	YES
Unique	YES
Foreign File	
Foreign Item	

11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum
11/09/02 02:16:07 PM: Update the Name property of colum

Log Window | Find Name or Datatype 1 | Find Name or Datatype 2

Find and Replace Wizard - Adjustment Confirmation



Confirm the objects you want to change:

	Source Name	Source Datatype	Target Name	Target Datatype	New Target Name	New Target Datatype
☑	CRS-CODE	X4	CRS-CODE	CHAR(4)	CRS_CODE	VARCHAR(30)
☑	CREDITS	I	CREDITS	SMALLINT	CREDITS	INT
☑	CURRENT-PRI	I2	CURRENT-	INT	CURRENT_	INT
☑	INST-QUAL-NO	I2	INST-QUA	INT	INST_QUAL	INT
☑	MAX-STUDENT	I	MAX-STUD	SMALLINT	MAX_STUD	INT
☑	NAME	X30	NAME	CHAR(30)	NAME	VARCHAR(30)
☑	PASSING-GRA	I	PASSING-	TEXT	PASSING_	INT
☑	PREREQ-CRS-C	X4	PREREQ-C	CHAR(4)	PREREQ_C	VARCHAR(30)
☑	STATUS	X2	STATUS	CHAR(2)	STATUS	VARCHAR(30)
☑	TOTAL-HRS	I	TOTAL-HR	SMALLINT	TOTAL_HR	INT

Select All | Deselect All

Help | < Back | Finish | Cancel

Migrating Speedware Applications

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- Platform / Database grid

HPe3000 – MPE/iX	**Image** **Image (with Omnidex)** **Image (with Superdex)** **Allbase** **Oracle (V7)** **KSAM and KSAM-XL** **Flat (and other variations)**
HP9000 – HP-UX	**Oracle** **Sybase** **Informix** **Allbase** **Eloquence** **DISAM (for Indexed files)** **Flat** **Netbase (Image, KSAM, etc.)**
IBM RS6000 – AIX	**Oracle** **Sybase** **Informix** **DB2** **DISAM (for Indexed files)** **Flat** **Netbase (Image, KSAM, etc.)**

Migrating Speedware Applications

hp e3000 transition solutions

- Platform / Database grid

Windows XP / 2000 / NT / ME / 98	**SQL Server** **Oracle** **Sybase** **Informix** **Eloquence** **DB2** **DISAM (for Indexed files)** **Flat** **Netbase (Image, KSAM, etc.)** **ODBC (for all other dbms types)**
Sun – Solaris	**Oracle** **Sybase** **Informix** **DISAM (for Indexed files)** **Flat** **Netbase (Image, KSAM, etc.)**

Migrating Speedware Applications

hp e3000 transition solutions

- Product Portability Grid

Speedware/4GL **Speedware/Designer**	**HPe3000 – MPE/iX** **HP9000 – HP-UX** **IBM R6000 – AIX** **Windows XP / 2000 / NT / ME / 9x** **Sun – Solaris (4GL only)**
Speedware Autobahn	**HPe3000 – MPE/iX** **HP9000 – HP-UX** **Windows XP / 2000 / NT / ME / 9x** **Sun – Solaris (Autobahn CGI only)** **Linux (Autobahn CGI only)**
Visual Speedware	**HPe3000 – MPE/iX** **HP9000 – HP-UX** **Windows XP / 2000 / NT / ME / 9x**
EasyReporter	**HPe3000 – MPE/iX** **HP9000 – HP-UX**

Speedware Migration Process

- Design
  - Binary FTP to target system
  - Open with Designer
  - Change file locations (paths) and database location
- Database
  - Using Speedware development tools
    - BDIS, change DB type / user / path, BGEN
  - DBmotion
    - End result generates a proper SPW catalog
  - Bridgeware (Quest / Taurus)

Speedware Migration Process

- Applications
  - Generate applications from Designer

Speedware Migration Issues

- Batch Sections and Command Statements
  - Speedware is looking into providing an MPE Emulation layer to automate migrations
- CALLs to 3GL applications
  - Migration of 3GL XLs to shared library routines
- Database porting
  - Differences
  - Database porting (gradual, incremental loading, mirroring)
  - Omnidex / Superdex
  - Optimization (Data views)

Business and Technical Results

- Increased options
- High performance
- High reliability
- Satisfied their largest customer's requirements

"HP customers should definitely consider an HP-UX server as an alternative to the HP 3000 if reliability and consistency are what they're looking for."

Steve Hall
President
CT3, Inc.

Porting and VPlus Case Study

HP e3000

Migration Case Study

AMXW Case Study - Overview

hp e3000 transition solutions

- Highly customized and specific application
- “Out of the Box” solutions were either too costly or not specific enough to meet their business needs
- Leverage existing HP e3000 staff knowledge and application investment
- Reduce the impact of the transition event

Characterize the environment

- HP e3000 Series 948
- 100 to 150 interactive users
- Home grown application written in COBOL
- Data – Maintained within several TurboIMAGE and KSAM databases across two separate accounts
- Screens – Over 100 screens created and maintained within VPlus
- JCL – Approximately 1500 batch processes
- Commands – heavy utilization of MPE

Challenges

- Cobol – SMARTDATE by Robelle,data item keywords, file equations, and formatting
- TurboIMAGE – data loading and keywords
- JCL – Non-implemented keywords (SPSAVE)
- Screens and Forms – No problems
- Commands – No problems

Solution

hp e3000 transition solutions

- Automated COBOL code changes through AMXW
  - Compilation options ($CONTROL) are commented out
  - Replacement of HP e3000 functionalities such as CONDITION-CODE by proprietary procedures
  - Syntactical changes in COPY, CALL, GOBACK, etc.
  - Inclusion of an initialization paragraph that will make file equations and variables available to a particular process
  - Inclusion of a cleanout procedure after leaving the program: file closures, purge of “new files”, etc.
- Other – manual intervention tuning

Technical Results

- Robelle's SMARTDATE intrinsic found in 90% of the application code
  - Solution: rewrite SMARTDATE functionality
- Examples of Intrinsics found in the sources:
  - command, dateline, dbexplain, dbopen, getinfo, hpcigetvar, hpmyprogram, jobinfo, pause, quit, who
- Examples of MPE commands found in the sources:
  - abortjob, limit, print, showdev, spsave

Moving the IMAGE data

Automated AMXW Functionality

- Detail and manual sets become tables
- Automatic masters sets become indexes
- Search and sort items are indexed in the detail sets
- Master set key items are indexed by a “unique” index
- Relationships between masters and details are not automatically created, later through referential constraints
- Default for table’s owner to be the database name and the dataset name becomes the name of the table

Moving the Image data

AMXW Conversion outputs

- The conversion output generates several files
  - Tablespace creation
  - A script for the tables
  - A script for the indexes
  - A script for the AMXW internal tables (Image run time)
  - A script to drop the indexes
  - A script to drop the tables
  - Scripts to drop the options related to a particular database

VPlus conversion with edWin

AMXW Conversion outputs

- Transfer to migration PC as binary files
- AMXW migrates the file to an EdWin/3K forms file
- MPE FORMAINT replaced with EdWin/3K Painter
- EdWin/3K forms file in XML
- Character version of the forms file while stepping through the code

Batch JCL

Conversion process

- Transfer to Windows or UNIX as ASCII files
- Files are executed using the AMXW Emulator
- Comparison and testing

Testing of the application

- TEST, TEST, TEST

invent