Migrating 4GL Applications

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HP Platinum Partner

hp
invent   LUND   MB Foster   mbs   SPEEDWARE   hp e3000
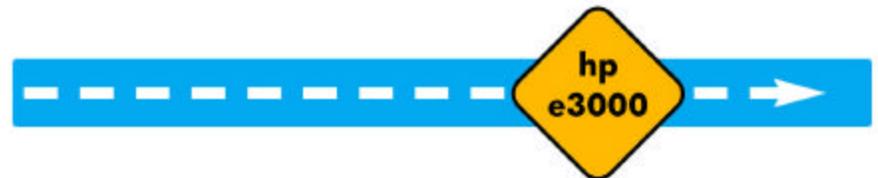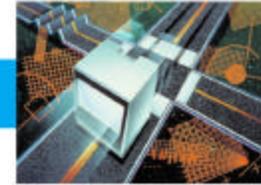
Agenda

- Common Migration Issues for 4GLs

- Speedware Migrations

- Powerhouse Migrations

- Transact Migrations

- Conclusion
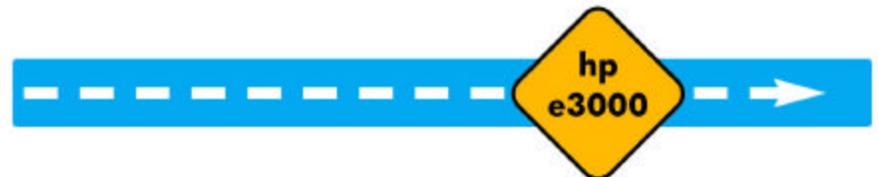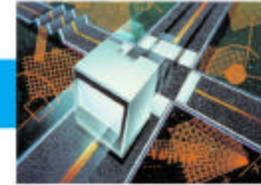
Common Migration Issues for 4GLs
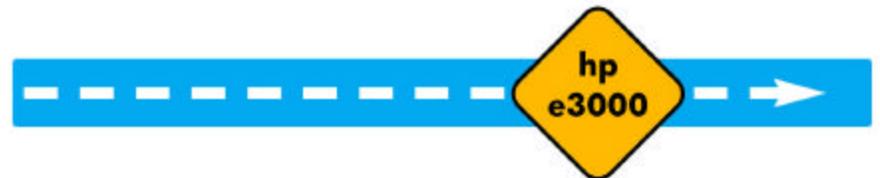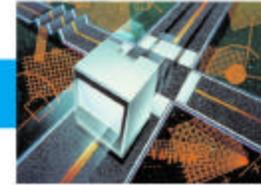
Overall Assessment

- 4GLs have advanced in recent years
  - Are you using the newer features
- Speedware and Powerhouse are highly portable to other platforms including HP-UX and Windows.
- Speedware is offering a solution for Transact
- Protos generates Cobol and can therefore theoretically be migrated
  - Potential issues with User Interface libraries
- CBAS = rewrite
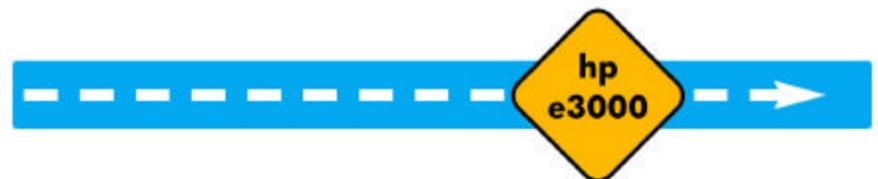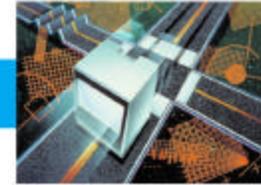
Common Migration Issues for 4GLs

- Will it work on the target platform and database?

- Database migrations

- Interfacing with 3GL migration results

- External technologies

  - Omnidex / Superdex

  - Suprtool

  - Editors

  - HP e3000 Utilities (MPEX, Spooler product, Job Queue Products, etc.)

- Interacting with, scheduling and creating external Batch processes
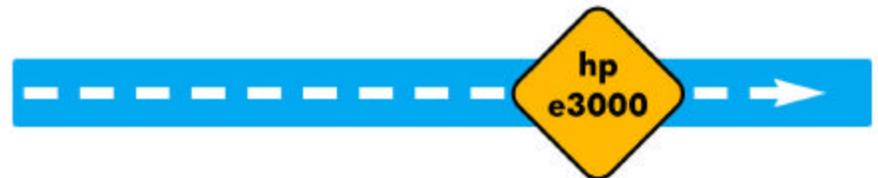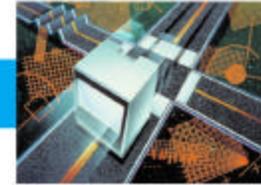
Common Migration Issues for 4GLs

- ● What about Omnidex and Superdex?
  - – Relational Databases have strong data querying capabilities
    - ● However, most of the commonly-used Omnidex functionality doesn't exist. (keyword retrieval)
  - – Omnidex has a migration path to Omni-Access
    - ● API compatibility libraries exist, reducing need to re-write queries.
 - – Superdex – best option is migration to Omni-Access.
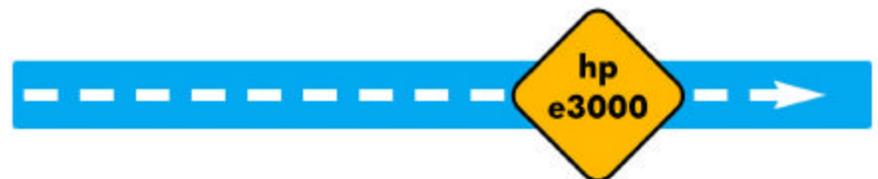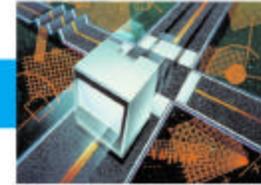
Common Migration Issues for 4GLs

- Interfacing with packaged applications
  - ManMan
  - Amisys
  - Summit
  - Exegesys
  - Ecometry
  - SFD – Syngistix
  - FMS – Mitchell Humphrey
  - Etc.
- If migrating with the packaged application, you'll need to migrate the 4GL add-on modules
- If you are replacing, you'll need to review custom functionality to determine what may need to be migrated
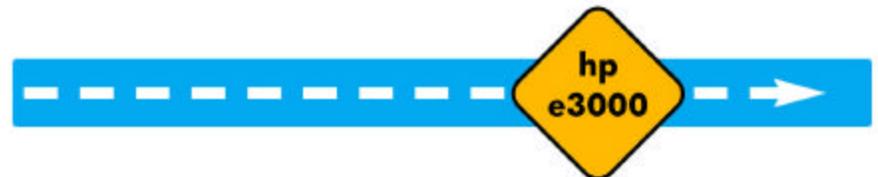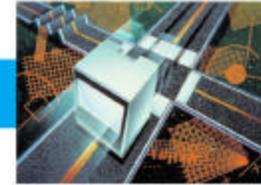
Enhancing the User Interface

- Either as part of a migration effort or post-migration, consider enhancing the visual interface of the application.
  - Putting either a Web or Windows interface on top of the application can dramatically improve the life of an application
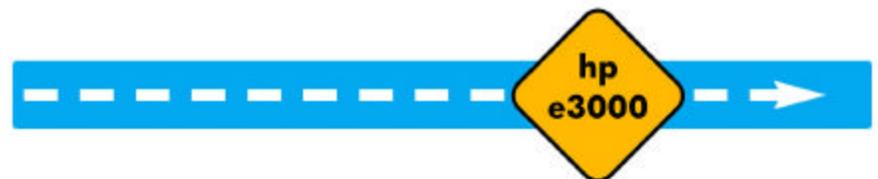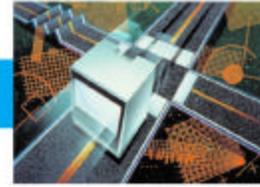
Speedware Migrations
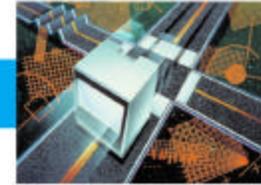
Migrating Speedware Applications

- 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.
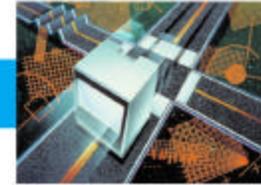
Database Migrations

- 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
- Coming Soon: DBmotion

DBMotion - [Database Definition]

File   Edit   View   Tools   Window   Help
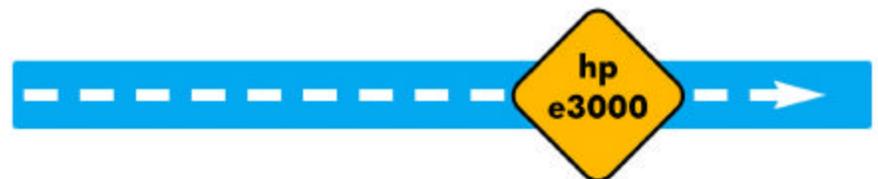
Source - Columns - EducTe

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	

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

11/09/02 02:16:07 PM: Update the Name property of column
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Log Window   Find Name or Datatype 1   Find Name or Datatype 2

Migrating Speedware Applications

- 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.)
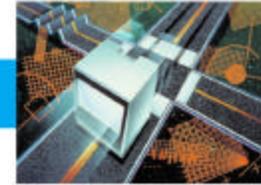
Migrating Speedware Applications

- 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.)
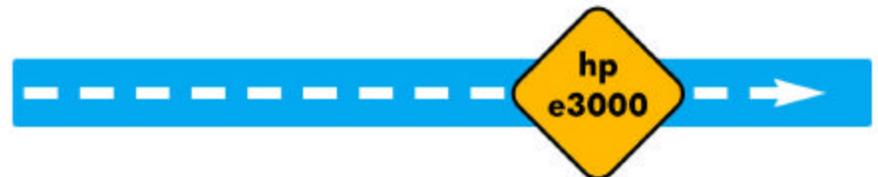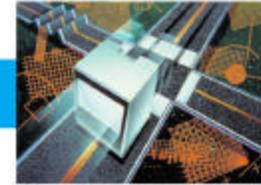
Migrating Speedware Applications

- 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
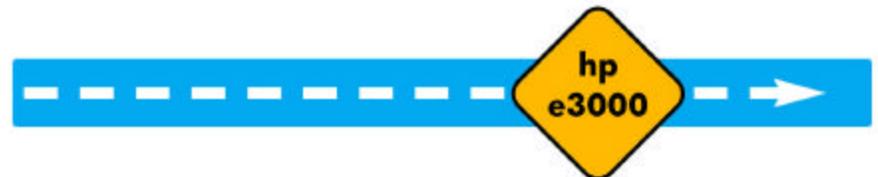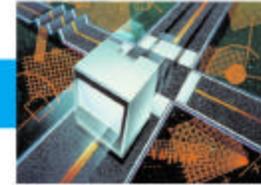
Speedware Migration Process

- **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)
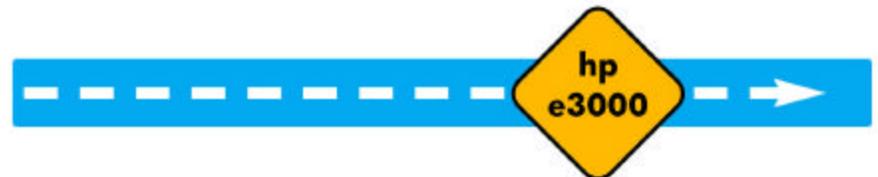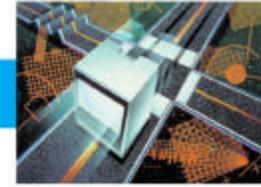
Speedware Migration Process

- Applications
 - Generate applications from Designer
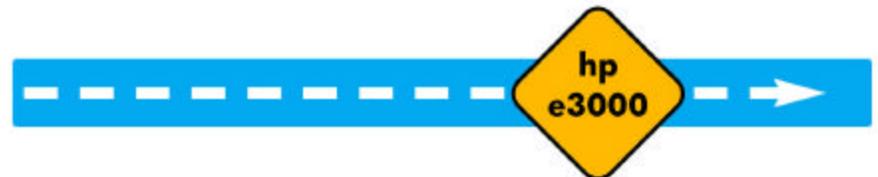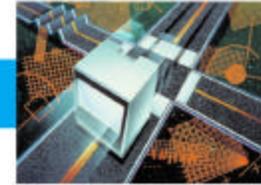
Speedware Migration Issues

- 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)
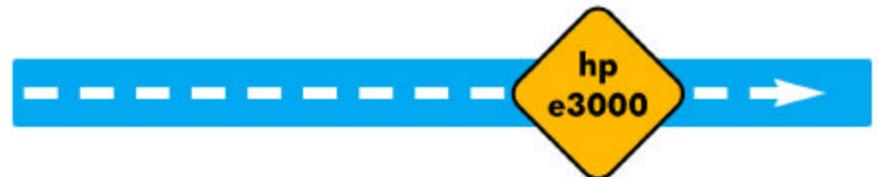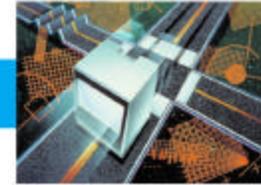
Application Porting Demonstration

Click Here
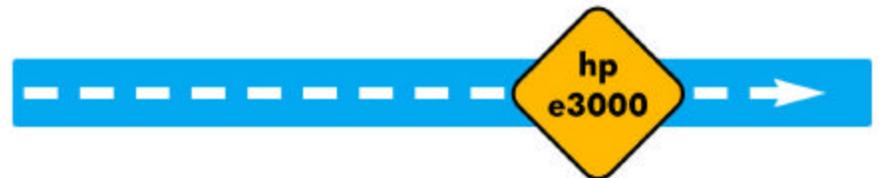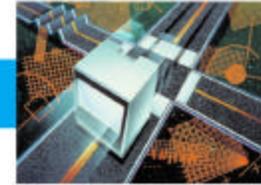
Enhancing the User Interface

- Speedware Autobahn can easily Web-Enable existing applications.

- Existing Speedware/4GL applications can be quickly migrated to Visual Speedware, instantly giving them a Visual Basic front-end.
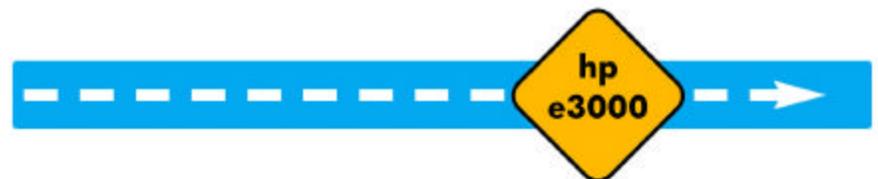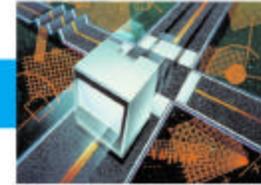
SpeedWeb
(a new component of Autobahn)

- Web-enablement for Classic Speedware applications
  - Java / Web
  - Instant Web-enablement
  - Add additional graphical controls to existing applications with ease
  - Ready Nov. 30, 2002

Application | **Orders** | Help

Place an order ▶ | **Select products**
Order Invoice | **List all products**
Order Approval | **Show order**

Product Cat

Select f
below.

SPEEDWARE

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

| File | Edit | Options | References | Orders | Help |

- ▼ About Us
- ► Corporate Profile
- ► Offices And Distributors
- ► Investor Relations
- ► Careers
- ► Wireless Solutions
- ► Internet Solutions
- ► Client/Server Solutions
- ► Development Tools
- ► HPe3000 Migration
- ► Reporting Solutions

Innovation, not imitation
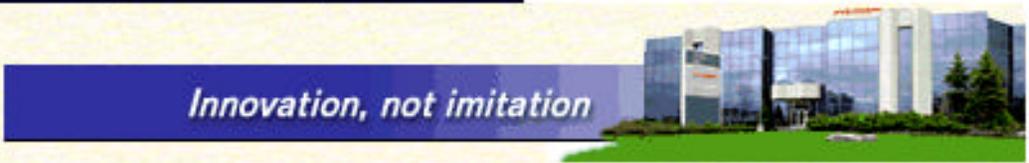
Order Maintenance

Lorem ipsum dolor sit amet, consetetur ipsa dipscing elitr, sed diam nonumy eirmodili sit tempor indivunt ut labore et dolor velit ea justo magna.

Customer Number

Discount Rate

Order Number

Are you self-employed?   ○ Yes ○ No

Send me new stuff   ☐   -- Select a Product --

Bill to
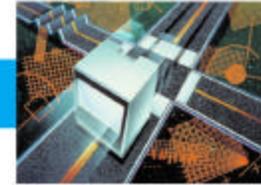
PowerHouse Migrations
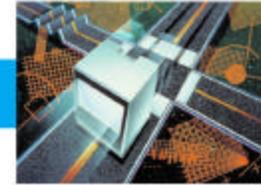
PowerHouse Migrations

- 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.
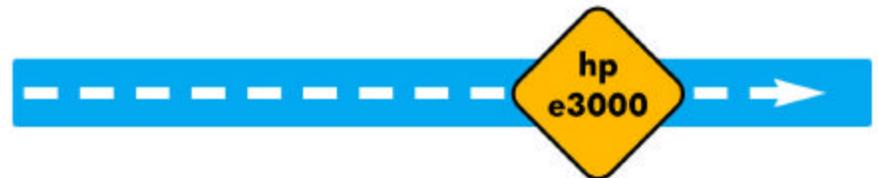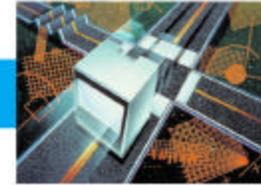
PowerHouse Migration Options

- ## 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
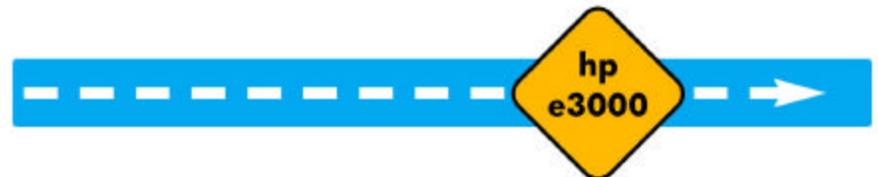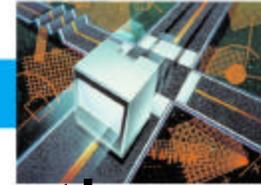
Migrating PowerHouse Applications
Platform/Database grid

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

hp invent   LUND   M B Foster   mbs   SPEEDWARE   hp e3000
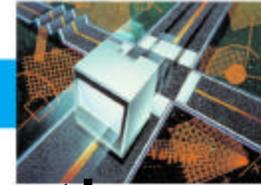
Migrating PowerHouse Applications
Platform/Database grid

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

hp invent

LUND
PERFORMANCE SOLUTIONS

M8 Foster

mbs
MANAGED BUSINESS SOLUTIONS

SPEEDWARE

hp e3000
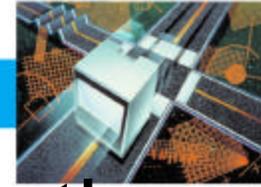
Migrating PowerHouse Applications
Platform/Database grid

OpenVMS - Alpha	Oracle Rdb Oracle RMS
IBM – OS/400	DDS OS/400 DB2
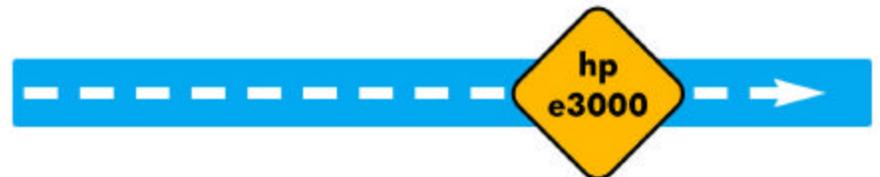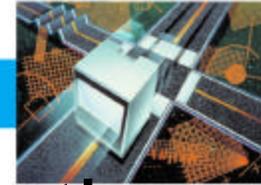
Migrating PowerHouse Applications
Product Portability grid

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
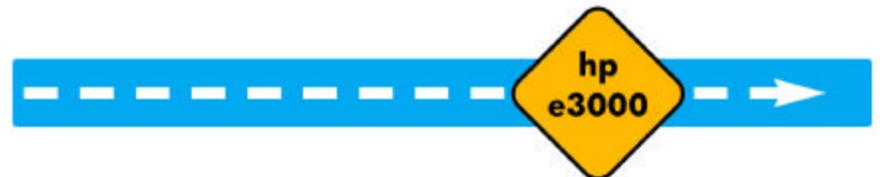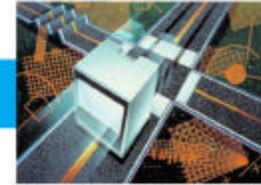
PowerHouse Migration Tools

- **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
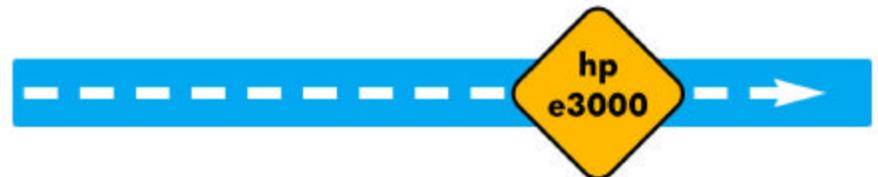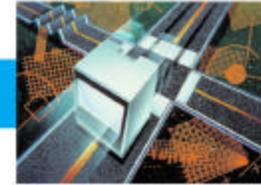
PowerHouse Migration Tools

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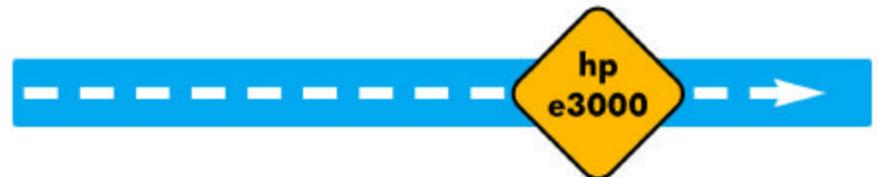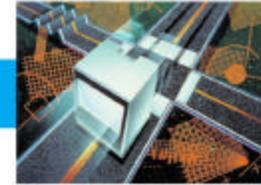
PowerHouse Migration Process

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
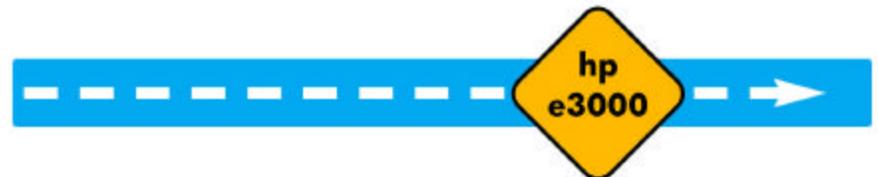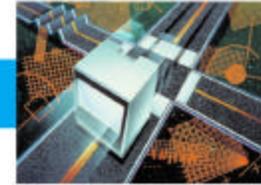
PowerHouse Migration Process

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
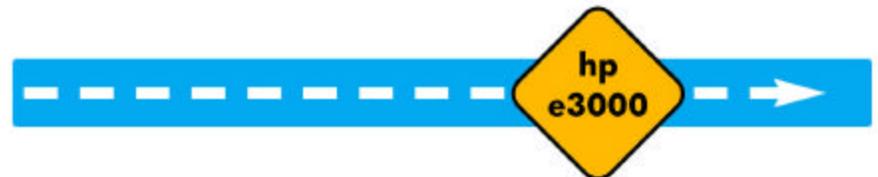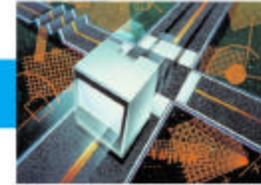
PowerHouse Migration Process

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.

- Use FTP to transfer the PDL, SQL and source files to UNIX.
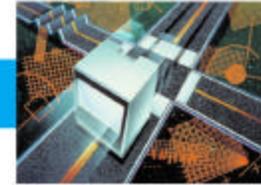
PowerHouse Migration Process

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.
- Make the application relational.
- Translate any MPE command scripts and test.
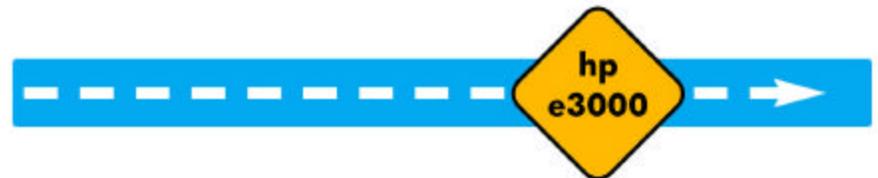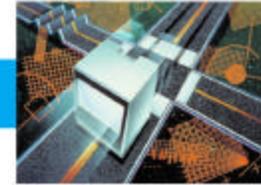
PowerHouse Migration Issues

- 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
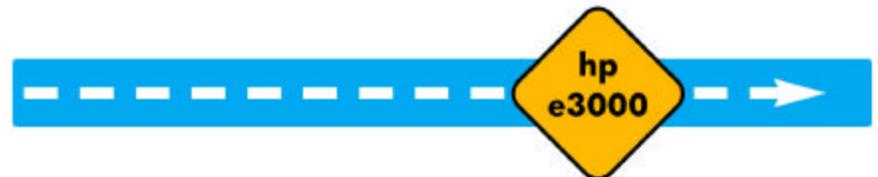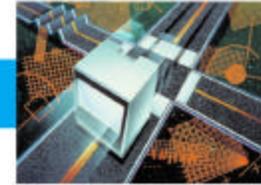
PowerHouse Migration Issues

- 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
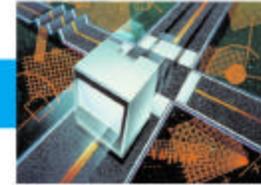
Client/Server Enablement

- 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)
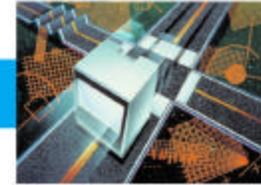
PowerHouse Web Enablement

- 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.
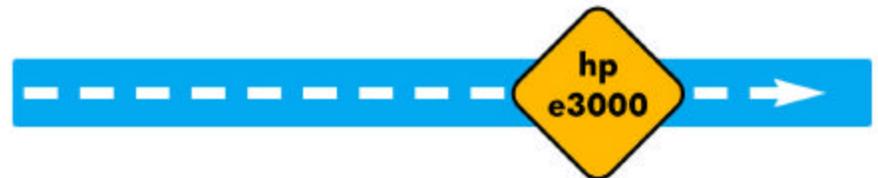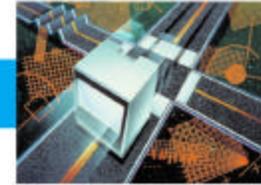
PowerHouse 4GL
3 User Interfaces…But Only 1 Language
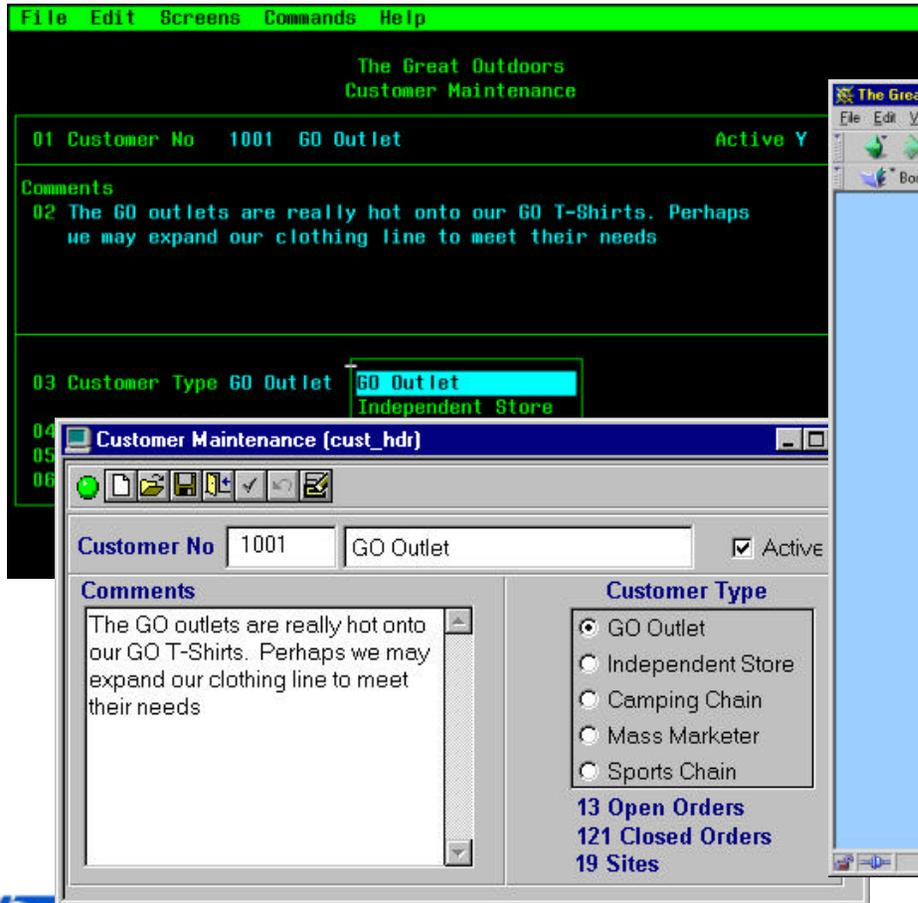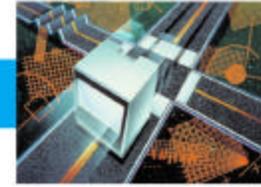
PowerHouse Customer Training

- 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)

hp invent LUND PERFORMANCE SOLUTIONS MB Foster mbs MANAGED BUSINESS SOLUTIONS SPEEDWARE hp e3000
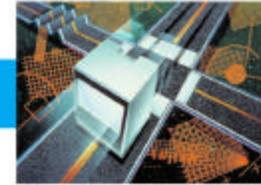
PowerHouse Migration Support

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

Managed Business Solutions	Seward Consulting
MB Foster	Sector 7
HP	Creative Computing
Lund	AD Technologies
Minglewood Consulting	Lawinger Consulting
Bookwood Systems	C.R. DeYoung & Associates
In Business	Visibility
Intertech Business Solutions	and more…
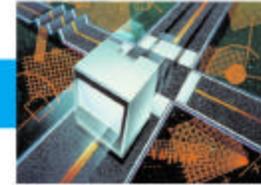
Cognos Migration Assistance

- For even more information:
  - http://powerhouse.cognos.com

- For platform and database support:
  - http://support.cognos.com/support/products/ph_software_environments.html
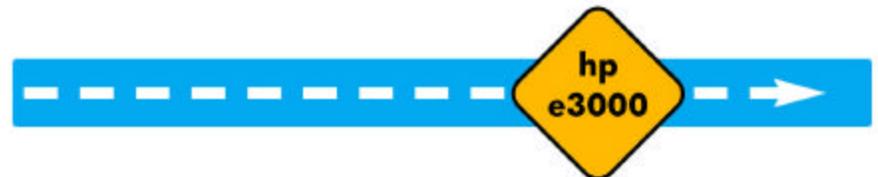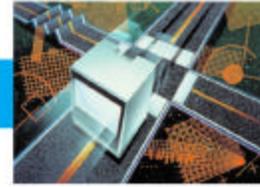
Transact Migrations
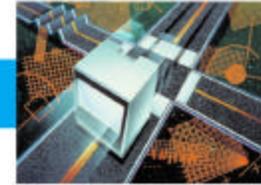
Transact Migrations

- ## Transact (RAPID 3000)

  - 4GL created by HP for the HP e3000 platform only

- ## 400 supported customers worldwide (HP estimates)

  - Estimated total of 1000 customers

- ## Significant number looking for future path

- ## There is currently no easy migration / conversion paths
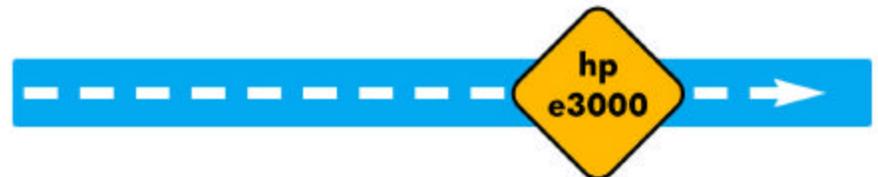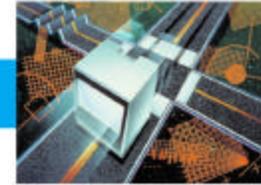
Transact Migrations

- SPW is offering a Transact migration solution
- Benefits of Speedware solution
  – Similar language and concepts
  – Platform and Database Portability
  – User interface enhancement options
 – Continued development
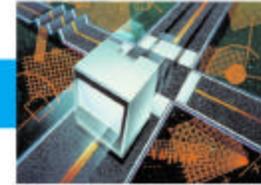
Transact / Speedware Similarities

- Similar syntax in much of the 4GL statements.
- Similar 4GL concept shared between both.
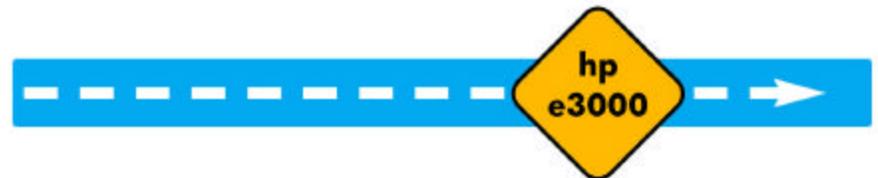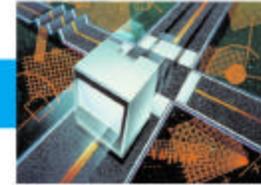
Functionality Comparison

| Transact	Speedware
System Dictionary	Speedware Data Dictionary
Data prompts and VPLUS	Speedware SCREEN sections
Data Reports	Speedware REPORT sections
Transaction Logic	Speedware/4GL statements
Batch Processing	Speedware BATCH sections
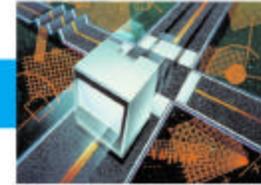
Transact Migration Process

- Using Speedware's tools, migrate the Transact Application to Speedware.
  - Speedware's tools will only migrate a percentage of the Transact code. In most cases, additional work will be required.
- Test the application and address any migration issues
- Once fully tested on MPE, follow the Speedware Migration Process to migrate off the HP e3000 platform.
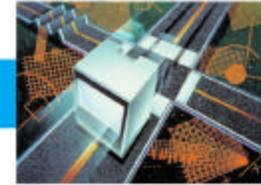
Conclusions

- Speedware and Cognos 4GLs are well supported with many porting options.

- Speedware offers a path for TRANSACT.

- PROTOS and CBAS have harder paths.

- Because of their high level nature, 4GLs migrate more easily to new platforms; because they are built on a layer above the OS / and 3GL's.

- Database and data issues will loom the largest in 4GL ports.
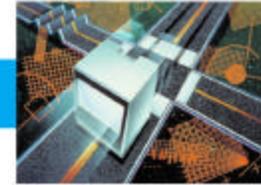
Thank You

Questions & Answers