



# Planning and Budgeting for HP e3000 Transitions



# Planning & Budgeting: Agenda

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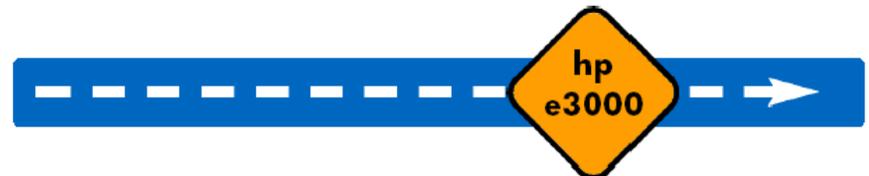


1. Strategic Thinking
2. Hardware
3. Databases
4. Tools and Compilers
5. Migration Tools
6. Application Facelifts
7. Timeline
8. Resources
9. Budget Rollup
10. Q&A





# Strategic Thinking



# Planning and Budgeting Challenges

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- The magnitude of the project
  - Planning, Budgeting, Execution
  - Timeline, Resources
- Diverse HP e3000 Environments
  - So many technologies
- Many applications / modules
  - Migrate, replace, retire, rewrite, or stay
- New resource skill sets and retooling



# Where to Begin

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- Making a plan
  - IT needs analysis
  - Technology assessments
  - Application assessments
  - Transition research
  - Risk assessment
- Making a budget
- Acquiring tools technology
- Getting started



# IT Needs Analysis

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- Step back and take a strategic look at your IT
  - Do your applications still meet your business needs?
    - Current and strategic future needs?
    - Which ones do / don't
    - What percentage of the need is met?
  - Are there applications that are highly specialized to the business?
    - Can they be replaced?
    - What percentage cannot be replaced?
  - What is the current backlog of IT requests?
  - How does executive management feel about IT / the core systems?
  - Is there competition to IT direction?



# Technology Inventory

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- Which technologies are currently being used?
  - 3GL Compilers (Cobol, Fortran, Pascal, RPG, Basic, etc.)
  - 4GL Compilers (Speedware, Transact, Cognos, Protos, etc.)
  - Reporting Tools (EasyReporter, Quiz, Data Express, UDALink, etc.)
  - Database Enhancement Products (Omnidex, Superdex, Adager, DB General, etc.)
  - Data Extraction Tools (Suprtool, etc.)
  - OS Enhancement Tools (Spooler products, Job Management products, Backup products, Editors, etc.)



# Applications Inventory

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- Meets the needs of the business (%)
- Size of application (# of)
  - Screens, reports, mass transactions
  - Batch processing
- Dependence on
  - 3rd party technology / licensing
  - OS commands / intrinsics
  - Database-specific functionality
  - Interfaces between other systems / technologies
- Strategic direction
  - Replace
  - Migrate
  - Re-write
  - Retire
  - Stay / Leave



# Salvaging vs. Replacing Technology

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- Which technologies / products will be salvaged or replaced?
- Most likely scenario:
  - Salvage applications
    - 3GL / 4GL Compilers
    - Database enhancement products
    - Some multi-platform tools
  - Replace many of the tools
    - Reporting tools
    - Data Extraction tools
    - OS Enhancement tools



# Salvaging vs. Replacing Applications

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- What about replacing applications?
  - Moving to packaged applications
  - “If I’m being encouraged to move off the HPe3000, why not just evaluate replacing my entire IT environment.”
    - It’s the applications that run my business, not the hardware.
- Understand the Full Cost and Benefits!
  - Do not over-estimate what you will get.
  - Do not under-estimate what it will take to get there.
    - Budget, Resources, People and Training

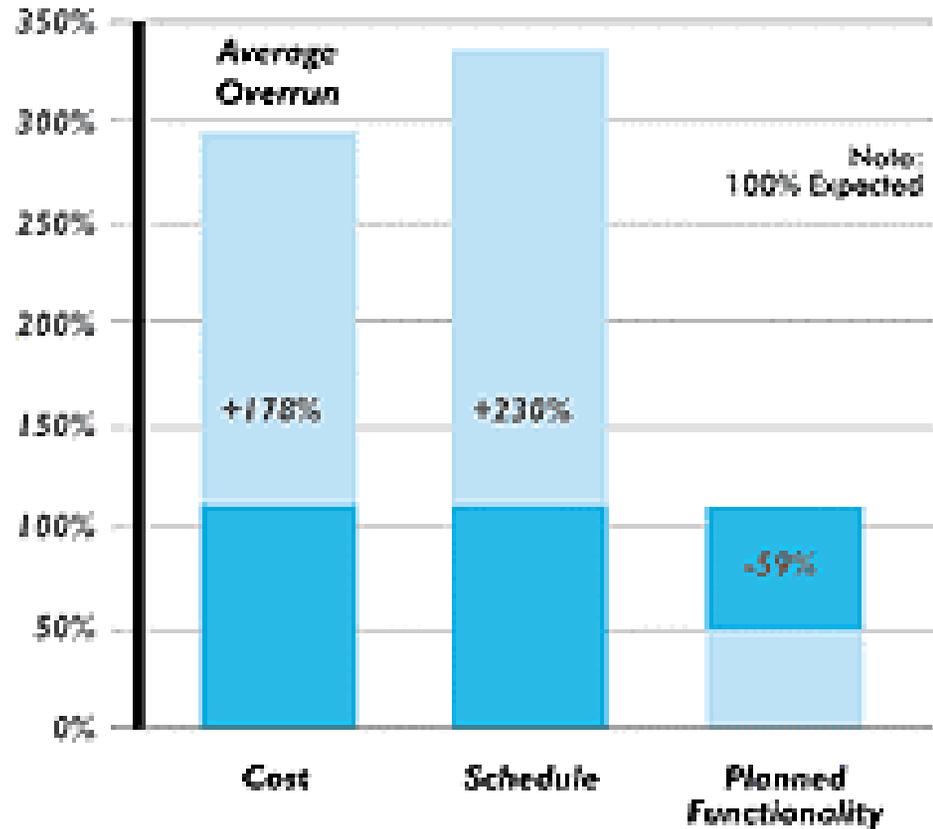
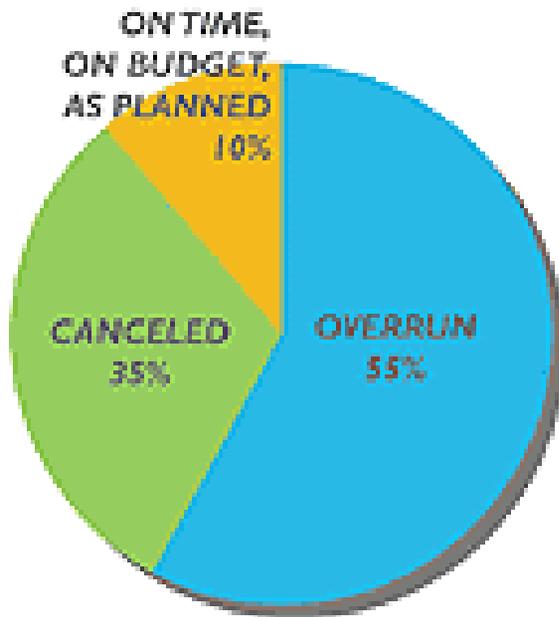


# The Full Cost of Replacement

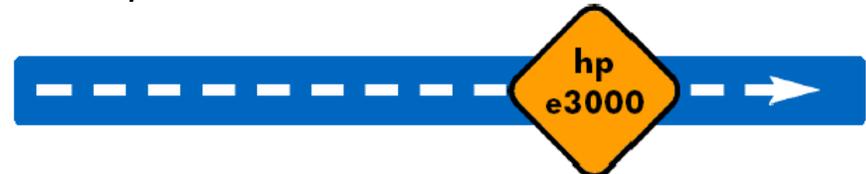
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## ERP Implementation Results



Source: Standish Group



# The Full Cost of Replacement

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- Your current applications have been tuned to how you do business, not others.
- Best-of-breed comes with a price
  - It doesn't reflect the practices that work for you and that differentiate your business
  - customize too much and you can't upgrade
  - If you do not customize, you have to change your internal business processes
- Packaged applications do not take fewer resources to maintain and will most likely not save you money.



# Moving to Packaged Applications...

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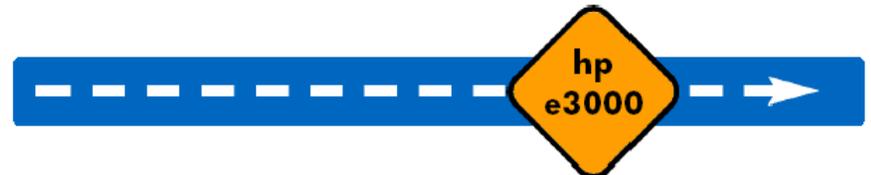


- Accept reality:
  - You will lose functionality you currently have!
  - You may need to overbuy a package application to fit your current needs
  - New functionality offered in the package requires changes to how you do business day-to-day
- Careful planning
  - Know which modules won't exist
  - Evaluate what still needs to be brought forward and how it can be integrated
  - Migration may still need to be done
  - Plan the evolution of legacy modules





# Hardware



# Replacing the Hardware

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- Unix or Windows?
- HP or non-HP?
- Which platforms are best supported by my software vendors?
- HP-UX is the preferred path by most
  - Most widely supported migration path by vendor community
  - Very strong incentives from HP

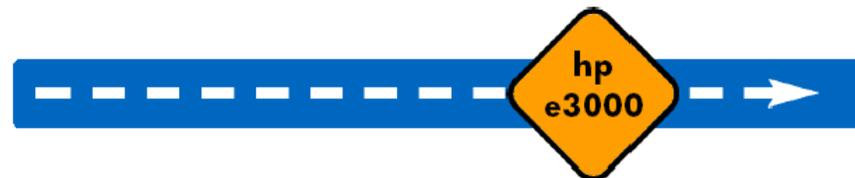


# Replacing the Hardware

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- HP-UX
  - How many servers?
  - Storage solution?
  - High Availability?
  - Cheaper hardware, but watch for 3rd party software licensing costs if thinking big
- Windows
  - Reliability and robustness?
  - How many servers?
  - Cheaper, but how easy is migration path?
- Linux
  - Ready for prime-time? (Confidence?)
  - Support?
  - Not the most popular option today.

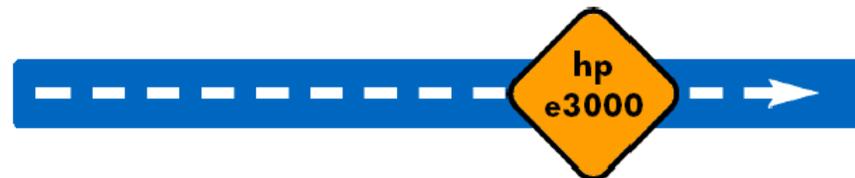


# Costs of Hardware

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- Conversion Kits
  - A&N = Free
  - Trade-In promotion (3-15% rebate, combinable up to 15%)
  - Software Trade-In Transfer credit for MPE OS and any other HP products on the HP e3000 (limited to same # of processors)
- HP 9000 Servers
  - Low: \$15K - \$60K
  - Low/Mid: \$50K - \$100K+
  - Med: \$100K - \$1M
  - High: \$1M+
- Windows Proliant Servers
  - \$2K, \$4K, \$8.5K per server
  - Windows server licensing can get expensive
  - Total: \$10K - \$20K
    - Not including storage, high availability, and database
    - Could end up as high as \$1M

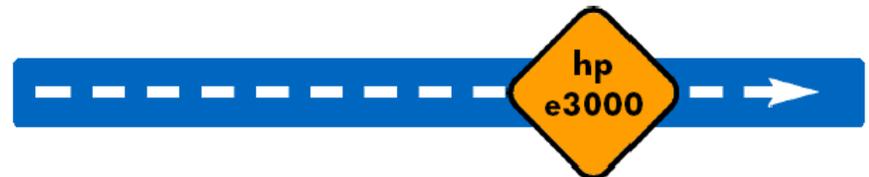


# Costs of Hardware

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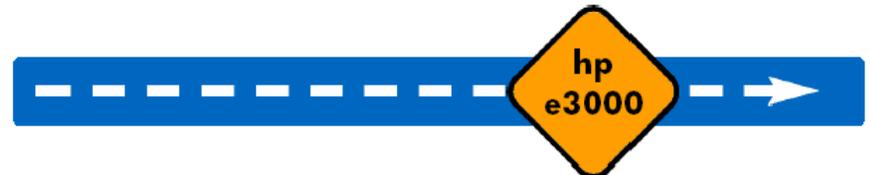


- Linux
  - Same as Proliant for hardware
  - OS licensing would be less
  - HP offers secure version: \$3K
- HP is offering 6-month HP-UX loaner boxes for migrations
  - Probably not enough time for most
  - Can be purchased at a discount after 6 months





# Databases



# Replacing the Database

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- Image was pretty much bundled into the HP e3000 and an obvious choice
- Hardware may be cheaper, but a database purchase is required
- Most are considering Oracle, SQL Server, or Eloquence



# Replacing the Database

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- Eloquence: Image clone
  - Low-cost
  - Up to 500 concurrent users
  - Functionally similar to Image resulting in fewer code changes to existing applications and comparable performance
  - Sold and supported by Marxmeier Software
  - Good transitional database option
- PostgreSQL, MySQL, and SAPDB are other low-cost reliable options
  - Need to consider where support will come from

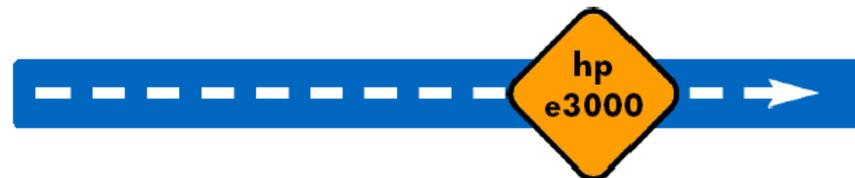


# Replacing the Database

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- 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.

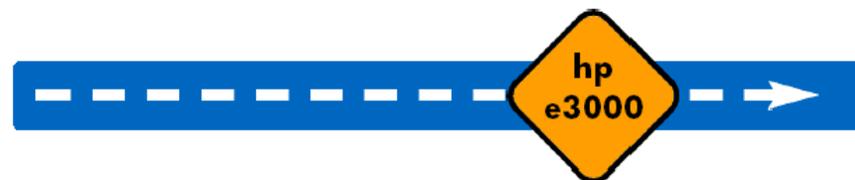


# Costs of Databases

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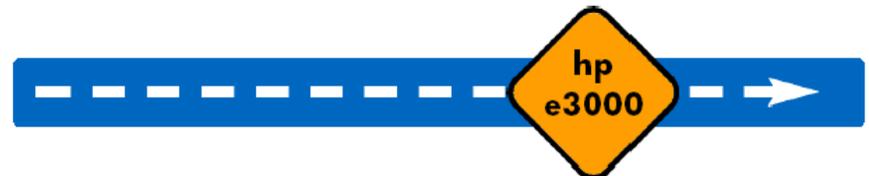


- Oracle: ~\$20K per processor
  - Could be as high as \$40K per processor (Oracle list price)
  - HP and ISVs can help to get a better price
- SQL Server: \$10K - \$20K per processor
- HP Eloquence: \$7K (unlimited users)
  - Easiest port, some risk
- Informix (per server)
  - Tier 1: \$3K
  - Tier 2: \$6.6K
  - Tier 3: \$18K
  - Tier 4: \$23K
  - May not be a great strategic option





# Tools and Compilers



# Replacing Tools and Compilers

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- 4GLs
  - License transfer fees, CPU-based pricing.
  - Expect between \$10K - \$200K per server, depending on 4GL and size of server.
  - Speedware
    - Available on HP-UX, Windows, AIX, Solaris
    - Web or Windows GUI enablement
  - Cognos
    - PowerHouse is available on other operating systems. (some code changes required)
    - Web or Windows GUI enablement
  - Transact
    - Speedware is offering migration solutions for Transact customers
      - Conversion tool to Speedware (and then to other platforms)
      - Web or Windows GUI enablement



# Replacing Tools and Compilers

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- Cobol
  - AcuCobol: platform portable byte code
    - per developer \$2,500, \$150 for 1st user and \$23 per user on run-time
  - MicroFocus: per platform (dev), many deployment model options, multi-platform support (interpretive), native object code possible.
    - \$3000 per developer. \$187 per user (run-time)
  - Fujitsu: generates native object code, no run-time fees, version for Visual Studio (.NET compatible).
    - \$3000 per dev, includes 1st yr support, \$500/yr support, no run-time fees.
  - PerCobol (going to Java)
- Fortran
  - Fortran compilers on HP-UX
  - Fortran to C converter exists
- Pascal
  - Pascal is available on HP-UX and can be ported with relative ease.
  - End-of-support announced – 2 years (also, no native support on IA-64)
  - Converter from Pascal to C exists



# Replacing Tools and Compilers

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- RPG
  - Converter from RPG to HP Cobol
  - RPG on HP-UX (exists, but no migration tools)
- Business Basic
  - Business Basic option with Eloquence, available on HP-UX and Linux (unknown for Windows)
  - Visual Basic may be an option for some.
- SPL
  - Currently being ported to HP-UX
- *In general, look at the skill-sets you have to support these languages over the long term (porting and supporting).*



# 3rd Party Technology Replacements

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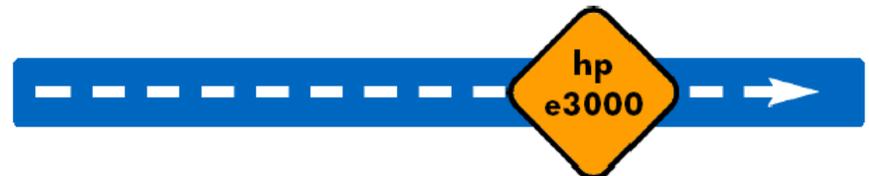


- Reporting tools
- Database manipulation tools
  - Adager and DB General
  - New tools may be needed with relational databases
- Data extraction tools
  - Suprtool
  - Replaced with more modern ETL tools
- Others
  - Spooler products, Backup product, Job Management, Editors, etc.





# Migration Tools



# Migration Tools

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- 3GLs – 4 HP-validated migration solutions
  - Speedware: AMXW
    - Migration tool, packaged and sold as a toolset.
  - Ordina Denkart: ViaNova 3000
    - ASP model of migration, charged by number of lines of code, up to 95% migrated
    - Many 3GL options
    - EdWin and Wingspan for VPlus support
    - MPUX for MPE Emulation
  - Transoft
    - Migration toolset, sold as a consultative solution.
  - Sungard Bi-Tech – Transport
    - Migration toolset, sold via consulting, residual run-time libraries for Image and OS calls



# Migration Tools

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- 4GLs
  - Speedware
    - 100% portable to any Speedware supported platform, no code changes
    - Built-in database migration tools
    - No charge for migration features
  - Cognos
    - 95%+ portable to other PowerHouse-supported platforms
    - Very minor code change required
    - Recommended that customers go to / through Axiant
  - Transact
    - Speedware migration toolset
    - Free with migration services



# Migration Tools

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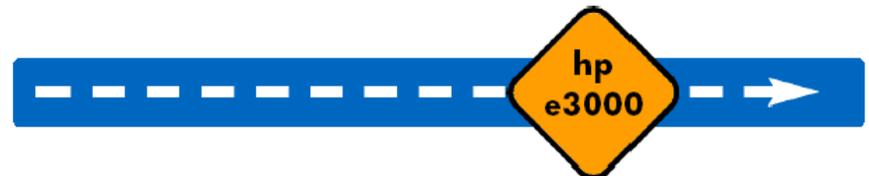


- Database migration tools
  - Quest – Bridgeware, Netbase, Benchmark Factory, Data Factory
    - Data porting, mirroring, shadowing, load testing, etc.
    - Taurus – DataBridger
  - Speedware – DBmotion
  - MB Foster - UDACentral





# Application Facelifts



# Application Facelifts

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- Cobol
  - EdWin (Web / GUI)
  - ExegeClient (GUI)
  - AcuCobol (offers GUI)
    - ScreenJet (GUI)
    - AD Technologies
  - Robust (Web and Windows)
  - LegacyJ – PerCobol
  - Others (shop around)
- Speedware / Transact
  - Visual Speedware (VB GUI)
  - Speedware Autobahn (Web)
- Cognos
  - Axiant
  - PowerHouse Web



# Migration Facelift Costs

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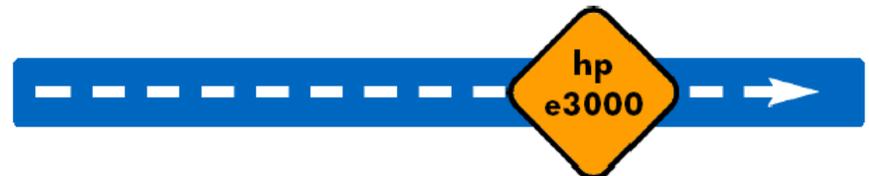


- Resources or Technology
  - Some solutions require re-engineering, others are more plug-and-play.
  - Cost is either in time and resources or in technology
  - Expect to pay 25% - 50% over the application migration costs
- You may want to make sure you have skill-sets to properly develop GUI interfaces.





# Timeline



# Establishing a Timeline

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- Fast, cheap, or good:  
Pick any 2 !
  - Different migration tools –  
different approaches/timelines
    - Gradual vs. Big Bang/Magic Weekend
    - Testing
    - Concurrent / on-going projects
    - Training / Education
    - Locations (of customers / sites)
- Factors that determine timeline
- Deadline dates
  - Internal resources vs. outsourcing
  - Cost restrictions
  - Technology complexities
  - Diversity of environment
  - Straight migration vs. enhancements



# Estimating Time

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- Time components
  - Assessments and service vendor selection
  - Planning and analysis
  - Hardware and technology acquisition
  - Application migration (Estimated by migration methods chosen)
  - Database migrations
  - Resource training
  - Testing and verification



# Estimating Time

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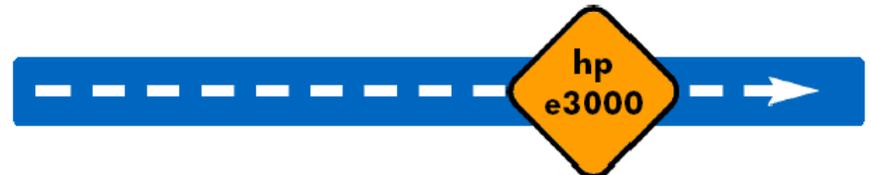


- Migration time per technology (estimates are highly dependent on complexity and amount of code)
  - Cobol / VPlus: 6 - 60 months
  - Pascal: 6 - 24 months
  - RPG: 6 - 24 months
  - Fortran: 6 - 24 months
  - Speedware: 3-9 months
  - Transact: 6 - 24 months
  - Cognos: 6 - 24 months
  - Database migration: 1 - 3 months
- Comprehensive Planning is essential to determining a more precise timeline





# Resources



# In-house vs. Outsourcing

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- Do you have enough / any in-house resources?
- What to outsource:
  - Planning and Analysis
    - Let experienced people help you
  - Project Management
    - Have experienced resources steer you around obstacles and potential pitfalls)
  - Application and Database Migrations (some or all)
  - Some Application / Module re-writes
  - On-going Application Support
    - To free up valuable resources for migrations



# In-house vs. Outsourcing

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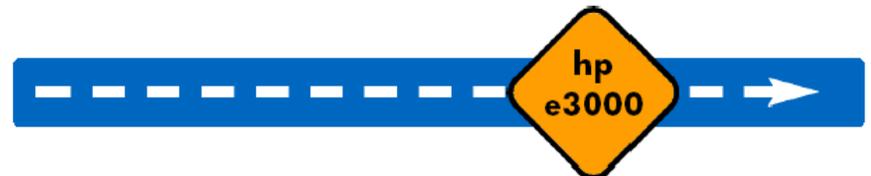


- What to do in-house:
  - Application enhancements
    - Opportune time to add an enhancement or two
  - Component re-writes
    - If replacing older modules / technology
  - Migration Testing
    - Test as you or someone else migrates
  - Application and Database Migrations
    - If you have the staff to do some or lots of the work, especially critical components





# Budget Rollup



# Budgeting Technology

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- Planning/Analysis
  - Varies; dependent on many factors
  - \$10K-\$100K
- Hardware
  - Low: \$15K - \$100K
  - Mid: \$100K - \$1M
  - High: \$1M+
- Tools and Compilers
  - 4GLs: \$10K - \$200K per server
  - 3GLs: \$10K - \$150K
- Databases
  - Market leading: \$30K per processor
  - Mid-tier: \$10K - \$20K per processor
  - Cheap: \$5-10K per server



# Budgeting Technology

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- Reporting tools
  - \$10K - \$100K
- Application Facelifts
  - \$20K - \$100K plus labor (if any)
- Others
  - Spooler products
  - Backup products
  - Job Schedulers
  - Editors
  - Sort products
  - Etc...



# Budgeting Migration

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- Cobol Migration tools
  - \$30K - \$200K for technology alone
  - \$100K (1M loc) + time for ASP model
  - \$100K - \$1M+ for outsourcing
  - Possible residual run-times / annual support fees \$5K - \$100K/yr
- Speedware migrations
  - 3-9 man-months of in-house work
  - \$100K - \$250K completely outsourced
- Cognos migrations
  - 6-24 man-months of in-house work
- Transact migrations
  - \$100K to \$500K mixed in-house and outsourcing



# Budgeting Migration

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- Database migrations
  - \$10K to \$80K for database migration tools
  - Up to \$200K for full database migration, mirroring, and load testing tools
- Application enhancements
  - Time and resources
  - Consider a phased approach
    - Phase 1 migration & rollout
    - Phase 2 enhancements



# Other Budget Items

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- Training
  - Programmers
  - Operations
  - Database Administrators
  - End-Users
- Implementation
  - Test, test, test!
- New support models



# Totaling the Costs

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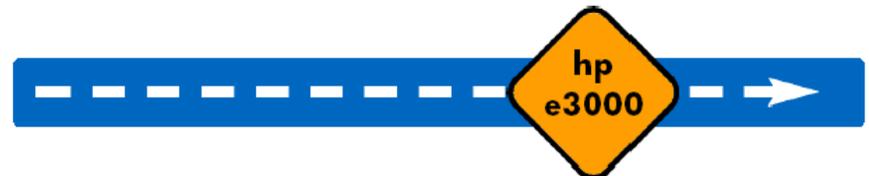
- Planning and Analysis
- New Hardware
- New Databases
- 3GL/4GL Software Licensing
- Replacement Tools / Technologies
- Migration Tools / Technology
- Migration Resources
  - In-house
  - Outsourcing
- New Hires
- Application Enhancements / Facelifts
- Training
- Implementation





# Thank You

## Questions & Answers





**i n v e n t**



# Mid-Market Distribution Company

HP e3000 Transition Study

Birket Foster

MB Foster Associates



# Business Overview

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- Global distribution company based in North America
- Complex supply chain and order management process
- Offices in the United States and Europe
- 1200 employees, \$2 billion revenue



# Challenges

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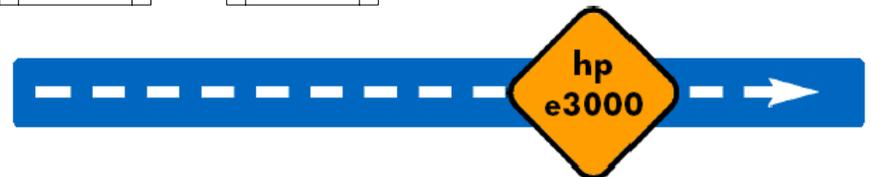
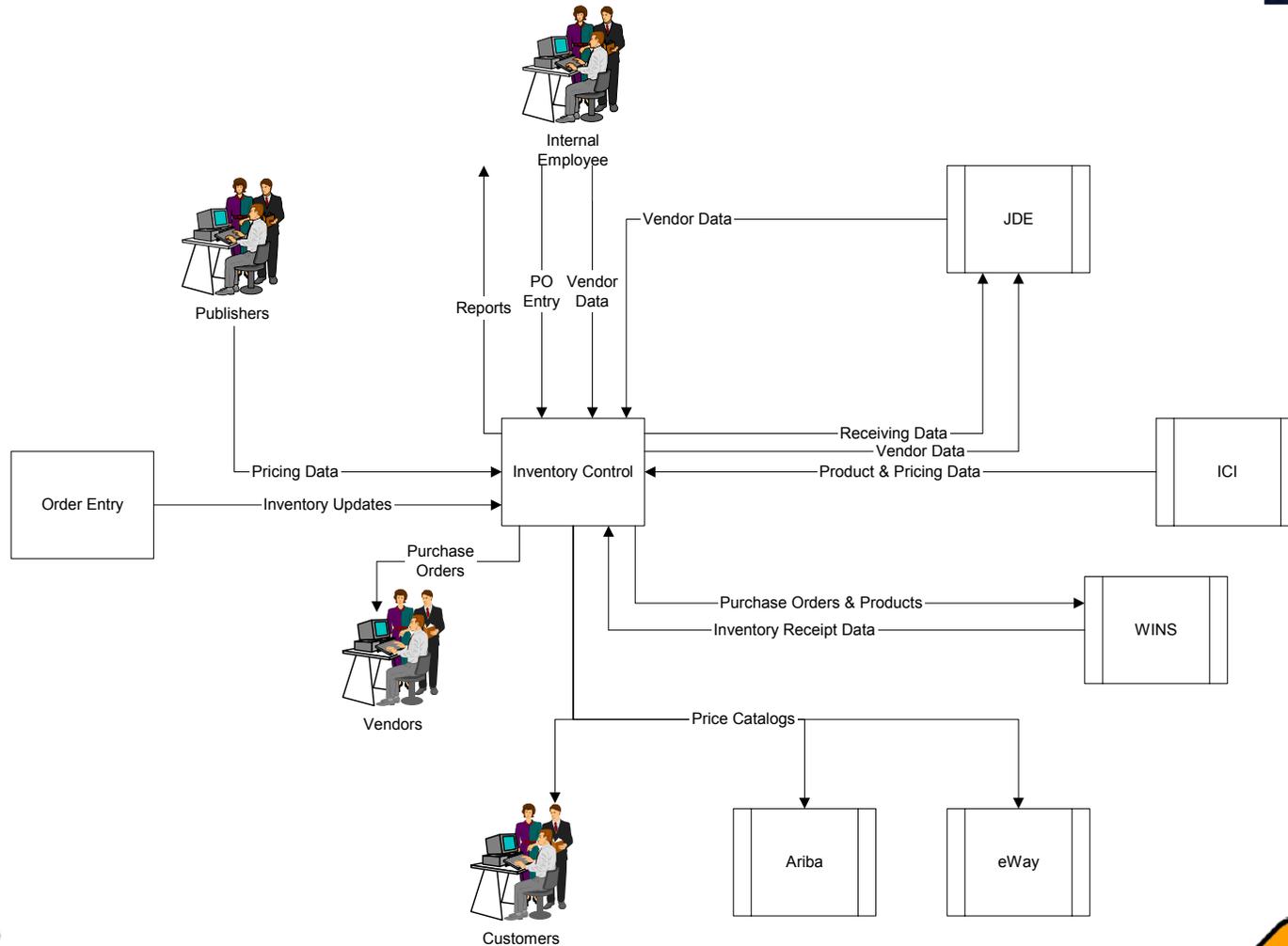


- Custom-developed legacy supply chain/order management system residing on an HP e3000
  - More than **500 Suppliers**
  - Order fulfillment system contains complex business rules
- **Multiple system integration points, interdependencies**
  - Web-based Customer and Supplier Portals
  - JD Edwards ERP suite supporting financial operations
- **Manual interfaces** between US and European operations
  - Separate technology environment due to acquisition
  - Limited ability to gain critical business intelligence
- Leaned toward purchasing COTS application for HPe3000 replacement; sought justification/validation



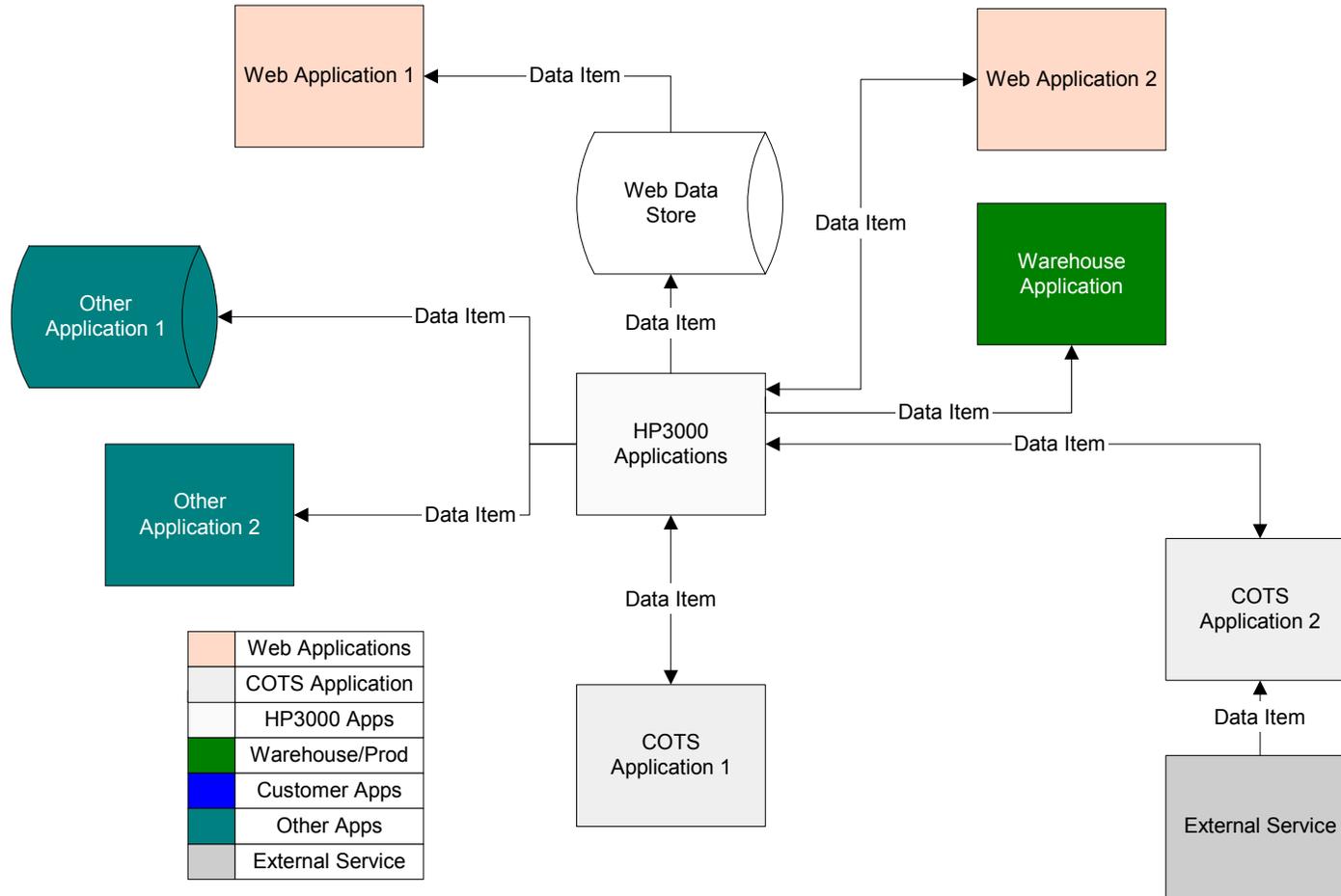
# Solution: Business process mapping

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# Solution: Application topology

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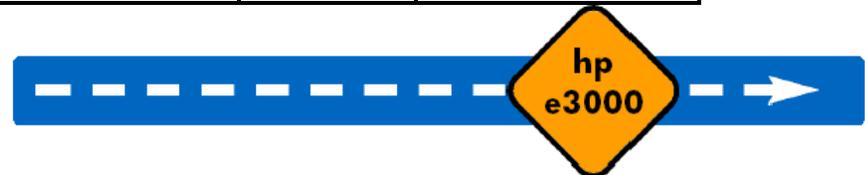


# Solution: Gap analysis

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Category	Area	Gap Summary	Condition	Business Impact
<b>Supportability</b>	Vendor	No Major Gaps	GREEN	None
	In-house	No Major Gaps	GREEN	None
	Reliability	No Major Gaps	GREEN	None
<b>Sustainability</b>	Hardware	HP3000 / MPE support ends	RED	IT Risk after 2006
	Operating System	HP3000 / MPE support ends	RED	IT Risk after 2006
	Tools	HP3000 / MPE support ends	RED	IT Risk after 2006
	Applications	HP3000 / MPE support ends	RED	IT Risk after 2006
<b>Functionality</b>	Meet Today's Needs - US	No Major Gaps	GREEN	None
	Meet Today's Needs - Europe	Not internationalized, no warehouse	RED	IT Costs & Efficiencies
	Handle International Business	Need to build into the application	RED	IT Costs & Efficiencies
	Inventory Control	Vendor Management	YELLOW	Product Costs
	Contract Management	No Major Gaps	GREEN	None
	Order Entry	No Major Gaps	GREEN	None
	Accounts Payable	No Major Gaps	GREEN	None
<b>Scalability</b>	Hardware	Resource constraints	YELLOW	IT Costs & Efficiencies
	Operating System	No Major Gaps	GREEN	None
	Tools	No Major Gaps	GREEN	None
	Applications	No Major Gaps	GREEN	None
	Network	Experiencing slow connections	RED	Customer Satisfaction
<b>Usability</b>	Screen Function	No Major Gaps	GREEN	None
	Business Integration	No Major Gaps	GREEN	None
	Multi-lingual Interface	Single language support	RED	Training Costs
	User Interface	Character based screen	YELLOW	Training Costs

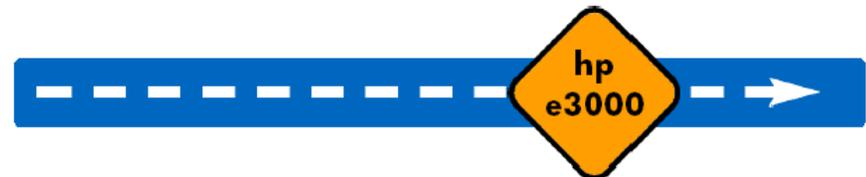


# Solution: Transition alternatives

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- **STAY:** Continue using current applications on the HP3000 in the US and maintain a separate infrastructure in Europe
- **PORT TO UNIX, THEN ENHANCE:** Port existing apps to UNIX/Oracle or DB2 environment using a migration tool or service vendors and re-engineer European Applications
- **PORT TO WINDOWS, THEN ENHANCE:** Port the existing applications to a Windows environment, utilizing a migration tool or service vendor and re-engineer European Applications
- **BUILD:** Re-engineer US and European applications into a Microsoft environment and incorporate COTS component solutions where applicable.
- **BUY NEW PACKAGE, THEN CONFIGURE / CUSTOMIZE:** Migrate to a new, purchased COTS ERP distribution package, configure/customize to fit business needs.



# Solution: Transition evaluation

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Option	Cost To Implement	Yearly Cost	Supportability	Speed of Modification	IT Control	Interfaces	Sustainability	Hardware	Operating System	Tools	Applications	Functionality	International Support	Multiple Site/Company	Integration with COTS	CM, IC, OE, & AP	Scalability	Transaction Volume & Growth	Transaction Speed Control	Network Speed Control	Platform Independence	Usability	Screen Function	Multi-Lingual Interface	User Interface	Schedule	Cost
<b>STAY</b>	\$2,918K - \$3,456K	\$440K - \$530K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>PORT to UNIX</b>	\$2,883K - \$3,341K	\$399K - \$473K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>PORT to Windows</b>	\$3,814K - \$4,272K	\$397K - \$470K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>BUILD</b>	\$2,649K - \$2,958K	\$439K - \$487K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>BUY</b>	\$5,338K - \$6,447K	\$534K - \$732K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

●	Superior Solution
●	Meets All Requirements
●	Meets Some Requirements
●	Meets Few Requirements
○	Meets No Requirements



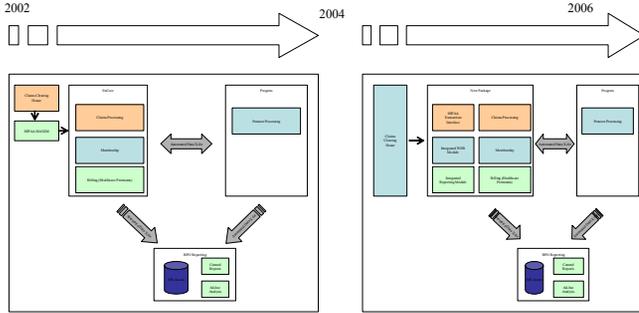
# Solution: Architecture alternatives

hp e3000 transition solutions



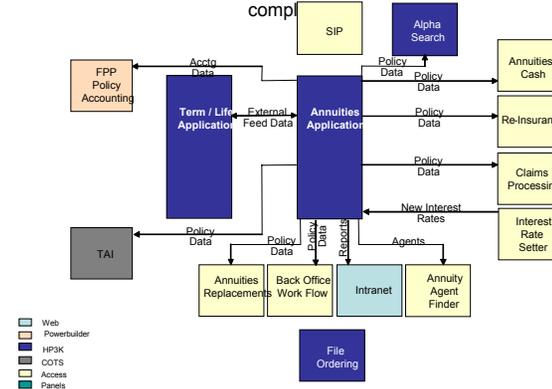
## Define Each Option ... **STAY**

Stay/Delay - Duplicating both Buy options to spread out the changes



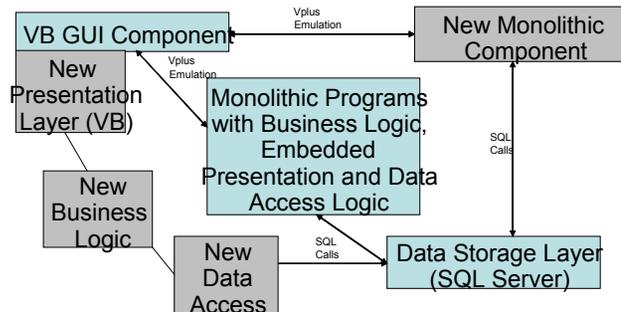
## Define Each Option .**BUY**

Purchasing an Application does not reduce application environment



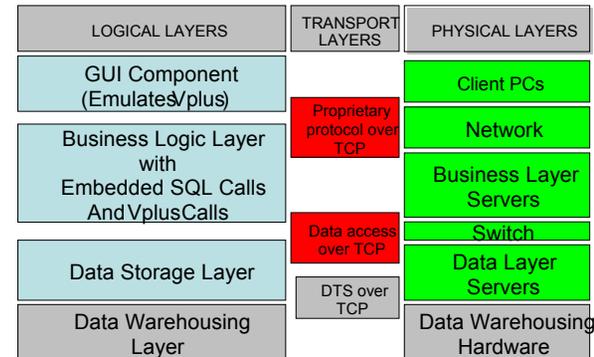
## Define Each Option **PORT to UNIX**

Maintenance after a Port requires either new monolithic components or new code structures



## Define Each Option **PORT to Win**

MBS identified the architectural layers for a Port



# Solution: Total cost of ownership

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## Identify Costs... Buy

If client were to move to a new package in 2003, the one-time cost would be \$278,000, but would require extensive customization: \$2.5M

2002	
Upgrade to 5.0	\$ 18,000
<b>TOTAL</b>	<b>\$ 18,000</b>

2003	
Implement New Package	\$100,000
Migrate Data	\$100,000
Build Progress Interfaces	\$ 35,000
Implement Web Self Service	\$ 25,000
<b>TOTAL</b>	<b>\$260,000</b>



## Identify Costs .. Port to Windows

MBS estimated 3 different hardware configuration options... Option

### Estimated Hardware, Software, and Additional Ongoing Costs

Hardware Option 1 (Dual Processor Servers)	\$ 265,528	Software Option 1	\$ 1,151,550
IBM pSeries 630 Model 6E4 1.0GHz POWER4		<b>Backup Solution</b>	\$ 53,400
3x36GB SCSI Drives		NetBackup (Two backup servers, 3 Clients, 6 Drives)	\$ 40,400
2GB RAM (4x512 DIMMS)		DB Agent (Chicago & Paris)	\$ 13,000
AIX 3yr subscription		<b>DB2 Enterprise Server (per processor)</b>	\$326,200
<b>Production Servers</b>	\$ 185,646	Production - ( 8 x \$27,000)	\$ 216,000
Chicago	\$ 30,941	Test - (2 x \$27,000)	\$ 54,000
Chicago Mirror	\$ 30,941	Development Server- ( 2 x \$27,000)	\$ 54,000
Chicago Sabrix Server	\$ 30,941	Development - ( 2 x \$1,100)	\$ 2,200
Paris	\$ 30,941	<b>Search</b>	\$351,000
Paris Mirror	\$ 30,941	Omniindex (6 app servers)	\$ 351,000
Chicago Sabrix Server	\$ 30,941	<b>Spooler</b>	\$14,370
<b>External Disk Array</b>	\$ 18,000	Easy Spooler EZ0006 (x6)	\$14,370
80Gb RAID 5, Redundant Power Supply		<b>Scheduling Tool</b>	\$ 59,000
Chicago	\$ 9,000	Chicago NextGen Master License	\$ 25,000
Paris	\$ 9,000	Chicago NextGen Per Server (x 4)	\$ 6,000
<b>Test Servers</b>	\$ 30,941	Paris NextGen Master License	\$ 25,000
Chicago	\$ 30,941	Paris NextGen Per Server (x2)	\$ 3,000
<b>Development Servers</b>	\$ 30,941	<b>Forms Software</b>	\$ 34,760
Chicago	\$ 30,941	Chicago Appic StarJet/StarPage (256 user license)	\$ 19,800
		Paris Appic StarJet/StarPage (128 user license)	\$ 14,960
<b>New On-Going Expenditures</b>	<b>\$ 440,310</b>	<b>Crystal Reports</b>	\$ 37,904
DBA Expense - mid-level	\$ 85,000	Crystal Reports Advanced Edition, English (10 users)	\$ 18,952
Paris based Business Analyst - mid-level	\$ 65,000	Crystal Reports Advanced Edition, French (10 users)	\$ 18,952
VAT - Annually Maintenance & content subscription	\$100,000	<b>Fax</b>	\$ 600
Hardware Maintenance	3yr included	Symantec WinFax Pro (x 6)	\$ 600
Option 1 - Software Maintenance (20% on all software databases)	\$ 90,310	<b>EDITran (Tie Commerce)</b>	\$ 39,316
		Place Holder	
		<b>Development Tools</b>	\$ 27,316
		VisualAge Enterprise Suite (4 x \$6,829)	\$ 27,316
		Fujitsu NetCobol for .NET Developer Edition (4 x \$3,000)	\$ 12,000
		<b>European Business Rule Tracking</b>	\$235,000
		Sabrix - Content Subscription & Software License	\$ 200,000
		Sabrix - BEA Application Server	\$ 5,000
		Sabrix - Oracle Server	\$ 30,000

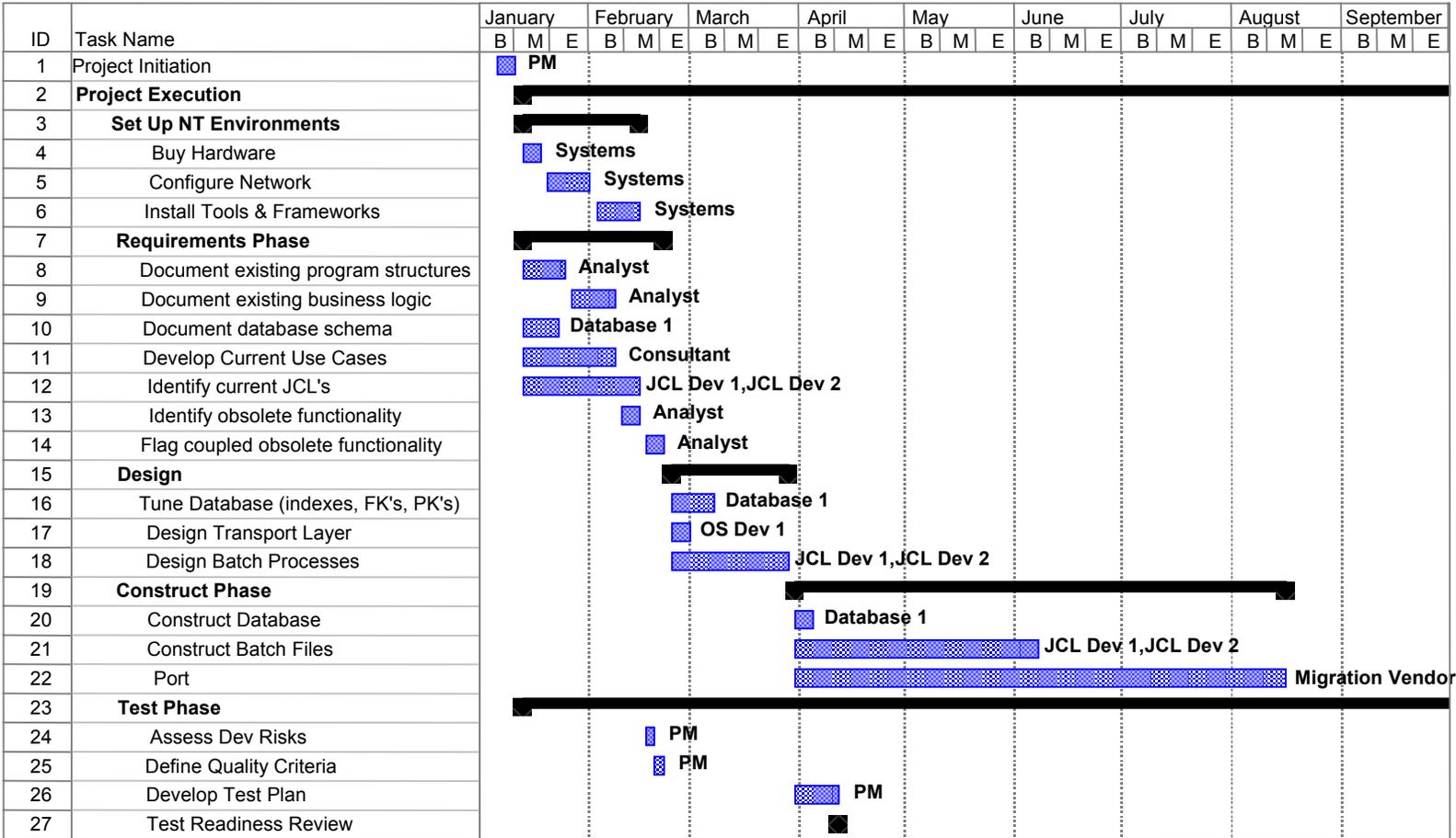


# Solution: Project timeline

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## Port to Windows



# Lessons Learned

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- Client did not know their situation as well as they thought they did
- Stringent business review, prior to technical review, is paramount to project's success
- All available options evaluated
  - Two originally considered options discarded due to **lack of alignment with future business objectives**
  - Vendor evaluation revealed strengths and weaknesses relating to the architectural options and established technology standards
- Some applications will require surprisingly few modifications while others require complete re-engineering to support business changes and future direction
- COTS software products failed to meet adequate functionality without substantial (**\$2.5M**) customization due to complex, dynamic business rules
- Long-term sustainability was demonstrated with port and re-engineer options



# Business results

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- Comprehensive topology of current technical infrastructure
- Business case, technology strategy and project timeline for entire migration effort in alignment with the company's future direction
- Recommended **Port** using a Microsoft-centric architecture
  - Lower deployment costs and total cost of ownership
  - Meets the established technology standards of the organization
  - Integrates easily with the current supplier and customer portals
  - IT staff is able to support Microsoft architecture thereby reducing the learning curve for both the end-users and IT developers
  - Porting the application to a Microsoft architecture will allow the organization to migrate to .NET web services, enabling the code to endure **future business expansions**.
- Final solution protected client's strong competitive advantage while architecting the applications to incorporate state-of-the-art technologies





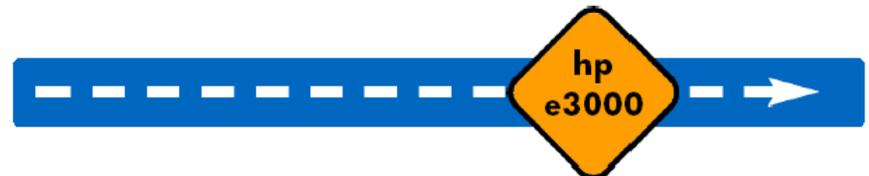
Interex, Encompass and HP bring you a powerful new HP World.





# Ceridian

## HP e3000 Migration Case Study



# Ceridian – Business Overview

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- Leading provider of managed business solutions for human resources to Fortune 500 companies
- \$1 billion in revenues



# Challenges

hp e3000 transition solutions



- Need for an open, scalable, multi-tiered application architecture to keep in step with the rapid business growth being experienced
- To be in a positive position to take advantage of emerging technologies
- Y2K testing



# Characterize the HP e3000 Environment

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- TurboIMAGE database
- Custom built character mode user interface
  - No Vplus
- Lots of ties to other applications
  - edi, com, etc
- Y2K was part of the migration project
- Written in COBOL
  - 1200 Cobol programs containing over a million lines of code
  - 1600 include files containing 120,000 lines of code
  - Cognos and MPEX



# Solution - Planning to Migrate

hp e3000 transition solutions



- Began planning in May of 1997
- Migration blueprint
- Began migration in August of 1997
- Took two and a half years to complete the entire project
- Learning “on the job” as the project proceeded
- Huge project
- Mainframe type system



# Solution

hp e3000 transition solutions



- HP services' consulting
- Conversion from the HP e3000 997/600 and 987/200 to 2 v-class HP 9000 servers with HP-UX 11
- One HP 9000 backup server in Las Vegas
- Powerhouse on MPE converted to Powerhouse on HP-UX
- HP OpenView Network Node Manager
- IT Operations



# Solution - Database



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- Oracle
- Taurus/Quest Bridgeware tool
- 206 different IMAGE datasets across 10 databases
- 400 million records totalling 38 GB had to be moved
- Ran HP 3000 and HP 9000 in parallel for most of the two year project
- Iteratively tested bulk moves from the HP 3000. Once the logic was proven, the logic for moving incremental HP 3000 data changes was tested
- BridgeWare moved and kept in synch some 38 GB of critical data, moving up to 17 million records per hour
- More problems with data cleansing than anticipated



# Solution - Compiler and UI

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- Microfocus COBOL
  - HP-UX based compiler
  - Industry leader
- User Interface
  - Intent was to convert to Powerbuilder
  - Instead, rewrote character mode UI for UNIX
  - UI coded in one routine that was shared by other online programs
    - Modular design made for easier port
    - 3-tier architecture



# 3GL Compilers (Cobol)

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- Microfocus COBOL
  - Largest market share
  - Most costly
  - Native and portability options
- ACUCOBOL-GT
  - Supports HP COBOL and runs on HP e3000
  - Very popular with HP e3000 prospects
  - Portability and GUI interfaces
- Fujitsu COBOL
  - Not well known
  - Very cheap
  - Native solution only



# Things to Consider

hp e3000 transition solutions



- COBOL Syntax
  - Reserved Words
  - Copy libs
  - \$INCLUDE
  - Macro expansion
- Reserved Words
  - For example: using “window” as a data item name works with HP COBOL
    - AcuCOBOL uses “window” as a reserved word
    - With compile options you can turn off this reserved word, allowing you to leave the item name



# Things to Consider

hp e3000 transition solutions



- Externals
  - Passing of parm and info in run command\
  - Entry points
  - CIERROR
  - Job/session environment (e.g. Temp files)
- File system
  - File naming (FILE.GROUP.ACCT)
  - MPE file types
  - Record structures
  - Sharing file IDs (FDs as Intrinsic parameters)
  - Sort files
  - KSAM files
  - FILE equations.
  - Temporary files

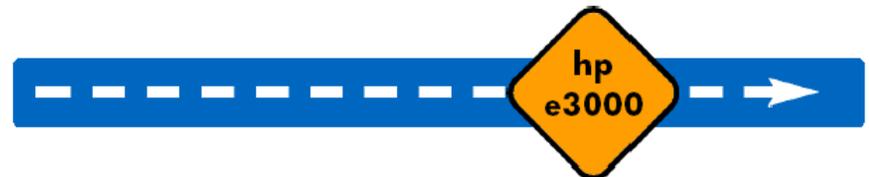


# Solution - Testing

hp e3000 transition solutions



- Unit testing done by comparing output of ported and unported applications.
- Parallel testing



# Lessons Learned

hp e3000 transition solutions



- HP project management reduced project slippage due to the complexity of the migration
- Not all the code and JCL were used or needed, analysis would have avoided some of the unnecessary conversion
- Oracle
  - Image wrapper technology (home-grown) used to ease migration
  - Simplified testing
  - Performance penalty



# Lessons Learned - Performance Penalty



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- Overall performance was not affected
  - Running on faster machines
  - No 1-1 comparison
- Not a serious impediment to the project



# Lessons Learned – Performance and Reliability

hp e3000 transition solutions



- HP e3000 is a very efficient transaction processing engine
  - No performance problems after the port
  - Created more of a networked system
  - Online app ran on dedicated K-class boxes
  - V-class used for database
- HP-UX every bit as reliable as the HP e3000



# Lessons Learned – Project Management

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- Between 70-170 people working on the project
- Project management becomes critical
- External interdependencies
  - “Spreadsheet tricks”
  - Business processes (often less well documented)

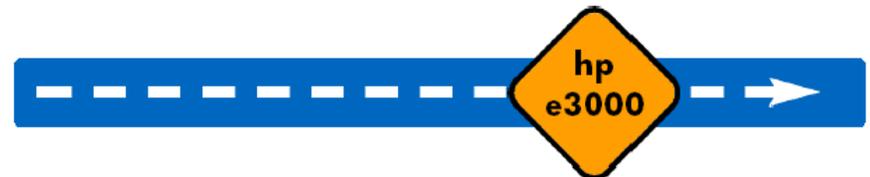


# Lessons Learned – MPE Emulators

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- Not considered at the time
- Advice to anybody who's approaching a transition project
  - Watch for dependencies on MPE/iX that are not documented
  - Looking at the list of applications isn't enough
  - Ended up creating an MPE-like shell around UNIX



# Lessons Learned – Don't Change

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- Enhancing your software while you're porting?
- “The ideal way to do a port is just do it and don't change anything!”
  - Makes testing a whole lot easier
  - “If you can match pre-port and post-port output, testing becomes fairly mindless”



# Technical Benefits of Porting

hp e3000 transition solutions



- “It will be harder than you think, but when you’re done it will be more worthwhile than you think.”
  - Open platform benefits
    - More choices
    - Latest version of Oracle
    - Mainstream releases

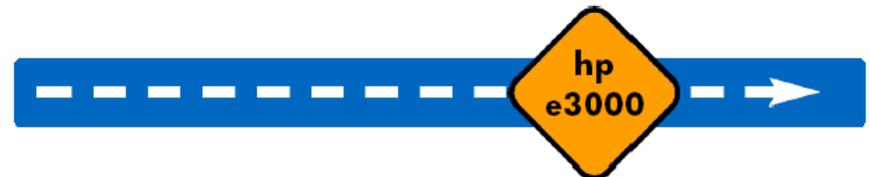


# Business Results

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- Improved performance
- Greater scalability – 30% better than 3000
- Better integration capabilities
- Internet access





*“Ceridian’s migration from the HP e3000 to the HP 9000 was a success! What we did was the right thing to do. Ceridian is much better off than it was before... the HP people were great and they built a solid team that stuck it out until the project was completed.”*

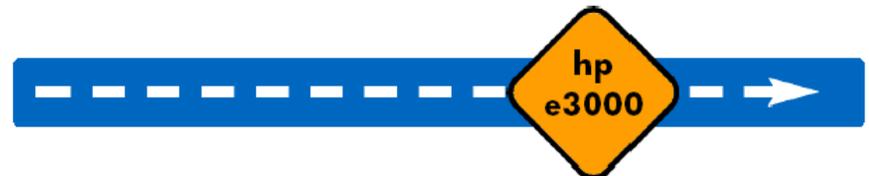
**David Goodman**  
Senior Vice President  
of Product Development  
for Ceridian





# Hitachi High Technologies America

## HP e3000 Migration Case Study



# Business Overview

hp e3000 transition solutions



- Offers semiconductor manufacturing equipment, analytical instrumentation, scientific instruments, bio-related products, industrial equipment, information equipment, electronic devices, and electronic and industrial materials
- San Jose, CA
- [www.hitachi-hta.com](http://www.hitachi-hta.com)

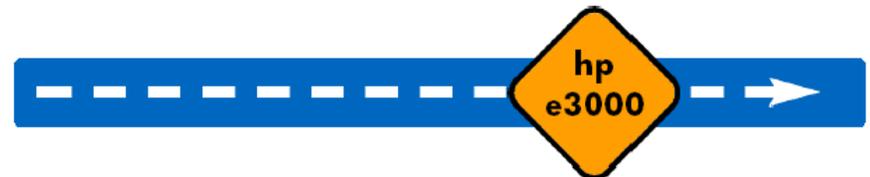


# Characteristics of IT Environment

hp e3000 transition solutions



- Key mission-critical manufacturing application (ManMan) running on the HP e3000 has been migrated to SAP as per company-wide strategy.
- Historical data still being expensively maintained on HP e3000 server



# Migration Challenges

hp e3000 transition solutions



- To find a cost-effective solution to migrate historical data stored in TurboImage databases and KSAM files off the HP e3000 platform.



# Solution

hp e3000 transition solutions



- Porting of TurboImage and KSAM databases to SQL Server on Windows using Speedware's DBmotion solution.



# About DBmotion

hp e3000 transition solutions



- Database migration tool specifically designed to port TurboImage, KSAM and flat-file databases on the HP e3000 to MS SQL Server or Oracle.
- Automates the conversion process, saving valuable time and effort over manual conversion and reducing the risk of error.



# Benefits Enjoyed by Hitachi

hp e3000 transition solutions



- Reduced cost of maintaining historical data.
- Seamless integration and access to company-wide data.
- Access to a wide variety of reporting tools on Windows platform.



# Lessons Learned

hp e3000 transition solutions



- Maintaining historical data does not need to be expensive.
- Database migration can be very simple and cost-effective.
- Major Data Warehouse project not necessary

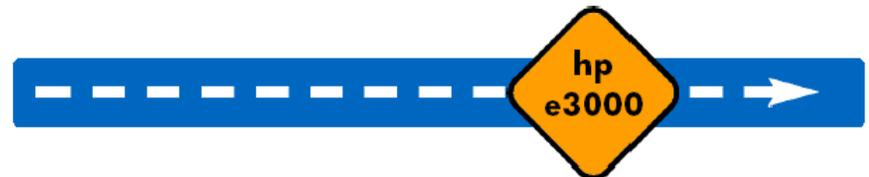


# Resources

hp e3000 transition solutions



- Company performed this project on its own, using tools from Speedware.
- Only 1 technical resource was dedicated to this project on a part-time basis.
- Minimal expense necessary.



# Results

hp e3000 transition solutions



- Hitachi is pleased with how easily and inexpensively its historical data was ported and is being maintained.

*“DBmotion made the process of moving historical data from the expensive HP e3000 to a less expensive and more manageable environment very simple. The software is very easy to use and I would rate Speedware's technical support group extremely high.”*

**Mike Janjigian**

MIS Manager

Hitachi High Technologies America



# Next Steps

hp e3000 transition solutions



- To investigate and adopt the most suitable data reporting solution from the wealth of tools available for the Windows platform.



# Alternative Solutions

hp e3000 transition solutions



- Database choices
  - Oracle (UNIX / WINDOWS)
  - SQL Server (Windows)
  - DB2 (UNIX / Windows)
  - Sybase (UNIX)
  - Informix (UNIX / Windows)
  - Other less suitable options (for Hitachi):
    - Eloquence (UNIX / Windows)
    - PostgreSQL/MySQL (UNIX / Windows)
    - C-ISAM/D-ISAM (UNIX / Windows)
    - Flat (UNIX / Windows)
    - Others...



# Alternative Solutions

hp e3000 transition solutions



- Database Migration Tools for TurboImage
  - Quest/Taurus – Bridgewater
  - Speedware – DBmotion
  - MB Foster – UDACentral
  - OmniSolutions – SqlLink 3000
  - And other bridges (XenoBridge, Robelle, DISC, WRQ, iMaxSoft, VitalSoft, etc.)
- App migration tools / solutions that offer some level of DB migration
  - Neartek – AMXW
  - Ordina Denkart – ViaNova 3000
  - Transoft
  - Sungard BI-Tech – Transport



# BridgeWare co-product of Quest Software and Taurus Software

hp e3000 transition solutions



- Customer migrations
- Staged migration = no user downtime
- Fast map and load data with GUI
- No database expertise required
- Highlights “dirty data”
- Complex transformations
- Real-time MPE data capture
- Bi-directional, high speed data movement

powered by  
**BridgeWare**<sup>®</sup>  
co-product of Quest Software &  
Taurus Software

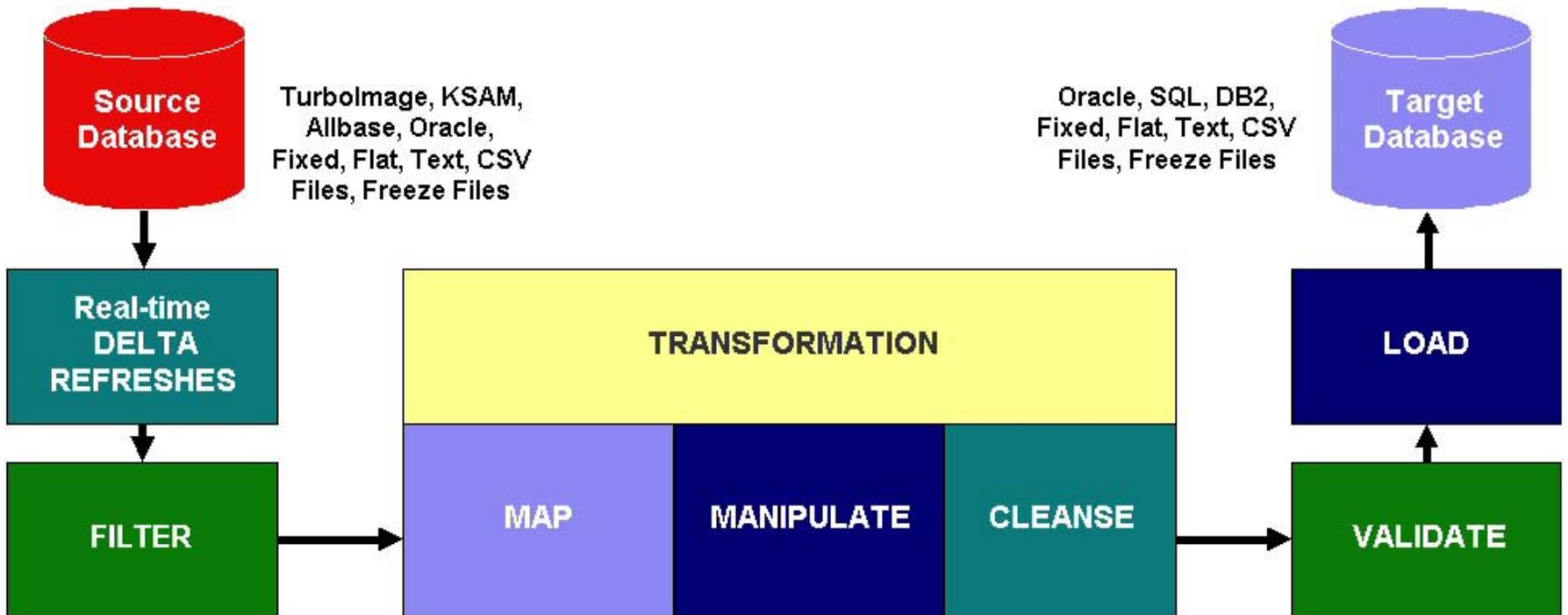


# BridgeWare Process

hp e3000 transition solutions



## BridgeWare HP e3000 Migration to Open Systems



powered by

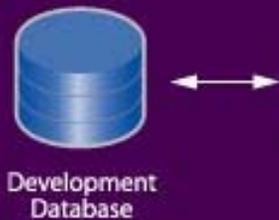
**BridgeWare**

co-product of Quest Software & Taurus Software



# The New Application Infrastructure

Development



- Tools for designing, testing and benchmarking the new environment
- Tools for monitoring and diagnosing root cause issues in production
- Tools for high availability & reporting
- Tools for Print archival and printing



End Users



# The Application Infrastructure

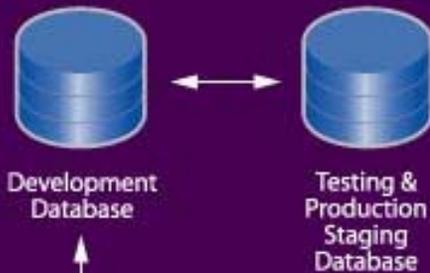
Development & Test

Production

End Users

## Development & Deployment

- QDesigner –Design & Develop
- Benchmark Factory –Load Testing, Scalability prior to “GO LIVE”
- SQL Impact - Analyze impact of schema changes and code effected
- Spotlight – Detect, diagnose, resolve root cause
- Schema Manager -Create, track and deploy schema changes throughout the application lifecycle



Developers

DBAs

High Availability  
& Reporting  
Databases

Business  
Intelligence  
Databases

Production  
Print Management

# DBmotion

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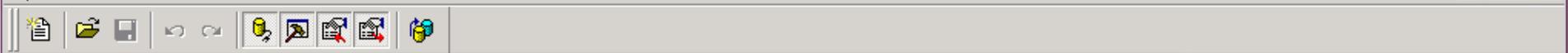


## SPEEDWARE

*Years of migration  
experience in  
one powerful tool*

- Benefits
  - Saves significant time by automating much of the process
  - Designed for HP e3000 databases
  - Easily fits into your migration budget with its affordable price
- Features
  - Supports Image/Ksam/Flat to Oracle (any server) and SQL Server. Also automates Omnidex -> OmniAccess.
  - Easy to use GUI interface filled with wizards
  - Automates database structure replication
  - Creates target database
  - Offers complete control of global naming and datatype adjustments
  - Provides default structure and datatype mapping
  - Automates all data transfer and conversion
  - Estimates time to copy rows of tables and whole databases
  - Supports multiple simultaneous database migrations with detachable client
  - Handles arrays, nulls, dates and Omnidex!
  - Merge Databases and files into one target Database
  - Provides reporting features to better understand database files and items





Source - Columns - EducTe

Categorized

Property	Value
Name	CRS-CODE
<b>Physical</b>	
Data Type	X4
<b>Key Options</b>	
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-STATF

Target - Columns - EducTest.CRSMAS

Categorized

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

```

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

**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
<input checked="" type="checkbox"/>	CRS-CODE	X4	CRS-CODE	CHAR(4)	CRS_CODE	VARCHAR(30)
<input checked="" type="checkbox"/>	CREDITS	I	CREDITS	SMALLINT	CREDITS	INT
<input checked="" type="checkbox"/>	CURRENT-PRI	I2	CURRENT-	INT	CURRENT_	INT
<input checked="" type="checkbox"/>	INST-QUAL-NO	I2	INST-QUA	INT	INST_QUAL	INT
<input checked="" type="checkbox"/>	MAX-STUDENT	I	MAX-STUD	SMALLINT	MAX_STUD	INT
<input checked="" type="checkbox"/>	NAME	X30	NAME	CHAR(30)	NAME	VARCHAR(30)
<input checked="" type="checkbox"/>	PASSING-GRA	I	PASSING-	TEXT	PASSING_	INT
<input checked="" type="checkbox"/>	PREREQ-CRS-C	X4	PREREQ-C	CHAR(4)	PREREQ_C	VARCHAR(30)
<input checked="" type="checkbox"/>	STATUS	X2	STATUS	CHAR(2)	STATUS	VARCHAR(30)
<input checked="" type="checkbox"/>	TOTAL-HRS	I	TOTAL-HR	SMALLINT	TOTAL_HR	INT

Select All    Deselect All

Help    < Back    Finish    Cancel

# MB Foster UDACentral

hp e3000 transition solutions

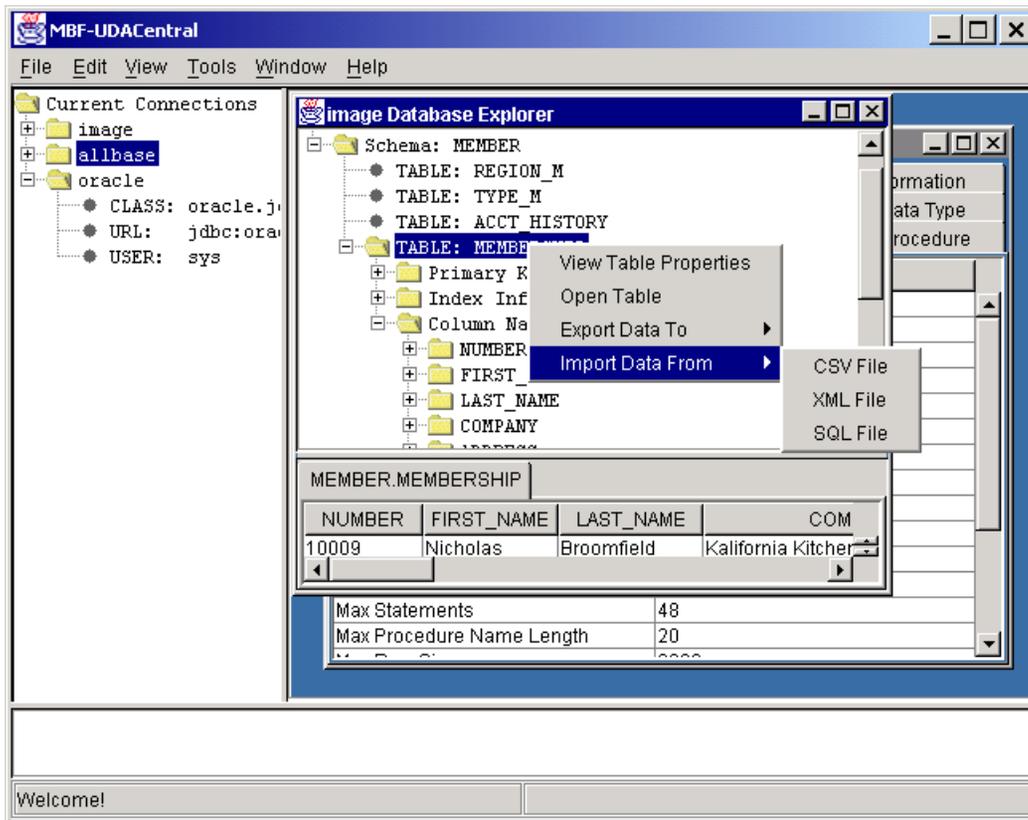


- MB Foster's UDACentral provides migration capabilities that include :
  - Database Explorer
  - JDBC Explorer
  - Database Converter
  - Data Import/Export with conversion
  - Data Editor
  - Dynamic SQL Supporter
  - Distributed Query Execution



# MB Foster UDACentral

hp e3000 transition solutions



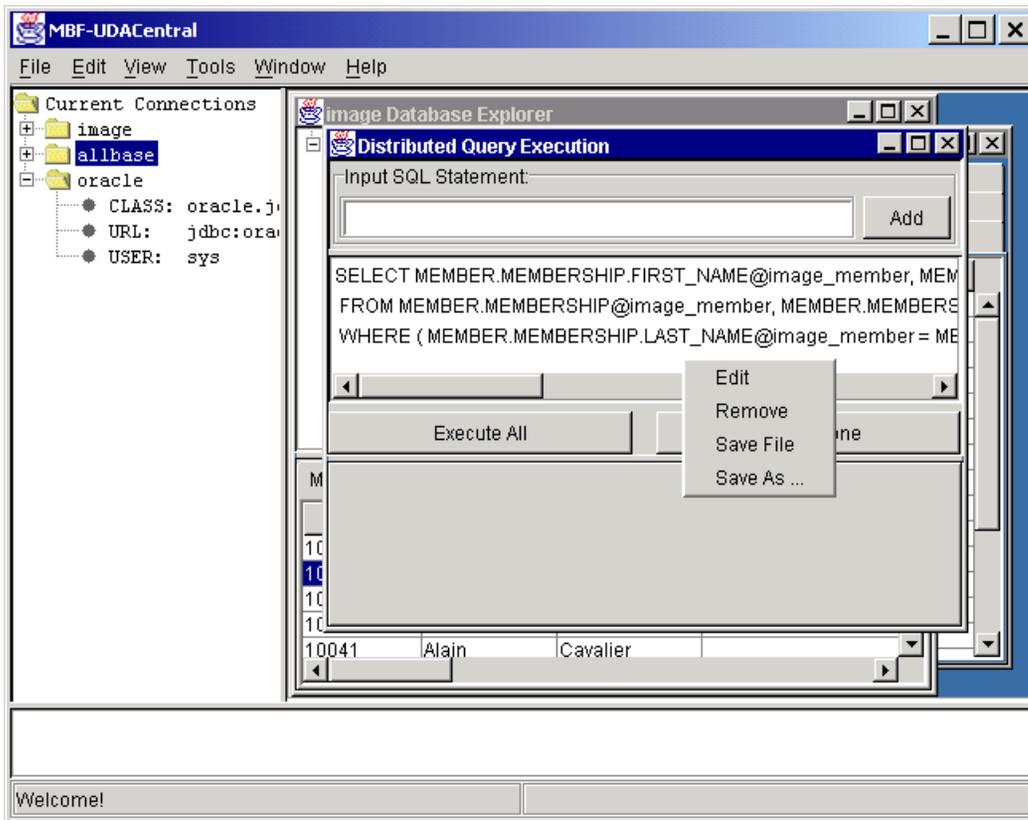
Import/Export Capabilities :

You can import/export data in a number of formats, including XML, CSV, HTML, eMail and SQL.



# MB Foster UDACentral

hp e3000 transition solutions



Distributed Query Execution allows you to create, edit, execute and save distributed SQL queries. You can also re-use queries from the Distributed Query Wizard. Results can be exported in a number of formats.



# SqlLink3000

hp e3000 transition solutions



- SqlLink3000 allows you to access any ODBC compliant SQL database from your HPe3000.
- SqlLink3000 uses Microsoft ADO and TCP/IP to access your SQL data.
- SqlQuery, an interactive 'query-like' tool is included, so you can access your data without programming.
- Data server is multi-threaded, giving the highest level of performance.

OmniSolutions, Inc.

**GLI**  
INNOVATIONS



# SqlLink3000

hp e3000 transition solutions



- SqlLink3000 features:
- Read/Write access to your database
- Supports Insert/Update/Delete/Exec statements
- Supports Views
- Supports stored procedures
- All the above available from SqlQuery
- Migrate your data to SQL using GUI3000, and
- then access it from your HPe3000.

OmniSolutions, Inc.

**GUI**  
INNOVATIONS





# Eloquence Lessons Learned

HPe3000  
Transition Study  
Case Study



# A process for deciding database choices

hp e3000 transition solutions



- Identify the application characteristics
  - What are the online transactions
  - What is batch
  - What is the growth rate
- Inventory skill sets DBA, SQL, DB Design
  - Staff
  - Extended team
  - Understand recruit/retain strategy
- Can you maintain and design Image?

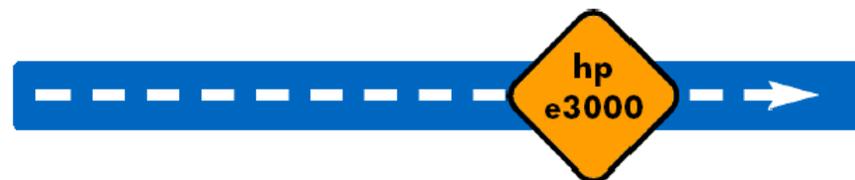


# Challenges

hp e3000 transition solutions



- Scalability
  - Concurrent users vs. dbopens
    - 500 concurrent user limit for best performance
  - Size matters
    - ~500GB is limit on size
    - Future growth up to 32TB
    - 2048 data items
    - 500 datasets
    - 64/16 paths
    - Entry length 5120 bytes
- Is there use of Omnidex/Superdex/TPI?
- What is the test environment?

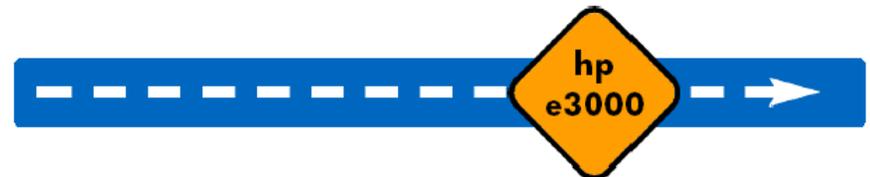


# Eloquence overview

hp e3000 transition solutions



- Excellent compatibility and performance for IMAGE based applications
- Cost effective
- Available on HP-UX, Linux and Windows
- Proven solution available since 1990
- About 2500+ installations worldwide
- Used by about 60+ VARs / ISVs worldwide
- Covers a wide range of installations from a single user to a few hundred concurrent users

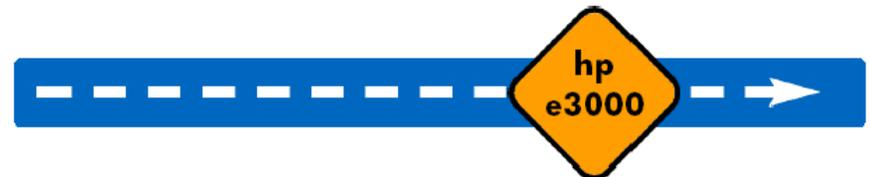


# Company overview

hp e3000 transition solutions



- Eloquence is a product of Marxmeier Software AG, Germany
- Support is available from Marxmeier and support partners worldwide
- Eloquence is available on the HP-UX, Linux and Windows platform

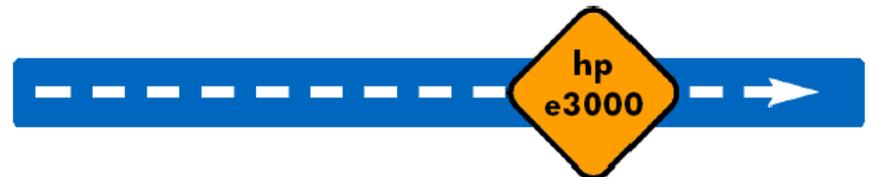


# IMAGE compatibility

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- All TurboIMAGE intrinsics are supported and behave identical
- TurboIMAGE data can typically be ported with no or only minor changes



# Cost effective

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- Eloquence saves considerable time and effort in the migration process and allows you to focus on other tasks
- Eloquence is easy to manage
  - No need for a dba
  - Retains existing knowledge
- Eloquence is priced attractively



# Complete package

hp e3000 transition solutions



- The Eloquence database comes with
  - Comprehensive set of database utilities
  - Structural maintenance
  - Integrated indexing (TPI subset)
  - On-line backup
  - MPE migration tools



# Eloquence environment

hp e3000 transition solutions



- Eloquence is supported by a wide range of HP e3000 tools, e.g.
  - Cognos Powerhouse (Beta 8.43)
  - MBFoster UDALink (ODBC & JDBC)
  - Speedware (7.08.01)
  - SUPRTOOL



# Typical deployments

hp e3000 transition solutions



- Eloquence is typically used to implement vertical and customer specific solutions
- Solutions based on Eloquence include
  - ERP, Order Management, Material Management
  - Financial Accounting / Payroll
  - Civil Services,
  - Financial Services, ...



# Scenario 1

hp e3000 transition solutions



- ISV/Service Bureau
  - 3 HP e3000's
  - Accounting Application
  - Low user count
  - Has Image knowledgeable staff
    - Design
    - Maintenance
    - Programming

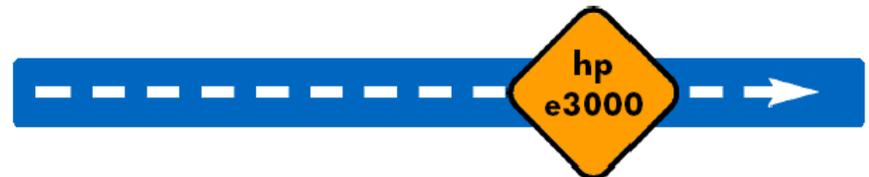


# Scenario 1

hp e3000 transition solutions



- Debated platform
  - Wanted never to be proprietary again!
    - This eliminated Windows & HP-UX
  - Chose Linux
    - Which Linux?
    - RedHat – most available in North America
  - Training requirement
    - Systems – choosing modules from the distribution
    - OPS
    - Programming
    - General “Unix” like environment



# Solution 1

hp e3000 transition solutions



- Focus on low impact migration (cost and change)
  - Stay COBOL
  - Stay IMAGE
- Looked at COBOL – decided to try KOBOL
  - Low Price
  - Good for experiment
  - Response time on support slow
  - Compiler is there for 99% of what they need
  - The bugs are being fixed
- Looked at database
  - Chose Eloquence
    - Price
    - MBFoster support



# Solution 1 status

hp e3000 transition solutions



- Working slowly - sidetracked
  - Waiting for KOBOL answers
  - Revenue generation is a priority
  - Waiting for RedHat 9 for Clustering Software
    - RedHat is putting 7 and 8 through EOL process



# Lessons learned

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- Need a plan with a deadline
- Need a budget
  - Part of a plan
  - Hard to figure out what will cost otherwise
  - Helps planning cashflow
- No sense of urgency means start and stop activities
  - Adds 2 days to pick up task again
  - Adds 1 day for stop to note the issues
    - Usually forget a few
- Price sensitivity vs value of time
  - Task continuity
  - Support is worth money – there is value
- More education earlier



# Scenario 2

hp e3000 transition solutions



- Merger history
- COBOL/IMAGE/custom screens
- 100 Users
- Manufacturing, purchasing & accounting
- Use outside consultants to maintain



# Solution 2

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- Moving to HP-UX
  - Know and trust HP for OS
  - Like the instant ignition program
  - Liked the lowered cost of maintenance
- Keeping COBOL
- Consultant have Image Skills
  - 15 year relationship
  - Company not an individual



# Current status

hp e3000 transition solutions



- For sale
  - Causes budget freeze
  - Executive sponsor aware of timing issue
    - Will go ahead this fall as insurance scenario
    - Don't want to be doing this in the rushhour



# Summary slide

hp e3000 transition solutions



- Eloquence database is a good choice when:
  - There are IMAGE skills in your team
  - You want a low impact migration
    - Minimal change
    - “Emulated Environment”
    - Less risk & faster because less change
  - Eloquence is to be temporary stopping point
    - Learn/hire for ORACLE or other RDBMS
  - You have limited budget
  - Have a low number of users



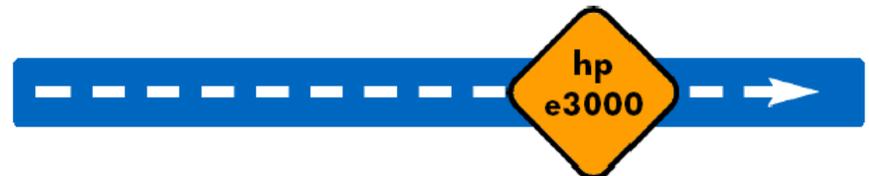


**i n v e n t**



# Northern California Cancer Center (NCCC)

HP e3000  
Migration Case Study

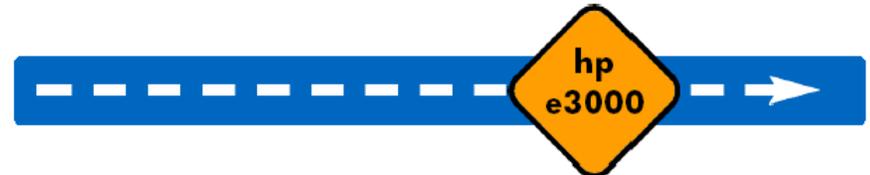


# Business Overview

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](http://www.nccc.org)



# Pre-Migration IT Environment

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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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The screenshot shows the Microsoft Visual Basic 6.0 IDE. The main window displays a 'Customers' form with a yellow envelope icon and input fields for 'Company Name', 'Address', 'City', 'State/Province', 'Postal Code', and 'Country'. The 'Speedware Repository' window is open, showing a tree view of 'Repository Objects' and a table of 'Contents of Columns in VS-Indexed-Base.VS-CUSTOMER'.

Reference	Bytes	SubType	Type	Desc
ADDRESS1	30	ALPHA	CHAR	
ADDRESS2	30	ALPHA	CHAR	
ADDRESS3	30	ALPHA	CHAR	
BALANCE	4	NUMERIC	INT	
CONTACT	20	ALPHA	CHAR	
CREDIT LIMIT	4	NUMERIC	INT	
CUSTOMER-NO	4	ALPHA	CHAR	



# Benefits Enjoyed by NCCC

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- 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.

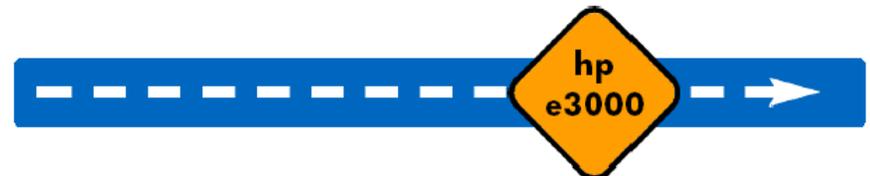


# Lessons Learned

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- 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

hp e3000 transition solutions



***“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

hp e3000 transition solutions



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



# Results

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- 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

hp e3000 transition solutions



- 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.

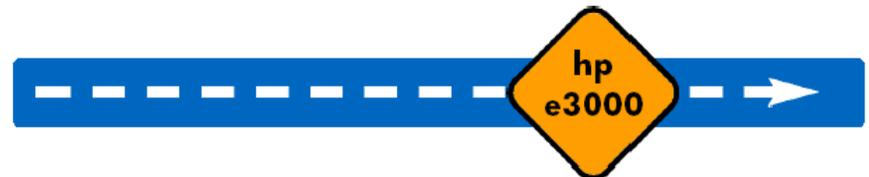


# Other Facelift Technologies

hp e3000 transition solutions

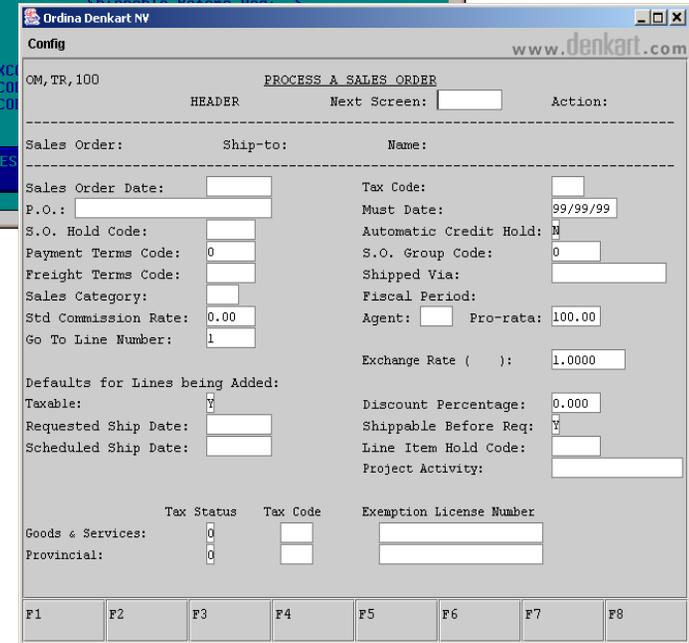
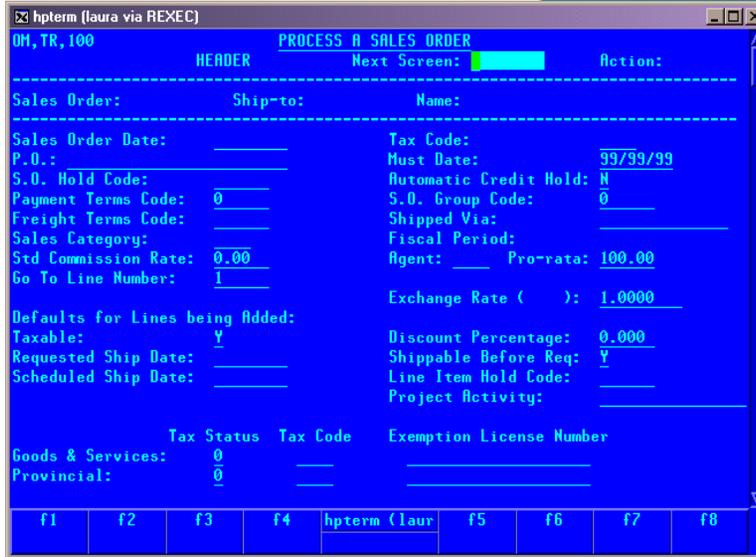


- GUI-enablement solutions for 3GLs
  - VPLUS
    - edWin (Ordina Denkart)
    - Screenjet (to go to AcuBench GUI for AcuCobol)
    - ExegeClient (Exegesys)
    - Transport (AD Technologies)





## Migrates VPlus Completely & Automatically





# City of Pomona

## HP e3000 Migration Case Study



# Business Overview

hp e3000 transition solutions



- One of Southern California's major cities
- Its information systems department manages mission-critical systems
- [www.ci.pomona.ca.us](http://www.ci.pomona.ca.us)



# Characteristics of IT Environment

hp e3000 transition solutions



- >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

hp e3000 transition solutions



- 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

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- 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

hp e3000 transition solutions



- 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.



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

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	Description	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



# Benefits Enjoyed by the City

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

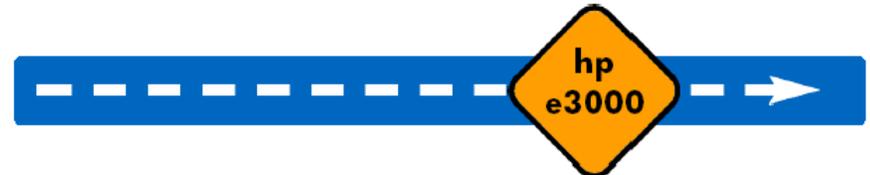


# Results

hp e3000 transition solutions



- 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

hp e3000 transition solutions



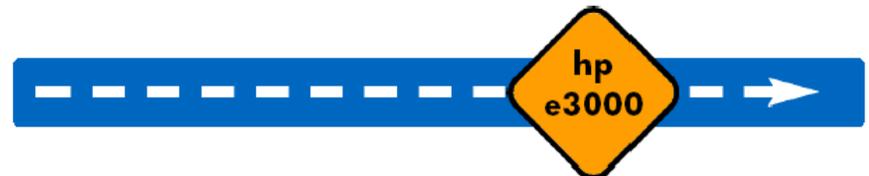
- Further enhancement of the visual interface of the city's applications, including the addition of hyperlinks and GUI controls.





# 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions

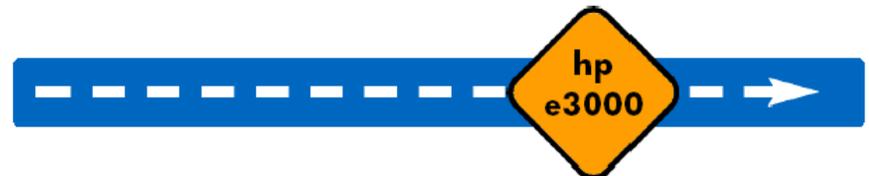


- Hours Worked – 8000
  - 5000 Programming
  - 2000 Testing
  - 1000 Coordination
- Team involved
  - 1 Project Manager
  - 2 Project Coordinators
  - 10 Programmers
  - 5 – 7 Testers
- Skills: PowerHouse, Oracle DBA, Unix Shell Script





# 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



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



# PowerHouse Applications Platform/Database grid

hp e3000 transition solutions



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

hp e3000 transition solutions



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



# PowerHouse Applications Product Portability grid

hp e3000 transition solutions



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



# PowerHouse Migration Tools

hp e3000 transition solutions



- 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

hp e3000 transition solutions



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



# PowerHouse Migration Process

hp e3000 transition solutions



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

hp e3000 transition solutions



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

hp e3000 transition solutions



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

hp e3000 transition solutions



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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

hp e3000 transition solutions



- 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

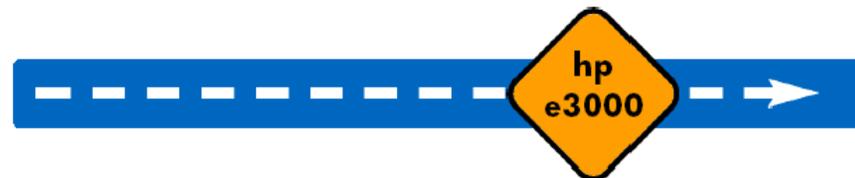
## 3 User Interfaces...But Only 1 Language

hp e3000 transition solutions



The terminal window shows a menu with options: File, Edit, Screens, Commands, Help. The main content displays customer data for '01 Customer No 1001 GO Outlet' which is 'Active Y'. A comment box contains the text: '02 The GO outlets are really hot onto our GO T-Shirts. Perhaps we may expand our clothing line to meet their needs'. Below this, '03 Customer Type GO Outlet' is shown with a dropdown menu listing 'GO Outlet' and 'Independent Store'. At the bottom, a window titled 'Customer Maintenance (cust\_hdr)' shows a form with fields for 'Customer No' (1001), 'GO Outlet', and 'Active' (checked). It also features a 'Comments' text area and a 'Customer Type' radio button group with options: GO Outlet, Independent Store, Camping Chain, Mass Marketer, and Sports Chain. Summary statistics are listed: 13 Open Orders, 121 Closed Orders, and 19 Sites.

The browser window shows the same data as the terminal interface. The title bar reads 'The Great Outdoors - Customer Maintenance - Netscape'. The address bar shows 'http://thegreatoutdoors/customers'. The page header features the company logo and a landscape image. The form fields are identical to the terminal version, including the 'Customer Number' (1001), 'GO Outlet', 'Active' checkbox, 'Comments' text area, and 'Customer Type' dropdown menu. The dropdown menu is open, showing options: GO Outlet, Independent Store, Camping Chain, Mass Marketer, and Sports Chain. Summary statistics are also present: 13 Open Orders, 121 Closed Orders, and 19 Sites. At the bottom of the form are buttons for Search, Add, Change, Delete, Clear, and Reset.



# PowerHouse Customer Training

hp e3000 transition solutions



- 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...



# Cognos Migration Assistance

hp e3000 transition solutions



- For even more information:
  - <http://powerhouse.cognos.com>
- For platform and database support:
  - [http://support.cognos.com/support/products/ph\\_software\\_environments.html](http://support.cognos.com/support/products/ph_software_environments.html)

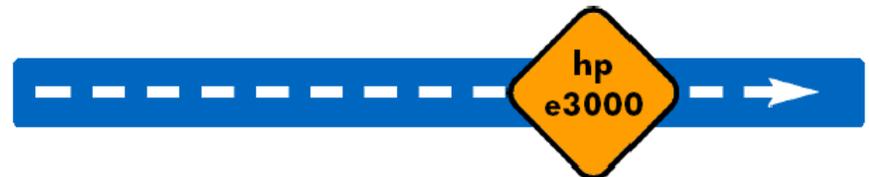


# Cognos Migration Assistance

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- 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

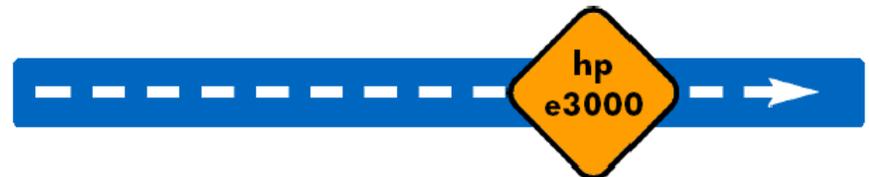


# CT3, Inc. – Business Overview

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



# Challenges

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



# Characterize the HP e3000 Environment

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- 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

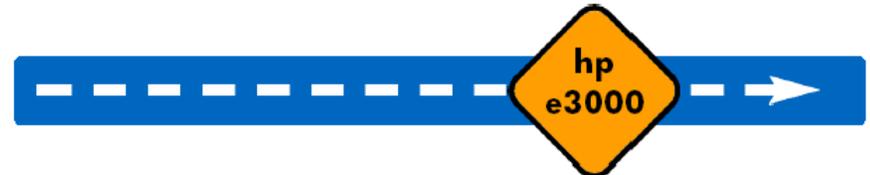


# Lessons learned

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- 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

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- 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

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- 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

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- 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

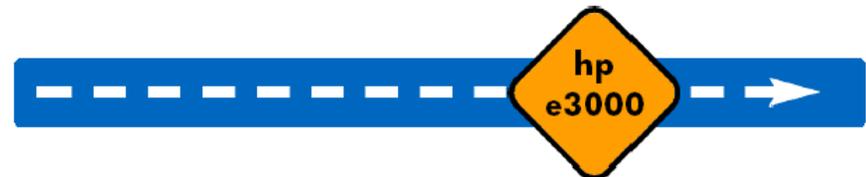


# Lessons Learned – From TurboIMAGE to Oracle

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- 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

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- 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

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- 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

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- 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.

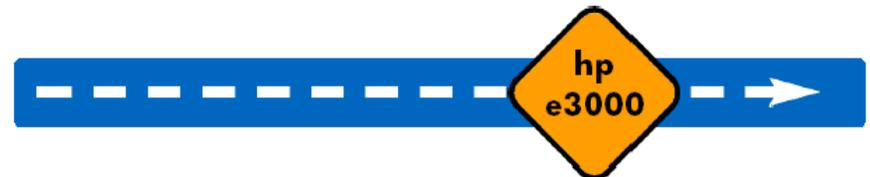


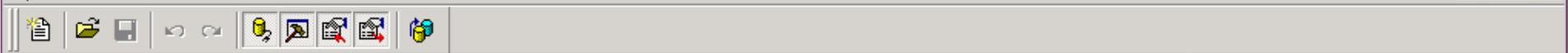
# Database Migrations

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- 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





Source - Columns - EducTe

Categorized

Property	Value
Name	CRS-CODE
<b>Physical</b>	
Data Type	X4
<b>Key Options</b>	
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-STATF

Target - Columns - EducTest.CRSMAS

Categorized

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

```

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

**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
<input checked="" type="checkbox"/>	CRS-CODE	X4	CRS-CODE	CHAR(4)	CRS_CODE	VARCHAR(30)
<input checked="" type="checkbox"/>	CREDITS	I	CREDITS	SMALLINT	CREDITS	INT
<input checked="" type="checkbox"/>	CURRENT-PRI	I2	CURRENT-	INT	CURRENT_	INT
<input checked="" type="checkbox"/>	INST-QUAL-NO	I2	INST-QUA	INT	INST_QUAL	INT
<input checked="" type="checkbox"/>	MAX-STUDENT	I	MAX-STUD	SMALLINT	MAX_STUD	INT
<input checked="" type="checkbox"/>	NAME	X30	NAME	CHAR(30)	NAME	VARCHAR(30)
<input checked="" type="checkbox"/>	PASSING-GRA	I	PASSING-	TEXT	PASSING_	INT
<input checked="" type="checkbox"/>	PREREQ-CRS-C	X4	PREREQ-C	CHAR(4)	PREREQ_C	VARCHAR(30)
<input checked="" type="checkbox"/>	STATUS	X2	STATUS	CHAR(2)	STATUS	VARCHAR(30)
<input checked="" type="checkbox"/>	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

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- 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

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- 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

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- Applications
  - Generate applications from Designer



# Speedware Migration Issues

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- 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

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- 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

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- 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

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- 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

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- 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

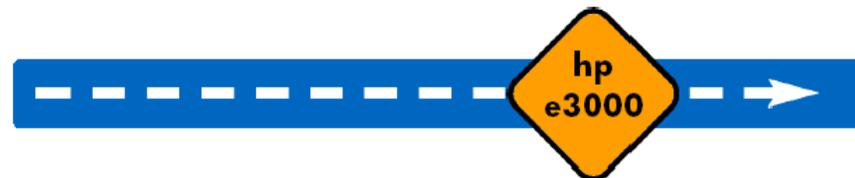


# Solution

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- 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

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- Robelle's SMARTDATE intrinsic found in 90% of the application code
  - Solution: rewrite SMARTDATE functionality
- Examples of Intrinsic 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

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## *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

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## *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



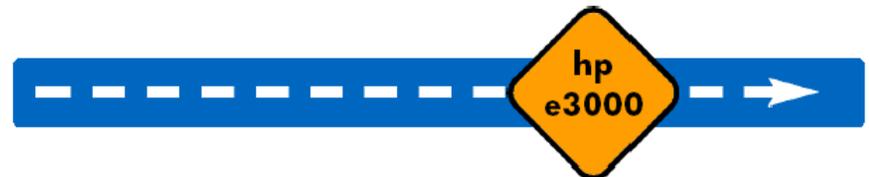
# VPlus conversion with edWin

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## *AMXW Conversion outputs*

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



# Batch JCL

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## *Conversion process*

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



# Testing of the application

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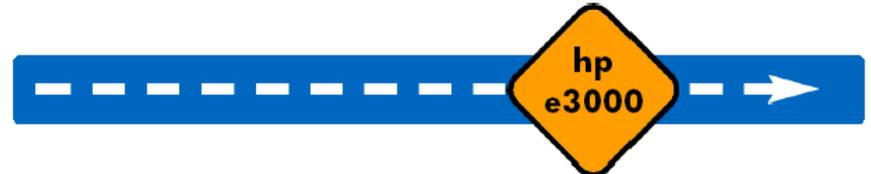


- TEST, TEST, TEST





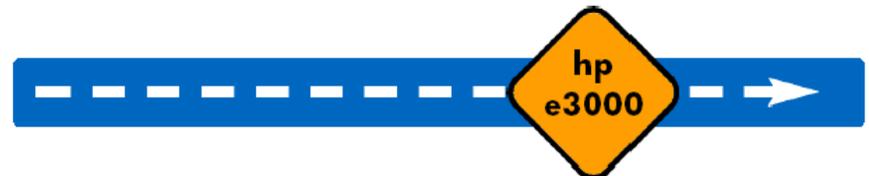
i n v e n t





# HPWorld 2003 Summit Migration Process

Dick Drollinger  
Sr. Dir. Migrations  
Summit Information Systems



# HPUX Migration Update

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- Topics include:
  - Who is Summit
  - SPECTRUM Environment
  - 3rd Party Product Information
  - Migration Process



# Who is Summit

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- Summit Information Systems, a Fiserv Company
- 30 Years old with 400 employees
- Serving the Credit Union industry exclusively
- HP 3000 host based for 25 years
- Client Sizes
  - 918 through N4000 550MHZ 4 way
  - 10 million to 4.5 billion
  - 20 to 900 employees



# SPECTRUM Environment

## HP3000 Host Based Infrastructure

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- Turbo Image
- Fortran 77, Speedware, Quad, Query
- Bradmark DBGeneral
- TurboStore, RoadRunner
- Maestro job scheduler
- MPEX, Security 3000
- Job Rescue
- Nightwatch, By Request
- Mirrored disk, private volumes
- Jetform Merge
- Minisoft ODBC drivers



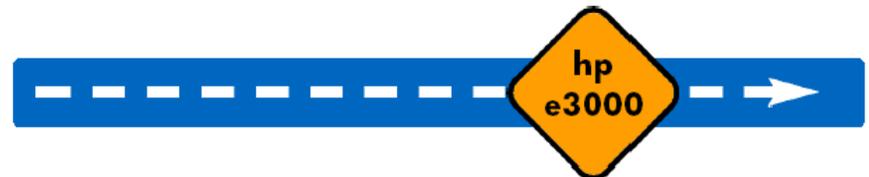
# SPECTRUM Environment

## HP9000 Decentralized Infrastructure



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- Eloquence with ODBC drivers
- C++, VitalSoft or Crystal Reports
- Robelle Suprtool and Qedit
- Veritas
- UC4 Job Scheduler
- Power Broker
- Nightwatch, By Request
- Mirrored disk, disk striping
- Adobe Central



# SPECTRUM Migration

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- Started in 1999
- Chose HPUX for Open Environment
- Chose Eloquence for Turbo Image call capability
- Robelle and UC4 based on features and MPE and UX capability
- Used Fortran to C++ conversion tool from Denkart
- No HPUX enhancements from Jan 02 to Jun 03



# SPECTRUM Environment

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- Eloquence Database:
  - Performance is very solid and fast
  - ODBC product is included
  - Automated dataset capacity management
  - Data Migration from Turbo Image is a non-event
  - D/R recovery processes have been tested and verified by Summit and Clients

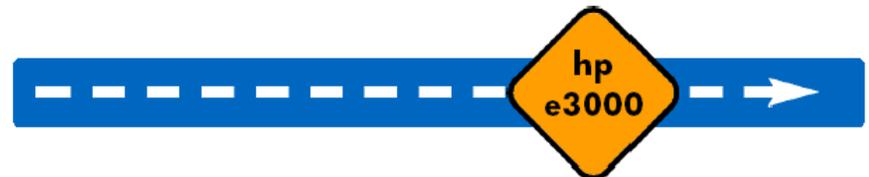


# SPECTRUM Environment

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- Adobe Central (Jetform merge replacement)
  - Fully tested
  - A Recompile of the Eforms on HPUX is all that is required
- Standard Reactor programs replaced with C++ programs



# SPECTRUM Environment

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- Serial Device Connectivity
  - Cash Dispensers
    - Same method of interface as on MPE (e.g. serial to LAN, direct serial)
    - Future direction will be TCP/IP on SPECTRUM
  - Credit Bureau Modem
    - Serial port connection via Mux port
    - Future direction will focus on TCP/IP
  - Telamon
    - Will transfer to UNIX box and use serial port (DTCs)
  - Reel to Reel tape drives
    - Will go off support by June
    - Most third parties can be accessed with a transmission or FTP server otherwise, use DAT



# 3rd Party Products

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- UC4 Scheduler
  - Architecture
    - Server based application, components include:
      - SQL database
      - Host based executor
      - Dialog client access
      - API
    - GUI front end
      - Accommodates design, implementation, modification, execution and monitoring
    - Maestro to UC4 conversion Utility works well

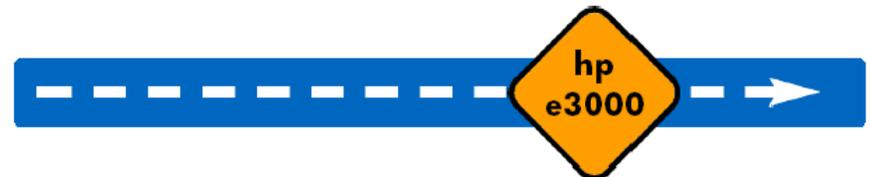


# 3rd Party Products

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- UC4 Scheduler
  - Key Considerations
    - Production JCL resides on UC4 server
      - Modified thru UC4 editor
    - Backup and Recovery
      - Separate from Host Backup
    - Mission Critical System
      - Redundancy recommended



# 3rd Party Products

hp e3000 transition solutions



- Veritas
  - Support for single system
  - Option for enterprise solution
    - with backup server and shadow LAN
  - Works with Oracle, SQL, and Eloquence databases

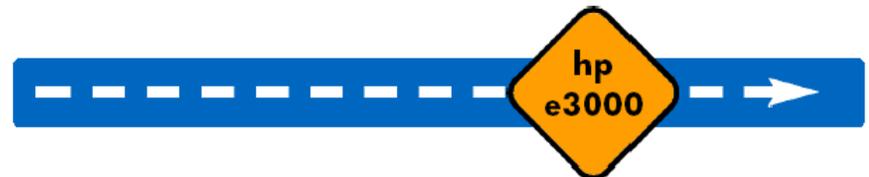


# 3rd Party Products

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- Veritas
  - Planning Considerations
    - Design Strategically
      - Consider the enterprise in planning and configuration
    - Implement gradually
      - UC4, True Image, are good “trigger” systems for implementing Veritas



# 3rd Party Products

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- Suprtool from Robelle
  - Sophisticated tool with greater capabilities than Query
  - Supports non-database and KSAM file manipulation
  - Exports data in multiple formats:
    - XML for Crystal Reports & other report writers
    - HTML for immediate browser display
    - Comma delimited for Microsoft Access, Excel and similar products

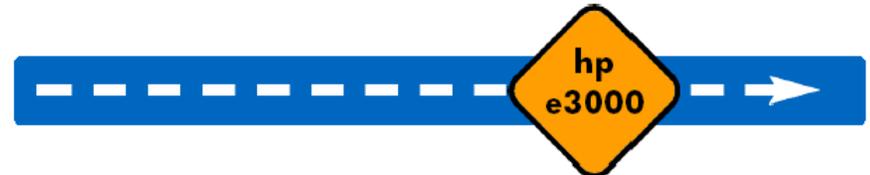


# 3rd Party Products

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- Qedit for HP-UX server
  - Replacement for QUAD
  - Qedit for Windows from Robelle
  - Accesses files from multiple systems
  - Powerful edit capabilities
  - Robust scripting language
- Suprtool and Qedit can be moved from MPE to HP-UX



# 3rd Party Tools (Recommended)

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- AskPlus/Visimage from Vitalsoft
  - Robust report writer functionality
  - Conversion programs for Query (available) and Reactor (in testing)
  - Converted reports can execute on MPE or HPUX with only a run statement modification
  - Reports written on MPE can be executed directly on HPUX
- Crystal Reports
  - Robust report writer functionality
  - Works with data obtained from multiple sources, i.e. Suprtool, ODBC, etc.



# Implementation Process

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- Schedule
  - 2003: 2 betas, 6-8 additional clients
    - 1st Large client scheduled for 1Q '04
  - 2004: 60 migrations
  - 2005: 60 migrations
  - 2006: remainder



# Implementation Process

hp e3000 transition solutions



- Process Phases
  - Assessment & Analysis
  - Planning
  - Preparation
  - Migration



# Implementation Process

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- Assessment & Analysis
  - Complete the assessment guide!
    - Comprehensive scope
      - Infrastructure & Systems
      - Applications
      - Custom/Special Software
      - Staff



# Implementation Process

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- Planning
  - A high level project plan and technology road map will be produced from the information provided in the assessment
  - Develop tactical migration-related plan based upon road map
    - Timelines, resources, budget, etc

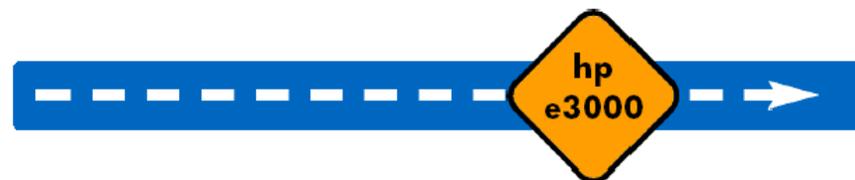


# Implementation Process

hp e3000 transition solutions



- Preparation (Back Office)
  - Focus on your Back Office and IT infrastructure
    - Any LAN or Network modifications
    - Sufficient environment for 2 systems
  - Get Familiar with the New Tool Set
    - SuprTool & Qedit
    - UC4 Job Scheduler
    - Veritas Backup Software
  - Replace all non-standard jobs/reports



# Implementation Process

hp e3000 transition solutions



- Preparation (Back Office)
  - Migrate to LAN based connectivity where possible
    - LAN connected Credit bureau
    - LAN connected OL ATM Networks
  - Acquire basic UNIX expertise
    - Internet course, HP school, etc.
  - Identify and eliminate obsolete jobs, terminal entries, etc
  - Develop Back Office test scripts and plans



# Implementation Process

hp e3000 transition solutions



- Preparation (Front Office)
  - Focus on Your Front Office
    - Install Teller, Lender and GUI Spectrum
    - Develop Front Office test scripts and plans



# Implementation Process

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- Migration: Basic Elements
  - Hardware/Software config/procurement
  - Corvallis training (Basic Spectrum on HPUX)
  - HPUX System Installation
  - OS/Application Installation/Configuration
  - Data and JCL migration
  - Creation of operational Spectrum on HPUX environment



# Implementation Process

hp e3000 transition solutions



- Migration: Basic Elements
  - Third Party Product Training
  - Process testing and refinement
  - Integration testing
  - Live migration
  - Post live support



# Resources

hp e3000 transition solutions



- HP-UX on Summit Portal
  - Migration assessment guide
  - Beta status reports
  - Training schedules and syllabus
  - FAQ and other documents
  - Presentations
- HP Web site – [www.hp.com/go/hpe3000](http://www.hp.com/go/hpe3000)
  - Webinars
  - MPE/iX to HP-UX comparisons
  - Free HP-UX Training Coupon





## SUMMIT *Clients Only Information*



SUMMIT ADVISOR



CONTACT US



HELP DESK

- [Guide](#)



### HP-UX Migration

#### Training Programs

- [Overview](#)
- [Syllabus \(.pdf\)](#)
- [Schedule](#)
- [Free HP Unix Training \(.pdf\)](#)

#### Follow the Betas

- [Status Update Apr. 5, 2003](#)
- [Status Update Mar. 28, 2003](#)
- [Status Update Mar. 21, 2003](#)
- [Status Update Mar. 14, 2003](#)
- [Status Update Mar. 1, 2003](#)
- [Status Update Feb. 21, 2003](#)
- [Status Update Feb. 14, 2003](#)
- [Status Update Feb. 7, 2003](#)
- [Status Update Feb. 2, 2003](#)
- [Status Update Jan. 27, 2003](#)
- [Status Update Jan. 20, 2003](#)
- [Status Update Jan. 13, 2003](#)
- [Status Update Jan. 6, 2003](#)
- [Status Updates for 2002](#)

#### Product Updates

- [Enabled Modules at HP-UX Beta Sites](#)
- [MPE to HP-UX Hardware Matrix](#)
- [Migration Partners](#)
- [Acquisition of Eloquence](#)
- [FAQs \(.pdf\)](#)
- [Third Party Tools & Utilities Matrix \(.pdf\)](#)
- [Migration Timeline](#)
- [LAN Controllers](#)
- [Beta Schedule \(.pdf\)](#)
- [Client Communication July 2002](#)
- [Client Communication May 2002](#)
- [Client Communication November 2001](#)
- [Controllers On HP-UX](#)

#### Transition Planning

- [Assessment Guide \(.doc\)](#)
- [Assessment Jobs](#)
- [Assessment Job](#)
- [Cross Reference Tool](#)
- [Migration Considerations](#)
- [Power Point Presentation](#)
- [Education Mailer](#)

#### Data Center Environment

- [3K Overview History](#)
- [Conversion Kit](#)
- [End of Support Life](#)
- [HP UX Commitment](#)
- [Migration Considerations](#)
- [RP2400](#)
- [RP7400](#)
- [RP7410](#)
- [UX Complete Training](#)
- [HP News](#)
- [Beyond 2003](#)
- [November 2001 Announcement](#)
- [Performance Benchmarks](#)

Visit this site frequently for the latest information about the next generation SPECTRUM product! If you have a specific question about SPECTRUM on HP-UX, simply click the Ask Harvey! graphic. You will receive a prompt response.



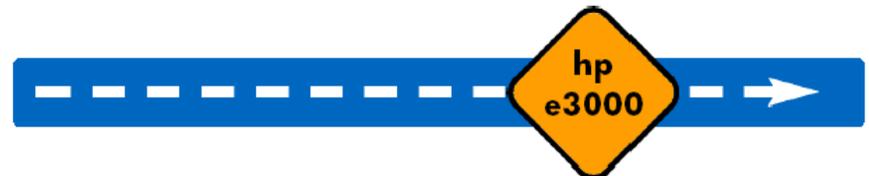


# Thank You





# Ecometry Migration Planning



# Agenda

hp e3000 transition solutions



- Ecometry Open Systems
  - How we got from the e3000 to Open Systems
- Design Architecture Change
  - Are there advantages to Migrating?
- FVF (e3000 v. Open Systems)
- Web Services Architecture
  - Post Migration Features
- Basic Ecometry Configurations
- Migration
  - Plans, Tools, and Costs



# Migration Status

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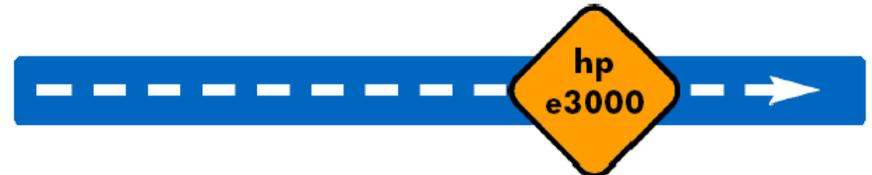


- Ecometry Application Is Complete
  - Ecometry Running on HP/UX and Win2K
- Tools To Move Your Data Are Complete
  - Data Migration From Image to Oracle or SQL2K
- Ecometry Resources Are Available
- Partner Resources Are Available
  - Surround Code
  - Project Staffing
- Migrations Have Been Scheduled



# Migration Architecture

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# Multi Platform Ecometry

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Win2K  
SQL 2000



Win2K  
Oracle

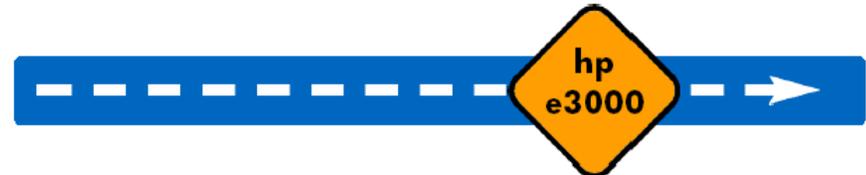


HP UX Server  
Unix/Oracle

- Scalability for Extensive Growth (50 – 400,000 Orders/day)
- Built for OLTP Applications
- Maximum Price Performance
- ODBC Capabilities



Overview



# Original MACS on the HP3000

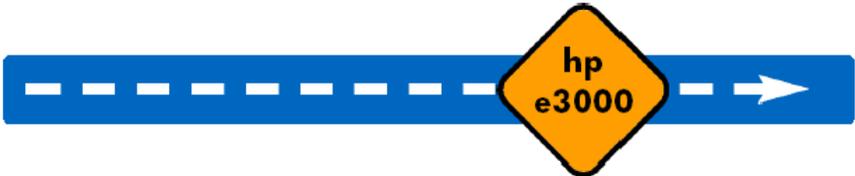
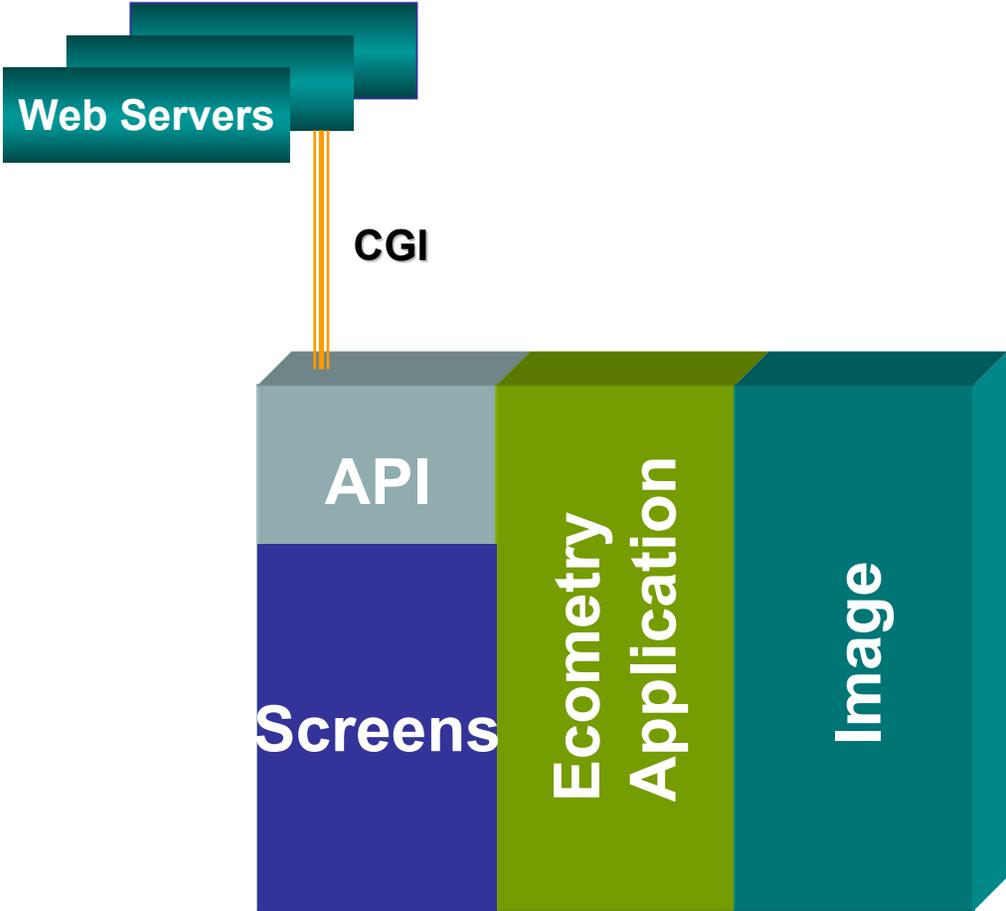
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Technology

# MACS with WebOrder

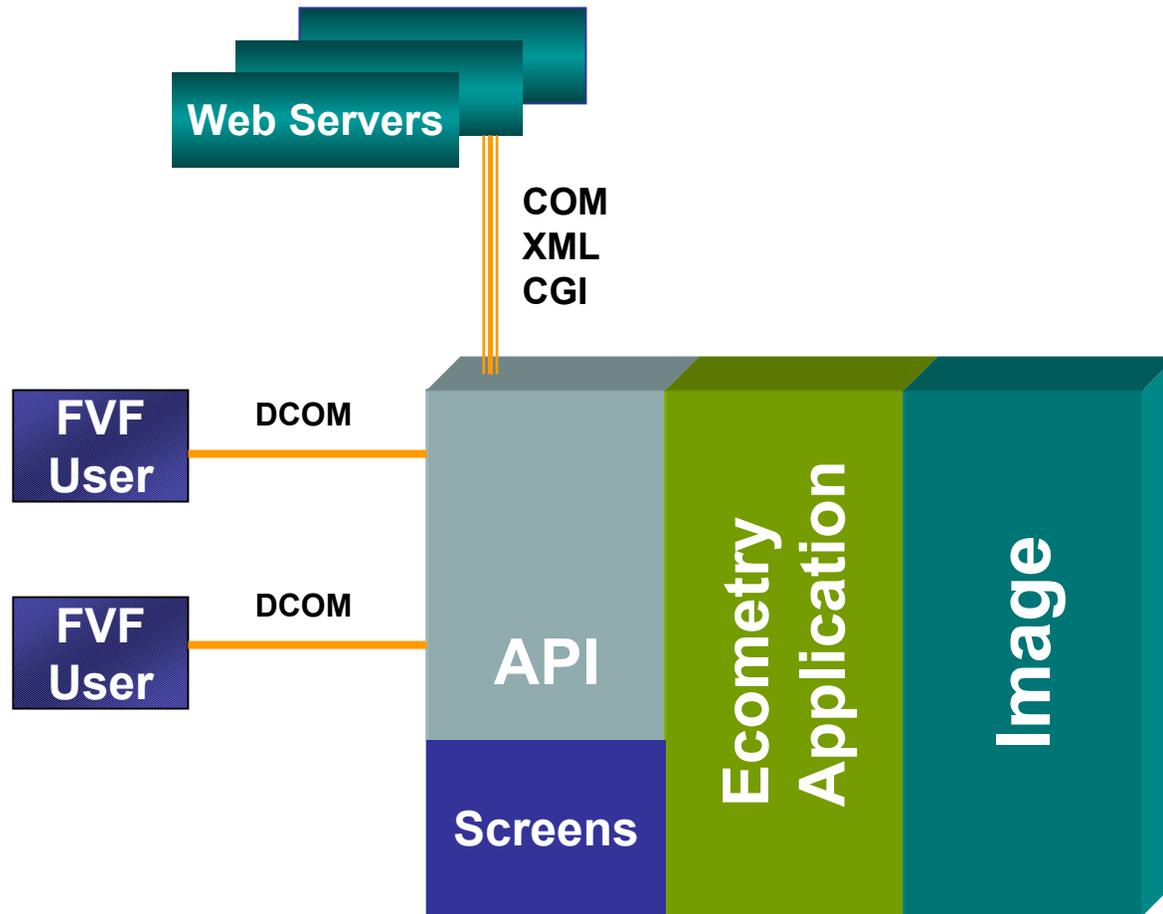
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Technology

# Ecometry on HP3000 Today

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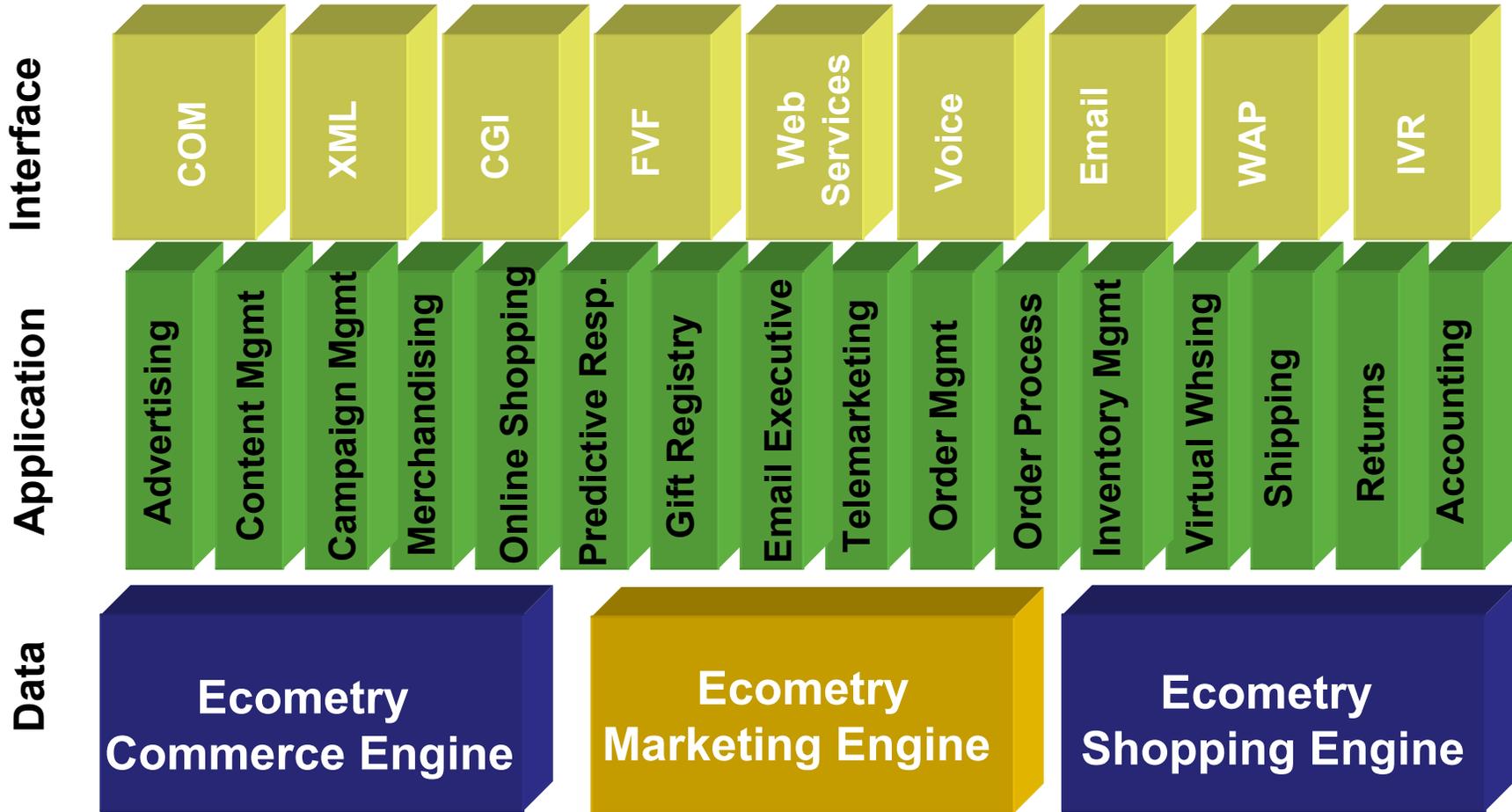


Technology

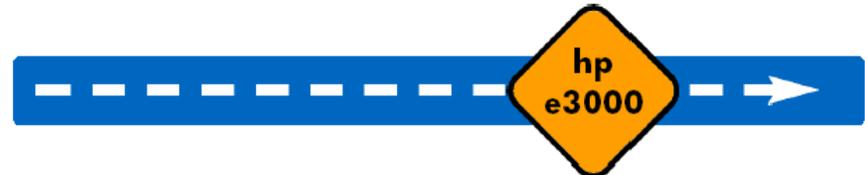


# Design Architecture Change

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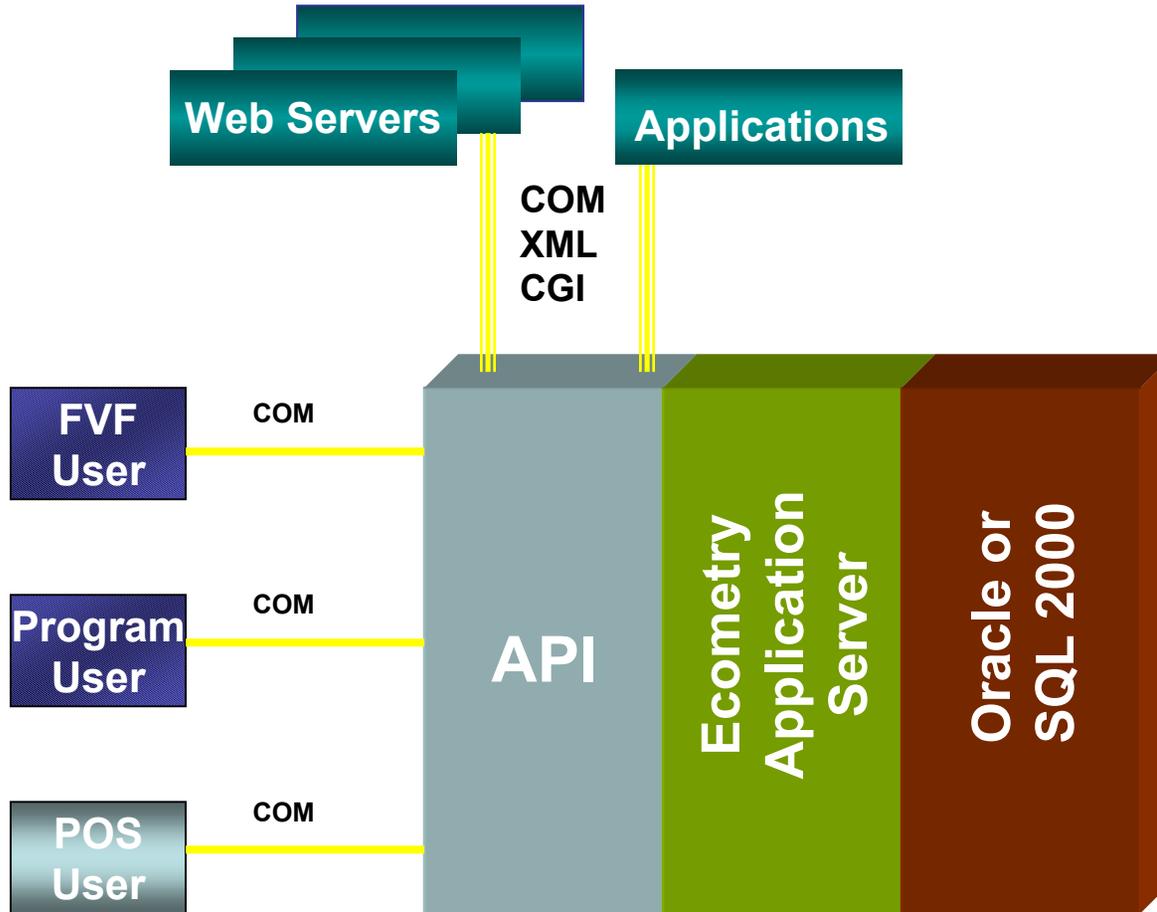


Technology

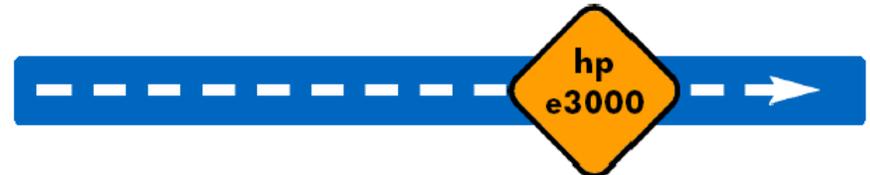


# Ecometry on HP/UX or Win2K

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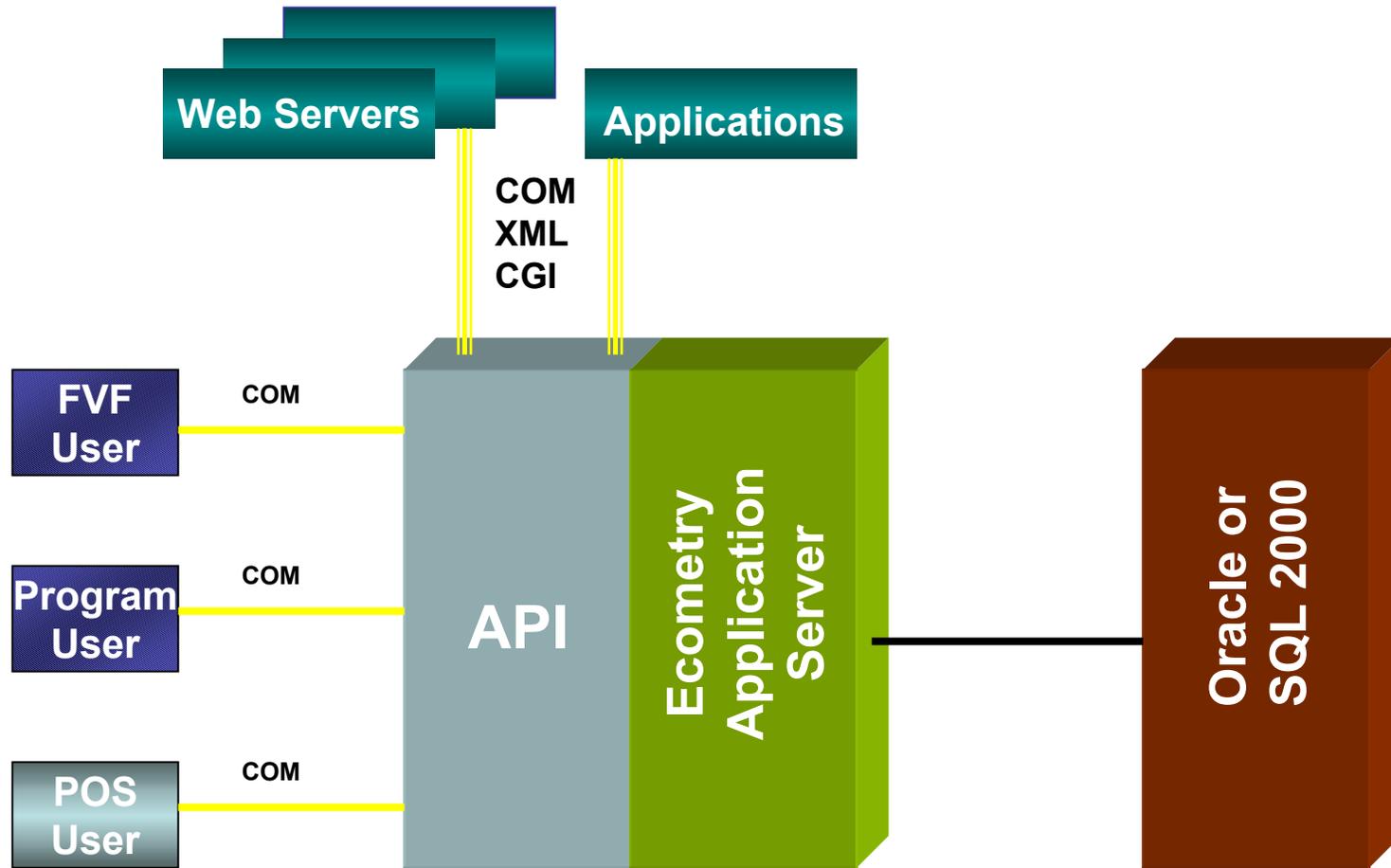


Technology



# Ecometry Unix or Win2K

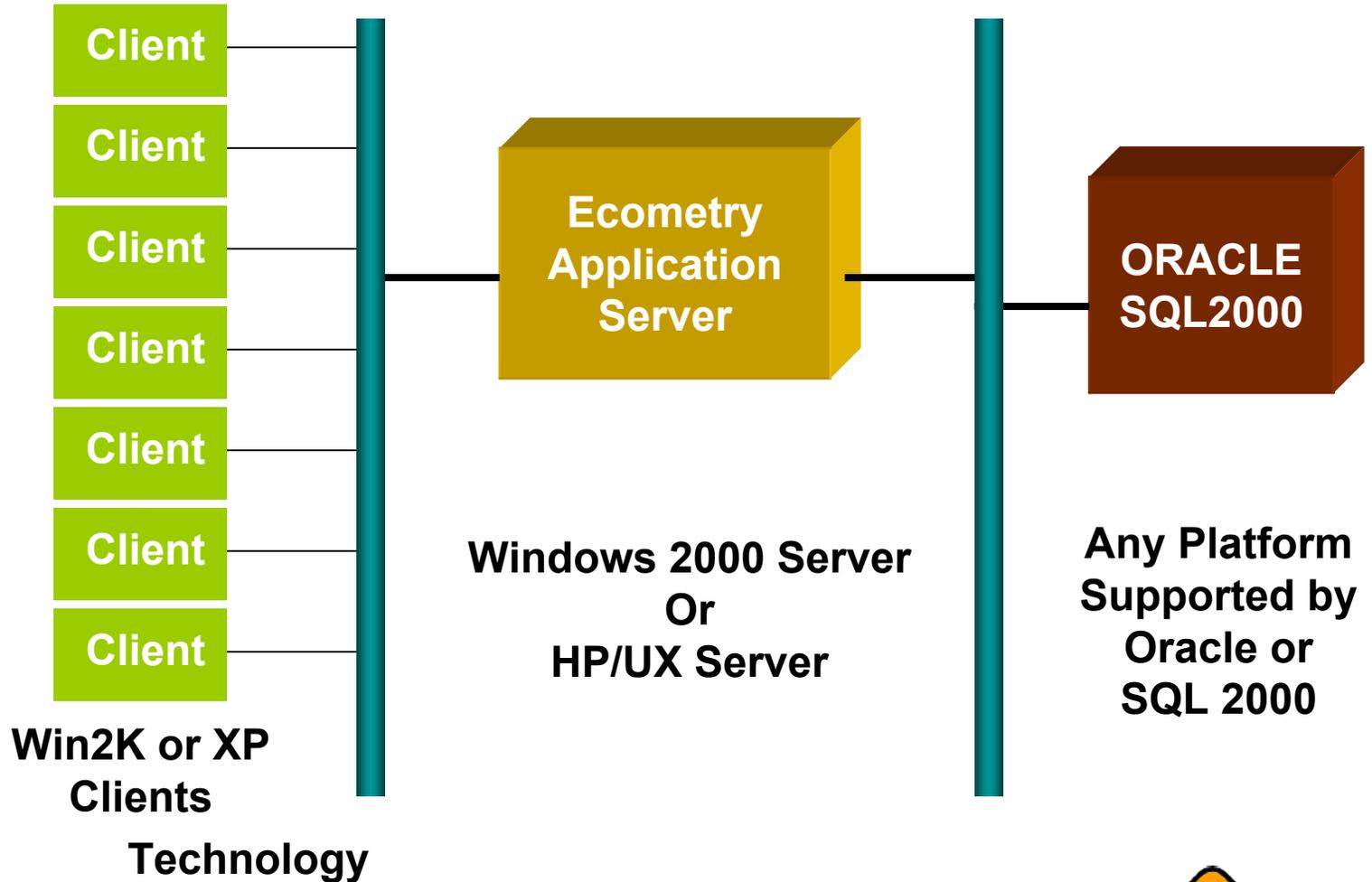
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Technology

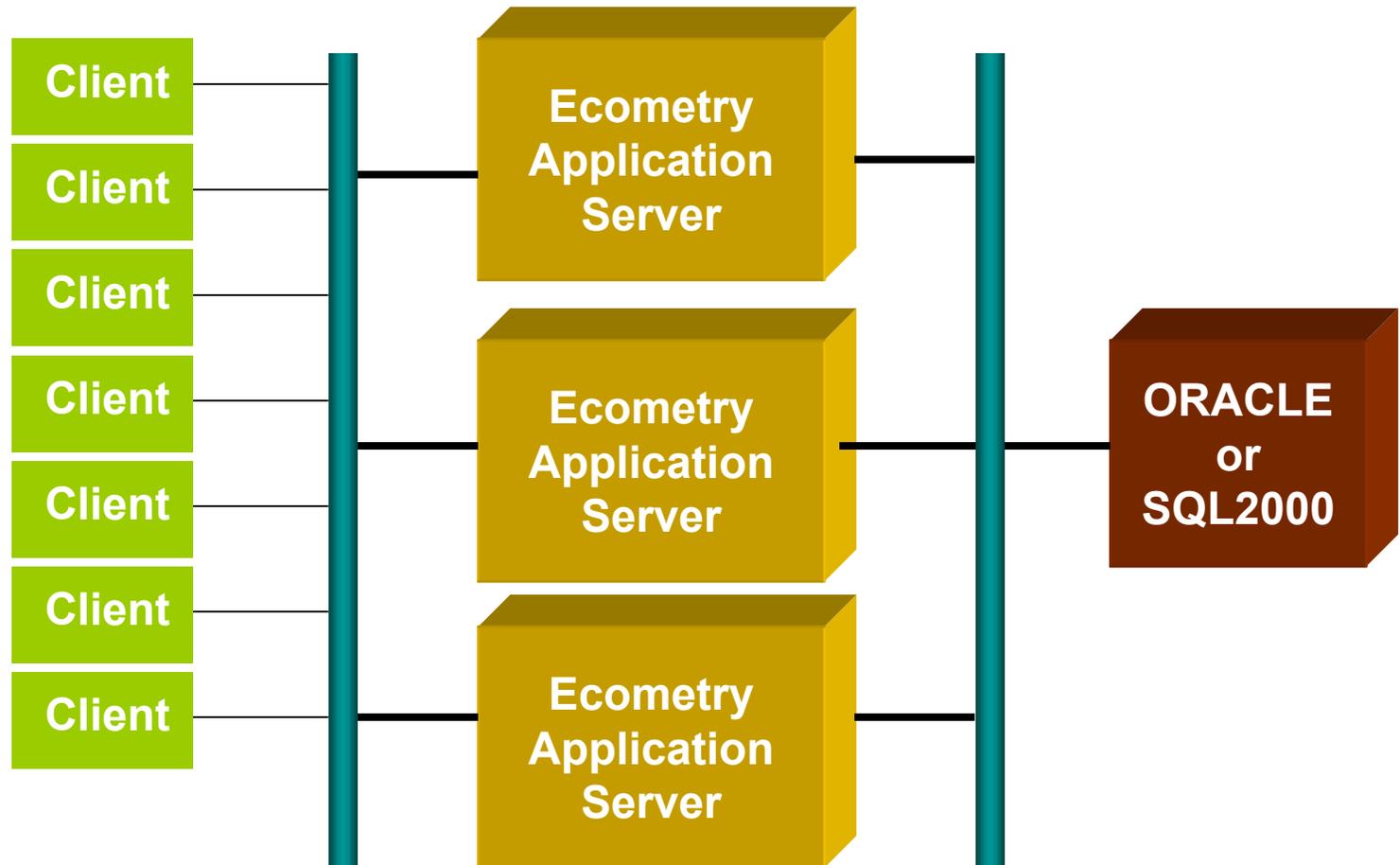
# Ecometry Configuration

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# Scalable Architecture

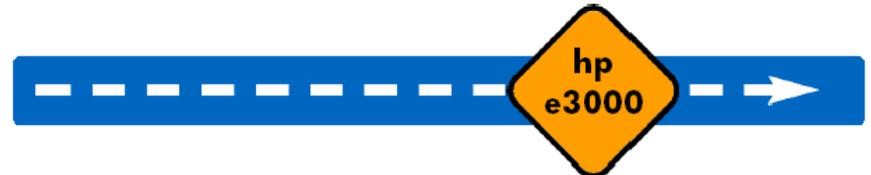
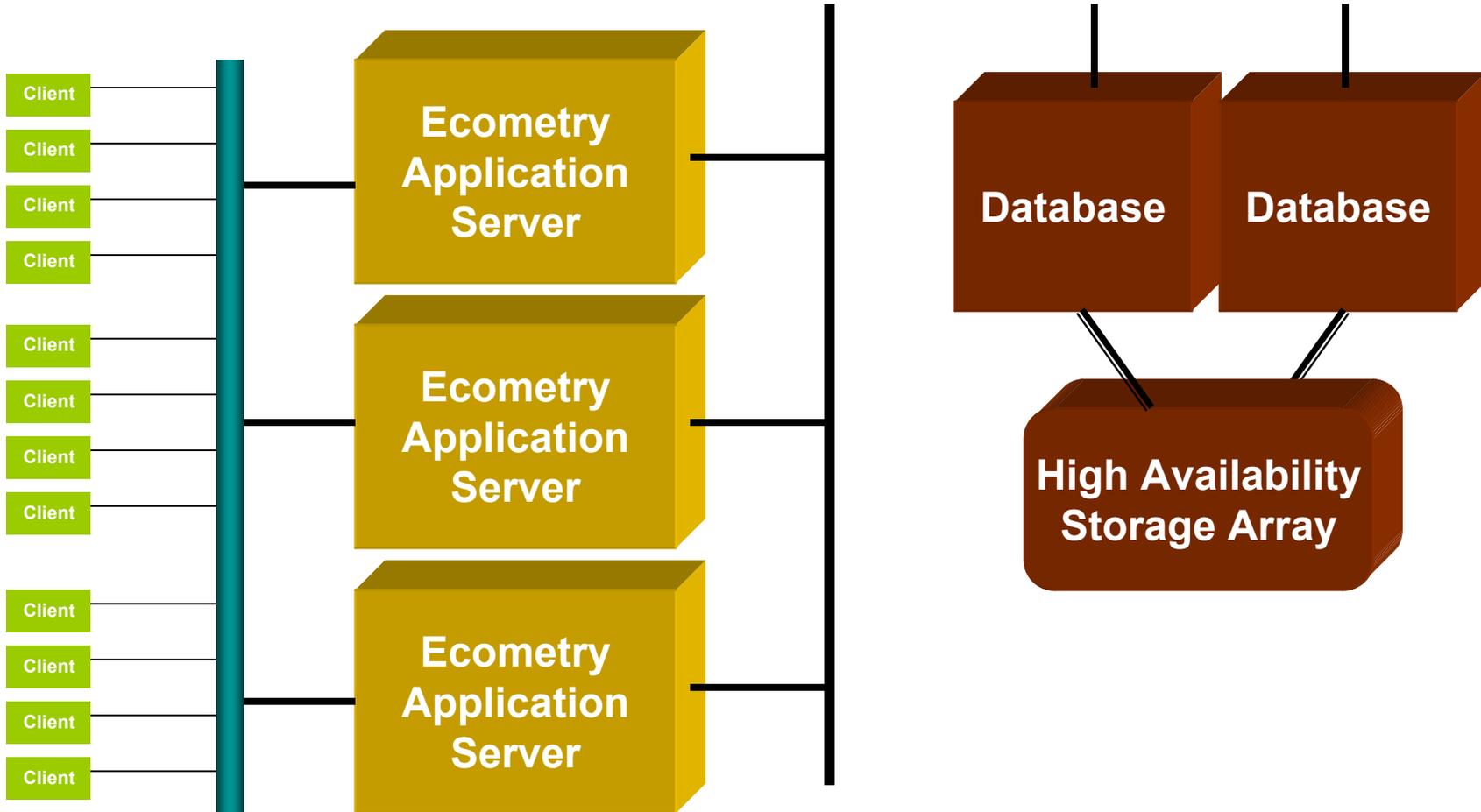
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Technology

# High Availability Ecometry

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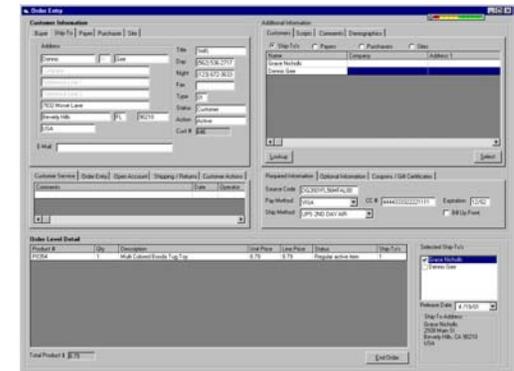
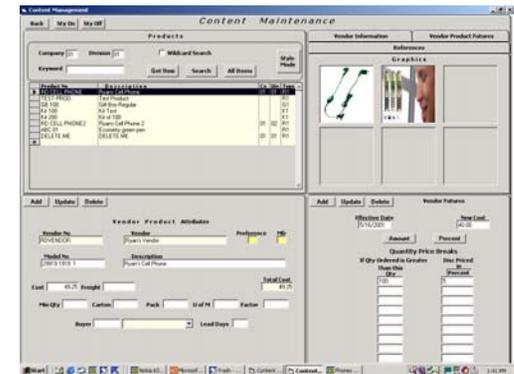
Technology

# FVF – More than a pretty new face

hp e3000 transition solutions



- Full View Functionality
- Increased Productivity
- Removes UI code from order engine
- Allows for an expanded enterprise architecture
- Simplifies Ecometry user licensing
- Simplifies many future modifications



Technology



# Migration Decisions

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- What Platforms Are Available?
- Which One Is Best For Me?
- What Are The Costs?
- When Should I Migrate?
- Who Can Help Me?
- Has Ecometry 'Changed'?



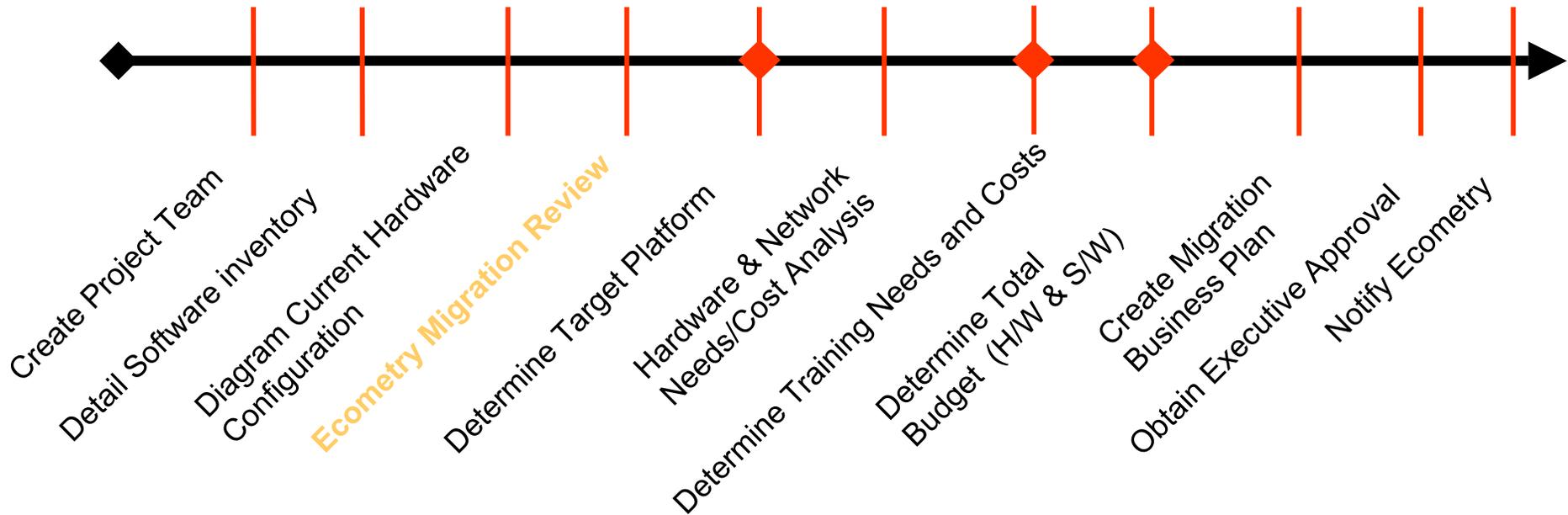


# Ecometry Migration Planning



# PHASE I - SCOPE ANALYSIS

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## MIGRATION MILESTONES

■ CLIENT

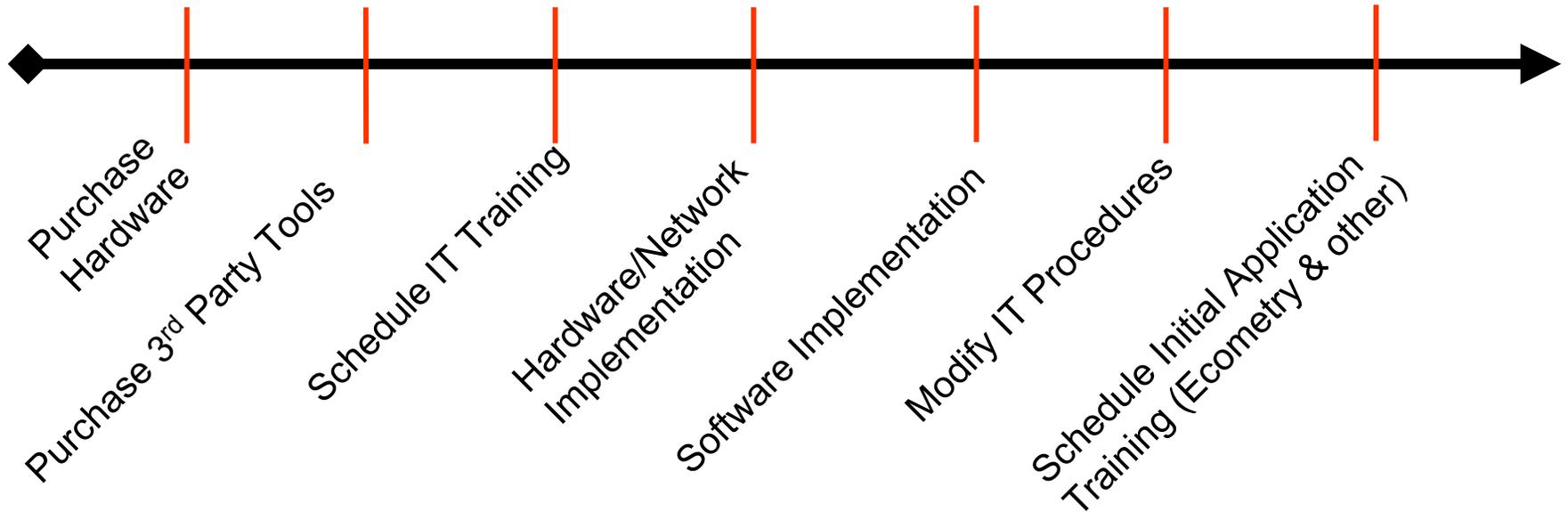
■ ECOMETRY

◆ DECISIONS



# PHASE II - H/W & S/W Implementation

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## MIGRATION MILESTONES

■ CLIENT

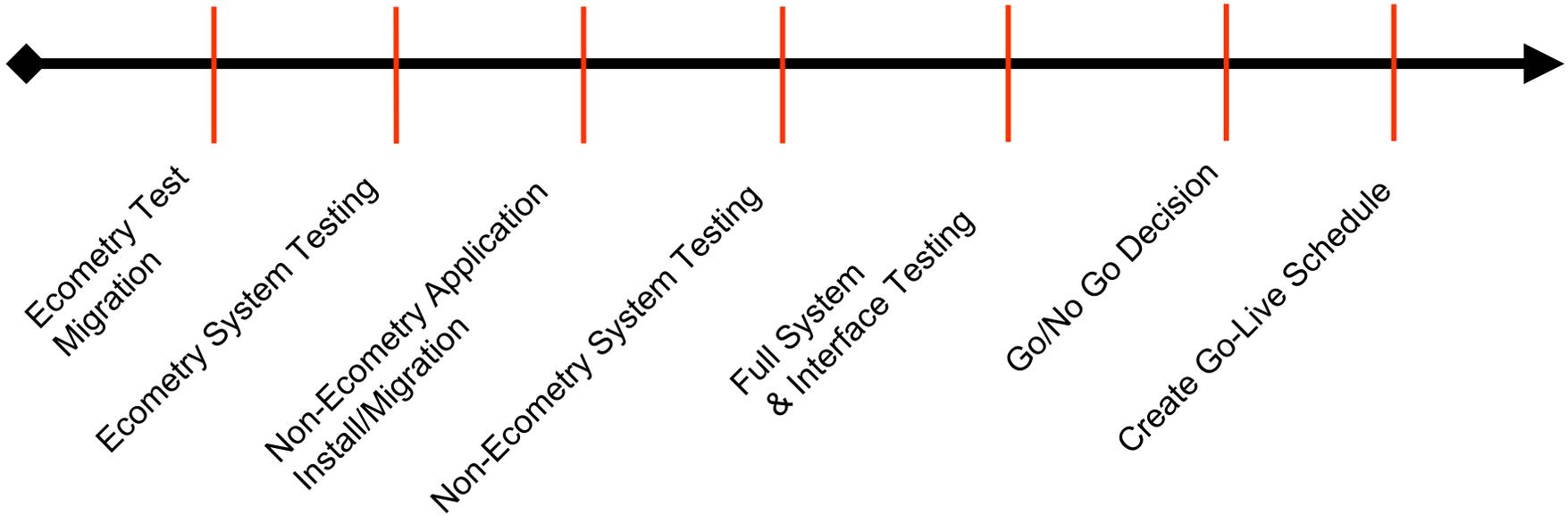
■ ECOMETRY

◆ DECISIONS



# PHASE III - Test Migration & System Testing

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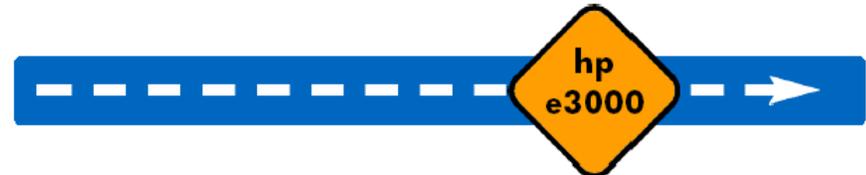


## MIGRATION MILESTONES

■ CLIENT

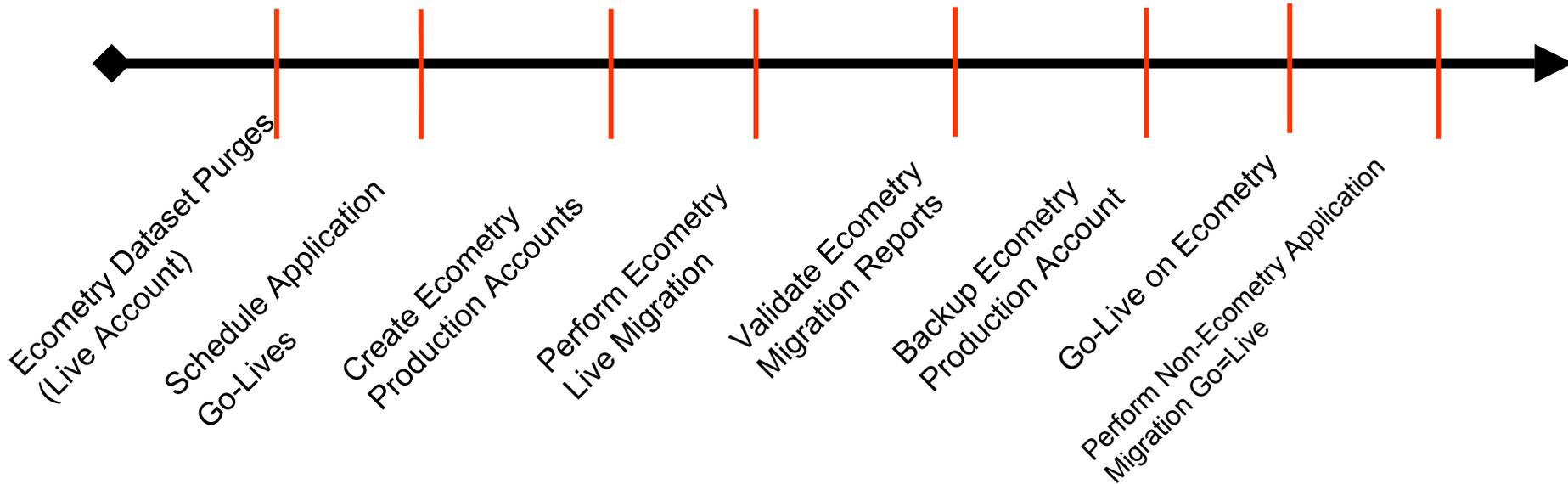
■ ECOMETRY

◆ DECISIONS



# PHASE IV - Go-Live

hp e3000 transition solutions



## MIGRATION MILESTONES

■ CLIENT

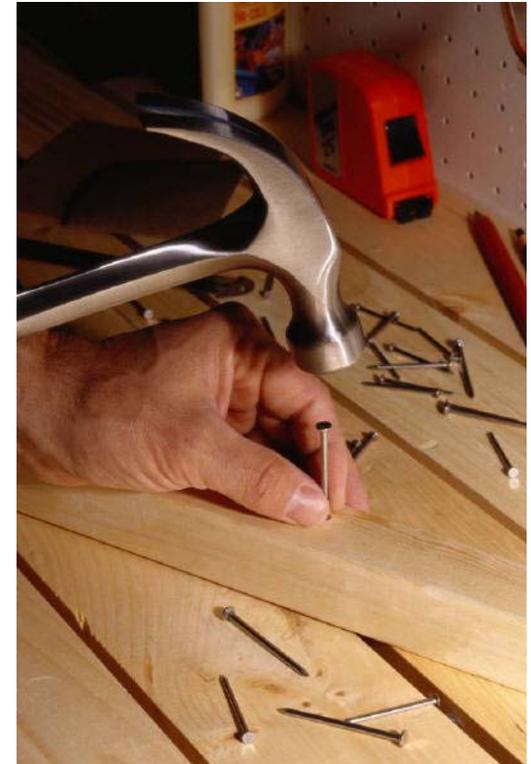
■ ECOMETRY

◆ DECISIONS





# Ecometry Migration Tools & Services



# Ecometry Migration Options

hp e3000 transition solutions



- Option 1
  - Learn and Test
- Option 2
  - Learn, Test and Go-Live
  - Data Migrated at Ecometry
- Option 3
  - Learn, Test and Go-Live
  - Data Migrated at Your Site



Migration



# Migration Option 1

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- Includes:
- Migration Toolkit and Support
- One Week of On-Site Install/Support
  - Install BridgeWare Software
  - Create New Environment
  - Copy Production to Test on HP3000
  - Run Migration and Validate Data
    - Benchmark to provide time estimates
    - Identify Potential Data Issues
    - Run Ecometry reports to validate data
  - Train You so that You can perform Your Go-Live



**Migration**

# Migration Option 2

hp e3000 transition solutions



- Migration Toolkit and Support & 3 weeks on-site
- First Two Weeks Includes:
  - Install BridgeWare & Quest logging
  - Create new Ecometry Environment on Target
  - Backup Production Data and send to Ecometry
  - Data returned for test account
  - Enable logging on MPE/ix system
  - Run initial migration to new platform
  - Run Migration and Validate Data
    - Run Ecometry reports to validate data
    - Run incremental migration & validate data
- Third Week: Installer With You for Go-Live



Migration

# Migration Option 3

hp e3000 transition solutions



- Migration Toolkit and Support & 3 weeks on-site
- First Two Weeks Includes:
  - Install BridgeWare & Quest logging
  - Create new Ecometry Environment on Target
  - Copy Production to Test on your system
  - Enable logging on MPE/ix system
  - Run initial migration to new platform
  - Run Migration and Validate Data
    - Run Ecometry reports to validate data
    - Run incremental migration & validate data
- Third Week: Installer With You for Go-Live

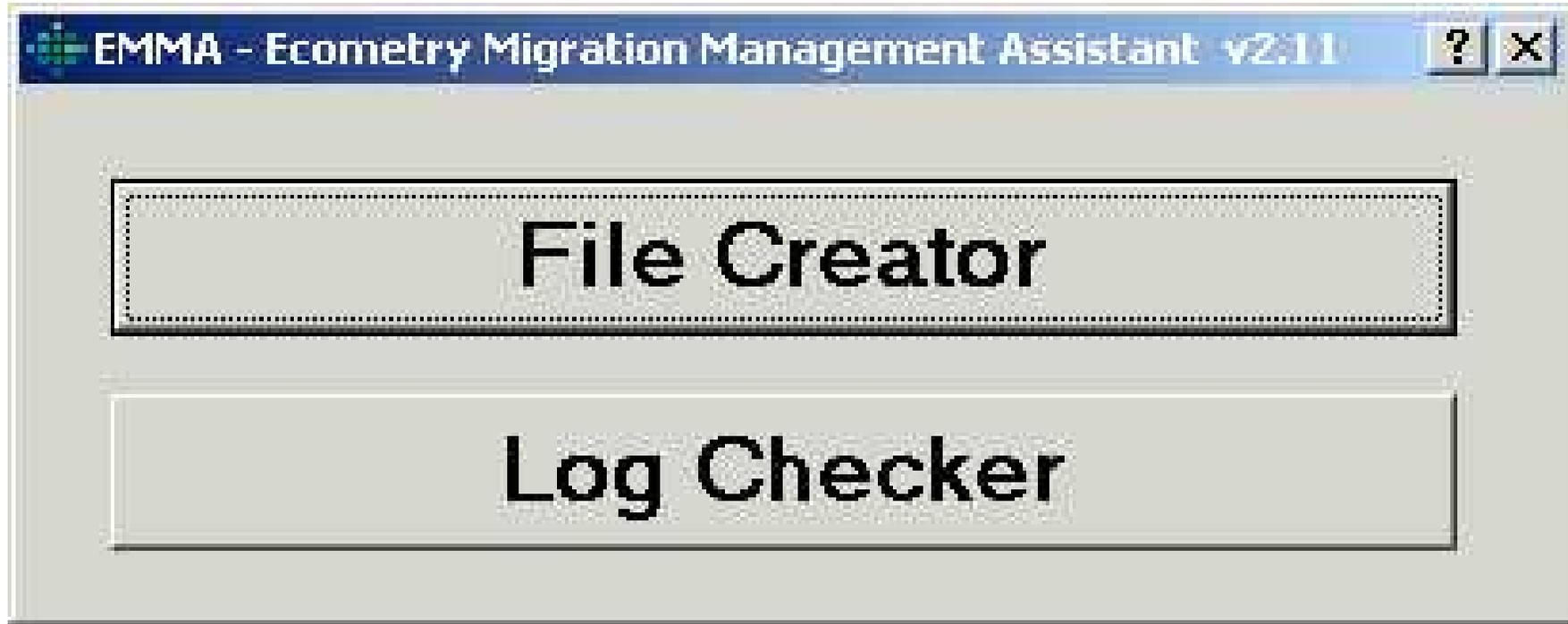


Migration



# Migration Assistant

hp e3000 transition solutions



# Migration Assistant

hp e3000 transition solutions



**EMMA File Creator** [X]

Program

**Select A Procedure**  
 Initial  Incremental

**Select A Version**  
 5.3  5.4

**Select A Target Platform**  
 Unix  Windows

**Select A Database Platform**  
 Oracle  SQL Server

MPE hostname or IP address:

MGR Password:

MPE account name:

Account Password:

Target hostname or IP address:

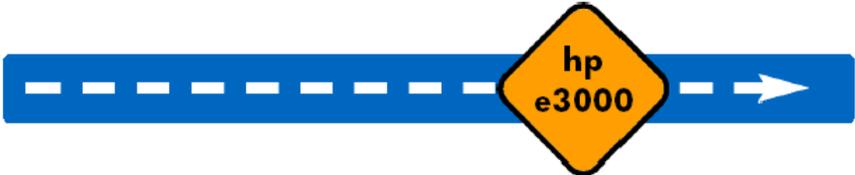
Target account name:

Choose a migration name:

Oracle Home:

Taurus Install Path:

**Create Files**



# Migration Assistant

hp e3000 transition solutions



Condor\_Test to Switch\_Live\_20030224

MPE Database	MPE Dataset	MPE Capacity	Reads	Writes	Updates	Deletes	Errors	Time(hr:mm)
MACMAN.MACSDATA.Test	ORDER-MSTR	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	FEDEX-MAST	1	1	1	0	0	0	0:00
MACMAN.MACSDATA.Test	MANIFEST-MAST	3,704	3,704	3,704	0	0	0	0:00
MACMAN.MACSDATA.Test	MANIFEST-ENTRIES	1,001,260	1,001,260	1,001,260	0	0	0	0:21
MACMAN.MACSDATA.Test	FEDEX-ENTRIES	4	4	4	0	0	0	0:00
MACMAN.MACSDATA.Test	FX-ROUTING-MSTR	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	AIRBORNE-MAST	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	AIRBORNE-ENTRIES	4	4	4	0	0	0	0:00
MACMAN.MACSDATA.Test	AB-ROUTING-MSTR	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	AB-ROUTING-DETL	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	FX-ROUT-DETAIL	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	WAREHOUSE-MASTER	14	14	14	0	0	0	0:00
MACMAN.MACSDATA.Test	SHIPPER-DATA	301	301	301	0	0	0	0:00
MACMAN.MACSDATA.Test	SHIP-METHODS	102	102	102	0	0	0	0:00
MACMAN.MACSDATA.Test	UPS-ROUT-DETAIL	24,499	24,499	24,499	0	0	0	0:01
MACMAN.MACSDATA.Test	CALENDAR	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	DUTIES	0	0	0	0	0	0	0:00
MACMAN.MACSDATA.Test	UPSURC	42,044	42,044	42,044	0	0	0	0:00
MACMAN.MACSDATA.Test	USPSSDU	0	0	0	0	0	0	0:00
Totals:			1,071,933	1,071,933	0	0	0	0:22
MACORD.MACSDATA.Test	CUSTOMERS	815,087	815,087	815,087	0	0	0	0:14
MACORD.MACSDATA.Test	OH-ADDITIONS	19,357	19,357	19,357	0	0	0	0:00
MACORD.MACSDATA.Test	PICK-LOT-HEADER	295,574	295,574	295,574	0	0	0	0:05
MACORD.MACSDATA.Test	STANDING-HEADER	0	0	0	0	0	0	0:00
MACORD.MACSDATA.Test	ORDER-BATCH	0	0	0	0	0	0	0:00
MACORD.MACSDATA.Test	CUSTOMER-ADDL	217,336	217,336	217,336	0	0	0	0:03
MACORD.MACSDATA.Test	CUSTOMER-PHONE	639,059	639,059	639,059	0	0	0	0:09
MACORD.MACSDATA.Test	CUSTOMER-COMP	864,017	864,017	864,017	0	0	0	0:14
MACORD.MACSDATA.Test	CUSTOMER-DEMO	358,463	358,463	358,463	0	0	0	0:05
MACORD.MACSDATA.Test	CUSTOMER-PROMO	0	0	0	0	0	0	0:00
MACORD.MACSDATA.Test	CUST-XREF	707,784	707,784	707,784	0	0	0	0:09
MACORD.MACSDATA.Test	ORDER-HEADER	737,797	737,797	737,797	0	0	0	0:14
MACORD.MACSDATA.Test	ORDER-SUB-HEAD	1,624,437	1,624,437	1,624,437	0	0	0	0:30
MACORD.MACSDATA.Test	ORDER-COMMENTS	259,840	259,840	259,840	0	0	0	0:03
MACORD.MACSDATA.Test	FINANCIAL-ORDER	3,292,583	3,292,583	3,292,583	0	0	0	0:54
MACORD.MACSDATA.Test	ACCT-COMMENTS	61,156	61,156	61,156	0	0	0	0:01
MACORD.MACSDATA.Test	CUSTOMIZATION	266,087	266,087	266,087	0	0	0	0:03
MACORD.MACSDATA.Test	BO-FILE	1,874	1,874	1,874	0	0	0	0:00
MACORD.MACSDATA.Test	ACTIONS	324,960	324,960	324,960	0	0	0	0:05
MACORD.MACSDATA.Test	CREDIT-APPROVAL	76,334	76,334	76,334	0	0	0	0:01





# Ecometry Migration Costs

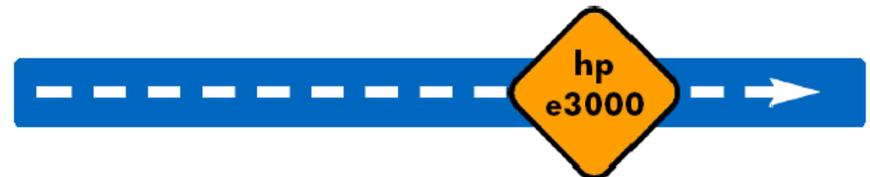


# Migration Toolkit Costs

hp e3000 transition solutions



- Source MPE/iX System determines pricing tier
- **Micro** — 917LX, 918, 928, 937LX/RX/SX, 957LX/RX/SX, 967RX/SX  
A400-100-110-150
- **Workgroup** — 929KS/020, 929KS/030, 939KS, 939KS/020, 968, 977SX, 978,  
980/100, A500-100-140, A500-200-200
- **Midrange** — 969KS/100, 969/120, 969KS/200, 979KS/100/200/300,  
980/100/200/300/400, 987/150/200 RX/SX, 988, 989KS/100, 997/300/400, N4000-100-  
220, N4000-100-380
- **Enterprise** — 969KS/420, 979KS/400, 989KS/150/200/250/350/450/650,  
997/300/400/800, N4000-100-440, N4000-200-440



# Migration Toolkit Cost (Micro)

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	3 months	6 months	9 months
Option 1	\$19,320	\$24,504	\$28,824
Option 2	\$44,536	\$49,850	\$54,728
Option 3	\$34,536	\$39,855	\$44,278

- T & E cost not included
- Additional months \$2,663 plus T&E



# Migration Toolkit Cost (Workgroup)

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	3 months	6 months	9 months
Option 1	\$26,520	\$36,024	\$43,944
Option 2	\$52,096	\$61,946	\$70,154
Option 3	\$42,096	\$51,951	\$60,154

- T & E cost not included
- Additional months \$5,435 plus T&E



# Migration Toolkit Cost (Midrange)

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	3 months	6 months	9 months
Option 1	\$30,000	\$53,304	\$66,624
Option 2	\$56,575	\$80,090	\$93,968
Option 3	\$46,575	\$70,095	\$83,968

- T & E cost not included
- Additional months \$9,593 plus T&E



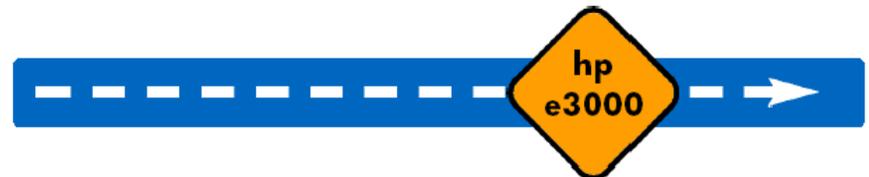
# Migration Toolkit Cost (Enterprise)

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	3 months	6 months	9 months
Option 1	\$35,000	\$64,824	\$81,744
Option 2	\$61,000	\$92,186	\$109,844
Option 3	\$51,000	\$82,191	\$99,844

- T & E cost not included
- Additional months \$12,365 plus T&E



# Migration Status

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- Ecometry Application Is Complete
  - Ecometry Running on HP/UX and Win2K
- Tools To Move Your Data Are Complete
  - Data Migration From Image to Oracle or SQL2K
- Ecometry Resources Are Available
- Partner Resources Are Available
  - Surround Code
  - Project Staffing
- Migrations Have Been Scheduled





# Lessons Learned Languages

HPe3000  
Transition Study  
Case Study



# A process for deciding language choices

hp e3000 transition solutions



- What applications
- Languages (and version) of each
- Number of lines of code
- Current maintainability of the code
- Inventory skill sets
  - Staff
  - Extended team
  - Understand recruit/retain strategy



# Challenges

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- Does the current application meet the future needs
- What does the application have for interfaces
  - Inputs
  - Outputs
  - Extracts from the application database/files
  - Are there parameters passed?
- How much documentation do you have
- Any test environment/methodology?
- All at once or application at a time



# Scenario 1

hp e3000 transition solutions



- Inventory done
  - Cobol - ~250,000 LOC
  - Some Speedware (version 7.5) for screens 90K LOC
  - IIS, VB, Visual Studio, Delphi, Powerbuilder, Interbase, DOS-Clipper with DBF formats
- No Source control
- No HP9000 experience
- Thinking C# or Java
- 22 Staff members
  - Limited project availability
  - Need HR to be involved in recruit/retain scenario



# Short term solution 1

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- Using OS & DB emulation for low impact migration
- Focus on moving what they have
  - Cobol to MF Cobol
  - Speedware to Speedware
- Rationalize the other languages and schedule for replacement
- Lots of training of HP9000/Oracle + MF Cobol
  - Train early
- Adding DBA resources
  - Considering contract (have 1 person now at Jr level)
  - Will evaluate Oracle tools



# Long term solution 1

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- Move to native interfaces
- Move to Java or C#
- Risks
- Changing languages



# Scenario 2

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- Inventory done
  - Old Cobol packaged app
  - Does not meet needs going forward
  - Difficult to maintain
- No Source control - Customization
- No Windows development experience
  - Go with VB or try out .NET with C#
- Looking at package plus customization
- Current code not well documented
  - Original Author not there
  - No diagrams for workflow



# Solution 2

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- Will hire new staff for development
- Current staff will maintain old system for next 2 years
  - Training plan for programmers
  - Training plan for operators
- Will need to get programming team leader
  - Experienced in C# or Visual Studio/SQLServer
  - Need SQLServer literate person
- Significant change in budget compared to maintenance mode
- Trying to sell to management by change in cost curve



# Summary slide

hp e3000 transition solutions



- Languages are essential to programming
  - Skills inventory are required
  - Condition of Code & Documentation
  - Test environment/methods





**i n v e n t**