Enterprise Application Performance

Lower Cost of Ownership with HP Itanium 2 Technology

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Introduction

- Kyle Gunderson
  - Development Director, Lawson Technology
    - Web Tier and Application Server Technology
    - Platform Qualifications
    - Development Performance Analysis

Agenda

- Introduction to Lawson Software
- Lawson enterprise on HP technology
  - Why Itanium
- Value of HP Itanium technology to IT organizations
- Lawson adoption of HP Itanium technology
  - Case study of Itanium technology qualification
- Lawson enterprise performance on HP Itanium technology
- Conclusions
- Questions and Answers

Lawson Software

Company Overview

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Lawson Software

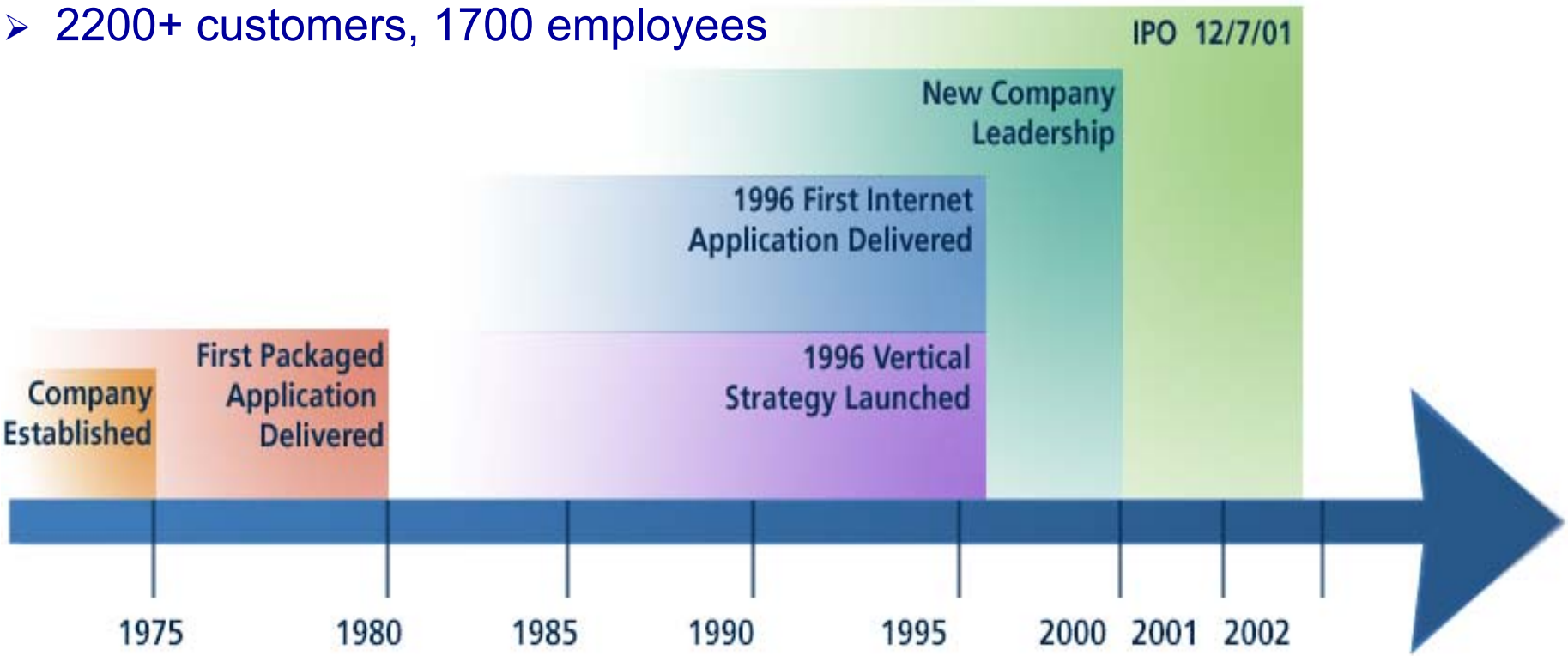
- Who we are
  - Our History
- What we do
  - Industry leading applications
  - Vertical market focus
- Our Technology
  - Open adaptable architecture

Company overview

- Open and adaptable architecture have always been the foundation for our technology
  - Protect customer investment in current technology
  - Support adoption on new technology in the future
- Establish and maintain long-term customer partnerships
- Anticipating and responding to industry technology evolution with a strong open architecture
  - Mainframe to midrange to client/server to the internet our technology has allowed us to adapt and grow
  - In 1996 ComputerWorld recognized Lawson as the first client/server vendor to extend access to its applications to the internet.
- With HP Itanium 2 Lawson is again leading the way in the adoption of industry leading technology

Company history

- Leading provider of enterprise software applications
- Focused on delivering operational excellence for service sector companies
- 27-year history
- 2200+ customers, 1700 employees



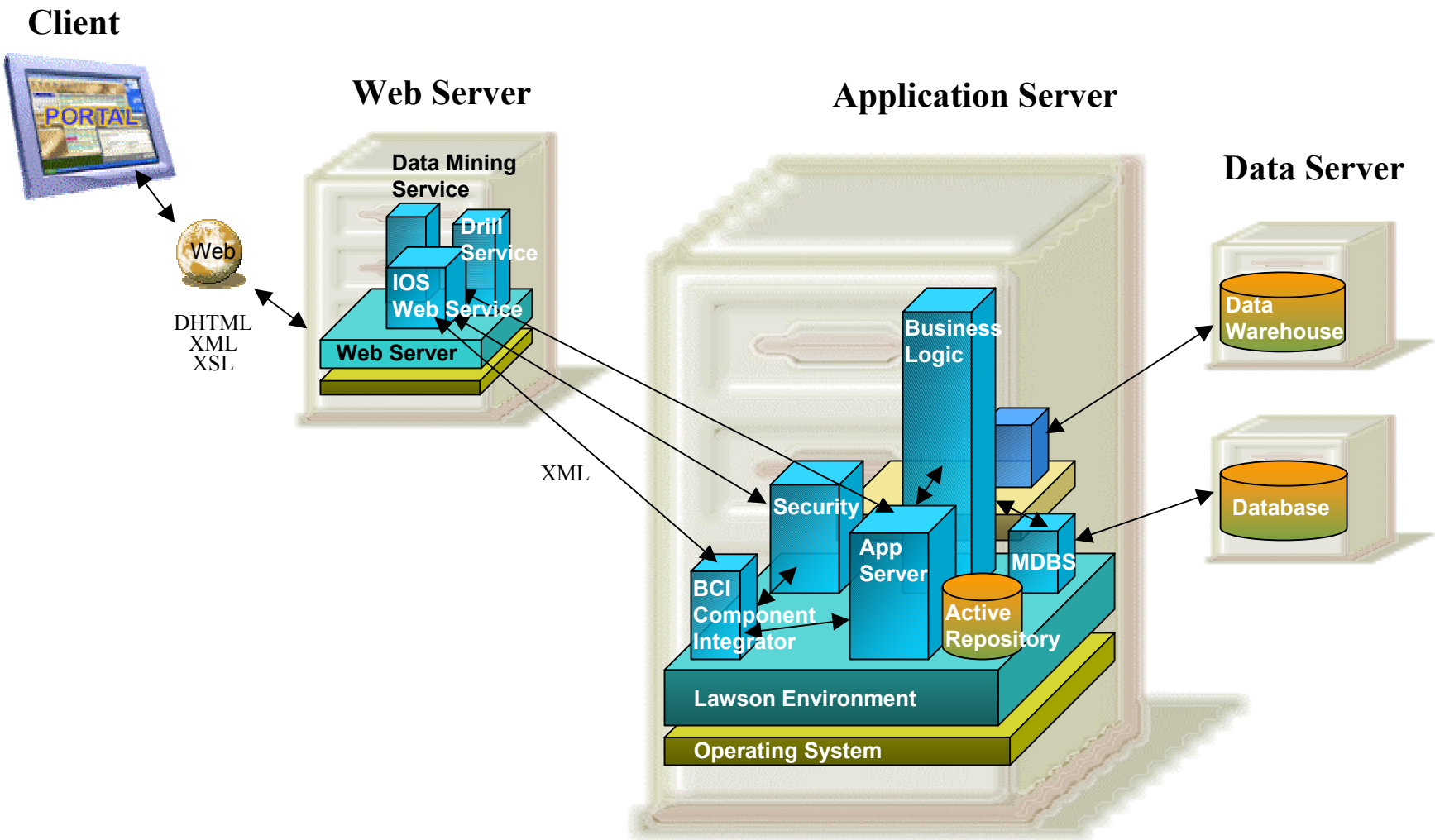
Lawson solutions

- Provide superior business software featuring in depth vertical functionality
- Vertical Market Focus
  - Healthcare – Market leader
  - Retail
  - Service Process Optimization (SPO)
- Core “back-office” Solutions
  - Human Resources Management
  - Financial Systems
  - Supply Chain and Procurement

Lawson technology principles

- Lawson has an open adaptable architecture model
  - Multi tier system architecture featuring layers for client presentation, web tier, application server, and database.
  - Separation of concerns where the components for different tiers interact yet exist separately
  - Strong platform and technology abstraction
  - Meta data driven active repository
- Architecture supported the creation of Lawson's unique pure internet solution featuring a browser based thin client
- Support for industry leading databases, hardware, and operating systems
- Allows Lawson to adopt new technologies like HP Itanium2 to offer our customers superior solutions

Architectural overview



Lawson Enterprise on HP Technology

Why take the enterprise to Itanium?

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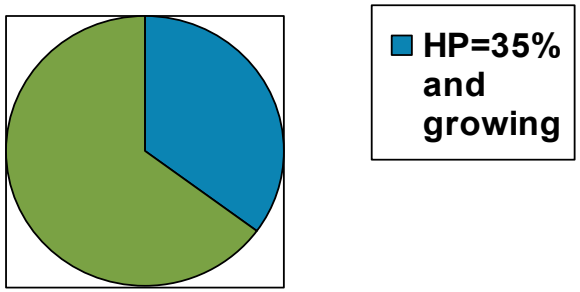
Lawson Solutions on HP Technology

- Partnership between Lawson and HP to provide enterprise solutions on HP technology
- Lawson has long supported HP-UX on PA-RISC
- Lawson also offers for HP Tru64 AlphaServer
- Lawson will now support the new HP Itanium 2 Technology
  - Why has Lawson decided to support Itanium
    - Partnership with HP
    - Price to performance characteristics
    - Market adoption

The world has changed

World wide UNIX Server shipments



#1 in LINUX server shipments

#1 in Windows server shipments

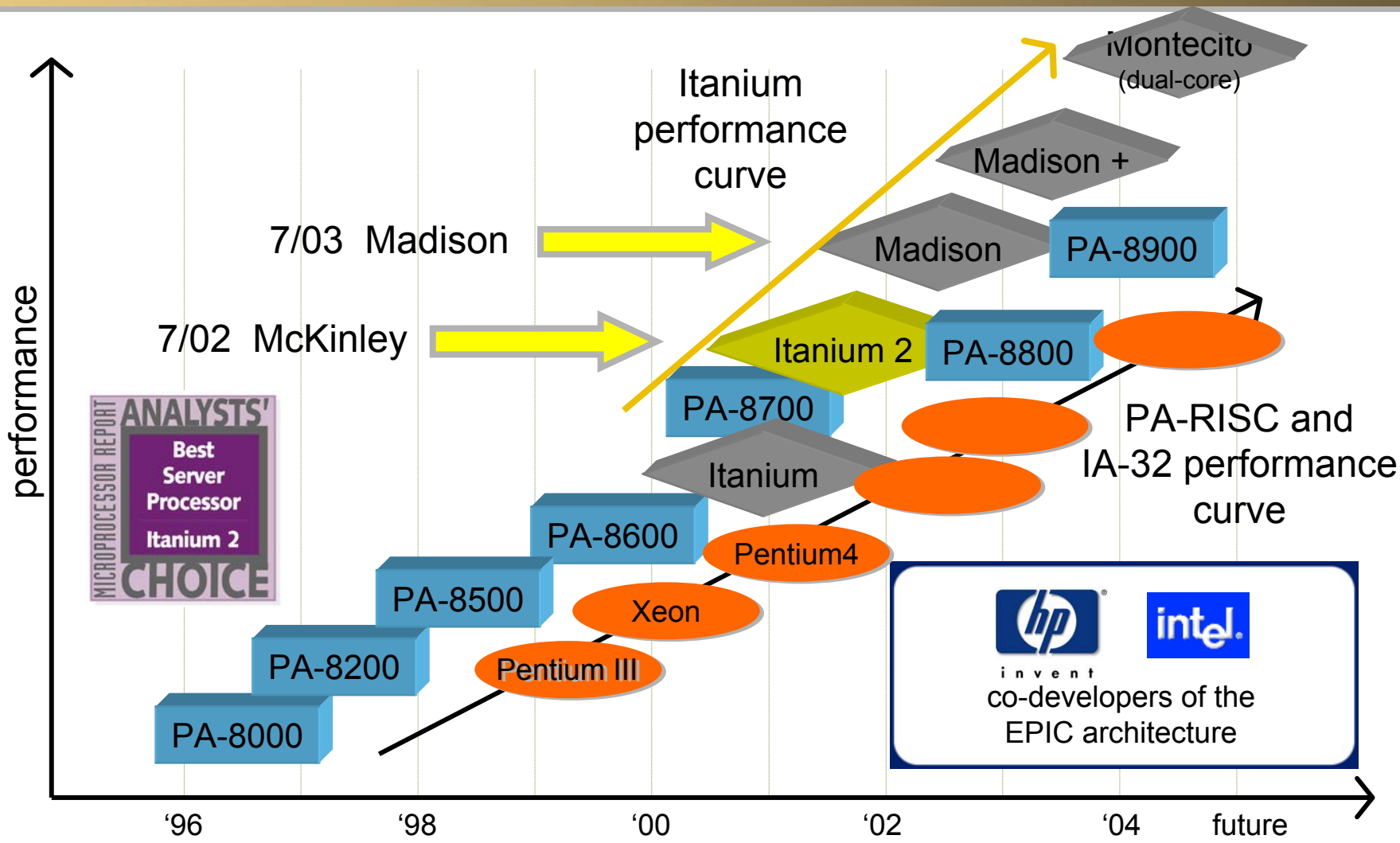
#1 in UNIX server shipments

- HP is committed to Itanium Technology
- Full product line available – 2 to 64 way
- Operating system enterprise ready
- Demand for Itanium processors growing

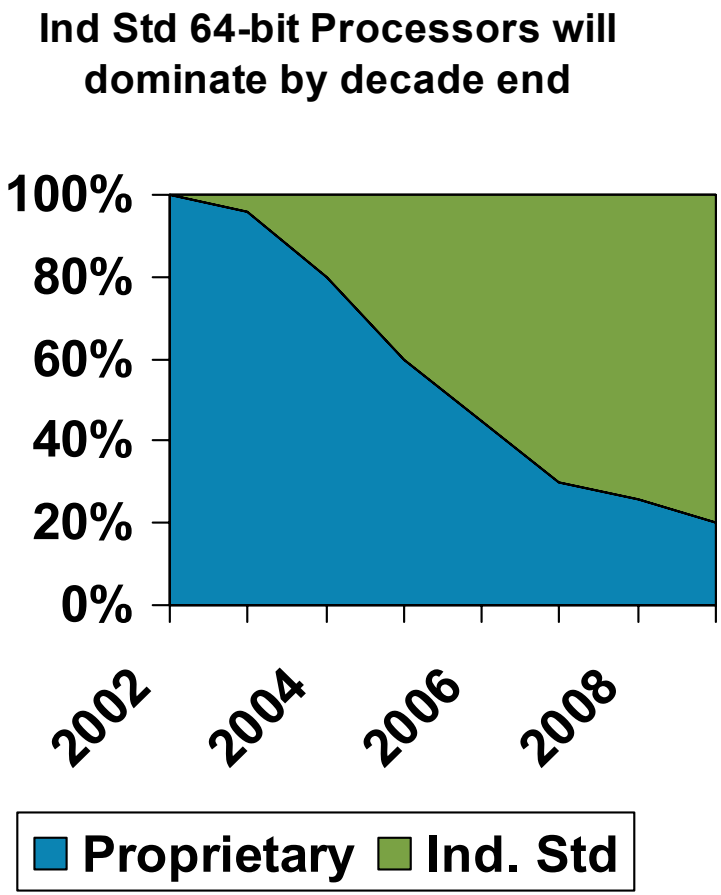
Why Itanium?

- Today's processor architectures are limited
  - Processor architecture advances of RISC no longer growing at the rate seen in the 1980s –1990s
  - Complexity of certain workloads exceeding IA-32's capabilities
  - Demand for greater performance e.g. more real-time processing in commercial applications
  - Ongoing needs of business:
    - greater flexibility
    - better price/performance
    - industry standards
- Itanium price / performance profile

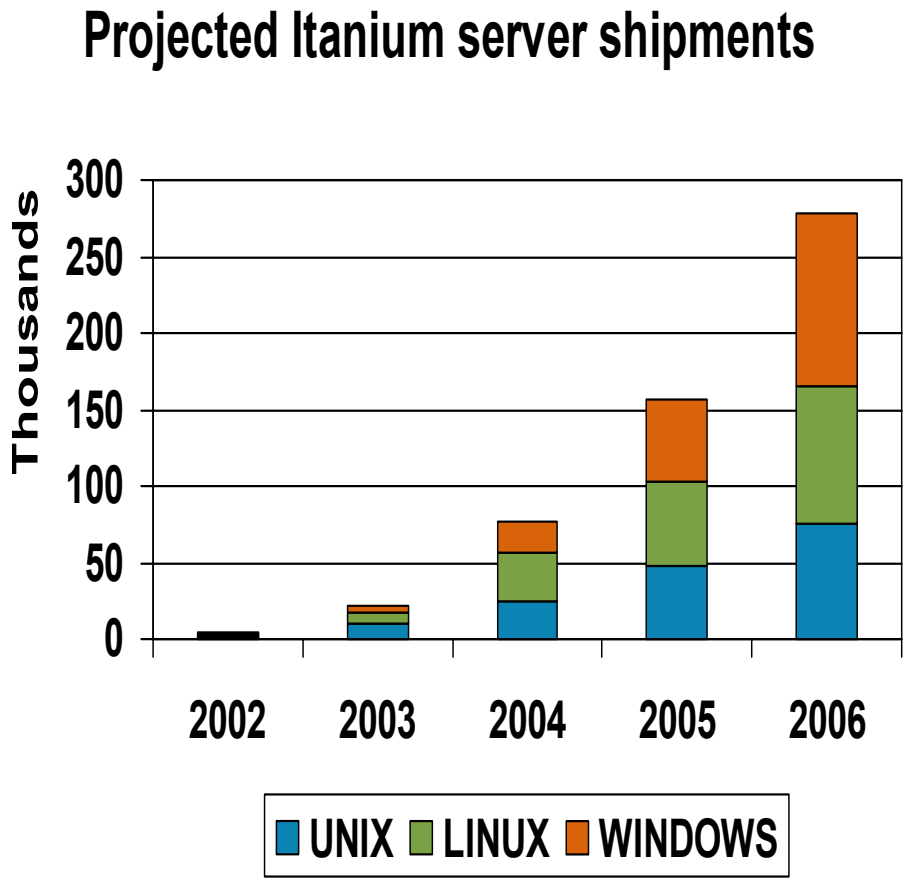
Chip Performance & Price/Performance is compelling Itanium® moving ahead of the pack



Future Looks Bright



Source: Insight 64 September 02



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HP Itanium 2 Technology

Value to the IT Organization

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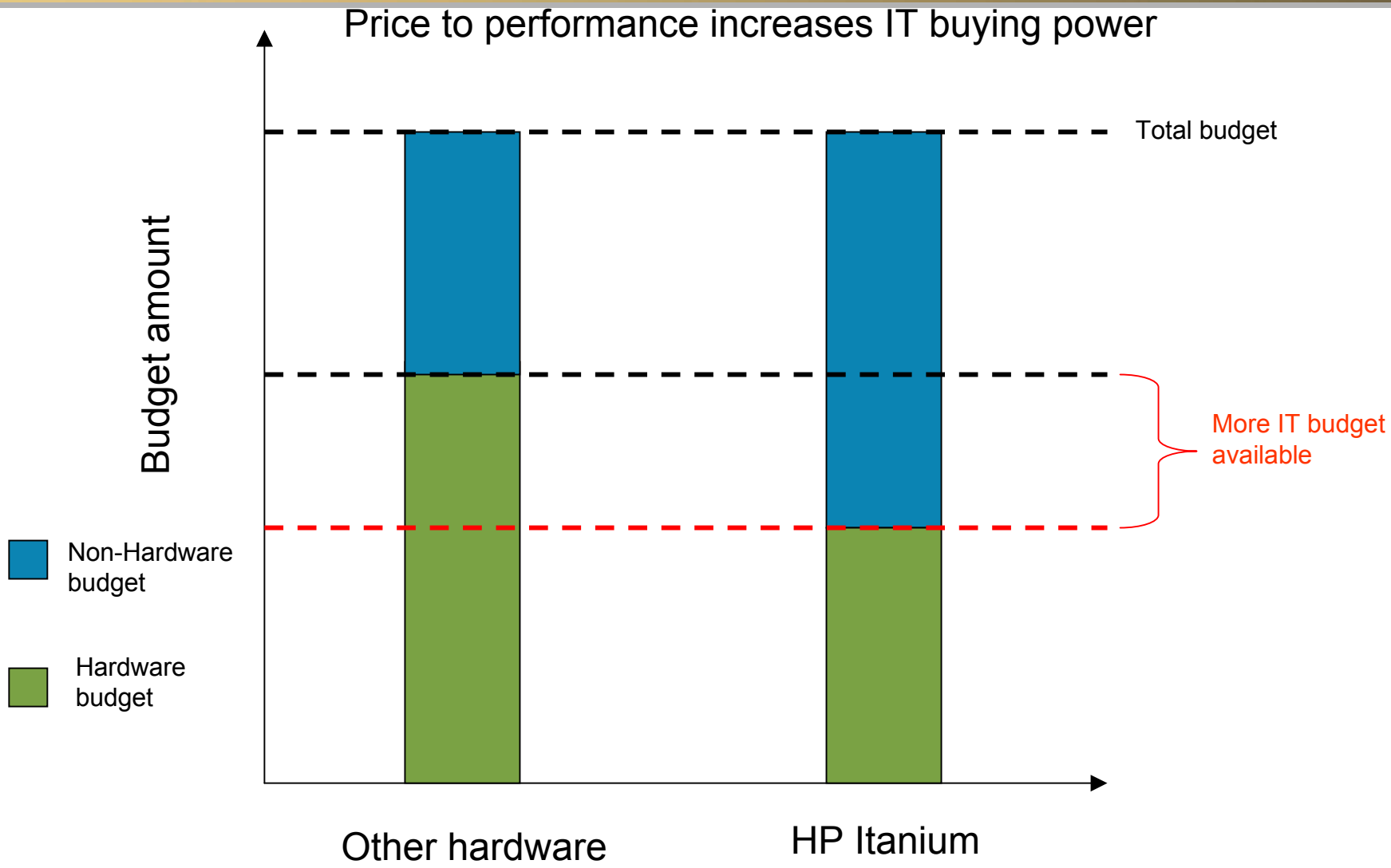
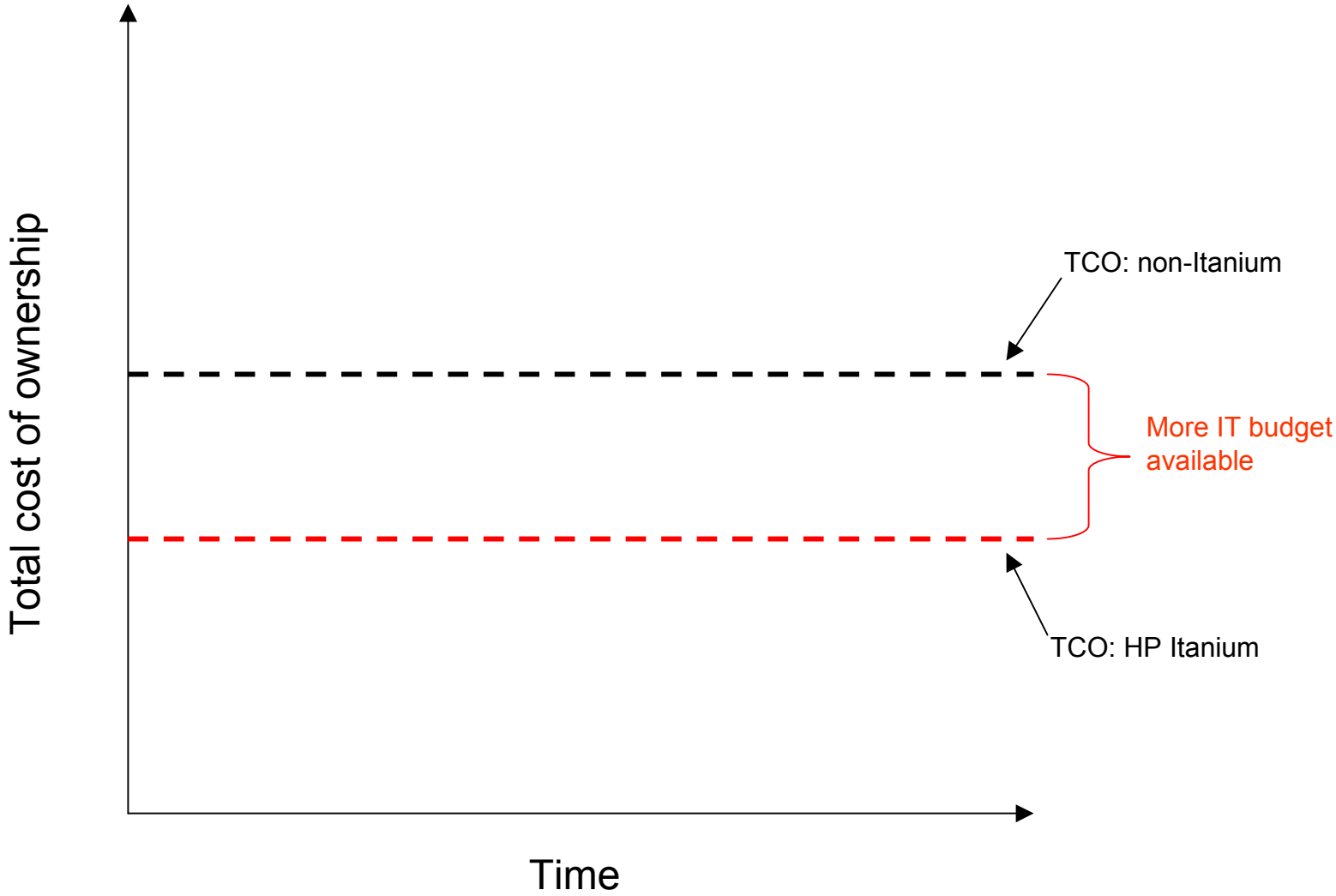
Itanium value to IT organization

- Price Performance Increases with Itanium
  - More buying power in IT budget
- Lower total cost of ownership
  - You will get a lower total cost of ownership over time and have a bigger budget for future hardware and software acquisitions than if you were running on a platform other than HP Itanium (per HP)
- Your Enterprise solutions are expected to perform and scale better and faster by running on the HP Itanium platform

Price performance with Itanium 2



Lower total cost of ownership



Taking the Enterprise to HP Itanium

- Lawson is firmly committed to serving the HP Itanium platform; a major industry innovation
- Demonstrates Lawson's commitment to HP and technology advances, and HP's commitment to Lawson
- As is an early technology adopter Lawson continues to be at the forefront of technology changes
- Lawson performance and scalability is expected to increase for large customers (all customers) on HP Itanium
- Demonstrates commitment to customers and partners

Lawson Solutions on Itanium Technology

A Case Study in Technology Qualification

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Itanium adoption background

- Lawson has long supported HP platforms
  - HP-UX on PA-RISC Technology
  - HP Tru64 AlphaServer
- Approached by HP to add HP-UX on Itanium as a supported platform
- HP provided technical resources to help with adoption
- Initiated Itanium technology qualification and value proposition analysis in spring 2003
- Completed qualification activities in summer of 2003
- Final certification and software availability planned by year end 2003

Itanium technology qualification

- Used Lawson's existing HP-UX code base as foundation for port
- Three key source code elements of the Lawson system that were built on Itanium as part of the qualification
  - Technology framework
  - Application source
  - Open source utilities
- Port of open source utilities proved to be most challenging
- Technology framework components built with few code modifications
- Applications compiled without issue

Itanium technology qualification

- Compilation of technology framework components written in C, C++, and Java
  - Version HP C++/ANSI C B3910B A.05.41 used to compile C / C++ code
  - Few code modifications required
    - Changes to use of memory management api's
    - Stronger enforcement of syntax by compilers
    - As a result code base was improved
  - Default optimization level 1 on Itanium vs. 0 on PA-RISC
  - Java components build cleanly with JDK 1.3.1
- Enterprise application components written in Cobol
  - Version PRN=RXCAE/BMC:9f.j4.22.01 of the Microfocus Server Express compiler available for Itanium was used to compile applications

Itanium technology qualification

- Initial qualification performed on a 4 CPU machine using McKinley chip running HP-UX 11.22
- Final certification and release planned on Madison chip running HP-UX 11.23
  - Taking delivery from HP of Itanium with Madison chip and HP-UX 11.23 early August of 2003
  - Planned release and availability for fall of 2003

Third Party Software

- Lawson requires a core set of third party software to support its Enterprise Application Technology
- The following components have been qualified and are available on Itanium 2 Technology
  - Oracle 9.2 Database
  - MicroFocus Server Express Cobol compiler 2.2 PRN 22.01
  - BSI Tax Factory 6.0
  - Vertex
  - Apache web server 2.0
  - Tomcat servlet container 4.0.6
- Lawson will continue to add third party software options as they become available from the vendors

General impressions

- Itanium with McKinley chip and HP-UX 11.22 OS has been very stable
  - Expect no impact moving to Madison and HP-UX 11.23
- System and Lawson administration virtually identical to HP-UX 11.x on PA-RISC
- HP partnership and technical assistance was outstanding during the Itanium qualification activities
- Impressive system performance
- Port of Lawson system code to Itanium very straight forward
- Lawson is able to run its Enterprise Application suites and core Technologies on the new Itanium 2 processor

Lawson product plans

- Itanium HP-UX 11.23 operating system on Madison chip
- Lawson will be supporting 8.0.3 Technology and Applications on HP Itanium by year end 2003
- Lawson will continue to expand its product portfolio offering on HP Itanium technology

Product availability

PRODUCT	VERSION
Environment UNIX (LIUE)	8.0.3
LIDE (Lawson Desktop Environment)	8.0.1.3
MicroFocus Server Express w/LIUE	MicroFocus Server Express 2.2 PRN 22.01
Internet Object Services (IOS)	8.0.3
Lawson Portal	3.1.0
Design Studio	3.1.0
BSI TaxFactory	6.0j
BSI Canada	6.0
Lawson HR, Financials, Procurement and Distribution Applications	8.0.3
Vertex	
Lawson standard Self-service centers	8.0.3.X
Lawson Portal Self-service centers	8.0.3.X
Oracle	9.2
Apache/Tomcat	2.0 / 4.0.6

Lawson Enterprise Applications

Performance on Itanium Technology

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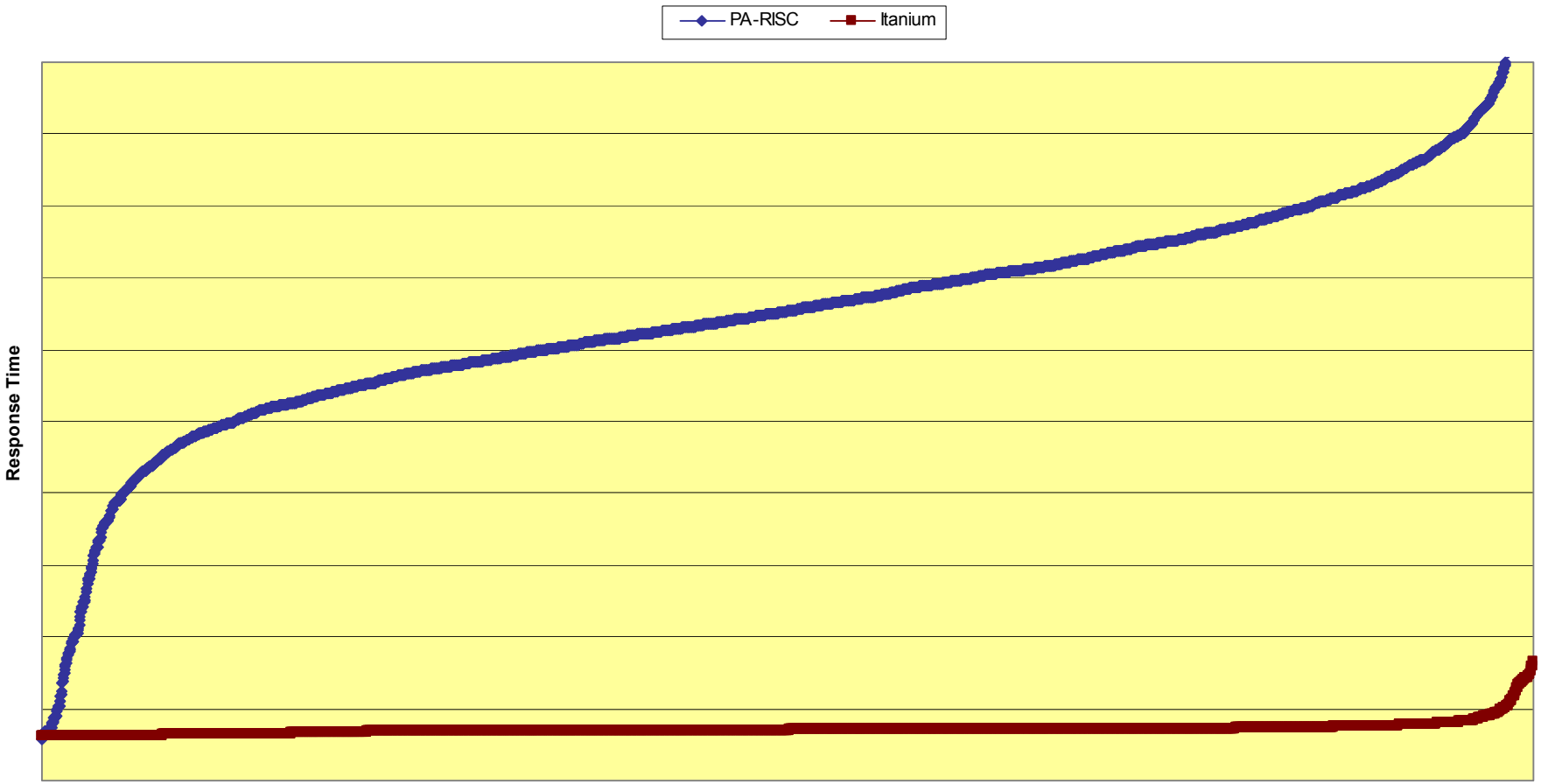
Performance measurement

- During the qualification of Itanium 2 technology tremendous response times were observed
  - Online and batch transactions
  - System activities including system compile and build
- Given similar response times the Itanium 2 has the capacity to support significant gains in transactional volumes
  - Generated larger volumes for payroll and employee master applications in testing
- Performance data from development and qualification activities
  - Not generated by System Performance Analysis team
  - Benchmarking and sizing information performed near release date

Response time analysis



Performance characteristics

- Improved Performance over PA-RISC
- C compiler optimization for Itanium defaults to level 1 vs. default of level 0 for PA-RISC
  - In some cases have seen dramatic performance improvements, nearly 10X, from level 0 to level 1
- Anecdotal Evidence
  - Qualification team – “fastest development machine”
  - Itanium primary platform for performance testing
  - Have not found upper limit with internal load testing utilities
  - Application developer experience
- Executed Load tests with Firehose utility
  - Forced to reevaluate development load testing

Itanium performance architecture

- Several factors contribute to improved Enterprise Application performance
  - It all starts with the Itanium processor
  - Compilers are optimized for Itanium
    - HP C / C++ compilers
    - MicroFocus Server Express Cobol compiler
    - Java JDK / JVM
  - Oracle database optimized for Itanium
- All layers of the enterprise architecture are optimized for Itanium: Web Tier, Environment, Applications, and Database

What does it all mean?

Conclusions

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Conclusion

- Lawson, an industry leader in Enterprise Application software, is committed to offering solutions on Itanium
- HP Itanium 2 Technology offers superior cost of ownership and price performance
- Itanium technology qualification enabled by Lawson's flexible architecture and HP-UX 11.22 operating system
  - Stable high performance operating system on Itanium
- Lawson expects significantly improve enterprise application performance on HP Itanium technology
- Combination of Lawson and HP Itanium technology provides enterprise application performance with lower cost of ownership

Lawson at HP World 2003

More information about Lawson

- Visit Lawson at HP World booth 337 in the exhibit hall
  - See live demo on HP Itanium 2 technology
  - Learn more about Lawson's applications and technology
  - Sign up for prize drawing

Questions and Answers

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