



IBM eServer iSeries

Oracle on System i5

Doug Mack
mackd@us.ibm.com

8 Copyright IBM Corporation, 2005. All Rights Reserved.
This publication may refer to products that are not currently available in your country. IBM makes no commitment to make available any products referred to herein.

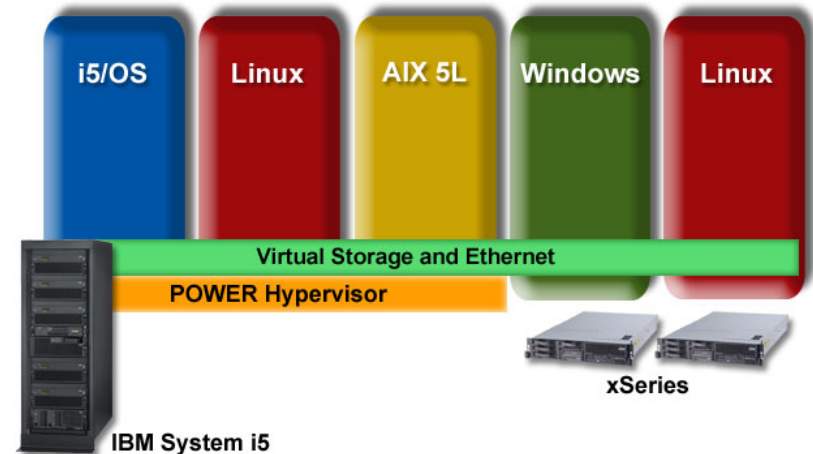
why "i"? it's simple.

Agenda

- System i5
- What is Oracle
- How do Oracle and System i5 relate ?

IBM's System i5: The Consolidation Point

- Reduce complexity and costs
 - Pool your resources by managing multiple environments on a single server
- Handle constant changes
 - Automatically respond to changes in processor demand with logical partitioning
- Save time and money
 - Simplify management of IT resources with storage virtualization
- Increase business agility
 - Expand with broad application portfolio
- Deliver business continuity
 - Protect consolidated resources

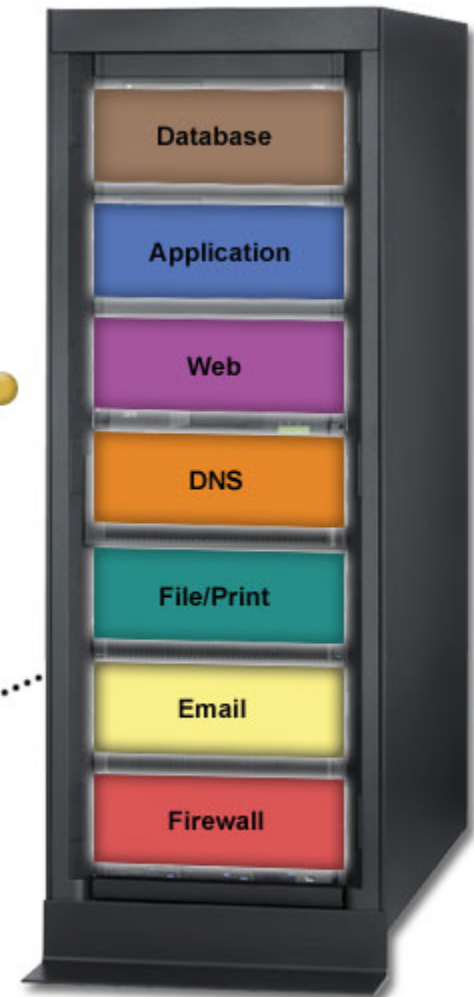
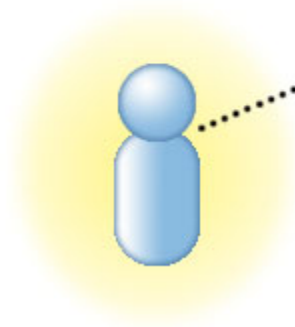
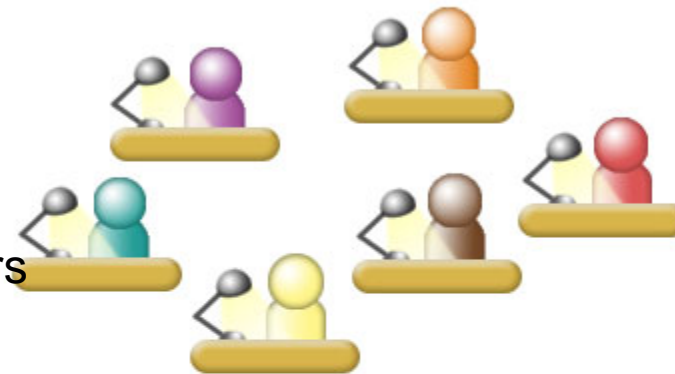


“As well as consolidating physical servers, the iSeries provides an easy way to integrate multiple environments. iSeries is the ultimate server for integration, and it has delivered immediate and significant advantages.”

Jan van de Straat, Director of R&D
Gemeente Harlem

The Value of Virtualization

- Reduce costs by increasing asset utilization
- Redeploy talent to manage your business, not your infrastructure
- Rapidly provision new servers
- Drive new levels of IT staff productivity
- Simplify server management and operations

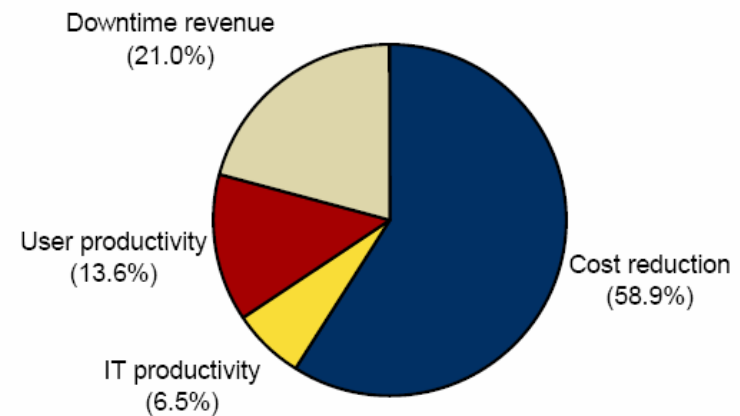




ROI of Infrastructure Simplification

- **IDC studied 12 companies in the United States, Europe, and AP that had deployed iSeries systems to run i5/OS, AIX 5L, Linux & Windows**
- ✓ **3-year ROI of 258% with payback under six months**
- ✓ **Hard cost savings were generated almost immediately**
- ✓ **Reduced downtime significantly, improving availability of applications to end users**
- ✓ **Productivity improved in all areas**
 - 68% in operations
 - 52% in server support

Total Three-Year Cost Savings Analysis (per 100 Users)



Source: IDC, 2005

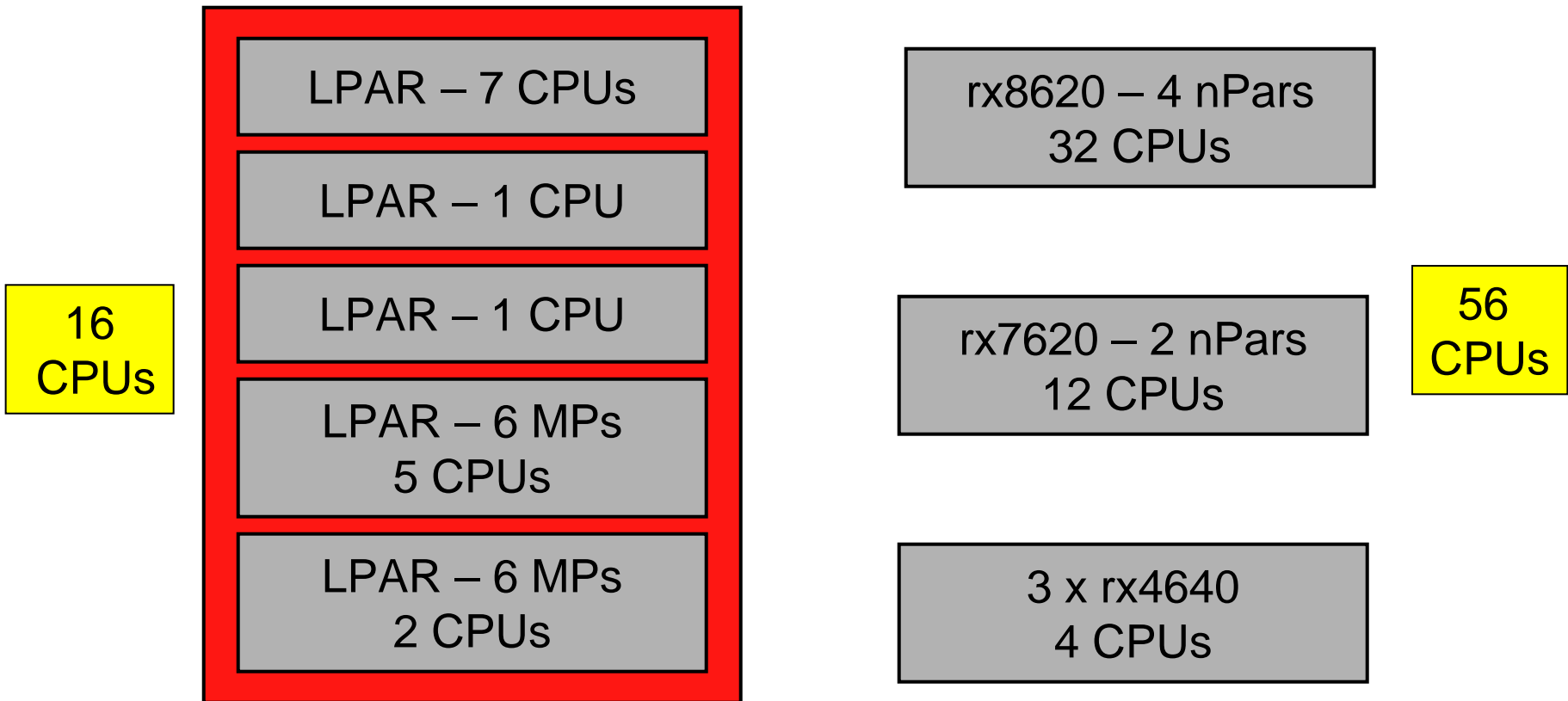
www.ibm.com/eserver/iseriis/idcroi

Source: IDC. *Infrastructure Simplification and the ROI of Consolidating Windows, Linux, and AIX 5L Applications on IBM eServer iSeries Systems*. White Paper Sponsored by: IBM. IDC Analysts: Jean S. Bozman & Randy Perry. September 2005

The Power of POWER5

System i5 570 1.65 GHz

HP Integrity 1.5/1.6 GHz



Source: "VALUE PROPOSITION FOR IBM eSERVER p5, Cost/Benefit Case for POWER5 Micro-Partitioning", International Technology Group, 7/2004

Based upon composite data from 42 different companies running SAP, Peoplesoft, Oracle Applications, Websphere in Manufacturing, Energy, Transportation, Financial Services, Business Services, Technology, Process, Retail and Healthcare industries

IBM p520, p550, p570; HP Integrity Superdome, rx8620, rx7620, rx4640; Sun Fire E2900, E4900 and E6900

What is Oracle?

- Database Products
 - Oracle 10g
 - Standard Edition One (2 CPU Max)
 - Standard Edition (4 CPU Max, includes limited use of RAC)
 - Enterprise Edition
 - Options
 - » RAC
 - » OLAP
 - » Advanced Security
 - » Partitioning
 - » Label Security
 - » Data Mining
 - Management Packs
 - » Diagnostics
 - » Tuning
 - » Change Management
 - » Configuration Management

What did 10G Bring to the Table?

- Claim Reduction of Administration Tasks by 50%
- Real Application Clusters (RAC)
 - Availability
 - Scalability
 - Affordability (well, hardware affordability)
- Grid Computing
 - If you use Oracle everywhere
- Features
 - Automated Storage Management (ASM)
 - Statistics about, and analysis of, SQL Statements
 - Auto Tuner (e.g., workload switch from OLTP to Batch)
 - Online Backup
 - Automated Patch Management
- Move of utilities previously provided by 3rd parties into Oracle

What Else?

- Oracle Application Server 10g
 - Similar to Websphere Application Server
 - Standard and Enterprise
 - Forms, Portal, Identity Management, Reporting Services, etc.
- Oracle e-Business Suite
 - Sales (e.g., Salesforce automation)
 - CRM (Siebel)
 - Retail (Retek)
 - Banking (i-flex)
 - Business Intelligence
 - Supply Chain
 - Procurement
 - Etc.

Oracle and IBM's System i5

- <http://www.oracle.com/technology/support/metalink/index.html>
- Oracle products are certified for AIX5L on whatever servers that IBM supports with AIX5L. This includes IBM eServer pSeries and iSeries servers. Please visit IBM's website at this URL for more information on AIX5L support for iSeries.
- AIX5L certifications include AIX5L versions 5.1, 5.2 and 5.3. 10g is ONLY certified on 5.2 and 5.3.
- Oracle Database 10g Announced for POWER LINUX

Oracle Announcements and Directions

- **Oracle will:**
 - Support PSFT and JDE install base until 2013
 - Support of IBM and Microsoft Database technology
 - PeopleSoft Enterprise: 8.9 in 2005 and 9.0 in 2006
 - JD Edwards E1: 8.11 in 2005 and 8.12 in 2006
 - JD Edwards World: on-going enhancements every 12-15 months
 - Extend support of JD Edwards OneWorld Xe until Feb 2007 (two additional years)

http://www.oracle.com/peoplesoft/psft_jde_commitment.html

Oracle's Strategic Solution - Project Fusion

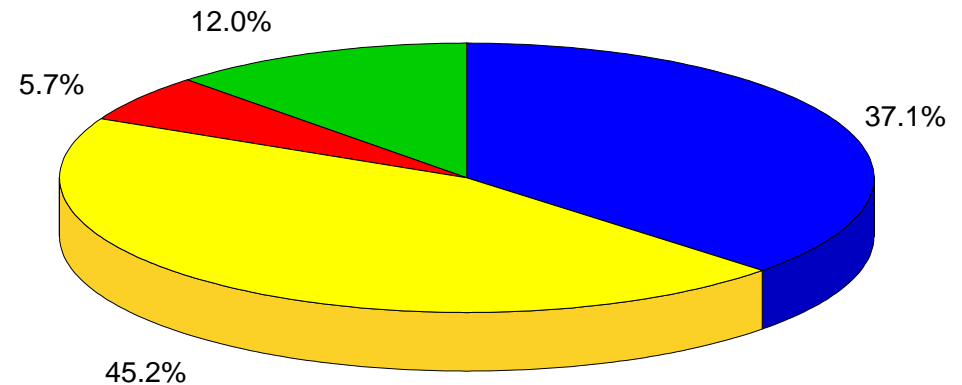
- **A successor product suite, a next generation application suite, completely standards-based (i.e. HTML and Java)**
- **Best features and usability characteristics from Oracle and PeopleSoft products in this new standards-based product set**
- **Based on Oracle Database**
- **2007: Individual Fusion applications**
- **2008: Fusion application suite**

iSeries Network 10-Second Survey – Results posted January 31, 2005

IF YOU WERE A JDE CUSTOMER, WHAT WOULD YOU DO?

iSeries Network Survey on 1/31/05

- Sit tight
- Other ERP on iSeries
- Move off iSeries
- Other ERP, any platform



Total: 558

These responses are from iSeries customers not necessarily JDE customers

I'd sit tight for now and wait to see how things play out — 37 percent (207 responses).

I'd be looking seriously at moving off the iSeries to another product in the Oracle/PeopleSoft/JDE family — 6 percent (32 responses).

I'd be considering migration offers from other ERP vendors that support the iSeries — 45 percent (252 responses).

I'd be considering migration to other ERP software, whether or not it supports the iSeries — 12 percent (67 responses).

IBM Support Teams for Oracle Applications

- IBM has the largest onsite presence
 - **International Competency Center**
 - 5 Oracle, 5 PeopleSoft, 5 JD Edwards
 - **Solutions Technical Sales (Benchmarks, Tests & Optimization)**
 - 10 total dedicated to Oracle / PeopleSoft / JD Edwards
 - **Techline Resources (Sizing, Configurations, Solution Assurance)**
 - 2 Oracle, 2 PeopleSoft, 2 EnterpriseOne/World
 - **Advanced Technical Team**
 - 4 Total dedicated to Oracle / PeopleSoft / JD Edwards

AIX is AIX

- What is the same?
 - AIX 5L Versions and Availability
 - Partitioning Capabilities
 - I/O Adapters supported
 - Performance - given same hardware configuration

- What is different?
 - Virtual Storage via i5/OS
 - Virtual Ethernet to i5/OS applications and Windows on IXS or xSeries/IXA
 - i5/OS integration: iSeries Navigator, BRMS
 - Selected AIX 5L LPPs (High Performance Computing) are not available for eServer i5
 - Some I/O Adapters available on eServer i5 are not supported by AIX 5L

- What ISV solutions are available on AIX 5L on eServer i5?
 - No unique eServer i5 certification program
 - Testing options are available (e.g. test drives, lease, SPCs)
 - Bottom line: it is the ISV's decision

AIX 5L on eServer i5

With the announcement of eServer p5 systems and the availability of AIX 5L v5.2ML4 and AIX 5L v5.3, customers, business partners and independent software vendors can deploy applications running on AIX 5L v5.2 or AIX 5L v5.3 on either eServer i5 or eServer p5 systems.

Since eServer i5 and eServer p5 are built with the same POWER5 processors and server technology, AIX 5L applications that run on eServer p5 can run on eServer i5 unchanged.

While most of the I/O options are the same between the i5 & p5, support is dependent upon specific I/O availability. You should verify that adapters running in AIX partitions on eServer i5 servers are utilizing I/O Adapters supported by AIX 5L.

Some selected AIX licensed program products are not available on eServer i5.

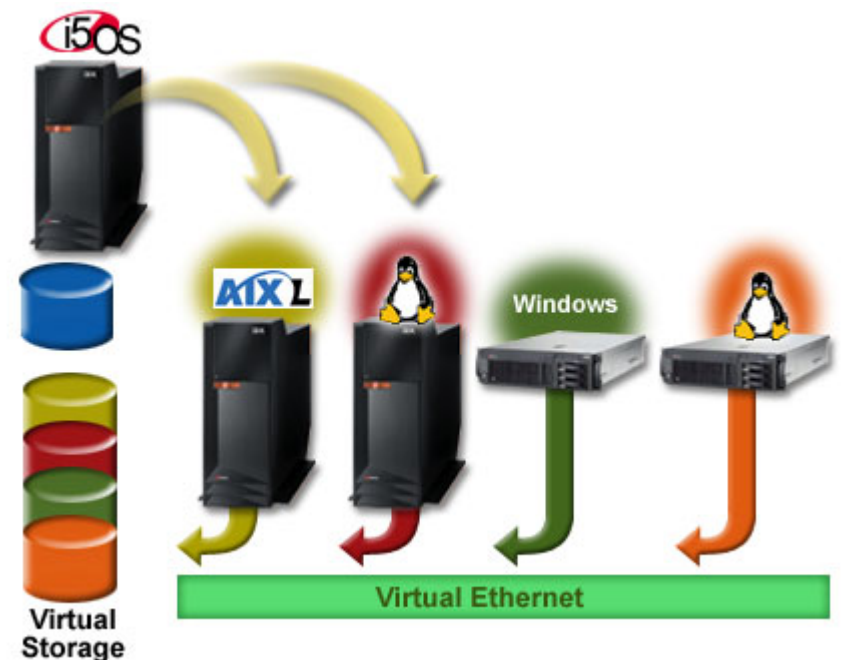
Innovative Technology

- **Logical Partitioning**

- Multiple Operating Systems
 - i5/OS V5R3
 - AIX 5L V5.3 or V5.2
 - Linux – Red Hat and Novell SUSE
- Micro-Partitioning
 - Up to 10 partitions per processor
- Automatic Processor Movement
- Dynamic Memory and I/O movement
- Hardware Management Console

- **I/O Flexibility**

- Virtual Storage and Ethernet
- Direct attachment options



Consolidation with LPAR

- ❑ Multiple independent logical systems (LPARs) in one physical server
- ❑ Each partition has its own
 - OS image
 - Console
 - CPU and memory
 - Physical or virtual I/O
- ❑ Managed with Hardware Management Console (HMC)
- ❑ Dynamic LPAR: move CPU, memory, physical and virtual I/O cards between LPARs while they are running
- ❑ AIX 5L supported in partition on all POWER5 models



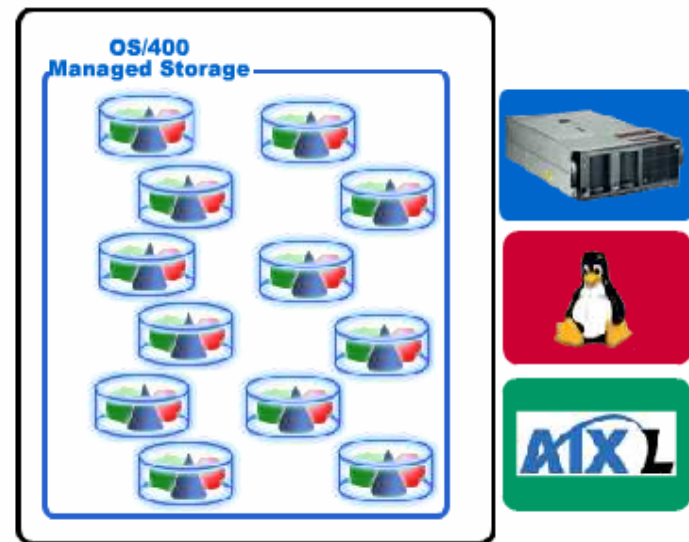
I/O Flexibility on eServer i5

- **Virtual I/O**

- I/O Adapters installed in i5/OS Partitions
 - Storage and Ethernet
- AIX 5L and Linux partitions use these resources
- Popular implementation choice
- Entire virtual disks (*hdisk* in AIX 5L) can be saved within i5/OS for *system-level* backups

- **Direct I/O**

- I/O Adapters can be installed in AIX 5L partitions



eServer i5 is also a UNIX Server

- **Runs same AIX 5L as eServer p5**
 - AIX 5L 5.3
 - Micro partitioning and virtual I/O
 - AIX 5L 5.2
 - Processor increments and direct I/O
- **For the same Price**
 - AIX 5L is priced Per Active Processor Running AIX 5L
- **At the same Performance**
 - AIX 5L performance on eServer i5 is equivalent to eServer p5 with the same configuration

Benchmarks	520 Results	550 Results
SPECfp2000	2138 (1 CPU)	2221 (1 CPU)
SPECfp_rate2000	43.0 (2 CPUs)	84.8 (4 CPUs)
SPECint2000	1248 (1 CPU)	1248 (1 CPU)
SPECint_rate2000	32.9 (2 CPUs)	65.5 (4 CPUs)

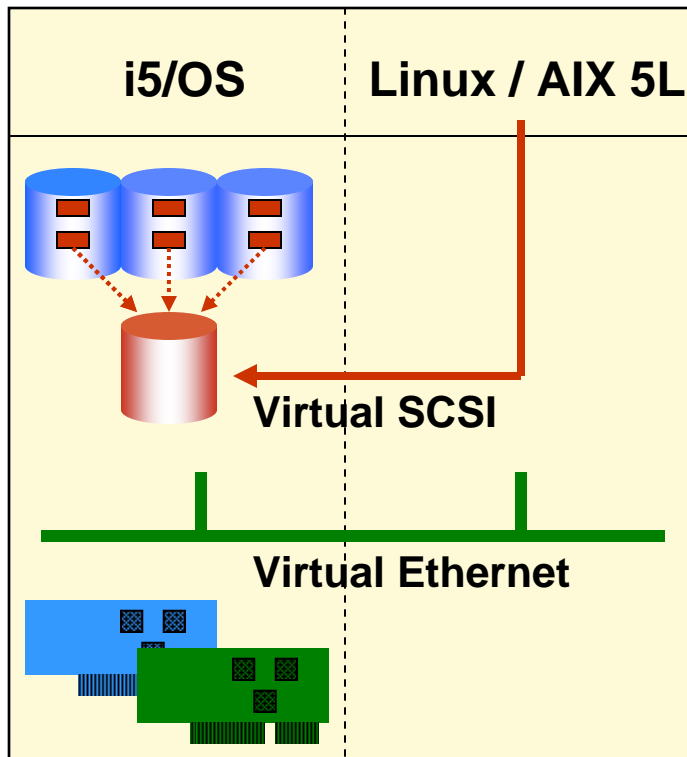
Source: <http://www.spec.org/cpu2000/results/res2004q3/> on 9/10/04

Differences between eServer i5 and eServer p5

- **Operating System Flexibility**
 - eServer i5 offers flexibility in supporting i5/OS, AIX 5L, and Linux capacity
 - eServer p5 servers support 1 i5/OS processor's worth of work on a p5-570 and two processors on p5-590 and p5-595
- **Processor Speeds**
 - No longer the case with POWER5+
- **Virtual I/O Server**
 - Partition to serve I/O to AIX 5L and Linux partitions
 - Based on AIX 5L, but is only used to serve I/O
- **Machine Type**
 - eServer i5 is a 9406 or 9405
 - eServer p5 is a 9111, 9113, 9117, or 9119

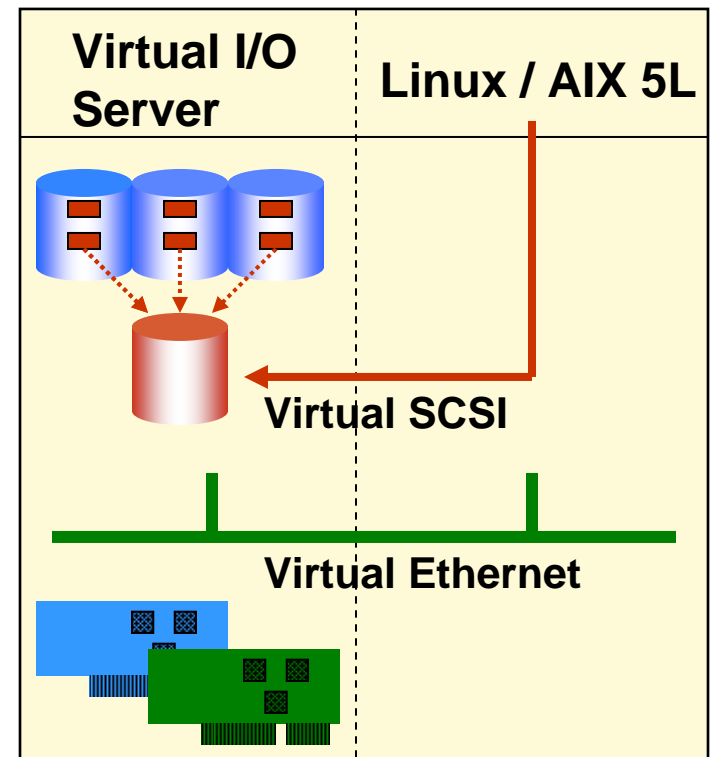
Virtual I/O

eServer i5



- i5/OS Resources
- Disk, Ethernet, Tape, DVD/CD
- Any i5/OS partition
- Built into every eServer i5

eServer p5



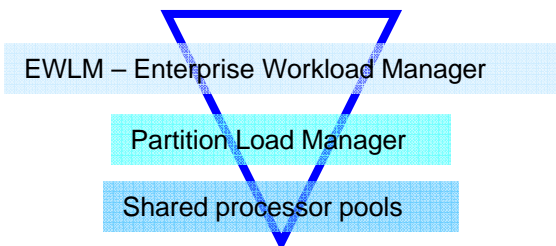
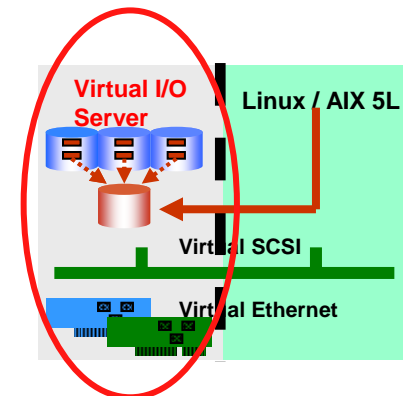
- Resources supported by AIX 5L
- Disk, Ethernet
- Virtual I/O Server partitions
- Add on Partitioning Feature

Advanced POWER Virtualization

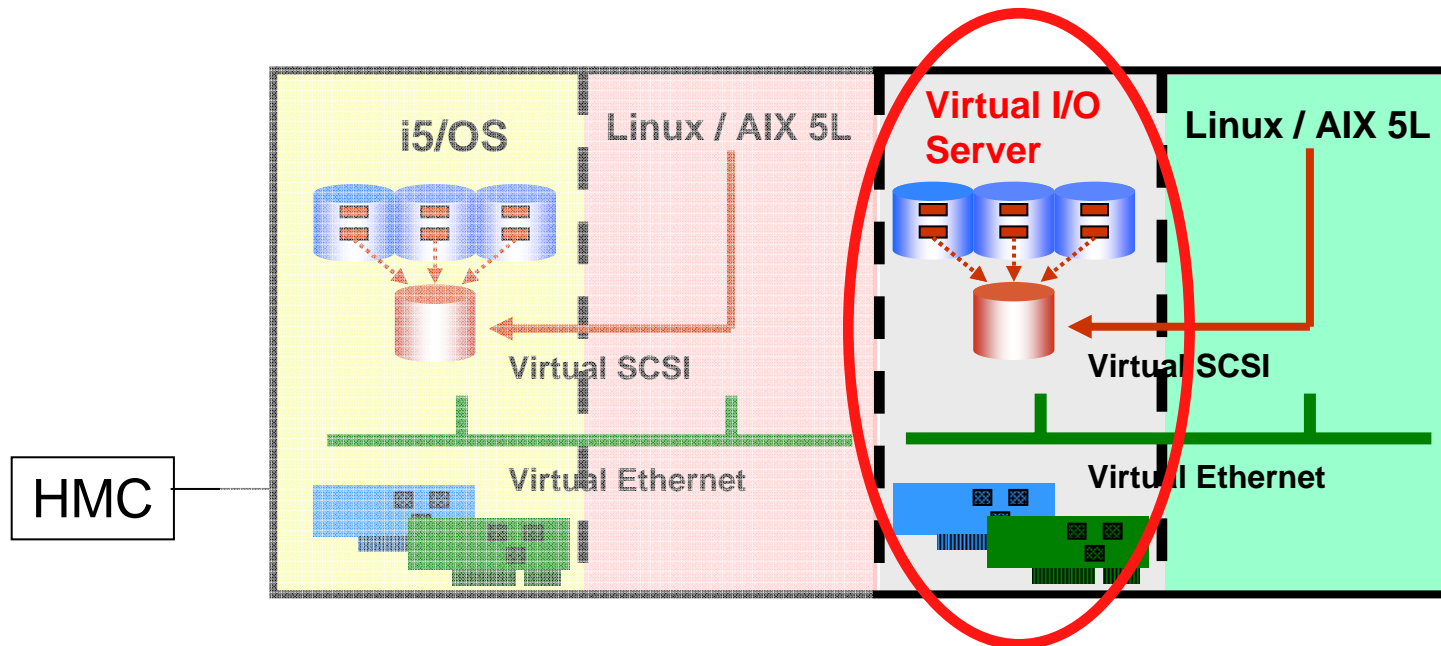
eServer i5 hardware feature, Advanced POWER Virtualization, provides two things:

- **Virtual I/O Server**
 - Appliance server for AIX 5L/ Linux partitions

- **Partition Load Manager (PLM)**
 - Policy-based automated resource management for AIX 5L partitions



Virtual I/O Server



- Appliance partition that virtualizes I/O for AIX 5L and Linux partitions
 - Appliance partition is not i5/OS
- Option for large customers with storage not supported by i5/OS
- Function already available on eServer p5

AIX 5L Solution Portfolio

- **AIX 5L 5.2 and 5.3 applications can run unchanged on eServer i5**
 - Experience with Oracle, Baan, SAP, I2, and PeopleSoft
- **Virtual and Direct I/O are implementation options that typically do not impact ISV applications**
 - 100s of engagements with Linux and AIX ISVs
 - There are numerous I/O subsystems used in the server market
 - SCSI, ESS, EMC, FastT, etc
 - Majority of applications are written to be indifferent to I/O
- **Virtual Loaner Program**
 - For ISVs that want to test their application on AIX 5L 5.3 on eServer i5
 - <http://www-1.ibm.com/servers/enable/site/vlp/>
- **SWG Strategy with AIX 5L is to support products on eServer p5 and eServer i5**
 - Numerous products are supported today
 - DB2 UDB, Informix Dynamic Server, Lotus Domino, Tivoli Clients; TEC, Monitor, CM, TSM, WebSphere Application Server, WebSphere MQ, WebSphere Portal

DB2. Information Management Software

Lotus. software

Tivoli. software

WebSphere. software

Flintshire County Council

- Background
 - Flintshire County Council supports schools, roads, taxes, Social Services, and leisure facilities
- Objectives
 - Increase capacity of 2 825 servers and consolidate 720
 - Update end of life 5 RS/6000-SP nodes supporting AIX 5L
 - Consolidate 30 Novell file servers
- Solution
 - Two eServer i5 570s with 6 processors running 18 partitions
 - i5/OS: finance, administration, Websphere and Domino
 - AIX 5L: HR and payroll with Oracle
 - Linux: file and print services and Portal pilot
 - 2nd server for high availability



“The Micro-Partitioning on the 570s will enable us to run the equivalent of 18 different servers on just two physical machines, and re-allocate capacity and resources between them in an incredibly flexible way.” John Thomas, Operational Services Manager

<http://www-306.ibm.com/software/success/cssdb.nsf/CS/DNSD-66TLRJ?OpenDocument&Site=default>

Flintshire County Council

• Background

- Flintshire County Council supports schools, roads, taxes, Social Services, and leisure facilities

• Objectives

- Increase capacity of 825 servers and consolidate 720
- Update end of life hardware supporting AIX 5L
- Consolidate 30 Novell file servers

• Solution

- Two eServer i5 570s running 18 partitions
- i5/OS: finance, administration, and Domino
- AIX 5L: HR and payroll running Oracle
- Linux: file and print services
- 2nd server for high availability with Mimix and HACMP



“The Micro-Partitioning on the 570s will enable us to run the equivalent of 18 different servers on just two physical machines, and re-allocate capacity and resources between them in an incredibly flexible way.” John Thomas, Operational Services Manager

<http://www-306.ibm.com/software/success/cssdb.nsf/CS/DNSD-66TLRJ?OpenDocument&Site=default>

Greif

- **Background**

- World leader in industrial packaging products & services for various industries.
- 175 operating locations in more than 40 countries.

- **Objectives**

- Consolidate regional applications and 100+ servers
- Move to a single ERP global instance
- Introduce high availability

- **Solution**

- IBM eServer i5 570 8-way with 9 Logical Partitions (LPARs)
 - 2 i5/OS Processors ,6 AIX 5L Processors, + Linux
 - Migrated Baan+Oracle solution from HP/EMC to eServer i5 AIX partition
 - Consolidated regional applications into centralized i5/OS architecture (BPCS)
 - Migrated Domino environment from Windows to i5/OS
 - Moving some infrastructure applications to Linux



“The eServer i5 570 system rapidly improves the rate at which Greif can integrate operations into its IT infrastructure which is critical to support the company's growth objectives.”

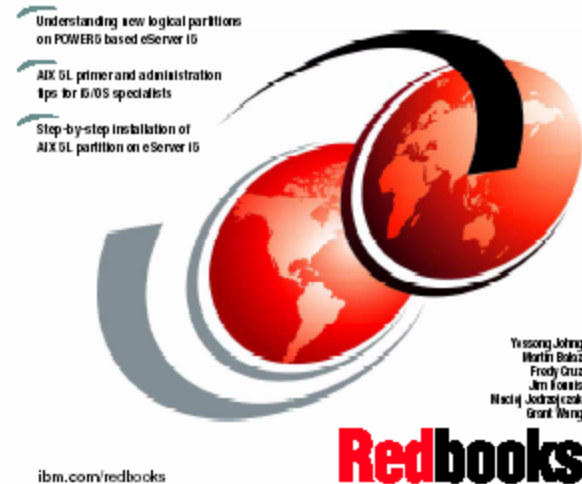
Ken Andre, Global Director, Business Information Services, Greif

AIX 5L on eServer i5 Redbook

- Implementation Information
- Available Now
 - <http://www.redbooks.ibm.com/redbooks/pdfs/sg246455.pdf>

IBM

AIX 5L on IBM @server i5 Implementation Guide



Trademarks and Disclaimers

© IBM Corporation 1994-2005. All rights reserved.

References in this document to IBM products or services do not imply that IBM intends to make them available in every country.

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:

Instruction: Refer to the following URL: <http://www.ibm.com/legal/copytrade.shtml>. Edit the list below, IBM subsidiary statement, and special attribution companies which follow so they coincide with your presentation.

AS/400	e-business on demand	OS/400
AS/400e	IBM	i5/OS
eServer	IBM (logo)	
	iSeries	

Rational is a trademark of International Business Machines Corporation and Rational Software Corporation in the United States, other countries, or both.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel Inside (logos), MMX and Pentium are trademarks of Intel Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

SET and the SET Logo are trademarks owned by SET Secure Electronic Transaction LLC.

Other company, product or service names may be trademarks or service marks of others.

Information is provided "AS IS" without warranty of any kind.

All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

Information concerning non-IBM products was obtained from a supplier of these products, published announcement material, or other publicly available sources and does not constitute an endorsement of such products by IBM. Sources for non-IBM list prices and performance numbers are taken from publicly available information, including vendor announcements and vendor worldwide homepages. IBM has not tested these products and cannot confirm the accuracy of performance, capability, or any other claims related to non-IBM products. Questions on the capability of non-IBM products should be addressed to the supplier of those products.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. Contact your local IBM office or IBM authorized reseller for the full text of the specific Statement of Direction.

Some information addresses anticipated future capabilities. Such information is not intended as a definitive statement of a commitment to specific levels of performance, function or delivery schedules with respect to any future products. Such commitments are only made in IBM product announcements. The information is presented here to communicate IBM's current investment and development activities as a good faith effort to help with our customers' future planning.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Photographs shown are of engineering prototypes. Changes may be incorporated in production models.