The Power of Linux on iSeries

Product Update

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iSeries Customers

**90+% of iSeries Customers Have
Windows Servers**

**84% of iSeries Customers Have
Less than 20 NT Servers**

	% of Small Customers	% of Medium Customers	% of Large Customers
Windows	94	91	87
Linux	30	17	12
AIX	20	12	22
NetWare	9	23	27
HP-UX	5	5	38
Sun Solaris	8	8	23
SCO UnixWare	10	5	4

# of NT Servers	% of Customers
1-5	46
6-10	25
11-20	14
21-200	14
201+	1

IBM Server Group NDB 2002

IBM IT Trends Survey for 2002, Updated 4Q
2002 for Customers with 100-999 Employees

The Linux Uprising

Oct 21, 2002: *NewForge*
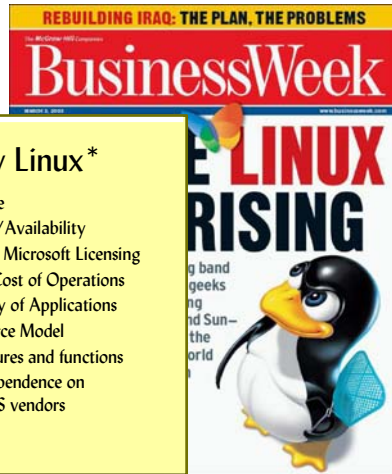**Wall Street Leans toward Linux**

Feb 18, 2003: *Financial Ti*
Linux takes on the big boys. T
Alternative Operating System

Apr 1, 2003: *SD Times*
Linux Closer To Desktops in E

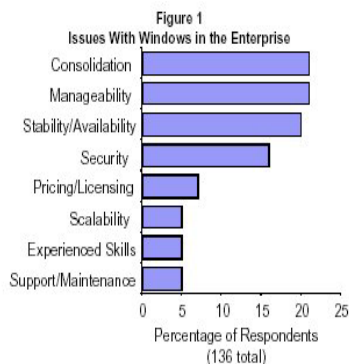**May 28, 2003:**
City of Munich moves to Linux
Government

Why Linux*

1 Initial Price
2 Reliability/Availability
3 Issues with Microsoft Licensing
4 Ongoing Cost of Operations
5 Availability of Applications
6 Open Source Model
7 Linux features and functions
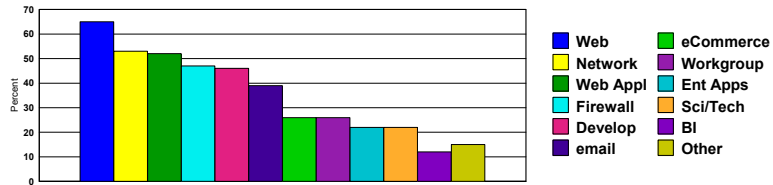8 Reduce dependence on
  Current OS vendors

REBUILDING IRAQ: THE PLAN, THE PROBLEMS

BusinessWeek

E LINUX
RISING

g band
geeks
ng
nd Sun—
the
orld

*Source: Assessing the Marketplace for Linux, IDC, 2-4-03

Windows Users Speak Out

▪Which do you consider the most important issue for Windows in the enterprise today?

Figure 1
Issues With Windows in the Enterprise

Issue	
Consolidation	
Manageability	
Stability/Availability	
Security	
Pricing/Licensing	
Scalability	
Experienced Skills	
Support/Maintenance	

Percentage of Respondents
(136 total)

Source: Survey taken at Gartner's December 2002 Data Center Conference

Linux Market

Linux Application Use

■ Web	■ eCommerce
■ Network	■ Workgroup
■ Web Appl	■ Ent Apps
■ Firewall	■ Sci/Tech
■ Develop	■ BI
■ email	■ Other

Platform of Origin for Linux Consolidation

■ NT	
■ UNIX	
■ Windows 2000	
■ Mainframe	
■ Midrange	
■ Other	
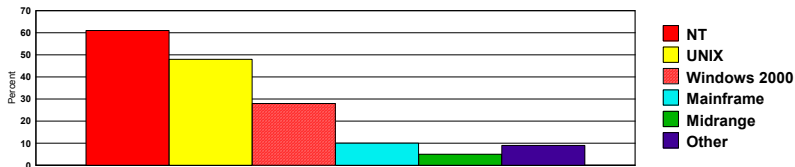
Server Brand Image Tracking: 2Q02 G7 Countries
Server Brand Image Tracking: 2Q02 G7 Countries

Linux on iSeries

Overview of implementation

IBM Virtualization Engine and eServer i5

Delivered first on **eServer i5**
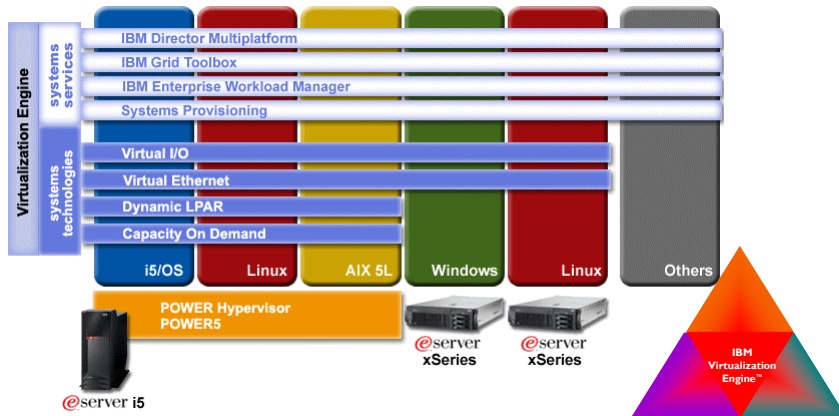
Linux and iSeries

- **What does Linux Bring to iSeries**

  - ƒ New Applications
    - –Open Source
    - –Solution Providers
  - ƒ New Resources and Skills
    - –Virtual world-wide development team
    - –Broad skill base
    - –IBM investments in Linux
- **What does iSeries Bring to Linux**

  - ƒ On Demand Virtualization
  - ƒ Integration
  - ƒ Reliability
  - ƒ Easy Management
  - ƒ Low Cost of Ownership
  - ƒ Award Winning Implementation

IBM eServer iSeries Wins
"Best of Show"
LinuxWorld San Francisco
August 2001
"Best Productivity Application Finalist"
Capacity on Demand
LinuxWorld, New York City
January 2003
"Best Systems Integration Finalist"
Integrated Platform for e-business
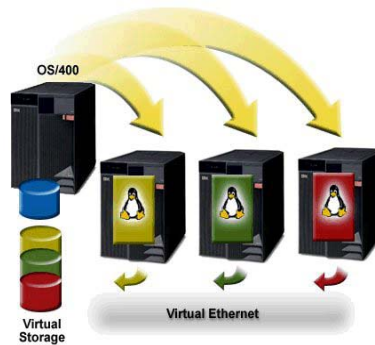LinuxWorld, San Francisco
August 2003

IBM

Linux on iSeries

- **On Demand Virtualization**

  - ƒ Up to 10 Partitions per Processor
  - ƒ Dynamic resource movement
  - ƒ Virtual Storage
  - ƒ Virtual Ethernet
  - ƒ Capacity on Demand
- **Integration**

  - ƒ Linux access to OS/400 Data and Applications
  - ƒ Server and Storage Management

www.ibm.com/eserver/iseries/linux

IBM

2003 iSeries Product Line

- **Support for new servers**

  - ƒ Shared processor, Dynamic movement
  - ƒ Virtual Storage and Ethernet
- **Capacity Upgrade on Demand**

  - ƒ Permanent and Temporary
- **Linux Processor Activation**

  - ƒ Included in Enterprise Edition for i870 and i890
  - ƒ Extra Processor Activation for Linux
- **Education Vouchers**

  - ƒ Included in Enterprise Edition for i825, i870, i890
  - ƒ Valid for Linux on iSeries Implementation Class
- **Service Vouchers**

  - ƒ Included in Enterprise Edition for i825, i870, i890
  - ƒ Valid for iSeries Linux Integration QuickStart

iSeries 800
- ƒ **1 Processor**
- ƒ **Up to 9 Linux Partitions**

iSeries 810
- ƒ **1-2 Processors**
- ƒ **Up to 19 Linux Partitions**

iSeries 825
- ƒ **3-6 Processors**
- ƒ **Up to 31 Linux Partitions**

iSeries 870
- ƒ **8-16 Processors**
- ƒ **Up to 31 Linux Partitions**

iSeries 890
- ƒ **16-32 Processors**
- ƒ **Up to 31 Linux Partitions**

2004 iSeries Product Line

i5 520

- 2 Processors
- Up to 19 Linux Partitions

i5 550

- 1-4 Processors
- Up to 39 Linux Partitions
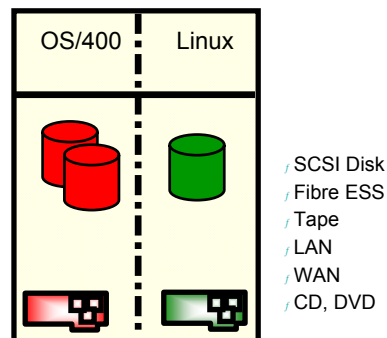
i5 570

- 1-16 Processors
- Up to 159 Linux Partitions

- **Support for new servers**

  - f Shared processor, Dynamic movement
  - f Virtual Storage and Ethernet
- **Capacity Upgrade on Demand**

  - f Permanent and Temporary
- **Linux Processor Activation**

  - f Included in i550 and Enterprise Edition for i570
  - f Extra Processor Activation for Linux
- **Education Vouchers**

  - f Included in Enterprise Edition for i550 and i570
  - f Valid for Linux on iSeries Implementation Class
- **Service Vouchers**

  - f Included in Enterprise Edition for i550 and i570
  - f Valid for iSeries Linux Integration QuickStart

Linux I/O Flexibility

Virtual I/O

OS/400 : Linux
Host

f SCSI Disk
f Fibre ESS
f Tape
f LAN
f CD, DVD

Virtual Ethernet

Direct I/O

OS/400 : Linux

f SCSI Disk
f Fibre ESS
f Tape
f LAN
f WAN
f CD, DVD
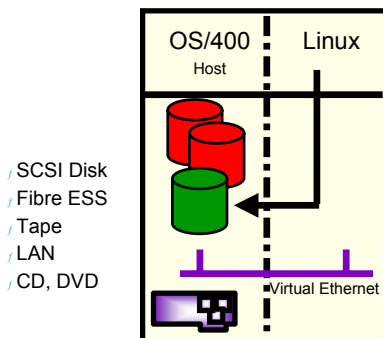
- Leverage iSeries resources
- OS/400 management

- Dedicated resources
- Linux management

Storage Virtualization

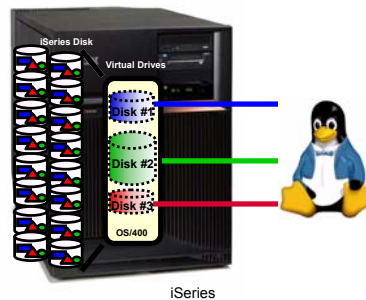- **Storage spaces created from OS/400**
  - f 1 MB to 64 GB each
  - f Up to 20 per Linux partition
- **Dynamically added to Linux**
  - f Requires V5R2 Primary and Host
- **Shared Storage**
  - f Storage spaces can be read from multiple partitions

iSeries Disk
Virtual Drives
Disk #1
Disk #2
Disk #3
OS/400

iSeries

- **Enables Linux to Leverage Advanced iSeries Storage Architecture**
  - f Data automatically spread and protected
  - f More disk arms for better performance
  - f Consolidated Backup of OS/400 and Linux
  - f Automatic balancing of storage across drives
  - f Flexible Storage Management
  - f Easy setup of multiple Linux environments
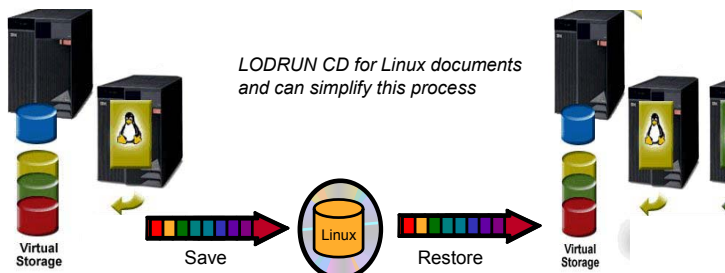

The Power of Virtualization

- **Virtual Storage**
  - f OS/400 Virtual Storage Spaces are created for use by Linux partitions
  - f Storage spaces contain the entire Linux environment
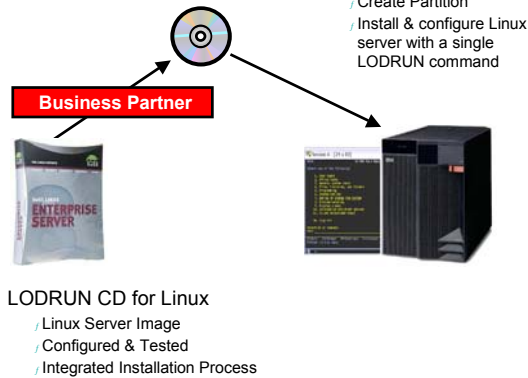 - f Linux environment can be saved and restored onto another system
- **Virtual Ethernet**
  - f Up to 16 virtual networks can be defined between partitions
  - f Linux partitions can communicate to internal and external networks without dedicated LAN adapters
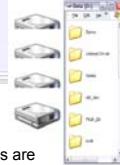
LODRUN CD for Linux documents and can simplify this process

Virtual Storage
Save
Linux
Restore
Virtual Storage

LODRUN CD for Linux on iSeries

From Zero to Productivity in 3 easy steps

ƒ Create Partition
ƒ Install & configure Linux server with a single LODRUN command

Business Partner

Apache Web Server
Samba File Server

LODRUN CD for Linux
ƒ Linux Server Image
ƒ Configured & Tested
ƒ Integrated Installation Process

ƒ Linux applications are ready to go

LODRUN CD for Linux Advantages

- **Shorten Time required to Install and Configure Linux**

  ƒ Can take the process from hours down to minutes
- **Reduce the skill required to Install and Configure Linux**

  ƒ Can be used by a person with few Linux technical skills
- **Reduce the risk associated with a Linux installation from scratch**

  ƒ Can provide a standard, tested environment

Deliverables / Responsibilities

IBM

ƒ Deliver LODRUN CD for Linux documentation
- LODRUN CD Creation Guide
- LODRUN CD Users Guide

ƒ Deliver LODRUN CD Scripts
ƒ Optional Service Offering to create LODRUN CD for Partners

Business Partner / ISV

ƒ Purchase appropriate Linux Distribution
ƒ Install Linux and create image to be duplicated
ƒ Create LODRUN CD
ƒ Use LODRUN CD to install Linux for customer
ƒ Perform additional customization of Linux environment

Customer

ƒ Purchase iSeries server that supports Linux
ƒ Purchase appropriate Linux Distribution
ƒ Purchase Service Offering from BP for Linux installation and configuration

Purchase Linux Distribution
- To have a License to run Linux
- To receive the full Linux distribution and documentation
- To receive maintenance and support

Questions

Contact: Linux Center of Competency in the iSeries Technology Center at rchlinux@us.ibm.com

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Simplify Your Infrastructure

i5/OS
AIX 5L
Windows
Linux
Storage

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
- Consolidate storage & backup
- Simplify server management and operations
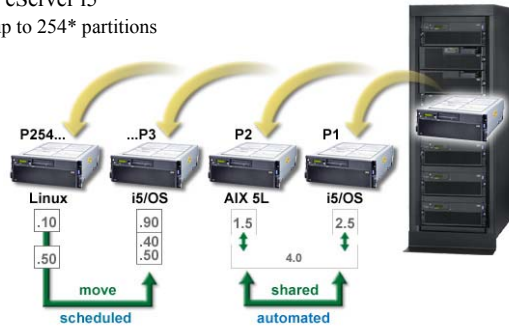- Communicate more securely with virtual Ethernet

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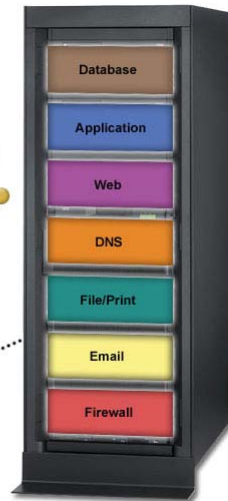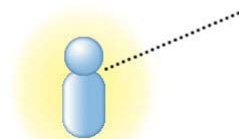
Linux on iSeries

Infrastructure management

i5/OS V5R3 Dynamic Logical Partitioning

- Features new POWER Hypervisor™ for eServer i5
  - Supports i5/OS, AIX 5L and Linux and up to 254* partitions

- Increase server utilization rates across multiple workloads
  - Automatic processor balancing with uncapped partitions

- Improve fault tolerance and lower partition management costs
  - Primary partition replaced by Hardware Management Console (HMC)

- *An IBM Virtualization Engine systems technology*

P254...   ...P3   P2   P1

Linux   i5/OS   AIX 5L   i5/OS
.10   .90   1.5   2.5
         .40
.50   .50   4.0

move   shared
scheduled   automated

Hardware Management Console (HMC)

- Single console for POWER5 servers
  - Pre-installed Linux-based workstation
  - Ethernet, desktop or rack mount
  - Supports local consoles, including 5250 console
  - Web-based System Manager Remote Client enables local or remote management for HMC control and status

- LPAR and CoD now configured via HMC

- Replaces primary partition and improves system resiliency

- Dynamic creation of new partitions
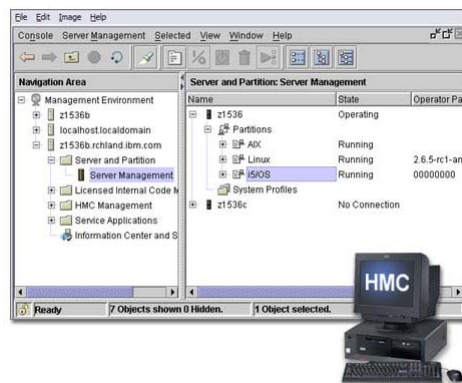
AIX 5L and IBM eServer i5

- Consolidate and manage UNIX® solutions

- Extend i5/OS with complementary AIX 5L applications

- Available on all eServer i5 servers

- Runs AIX 5L natively

- IBM Director Multiplatform provides management & monitoring tools
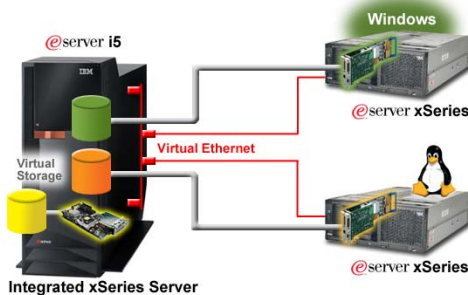

Linux and IBM eServer i5

- Common Linux distribution for POWER5 processor – based servers
  - Automatic processor balancing with uncapped partitions

- iSeries Navigator V5R3 enhancements
  - Start up, shut down Linux servers
  - Create/manage virtual storage spaces

- IBM Director Multiplatform provides management & monitoring tools

Integrating Windows & Linux Servers

- Consolidate Intel® processor-based Windows & Linux servers with the Integrated xSeries® Server & Integrated xSeries Adapter

- Windows Server™ 2003
  - Flexible options to manage passwords for OS/400 and Windows users
  - Increase storage space size up to 1TB, with maximum of 32TB per server
- Linux
  - IBM intends to provide support on selected IXS and xSeries servers attached to eServer i5 via the IXS/IXA*
  - Extends Linux application options

- IBM Director Multiplatform provides management & monitoring tools


IBM Director Multiplatform

- Centralize management and monitoring for multiple operating environments
  - i5/OS, AIX 5L, Linux, and Windows operating systems

- Open standards-based heterogeneous management tool

- Complements iSeries Navigator

- Integrated with PM iSeries for collecting and reporting multi-OS CPU utilization and capacity planning

- *An IBM Virtualization Engine systems service*
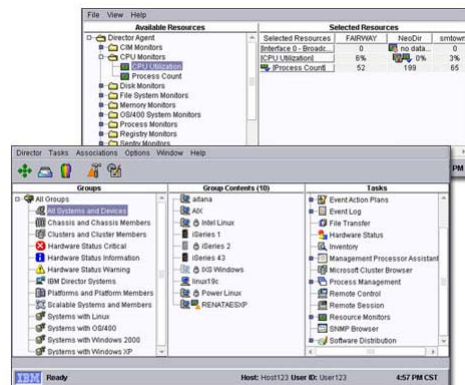
Backup Recovery Automation with BRMS

- Automate backup for i5/OS hosted Windows, Linux, AIX 5L and Domino servers
  - BRMS manages shutdown, save and restart of LPARs, Domino or Windows servers

- New reclaim media wizard condenses and reorganizes data to optimize tape utilization and save media cost

- Perform unattended system save (SAVSYS)
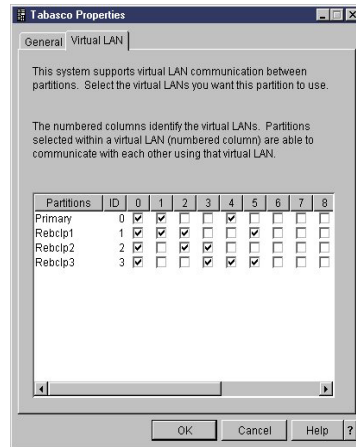 - No need to start console monitor

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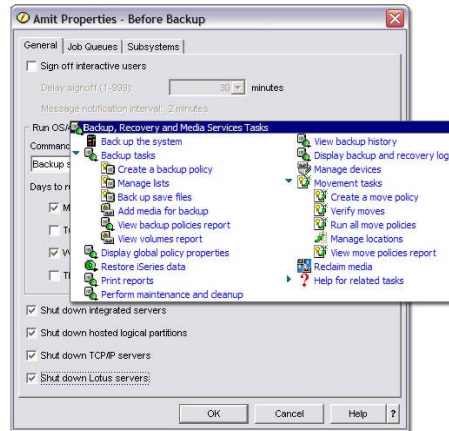
Lower Cost, More Secure Single Sign On

- i5/OS V5R3 has native Kerberos Server & KDC (Key Distribution Center)
  - Enables single sign on deployment without requiring a Windows KDC
  - Eliminates password caching in Windows servers

- i5/OS single sign on (SSO) now extended to
  - Portlets, Servlets
  - WebFaced applications
  - WebSphere Development Studio Advanced Edition
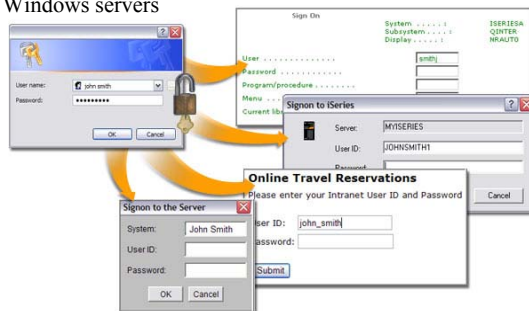
Virtual Ethernet

- **For fast, secure, reliable application communication between partitions**

- **Up to 16 high speed TCP/IP connections between partitions**

    - ƒ Emulates 1 Gb Ethernet Adapters
    - ƒ Selective communications paths between partitions
    - ƒ Utilizes iSeries memory bus
    - ƒ No additional hardware required
- **Supports communications between**

    - ƒ OS/400 to OS/400
    - ƒ Linux to OS/400
    - ƒ Linux to Linux
    - ƒ Linux to Windows
- **Included with OS/400 V5R1 and V5R2**

Tabasco Properties

General | Virtual LAN

This system supports virtual LAN communication between partitions. Select the virtual LANs you want this partition to use.

The numbered columns identify the virtual LANs. Partitions selected within a virtual LAN (numbered column) are able to communicate with each other using that virtual LAN.

Partitions	ID	0	1	2	3	4	5	6	7	8
Primary	0	☑	☑	☐	☐	☑	☐	☐	☐	☐
Rebclp1	1	☑	☑	☑	☐	☑	☐	☐	☐	☐
Rebclp2	2	☑	☐	☑	☑	☐	☐	☐	☐	☐
Rebclp3	3	☑	☐	☐	☑	☑	☑	☐	☐	☐

OK | Cancel | Help | ?

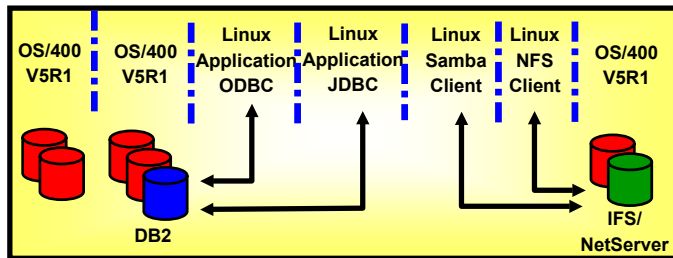
Linux on iSeries

Applications integration

Linux and OS/400 Application Integration

▪Database Access
  ƒ Linux can access DB2 UDB for OS/400
    –JDBC (IBM Toolbox for Java)
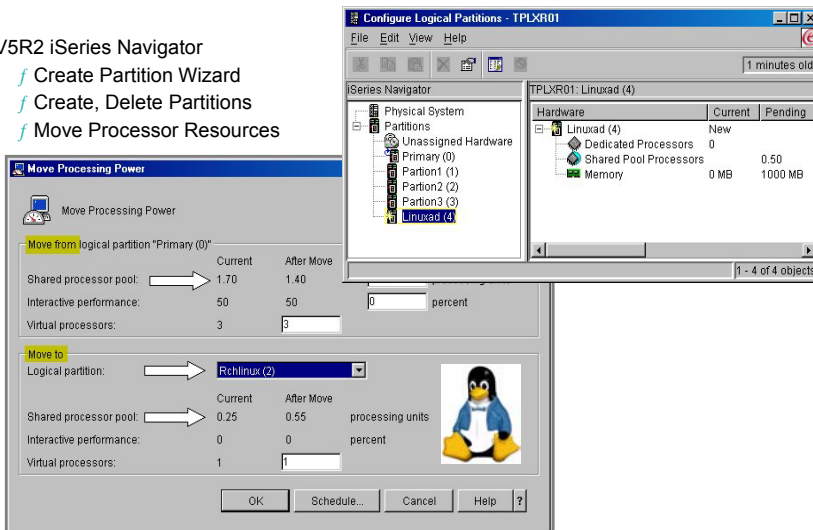   –ODBC for DB2 UDB for OS/400

▪File and Print Serving
  ƒ Linux can access OS/400 files
    –OS/400 NetServer Support for Samba
    –NFS
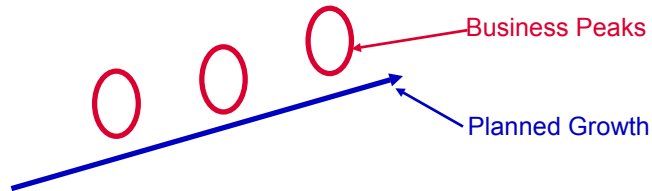 ƒ Linux can print to OS/400 printers
    –OS/400 NetServer Support for Samba

Linux Partition Management

▪V5R2 iSeries Navigator
  ƒ Create Partition Wizard
  ƒ Create, Delete Partitions
  ƒ Move Processor Resources

Capacity Upgrade on Demand

Business Peaks

Planned Growth

- **Permanent**
  - *ƒ* Planned Growth (pay when purchased, no premium)
  - *ƒ* Can pay for Processor Activation without an OS/400 license
- **Temporary**
  - *ƒ* Business Peaks (pay after use, break even is ~20 days)
    ... **turn it on / off**
  - *ƒ* 14 bonus days included with Standard and Enterprise Packages
- **Available on i825, i870, and i890**

Linux Kernel

- **Linux consists of source tree that is compiled for a specific hardware platform to generate a kernel**

- **IBM has contributed modifications for the Linux PowerPC kernel**

  - *ƒ* 2.4, 2.6, 64-bit and 32-bit Kernels
  - *ƒ* Architecture Independent Code - no changes
  - *ƒ* Architecture Dependent Code - some changes
    - –Device drivers to direct and virtual iSeries I/O
    - –Get Time of Day from iSeries
  - *ƒ* These kernel modifications are Open Source
  - *ƒ* These modifications are available on Linux PowerPC web sites
    - –http://linuxppc64.org/
    These modifications now included in the Linux kernel for PowerPC

Linux Distributors
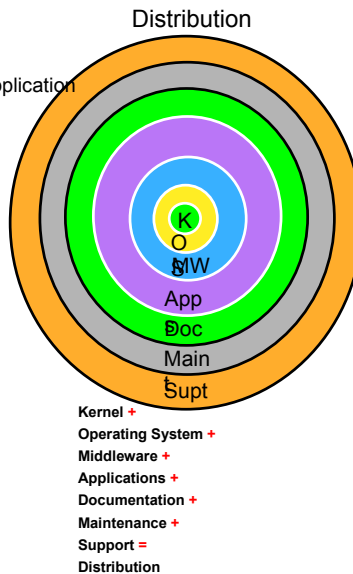
Distribution

- Use PowerPC Linux kernel
- Add 100s of Operating System, Middleware, and Application components
- Add iSeries integration features
- Create Installation Documentation
- Offer maintenance and support

Functions included in Typical Distribution

Functions	Key Middleware and Applications
Web Serving	Apache, Tomcat
Mail Server	SMTP(postfix), POP3, IMAP, Sendmail MTA
Print Server	Samba
File Server	Samba, NFS
Proxy Server	Squid
Security	NetFilter firewall, VPN, OpenSSL
Name server	DNS, DHCP, WINS, FTP
Directory	OpenLDAP
Database	MySQL, Postgres
Languages	C, C++, PHP, Pearl
Desktop	KDE, Gnome

The things that most people are using
Linux for come with the distribution

K
OS
MW
App
Doc
Main
Supt

Kernel +
Operating System +
Middleware +
Applications +
Documentation +
Maintenance +
Support =
Distribution

Linux Distributions for iSeries

- SuSE

UNITED LINUX

SuSE

  - **SuSE Linux Enterprise Server 9**
    - −64-bit kernel (2.6), 64 and 32-bit applications
      - •Available August 31, 2004
- Turbolinux

  - **Turbolinux Enterprise Server 8 for iSeries** UNITED LINUX
    - −64-bit kernel, 64 and 32-bit applications
      - •Available April 2003
- Red Hat

turbolinux

redhat

  - **Red Hat Linux Enterprise 3 for POWER5 (64-bit)**
    - −64-bit kernel, 32-bit applications
      - •Available, September 30, 2004

Support for Linux on iSeries

- **Support is available for Linux on iSeries from distributors**

  - ƒ SuSE
  - ƒ Turbolinux
  - ƒ Red Hat

- **Support for Linux on iSeries from IBM Global Services**

  - ƒ IBM Support Line provides answers to usage questions and suspected Linux code defects   (Level 1 and Level 2 Support)
  - ƒ Requires Linux SupportLine contract
  - ƒ Can purchase Linux distribution through IGS

- **Support for the Integration of iSeries, OS/400 and Linux on iSeries**

  - ƒ Asking questions regarding OS/400 logical partitioning and reporting suspected defects in the OS/400 implementation of logical partitions are included within the IBM Support Line OS/400 offering contract.
  - ƒ The OS/400 Support Line representative will attempt to answer basic Linux on iSeries installation questions.

IBM Software for Linux on iSeries

WebSphere software

- ƒ WebSphere Application Server
- ƒ IBM Developer Kit for Linux, Java 2
- ƒ VisualAge C++ Compiler
- ƒ XL FORTRAN
- ƒ *WebSphere Commerce Suite Business Edition**

Tivoli software

- ƒ Tivoli Storage Management (client)
- ƒ Tivoli Monitoring (client)
- ƒ Tivoli Configuration Manager (client)
- ƒ IBM Directory Server
- ƒ *Tivoli Access Manager (client)**
- ƒ *Tivoli Enterprise Console (client)**

DB2 Data Management Software

- ƒ DB2 UDB V8.1

Lotus software

* Support planned for 2004

IBM

DB2 for Linux on iSeries and pSeries

- **DB2 Universal Database 8.1**
  - ƒ IBM's relational database management system for AIX, Linux, HP-UX, Sun, and Windows.
  - ƒ New support for Linux on IBM's PowerPC-based servers
- **Product Availability**
  - ƒ eGA on May 30, GA on June 20, 2003
  - ƒ DB2 UDB V8.1 Workgroup Server Edition
  - ƒ DB2 UDB V8.1 Enterprise Server Edition
  - ƒ DB2 UDB V8.1 Developers Edition
- **iSeries Requirements**
  - ƒ OS/400 V5R2 or V5R1
  - ƒ SuSE Linux Enterprise Server 8 for iSeries or Turbolinux Enterprise Server 8 for iSeries
- **Supports iSeries Innovations**
  - ƒ Dynamic Logical Partitioning with Shared Processor Support
  - ƒ Virtual Storage Management
  - ƒ Virtual Ethernet LAN
- **Benefits of DB2 UDB on Linux**
  - ƒ Provides an industry leading database management solution on Linux
  - ƒ New DB2 UDB based applications from Solution Providers
  - ƒ Leverage Linux market place: skills and OpenSource software
  - ƒ Provides DB2 Connect support to DB2 on OS/400
  - ƒ Added Flexibility for Porting
    - – Oracle, SQL Server, Sybase Migration Toolkits http://www-3.ibm.com/software/data/db2/migration/mtk/

www.ibm.com/iseries/linux/db2

IBM

WebSphere for Linux on iSeries and pSeries

- **WebSphere Application Server**
  - ƒ IBM's web application server for multiple platforms
  - ƒ New support for Linux on IBM's PowerPC-based servers
- **Product Availability**
  - ƒ eGA July 15, GA August 11
  - ƒ WebSphere Application Server V5.0.2
  - ƒ WebSphere Application Server Network Deployment V5.0.2
  - ƒ WebSphere Application Server Enterprise V5.0.2
- **iSeries Requirements**
  - ƒ OS/400 V5R2 or V5R1
  - ƒ SuSE Linux Enterprise Server 8 for iSeries or Turbolinux Enterprise Server 8 for iSeries
- **Supports iSeries Innovations**
  - ƒ Dynamic Logical Partitioning
  - ƒ Shared Processor Support
  - ƒ Virtual Storage Management
  - ƒ Virtual Ethernet LAN
- **Benefits of WebSphere on Linux on iSeries**
  - ƒ Provides a Linux based e-business infrastructure for transaction-based web solutions
  - ƒ New WebSphere based applications from Solution Providers
  - ƒ Supports IBM Toolbox for Java™ to access DB2 and applications on OS/400
  - ƒ Leverage Linux market place: skills and OpenSource software
  - ƒ WebSphere Application Server Enterprise support is new for iSeries
- **Enterprise Edition**
  - ƒ i825, i870, i890 Enterprise Edition includes WebSphere Application Server and 1 year of support

www.ibm.com/iseries/linux/websphere

Tivoli Storage Manager for Linux on iSeries and pSeries

- **Tivoli Storage Manager**
  - ƒ IBM's backup and recovery software for multiple platforms
  - ƒ New support for Linux on IBM's PowerPC-based servers
- **Product Availability**
  - ƒ GA June 27
  - ƒ Tivoli Storage Manager V5.2 client
- **How to order**
  - ƒ Passport Advantage: http://www-3.ibm.com/software/tivoli/howtobuy/
- **iSeries Requirements**
  - ƒ OS/400 V5R2 or V5R1
  - ƒ SuSE Linux Enterprise Server 8 for iSeries or Turbolinux Enterprise Server 8 for iSeries
- **Supports iSeries Innovations**
  - ƒ Dynamic Logical Partitioning
  - ƒ Shared Processor Support
  - ƒ Virtual Storage Management
  - ƒ Virtual Ethernet LAN
- **Benefits of TSM client on Linux on iSeries**
  - ƒ Provides file/directory level backup for Linux
  - ƒ Centralized storage protection via TSM on OS/400
  - ƒ Leverage high speed tape drives in OS/400 partition
- **Enterprise Edition**
  - ƒ i825, i870, i890 Enterprise Edition includes TSM for OS/400, 5 TSM clients and 1 year of support

OS/400	Linux
TSM Server	TSM client

Virtual Storage
Tape
Directory
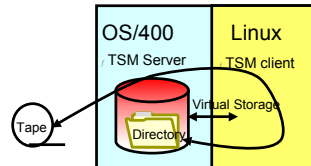
Other IBM Middleware

- **Visual Age C++ V6.0**
  - ƒ GA planned for August
- **XL FORTRAN 8.2**
  - ƒ GA Planned for August
- **IBM Directory Server 5.1**
  - ƒ Lightweight Directory Access Protocol (LDAP) identity infrastructure
    - –http://www-3.ibm.com/software/tivoli/products/directory-server/
- **Tivoli Configuration Manager**
  - –http://www-3.ibm.com/software/tivoli/ products/config-mgr/
- **Tivoli Monitoring**
  - –http://www-3.ibm.com/software/tivoli/products/monitor/

- **IBM Developer Kit for Linux, Java 2 Technology Edition**
  - ƒ IBM SDK 1.4.1 for Linux on iSeries and pSeries
    - –https://www6.software.ibm.com/dl/lxdk/lxdk-p
- **IBM ODBC Driver**
  - ƒ iSeries ODBC Driver for Linux
  - ƒ Provides access to DB2 UDB for OS/400
    - –Included in SuSE and Turbolinux distributions
    - –http://www.ibm.com/eserver/iseries/linux/odbc/
- **IBM Toolbox for Java or JTOpen**
  - ƒ Java classes access OS/400 services and data
    - –Included in SuSE and Turbolinux distributions
    - –Download http://www.ibm.com/eserver/iseries/toolbox/

Speed-start your Linux app 2003

http://www-106.ibm.com/developerworks/offers/linux-speed-start/download-p.html

Application Sources

- **Linux Distributions**

  - *f* Contain popular Open Source Applicaitons
    - –Apache, Samba, Sendmail MTA, Netfiler
- **Open Source Applications**

  - *f* Download and compile for PowerPC
    - –Tomcat for Java Servlets and Java Server Pages
      http://java.sun.com/products/jsp/tomcat/
    - –OpenOffice - Productivity Suite   www.openoffice.org
- **PowerPC Linux applications**

  - *f* Will run out of the box
  - *f* iSeries, pSeries, Apple PowerBook,,,
- **Intel Linux applications**

  - *f* Need to be compiled for PowerPC
- **ISVs**

  - *f* PartnerWorld is working with ISVs to enhance iSeries application portfolio

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100+ Solutions for Linux on iSeries

Infrastructure	e-Business	Industry

300+ More in the Pipeline

More http://www-1.ibm.com/servers/eserver/iseries/linux/apps.html

Linux for iSeries Scenarios

- **Consolidation**

  - ƒ Replace Windows or Linux Infrastructure servers
  - ƒ Run multiple Linux servers in partitions
- **Solution Component**

  - ƒ Linux application included with new solution
  - ƒ Run Linux application on same server as OS/400
- **Integration**

  - ƒ Extend OS/400 applications with Linux Applications
  - ƒ Run Linux applications on same server as OS/400
- **Application Flexibility**

  - ƒ Leverage Linux LOB application portfolio
  - ƒ Run Linux applications on iSeries

LPAR1 OS/400	LPAR2 Linux
DB	Firewall

LPAR1 OS/400	LPAR2 Linux
DB	Web Server

LPAR1 OS/400	LPAR2 Linux
DB	DB
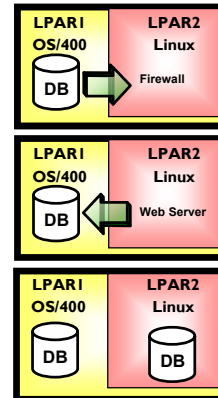
Configuration Alternatives (there are many more)

	Line of Business	WebSphere	Firewall	Web Server	Firewall
Competitive Infrastructure	OS/400	Intel	Intel	Intel	External
2nd iSeries for WebSphere	OS/400	OS/400	Intel	Intel	External
2nd OS/400 Partition for WebSphere	OS/400	OS/400	Intel	Intel	External
Multiple OS/400 Partitions and IXS	OS/400	OS/400	Windows - IXS	OS/400	External
3 Linux Partitions (Integrated Platform)	OS/400	Linux	Linux	Linux	External

Integrated Platform is designed to simplify a complex process: design, order, install, config, test

ƒ Can cut implementation time by 75%

Integrated Platform for e-business on iSeries

- **Integrated Platform Delivers**

  - ƒ Blue Print (Planning and Installation Guide)
  - ƒ Installation scripts

- **Blue Print Configurations**

  - ƒ i825 - additional 1 or 2 processors for Linux/WebSphere workloads
  - ƒ i810 - 2 way - standalone solution

- **Configuration Components**

  - ƒ 3 Linux partitions for WebSphere, Firewall, and Web Server
  - ƒ Connections to OS/400 applications and data

- **Delivered Via Service Offerings**

  - ƒ Integrated Platform Planning and Blue Print
  - ƒ Integrated Platform Implementation (optional)
  - ƒ Available starting September 8, 2003

- **iSeries i825, i870, i890 Enterprise Edition**

  - ƒ Includes WebSphere Application Server for OS/400 or Linux
  - ƒ Services Voucher valid for Integrated Platform Service Offerings

OS/400	Linux	Linux	Linux
Business Applications / DB2 UDB	WebSphere Application Server	Firewall	Web Server

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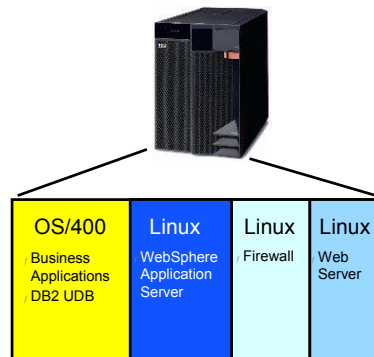
Linux on iSeries Advantages

- **Run multiple Linux images on one Server**

  - ƒ Up to 31 Linux partitions

- **Dynamic Resource Movement**

  - ƒ 1/100th of a processor
  - ƒ Virtual storage spaces
  - ƒ Capacity Upgrade on Demand

- **Storage Virtualization**

  - ƒ Linux shares resources with OS/400 and other Linux partitions: disk, tape, CD, DVD
  - ƒ Simple to duplicate servers

- **Virtual Ethernet for safe/fast communications**

  - ƒ Up to 16 networks under the covers
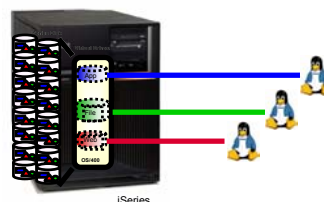
- **Linux to OS/400 Application Integration**

  - ƒ ODBC and JDBC access to DB2/400
  - ƒ Samba and NFS for file access

- **Management Integration**

  - ƒ LPAR and Storage

# of Processors in Server	Maximum # of Linux Partitions*
1	9
2	19
4 and >	31

iSeries

iSeries Delivers ROI for Infrastructure Server Consolidation

- New IDC study finds SMBs that consolidated Intel-based infrastructure servers to iSeries using Linux or Windows achieved
  - ∫ Strong costs savings
  - ∫ 90% reduction in downtime
  - ∫ 22% increase in IS Productivity
  - ∫ Payback with 1 year

Source: IDC White Paper:
The Return on Investment of Windows / Linux Infrastructure Server Consolidation with iSeries. Case Studies in SMBs - July 2003

3 Year ROI for Server Consolidation per 100 Users	
Cost Savings	$542,728
Net Present Value	$302,052
Total Investment	$141,227
ROI (NPV/Investment)	213.9%
Payback (Investment/Yr 1 Cashflow)	216 Days

GHY International

iSeries 820

- **Background:**
  - ∫ International customs and trade services group
- **Objectives:**
  - ∫ Handle application growth with current staff
- **Options**
  - ∫ One iSeries or 9 Intel servers
- **Solution**
  - ∫ Implemented iSeries 820 with 9 Red Hat Linux partitions

"We selected Linux on the iSeries because it was such a compelling alternative to the cost and complexity of managing nine separate Intel-based servers."
  Nigel Fortlage, Vice President of IT

0	GHY820 OS/400		0.50	768M
1	DOCIMG		0.20	256M
2	INTRANET		0.10	256M
3	LANAPPS Samba/DHCP/sendmail/SSH		0.50	256M
4	FIREWALL Firewall / Squid		0.20	256M
5	L2TPVPN		0.10	256M
6	IPSECVPN		0.10	256M
7	INETAPPS Sendmail Gateway/DNS/SSH		0.30	256M
8	WEBSRV		0.20	256M
9	TESTLNX		0.1	256M

Bandai France

▪**Background**

   ƒ Subsidiary of the Japanese Bandai group, one of the three
     world leaders in the toy market

▪**Objective**

   ƒ Secure and protect daily electronic exchanges with the
     parent company in Japan and partners in Asia and Europe

▪**Solution**

   ƒ iSeries 820
   ƒ OS/400 Financial Management solution
   ƒ Linux based Firewall and file server
   ƒ A second i820 provides duplicate environment

*"The installation of a software Firewall under Linux in a partition on the iSeries was a safe and
secure solution and was also inexpensive. I have every confidence in this platform. Its
simplicity, reliability and running costs beat an NT server hands down!"*
   Benoit Roux, IT Director

Brenntag Nordic

▪**Background**

   ƒ Brenntag Nordic is part of Brenntag, a leading global player in
     the distribution of chemicals and raw materials

▪**Objective**

   ƒ Resolve problems with 49 server Windows-based network:
     steadily increasing administration and license payment costs
     and problems of keeping the uptime at an acceptable level.

▪**Solution**

   ƒ Linux-based infrastructure applications on iSeries 825 and
     xSeries
   ƒ Domino on OS/400
   ƒ Integrated xSeries for Windows applications

*"When we are finished, we will have replaced 49 Windows-based servers with iSeries and
xSeries servers and as a result achieved resulting savings in administration and software
licenses and even in hardware acquisition."*
   Michael S. Langborg, Financial Director

Hindustan Motors

▪ **Background**

ƒ Power Plant Division in India manufactures off-highway automatic/power-shift transmissions

▪ **Business Need**

ƒ Extend its ERP applications to suppliers and large international customers to streamline business processes and reduce costs

▪ **Solution**

ƒ iSeries Model 270
– Red Hat Linux for email
– OS/400 for ERP
– WebSphere for ebusiness
– Integrated xSeries Server for Antivirus
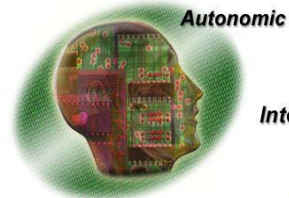ƒ Replaced Compaq Alpha server

"We are committed to use the features and functionalities to the fullest, with Red Hat Linux running our mail server, Windows 2000 running the network PCs and authentication, and OS/400 running our in-house ERP, Web Application Server and HTTP environments."
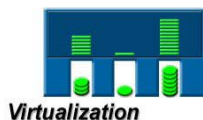S. Appan, CIO

HINDUSTAN MOTORS LIMITED - POWER PRODUCTS DIVISION

Linux on iSeries Investments

iSeries Server Consolidation
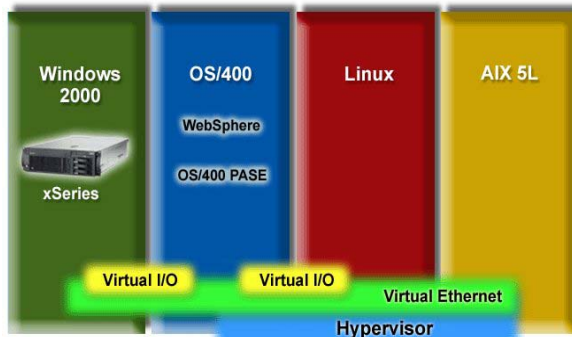
- Linux for iSeries is available from leading distributors
- iSeries offers On Demand Virtualization and Integration
- With Linux customers can consolidate their infrastructure and extend their OS/400 applications

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