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# Setting the LPAR Environment for Linux on iSeries

LP02

## ITSO iSeries Technical Forum

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**Redbook**  
International Technical Support



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# Acknowledgments



**Thanks to Craig Johnson for his Linux marketing input  
and**

**Dave Boutcher for information how to setup NWSD and  
storage spaces**

# Agenda



**iSeries Logical Partitioning**

**Linux and iSeries LPAR V5R2**

**Linux Performance and Scalability**

**Linux for iSeries Configuration**

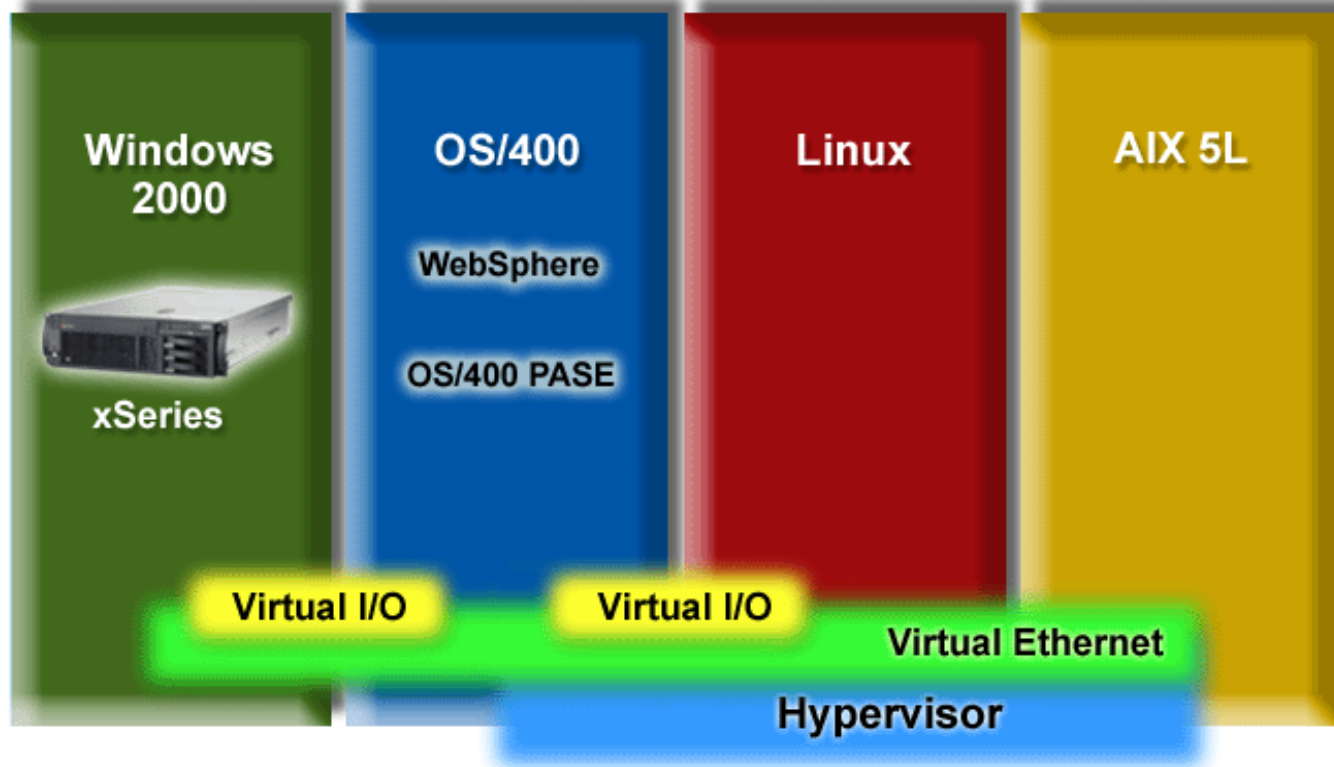
- LPAR
- Hosting - virtual devices

**Linux partition management**

**Linux Solutions**

**Summary**

# iSeries Server Consolidation



**iSeries offers application flexibility**

**iSeries innovative technology can lower cost of management**

**iSeries makes enterprise IT management simple**

\*Statement of Direction: This presentation contains IBM plans and directions. Such plans are subject to change without notice.

# Notes: iSeries Server Consolidation



Consolidation has never been easier than ever before with iSeries and V5R2.

- PC applications, file serving, print serving, domain serving, etc
  - integrated PC server with Integrated xSeries server
  - attached integrated PC server with xSeries Adapter
- OS/400
  - WebSphere
  - AIX Application environment - PASE
- Linux on iSeries applications
- and new, but not available yet, AIX in a separate partition - statement of directions
- Hypervisor support which allows high speed communication between OS/400, Linux and in the future AIX partitions.

# iSeries Logical Partitioning



## Mainframe Class Partitioning

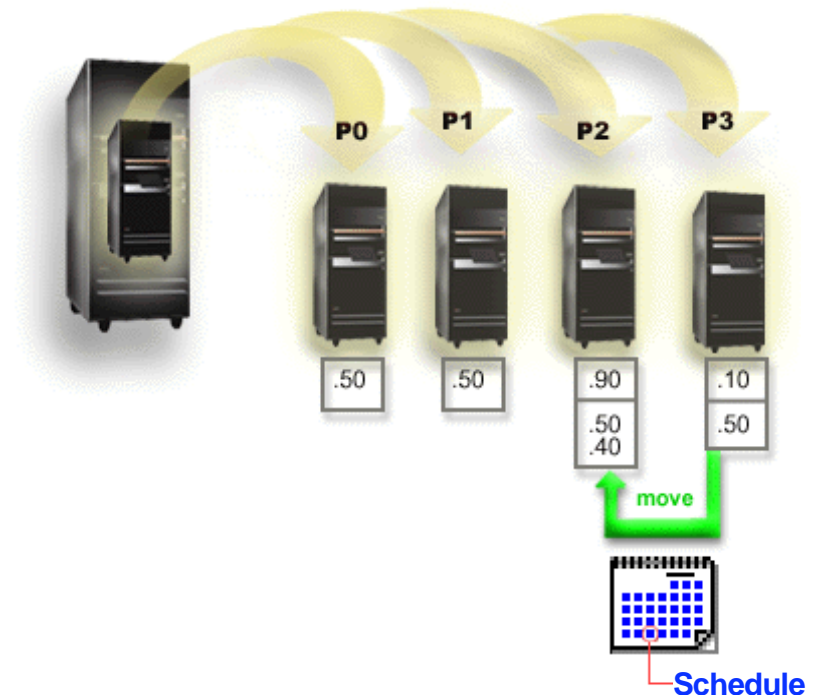
- Shared Processor
- Dynamic Resource Movement
- Virtual Ethernet
- Heterogeneous OS Support
- Uni-processor partitioning
- Graphical management

## Customer Benefits

- Quick consolidations
- Run multiple, yet independent workloads
- Maximize I/T investments
- Implement High Availability Solutions

## Success

- 3000+ LPAR Installations
  - 60% on 1-4 processor servers
- 48% of i840s use LPAR



# LPAR: What is New



## Support for New Servers

- Shared Processor
- Dynamic Resource Movement
- OS/400 and Linux



## Support for More OS/400 Partitions

- 10 Partitions per Processor
- Requires OS/400 V5R2 Primary
- Supported on i825, i870, and i890 Standard and Enterprise Packages

# of Processors in Server*	Old Maximum # of OS/400 Partitions	New V5R2 Maximum # of OS/400 Partitions
2	8	20
3	12	30
4	16	32
8 and >	32	32

\* Applicable for iSeries servers with Power4 Processors only

# Linux on iSeries

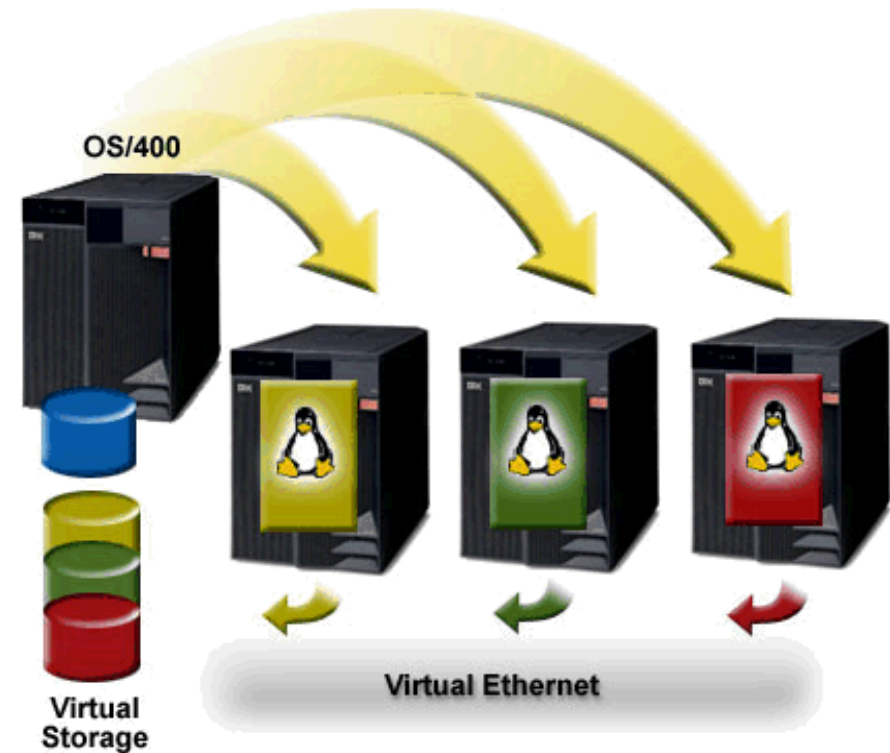


## On Demand Virtualization

- Shared processor support
- Dynamic resource movement
- Virtual Storage
- Virtual Ethernet

## Integration

- Application
- Management





# Linux and LPAR V5R2



## Shared Processor Support\*

- Linux shares processors with other OS/400 and Linux partitions
  - Up to 10 partitions per processor
  - Minimum 0.10 processor in a partition

## OS/400 V5R2 Primary Partition

# of Processors in Server	Maximum # of Linux Partitions*
1	9
2	19
3	29
4 and up	31

## Dynamic Resource Movement

- Shared Processor Units\*
  - Minimum processor movement: 0.01
  - Moved to/from Linux or OS/400 V5R2 partitions
  - Immediate, scheduled, or under program control
- Virtual storage spaces
  - Added to Linux partitions

## Independent Resource Movement

- Processor, Memory, and I/O
- Dedicated Processors, Memory and I/O
  - Requires the Linux partition to be stopped and restarted
  - Minimum memory movement: 1 MB

\* Shared processor is supported on iSeries servers with SStar and Power4 processors. Servers with IStar processors require a dedicated processor for Linux

# Linux: What is New



## Support for new servers

- Shared processor, Dynamic movement
- Virtual Storage and Ethernet

## Capacity Upgrade on Demand

- Permanent and Temporary

## Enhanced Direct I/O Support

- New 10/100/1000 Ethernet Adapter
- New Storage IOAs
- Raid 5 Support for Storage IOAs

## Linux Processor Activation

- Included in Enterprise Package for i870 and i890
- Extra Processor Activation for Linux

## Education Vouchers

- Included in Enterprise Package for i825, i870, i890
- Valid for Linux on iSeries Implementation Class (AS36)

## Service Vouchers

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

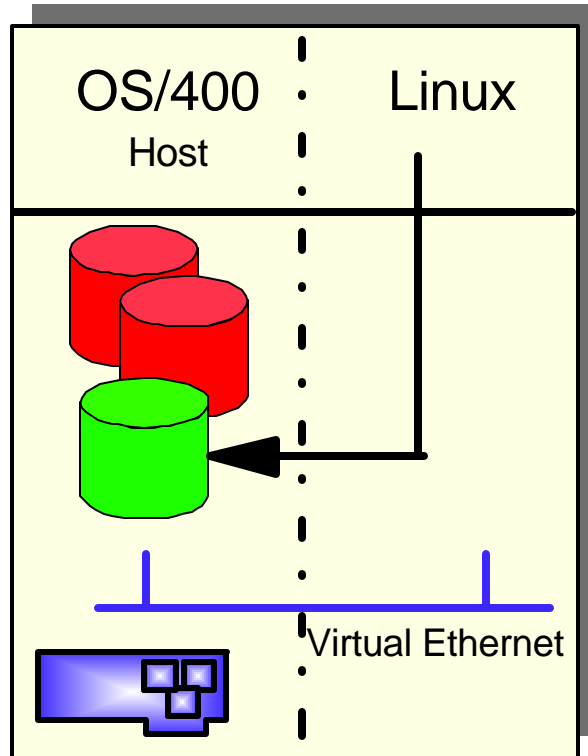
## OS/400 V5R2 Primary Partition

	# of Processors	Max Number of Linux Partitions
<b>iSeries 800</b>	1	9
<b>i810</b>	1-2	9 -19
<b>i825</b>	3 -> 6	29 - 31
<b>i870</b>	8 ->16	31
<b>i890</b>	16 ->32	31

# Linux I/O Flexibility



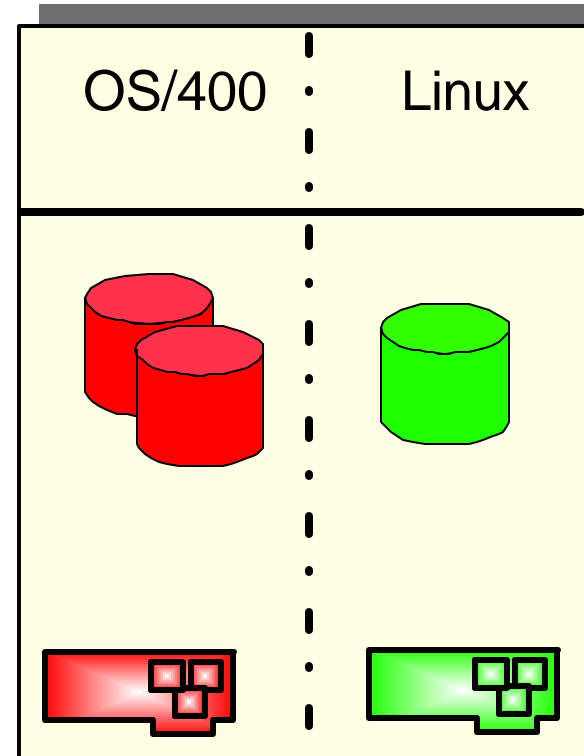
## Virtual I/O



- ▶ SCSI Disk
- ▶ Fibre ESS
- ▶ Tape
- ▶ LAN
- ▶ CD, DVD

- Leverage iSeries resources
- OS/400 management

## Direct I/O



- ▶ SCSI Disk
- ▶ Fibre ESS
- ▶ Tape
- ▶ LAN
- ▶ WAN
- ▶ CD, DVD

- Dedicated resources
- Linux management

# Storage Virtualization



## Storage spaces created from OS/400

- 1 MB to 64 GB each
- Up to 20 per Linux partition

## Dynamically added to Linux

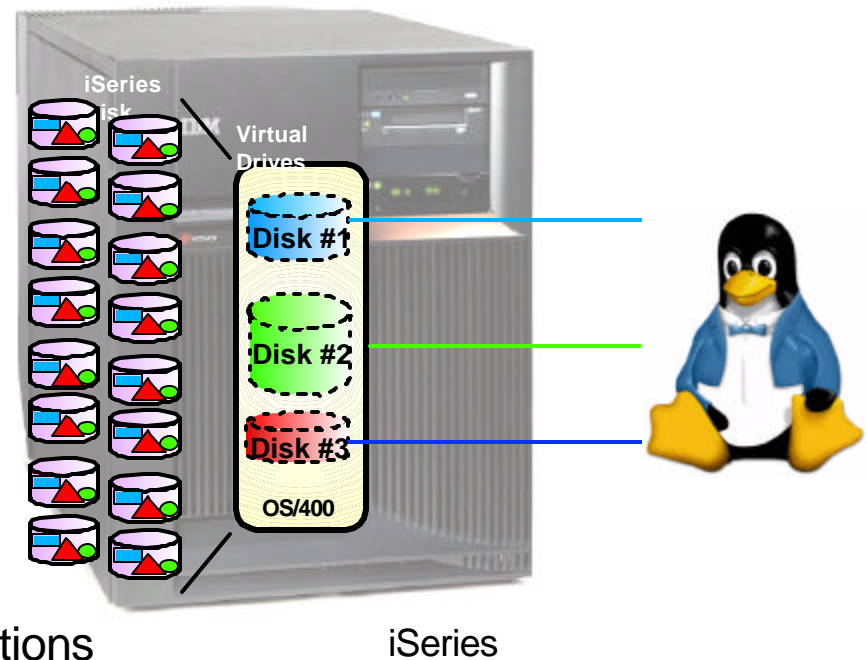
- Requires V5R2 Primary and Host

## Shared Storage

- Storage spaces can be read from multiple partitions

## Enables Linux to Leverage Advanced iSeries Storage Architecture

- Data automatically spread and protected
- More disk arms for better performance
- Consolidated Backup of OS/400 and Linux
- Flexible Storage Management
- Easy setup of multiple Linux environments



# Notes: Linux Direct I/O Support



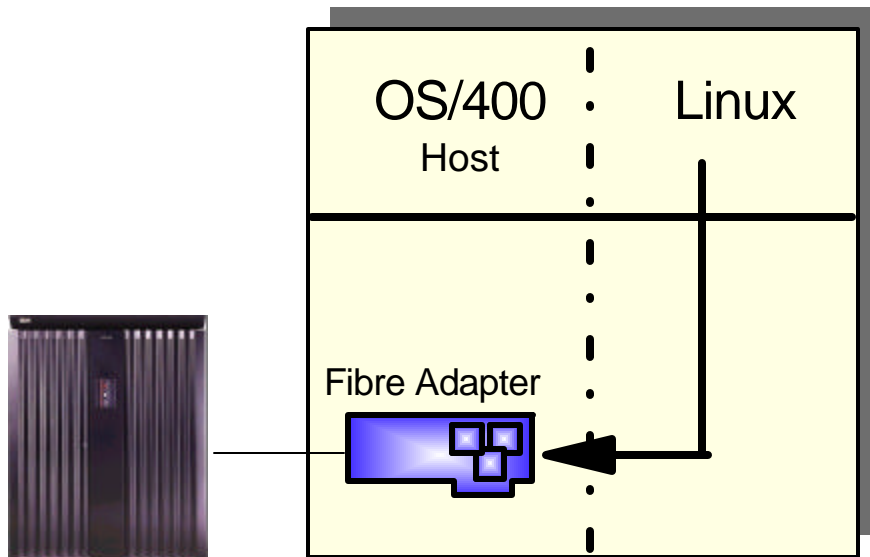
Linux Partition Specify Feature Code 0142 Required

Type	CCIN	Feature Number	Description	
<b>Ethernet</b>	2743	0601	1 Gbps Fibreoptical	
	2760	0602	1 Gbps Twisted Pair	
	2838	0607	10/100 Mbps	
	2849	0623	10/100 Mbps	
	New	5700	0620	10/100/1000 Mbps Fiberoptical
New	5701	0621	10/100/1000 Mbps Twisted Pair	
<b>Token Ring</b>	2744	0603	100/16/4 Mbps	
<b>Storage</b>	2748	0605	Ultra-2 SCSI (3 buses; 26 MB write cache; RAID 5*; extended adaptive read cache; supporting internal disk and tape units, CD-ROM, and DVD-RAM)	
	2763	0604	Ultra-2 SCSI (2 buses; 10 MB write cache; RAID 5*; supporting internal disk and tape units, CD-ROM, and DVD-RAM)	
	2778	0606	Ultra-2 SCSI (3 buses; 78 MB write cache; RAID 5*; extended adaptive read cache; supporting internal disk and tape units, CD-ROM, and DVD-RAM)	
	New	5702	0624	Ultra-3 SCSI(2 buses; no write cache; no hardware RAID; supporting internal disk and internal or external tape units, CD-ROM, and DVD-RAM)
	New	2757	0618	Ultra-3 SCSI (4 buses; 757 MB maximum compressed write cache; hardware RAID 5*; supporting internal disk and tape units, CD-ROM, DVD-RAM, and DVD-ROM)
	New	2782	0619	Ultra-3 SCSI (2 buses; 40 MB write cache; hardware RAID 5*; supporting internal disk and tape units, CD-ROM, DVD-RAM, and DVD-ROM)
<b>Fibre</b>	2766	0612	Shortwave fibre channel adapter (point-to-point or arbitrated loop topologies; supporting ESS attachment for Linux)	
<b>WAN</b>	2745	0608	2-line WAN with 2 RVX ports supporting multiple communication protocols	
	2772	0609/0610	2-line WAN with 2 RJ11 modem ports supporting V.90 56k Async PPP; Feature code 0609 is non-CIM, 0610 is CIM.	
	2742	0613	2-line WAN with 2 RVX ports supporting multiple communication protocols	
	2793	0614/0615	2-line WAN with 1 RVX port supporting multiple protocols and 1 RJ11 modem port supporting V.92 56k Async PPP, V.92 data modem, V.44 data compression, V.34 FAX modem and FAX functions; Feature code 0614 is non-CIM, 0615 is CIM	
	F03LP02.prz	2805	0616/0617	4-line WAN with 4 RJ11 modem ports supporting V.92 56k Async SLIP/PPP and V.34 FAX functions; Feature code 0616 is non-CIM, 0617 is a CIM

# TotalStorage Enterprise Storage Server (ESS)



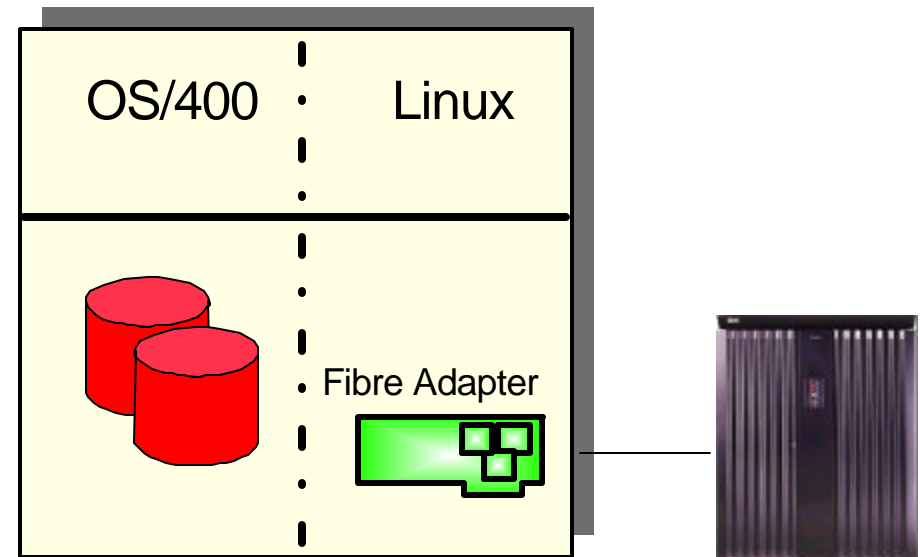
## Virtual I/O



### OS/400 Stores Data on ESS

- ▶ #2766 Fibre Adapter in OS/400 hosting partition
- ▶ OS/400 V5R1 or V5R2

## Direct I/O



### Linux Stores Data on ESS

- ▶ #0612 Fibre Adapter in Linux partition
- ▶ OS/400 V5R1 or V5R2
- ▶ Support included in SuSE SLES 7 Refresh 2 for iSeries or via download
  - [www.ibm.com/eserver/iseries/linux/fibre\\_channel.html](http://www.ibm.com/eserver/iseries/linux/fibre_channel.html)

***Enables Linux partitions to participate in a heterogeneous storage consolidation with ESS***

# Virtual Ethernet



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

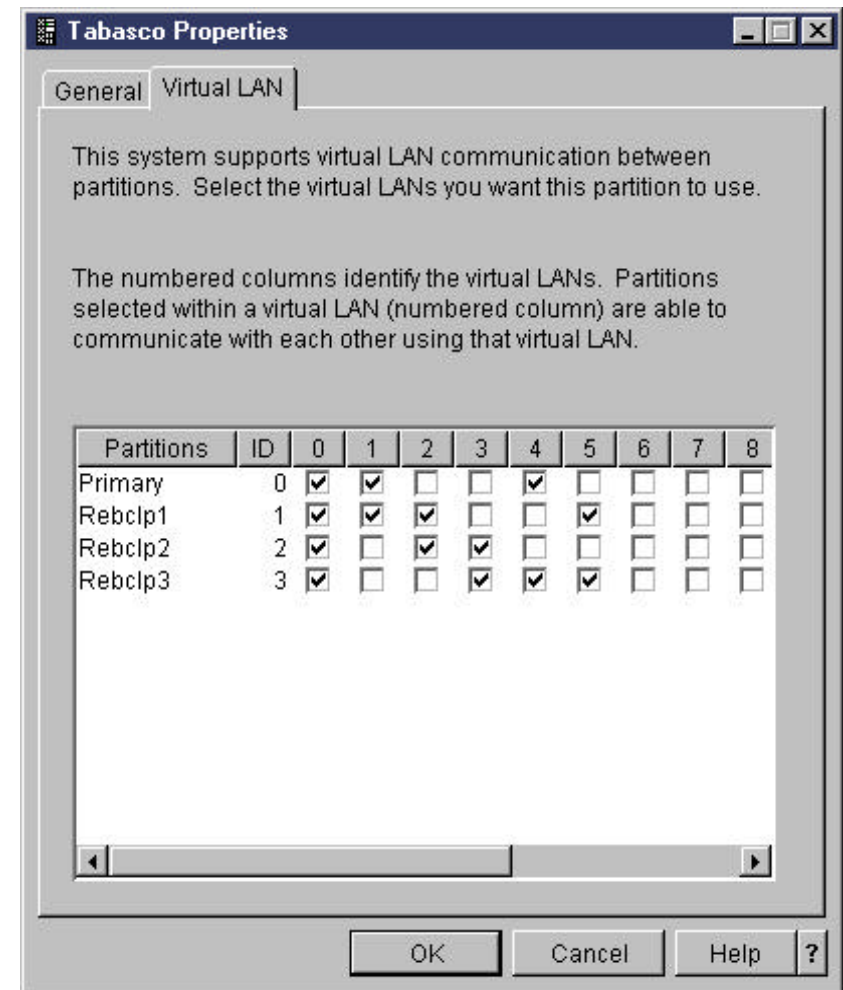
**Up to 16 high speed TCP/IP connections between partitions**

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

**Supports communications between**

- OS/400 to OS/400
- Linux to OS/400
- Linux to Linux
- Linux to Windows

**Included with OS/400 V5R1 and V5R2**



# Linux and OS/400 Appl. Integration

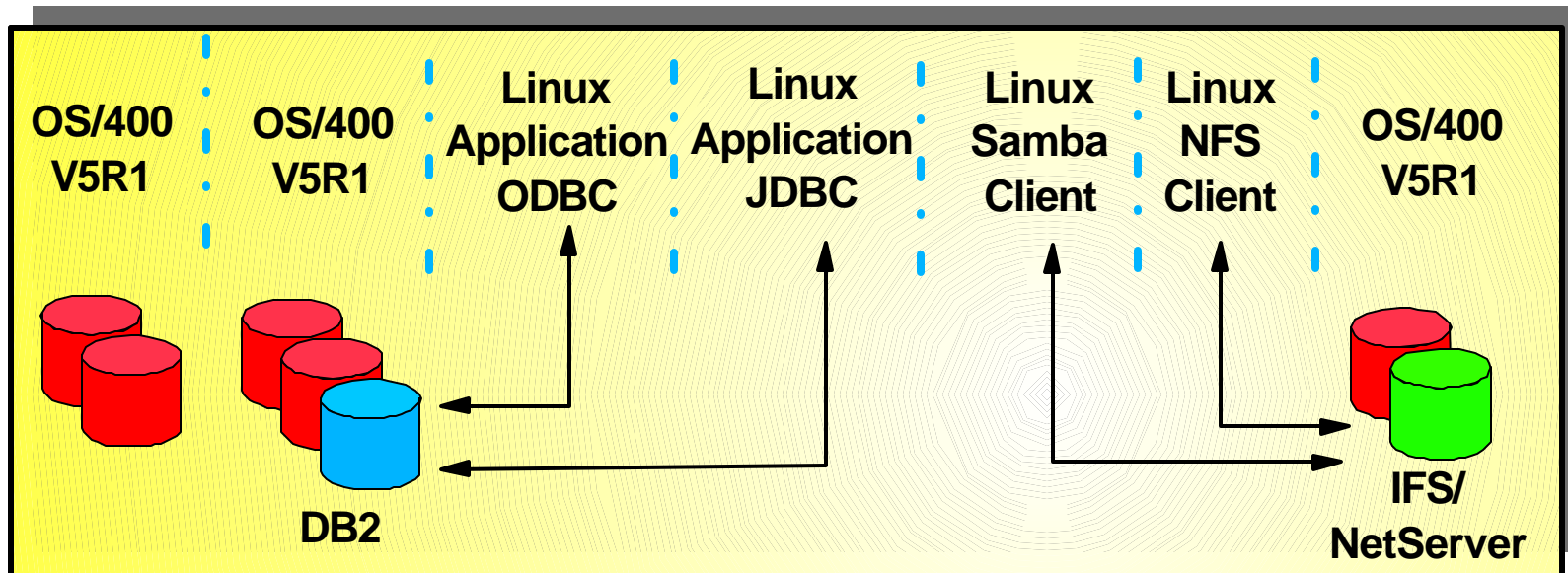


## Database Access

- Linux can access DB2 UDB for OS/400
  - JDBC (IBM Toolbox for Java)
  - ODBC for DB2 UDB for OS/400

## File and Print Serving

- Linux can access OS/400 files
  - OS/400 NetServer Support for Samba
  - NFS
- Linux can print to OS/400 printers
  - OS/400 NetServer Support for Samba





# Linux Partition Management



## V5R2 iSeries Navigator

- Create Partition Wizard
- Create, Delete Partitions
- Move Processor Resources

**Move Processing Power**

Move Processing Power

Move from logical partition "Primary (0)"

	Current	After Move	Amount	Unit
Shared processor pool:	1.70	1.40	0.36	processing units
Interactive performance:	50	50	0	percent
Virtual processors:	3	3		

Move to

Logical partition: Rchlinux (2)

	Current	After Move	Amount	Unit
Shared processor pool:	0.25	0.55	0.30	processing units
Interactive performance:	0	0		percent
Virtual processors:	1	1		

OK Schedule... Cancel Help ?

**Configure Logical Partitions - TPLXR01**

File Edit View Help

1 minutes old

iSeries Navigator

- Physical System
  - Partitions
    - Unassigned Hardware
    - Primary (0)
    - Partion1 (1)
    - Partion2 (2)
    - Partion3 (3)
    - Linuxad (4)**

TPLXR01: Linuxad (4)

Hardware	Current	Pending
Linuxad (4)	New	
Dedicated Processors	0	
Shared Pool Processors		0.50
Memory	0 MB	1000 MB

1 - 4 of 4 objects

# Linux Distributors



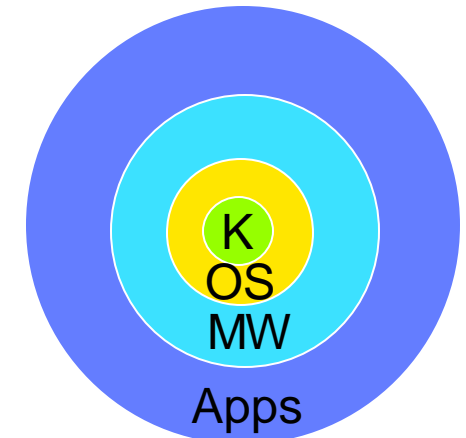
- ▶ Use PowerPC Linux kernel
- ▶ Add 100s of Operating System, Middleware, and Application components
- ▶ Add iSeries integration features
- ▶ Create Installation Documentation

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

Distribution



**Kernel +  
Operating System +  
Middleware +  
Applications =  
Distribution**

# Linux Distributions for iSeries



## SuSE

- **SuSE Linux Enterprise Server 8**
  - 64-bit kernel, 64 and 32-bit applications
    - Available December, 2002
- SuSE Linux Enterprise Server 7
  - 64-bit kernel, 32-bit applications
    - Available January, 2002



## Turbolinux

- **Turbolinux Enterprise Server 8 for iSeries**
  - 64-bit kernel, 64 and 32-bit applications
    - Planned Available March 2003
- Turbolinux Server 7 for iSeries
  - 64-bit kernel, 32-bit applications
    - Available, April 2002



## Red Hat

- **Red Hat Linux 7.1 for iSeries (64-bit)**
  - 64-bit kernel, 32-bit applications
    - Available, January 2003
- Red Hat Linux 7.1 for iSeries
  - 32-bit kernel
    - Available February 2002



# Linux Distributions for iSeries



	<b>SuSE SLES 8 for iSeries</b>	<b>Turbolinux TLES 8 for iSeries</b>	<b>Red Hat 7.1 for iSeries (64 bit)</b>
Kernel type/version	64-bit (supports 64 and 32 bit application) Vers 2.4.19	64-bit (supports 64 and 32 bit application) Vers 2.4.19	64-bit (supports 32 bit application) Vers 2.4.9
Languages	English, German, French, Italian, Spanish, Portuguese (Brazilian), Simplified Chinese, Japanese	English, German, French, Italian, Spanish, Portuguese (Brazilian), Simplified Chinese, Japanese	English, German, Japanese
GLIBC version	Vers 2.2.5	Vers 2.2.5	Vers 2.2.4
GCC	Vers 3.2	Vers 3.2	Vers 2.96.75
iSeries ODBC Driver for Linux	Vers 5.1.0.0.12	Vers 5.1.0.0.12	See Note 3
JTOpen	Vers 3.1-24	Vers 3.1-24	See Note 2
IBM Developer Kit for Linux, Java 2 Technology Edition	Vers 1.3.1SR3 via Download See Note 1	Vers 1.3.1SR3 via Download See Note 1	Vers 1.3.1 via Download See Note 1
ibmsis Linux Storage device driver Supported SCSI controllers - 2748, 2763, 2778, 2757, 2782, 5702	Vers 1.18.9	Vers 1.18.9	See Note 4
Journal File System (JFS)	Vers 1.0.24	Vers 1.0.24	See Note 5
icom (serial device drivers) Supported adapters - 2745, 2771, 2772, 2742, 2793, 2805	Vers 1.1.0	Vers 1.1.0	Not included
Power4 Support	Yes	Yes	Yes

Note 1: Available for Download (<http://www-106.ibm.com/developerworks/java/jdk/linux140/>)

Note 2: Available for Download (<http://www-1.ibm.com/servers/eserver/series/toolbox/> )

Note 3: Available for Download (<http://www-1.ibm.com/servers/eserver/series/linux/odbc/>)

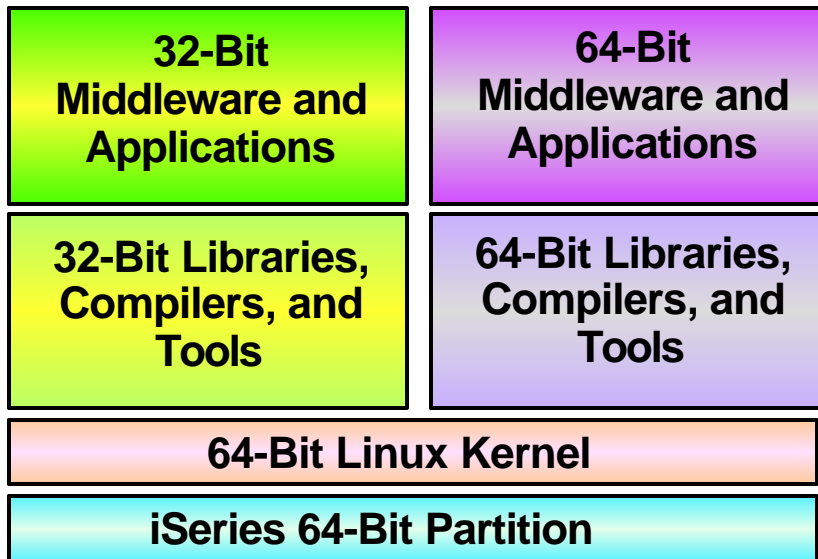
Note 4: Available for Download (<http://www6.software.ibm.com/dl/linuxsdd/linuxsdd-p>)

Note 5: Available for Download (<http://www-124.ibm.com/developerworks/oss/jfs/index.html>)

# 64-Bit Linux on iSeries



## 64/64 Linux Environment

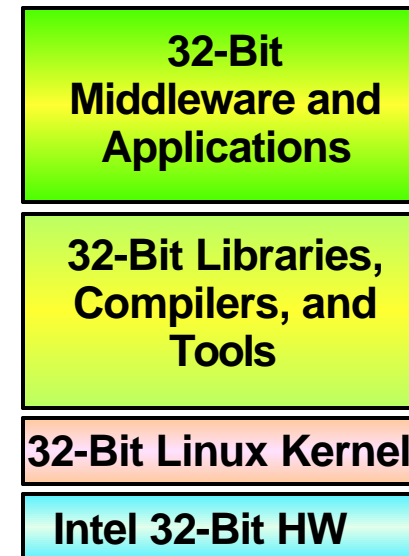


**64-Bit kernel supports 64 and 32 bit applications**

**64-Bit applications can leverage large address spaces and memory**

- Memory - 256 GB available on iSeries
- Addressability - 2 TBs

## Intel 32 Linux Environment



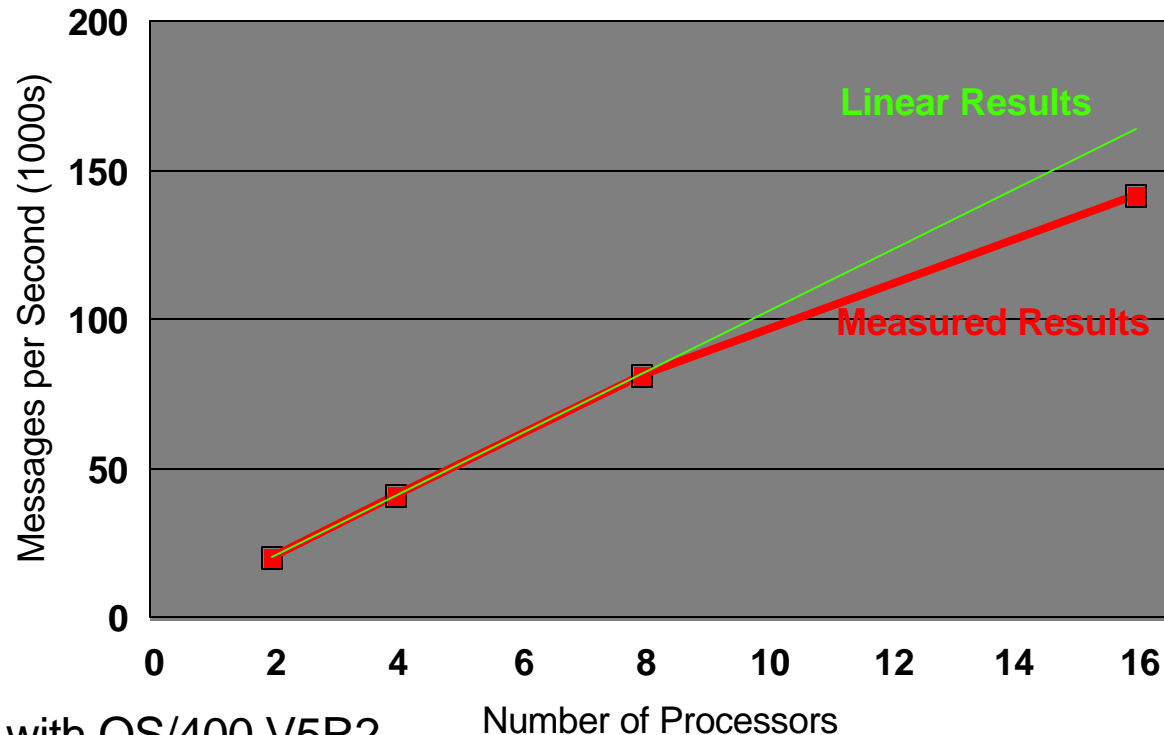
**32-Bit kernel supports 32 bit applications**

- Memory: 4 GB is practical limit
- Addressability - 3 GB

# Linux on iSeries Scalability



## VolanoMark Benchmark Results



# of Processors	Messages Per Second
2	20,535
4	41,508
8	81,772
16	142,222

### ■ i890 with OS/400 V5R2

- N-way Partition of 2GB RAM on i890. The host i890 machine has 32 1.3GHz Power4 processors and 64GB of main memory.

### ■ SuSE Enterprise Server 8 for iSeries

- SuSE SLES8 (PPC) Version 8.1, Linux version 2.4.19-*ul1-iseries64-SMP*  
(*root@iSeries.suse.de*) (gcc version 3.2) #1 SMP Wed Nov 13 18:23:44 UTC 2002

### ■ Benchmark Details

- ▶ Volano LLC's VolanoMark™ Version 2.1.2.
- ▶ Server - Java -Xms512m -Xmx512m COM.Volano.Main
- ▶ Client - Java -Xms512m -Xmx512m COM.Volano.Mark -count 1000 (2- and 4-way) Java -Xms512m -Xmx512m COM.Volano.Mark -count 2000 (8- and 16-way)
- ▶ Java™ 2 Runtime Environment, Standard Edition (build 1.3.1) Classic VM (build 1.3.1, J2RE 1.3.1 IBM build cxppc32131-20020706 (JIT enabled: jitc))

VolanoMark test performed by IBM Rochester Performance Team, 12-9-02

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# Linux for iSeries configuration



# Linux for iSeries Configuration



**OS/400 provides tools for creation and modification of logical partitions.**

**A logical partition consists of memory, processor, disk resources, and network resources.**

- Disk resources can be real (native) or virtual (IFS)
- COMM resources can be real (native) or virtual (virtual ethernet)

**In addition to the resources for the logical partition, OS/400 also provides the tools for creation of virtual disk resources as well as virtual network resources.**



# Green Screen vs iSeries Navigator



## LPAR Configuration

- Green Screen interfaces only in V5R1
- iSeries Navigator Interfaces for Linux added in V5R2

## OS/400 Configuration (NWSD etc.)

- Green Screen only

The screenshot shows the iSeries Navigator interface. The left pane displays a tree view of the system configuration, with 'Logical Partitions' selected under 'Configuration and Service'. The right pane shows a table of logical partitions for 'Rchlp600: Logical Partitions'.

Partitions	Type	Status	System R...	Restart S...	Restart ...	Auto Res...	Release	ID
Primary (0)	Primary	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 ...	0
Lpar601 (1)	Secondar...	On	1 00000000	B - Use t...	Manual	No	V5R2M0 ...	1
Lpar602 (2)	Secondar...	On	1 00000000	B - Use t...	Manual	Yes	V5R2M0 ...	2
Lpar603 (3)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 ...	3
Lpar604 (4)	Secondar...	On	1 00000000	B - Use t...	Manual	No	V5R2M0 ...	4
Lpar605 (5)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 LO	5
Lpar606 (6)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 LO	6
Lpar607 (7)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 LO	7
Lpar608 (8)	Secondar...	Unit atte...	1 A6004404	B - Use t...	Manual	Yes	V5R2M0 LO	8
Lpar609 (9)	Secondar...	On	1 C6004400	B - Use t...	Manual	Yes	V5R3M0 LO	9
Lpar610 (10)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 LO	10
Lpar611 (11)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 ...	11
Lpar612 (12)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 ...	12
Lpar613 (13)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R2M0 ...	13
Lpar614 (14)	Secondar...	On	1 00000000	A - Use p...	Normal	Yes	V5R2M0 ...	14
Lpar615 (15)	Secondar...	On	1 00000000	B - Use t...	Normal	Yes	V5R3M0 LO	15
Lpar616 (16)	Secondar...	Unit atte...	1 A6005082	B - Use t...	Manual	No	V5R3M0 LO	16
Lpar617 (17)	Secondar...	On	1 00000000	A - Use p...	Manual	No	V5R3M0 LO	17
Linux25 (25)	Secondar...	On	1 00000000	A - Use p...	Manual	No	Linux 2.4...	25
Linux26 (26)	Secondar...	On	1 00000000	C - Reser...	Manual	No	Linux 2.4...	26
Linux27 (27)	Secondar...	Off	1 00000000	C - Reser...	Manual	No	Linux 2.4...	27
Linux28 (28)	Secondar...	On	1 00000000	B - Use t...	Manual	No	Linux 2.4...	28
Linux29 (29)	Secondar...	Off	1 00000000	B - Use t...	Manual	No	Linux 2.4...	29
Linux30 (30)	Secondar...	Off	1 00000000	C - Reser...	Manual	No	Linux 2.4...	30
Linux31 (31)	Secondar...	On	1 00000000	A - Use p...	Manual	No	Linux 2.4...	31



# **Creating the Logical Partition (iSeries Navigator)**

# Linux Partition Management Enhancements



## iSeries Navigator

- Create Partition Wizard
- Create, Delete Partitions
- Move Processor Resources



Configure Logical Partitions - TPLXR01

File Edit View Help

1 minutes old

iSeries Navigator

- Physical System
- Partitions
  - Unassigned Hardware
  - Primary (0)
  - Partion1 (1)
  - Partion2 (2)
  - Partion3 (3)
  - Linuxad (4)**

TPLXR01: Linuxad (4)

Hardware	Current	Pending
Linuxad (4)	New	
Dedicated Processors	0	
Shared Pool Processors		0.50
Memory	0 MB	1000 MB

1 - 4 of 4 objects



# **Creating the Logical Partition (System Service Tools)**

# Service Tools Userid required in V5R1



**Service tools userids can only be created from Dedicated Service Tools (DST) on the system console**

**Passwords are case sensitive**

```
Start Service Tools (STRSST) Sign On

                                SYSTEM: RCHCST14

Type choice, press Enter.

Service tools user . . . . . _____
Service tools password . . .

F3=Exit      F9=Change Password      F12=Cancel
```

# Work with Partitions



**Specific authorities are required to both administer and manage partitions**

## System Service Tools (SST)

Select one of the following:

1. Start a service tool
2. Work with active service tools
3. Work with disk units
4. Work with diskette data recovery
5. Work with system partitions
6. Work with system capacity

Selection

F3=Exit

F10=Command entry

F12=Cancel

# Creating the Partition



There are lots of cool functions

First create a partition

```
Work with System Partitions
System: RCHCST14
Attention: Incorrect use of this utility can cause damage
to data in this system. See service documentation.

Number of partitions . . . . . : 6
Partition manager release . . . . . : V5R1M0 L000

Partition identifier . . . . . : 0
Partition name . . . . . : PRIMARY *
```

Select one of the following:

1. Display partition information
2. Work with partition status
3. Work with partition configuration
4. Recover configuration data
5. Create a new partition

Selection

-

F3=Exit F12=Cancel

# Picking the Partition Type



**Tip: If your system doesn't support Linux, this option won't be presented**

```
                                Select Operating Environment
                                System:  RCHCST14
Select one of the following:
    1. OS/400
    2. Guest

Selection
    -
F3=Exit  F12=Cancel
```



# Defining Partition Resources



The Create New Partition screen is used to define the processor and memory resources for the partition.

The number of available system processors shows the amount of processing units available to be allocated

```
                                Create New Partition
                                System:  RCHCST14
Complete blanks, press Enter.

Partition identifier and name . . . . . 6  DBLINUX
Number of available system processors . . . . . : 0
Number of partition processors . . . . . 2
Minimum / maximum number of processors . . . . . 0 / 2
Use shared processor pool . . . . . 1 1=Yes, 2=No
  Shared processor pool units . . . . . 0 . 5
  Minimum / maximum processor pool units . . . . . 0 . 0 / 1 . 5

Size of available system main storage (MB) . . . : 102
Size of partition main storage (MB) . . . . . 128
Minimum / maximum size of main storage (MB) . . . 0 / 512

F3=Exit  F9=Exclude limits  F10=Work with shared processor pool
F11=Display partition processing configuration  F12=Cancel
```

# Allocating Processing Resources



## Shared processor vs Whole Processor

- SSTAR supports fractional units
- ISTAR must allocate whole processor units
- This is only a Linux statement! ISTAR supports fractional processors for OS/400 partitions
- For Linux, you won't find out you did it wrong until you start the partition

For shared processors there are two fields:

- Number of partition processors. This is the number of processors the partition will think it has
- Shared processor pool units. This is the actual horsepower the partition gets.
- A partition could be allocated 4 processors, but only 0.4 shared processor pool units.
- A partition cannot be allocated 1 processor, but 1.1 processor pool units (if you think about this, it doesn't make sense.)

# Allocating Processor and Memory



**Entering 1 for shared processor pool allows the partition to use fractional processor units that have been dedicated to the processor pool.**

**The amount of memory allocated to the partition must be equal to or less than the size of available system main storage.**

**The maximum memory field is very important for two reasons!**

- You can't change it without IPLing the system
- The system allocates memory for the "Hardware Page Table" based on this value.
- If you specify 4GB for the maximum memory, and 128MB for the actual memory, most of the 128 will be taken up by the hardware page table that is big enough for a 4GB memory space.

# Selecting virtual LAN connections



The **Select Communication Options** screen is used to allocate virtual ethernet connections to the partition.

The **Virtual LAN Connection** emulates a gigabit ethernet connection.

- Up to 16 separate virtual LANs can be defined
- Allows fast communication between LPARs as well as OS/400 (primary partition)

**External COMM can be mapped to virtual LAN via Proxy ARP or Network Address Translation (NAT)**

```
                                Select Communication Options
                                System:      RCHCST14
Partition identifier . . . . . : 6
Partition name . . . . . : DBLINUX

Type changes, press Enter.
1=Yes 2=No

-----Virtual LAN Identifiers-----
0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

F3=Exit  F11=Display communication options  F12=Cancel
```

# Confirmation Screen



For Linux, you really want to select the host partition here. If you forget, you can do it later (after Linux fails to boot because it has no hosting partition.)

```
Confirm New Partition
System: RCHCST14
Verify information, press Enter.

Partition identifier and name . . . . . : 6 DBLINUX
Number of partition processors . . . . . : 0
Minimum / maximum number of processors . . . . . : 0 / 2
Use shared processor pool . . . . . : Yes
  Shared processor pool units . . . . . : 0.00
  Minimum / maximum processor pool units . . . . . : 0.00 / 2.00
Size of partition main storage (MB) . . . . . : 0 (8)
Minimum / maximum size of main storage (MB) . . . . . : 0 / 512
Virtual LAN . . . . . : No

I/O Resource
Description                               Serial      Part
                                         Type-Model Number      Number

F3=Exit   F9=Select host partition   F10=Display logical address
F11=Add I/O resources                 F12=Cancel
```

# Setting the Hosting partition



The hosting partition is the OS/400 partition that you will boot Linux from. Even for Linux partitions with their own disk, you need to do the installation from a host partition.

```
                                Select Host Partition
                                System:   RCHCST14
Partition identifier . . . . . : 6
Partition name . . . . . : DBLINUX

Type option, press Enter.
1=Select

-----Host Partition-----
Option  Identifier  Name      Version/Release
-       0           PRIMARY  V5R1M0 L000

F3=Exit   F12=Cancel
```

## Some LPAR Config Changes Require IPL



Operations such as creating a partition, changing the minimum or maximum memory sizes require a whole system IPL to take effect.

```
                                IPL Required                                System:
RCHCST14
A system IPL may be required to activate changes made to the
partition configuration.

Press F10 to IPL the whole system now.
  Any active secondary partitions will be powered off in
  delayed mode, then the system will be IPLed.
Press F3 or F12 to continue working.
  Any changes made may still be pending to take effect on
  the next system IPL.

F3=Exit   F10=IPL system to activate changes   F12=Cancel
```



# **NWSD Configuration (from OS/400 commands)**



# Creating a new Linux Partition



**Network Server Descriptor (NWSD) defines the processing parameters and resources**

**Network Server Storage (NWSTG) provides virtual DASD for the partition.**

**Virtual LAN provides virtual COMM for the partition.**

# Creating the NWSD



```
                                Create Network Server Desc (CRTNWSD)

Type choices, press Enter.

Network server description . . . > DBLINUX _____ Name
Resource name . . . . . > *NONE _____ Name, *NONE
Network server type . . . . . > *GUEST _____ *WINDOWSNT, *GUEST
Online at IPL . . . . . *YES _____ *YES, *NO
Vary on wait . . . . . *NOWAIT _____ *NOWAIT, 1-15 minutes
Partition . . . . . _____ Name
Code page . . . . . 437 _____ *LNGVER, 437, 850, 852, 857...
Server message queue . . . . . *JOBLOG _____ Name, *JOBLOG, *NONE
  Library . . . . . _____ Name, *LIBL, *CURLIB
TCP/IP port configuration:
  Port . . . . . *NONE _____ *NONE, *INTERNAL, 1, 2, 3
  Internet address . . . . . _____
  Subnet mask . . . . . _____
  Maximum transmission unit . . _____ Number
                                + for more values _

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

The type of the NWSD is \*GUEST

Note that the resource is "\*NONE", but that you specify the partition name.

# Creating a Virtual Disk



If a native disk is not assigned to the partition, then a virtual disk will need to be created

The virtual disk is storage carved out of the IFS and made available to the partition.

The CRTNWSSTG command is used to create the virtual disk

```
                Create NWS Storage Space (CRTNWSSTG)

Type choices, press Enter.

Network server storage space . . . mydisk           Name
Size . . . . . 1000           *CALC, 1-64000 megabytes
From storage space . . . . . *NONE           Name, *NONE
Format . . . . . *OPEN           *NTFS, *FAT, *FAT32, *OPEN
Auxiliary storage pool ID . . . 1           1-99
Text 'description' . . . . . My really cool virtual disk

                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

# Creating a Virtual Disk



**The size to allocate for the virtual disk is dependent on the usage of the disk (and the distribution being installed)**

**Storage space that is to be used with linux needs to be defined as \*OPEN for format.**

# Associating Virtual Disk with NWSD



Virtual disk(s) need to be associated with a Network Server Descriptor before they can be used

More than one Virtual disk can be associated with a Network Server Descriptor

Work with Network Server Storage Spaces (wrknwsstg) can be used to link the disk to the NWSD.

Add Server Storage Link (addnwsstgl) can also be used

```
                                Add Server Storage Link (ADDNWSSTGL)

Type choices, press Enter.

Network server storage space . .  MYDISK      Name
Network server description . . .  DBLINUX     Name

                                Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display   F24=More keys
```

# Configuring NWS D for initial load



Use change network server description (chgnwsd) to change the parameters of the NWS D

Typically, the IP Source, IP streamfile, and IPL parameters are the field that are changed to initiate a Linux installation

The iSeries Linux RedBook along with distribution specific installation documentation provides specifics for these parameters

```
Change Network Server Desc (CHGNWSD)

Type choices, press Enter.

IPL source . . . . . *STMF          *SAME, *NWSSTG, *PANEL...
IPL stream file . . . . . /QOPT/SU73.001/ISERIE64
-----
IPL parameters . . . . . *NONE
-----

Text 'description' . . . . . *BLANK
-----

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

# Virtual Console Access



A logical partition has no "physical" console

Support for a virtual console is provided in V5R1

- telnet <os/400 partition> 2301

A screenshot of a Windows Command Prompt window titled "Command Prompt - telnet rchlp603 2301". The window displays the output of a telnet session to an OS/400 Guest Partition Console. The text shown is:

```
OS/400 Guest Partition Console
25: LINUX25
26: LINUX26
28: LINUX28
29: LINUX29
30: LINUX30
31: LINUX31
Enter the console partition number:
-
```

- Select the desired partition
- Enter the DST user name and password for the partition
- Once the partition is vary'd on, the console information will be displayed

# Starting the Partition



Work with Configuration Status (wrkcfgsts \*nws) is used to Vary on the partition.

Prior to vary on of the partition, you should access the virtual console

```
Command Prompt - telnet rchlp603 2301
Starting SSH daemon
modprobe: modprobe: Can't open dependencies file /lib/modules/2.4.20-pre4/modules.dep (No such file or directory)
Starting syslog services
Starting RPC portmap daemon
Starting service at daemon:
Starting lpd
Starting CRON daemon
Starting Name Service Cache Daemon
Starting sound driver:modprobe:
-pre4/modules.dep (No such file or directory)
Starting httpd [ PHP4 ]
Starting personal-firewall (finding kernel module ip_conntrack failed, kernel module ip_conntrack not active)
Master Resource Control: runlevel 3:
Skipped services in runlevel 3:
al
Welcome to SuSE Linux SLES-7 (P
rchlp631 login:
```

```
Work with Configuration Status
RCHCST14
03/27/02 23:23:24
Position to . . . . . Starting characters
Type options, press Enter.
1=Vary on 2=Vary off 5=Work with job 8=Work with description
9=Display mode status 13=Work with APPN status...
Opt Description Status -----Job-----
--- LINUX1 VARIED OFF
--- LINUX2 ACTIVE
--- LINUX3 ACTIVE
Parameters or command
===>
F3=Exit F4=Prompt F12=Cancel F23=More options F24=More keys
Bottom
```



# Modifying an Existing Partition Config



**At times it may be desirable to modify partition resources**

**Enables load balancing**

**Reduced resources from one partition can be allocated to a different partition**

**Modifications may require a reboot of Linux to take effect (but not an IPL of OS/400)**

# Linux Partition Management from OS/400



Data defined in Network Server Descriptor is available to Linux

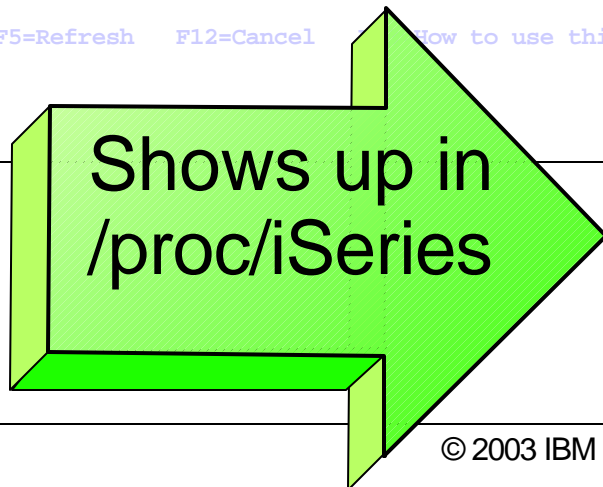
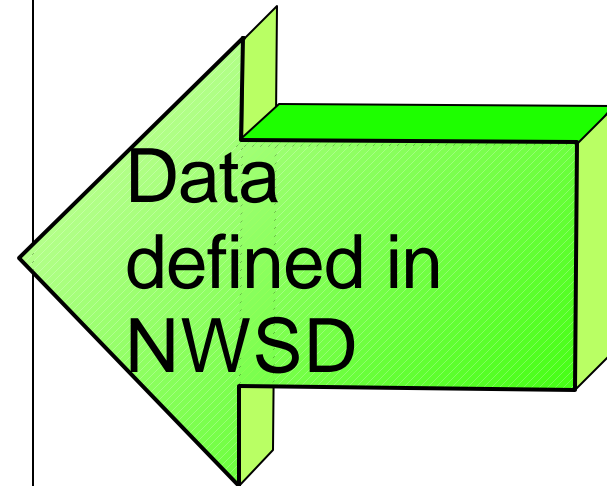
```
Change Network Server Desc (CHGNWSD)

Type choices, press Enter.

TCP/IP route configuration:
Route destination . . . . . *NONE
Subnet mask . . . . .
Next hop . . . . .
+ for more values
TCP/IP local host name . . . . . *NWSD
TCP/IP local domain name . . . . . *SYS

TCP/IP name server system . . . . 9.5.100.75
+ for more values . . . . . 9.5.100.76
Restricted device resources . . . *NONE Name, *SAME, *NONE, *ALL...
+ for more values
Synchronize date and time . . . . *NO *SAME, *TYPE, *YES *NO

F3=Exit F4=Prompt F5=Refresh F12=Cancel How to use this
F24=More keys
```



```
Command Prompt - telnet lparjavageek5
lparjavageek5:~ # cat /proc/iSeries/config
PARTITIONNAME=LINUX2
NWSDNAME=LINUX2
HOSTNAME=LINUX2
DOMAINNAME=
NAMESERVERS=9.5.100.75 9.5.100.76
lparjavageek5:~ #
```

# Displaying Partition Information



## Tools provided to display following partition information:

- Partition Status
- Partition Processing Configuration
- Allocated I/O Resources
- Available I/O Resources
- System I/O Resources
- Partition Operating Environment
- Communication Options
- Secondary Partition Reference Code History
- Guest Environment Host Information
- Guest Environment Console Log

# Display Partition Status



Displays the mode, and current state of the partition

Displays the action that will be taken on the partition when the iSeries system is IPLd (Sys IPL Action)

Displays any applicable reference codes for the partition.

```
Display Partition Status
System: LPARJAVA
Reference Codes: A900 2000
Partition Identifier Name IPL Source IPL Mode State Sys IPL Action
0 PRIMARY B B Normal Unit Attn IPL
1 LINUX1 B B Manual On Hold
2 LINUX2 B B Manual On Hold
3 LINUX3 C C Manual On Hold

F3=Exit F5=Refresh
F9=Include reference code detail F10=Monitor partition status
F11=Display partition processing configuration F12=Cancel
```

# Display Partition Operating Environment



Displays the operating environment for each partition defined on the system

Information displayed includes:

- Operating system type (currently either OS/400 or Guest)
- Partition Identifier
- Partition Name
- Version of the operating system on the partition

```
Display Partition Operating Environment
System: LPARJAYA

Partition Identifier  Name      Op Sys  Version/Release  Delta
0 PRIMARY           OS/400  V5R1M0 L000      0
1 LINUX1            Guest   Linux 2.4.64     + 1
2 LINUX2            Guest   Linux 2.4.64     + 1
3 LINUX3            Guest   2.4.3-SMP        0

F3=Exit  F6=Print  F12=Cancel

MA a MW 01/001
```

# Display Guest Environment Console Log



Provides access to the console log for each partition defined on the system

```
Display Guest Environment Console Log
System: LPARJAVA
Partition(s) to display . . . . . *ALL *ALL, 1-3
Number of lines to display . . . . . 999 1-999 10/15/01 21:06:07

Par ID Log
1 e a lot of fun...
lparjavageek4:~ # ../pprrnooxyyaarrpp
lparjavageek4:~ # iiffccoonnffiigg
lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
UP LOOPBACK RUNNING MTU:16436 Metric:1
RX packets:48 errors:0 dropped:0 overruns:0 frame:0
TX packets:48 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0

tr0 Link encap:16/4 Mbps Token Ring (New) HWaddr 00:60:94:36:45:DC
inet addr:9.5.166.231 Bcast:9.5.166.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1496 Metric:1

More...

F3=Exit F5=Refresh F8=Clear F10=Monitor log F24=More keys
```

# Work with Shared Processor Pool



Pressing <F9> on the Work with Partition Configuration screen will display the Work with Shared Processor Pool Screen

This utility allows you to change the processor resources and memory resources allocated to a defined partition

```
Work with Shared Processor Pool                                     System:  RCHCST14
Type change or option, press Enter.
  2=Change
Number of system processors . . . . . : 2
Number of available system processors . . . . . : 0
Number of system processors allocated to pool . . . 2_
Available processor units in pool . . . . . : 0.17

Opt  Par  --Total Processors--  -----Units Used-----
   ID  Name  Cur / Pnd  Min / Max  Cur / Pnd  Min / Max
-   -   -   -   -   -   -   -   -   -   -
  0  PRIMARY  1 / 1  1 / 2  0.23 / 0.23  0.20 / 2.00
  1  LINUX1  1 / 1  0 / 2  1.00 / 1.00  0.00 / 2.00
  2  LINUX2  1 / 1  0 / 2  0.30 / 0.30  0.00 / 2.00
  3  LINUX3  1 / 1  0 / 1  0.30 / 0.30  0.00 / 1.00
  4  LINUX4  0 / 0  0 / 1  0.00 / 0.00  0.00 / 1.00
  5  LINUX5  0 / 0  0 / 1  0.00 / 0.00  0.00 / 1.00

F3=Exit  F5=Refresh  F9=Show all partitions  F12=Cancel
```



# Linux for iSeries Solutions





## Java™

- IBM Developer Kit for Linux, Java 2 Technology Edition
  - 1.3.1 Available for download at <http://www6.software.ibm.com/dl/dklx130/dklx130-p>
  - Certified for Red Hat 7.1 for iSeries (64-bit) and SLES 8
- iSeries Toolbox for Java provides access to DB2 UDB and OS/400 Services

## DB2 UDB for Linux

- Technology Preview started 1st quarter 2002
- Statement of Direction April 29, 2002
- Beta of DB2 UDB 8 January, 2003



## WebSphere Application Server for Linux

- Technology Preview started 1st quarter 2002
- Statement of Direction April 29, 2002

# Application Sources



## Linux Distributions

- Contain popular Open Source Applications
  - Apache, Samba, Sendmail MTA, Netfiler

## Open Source Applications

- 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](http://www.openoffice.org)

## PowerPC Linux applications

- Will run out of the box
- iSeries, pSeries, Apple PowerBook,,,

## Intel Linux applications

- Need to be compiled for PowerPC

## ISVs

- PartnerWorld is working with ISVs to enhance iSeries application portfolio

# Linux on iSeries: Key Solutions



## Included with Distributions

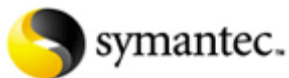
- ▶ Samba - file server
- ▶ Apache - web server
- ▶ Squid - proxy server
- ▶ DNS/DHCP
- ▶ MySQL - database
- ▶ ...

## Open Source

- ▶ Tomcat - web application server
- ▶ OpenOffice - office suite
- ▶ ...

## ISVs

- ▶ Symantec - Enterprise Firewall
- ▶ eOne - Commerce
- ▶ Sage - business applications
- ▶ Bynari - mail server
- ▶ MAPICS - ERP
- ▶ Dimensional Insight - BI
- ▶ Vision Solutions - HA
- ▶ Cybozu - workgroup



More .....<http://www-1.ibm.com/servers/eserver/series/linux/apps.html>

# iSeries Test Drive and Showcase for Linux



## iSeries Test Drive for Linux

### Bring New Applications to Market

### Porting /Testing Resource for ISVs

- iSeries Linux Partitions Accessible over Internet

### Process

- ISVs fill out nomination
  - <http://www.iseries.ibm.com/developer/factory/testdrive/index.html>
- Free and Fee Options
- Shared and Dedicated Partition Options
- SuSE, Red Hat and Turbolinux available

## iSeries Showcase for Linux

### Demonstrate Linux applications on iSeries

### Resource for Customers, BPs, ISVs and IBM

- iSeries Linux Partitions Accessible over Internet

### Process

- Fill out nomination
  - <http://www.iseries.ibm.com/linux/showcase/>
- Users access for 30 days
- ISVs and BPs can install applications for all to access
- SuSE, Red Hat and Turbolinux available

# Linux on iSeries Solutions



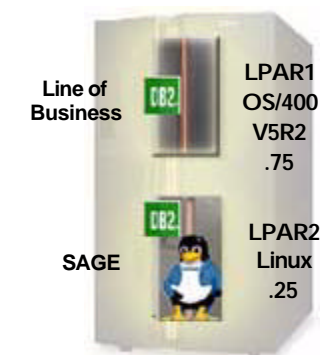
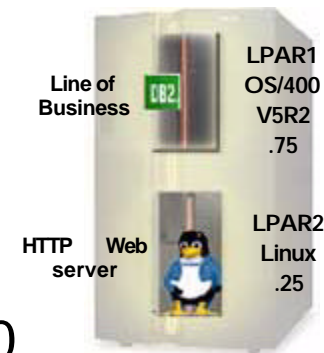
## Consolidation

- Replace Windows or Linux Infrastructure servers
- Run multiple Linux servers in partitions
- Consolidation Lowers Cost of Computing



## Integration

- Extend OS/400 applications with Linux Applications
- Run Linux applications on same server as OS/400
- Integration Lowers Cost of Computing



## Application Flexibility

- Leverage Linux LOB application portfolio
- Run Linux applications on iSeries
- Flexibility Lowers Cost of Computing

# Notes: Linux on iSeries Solutions



There are 3 basic solutions that iSeries customers are going to leverage Linux for on iSeries

## Consolidation:

Consolidation infrastructure servers (ie. file & print, e-mail, DNS, DHCP) will be the easiest way to cost justify Linux on iSeries. Consolidation of infrastructure workloads should be sold with any other iSeries software solution with upgrade (ie. with Domino, WebSphere, 5250 OLTP, ERP, etc). THIS IS THE TCO MAKER!!!

## Integration

Extend current applications (5250 OLTP) apps by using ISV solutions (ie eOne WebCommerce, Apache)

## Application Flexibility

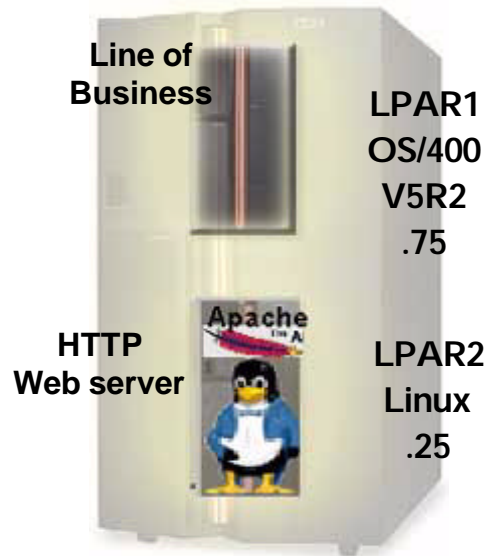
Leverage net new ISV application to extend e-business applications. These ISV solutions will typically be Linux only apps and will not leverage any LOB apps that run in native OS/400. (ie SAGE, Bynari)

# Apache

## Did You Know??

63% of the worlds websites use Apache

<http://www.netcraft.com/survey/> 12/01/02



## Extend LOB Applications with Linux

- ▶ OS/400 runs line of business applications
- ▶ Linux runs most popular web server
- ▶ Java Toolbox provides interfaces to DB2, IFS, Spool files, Systems Values, Messages, Programs, Commands, Data Queues, Jobs, ...

## Web Front End

- ▶ Apache Web Server
- ▶ Tomcat App Server
  - <http://java.sun.com/products/jsp/tomcat/>
- ▶ IBM JVM 1.3 for Linux PPC
  - Included in SuSE Developer Edition for iSeries
- ▶ **iSeries Toolbox for Java**
  - <http://www-1.ibm.com/servers/eserver/iseries/toolbox/>

## Apache Web Serving Sizing Guide

# of iSeries CPUs in Linux Partition	Hits/Second			
	0.5	1	2	4
i820	462	921	1690	3379
i830	NA	921	1690	3379
i840	514	1024	1878	3755

# Notes: Apache



Here we look at Apache and stress the fact that 63% of the world uses Apache to power their websites. This is a huge potential opportunity to consolidate to the iSeries. Included is the sizing charts that we have built for Apache Workloads.

NOTE... We are adding Apache and File & Print sizing to the Workload Estimator in Early February 2003. This way our partners will be able to size these workloads very easily for server consolidation efforts.



# Firewall



## ▶ NetFilter

- Included in SuSE, Red Hat, and Turbolinux distributions

## ▶ Symantec Enterprise Firewall

- ISV solution based on Advance firewall features
- Beta 1Q03
- <http://www.symantec.com/calendar/ibmiseries/>



Line of  
Business

LPAR1  
OS/400  
V5R2  
.75

Firewall

LPAR2  
Linux  
.25

## Firewall and iSeries

- ▶ Adding a Firewall to any iSeries solution can help bring down the TCO of delivering an e-business Solution
- ▶ Customers no longer have to purchase a separate non-iSeries server to have firewall protection
- ▶ Provides robust security for the corporate network and all mission critical applications
- ▶ Adds another core e-business application to the iSeries portfolio

# Notes: Firewall



With the internet being the focus of e-business and a HUGE focus with our latest 2003 announcement (WebSphere Express and Webfacing being a key solution area of the enterprise packaging) it is perfect opportunity to be bundling a firewall with that solution.

# Banco Do Brasil

Case Study



## Background

- Banco Do Brasil is the largest bank in South America

## Objectives

- Centralize IT service and delivery
- Exploit open source software
- IT Europe had 8 branches with 250 users, 8 NT networks, and 41 NT Servers

## Solution

- iSeries Model 820 Offering for Linux
- SuSE SLES 7
- 3 Integrated xSeries Servers
- 4 Integrated xSeries Adapters
- Replacing NT applications with Linux (firewall)

## Benefits

- Centralized storage
- Reduced Administration and support
- More reliable IT service
- Software license savings

**BANCO DO BRASIL**



# **Notes: Banco Do Brasil**

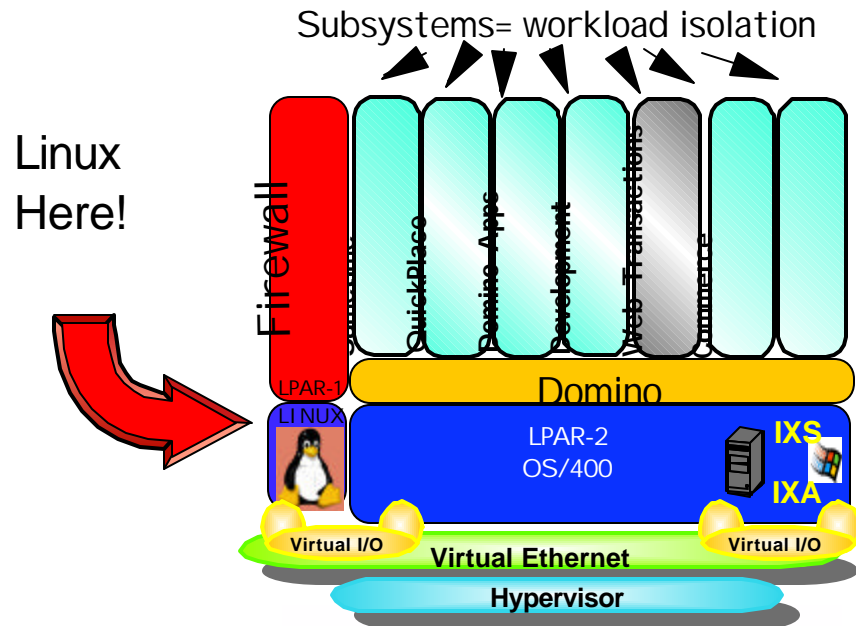


Banco Do Brasil has leveraged Linux for a firewall when consolidating their older AS/400 servers and Intel servers to the iSeries to deliver a complete iSeries server consolidation solution!

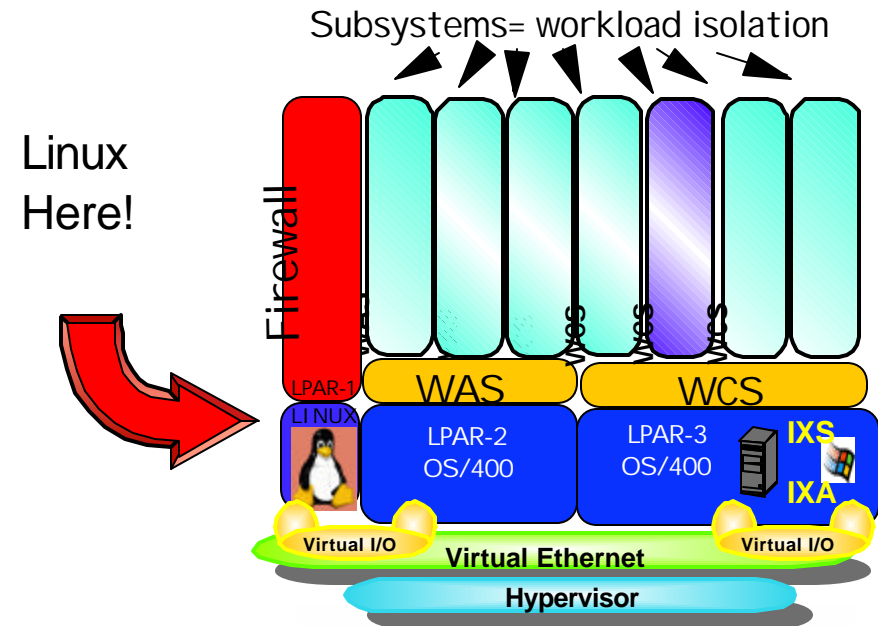
# Domino and WebSphere Servers



Domino and WebSphere Servers should include LINUX for Firewall!



Domino



WebSphere

# ***Notes: Domino and WebSphere Servers***



Whenever you have a Domino or WebSphere solution you are selling a firewall should be positioned with it!

# Sendmail

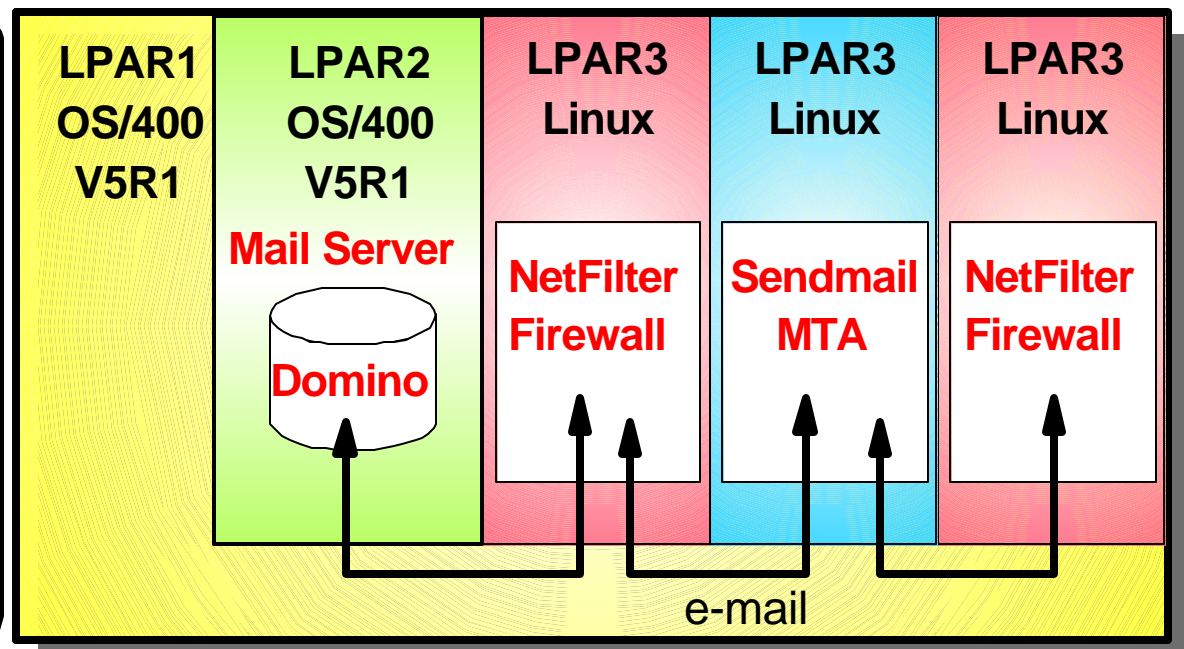
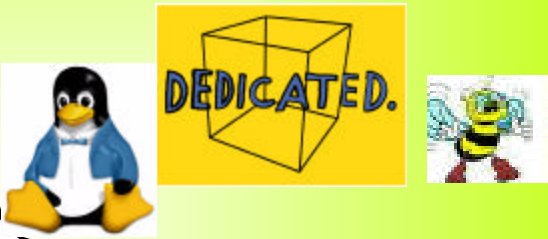


## Separate Mail Server from Internet

- Sendmail Message Transfer Agent (MTA)
  - Included in SuSE, Red Hat, and Turbolinux distributions
  - High performing reliable mail gateway
- Mail Server Options
  - Domino on OS/400
  - Exchange on direct attach xSeries server
  - IMAP / POP server on Linux

DSD server can run Linux

- Extend Domino Solutions
  - Symantec Firewall
  - SMTP SendMail Gateway
  - Samba File and Print



# Notes: Sendmail



Be sure to position Linux to be a complimentary workload to other e-business workloads. Emphasis the importance of SendMail Gateways & Firewalls with Domino workloads and that Linux runs on all DSD's without any penalty. (no governor on Linux workloads)



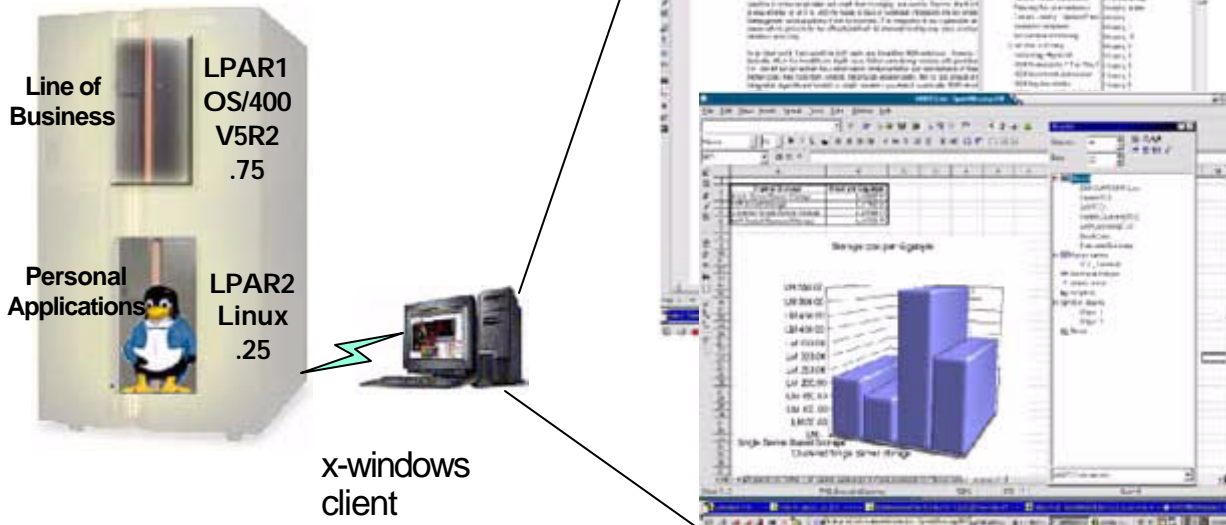
# Open Office

## Did You Know??

MS Office 2K costs \$595 per CAL

MS Office XP costs \$635 per CAL

<http://www.microsoft.com/licensing> 12/02/02



## OpenOffice

- ▶ Word processor, Spreadsheet, Presentation Builder
- ▶ **Reads and Creates MS Office documents** (word, excel, powerpoint)
- ▶ Runs on server, GUI sent to X-Windows client
- ▶ Runs on client, with files stored on iSeries
- ▶ Open Source Project  
Millions of Downloads  
<http://www.openoffice.org/>

## Consolidated Server

- ▶ OS/400 runs line of business applications
- ▶ Linux runs OpenOffice for personal productivity applications
- ▶ Use ODBC driver to load DB2/400 data into OpenOffice spreadsheets

# ***Notes: Open Office***



# Creating PDFs in Linux



- Setup currently is 2 Linux LPAR's, one for our testing (and playing) and one that is currently in QA phase and should be going live pretty soon
- This system will be used to resolve an issue we have where we use Acrobat Distiller to convert our PostScript streams to PDF. As the Acrobat product (which runs on a Windows based IXS) is single threaded we've hit problems when some jobs generate thousands of pages and you have interactive users and web users waiting for their couple page PDF's.
- We're using the ps2pdf linux command and some custom shell scripts that fork (spawn) a thread per PDF request.
- We've pushed this system (which is a single CPU - we have older iSeries technology - with 256MB memory and a virtual disk image of 400MB with our data being accessed via NFS from the production system) to running 300+ simultaneous threads
- very good performance and response times

# Notes: Creating PDFs in Linux



We've been involved in the Beta for iSeries for Linux as well as the Beta for WebSphere for iSeries Linux which by the way has been running very nicely.

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# Linux on iSeries: Key Solutions



## ISVs

- ▶ Symantec - Enterprise Firewall
- ▶ eOne - Commerce
- ▶ Sage - business applications
- ▶ Bynari - mail server
- ▶ MAPICS - ERP
- ▶ Dimensional Insight - BI
- ▶ Vision Solutions - HA
- ▶ Cybozu - workgroup

## IBM Middleware SODs

- ▶ DB2 UDB for Linux
- ▶ WebSphere Application Server for Linux

Do you have a customer looking for a specific apps to be ported to iSeries Linux?

Contact Gordon Haubenschild

- ▶ Haubens@us.ibm.com
- ▶ phone: 507-253-3454

Engage our porting centers

- ▶ <http://www.developer.ibm.com/en/spc/linux.html>



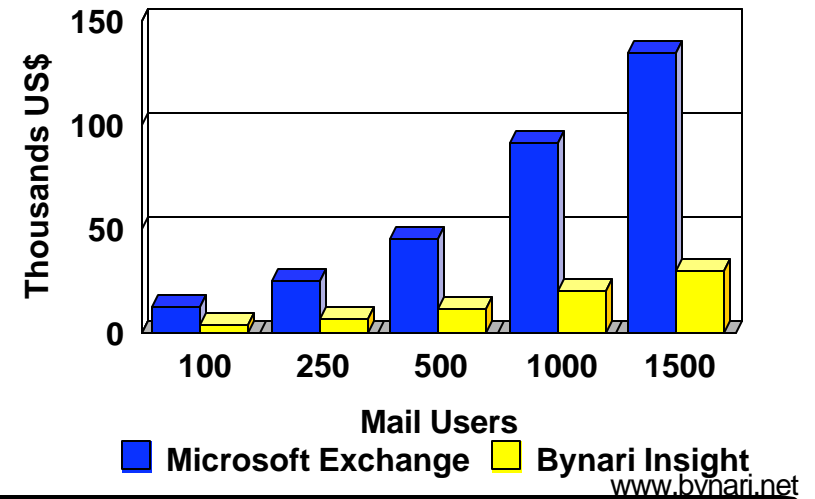
More .....<http://www-1.ibm.com/servers/eserver/series/linux/apps.html>



## What is Bynari?


- ▶ Messaging and Collaboration Server
  - Directory Services, Calendaring, Collaboration
- ▶ Web Server
  - Internet Mail Server (SMTP, IMAP, POP3, MAPI)
  - Internet Mail Spec Compliant
  - Based on open standards Interoperable with all versions of Microsoft Outlook, Netscape, and other leading mail clients
- ▶ Runs on all IBM eServer platforms and other manufacturers servers under Linux
- ▶ Full-function Outlook client

### Bynari Insight vs Microsoft Exchange Mail Server Costs




# e-business Solutions



 delivers a Linux based B2B and B2C eCommerce solution that is perfect for the SMB customer who is looking to leverage e-business Solutions.

- ▶ Are your customers looking for e-commerce solutions but don't want the complexity of WebSphere... check this out!!
- ▶ [www.eonegroup.com](http://www.eonegroup.com) call Bill Coffey 877-FAST-ROI

 ERP iSeries Linux-based solution provides improved benefits —including greater stability, reliability, scalability, performance and cost savings. The offering empowers manufacturers to collaborate more effectively over the Internet, improve customer service, deliver products faster and make better business decisions.

- ▶ Are your customers looking for a low cost solution that extends their ERP solution to browsers, wireless devices and more, give MAPICS a look!
- ▶ [www.mapics.com](http://www.mapics.com)



## Background

- ▶ YKK (U.S.A.) Inc., the world's largest zipper manufacturer

## Objectives

- ▶ New e-business infrastructure that will improve service for its U.S. distributors.
- ▶ Web portal that allows YKK's distributors to check inventory, securely place orders, track and review order status and history, and access a variety of links including an online product catalog.

## Solution

- ▶ iSeries Model 820 Offering for Linux
- ▶ SuSE SLES 7
- ▶ eOne Commerce

## Benefits

- ▶ "Our new customer service portal is a first for YKK in the U.S., so it was critical that we made the right choice for our customers," said Sara Carnell, director of operations, YKK (U.S.A.) Inc. "We explored several options before going with the e-business solution from IBM and eOne Group. IBM's Linux server running eOne Commerce gives us the scalable, flexible and secure Web site we need, and it also was very affordable."





# YKK and iSeries

Case Study

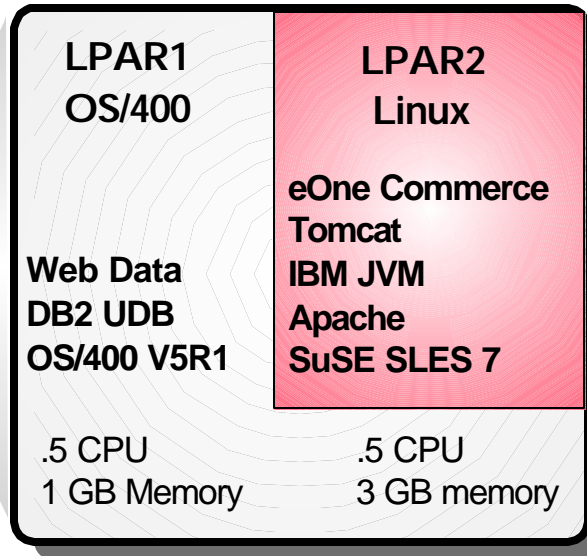


## Business Server    Web Portal Server



AS/400  
DB2 UDB  
RPG App  
Business Data

iSeries 820  
-0150



### Phase 1 Web portal for their distributors

- ▶ e.g., check order status
- ▶ Replacing a phone system
- ▶ Up and running in 6 weeks

### Phase 2 Order Entry and Accounts Receivable

### Value Proposition

- ▶ Fast ROI
- ▶ Built to Easily Integrate with backend systems
- ▶ Easy to Administer
- ▶ Advanced Features
- ▶ Scalable and Robust
- ▶ BPs and IGS Trained to Install

# Cosmos Life Co., Ltd

コスモスライフ



## Background

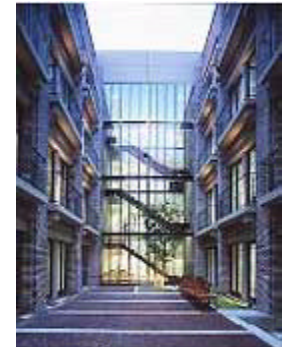
- ▶ Cosmos Life manages 2300 buildings including 100,000 rooms nationwide Japan

## Objective

- ▶ Reduce IT management costs
- ▶ Consolidate AS/400s and 3 PC servers (Domino, Database, Cybozu)

## Solution

- ▶ Cybozu Garoon for scheduling and messaging (telephone memo, notice of discussion database, company internal broad information)
- ▶ Domino on OS/400 for e-mail and documents database
- ▶ Red Hat for iSeries
- ▶ i820 with 5 Partitions
  - Control Partition (OS/400)
  - Core Application Partition (OS/400)
  - Domino Partition (OS/400)
  - DB2 Partition (OS/400) for future using
  - Groupware Application Partition (Red Hat Linux)



# Linux for iSeries Summary



**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**



[www.ibm.com/eserver/series/linux](http://www.ibm.com/eserver/series/linux)



**Questions ?**

# end-to-end Technical Support *...the Key Links*

## How to engage Technical Sales Support

- ✓ External Support:
  - ✓ <http://www.ibm.com/support>
- ✓ Sizing Tool - <http://www.ibm.com/servlet/EstimatorServlet>



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