

# iSeries and Logical Partitioning

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# Definition of Logical Partitioning

Method to split up a single iSeries platform into independent entities, with own:

- Microcode (SLIC), Operating System, Licensed Products and Applications
- Allocation of hardware (processors, main storage, DASD and IOPs) and performance per entity
- 64 bit address space
- Configuration, Change, Problem, Operations and Performance tools

Primary vehicle to perform footprint consolidation of several servers into one hardware entity

# Notes: Definition of Logical Partitioning

Logical partitioning (LPAR) is a means and a method of implementing and operating several independent system environments on a single hardware platform. A single system can be defined into a set of logical partitions through a process of both allocation and distribution of available hardware resources within this collection and of installing an operating system with its licensed programs and applications on each of the resulting partitions. The hardware resources include processors (and associated caches), main storage, and I/O devices. This allocation of hardware resources needs to meet the requirements expressed in processor performance, memory and disk space, backup and archiving capabilities and communication bandwidth and interfacing of each partition. The resulting partitioned systems operate independently, running their own microcode, operating system, including licensed products and applications, and are logically isolated from any other partitions. Partitions or entire systems can be clustered for achieving higher levels of service availability. Inter-partition communication can be enabled via a variety of different setups. Each partition thus operates as a separate logical system, independent of the other logical systems within the same hardware package.

Each of the defined partitions on such a system has its own characteristics and requirements for service delivery and will therefore need its own systems management practices; each of these aspects, be it in the configuration, change, performance, problem or the operation discipline, needs to be addressed as if this were done on a single system. However, since the sum of all resources allocated to each partition still remains the same as on a "single image" server, some extra care should be taken when these partitioned systems are being designed, making the overall requirements for the entire partitioned system somewhat higher than the sum of each partition's requirements.

The ability to create a partition with unique characteristics, consequently facilitates the task to perform server consolidation more easily than when migrating existing workloads coming from several systems into one server instance. Therefore, Logical Partitioning can be seen as the primary vehicle to perform server consolidation while preserving all of the service delivery attributes for each existing server.

# LPAR V4R5 Capabilities

Primary and secondary partitions

Allocation of dedicated processor(s), memory and performance per partition

Allocation of DASD space per partition

Definition of IOPs and devices to be shared between partition

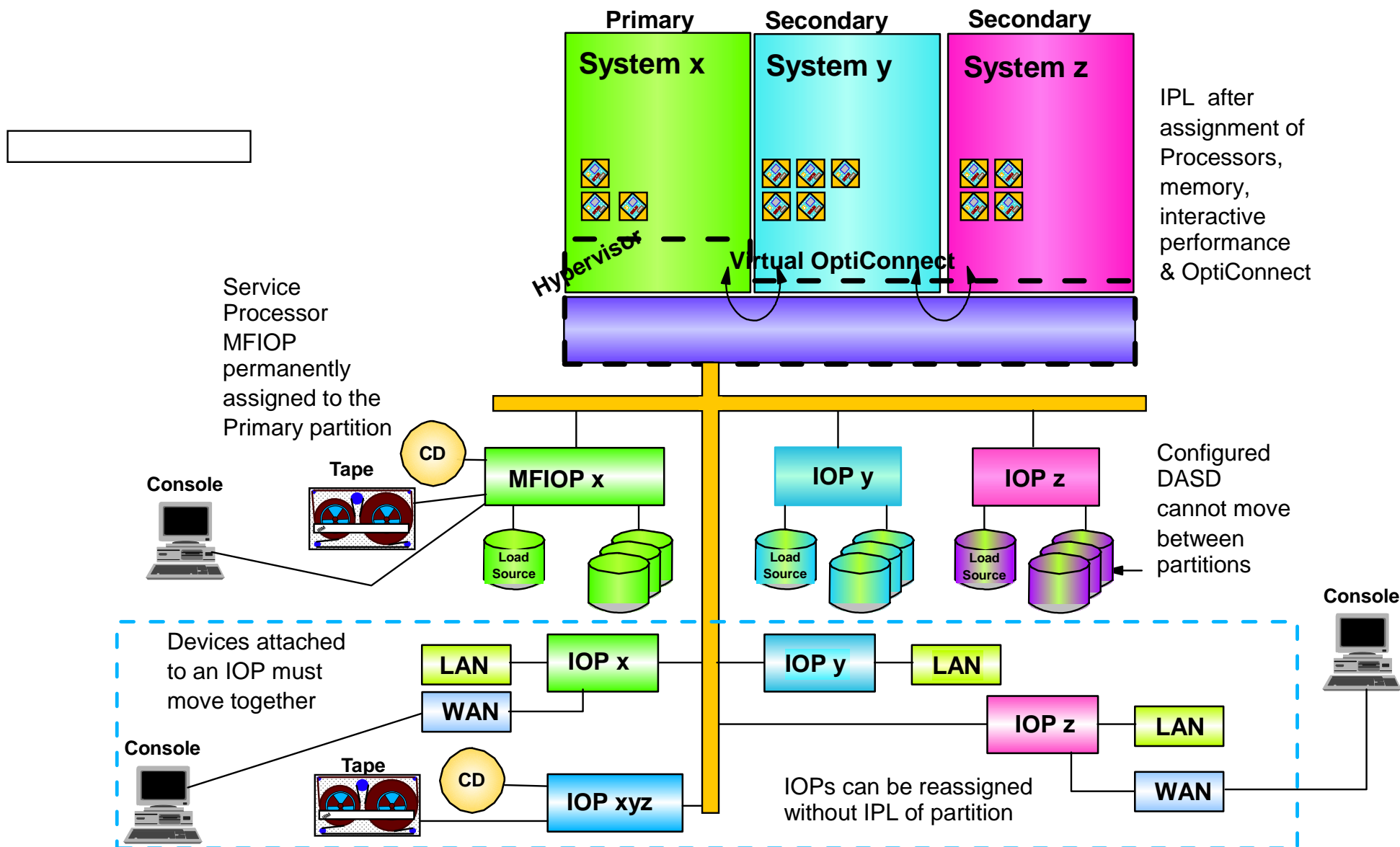
Introduced with V4R4

# Notes: LPAR V4R5 Capabilities

With its introduction in V4R4, the iSeries provided the possibility to use LPAR technology to split up a single system in multiple partitions, through a fixed allocation of one or more processors per partition. Other resources, such as memory or performance capacity could not be changed without IPLing the system. There was no possibility to share one or more processors between several partitions. Each active secondary partition requires at least 64M of main storage, while the primary partition requires at least 256M of main storage.

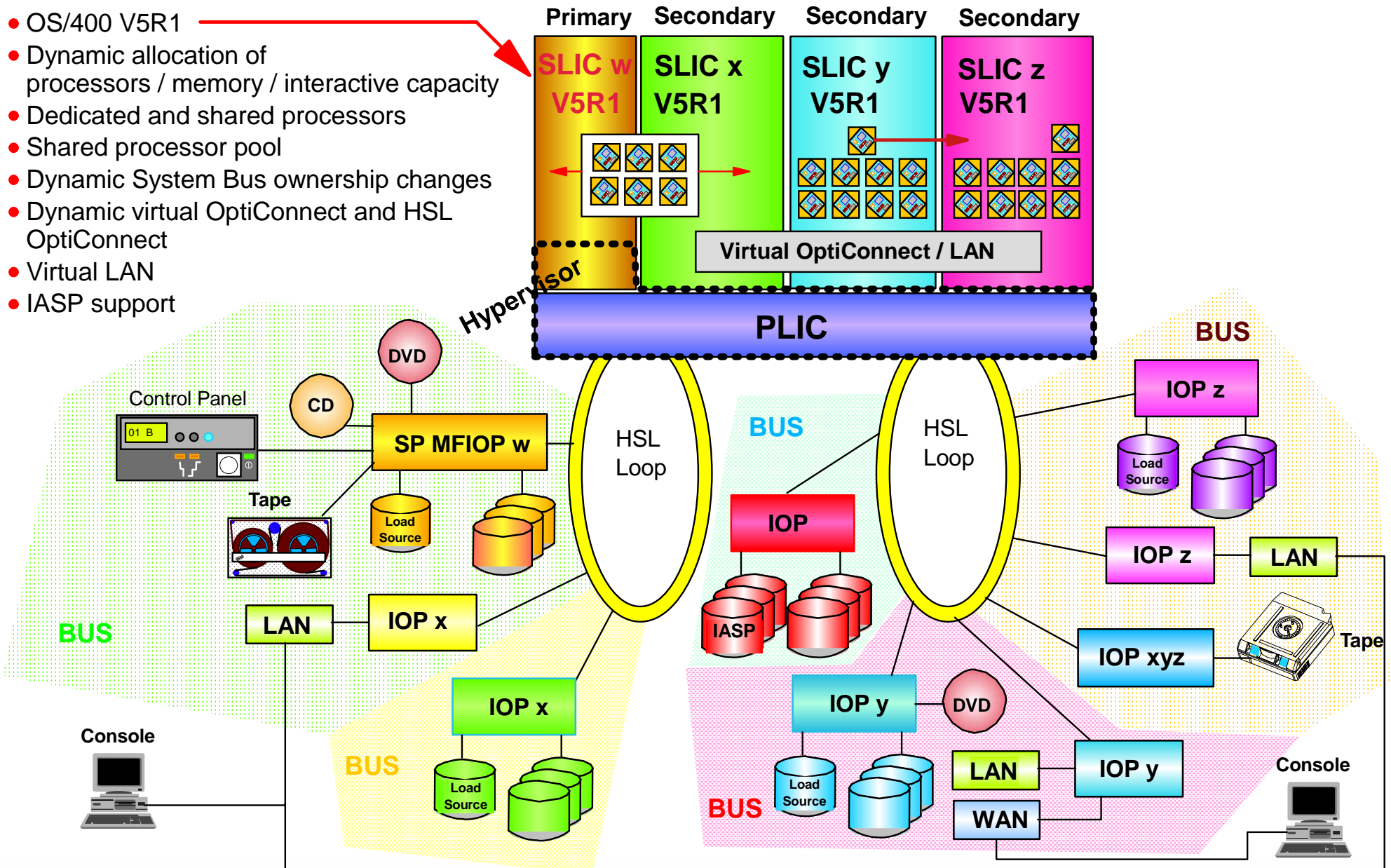
Communication between partitions can be established in different ways. One can choose between LAN, WAN or ATM (using external media) and OptiConnect or OptiMover (using optical busses). The combination of optical bus speeds and efficient software makes OptiConnect a viable solution, providing multiple routes to the database. You can run multiple communication protocols over OptiConnect (including TCP/IP).

# LPAR V4R5 Technical Layout



# LPAR V5R1 Conceptual view

- OS/400 V5R1
- Dynamic allocation of processors / memory / interactive capacity
- Dedicated and shared processors
- Shared processor pool
- Dynamic System Bus ownership changes
- Dynamic virtual OptiConnect and HSL OptiConnect
- Virtual LAN
- IASP support



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# LPAR V5R1 Enhancement Overview

Dynamic resource movement

Shared processor support

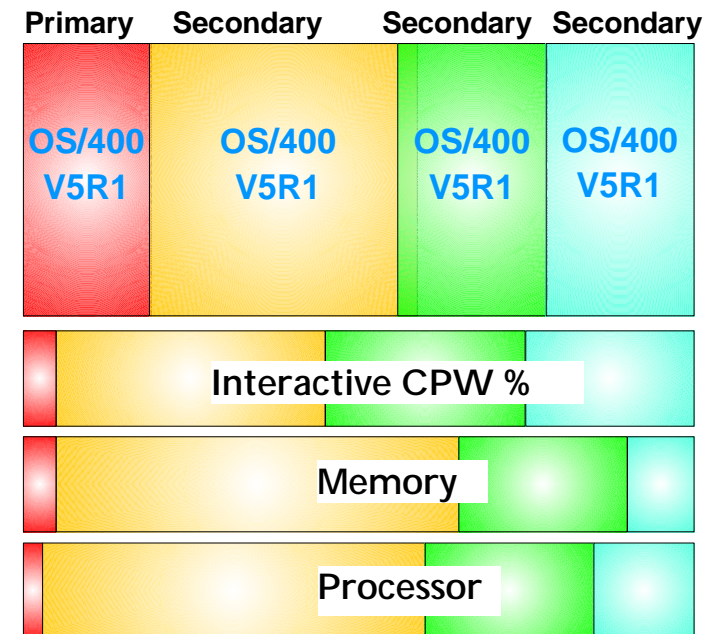
Up to 32 partitions on 8xx servers

High Speed Link support

Virtual LAN for inter-partition communication

Independent Auxiliary Storage Pool support

Simplified management through Operations Navigator





Each partition is defined with a minimum, maximum and initial number of processors. The existing LPAR support requires a partition IPL to activate changes to the current number of processors. The minimum or maximum number of processors cannot be changed except by a physical system IPL.

**Shared processors** allow more granular partitioning of this critical physical system resource. Each partition is configured to utilize a portion of the shared processor resources, similar to the configuration of the interactive capacity of the physical system. A partition can be "capped" to that portion of a shared processor, meaning that even if it has work to do and there are cycles available on a shared processor, the partition will not utilize those cycles. A partition utilizing cycles over and above its configured capacity is at the mercy of the workload run in other partitions, since it is only guaranteed cycles corresponding to its configured capacity. A partition may have shared processors or dedicated processors but not both.

**Shared pools of processors** support the subdivision of partitions into logical groups that can consume a fixed portion of the physical system. Each partition obtains an assignment of a percentage of the total processing capacity of the shared processor pool to which it is assigned.

Having the ability to share processors and to include them in processor groups, gives you the possibility to create a primary partition with minimal resources to just use it for LPAR management functions. It also protects it from production or more volatile environments. Such a primary partition is a "thin primary".

Each partition is assigned a portion of the **interactive performance** of the physical system and binds itself to that limit.

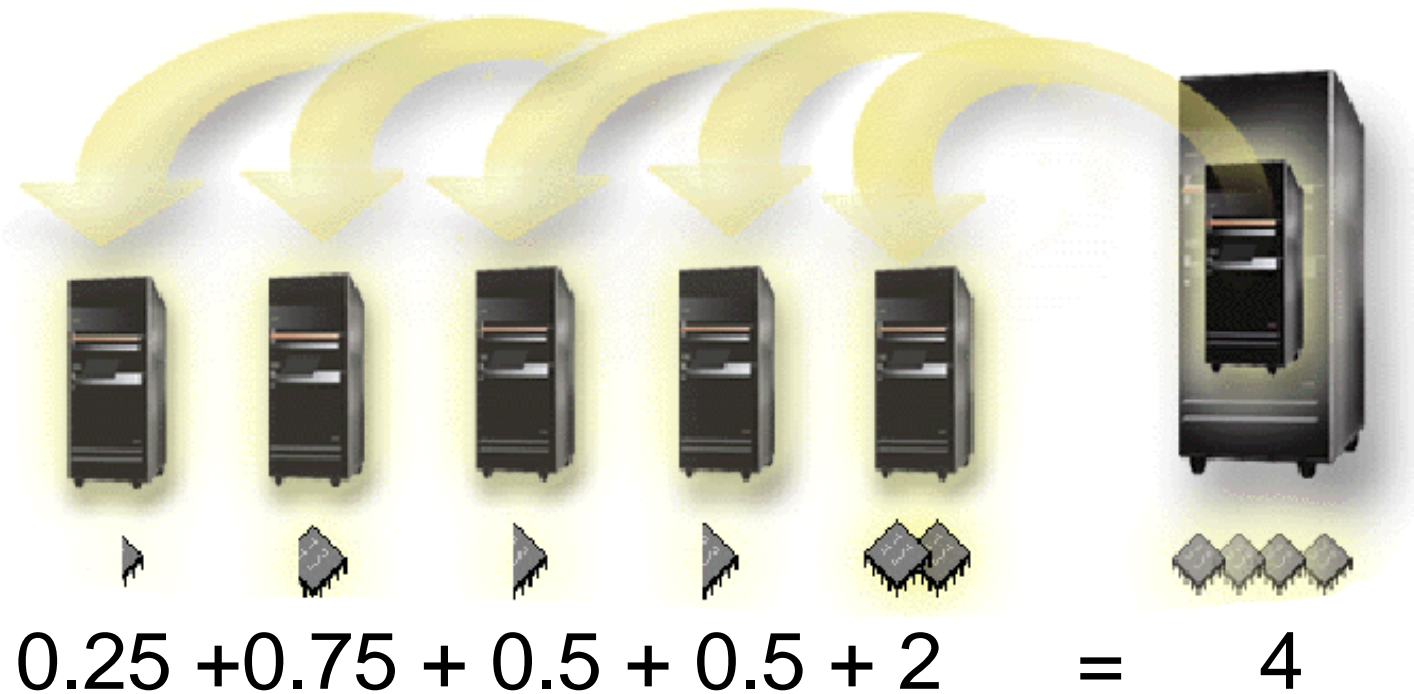
Like the other physical system resources, each partition has a minimum, maximum, and initial amount of **memory** defined. These values cannot be altered while the partition is active. Memory can dynamically (without an IPL) be added or removed to or from a partition as long as it remains between the minimum and the maximum configured values. Memory can be taken away from a partition that is powered off or IPLed up to DST. Memory will only be added or removed from the base pool (pool 2). If there is only a machine pool in the system then it will be used instead.

Dynamic resource movement can be done not only for devices which were already eligible in Stage I but now also for processors, memory, interactive capacity, virtual OptiConnect, virtual LAN and for hardware bus ownership.

Note: This presentation is focused on iSeries LPAR support. There is a V5R1 announcements marketing presentation - *Server Consolidation with Logical Partitioning and OS/400® V5R1*, that provides a marketing view of OS/400 logical partitioning support , which includes a summary of LPAR-like support on other operating systems.

# LPAR V5R1 Enhancements

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API QYHCHCOP is used for scheduling LPAR change requests via Management Central. For more information, refer to the API documentation in the Service Toolbox I0.

Operations Navigator in V5R1 supplies a graphical interface for lots of functions such as:

- Creating and deleting partitions
- Allocating and displaying processor resources for the partition, i.e. processor pools when necessary, processor weights, minimum, maximum, and initial processor values
- Allocating and displaying memory resources including minimum, maximum, and initial values
- Configuring and viewing I/O resources for each partition
- Selecting the load source, console, alternate IPL, and ECS resources for a partition
- Setting partition participation in the inter-partition OptiConnect or HSL OptiConnect
- Clearing the partition configuration
- Performing LPAR recovery actions
- Internal (inter-partition) IASP configuration

When a LAN console is used on a secondary partition, the virtual operator panel for that partition will make the following functions available from this console for that particular partition:

- Power on/off the partition
- Select IPL source
- Set IPL mode of Manual, Normal, Auto, or Secure
- Select partition IPL attributes
- Perform basic service actions from the virtual operator panel, like Main Storage Dump, force DST, etc.
- Display the current partition System Reference Code (SRC)

## Dynamic resource movement

- No IPL required for
  - Processors, memory, interactive performance movement
  - Participation in virtual OptiConnect or virtual LAN
  - All LPAR capable hardware movements
  - System bus ownership changes

## Sharing Processors

- 8xx models only
- Some uniprocessor models become partition enabled
- Minimum partition size 0.10 processing units for each virtual processor
- Granularity of configuration is 0.01 processing units
- Maximum number of partitions is 4x number of processors but maximum number of partitions system wide is 32

As stated before, processing resources and other vital resources can now be moved between partitions without having to perform an IPL. Making use of a shared processor pool between partitions gives you the option of a granular use of the available processors in the iSeries server. The principle can be explained as follows: shared processors allow more granular partitioning of this critical physical system resource, each partition will configure a percentage of the total processing capacity of the shared processor pool, similar to the configuration of the interactive capacity of the physical system. A partition may have shared processors or dedicated processors but not both. For a shared processor partition there is still the concept of number of processors in the partition, independent (almost) of the processor units assigned to the partition. The number of processors assigned to a partition represents the number of parallel threads of execution you have chosen to consume the processing capacity assigned to the partition. In an example where you assigned 1.5 processor units to a partition, if you choose to use two virtual processors, each virtual processor has the computing capacity of 0.75 of a physical processor. If another virtual processor is added to the partition without changing the processor units assigned to the partition, each virtual processor in the partition will have the computing capacity of 0.50 of a physical processor. Granularity of processors assigned to a partition when using a shared processor pool is 0.01.

The movement of memory between partitions is an other new process introduced in LPAR stage II. Like the other physical system resources, each partition has a minimum, maximum, and initial amount of memory defined. The system is able to dynamically add or remove memory to/from a partition as long as it remains between the minimum and the maximum configured values. These values are fixed for the duration of the partition IPL. When dynamically removing memory from the partition, the system will do this in contiguous chunks (a chunk is 256K) of memory from pool 2 (base) to an other partitions base pool. The re-scaling of the pools is your responsibility during and after the move in order to maintain decent paging behavior.

The bus ownership however can be changed dynamically. Once the primary partition is on V5R1, any partition can make profit of this new option. When you feel the need to use a resource that resides in a owned dedicated bus from an other partition, you can change the bus ownership type to shared and reassign the resource you need.

There is no change for what concerns the movement of resources under an IOP. All resources controlled by an IOP in a shared bus can be assigned to a partition when the IOP is available.

## High Speed Link support

- Dynamic participation

## Virtual LAN for inter-partition communication

- A virtual Gb Ethernet adapter for each partition
- 16 private LANs to be configured among partitions
- Extremely useful when the operating system is not OS/400
- Dynamic participation

## Independent Auxiliary Storage Pool support

- Need cluster enabling software
- IOPs form the switchable entity for IASPs between partitions
- No dedicated towers needed with LPAR

# Notes: LPAR V5R1 Enhancements....

Currently an IPL of the partition is required to change a partitions access to virtual OptiConnect . With V5R1 a partitions access can be initiated dynamically. Virtual HSL OptiConnect is an other new optional inter-partition communication mechanism for servers that have HSL connections.

Partitions on a server can dynamically (without an IPL) be added or removed from the virtual OptiConnect or HSL OptiConnect network. A notification of the access change will be sent to the partition and the partition will either reset its connection and remove itself from the network or connect into the network as appropriate.

You must install option 23 of OS/400 to be able to use the virtual OptiConnect or HSL OptiConnect network.

Especially when the operating system in a partition is not OS/400 and you can not use virtual OptiConnect or HSL OptiConnect, it may be useful to have the mechanism of virtual LAN available. There are 16 possible virtual LANs, identified as 0 through 15 that partitions can use. Any partition on a server can communicate with other partitions on that server using virtual LAN when they are properly configured for this new type of internal communication. The virtual LAN will emulate a 1Gb Ethernet interface to communicate between partitions. (implies no SNA support !). In V5R1 the number of basic user ASPs is extended from 15 to 31 ( this means ASP numbers 2 to 32). ASPs with numbers 17 to 32 are functionally identical to those with ASP numbers 2 to 15. These user ASPs (2-32) are "traditional" or "basic" user ASPs. But with V5R1 Independent user ASPs are introduced also. These additional user ASPs are numbered 33 through 99. IASPs increase the user ASP function by adding the ability to switch an IASP between servers. The server to which the IASP is switched may already be IPLed so there is no need to re-IPL a server in order to use the newly attached IASP. Switching IASPs implies that the IASPs are self-contained. This means that information about the objects in an IASP is also in the same IASP and not in the system ASP (the previous implementation of User ASPs). A switchable IASP can use internal DASD if the ASP is to be switched among LPAR partitions. It must use external DASD if the ASP is to be switched among separate servers. In V5R1 you will only be able to create User Defined File Systems (IFS only) in IASPs. You will need to use cluster enabling software or make use of the cluster management APIs to use IASPs in your configuration.



## GUI based Partition management

- Integrated LPAR configuration actions into Operations Navigator
- Extended Management Central system groups for LPAR - userids, inventory, fix distribution, etc.

## Per-process usage software license enablement

- Shared among all partitions
- Provided through SLM APIs to read partition information
- Application decision to utilize
- Use unblocked MATMATR MI with new variables
  - Minimum processing capacity, maximum processing capacity, current processing capacity, current available processing capacity in shared pool, number of physical processors in shared pool, .....

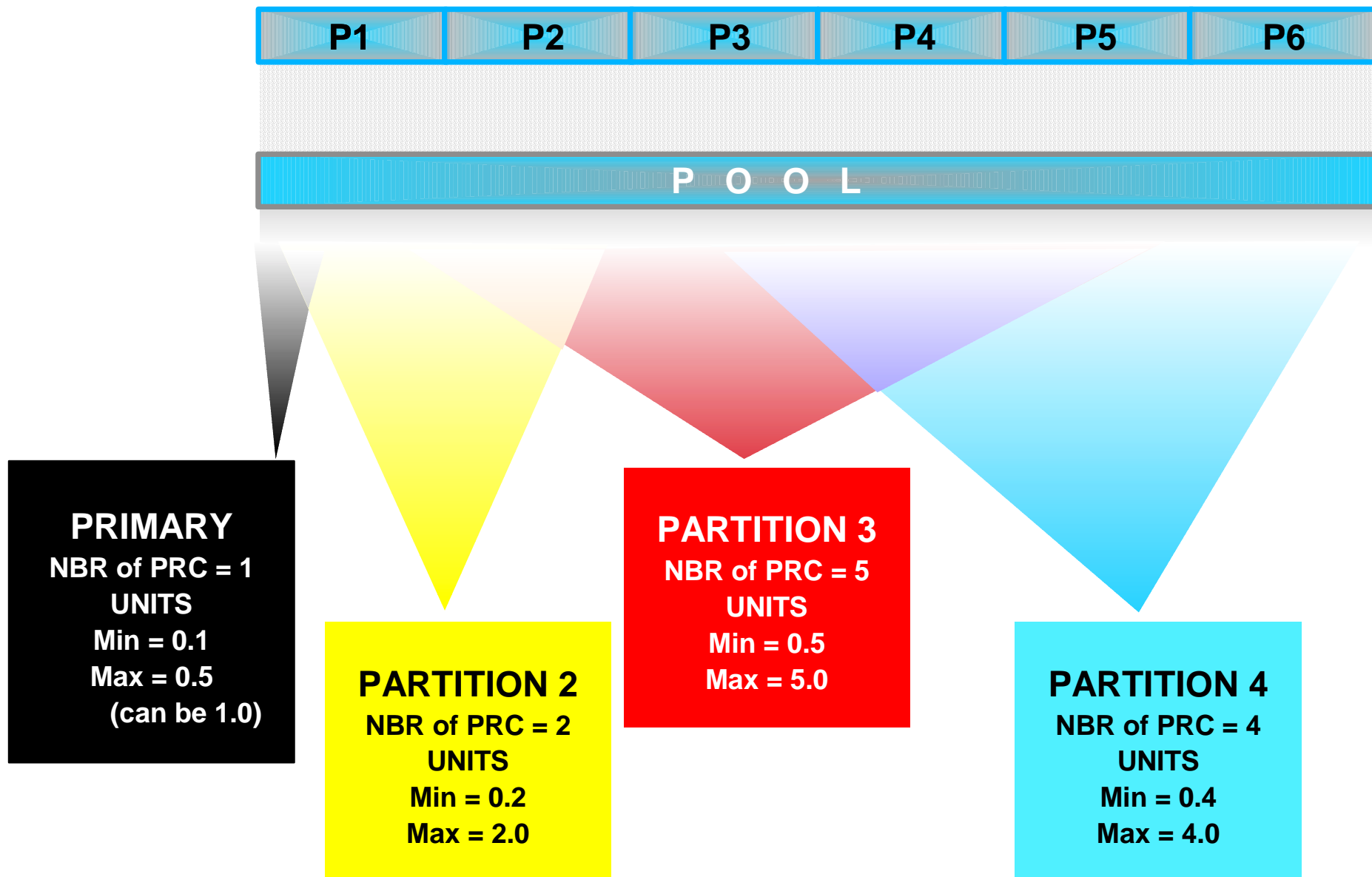
The preferable user interface for partition management is the graphical interface provided by Management Central. By enabling this, the partition configuration and monitoring interface is simplified and moved out of DST, a not so user friendly interface. You may find every function available under this graphical tool. LPAR stage II will enable secondary partitions to alter the configuration of their own partition and, if given the correct capability authority, of the entire physical system. In the previous release, all configuration changes must occur from the primary partition. One new function is providing the option for the primary to configure the secondary with the authority capability to alter the configuration of its own partition. With this capability authority, a partition could decrease the physical system resources that it owns or detach an IOP (and its devices) . Likewise, if the physical system resources were available, then the partition will be able to add these resources or attach an available IOP. The primary partition can also assign a secondary partition full LPAR configuration authority so that all configuration changes can be made from this secondary partition.

Using the MI instruction MATMATR that was used to retrieve partition resource information, you may now retrieve new values for partition configuration options such as:

- Minimum processing capacity
- Maximum processing capacity
- Current processing capacity
- Current available processing capacity in shared pool
- Number of physical processors in shared pool

Using this information, licensing authorization of proprietary product in a particular partition may be monitored and verified. The programmers may choose to use the maximum processing capacity for a given partition or the current processing capacity to enforce asset protection of their code. Since the new dynamics allow for changes in processing capacity without an IPL, it may be easier to choose a value that can only be changed over an IPL.

# Processor Pool



Let us use an example and assume we just configured the logical partitions on an iSeries as in this picture. We have a shared processor pool of 6 processors and one partition is configured to use 2 virtual processors and the minimum (1) and maximum (6) values are set, you may change your processor capacity to 0.20 (not less) and gradually changed by 0.01 units up to a maximum of 2.00 (not more) for this configuration. When you change the number of (virtual) processors to 4 in this partition, the minimum value of units will be 0.40 while the maximum goes up to 4.00 units.

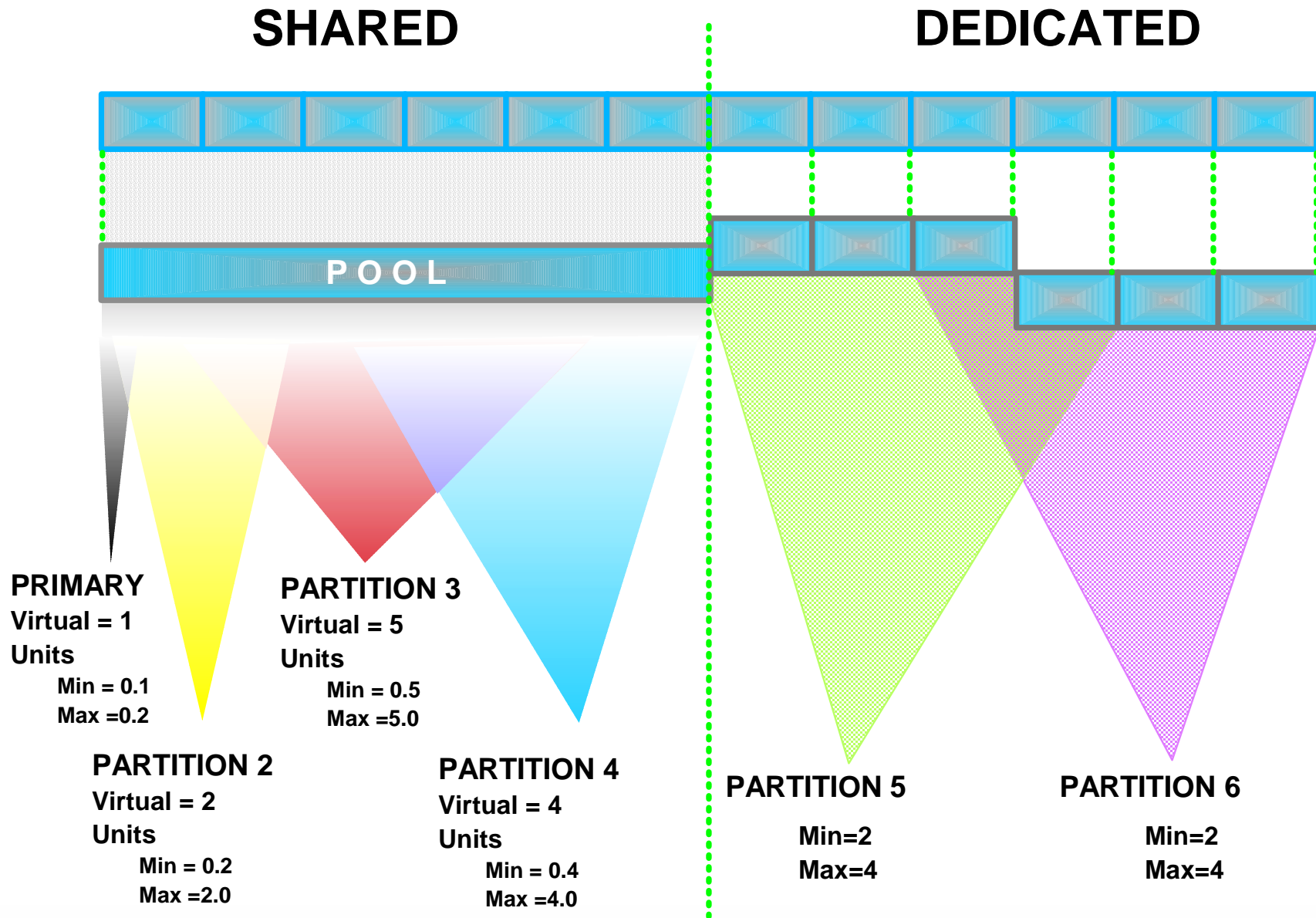
The movement of memory between partitions is an other new process introduced in LPAR stage II. Like the other physical system resources, each partition has a minimum, maximum, and initial amount of memory defined. The system is able to dynamically add or remove memory to/from a partition as long as it remains between the minimum and the maximum configured values. These values are fixed for the duration of the partition IPL. When dynamically removing memory from the partition, the system will do this in contiguous chunks (a chunk is 256K) of memory from pool 2 (base) to an other partitions base pool. The re-scaling of the pools is your responsibility during and after the move in order to maintain decent paging behavior.

The minimum and maximum interactive percentage allocated to a partition in stage II will be a function of the number of processors and the relative weights of the shared processors of that partition. When the processor capacity is lowered to the point that there is not enough true processors capacity to support the configured interactive capacity then the percentage of interactive capacity will be lowered while a message is presented.

The message itself will give you the exact percentage of the total capacity feature that can be supported by the targeted true processor capacity. Example: Interactive feature decreased to 'xx' % based on number of processors. The 'xx' value will be automatically put in the appropriate field.

There is no change for what concerns the movement of resources under an IOP. All resources controlled by an IOP in a shared bus can be assigned to a partition when the IOP is available.

The bus ownership however can be changed dynamically. Once the primary partition is on V5R1, any partition can make profit of this new option. When you feel the need to use a resource that resides in a owned dedicated bus from an other partition, you can change the bus ownership type to shared and reassign the resource you need.



This foil is a visual aid when interpreting how the virtual and physical processor concept can be implemented in an LPAR configuration. When creating a partition on the iSeries 400, you may specify that this partition uses processors out of the shared processor pool as explained in the previous topic. The number of processors that you assign to a shared processor pool are the physical processors. Once you define your partition with the ability to use a processor pool, the number of processors you select as well as the minimum and maximum values for the number of processors are values for virtual processors. The number of processing units that you select to make available for the partition has a direct relation with the number of virtual processors defined. You may find proof for this when you define the minimum and maximum processing units. These values have limits that are directly related to the number of virtual processors.

You may consider a shared processor pool as if you have a number of available processor cycles that can be used by the different partitions. The number of cycles that can be used by each partition, is up to you to decide and it depends on the settings of the Partition Processing Resource configuration parameters.

You are responsible for using all the available processing resources. Just as for memory and for interactive capacity, you may choose to configure all processing resources or not to. ***What is not configured is not used.***

When working with virtual processors and assigning processing units to a partition, you must again consider the relation between processor capacity and interactive capacity and avoid anomalies in their relationship. The system will automatically warn you with a message and adjust the maximum interactive capacity down when you remove processor capacity in a way that the interactive capacity exceeds the processor capacity. When you do the opposite however and increase the processor capacity of your partition do not forget to increase the interactive capacity.

# What runs where ? Release Compatibility

LPAR with	6XX, 7XX, SXX N-way	6XX, 7XX, SXX N-way	6XX, 7XX, SXX N-way	iSeries (05/2000) 8XX	iSeries (05/2000) 8XX	iSeries (05/2001) 8XX / 270
<u>Primary</u>	V4R4	V4R5	V5R1	V4R5	V5R1	V5R1
Secondary	V4R4 V4R5 V5R1	V4R4 V4R5 V5R1	V4R4 V4R5 V5R1	V4R5 V5R1	V4R5 V5R1	V4R5 V5R1

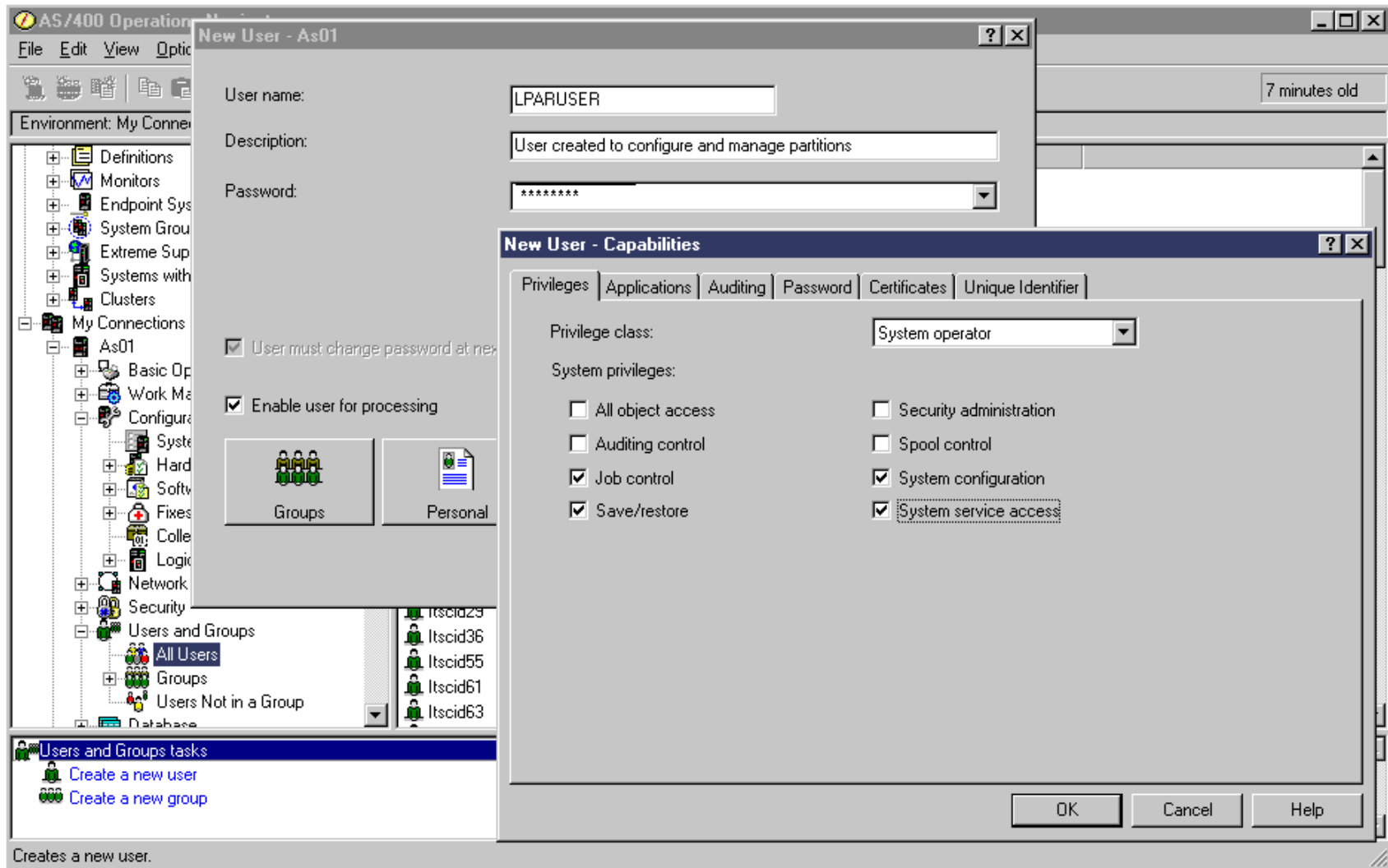
# What runs where ? Hardware and Functions

LPAR with	6XX, 7XX, SXX N-way	iSeries (05/2000) 8XX N-way	iSeries (05/2000) 8XX Mono	iSeries (05/2001) 8XX / 270 N-way	iSeries (05/2001) 8XX / 270 Mono
<u>Dedicated Processors</u>	V4R4 V4R5 V5R1	V4R5 V5R1	N/A	Y	N/A
Linux Partition	N	Y	N/A	Y	N/A
<u>Shared Processors</u>	N	Y	Y	Y	Y
Linux Partition	N	V5R1	N	Y	Y

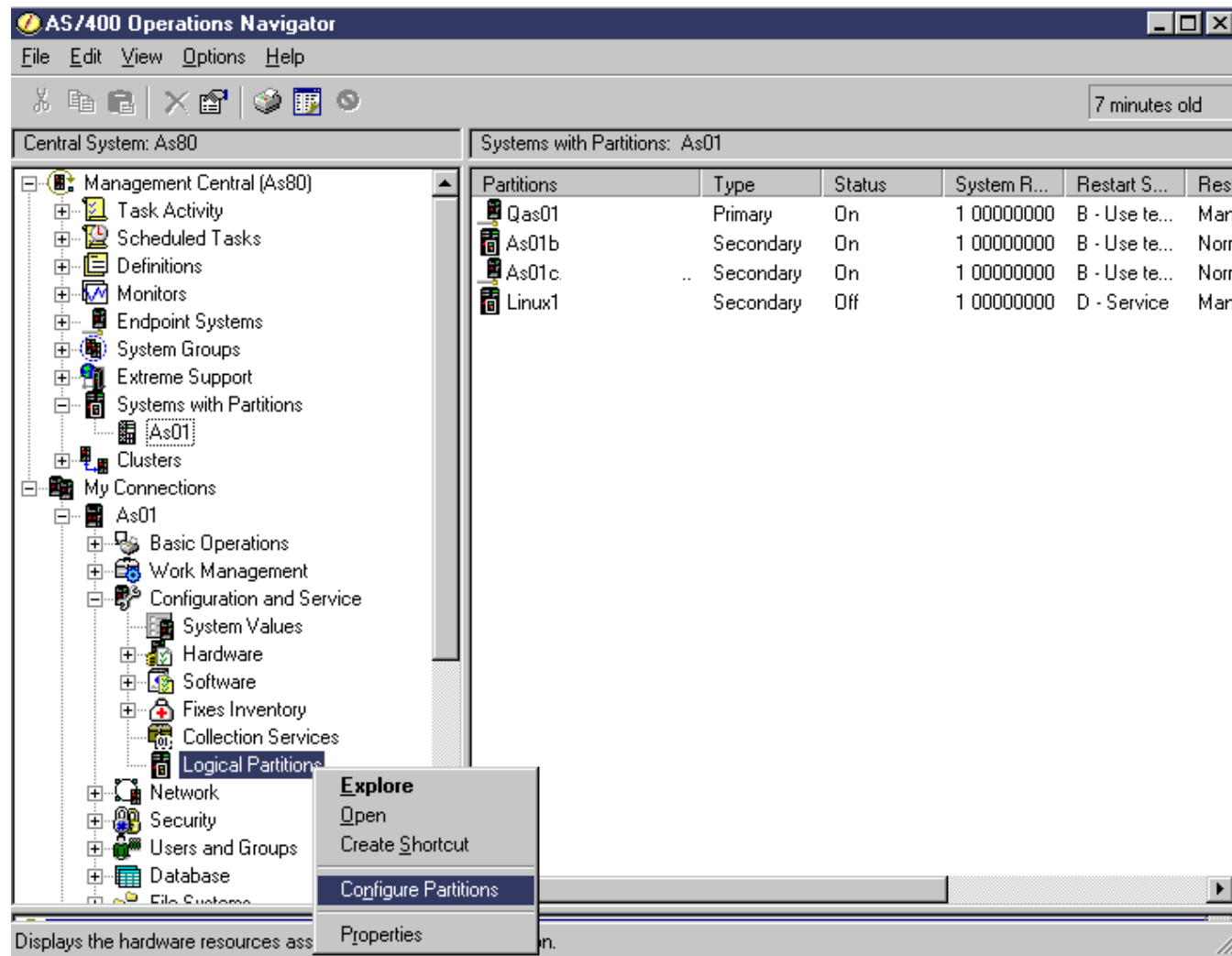


The best approach to identify what can run where is a step by step evaluation of the prerequisites for a particular partition to run on. **First step is to determine what capabilities are supported by the system hardware model.** The general rule is that there is no support for a release in any of an iSeries or AS/400 server partition below the one required by this servers processor. This brings us to the first exception: iSeries models announced in 2001 do support V4R5 in a secondary partition. However, you must know the limitations: secondary partition running a certain version/release can only utilize capabilities for which it was initially designed. This implies that a secondary partition running V4R5 can not use enhancements of LPAR from V5R1 and will not support V5R1 exclusive hardware either. Once you know what can and will run in the primary partition, you are ready for step two. **In step two consider that the primary partition software version/release determines the capabilities available to all partitions.** You may for example install V5R1 in a secondary partition of an iSeries model announced in 2000 with the primary partition at V4R5. This means that there is no support for V5R1 functions or hardware in any of the partitions. **Then comes step three where you must validate multiple release support based on primary partition version/release.** The table on the first of the two previous foils can help you with step three. The table on the previous foil can help you determine easily what functions are supported and under what conditions. If you find shared processor pool support, than it also means that you can dynamically move processing resources and use other LPAR enhancements from the latest release. In the same table, you can find if Linux is supported in a secondary partition.

# User for managing Partitions



# Operations Navigator Create Partition



The screenshot shows the AS/400 Operations Navigator interface. The left pane displays a tree view of system components, with 'Logical Partitions' selected. A context menu is open over this item, showing options: 'Explore', 'Open', 'Create Shortcut', 'Configure Partitions', and 'Properties'. The 'Configure Partitions' option is highlighted. The right pane, titled 'Systems with Partitions: As01', contains a table of partitions.

Partitions	Type	Status	System R...	Restart S...	Resl
Qas01	Primary	On	1 00000000	B - Use te...	Man
As01b	Secondary	On	1 00000000	B - Use te...	Norr
As01c	Secondary	On	1 00000000	B - Use te...	Norr
Linux1	Secondary	Off	1 00000000	D - Service	Man

# Creating a New Partition - Step 1

## Welcome Panel



# Notes: Creating a New Partition - Step 1

Use the New Logical Partition - Welcome page to specify the type of logical partition you want to create.

To complete this task, you need a Service Tools user profile with administration authority to the System partitions function in Dedicated Service Tools (DST).

Select **Create a new OS/400 partition** if you plan to create a new logical partition on your server. The wizard guides you through the steps of adding the needed hardware resources such as processors, memory, I/O processors, console, and alternate restart devices.

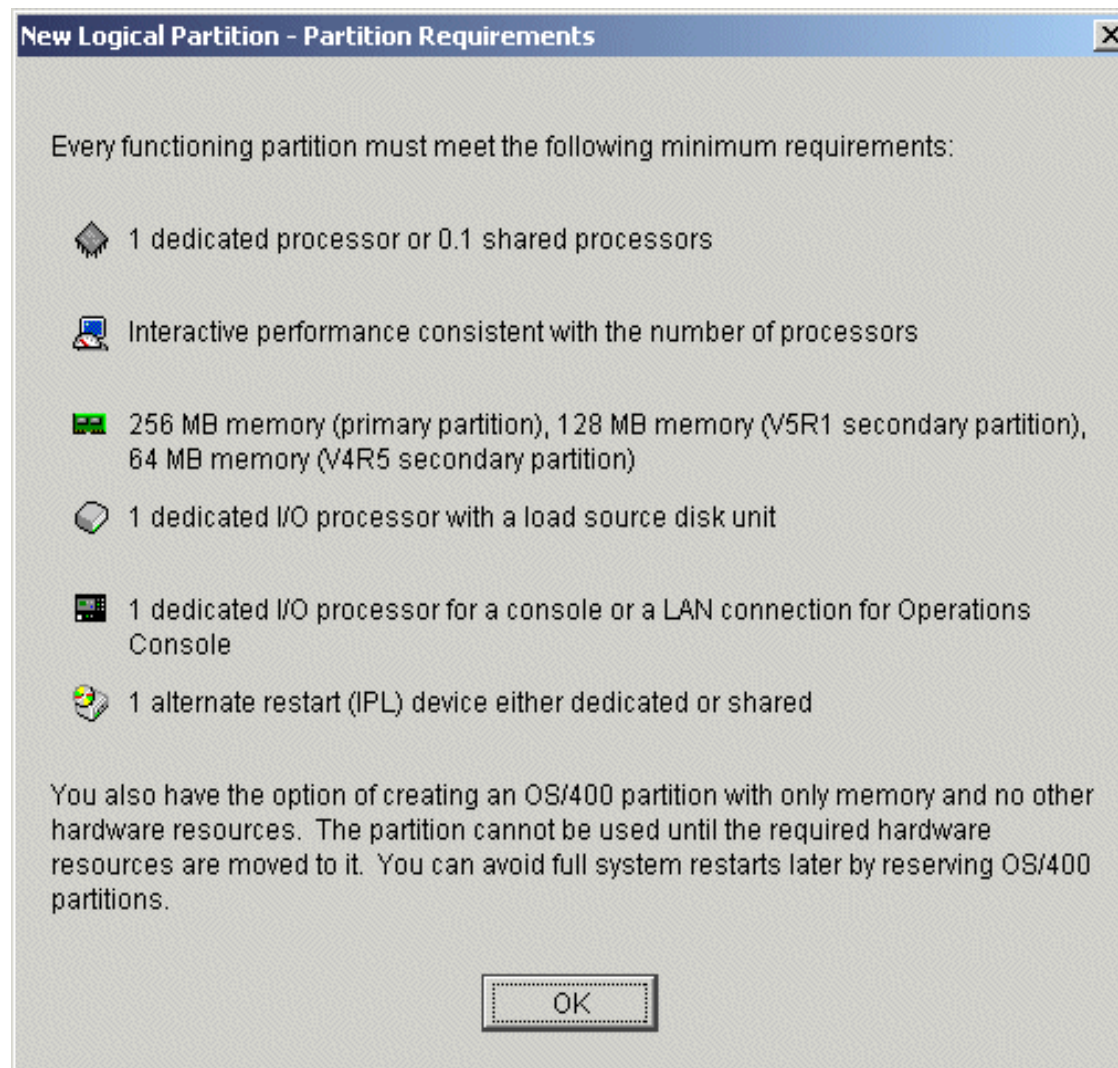
After creating a new OS/400 partition, you have to restart the entire system.

Select **Create a new OS/400 partition for future** use to create a partition you can use later. The partition will only have minimal memory and no assigned hardware. Since creating logical partitions requires a restart of the entire system, you can avoid system restarts by creating this type of logical partition. When you are ready to use this partition, just move the required hardware resources to it.

Every logical partition has minimum hardware requirements needed to function properly. Click **Partition Requirements** to view the minimum requirements you need.

# Creating a New Partition - Step 2


## *Partition Requirements*



# Creating a New Partition - Step 3

## *Partition Definition*

New Logical Partition - Name ✕







Each partition is required to have a name. Using the same name for both the partition name and the partition's network attributes is recommended.

What is the name of your new logical partition?

Partition name:

Partition ID:

 Back  Next  Finish  Cancel  Help ?

# Creating a New Partition - Step 4

## Memory Assignment

**New Logical Partition As01d - Memory**

Each partition requires memory. The minimum memory required is 256 MB for the primary partition, 128 MB for a V5R1 partition, and 64 MB for a V4R5 partition. Move at least the minimum memory to the new partition.

Available memory:

Partition	Current	Next Restart	Minimum	Maximum
Primary	512	512	272	2048
As01b	2000	2000	1024	4096
As01c	2096	2096	1024	4096
Unassigned Hardwa...	3584	2084	0	8192

Memory to move:  MB

Memory for partition As01d:

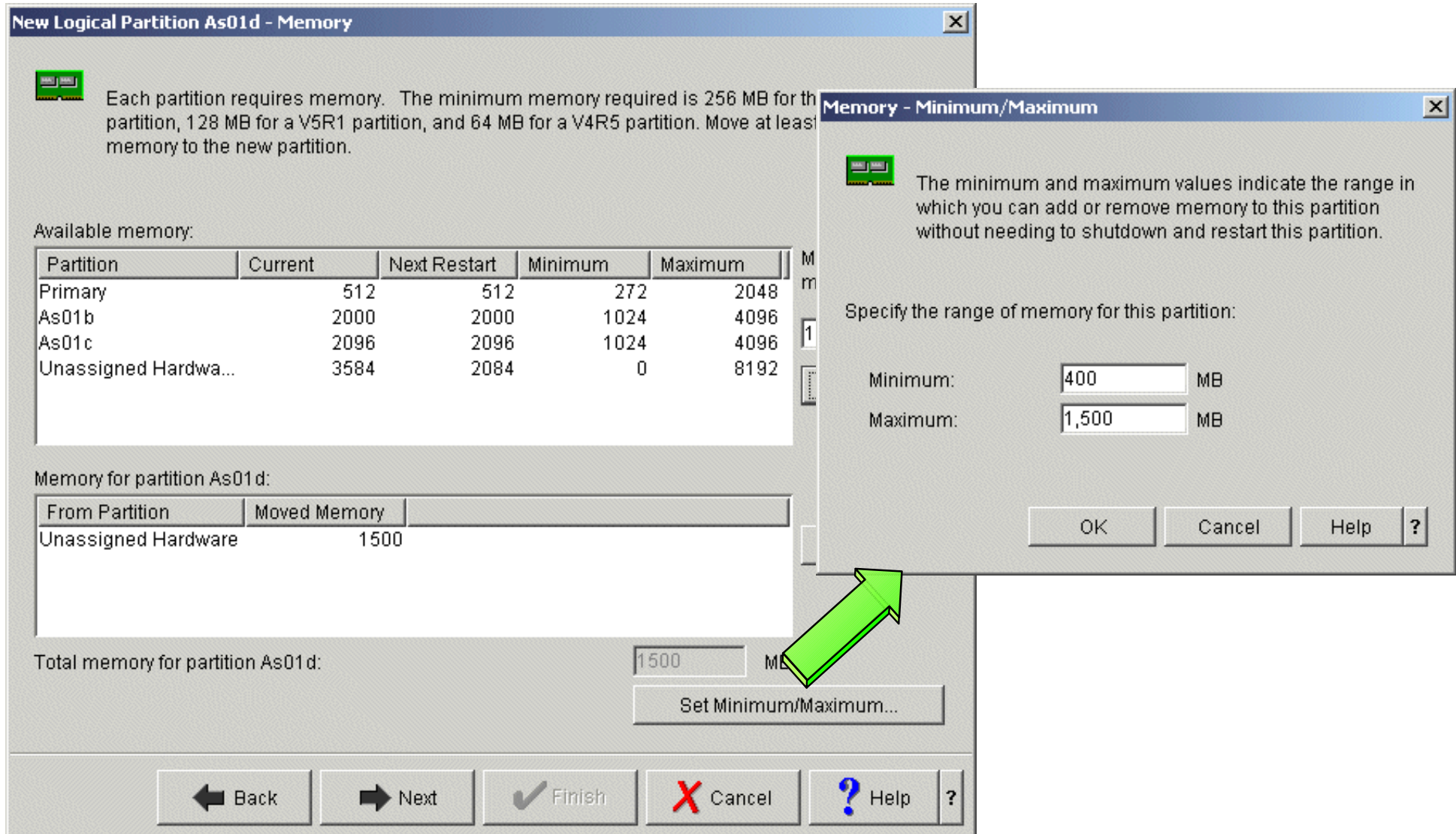
From Partition	Moved Memory
Unassigned Hardware	1500

Total memory for partition As01d:  MB



# Creating a New Partition - Step 5

## Minimum and Maximum Memory Assignments



Each partition requires memory. The minimum memory required is 256 MB for the partition, 128 MB for a V5R1 partition, and 64 MB for a V4R5 partition. Move at least this amount of memory to the new partition.

Available memory:

Partition	Current	Next Restart	Minimum	Maximum
Primary	512	512	272	2048
As01b	2000	2000	1024	4096
As01c	2096	2096	1024	4096
Unassigned Hardwa...	3584	2084	0	8192

Memory for partition As01d:

From Partition	Moved Memory
Unassigned Hardware	1500

Total memory for partition As01d:  MB

Set Minimum/Maximum...

Memory - Minimum/Maximum

The minimum and maximum values indicate the range in which you can add or remove memory to this partition without needing to shutdown and restart this partition.

Specify the range of memory for this partition:

Minimum:  MB


Maximum:  MB

OK Cancel Help ?

# Creating a New Partition - Step 6

## Shared Processor Assignments

**New Logical Partition As01d - Shared Processor**

 This partition requires a portion of the shared processor pool. By default the processing power values are shown in processing units where 1.00 processing units equals 1 whole processor.

Display values in:

Available processing power:

Partition	Current	Next Restart	Minimum	Maximum
Primary				8
As01b	1.49	1.49	0.10	4.00
As01c	1.50	1.50	0.20	4.00
Unassigned Dedicated	4.01	0	0	8
Unassigned Shared	4.01	3.26	0.00	8.00

Amount to move:

Processing power for partition As01d:

From Partition	Moved Processing Power
Unassigned Dedicated	0.75
Unassigned Shared	0.75


Total processing power for partition As01d:  Processor units

Number of virtual processors:

# Creating a New Partition - Step 7

## Define Interactive Workload Allocation

**New Logical Partition As01d - Interactive Workload**

 This partition requires at least 2 percent interactive workload to satisfy the processing power that you requested.

Display values in:

Available interactive workload:

Partition	Current	Next Restart	Minimum	Maximum
Primary	33	33	2	50
As01b	17	17	2	50
As01c	34	34	4	50
Unassigned Hardware	16	11	0	100

Amount to move:

Interactive workload for partition As01d:


From Partition	Moved Interactive
Unassigned Hardware	5

Total interactive workload for partition As01d:  CPW

# Creating a Partition for Future Use







## Summary Panel

**New Logical Partition A01d - Summary** [X]



Congratulations! You successfully reserved a partition for future use. Partition A01d has 1500 MB of memory and no other hardware resources.

Before this partition can be used, you will need the following minimum hardware requirements:

-  1 dedicated processor
-  Interactive performance consistent with the number of processors
-  1 dedicated processor or 0.1 shared processors
-  1 dedicated I/O processor with a load source disk unit
-  1 dedicated I/O processor for a console or a LAN connection for Operations Console
  
-  1 alternate restart (IPL) device either dedicated or shared

This new reserved partition will be available after you restart the entire system.

Do you want to shutdown and restart the entire system, including all partitions?

Yes, restart the entire system now

No, I will restart the entire system later

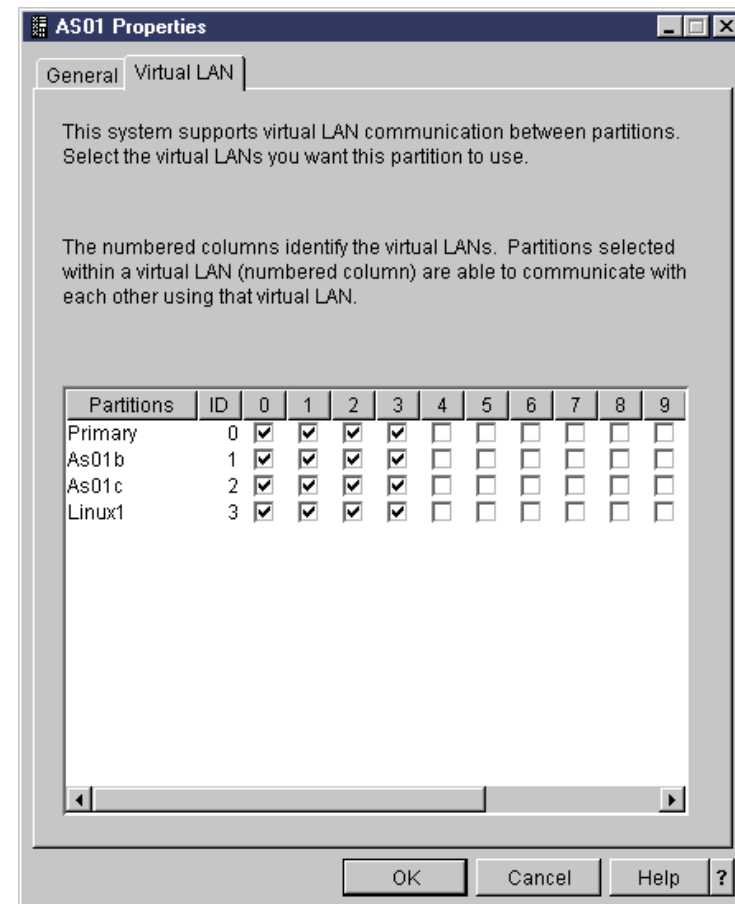
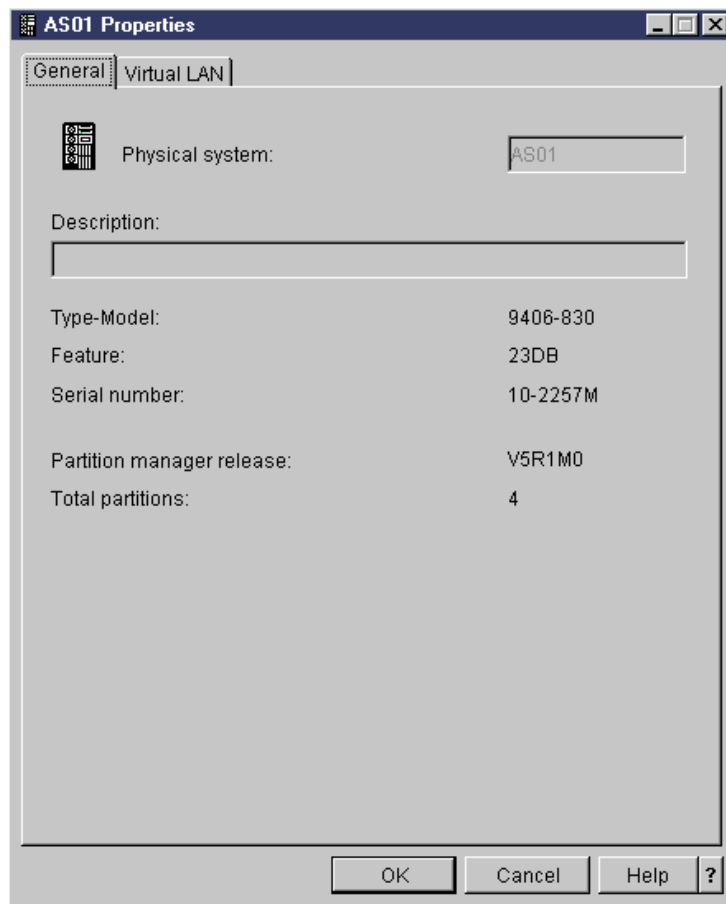
← Back    → Next    ✓ Finish    ✗ Cancel    ? Help    ?

# Notes: Creating a Partition for Future Use

When you create a partition for future use, you only need to provide it with a name and a partition id. After that, memory is assigned to it, which are the only requirements to store this definition.

In order to start the new partition space and move memory, you need to restart the entire physical system, meaning that you need to restart all logical partitions. You can specify to restart the physical system now or to wait to do it at a later time.

# Physical System Properties

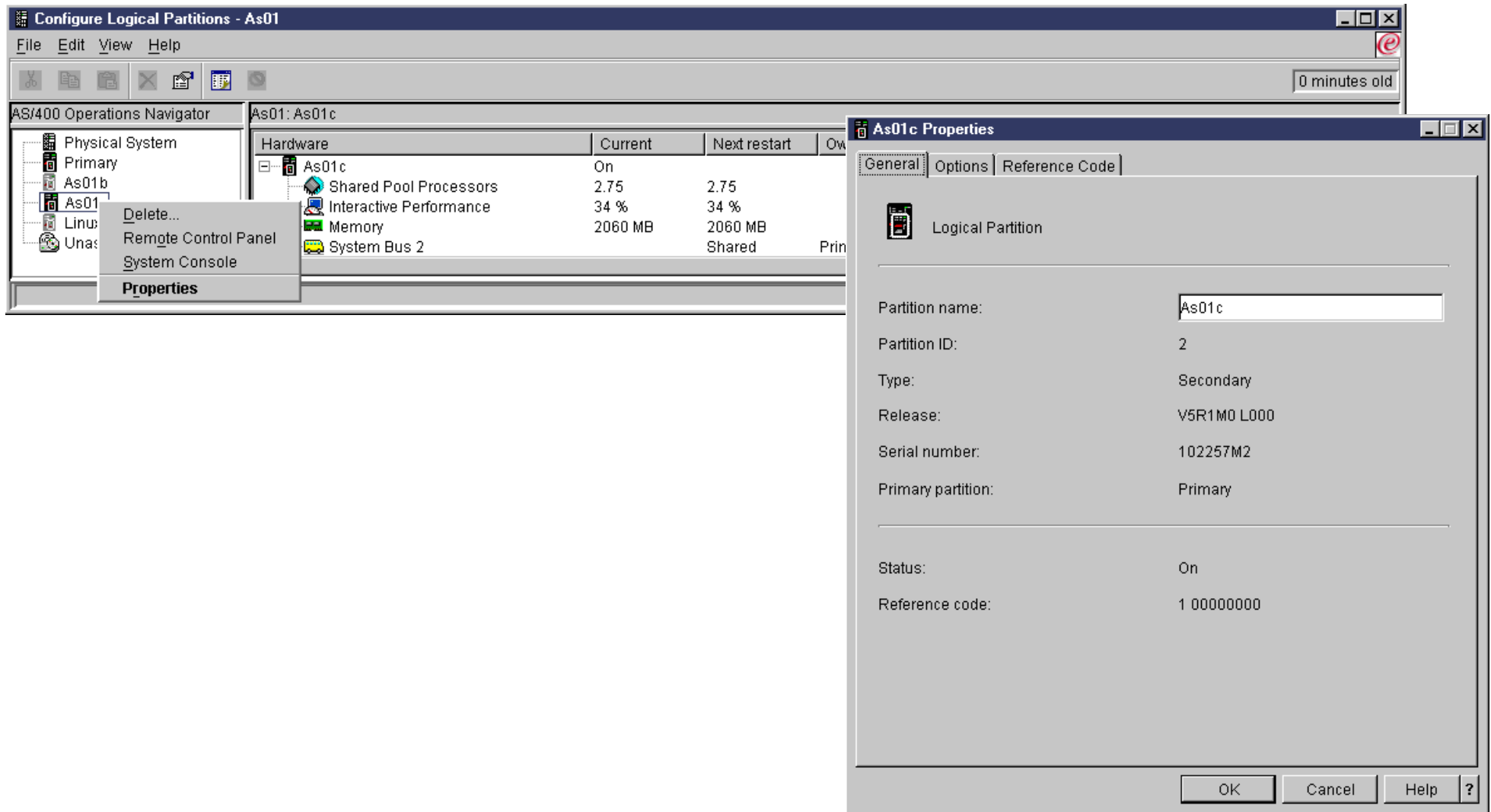


# Notes: Physical System - Virtual LAN

Use the Virtual LAN dialog to specify virtual network settings for logical partitions on the physical system. You can define up to 16 different virtual LAN configurations. The table enables you to select the LAN IDs to which you want to assign a logical partition. Logical partitions assigned to a common LAN then become able to communicate through that link.

# Explore Definitions of Logical Partitions

## General Properties



The screenshot displays the 'Configure Logical Partitions - As01' application window. On the left, the 'AS/400 Operations Navigator' shows a tree view with 'As01' selected. A context menu is open over 'As01', with 'Properties' highlighted. The main window shows a table of hardware resources for 'As01: As01 c'.

Hardware	Current	Next restart	Own
As01 c	On		
Shared Pool Processors	2.75	2.75	
Interactive Performance	34 %	34 %	
Memory	2060 MB	2060 MB	
System Bus 2		Shared	Print

An 'As01 c Properties' dialog box is open, showing the 'General' tab. It contains the following information:

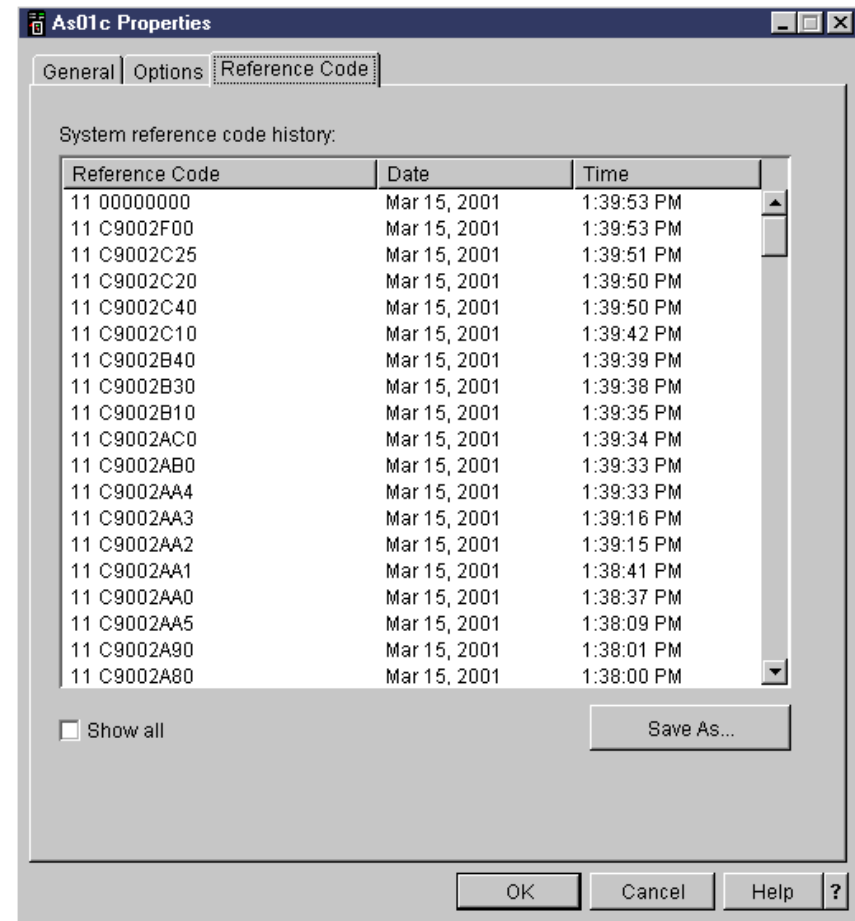
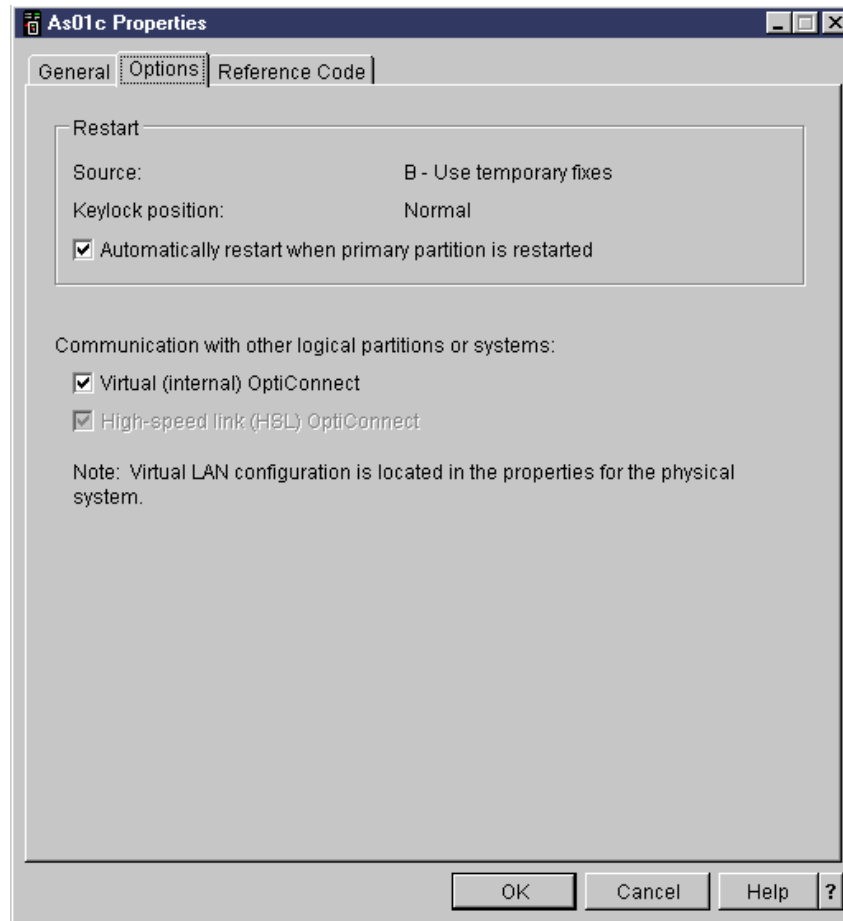
- Partition name: As01 c
- Partition ID: 2
- Type: Secondary
- Release: V5R1M0 L000
- Serial number: 102257M2
- Primary partition: Primary
- Status: On
- Reference code: 1 00000000

Buttons for 'OK', 'Cancel', 'Help', and '?' are visible at the bottom of the dialog.



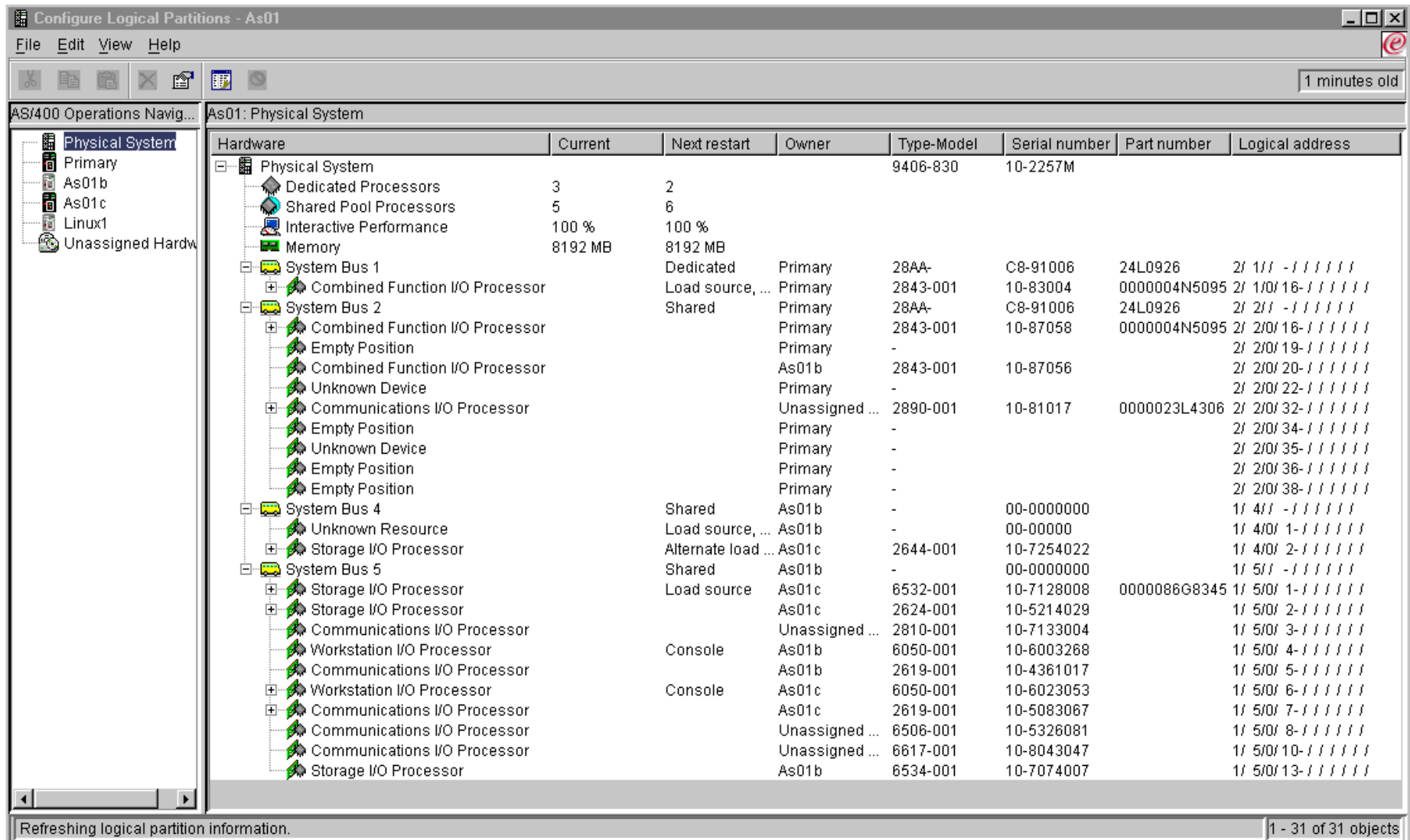
# Explore Definitions of Logical Partitions - 2

## Options and Reference Codes



# Configuring Logical Partitions

## Physical System



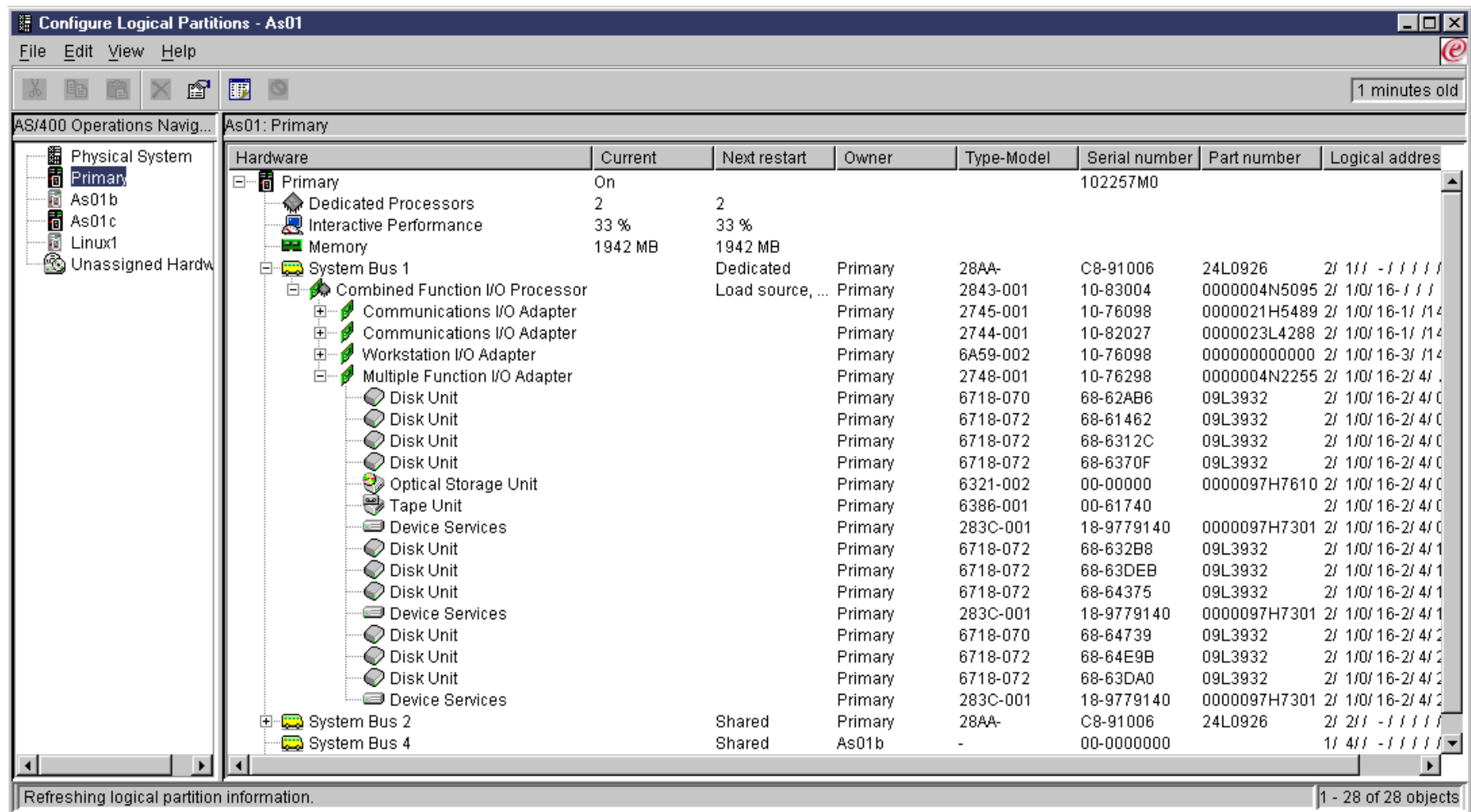
The screenshot shows the 'Configure Logical Partitions - As01' window. The left pane shows a tree view with 'Physical System' selected. The main pane displays a table of hardware components for 'As01: Physical System'.

Hardware	Current	Next restart	Owner	Type-Model	Serial number	Part number	Logical address
Physical System				9406-830	10-2257M		
Dedicated Processors	3	2					
Shared Pool Processors	5	6					
Interactive Performance	100 %	100 %					
Memory	8192 MB	8192 MB					
System Bus 1		Dedicated	Primary	28AA-	C8-91006	24L0926	2/ 1/1 - / / / / /
Combined Function I/O Processor		Load source, ...	Primary	2843-001	10-83004	0000004N5095	2/ 1/0/ 16- / / / / /
System Bus 2		Shared	Primary	28AA-	C8-91006	24L0926	2/ 2/1 - / / / / /
Combined Function I/O Processor			Primary	2843-001	10-87058	0000004N5095	2/ 2/0/ 16- / / / / /
Empty Position			Primary	-	-	-	2/ 2/0/ 19- / / / / /
Combined Function I/O Processor			As01b	2843-001	10-87056	-	2/ 2/0/ 20- / / / / /
Unknown Device			Primary	-	-	-	2/ 2/0/ 22- / / / / /
Communications I/O Processor			Unassigned ...	2890-001	10-81017	0000023L4306	2/ 2/0/ 32- / / / / /
Empty Position			Primary	-	-	-	2/ 2/0/ 34- / / / / /
Unknown Device			Primary	-	-	-	2/ 2/0/ 35- / / / / /
Empty Position			Primary	-	-	-	2/ 2/0/ 36- / / / / /
Empty Position			Primary	-	-	-	2/ 2/0/ 38- / / / / /
System Bus 4		Shared	As01b	-	00-0000000	-	1/ 4/1 - / / / / /
Unknown Resource		Load source, ...	As01b	-	00-00000	-	1/ 4/0/ 1- / / / / /
Storage I/O Processor		Alternate load ...	As01c	2644-001	10-7254022	-	1/ 4/0/ 2- / / / / /
System Bus 5		Shared	As01b	-	00-0000000	-	1/ 5/1 - / / / / /
Storage I/O Processor		Load source	As01c	6532-001	10-7128008	0000086G8345	1/ 5/0/ 1- / / / / /
Storage I/O Processor			As01c	2624-001	10-5214029	-	1/ 5/0/ 2- / / / / /
Communications I/O Processor			Unassigned ...	2810-001	10-7133004	-	1/ 5/0/ 3- / / / / /
Workstation I/O Processor		Console	As01b	6050-001	10-6003268	-	1/ 5/0/ 4- / / / / /
Communications I/O Processor			As01b	2619-001	10-4361017	-	1/ 5/0/ 5- / / / / /
Workstation I/O Processor		Console	As01c	6050-001	10-6023053	-	1/ 5/0/ 6- / / / / /
Communications I/O Processor			As01c	2619-001	10-5083067	-	1/ 5/0/ 7- / / / / /
Communications I/O Processor			Unassigned ...	6506-001	10-5326081	-	1/ 5/0/ 8- / / / / /
Communications I/O Processor			Unassigned ...	6617-001	10-8043047	-	1/ 5/0/ 10- / / / / /
Storage I/O Processor			As01b	6534-001	10-7074007	-	1/ 5/0/ 13- / / / / /

Refreshing logical partition information. 1 - 31 of 31 objects

# Configuring Logical Partitions

## Primary Partition



The screenshot shows the 'Configure Logical Partitions - As01' window. The left pane shows a tree view with 'Physical System' expanded to 'Primary'. The main pane displays a table of hardware components for the Primary partition.

Hardware	Current	Next restart	Owner	Type-Model	Serial number	Part number	Logical address
Primary	On				102257M0		
Dedicated Processors	2	2					
Interactive Performance	33 %	33 %					
Memory	1942 MB	1942 MB					
System Bus 1		Dedicated	Primary	28AA-	C8-91006	24L0926	2/ 1/1 - 1/1/1/1
Combined Function I/O Processor		Load source, ...	Primary	2843-001	10-83004	0000004N5095	2/ 1/0/ 16-1/ 1/1/1
Communications I/O Adapter			Primary	2745-001	10-76098	0000021H5489	2/ 1/0/ 16-1/ 1/1/1
Communications I/O Adapter			Primary	2744-001	10-82027	0000023L4288	2/ 1/0/ 16-1/ 1/1/1
Workstation I/O Adapter			Primary	6A59-002	10-76098	000000000000	2/ 1/0/ 16-3/ 1/1/1
Multiple Function I/O Adapter			Primary	2748-001	10-76298	0000004N2255	2/ 1/0/ 16-2/ 4/1/1
Disk Unit			Primary	6718-070	68-62AB6	09L3932	2/ 1/0/ 16-2/ 4/1/0
Disk Unit			Primary	6718-072	68-61462	09L3932	2/ 1/0/ 16-2/ 4/1/0
Disk Unit			Primary	6718-072	68-6312C	09L3932	2/ 1/0/ 16-2/ 4/1/0
Disk Unit			Primary	6718-072	68-6370F	09L3932	2/ 1/0/ 16-2/ 4/1/0
Optical Storage Unit			Primary	6321-002	00-00000	0000097H7610	2/ 1/0/ 16-2/ 4/1/0
Tape Unit			Primary	6386-001	00-61740		2/ 1/0/ 16-2/ 4/1/0
Device Services			Primary	283C-001	18-9779140	0000097H7301	2/ 1/0/ 16-2/ 4/1/0
Disk Unit			Primary	6718-072	68-632B8	09L3932	2/ 1/0/ 16-2/ 4/1/1
Disk Unit			Primary	6718-072	68-63DEB	09L3932	2/ 1/0/ 16-2/ 4/1/1
Disk Unit			Primary	6718-072	68-64375	09L3932	2/ 1/0/ 16-2/ 4/1/1
Device Services			Primary	283C-001	18-9779140	0000097H7301	2/ 1/0/ 16-2/ 4/1/1
Disk Unit			Primary	6718-070	68-64739	09L3932	2/ 1/0/ 16-2/ 4/1/2
Disk Unit			Primary	6718-072	68-64E9B	09L3932	2/ 1/0/ 16-2/ 4/1/2
Disk Unit			Primary	6718-072	68-63DA0	09L3932	2/ 1/0/ 16-2/ 4/1/2
Device Services			Primary	283C-001	18-9779140	0000097H7301	2/ 1/0/ 16-2/ 4/1/2
System Bus 2		Shared	Primary	28AA-	C8-91006	24L0926	2/ 2/1 - 1/1/1/1
System Bus 4		Shared	As01b	-		00-0000000	1/ 4/1 - 1/1/1/1

Refreshing logical partition information. 1 - 28 of 28 objects

# Configuring Logical Partitions

## Secondary Partition

Configure Logical Partitions - As01

File Edit View Help

1 minutes old

AS/400 Operations Navig... As01: As01c

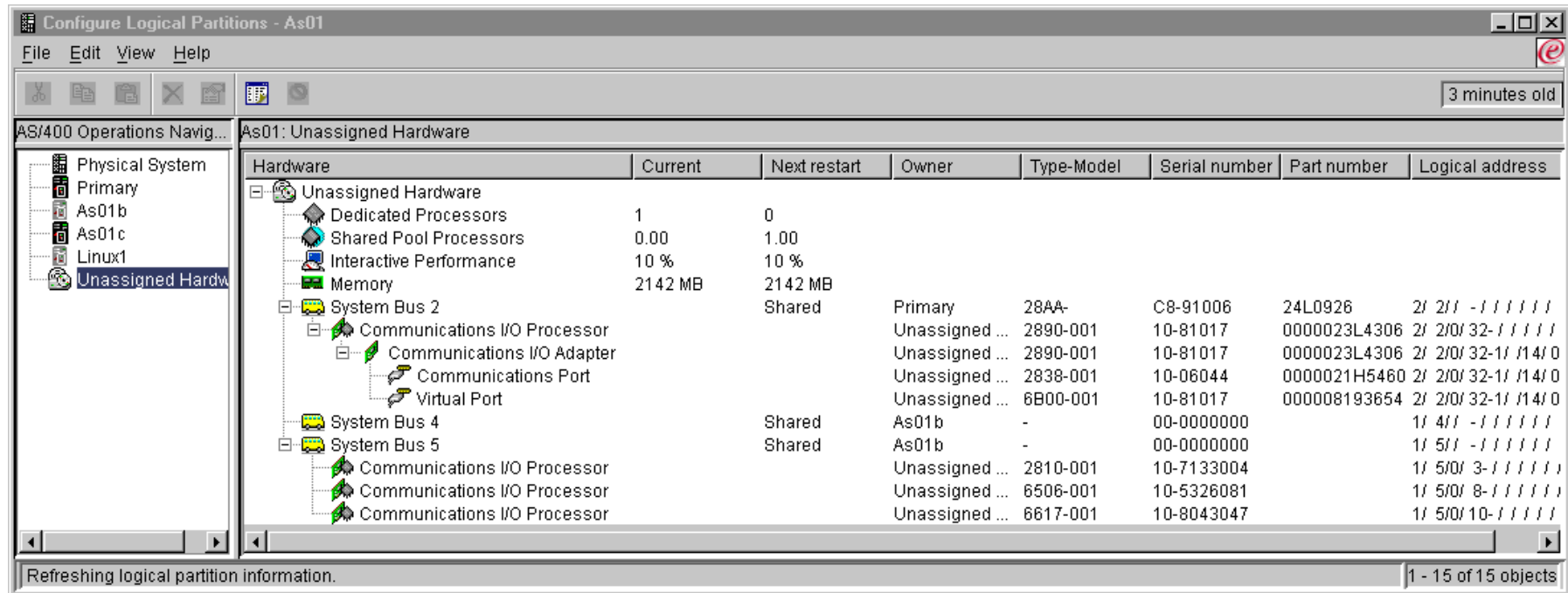
Hardware	Current	Next restart	Owner	Type-Model	Serial number	Part number	Logical address
As01c	On				102257M2		
Shared Pool Processors	2.75	2.75					
Interactive Performance	34 %	34 %					
Memory	2060 MB	2060 MB					
System Bus 2	Shared	Primary	28AA-	C8-91006	24L0926	2/ 2/ / - / / / /	
System Bus 4	Shared	As01b	-	00-0000000		1/ 4/ / - / / / /	
Storage I/O Processor	Alternate load ...	As01c	2644-001	10-7254022		1/ 4/ / 2- / / / /	
Tape Controller		As01c	3490-C22	00-000000		1/ 4/ / 2-2/ / / /	
System Bus 5	Shared	As01b	-	00-0000000		1/ 5/ / - / / / /	
Storage I/O Processor	Load source	As01c	6532-001	10-7128008	0000086G8345	1/ 5/ / 1- / / / /	
Disk Controller		As01c	6532-001	10-7128008	0000086G8345	1/ 5/ / 1-2/ / / /	
Disk Unit		As01c	6607-070	68-0BA3246	86G9125	1/ 5/ / 1-2/ / / 0.	
Disk Unit		As01c	6607-074	68-0F30459	86G9125	1/ 5/ / 1-2/ / / 0.	
Disk Unit		As01c	6607-074	68-0AD9985	86G9125	1/ 5/ / 1-2/ / / 0.	
Disk Unit		As01c	6607-074	68-0BB1081	86G9125	1/ 5/ / 1-2/ / / 0.	
Disk Unit		As01c	6713-072	68-0190597	27H1710	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-491EE	27H1710	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-0190392	27H1710	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-34236	27H1710	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-0170279	59H6611	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-017164A	59H6611	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-01715DF	59H6611	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6713-072	68-015E120	59H6611	1/ 5/ / 1-2/ / / 1.	
Disk Unit		As01c	6607-074	68-0BA0795	86G9125	1/ 5/ / 1-2/ / / 2.	
Disk Unit		As01c	6607-070	68-0F26554	86G9125	1/ 5/ / 1-2/ / / 2.	
Disk Unit		As01c	6607-070	68-0AE0306	86G9125	1/ 5/ / 1-2/ / / 2.	
Disk Unit		As01c	6607-070	68-0AE0647	86G9125	1/ 5/ / 1-2/ / / 2.	
Storage I/O Processor		As01c	2624-001	10-5214029		1/ 5/ / 2- / / / /	
Workstation I/O Processor		Console	As01c	6050-001	10-6023053	1/ 5/ / 6- / / / /	

Refreshing logical partition information.

1 - 29 of 30 objects

# Configuring Logical Partitions

## Unassigned Hardware

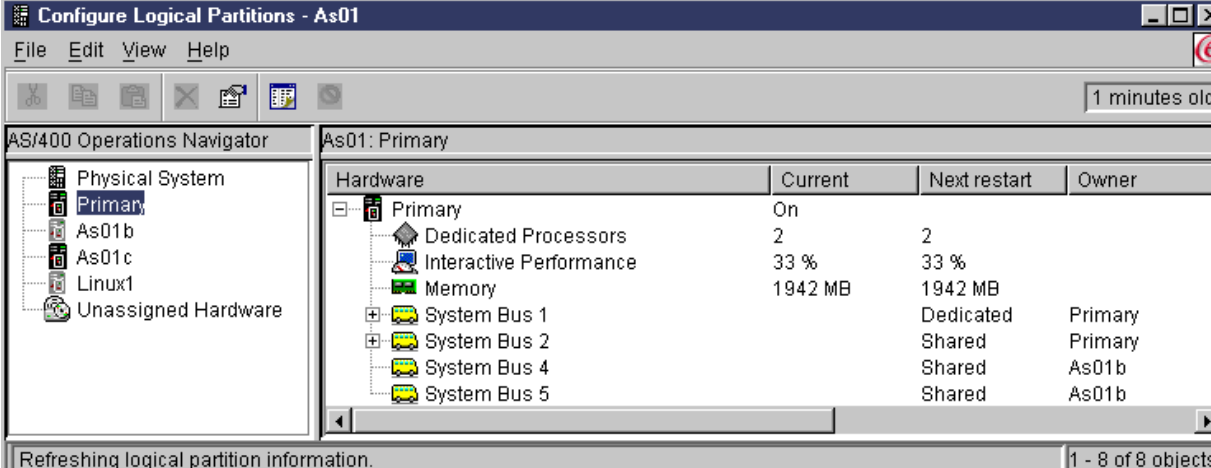


The screenshot shows the 'Configure Logical Partitions - As01' window. The left pane shows a tree view with 'Unassigned Hardware' selected. The main pane displays a table of hardware details.

Hardware	Current	Next restart	Owner	Type-Model	Serial number	Part number	Logical address
Unassigned Hardware							
Dedicated Processors	1	0					
Shared Pool Processors	0.00	1.00					
Interactive Performance	10 %	10 %					
Memory	2142 MB	2142 MB					
System Bus 2		Shared	Primary	28AA-	C8-91006	24L0926	2/ 2/1 - / / / / /
Communications I/O Processor			Unassigned ...	2890-001	10-81017	0000023L4306	2/ 2/0/ 32- / / / / /
Communications I/O Adapter			Unassigned ...	2890-001	10-81017	0000023L4306	2/ 2/0/ 32-1/ /14/ 0
Communications Port			Unassigned ...	2838-001	10-06044	0000021H5460	2/ 2/0/ 32-1/ /14/ 0
Virtual Port			Unassigned ...	6B00-001	10-81017	000008193654	2/ 2/0/ 32-1/ /14/ 0
System Bus 4		Shared	As01b	-	00-0000000		1/ 4/1 - / / / / /
System Bus 5		Shared	As01b	-	00-0000000		1/ 5/1 - / / / / /
Communications I/O Processor			Unassigned ...	2810-001	10-7133004		1/ 5/0/ 3- / / / / /
Communications I/O Processor			Unassigned ...	6506-001	10-5326081		1/ 5/0/ 8- / / / / /
Communications I/O Processor			Unassigned ...	6617-001	10-8043047		1/ 5/0/ 10- / / / / /

Refreshing logical partition information. 1 - 15 of 15 objects

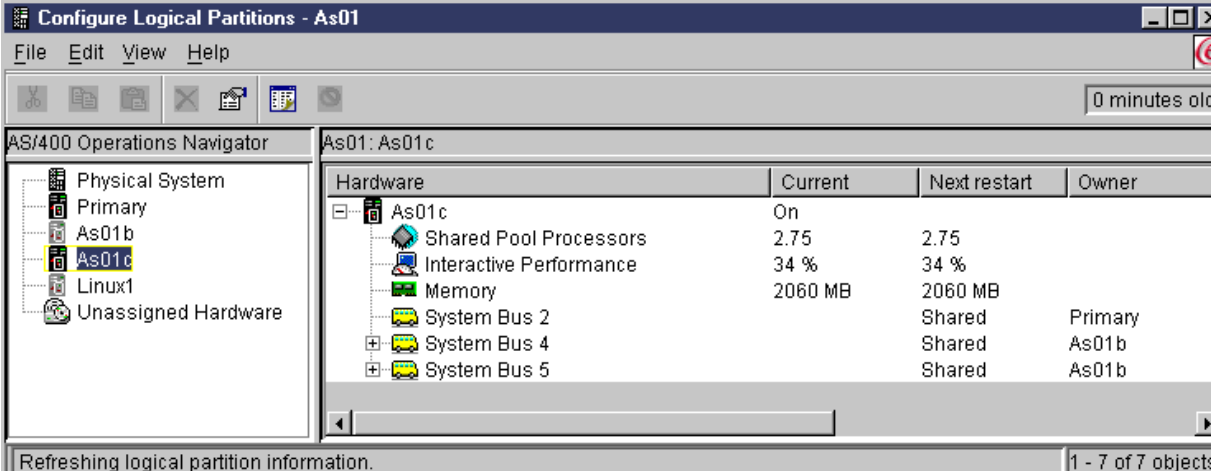
# Moving Resources (before)



The screenshot shows the 'Configure Logical Partitions - As01' window. The left pane shows the 'AS/400 Operations Navigator' with 'Primary' selected. The right pane shows the 'As01: Primary' configuration table.

Hardware	Current	Next restart	Owner
Primary	On		
Dedicated Processors	2	2	
Interactive Performance	33 %	33 %	
Memory	1942 MB	1942 MB	
System Bus 1		Dedicated	Primary
System Bus 2		Shared	Primary
System Bus 4		Shared	As01 b
System Bus 5		Shared	As01 b

Refreshing logical partition information. 1 - 8 of 8 objects

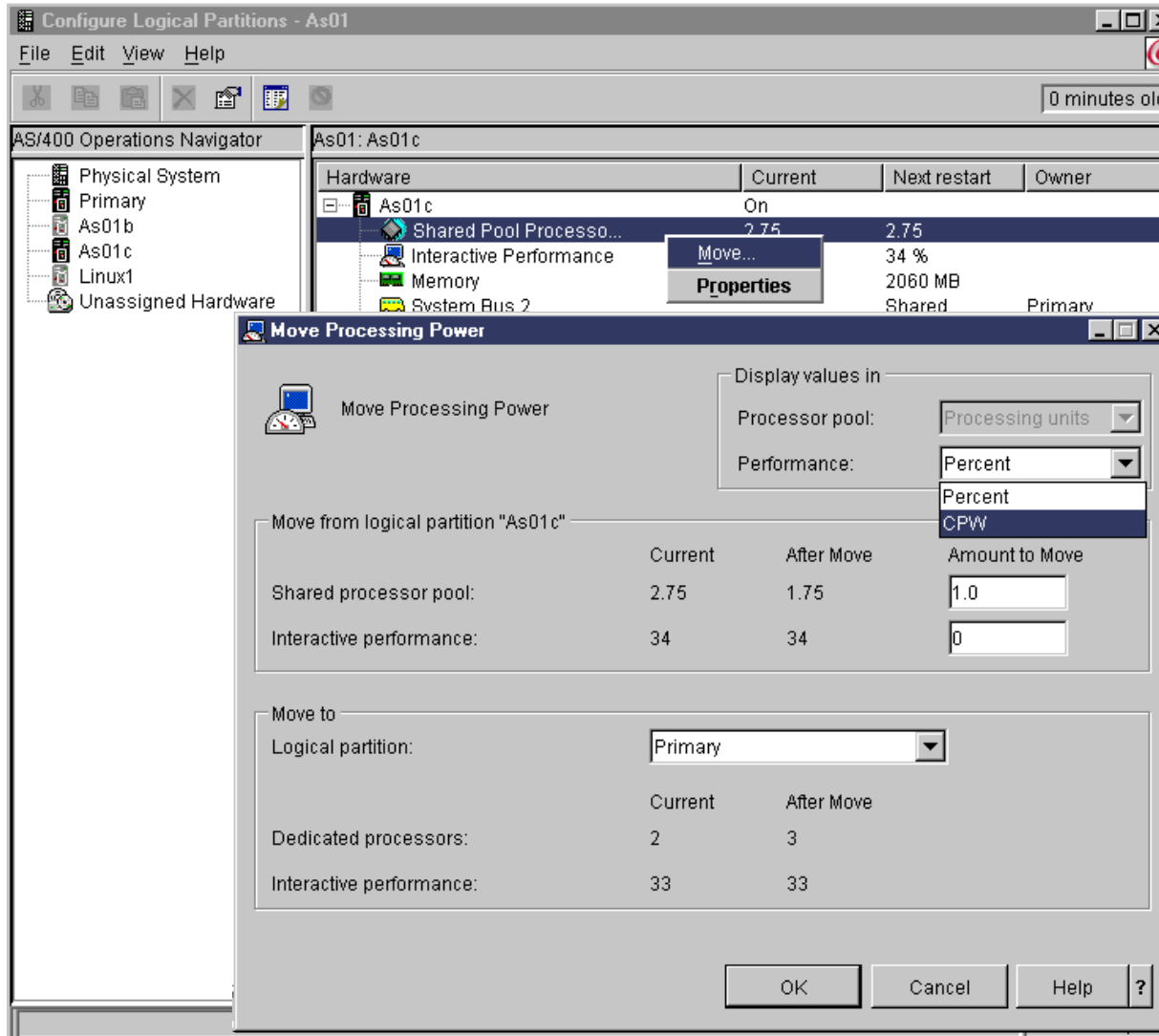


The screenshot shows the 'Configure Logical Partitions - As01' window. The left pane shows the 'AS/400 Operations Navigator' with 'As01 c' selected. The right pane shows the 'As01: As01 c' configuration table.

Hardware	Current	Next restart	Owner
As01 c	On		
Shared Pool Processors	2.75	2.75	
Interactive Performance	34 %	34 %	
Memory	2060 MB	2060 MB	
System Bus 2		Shared	Primary
System Bus 4		Shared	As01 b
System Bus 5		Shared	As01 b

Refreshing logical partition information. 1 - 7 of 7 objects

# Moving Resources...



The screenshot shows the 'Configure Logical Partitions - As01' window. The 'AS/400 Operations Navigator' on the left shows a tree view with 'Physical System' expanded to 'As01c'. The main pane shows a table of hardware resources for 'As01c'.

Hardware	Current	Next restart	Owner
As01c	On		
Shared Pool Processo...	2.75	2.75	
Interactive Performance	34 %		
Memory	2060 MB		
System Bus 2	Shared		Primary

The 'Move Processing Power' dialog box is open, showing the following configuration:

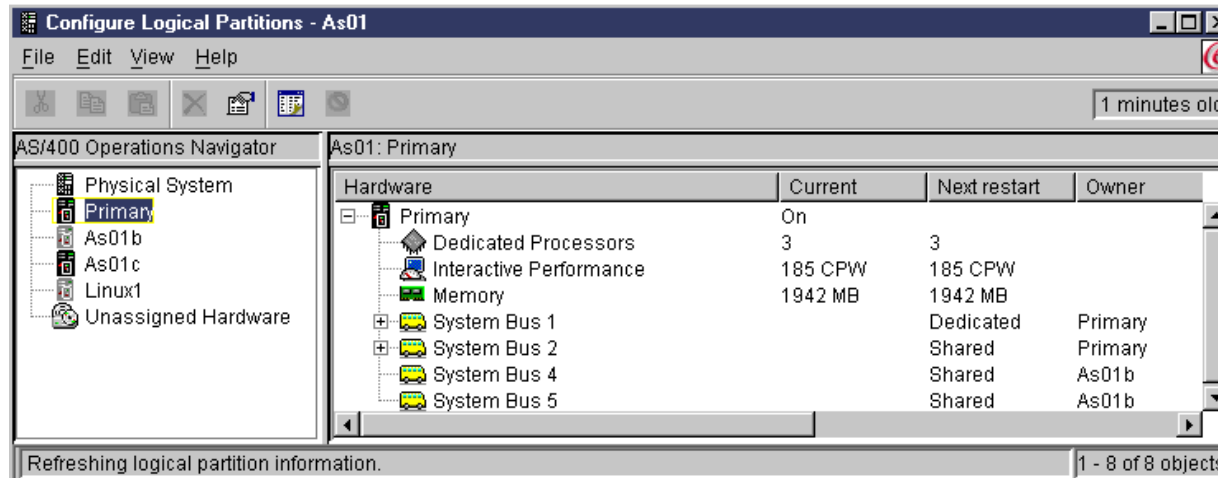
- Display values in: Processor pool: Processing units, Performance: Percent
- Move from logical partition "As01c":

	Current	After Move	Amount to Move
Shared processor pool:	2.75	1.75	1.0
Interactive performance:	34	34	0
- Move to Logical partition: Primary

	Current	After Move
Dedicated processors:	2	3
Interactive performance:	33	33

Buttons: OK, Cancel, Help, ?

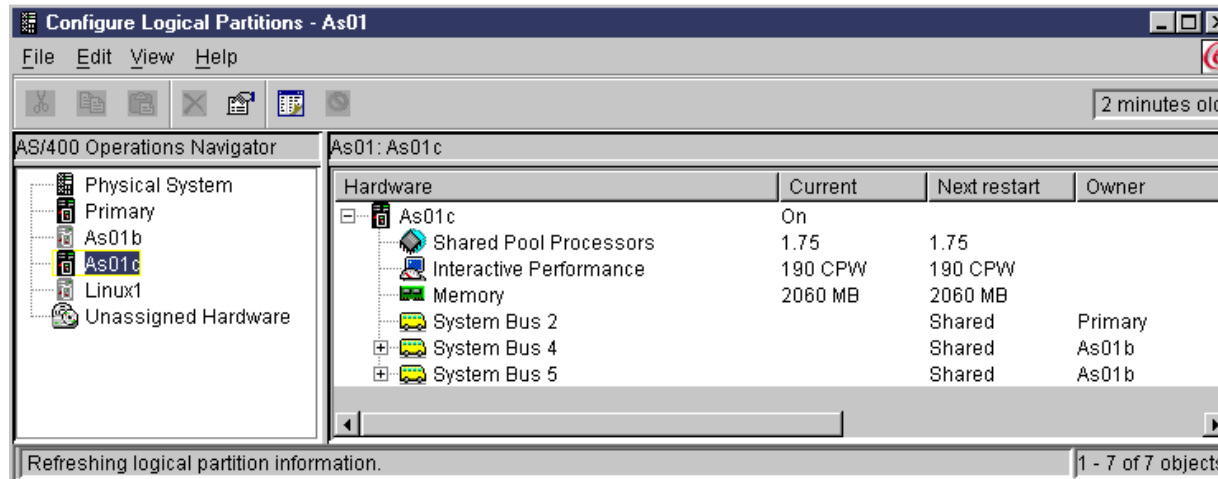
# Moving Resources (after)



The screenshot shows the 'Configure Logical Partitions - As01' window. The 'AS/400 Operations Navigator' on the left lists 'Primary', 'As01b', 'As01c', 'Linux1', and 'Unassigned Hardware'. The main pane displays the configuration for 'As01: Primary'.

Hardware	Current	Next restart	Owner
Primary	On		
Dedicated Processors	3	3	
Interactive Performance	185 CPW	185 CPW	
Memory	1942 MB	1942 MB	
System Bus 1		Dedicated	Primary
System Bus 2		Shared	Primary
System Bus 4		Shared	As01b
System Bus 5		Shared	As01b

Refreshing logical partition information. 1 - 8 of 8 objects



The screenshot shows the 'Configure Logical Partitions - As01' window. The 'AS/400 Operations Navigator' on the left lists 'Primary', 'As01b', 'As01c', 'Linux1', and 'Unassigned Hardware'. The main pane displays the configuration for 'As01: As01c'.

Hardware	Current	Next restart	Owner
As01c	On		
Shared Pool Processors	1.75	1.75	
Interactive Performance	190 CPW	190 CPW	
Memory	2060 MB	2060 MB	
System Bus 2		Shared	Primary
System Bus 4		Shared	As01b
System Bus 5		Shared	As01b

Refreshing logical partition information. 1 - 7 of 7 objects



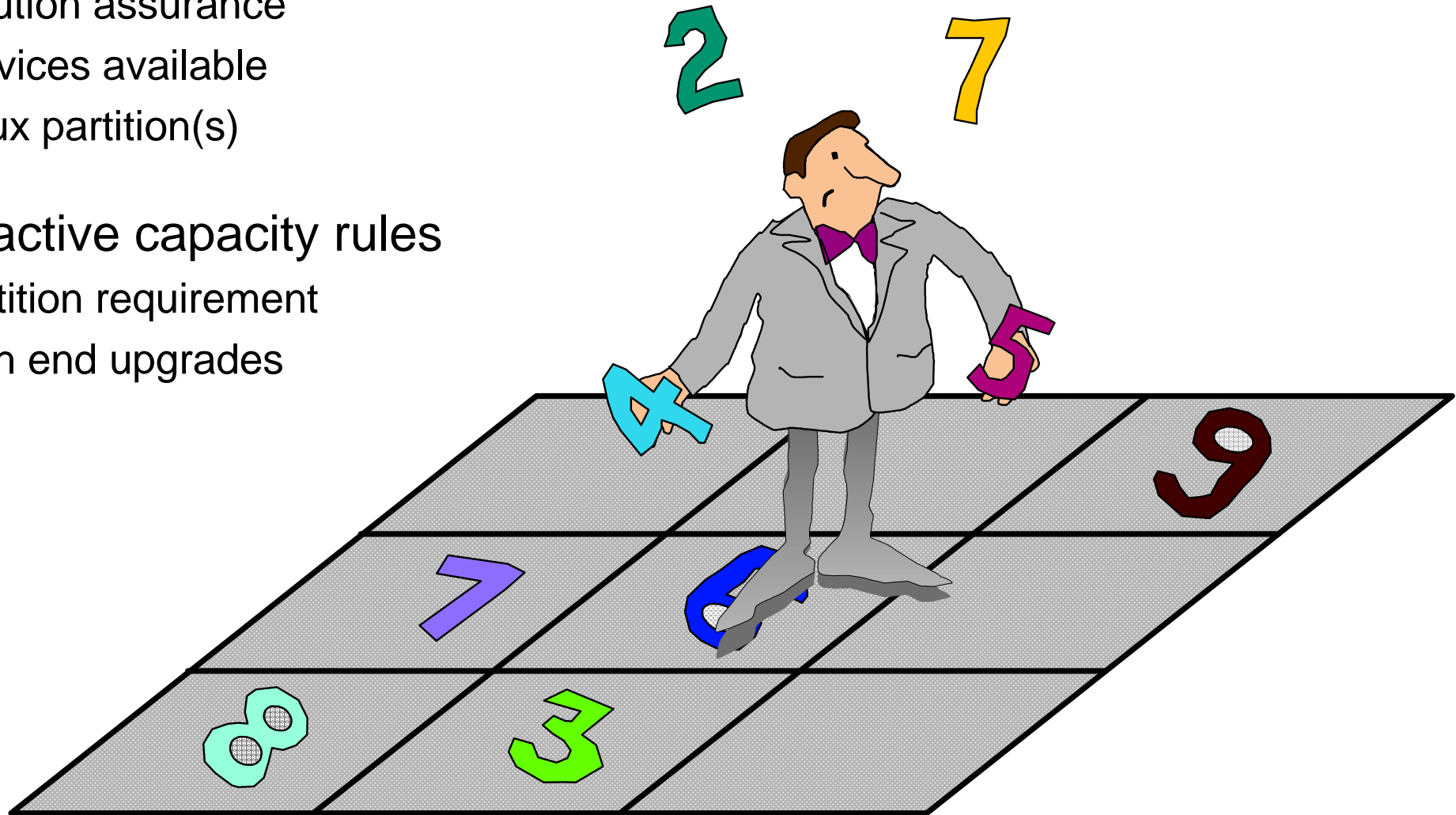
# LPAR and Upgrade

## Specific planning required

- Solution assurance
- Services available
- Linux partition(s)

## Interactive capacity rules

- Partition requirement
- High end upgrades



# Notes: LPAR and Upgrade

When you are faced with a partitioned server that requires an upgrade, it is highly recommended that you go through a Solutions Assurance review. Solution Assurance is a technical quality assurance process used to make an assessment of a completed solution design to determine if it is right for your business and your environment with the purpose of answering vital questions to assure a successful completion of your project. This assurance process is also valid for upgrading a partitioned iSeries server. IBM Global Services can help you and/or your Business Partner with developing a detailed outline describing hardware and software demands for each partition after the upgrade and perform an implementation services that may be required during and after the upgrade process.

OS/400 V5R1 enables you to run Linux, a non-OS/400 operating system, on a secondary partition. The iSeries 400 server running Linux embraces new web-based applications with the increased reliability over other systems. Before you create a partition running Linux, see the Logical Partition Website or the iSeries Linux Website for more information on Linux running in a logical partition:

<http://www-1.ibm.com/servers/eserver/iseries/lpar/>

<http://www-1.ibm.com/servers/eserver/iseries/linux/index.htm>

LPAR configurations with minimal interactive capacity can encounter severe problems when they are upgraded to a server with higher processor CPW values but with an equivalent interactive feature as on the 'from' server. The minimum requirement of 1.5 percent interactive capacity of the processor capacity in each individual partition may no longer be met after such an upgrade. When there is not enough interactive capacity available, the internal code will spread evenly the available interactive capacity over the partitions in proportion to the number of processing units in each partition. However, you must ensure that the minimum interactive capacity rule (1.5 %) can be met in order to prevent that you end up with partitions that can not run at their expected processing capacity.

Example high end server upgrade:

Server	Processor CPW	Interactive CPW Req. (1.5%)	Min configurable ICC	ICC required
740 #2070	4550	67.75	120	120
840 #2460	12000	<b>180</b>	120	<b>240</b>

# Notes: Functions Supported

Function	Operations Navigator	DST and SST
Accepting a disk unit as load source for a logical partition		X
Changing a bus ownership type	X	X
Changing a default electronic customer support resource	X	X
Changing a partition name	X	X
Changing communication options	X	X
Changing I/O configuration of primary and secondary partitions	X	X
Changing operating mode for a logical partition (M or N)	X	X
Changing the IPL source for a logical partition	X	X
Changing the alternate IPL device	X	X
Clearing nonreporting resources on logical partitions		X
Clearing partition configuration data for logical partitions		X
Clearing partition configuration from nonconfigured disk units		X
Creating a new OS/400 logical partition	X	X
Copying partition configuration data between IPL sources		X
Deleting a logical partition	X	X
Displaying available hardware resources	X	X
Displaying system resources	X	X
Displaying the communication options of a logical partition	X	X
Displaying the console for a partition	X	X
Displaying the logical partition OS/400 release level	X	X
Displaying the remote control panel for a logical partition	X	X

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# Notes: Functions Supported...

Function	Operations Navigator	DST and SST
Displaying the system reference code history for a primary partition	X	
Displaying the system reference code history for secondary partitions	X	X
Enabling High-Speed link (HSL) OptiConnect	X	X
Enabling virtual LAN communication	X	X
Enabling virtual OptiConnect communication	X	X
Finding a logical address for a resource	X	X
Moving a dedicated processor	X	X
Moving a dedicated processor to the shared processor pool	X	X
Moving an I/O processor	X	X
Moving interactive performance, memory or shared processing power	X	X
Performing main storage dumps on servers with logical partitions	X	X
Preventing a secondary logical partition from restarting during a system restart	X	X
Printing system configuration for logical partitions		X
Recovering logical partition configuration data		X
Resetting a disk unit I/O processor with logical partitions		X
Restarting a secondary logical partition during a system restart	X	X
Restarting a system with logical partitions	X	X
Updating partition configuration data on all logical partitions		X
Using remote service with logical partitions	X	X
Viewing the status of a logical partition	X	X

# Linux on iSeries

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Primary partition must be V5R1

Hosting Partition must be V5R1

Create the Guest Linux Partition

Configure NWSD in the Hosting Partition

Boot from CD

Vary on the NWSD

Linux on the iSeries platform is both very similar, and significantly different, than most other Linux implementations. It is similar, because any standard Linux Power PC distribution will work on the iSeries system. It is different because Linux on the iSeries platform will only work when started from OS/400 in a Logical Partition. Unlike most other supported hardware platforms, Linux cannot run as the only operating system running the hardware. Running Linux on the iSeries platform provides an integrated solution for combining the strengths of Linux and OS/400. Linux delivers excellent open source solutions, while OS/400 is a premier integrated platform for business solutions. Since Linux and OS/400 will be running cooperatively on the hardware, the information for setting up, installing, and using Linux is a little different than most other platforms.

iSeries Linux partitions also support a wide selection of I/O options. A Linux partition can utilize the new Virtual LAN capability to establish multiple high speed TCP/IP connections between logical partitions without additional communication hardware. iSeries disk and removable media devices can be configured for Linux partitions using the OS/400 Network Server Description (NWSD) OS/400 commands to provide a simple, flexible, and integrated storage solution. Additionally, Linux can utilize selected iSeries I/O adapters (IOAs) and devices directly (no IOPs required). These configuration options enable a wide selection of iSeries solutions.

It is important to note that any program built for PowerPC Linux will run on all PowerPC Linux platforms. Applications and programs that run on Linux on the pSeries platform will also run on the iSeries platform. IBM is working with Red Hat, SuSE and TurboLinux on Power PC distributions that will support iSeries. You can only call IBM Service for Linux help with these specific distributions. Other versions of Linux will also work on the iSeries platform, however there is no IBM service support for other than the above mentioned distributions.

# Create the Linux Partition

## Select Operating Environment

System: M01

Select one of the following:

- 1. OS/400
- 2. Guest

Selection

**2**

F3=Exit F12

## Create New Partition

System: M01

Complete blanks, press Enter.

Partition identifier and name . . . . .	3	<b>LINUX1</b>
Number of available system processors . . . . .	:	0
Number of partition processors . . . . .	:	1
Use shared processor pool . . . . .	1	1=Yes, 2=No
Shared processor pool units . . . . .	0	. 75
Size of available system main storage (MB) . . . . .	:	1666
Size of partition main storage (MB) . . . . .	:	1024

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



# Create the Linux Partition...

```

                                Select Communication Options
                                System:      M01
Partition identifier . . . . . : 3
Partition name . . . . . : LINUX1

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
1  1  1  1  2  2  2  2  2  2  2  2  2  2  2  2

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

# Create the Linux Partition...

```

                                Confirm New Partition
                                System:      M01
Verify information, press Enter.

Partition identifier and name . . . . . : 3      LINUX1
Number of partition processors . . . . . : 1
Minimum / maximum number of processors . . . . . : 1 / 1
Use shared processor pool . . . . . : Yes
  Shared processor pool units . . . . . : 0.75
  Minimum / maximum processor pool units . . . . . : 0.10 / 0.75
Size of partition main storage (MB) . . . . . : 1024
Minimum / maximum size of main storage (MB) . . . . . : 86 / 1024
Virtual LAN . . . . . : Yes

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

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

# Create the Linux Partition....

```

                                Select Host Partition
                                System:      M01
Partition identifier . . . . . : 3
Partition name . . . . . : LINUX1

Type option, press Enter.
  1=Select

-----Host Partition-----
Option  Identifier  Name      Version/Release
  _      0          PRIMARY   V5R1M0 L000
  _      1          AS01B     V5R1M0 L000
  1     2          AS01C     V5R1M0 L000

F3=Exit   F12=Cancel
```

# Create the Linux Partition.....

## Work with Partition Status

System: M01

Type options, press Enter.

1=Power on      3=IPL restart      7=Delayed power off      8=Immediate power off  
9=Mode normal    10=Mode manual    11=Mode auto      12=Mode secure  
A=Source A      B=Source B      C=Source C      D=Source D

Opt	Partition Identifier	Name	IPL Source	IPL Mode	State	Sys IPL Action	Reference Codes
	0	PRIMARY	B	Manual	On	IPL	
	1	AS01B	B	Normal	On	IPL	
	2	AS01C	B	Normal	On	IPL	
1	3	LINUX1	D	Manual	New	Hold	

F3=Exit    F5=Refresh      F10=Monitor partition status  
F11=Work with partition configuration    F12=Cancel    F23=More options

# Notes: Create the Linux Partition

The previous foils are showing the screenflow you may have to follow to create a Linux partition. You can use the graphical interface from management central to get the same result. First consideration is to use the guest operating system option.

-Following remark is only valid for **NON- SStar** iSeries servers that are able to run Linux. To be able to run Linux on certain (selected) iSeries servers, one change must be made to OS/400. OS/400 has a system value setting called "Processor Multitasking" (QPRCMLTTSK). This setting causes the physical processor to cache information when switching between tasks. Unfortunately this causes problems when Linux is running, so processor multitasking must be disabled. An IPL is required for this change to take effect, so the first step in setting up the system is to change this setting. It will take effect when the system is IPLed. Note that IBM intends to make Linux tolerant for Processor multitasking in the future. Currently, however, it must be turned off for the whole iSeries machine if Linux needs to run in a partition.

# Create Linux Network Server Description

## Create Network Server Desc (CRTNWS)

Type choices, press Enter.

Network server description . . . . .	> LINUXNWS	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 . . . . .	> LINUX1	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...

# Create Linux Network Server Storage

## Create NWS Storage Space (CRTNWSSTG)

Type choices, press Enter.

Network server storage space . . . . .	<b>LINUXSTG</b>	Name
Size . . . . .	2000	*CALC, 1-64000 megabytes
From storage space . . . . .	*NONE	Name, *NONE
Format . . . . .	<b>*OPEN</b>	*NTFS, *FAT, *FAT32, *OPEN
Auxiliary storage pool ID . . . . .	1	1-99
Text 'description' . . . . .	*BLANK	

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# Add Network Server Storage Link

## Add Server Storage Link (ADDNWSSTGL)

Type choices, press Enter.

Network server storage space . .	LINUXSTG	Name
Network server description . . .	LINUXNWS	Name
Drive letter . . . . .	*FIRSTAVAIL	K-Z
Dynamic storage link . . . . .	*NO	*NO, *YES
Network server type . . . . .	*NWS	Character value
Drive sequence number . . . . .	*CALC	3-18, *CALC

### Additional Parameters

Access . . . . .	*UPDATE	*UPDATE, *READ
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# Notes: Network Server Screens

IBM  server iSeries

See the Linux presentation for more information.

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