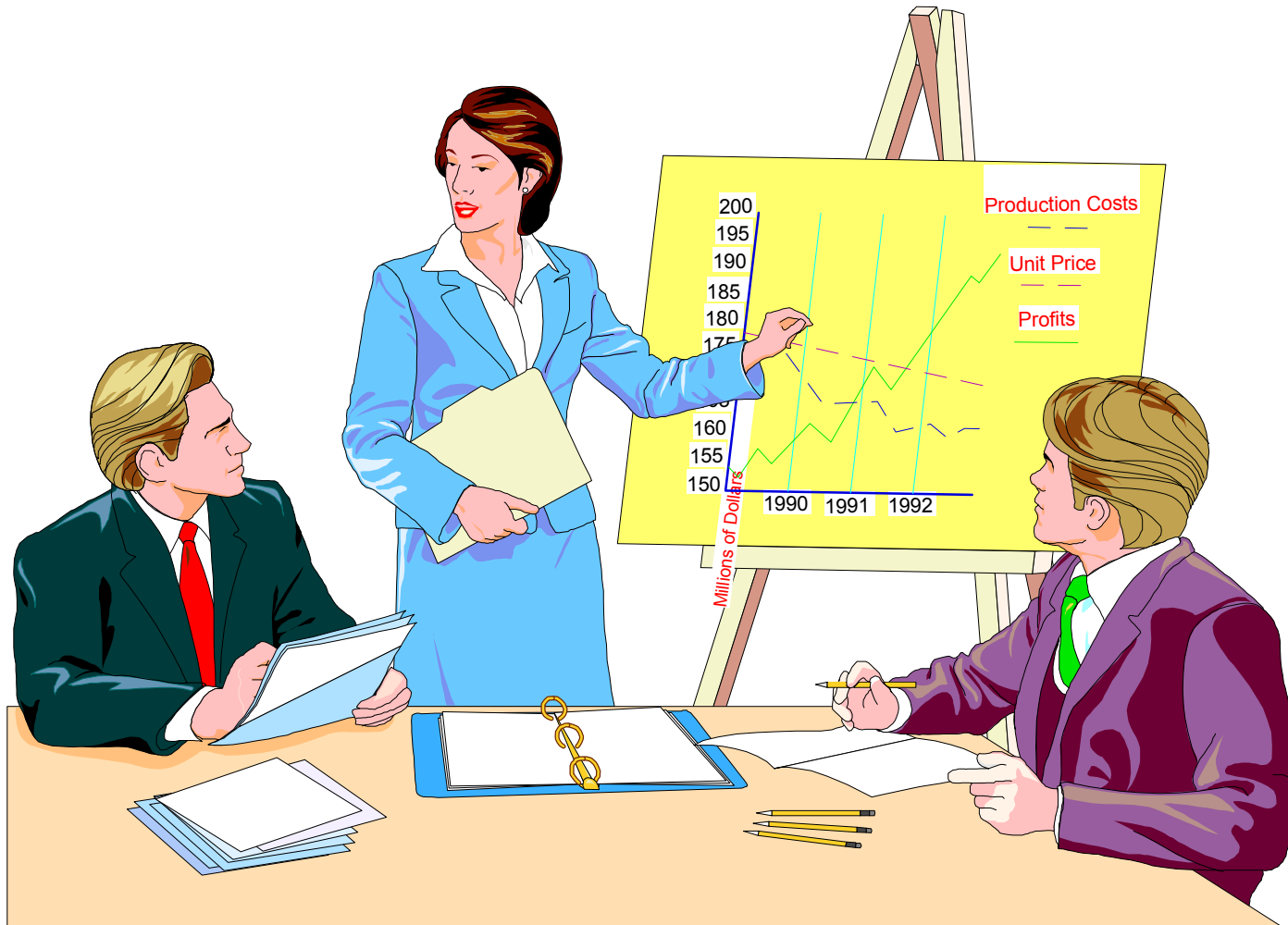


# Planning Is Everything



# Planning Overview in V5R1

## 1 Customer Starting Responsibilities

- *Use the Web <http://www-1.ibm.com/servers/eserver/series/lpar/>*
- *Complete the design phase*

## 2 Business Partner and Marketing Activities

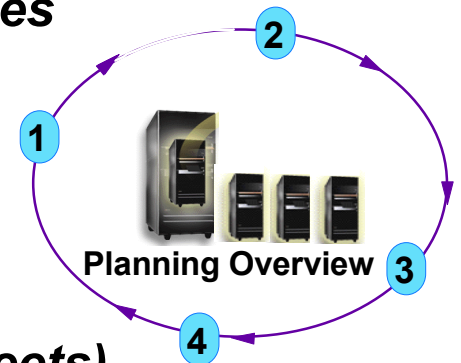
- *Can supply a complete range of on-site services*
- *Interface with the Technology Solution Centre*

## 3 Technology Solution Centre

- *Customized hardware configuration*
- *Verifies the design phase ( Planning Work Sheets)*

## 4 Install new hardware and Software

- *Relocating hardware for LPAR is a Billable Service*
- *This applies to new and existing installations*



# Starting Point in V5R1

**IBM** Search

Home | Products & services | Support & downloads | My account

→ Select a country

← Servers

**Integrated application servers**

Solutions

Hardware


Software

How to buy

Services

Support

Education

Library  **2**

Contact IBM


**Related links:**

Buy online

My iSeries site

Products > Servers > Integrated application servers > Logical Partitioning >

## Logical Partitioning

**1** 

**LPAR and V5R1**


**NEW!** Check out how to design and validate an 8xx/270 iSeries systems for partitioning using the [LPAR Validation Tool](#)

As the scalability of iSeries continues to increase dramatically, the opportunity for customers to realize cost savings by consolidating multiple iSeries or AS/400 systems into fewer, more manageable systems also increases. Since its introduction, logical partitioning (LPAR) has re-energized server consolidation strategies for both iSeries and AS/400 customers. Today, several customers have successfully implemented LPAR to achieve quick consolidation of multiple workload environments, time zones, and footprints within a single or fewer iSeries or AS/400 systems. These customers have taken advantage of LPAR to benefit from the growing industry trend and the desire to optimize I/T investments through consolidation of hardware, software, networks, data centers, and more importantly skills.

iSeries customers continue to benefit from LPAR implementations through the technology innovations that are pioneered in Rochester - home of the iSeries systems. In a year that marks the introduction of seventh generation 64-bit RISC processors, the team that successfully architected logical partitioning (LPAR) for the AS/400 systems back in 1999 will deliver some of most dynamic and exciting enhancements for LPAR which will also include extending LPAR support to the new iSeries Model 270 Sstar processor features. Let's look at these OS/400 V5R1 enhancements.

**Additional info**


→ [Chart of Supported Servers](#)

→ [Planning](#)  **3**

→ [Education](#)

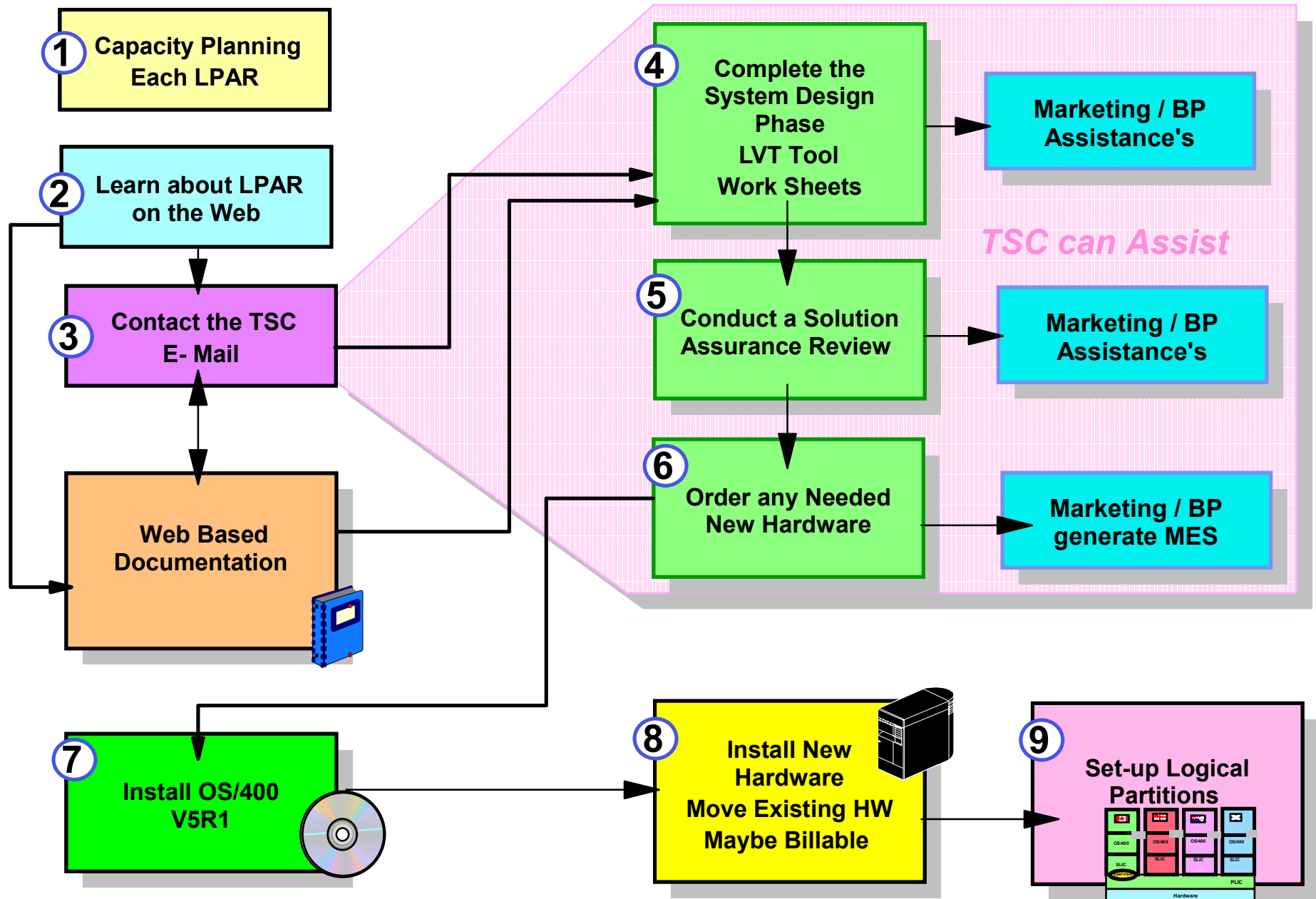
→ [Documentation & References](#)

→ [Server Consolidation](#)

→ [LPAR Redbook](#)  **4**

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

# LPAR Planning Process



# Documentation and References

The screenshot shows the IBM website interface. At the top left is the IBM logo. To its right is a search bar with the text 'Search'. Below the logo is a navigation menu with links: Home, Products & services, Support & downloads, and My account. A breadcrumb trail reads: Products > Servers > Integrated application servers > Logical Partitioning >. On the left side, there is a vertical navigation menu with the following items: Select a country, Servers, Integrated application servers, Solutions, Hardware, Software, How to buy, Services, Support, Education, Library, and Contact IBM. The main content area is titled 'Documentation & References' and features a server rack image. Below this, it says 'InfoCenter Manuals for LPAR:' followed by a list of links: Learning about Logical Partitions, Planning for Logical Partitions, Creating Logical Partitions, Managing Logical Partitions, and Troubleshooting Logical Partitions. To the right of this list is a hand icon pointing to a circled '1'. Further right, there is a 'Related links' section with a link to 'iSeries 400 Information Center'. Below that, there is a circular diagram with a '1' in a blue circle and an image of server racks labeled 'Planning Overview'.

## • Other Related Documentation:

- ✓ *AS/400 Logical Partition technical white paper*
- ✓ *Slicing the AS/400 with logical partitions SG24-5439-00*
- ✓ *Capacity Planning for logical partitions **SC41-3341***

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

# iSeries 400 Information Center

The screenshot shows the iSeries Information Center V5R1 website. The page has a blue header with the title "iSeries Information Center V5R1" and a search bar. A left sidebar contains a navigation menu with the following items:

- Information Center home
- System planning and installation
  - Getting started with iSeries
- Planning
  - Globalization
  - Physical planning for your new system
- Planning for logical partitions
  - Understand the hardware requirements for logical partitions
  - Determine the possible number of logical partitions
  - Select bus-level or IOP level partitioning

The main content area features a search bar, a "Go" button, and a link to "Information Center home". Below this is a large graphic of a server tower and a laptop, with the text: "IBM @server iSeries 400 Information Center Version 5 Release 1 (V5R1)". A welcome message follows: "Welcome to the iSeries Information Center, your source for information." At the bottom, there are three icons with corresponding links: "Overview" (with a green diamond icon), "What's new" (with a blue diamond icon containing a question mark), and "Print topics Site map" (with a blue diamond icon containing a printer).

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

# Capacity Planning Tools

- **Best -1**
  - Available on the AS/400 for detailed:
  - Performance planning
  - Capacity planning
  - Modeling
  - Recommendations
  - ASPs and Disk Arms
  - DASD IOPs and Arms
  - Main Storage Pools
  - Communication Resources
  - Graphical Charts



*Detailed information is in the **BEST/1 Capacity Planning Tool Manual (SC41-3341).***

- ***Slicing the AS/400 with Logical Partitions SG24-5439-00***

# LPAR Validation Tool for V5R1

The screenshot shows the IBM website interface for the LPAR System Design page. The top navigation bar includes the IBM logo, a search bar, and links for Home, Products & services, Support & downloads, and My account. The left sidebar contains a 'Select a country' dropdown and a list of navigation options: Servers, Integrated application servers, Solutions, Hardware, Software, How to buy, Services, Support, Education, Library, and Contact IBM. The main content area features a breadcrumb trail: Products > Servers > Integrated application servers > Logical Partitioning >. Below this is a large heading 'LPAR System Design' with an image of a server rack. To the right is a circular diagram with three numbered steps (1, 2, 3) and the text 'Planning Overview'. Below the heading is a section titled 'For 8xx/270 system validations:' followed by a paragraph describing the LPAR Validation Tool (LVT). The paragraph states that the LVT is a PC-based tool that assists in the design of an LPAR system and provides a validation report. It mentions that the IBM Java Runtime Engine 1.2.2 is required to run the LVT. Below the paragraph are three bullet points: 'Download the LVT tool, Base (Version 1.34) including IBM JRE1.2.2 12.9M. If you encounter problems downloading the base LVT tool, click here to download it in smaller pieces.', 'Download the LVT tool, Version 1.42 tool.', and 'Download the LVT user guide, Version (5/10/01)'. A hand icon points to a circled '1' next to the first bullet point.

**For 8xx/270 system validations:**

A **NEW!** LPAR Validation Tool (LVT) is available to assist the user in the design of an LPAR system and to provide an LPAR validation report that reflects the user's system requirements while not exceeding LPAR recommendations. The LVT is a PC based tool intended to be run as a standalone Java application. The IBM Java Runtime Engine 1.2.2 is required to run the LVT so the full download with the IBM JRE must be downloaded and executed the first time. For updates, only the LVT tool needs to be downloaded.

- Download the [LVT tool](#), Base (Version 1.34) including IBM JRE1.2.2 12.9M. If you encounter problems downloading the base LVT tool, [click here](#) to download it in smaller pieces.
- Download the [LVT tool](#), Version 1.42 tool.
- Download the [LVT user guide](#), Version (5/10/01)

- PC-based tool to assist in planning and work sheet
- LVT user guide is in Appendix
- Configuration Planning Worksheets are in Appendix

# LPAR Validation Tool Overview

## V5R1 (1 of 2)

**System Selection**


1 Primary Partition OS Level:

System Model:

**Partition Specifications**

2

<b>System Model:</b>	820	<b>Total Available Resources:</b>
<b>Processor Feature:</b>	2398	<b>Dedicated Processors:</b> 1
<b>Interactive Feature:</b>	1527	<b>Shared Processors:</b>
<b>System Memory (GB):</b>	10	<b>Batch CPW:</b>
<b>Total Processors:</b>	4	<b>Memory (MB):</b>
<b>Primary Partition Console Type:</b>	<input type="text"/>	<b>Interactive %:</b> 100
<b>Shared Pool Processors:</b>	<input type="text" value="0"/>	<b>Interactive CPW:</b> 2000



2  
3  
Planning Overview

Partition	OS Version	Shared	# Processors	Batch CPW	Memory (MB)	Int %	Int CPW
0	V5R1M0	<input type="checkbox"/>	0	0	0	0	0
1	V5R1M0	<input type="checkbox"/>	0	0	0	0	0
2	V5R1M0	<input type="checkbox"/>	0	0	0	0	0
3	V5R1M0	<input type="checkbox"/>	0	0	0	0	0

# LPAR Validation Tool Overview

## V5R1 (2 of 2)

LPARValidator

3

File Edit Report Validate Help

IOPs
IOAs
Drives
Linux

2790 Integrated Netfinity Server (700MHz)  
 2791 Integrated xSeries Server (850MHz)  
 2890 Integrated Netfinity Server (700MHz)  
 2891 Integrated xSeries Server (850MHz)  
 2842 32 MB IOP (270 Only)  
 2843 64 MB IOP

820-0

Add/Remove	Slot	IOP/IOA/Dev	Partition	Description
Add	DB2		0	Disk Drives
Add	DB1		0	Disk Drives
Add	D14		0	Internal Tape/CD-ROM/DVD-RAM
Remove	D13	4425	0	CDROM
Add	C12		0	IOP (Short)
Add	C11		0	IOA
Add	C10		0	IOP/IOA/INS
Add	C09		0	IOP/IOA
Add	C08		0	IOP/IOA
Add	C07		0	IOA
Remove	EMB	284C	0	Embedded IOP
Remove	C06	9771	0	Base 2-Line WAN with Modem
Remove	C05	4748	0	RAID Disk Unit Ctr
Add	C04		0	IOP/IOA/INS
Add	C03		0	IOP/IOA
Add	C02		0	IOP/IOA
Add	C01		0	IOA

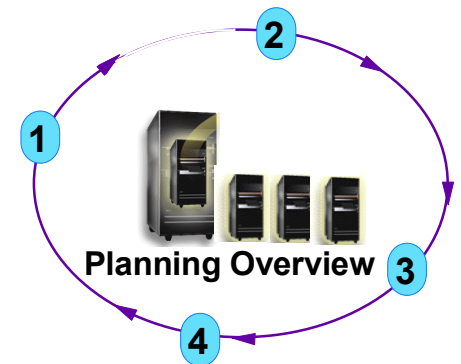
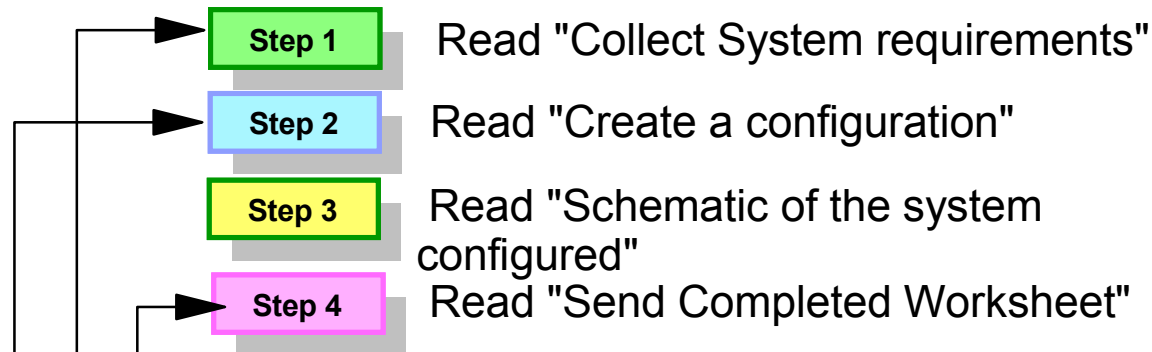
**1** Planning Overview **2** **3**

Partition 0 requires disk drives  
 Partition 0 requires an internal tape or a tape IOA  
 Partition 1 requires a dedicated Disk IOA  
 Partition 1 requires a dedicated Console IOA

# Completing the Planning Worksheet V4R5

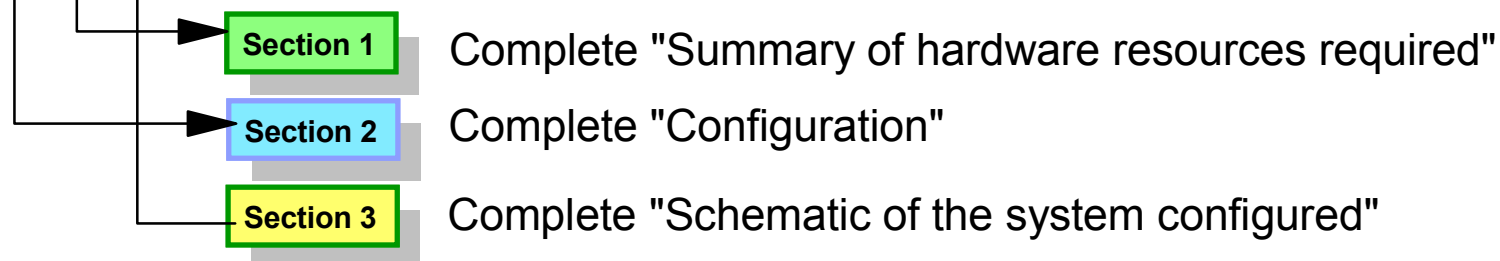
## Guide to Completing the Configuration Planning Work Sheet

- LPARGuideMater.lwp



## Configuration Planning Worksheet

- LPARworksheetMaster.lwp



Available at LPAR System Design <http://www.as400.ibm.com/lpar/sysdesign.htm> in:  
Lotus WordPro, Microsoft Word or Viewable online HTML

Note: The above documents are subject to change/additions or replacements

# Configuration Planning Worksheet

Partitions	Batch CPW of partition	Number of processors	Memory	Interactive CPW Percentage*	Virtual OptiConnect Yes/No																																																																																					
Partition 0 (Primary)	Slot	IOP/IOA Device	Assigned to Partition	Comments																																																																																						
Partition 1	D01-D06 D07-D12 D14			Specify disk units to be placed in these slots																																																																																						
Partition 2	D13	4525		Internal Tape/CD-ROM																																																																																						
	C12			CD-ROM (Required)																																																																																						
Partition 3	C11			IOP (Short)																																																																																						
Partition 4	C10			<table border="1"> <thead> <tr> <th>Slot</th> <th>IOP/IOA Device</th> <th>Assigned to Partition</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>DB1</td> <td></td> <td></td> <td rowspan="3">Specify disk units to be placed in these disk slots DB3 is the top set of disks. DB1 is the bottom set on the left. DB2 is the bottom set on the right.</td> </tr> <tr> <td>DB2</td> <td></td> <td></td> </tr> <tr> <td>DB3</td> <td></td> <td></td> </tr> <tr> <td>D42</td> <td></td> <td></td> <td>Internal Tape/CD-ROM</td> </tr> <tr> <td>D41</td> <td></td> <td></td> <td>CD-ROM</td> </tr> <tr> <td>C15</td> <td></td> <td></td> <td>IOA</td> <td rowspan="10">B U S #</td> </tr> <tr> <td>C14</td> <td></td> <td></td> <td>IOP/IOA</td> </tr> <tr> <td>C13</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C12</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C11</td> <td></td> <td></td> <td>IOP/INS</td> </tr> <tr> <td>C10</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C09</td> <td></td> <td></td> <td>IOP/IOA</td> </tr> <tr> <td></td> <td></td> <td></td> <td>HSL(9691)</td> </tr> <tr> <td>C07</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C06</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C05</td> <td></td> <td></td> <td>IOP/INS</td> <td rowspan="4">B U S #</td> </tr> <tr> <td>C04</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C03</td> <td></td> <td></td> <td>IOP/IOA</td> </tr> <tr> <td>C02</td> <td></td> <td></td> <td>IOA</td> </tr> <tr> <td>C01</td> <td>9943</td> <td></td> <td>64M Base IOP</td> <td>IOP (Base)</td> </tr> </tbody> </table>		Slot	IOP/IOA Device	Assigned to Partition	Comments	DB1			Specify disk units to be placed in these disk slots DB3 is the top set of disks. DB1 is the bottom set on the left. DB2 is the bottom set on the right.	DB2			DB3			D42			Internal Tape/CD-ROM	D41			CD-ROM	C15			IOA	B U S #	C14			IOP/IOA	C13			IOA	C12			IOA	C11			IOP/INS	C10			IOA	C09			IOP/IOA				HSL(9691)	C07			IOA	C06			IOA	C05			IOP/INS	B U S #	C04			IOA	C03			IOP/IOA	C02			IOA	C01	9943		64M Base IOP	IOP (Base)
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C01	9943		64M Base IOP	IOP (Base)																																																																																						
Partition 5	EMBEDDED 284C																																																																																									
	C06																																																																																									
	C05																																																																																									
Total	C04																																																																																									
	C03																																																																																									
	C02																																																																																									
	C01																																																																																									

Capacity Planning is critical  
Marketing and BP can assist with the process

## Filling out the Configuration Worksheets:

- ▶ To be sent to the TSC for verifying correct configuration
- ▶ For customized hardware configuration

# Gathering System Information

## Available sources:



- WRKHDWRSC
- WRKHDWPRD
- System Service Tools (STRSST)

- Work with system partitions
  - Display Partition Information
  - Display Allocated I/O Resources
  - Display Available I/O Resources
  - Display System I/O Resources
- Hardware Service Manager



***View and Print the System Resources to assist in filling out the Planning Worksheets or the LVT***

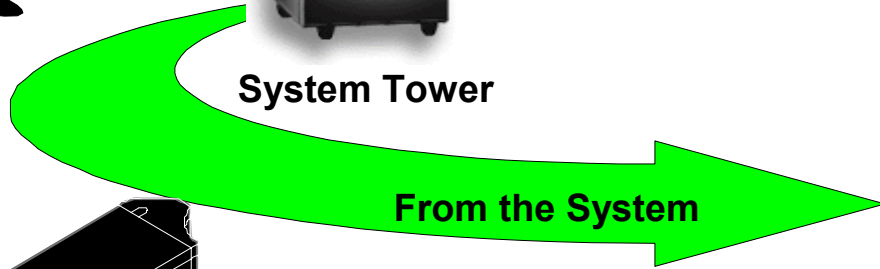
# Deallocate the Resources



2

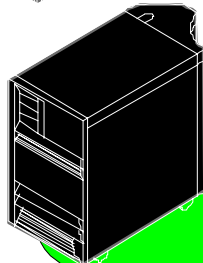
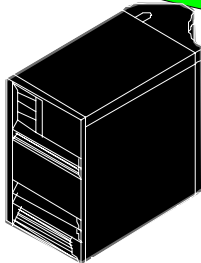


System Tower



From the System

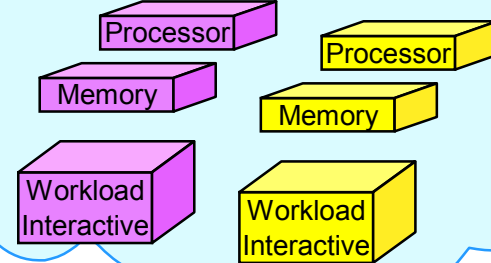
*From The Primary*



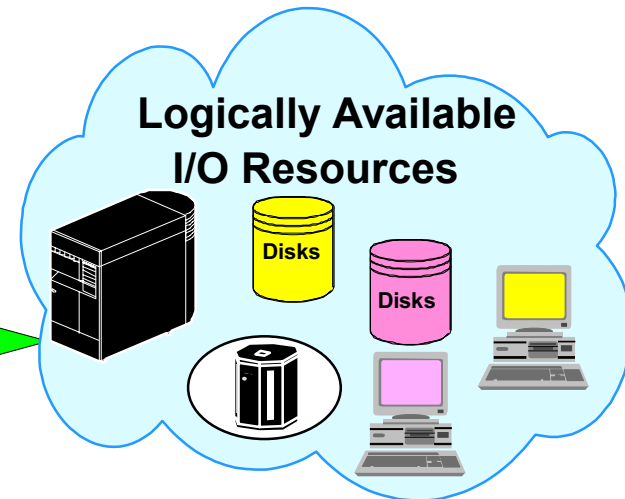
Bus Expansion Units

From System or Bus Expansion Units

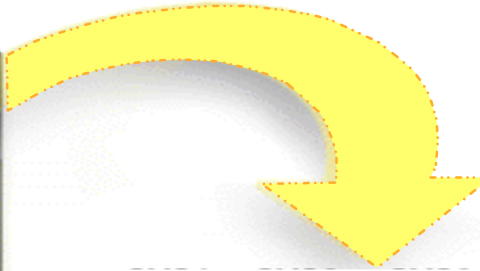
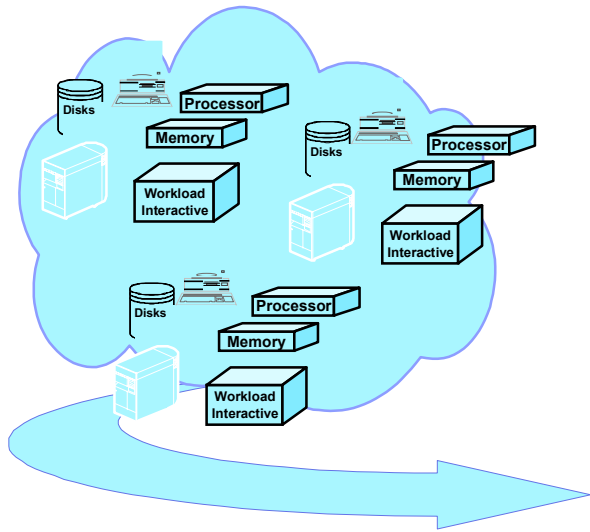
Logically Available  
Process Resources



Logically Available  
I/O Resources



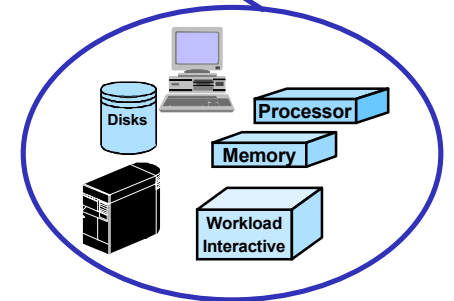
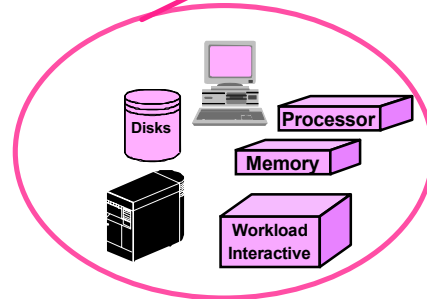
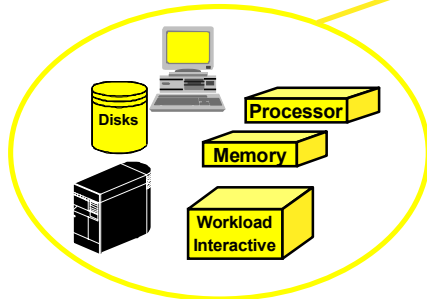
# Create and Add



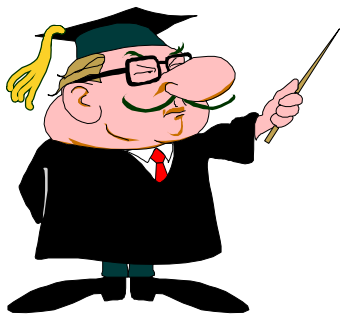
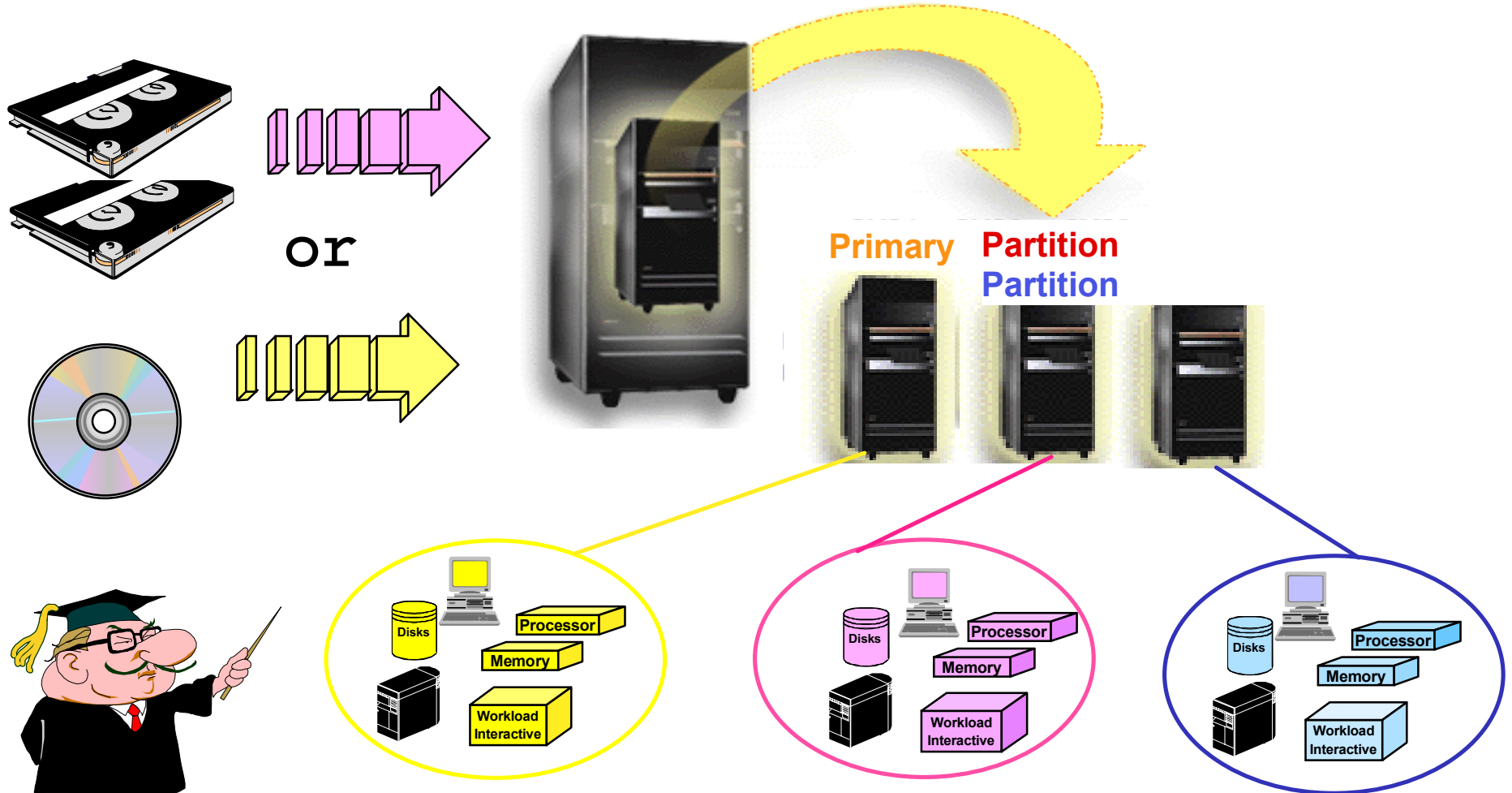
Primary Partition  
Partition



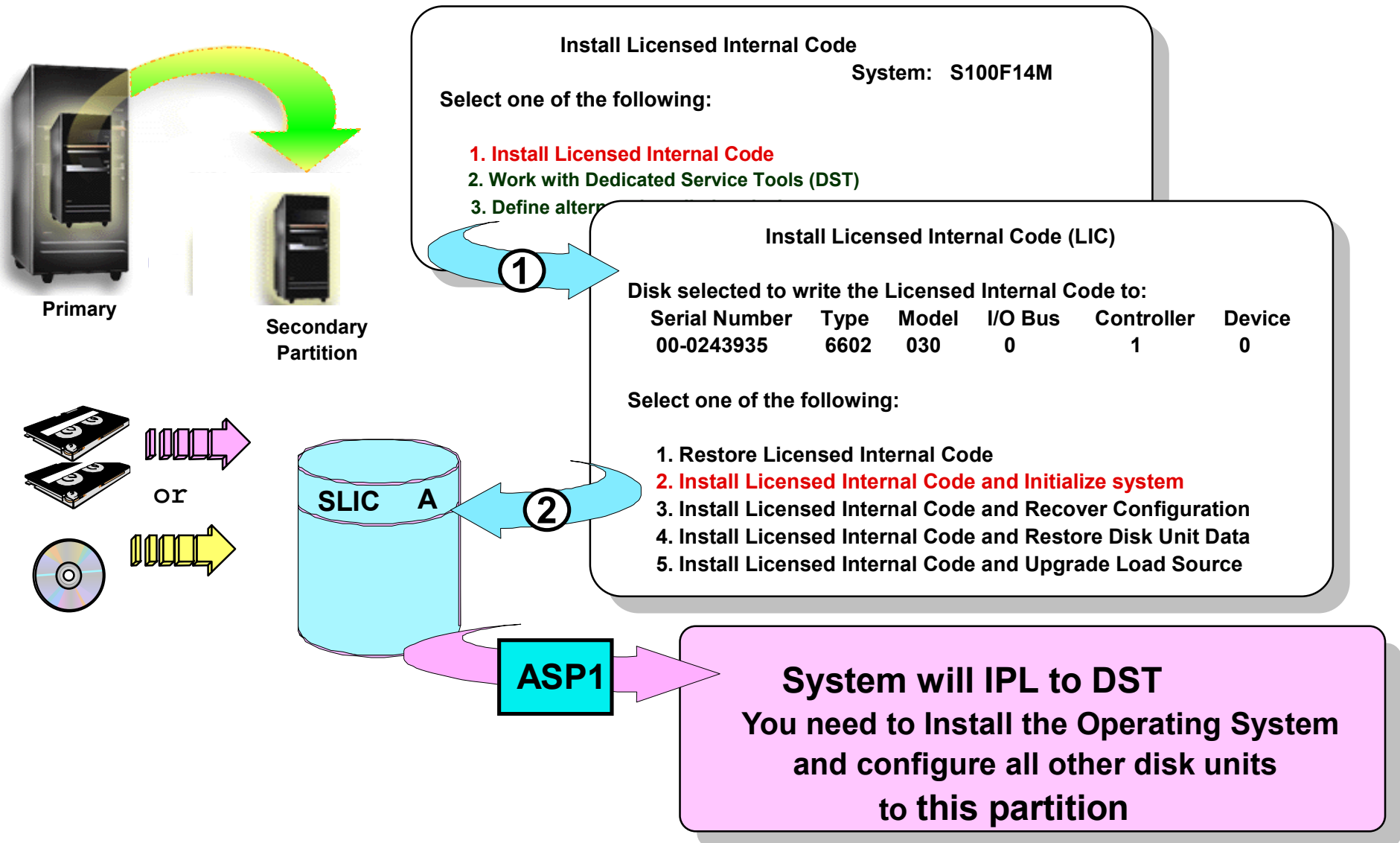
Create the Partitions  
By allocating the *Available Resources*



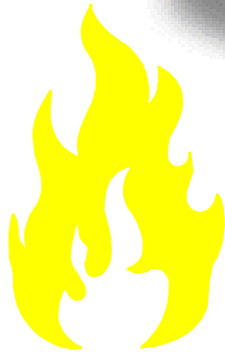
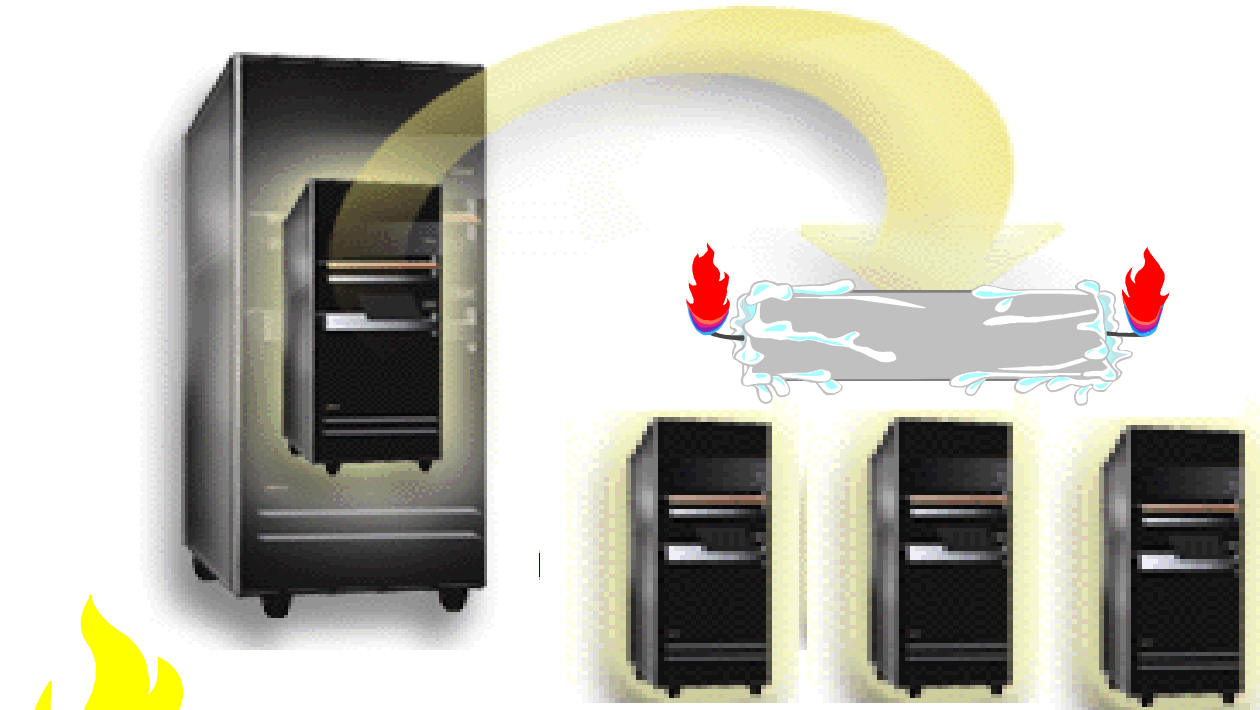
# Installing Partitions



# Install Licensed Internal Code



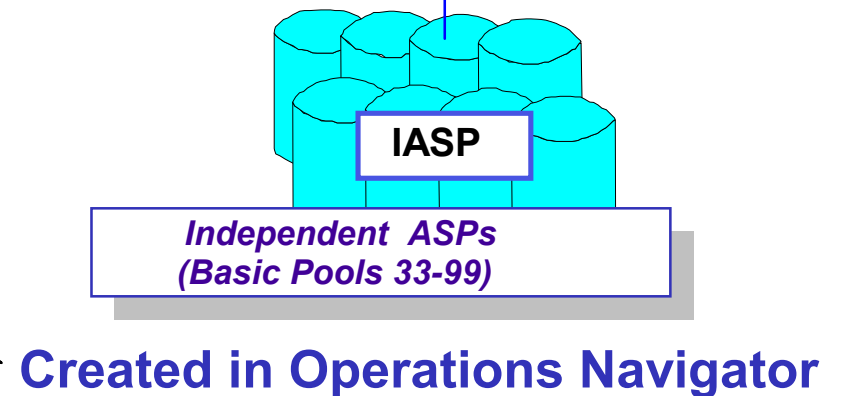
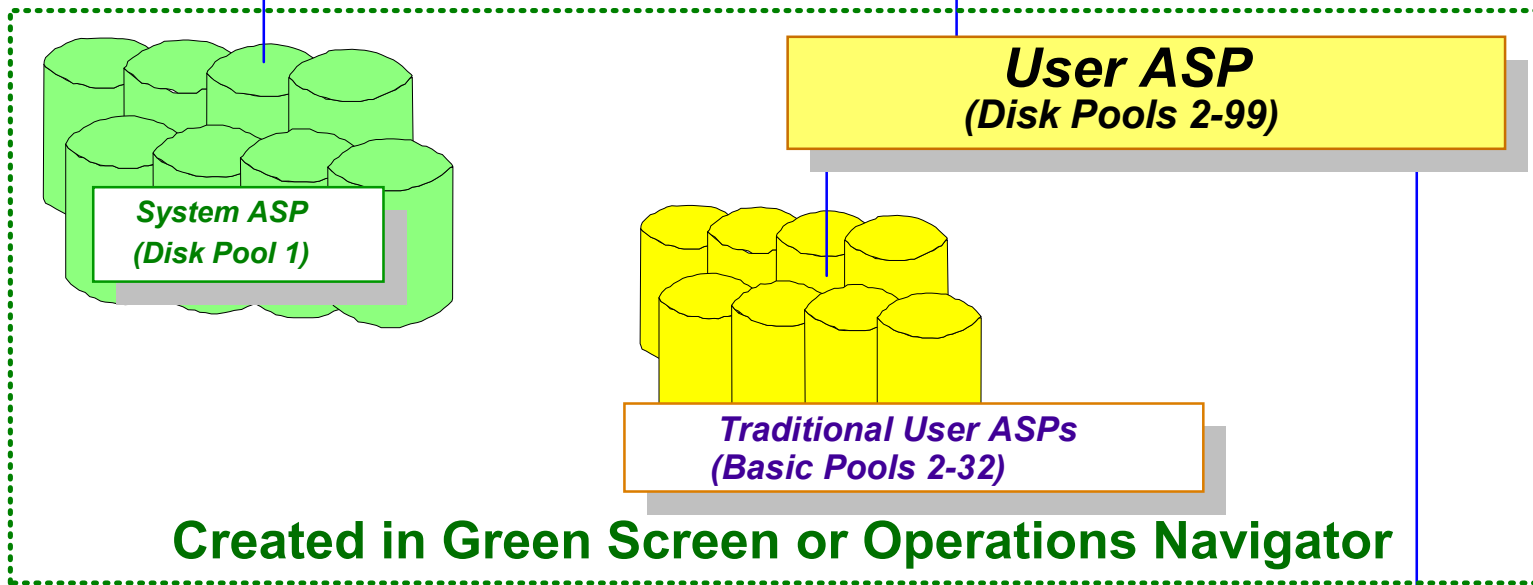
# Logical Partition Limitations



- Processor failures
- Memory failures
- Power failures
- Bus Failures

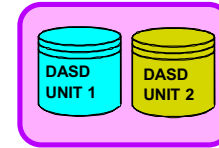
# Auxiliary Storage Pools

## Auxiliary Storage Pools



# Available Protection Levels

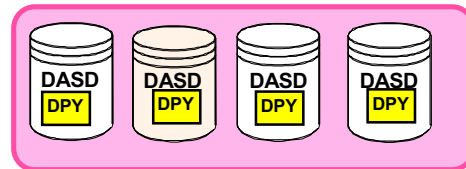
- ASP (Auxiliary Storage Pool)



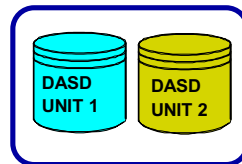
- Mirroring



- RAID

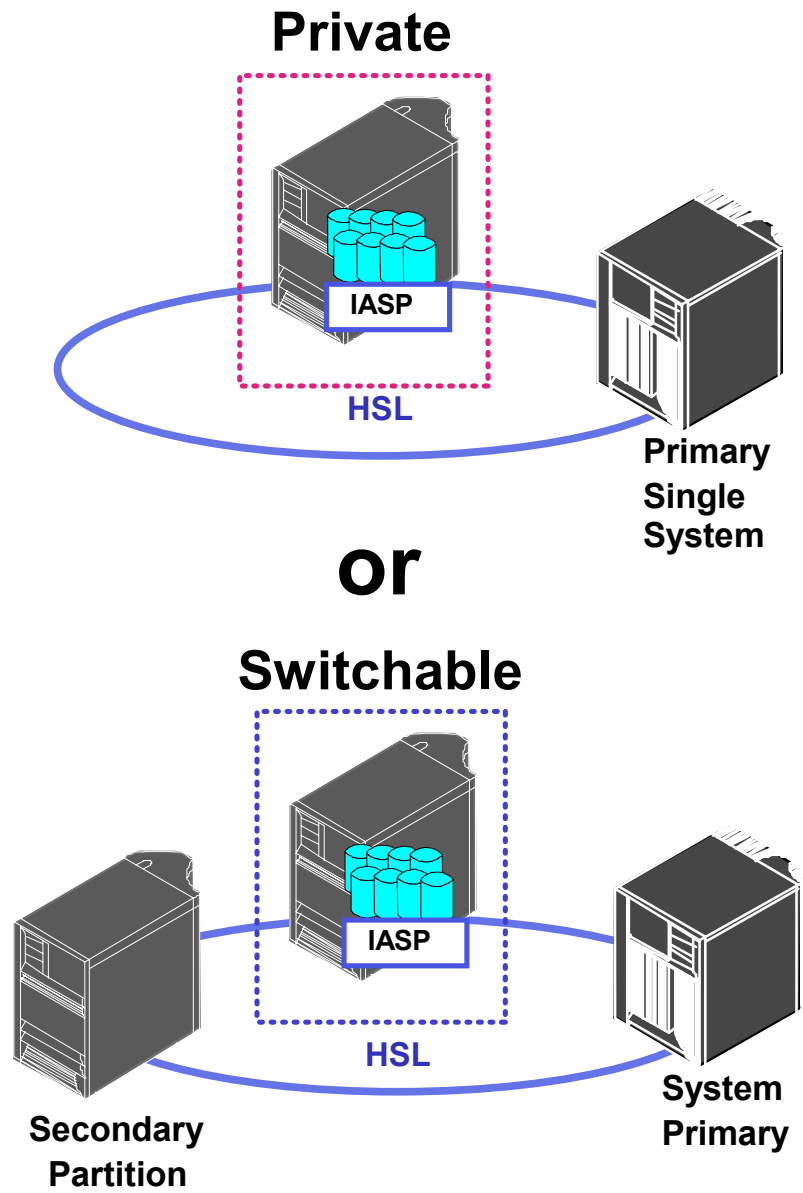
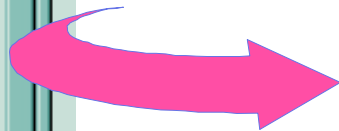
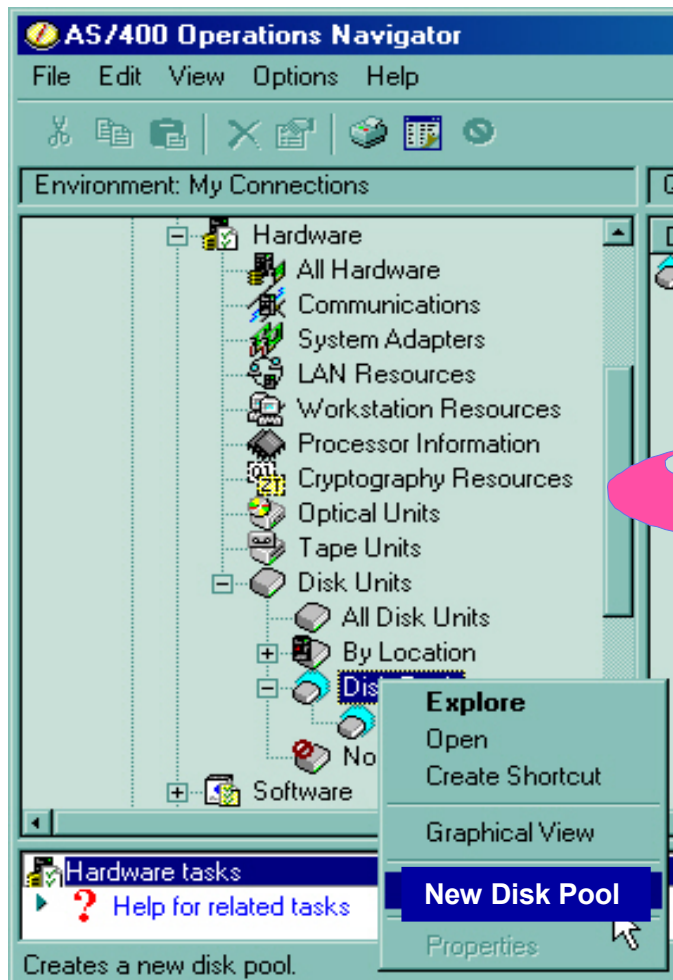


- Unprotected (no protection on a given disk)



*It is your responsibility to set up all levels of protection  
See the Backup and Recovery Guide for details*

# Independent ASP Overview



# Key Points to Remember

- **Device Parity protection:** Is a function of LIC/SLIC and is started at the IOP level. It has nothing to do with the Operating System. Supports only one disk failure at a time.
- **Mirroring:** Is a function of OS/400 and is started at the ASP level. Can support multiple disks failures.
- **Levels of Protection:** Can be configured in the same ASP
- **Independent ASP:** Can be created using Operations Navigator and functions differently from all other ASPs.

