iSeries Hardware, Software Migration

2001 Announcements
ITSO Technical Overview
May 2001

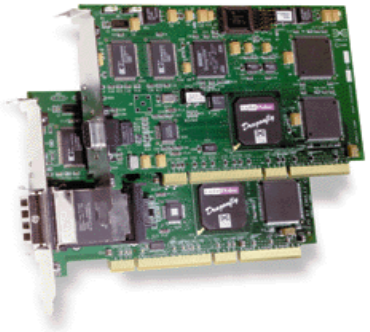
This presentation reviews upgrade considerations and the upgrade process for the new IBM ^ iSeries software and hardware. Logically, it should be given after the complete product announcement and positioning has been presented.

The intended audience for this presentation is IBM Sales Specialists, Business Partners, and customers.

This presentation is very similar to the V4R5 software and hardware upgrade presentation available since May of 2000. There are many significant changes, however with V5R1 announcement which are reflected in this presentation. Most significant changes from the V4R5 presentation are found on foils 5, 6, 7, 11, 12, 26, 28, 29, 42-45, 47-54, 64, 66, 67.

Technology Migration Challenges

- Enabling New Technology
- Leveraging Investment
- Migration Ease



Notes: Technology Migration Challenges

The business reasons for upgrading to new technology are many. With this announcement, many customers will be upgrading to enable the new iSeries software and hardware technologies.

The upgrade should provide great leverage of customer investment in their existing environment and the process should be non-disruptive and minimize downtime.

This iSeries announcement meets all of these challenges. And it does it in spite of very significant, fundamental changes to the I/O technologies being used in the predecessor 6xx/Sxx/7xx AS/400. iSeries uses a new PCI bus, new HSL technologies, new PCI adapters while leveraging existing I/O investments.

Agenda

OS/400 V5R1

Existing Business Applications

Series Hardware Migration

HSL & OptiConnect

VLan

I/O Support, and more

Services

Notes: Agenda

Here are the topics to be covered in this presentation.

Why Migrate to V5R1?

New Functions

New iSeries Hardware

IBM support

HSL and OptiConnect

Virtual LAN

Enhanced SAN environment (fibre)

Notes: Why Migrate to V5R1?

There are many reason to migrate to V5R1, but the top three are probably shown here.

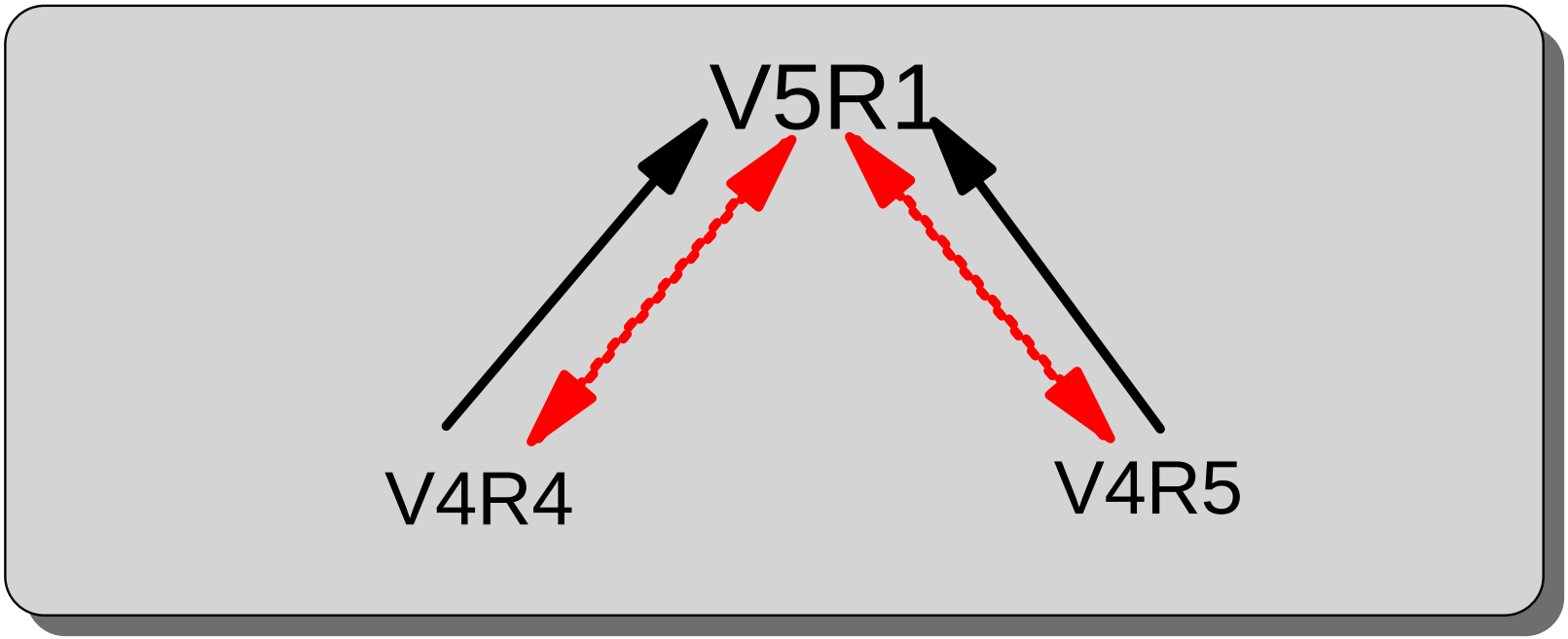
Migrations to new releases of the Operating System are undertaken when customers need new function not provided in their current environment. With V5R1, there are many new functional enhancements including Dynamic LPAR, Linux capabilities, tremendous Operations Navigator enhancements, sweeping clustering enhancements, many B2B infrastructure enhancements, and much, much more.

V5R1 is required to support the new hardware. New iSeries processor features and all the new I/O announced for iSeries in 2001.

V5R1 helps provide the most from IBM Support. IBM technical support resources are most concentrated on the more current version/release.

OS/400 Migrations - One-Step Upgrade Paths

Releases that directly install to V5R1



Releases that interoperate with V5R1

Notes: One-Step Upgrade Paths

Two OS/400 supported one-step upgrade paths are available for moving to V5R1 from installed OS/400 releases, V4R4 and V4R5. OS/400 support is an important factor because it so greatly eases and shortens the upgrade. An upgrade path that doesn't have OS/400 support means the customer will be spending a lot more time and resource on checking things out and re-creating a lot of the infrastructure they set up on their current ^ when they put in their new release.

The same two releases of OS/400 have been tested and will be supported for full interoperability. Interoperability in this context includes transparently moving data, allowing applications being compiled to be targeted toward either release, providing transparent communications, allowing staging of movement of applications and/or data between systems, supporting centralized management facilities, and working with PC's running multiple levels of Client Access. Some of these capabilities work between V5R1 and older releases, but the customer would have to validate the function and the degree of transparency which could be achieved.

Note:

OS/400 "supported" upgrades means that OS/400 including:

-automatically moves user data/programs

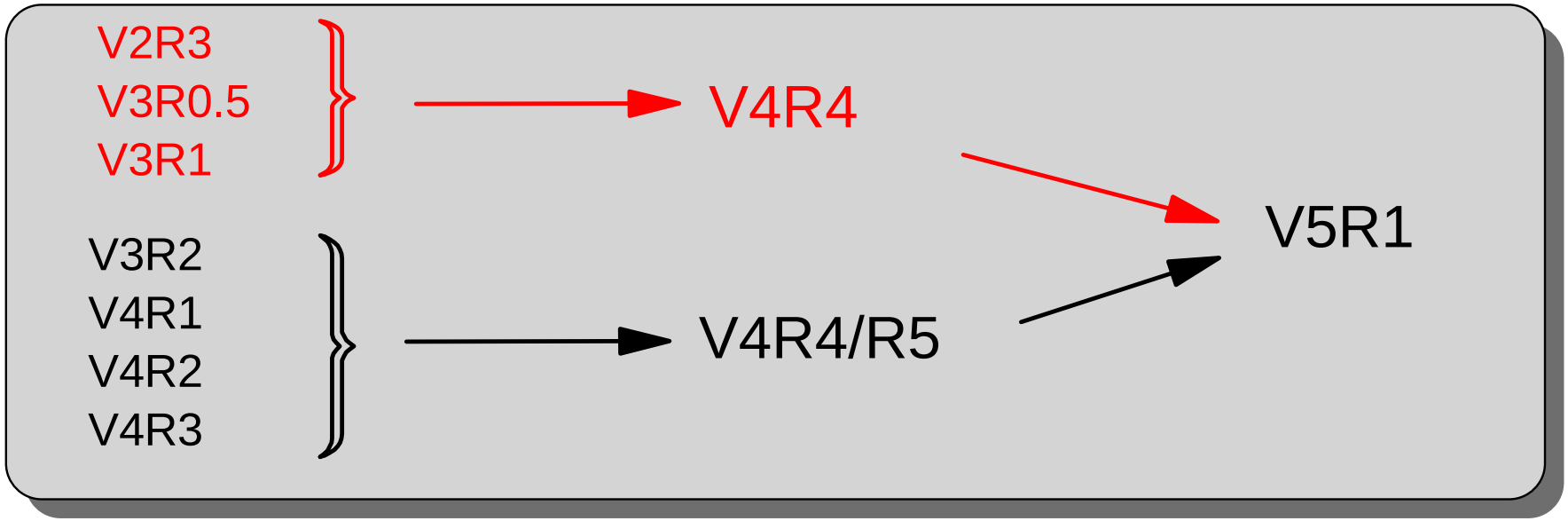
-automatically moves, converts, validates many OS/400 and IBM software environments (profiles, configurations, customizations, authorities, etc.)

Note:

The previous two releases of OS/400 had more than two upgrade paths. This was provided because of the need for longer stability over the year 2000 testing period. The traditional n-2 (back to releases) is now provided.

OS/400 Migrations - Earlier Releases

- OS/400 Supported Two-Step Upgrade Paths to V5R1 (until May 31, 2001)



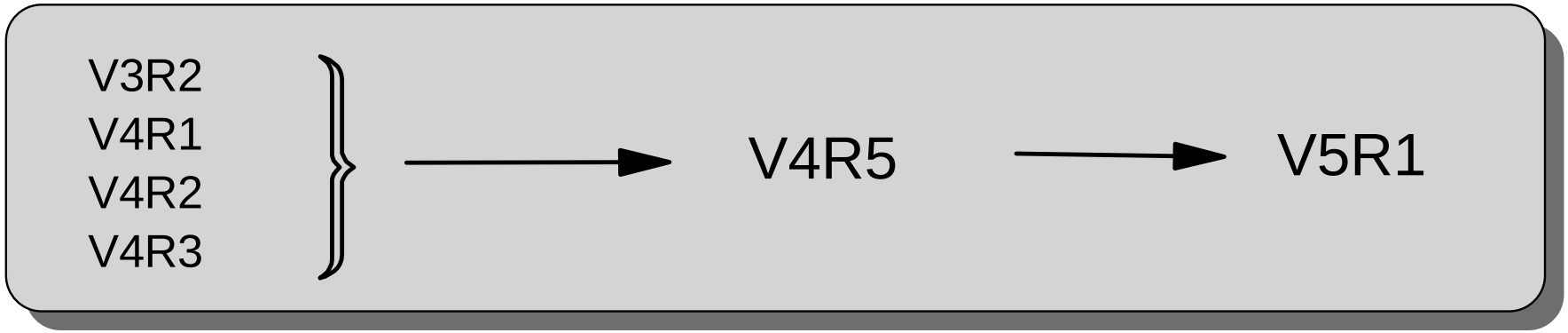
- NO OS/400 Supported Upgrade Path to V5R1

V1
V2 except R3
V3R6 and V3R7

OS/400 Migrations - Earlier Releases

(after May 31, 2001)

- OS/400 Supported Two-Step Upgrade Paths to V5R1



- NO OS/400 Supported Upgrade Path to V5R1

V1
V2
V3 except V3R2

Notes: OS/400 Migration - Earlier Releases

Two-step approaches are supported for the releases shown in the upper box. Other older releases shown in the lower box do not have a "supported" upgrade path to V5R1.

For these unsupported paths in the lower box - you can get there, but not as easily. It will require significantly more effort and time than a supported path.

Note:

Only show only one of the OS/400 Migrations-Earlier Releases. Show slide 6 before May 31 and show slide 7 after May 31. You can not order the software upgrades shown in red on foil 6 from IBM after May 31.

IBM Software Considerations

New Releases

Skip-Ship Releases

Software No Longer Supported

See Announcement Letter

Notes: IBM Software Considerations

With this announcement, new releases or refreshes are being provided for some IBM licensed programs. Some IBM licensed programs are being supported on V5R1 at their current release level. This is often referred to as "skip-ship". Examples include MQSeries for iSeries V5.2 and DB2 Intelligent Miner. A benefit of skip ship is that you do not have to reinstall PTFs.

A number of software products are replaced or superseded and are no longer supported under V5R1. For example, RPG and COBOL are now packaged together with other iSeries development tools and named WebSphere Development Studio. OfficeVision/400 is not supported and withdrawn and its alternative is Lotus Domino.

Note:

Consult the V5R1 announcement letter for further details. There are also additional charts provided in appendix of this presentation of skip ship and withdrawn products.

Application Migration

iSeries helps maximize existing business applications

RISC-to-RISC: **Program Level Binary Compatibility**

- Applications running under any RISC OS/400 version/release
- No recompile or translation required to go to V5R1

CISC-to-RISC: **Program Level Automatic translation** or recompile

- Though no one-step, OS/400-supported migration from CISC OS/400 release to RISC OS/400 V5R1, CISC applications can migrate
- Save off the current system and restore on the new iSeries or AS/400 server
- Recompile if observability not enabled (source code required)

Above statements assume there was no need to add/change functions used by older applications and that a compiler is available if needed.

Notes: Application Migration

iSeries leverages customer investment in their existing business applications. IBM recognizes the importance of a customer's applications and V5R1 continues this focus.

For RISC-RISC upgrades, applications will run without recompiles or translations.

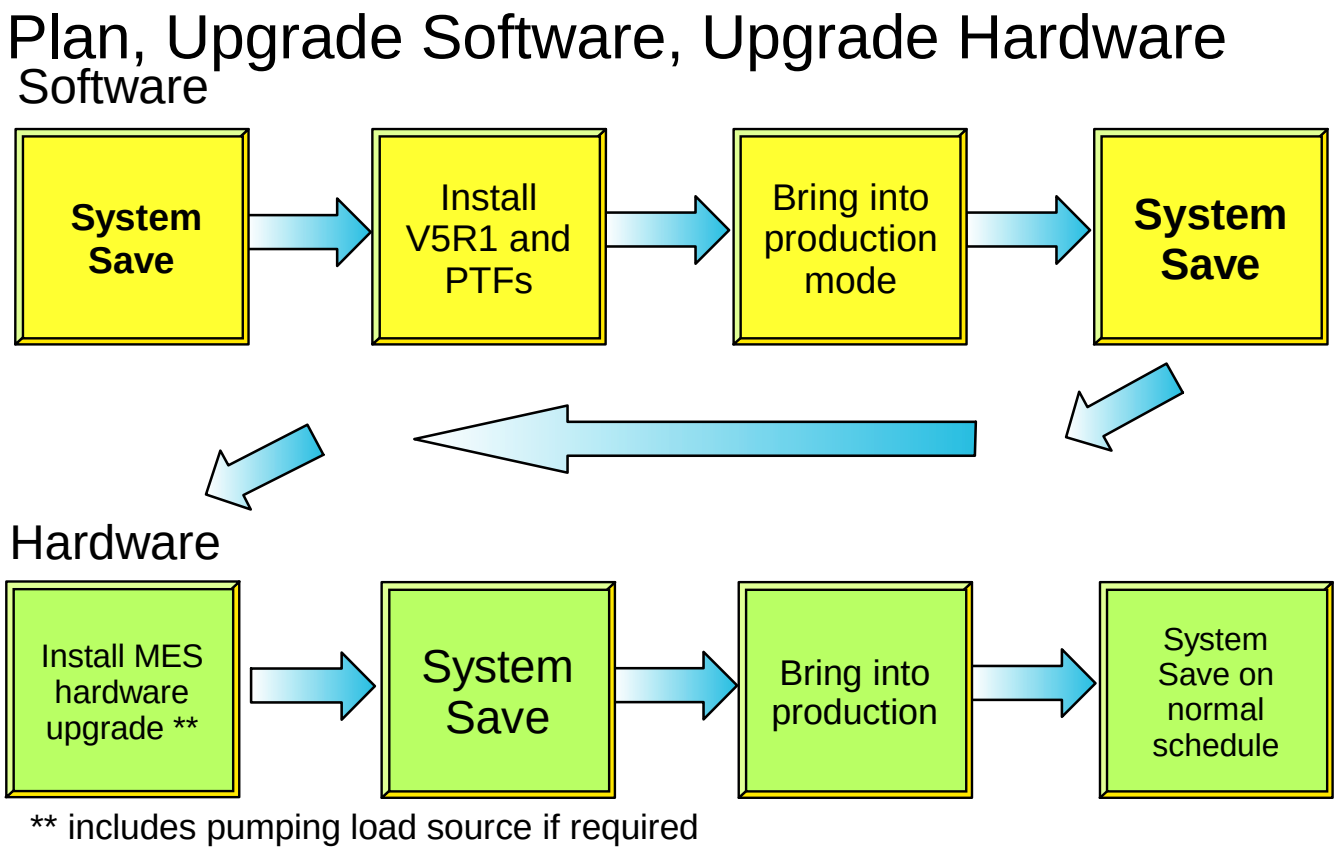
For CISC-RISC upgrades, the historic AS/400 CISC-RISC rules apply. Applications with observability will be translated by OS/400. Applications without observability will require a recompile. Application source code is required for a recompile.

Note: if needed, see more detailed foils in additional information section.

iSeries Hardware Migration

Upgrade Process - MES Hardware

iSeries or AS/400 Standard Upgrade and Migration Process



Notes: Upgrade Process - MES Hardware

This conceptual diagram fits 6xx/Sxx/7xx MES upgrades and even 8xx upgrades into the new 8xx processor features announced 2001.

The first step for a successful upgrade is PLANNING. Thoroughly review all prerequisites for the new software, new hardware specifications, and all physical planning requirements.

The next step is to upgrade the existing AS/400 software to V5R1. System saves should be performed BEFORE and AFTER the upgrade. The new software environment should be tested until the customer is comfortable with their application environment.

Then upgrade the hardware and do another system save. Bring new hardware into production and resume normal system management procedures.

Upgrade to the Newest 8xx Processors

8xx announced in 2000

with V5R1

Very straight forward

8xx

6xx/Sxx/7xx*

with V5R1

Straight forward to do, but introduces

- *SPD migration tower*
- **6xx/Sxx upgrade only through September 2001 to 8xx subset*
- *Memory migration is model dependent*

Notes: Upgrade to the Newest 8xx Processors

There are two scenarios to consider for an MES upgrade (same serial number) to an 8xx processor. The simplest is upgrading an 8xx to a newer or larger 8xx. This is a very simple, straight forward upgrade.

The other scenario is also straight forward, but there are a number of significant technology changes going from 6xx/Sxx/7xx to 8xx technology. There is an SPD migration tower which allows an easy transition to new PCI and HSL loop technology. There is a limited time window for 6xx/Sxx models to upgrade to faster models. And you need to understand which memory features of the 6xx/Sxx/7xx can be used on which 8xx.

iSeries Model 8xx MES Upgrades

TO

FROM

Model	820 Processors Annc'd 2000	820 Processors Annc'd 2001	830	840 Processors Annc'd 2000	840 Processors Annc'd 2001
820 Processor Annc'd 2000	yes	yes	yes	yes	yes
820 Processors Annc'd 2001		yes	yes	yes	yes
830			yes	yes	yes
840 Processors Annc'd 2000				yes	yes
840 Processor Annc'd 2001					yes

Upgrade Notes:

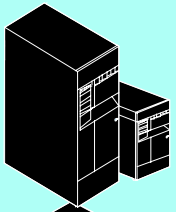
- 840s use different memory than the 820/830
- 840s don't support a migration tower I (migration tower II supported)
- See upgrade details for specific processor paths

Notes: iSeries Model 8xx MES Upgrades

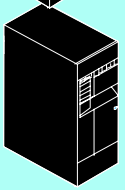
This graph shows the available MES upgrade paths for the 8xx models. There is a lot of flexibility, including the new 840 CUoD models announced 2001.

These are very straight forward upgrades. If you are upgrading from an 820/830 to an 840, the 840 needs different memory and perhaps a different migration tower.

AS/400 Hardware Upgrades to 8xx



650*/S40*/740



640*/S30*/730

620*/S20*/720

600*/S10*

CPU Upgrade to iSeries Models 8xx*

- SAME SERIAL NUMBER

170/150/250
DSD, SB1
4XX/5XX
CISC Models

No CPU Upgrades to New Models Available

- NEW SERIAL NUMBER

* 6xx/Sxx models can not be upgraded to the newer Model 820 and 840 processor features announced in 2001. 6xx/Sxx upgrades can be ordered until September 30, 2001.

Notes: AS/400 Hardware Upgrades to 8xx

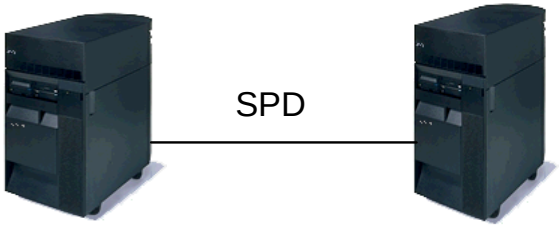
This chart illustrates which of the existing AS/400 Models can be MES upgraded to the new 8xx Models. The term "MES Upgrade" indicates that the 8xx system will have the SAME serial number. The AS/400s in the upper rectangle have an MES upgrade to 8xx while the AS/400s in the lower rectangle do not have an MES upgrade to the 8xx

Obviously, any existing environment can be "upgraded" to a new iSeries environment (Model 270/8xx) including the AS/400s in the lower rectangle, but unless an MES upgrade is used, that system will be purchased as new hardware and will have a NEW serial number.

The Model 6xx and Sxx were announced several years ago and due their lower residual value and the difference in components which can be used by IBM, can be upgraded to 8xx processor features which were announced in 2000, but not the newer 8xx processors announced in 2001. They also have a limited time period where they can still be upgraded to a new model. After September 30 an MES order can no longer be ordered for the 6xx or Sxx. The 7xx retains full upgrade capability into the 8xx.

AS/400 6xx/Sxx/7xx Upgrade to iSeries Models 8xx

Current 6xx*/Sxx*/7xx with V5R1

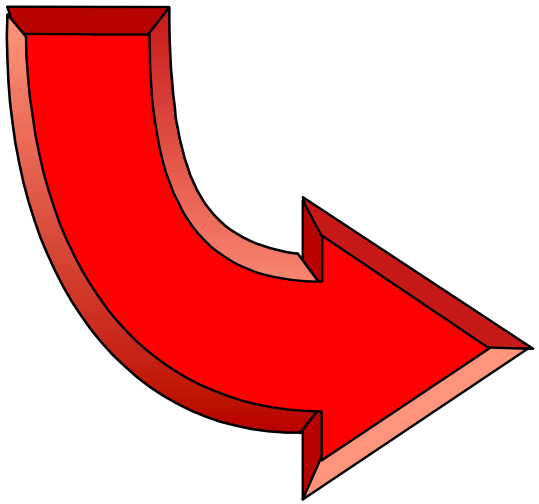


I/O Expansion Unit

6xx/Sxx/7xx System Unit

Objective

- Move to New Technology
- Enhanced I/O Environment
- Preserve Existing I/O
- Faster and Easier



New

iSeries Model 8xx* System Unit

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

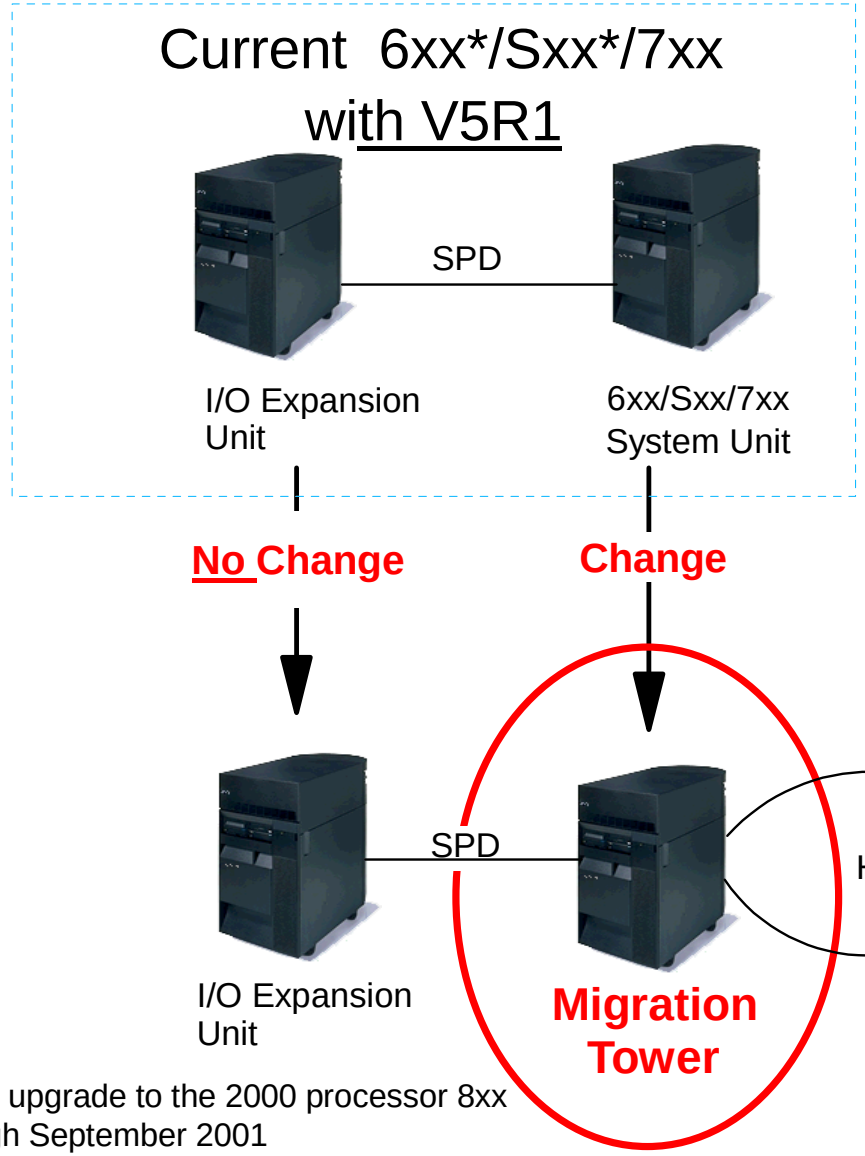
Model 6xx/Sxx/7xx Upgrade to iSeries Model 8xx - Objectives

This chart and the next two charts illustrate the hardware upgrade concept being introduced with this announcement.

The OBJECTIVES of this process is to

- upgrade to the new 8xx system hardware
- take advantage of the new I/O technologies at the customer's own pace
- continue to use existing I/O infrastructure and investments including cabling
- provide a faster and easier upgrade path.

AS/400 6xx/Sxx/7xx Upgrade to iSeries Models 8xx



Process

- Leave I/O in place
- Convert System Unit
- Connect Migration Tower to iSeries Model 8xx
- Use memory if possible

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

For most AS/400 MES upgrades, the process they will use is:

- upgrade the existing AS/400 to V5R1
- leave untouched all the I/O in the existing system unit and any existing I/O Expansion Units attached to the existing system unit. Even the I/O cabling remains untouched.
- convert existing system unit to a "Migration Tower". During this conversion, leave the I/O alone and only touch the non-I/O components of the existing system unit.
- Then connect the newly-converted Migration Tower to the 8xx System Unit by HSL cables.
- finally, use the memory from the 6xx/Sxx/7xx if that specific memory is supported by the 8xx. The memory's usability will depend on the specific upgrade.

Additional Notes / background:

WHAT ARE MIGRATION TOWERS?

With the new iSeries Model 8xx servers, the only way to upgrade from existing 6xx, Sxx or 7xx systems/servers is by using the Migration Tower. The Migration Tower will be the link between the old SPD/PCI technology and the new PCI technology used on the 8xx systems. It allows the customer to use the existing technology and phase over to newer PCI technology on a time schedule convenient to the customer.

Typically, a Migration Tower is the existing 6xx/Sxx/7xx system unit with the System Processor Cage assembly removed and the Backplane assembly replaced to provide connectivity to the new 8xx system units. All I/O hardware that was installed in the 6xx/Sxx/7xx system unit remains in the Migration Tower.

In some upgrade scenarios, the Migration Tower will be shipped with the 8xx model upgrade (please see specific examples later in this presentation).

There is a maximum of one Migration Tower allowed per 8xx system.

WHAT IS HSL - HIGH SPEED LINK?

HSL is a very high speed connection between a new 270/8xx I/O tower or migration tower and the 270/8xx system unit. HSL is actually a "loop" technology which provides redundancy and significantly higher levels of performance for future system growth. HSL is a 1 GB/sec technology providing approximately 10 times the previous 7xx bus performance capacity.

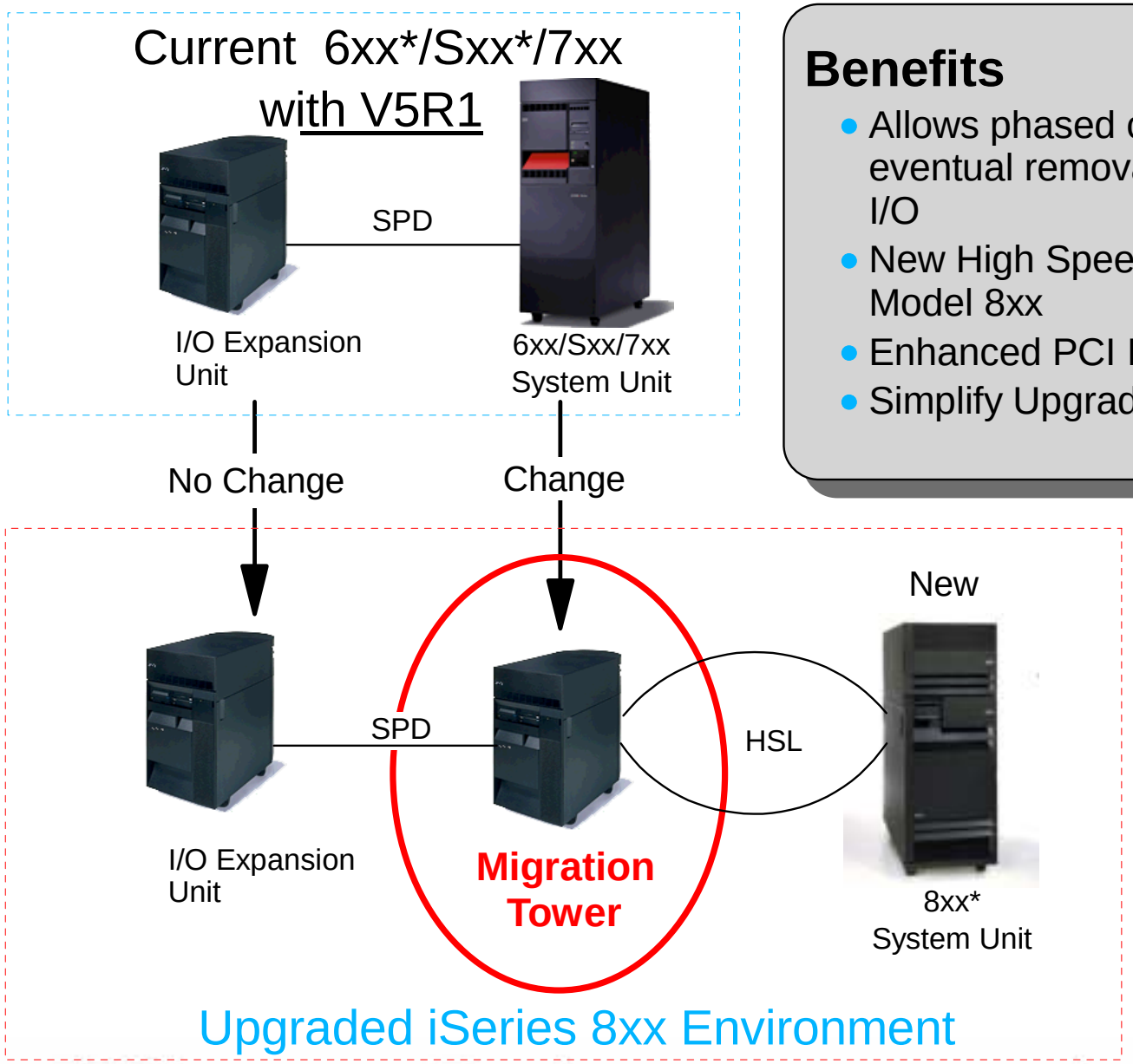
Technically, HSL can be considered kind of a "bus for I/O buses" being introduced with the 270 and 8xx hardware. It delivers up to 700 MB/sec maximum deliverable capacity running full duplex, replacing the current 40 MB/sec SPD bus. Attached are I/O towers which contain the new PCI node buses and via the migration tower older PCI or SPD buses.

LPAR INSIGHT:

If LPAR partitions were being used on the existing 6xx/Sxx/7xx, what happens to the partition's ASPs and their associated disk drives during an upgrade to a migration tower?

Answer: All partitions' ASPs (system or user) stay exactly where they are. The primary partition's load source will be pumped to the 8xx and additional drives assigned to the primary system ASP, but the drives in the primary system ASP remain part of the expanded ASP.

AS/400 6xx/Sxx/7xx Upgrade to iSeries Models 8xx



Benefits

- Allows phased conversion and eventual removal of SPD I/O to PCI I/O
- New High Speed Link to iSeries Model 8xx
- Enhanced PCI I/O Flexibility
- Simplify Upgrade

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

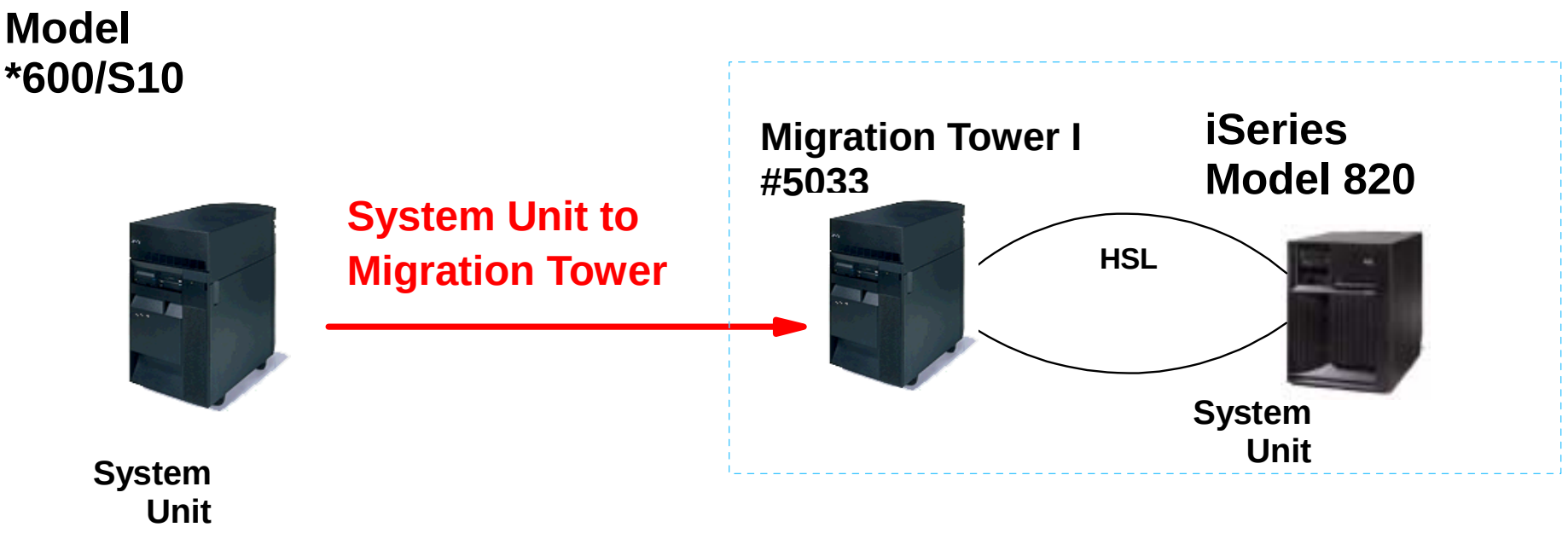
By using the Migration Tower, the existing I/O supported by V5R1 and cabling environment is 100% preserved, while providing connectivity to the new 8xx and I/O technology via the High Speed Link. This gives customers investment leverage, flexibility to phase out older SPD I/O technology, add the new technologies at any time, and minimizes disruption. A simple, elegant approach.

Notice we have introduced the statement "eventual removal" of the SPD I/O, it may be of benefit to the customer to start the planning of all the slower SPD I/O hardware. There is an overhead from a performance perspective in the continued use of migration towers and SPD hardware.

Now let's take a look at the specific upgrade path(s)

NOTE: only present the upgrade paths of interest to the audience

Model 600/S10 Upgrade to iSeries Model 820



- Existing I/O in Migration Tower I
- HSL Attachment
- Existing memory **CANNOT** be used in the iSeries Model 820

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 600/S10 Upgrade to iSeries Model 820

A new Model 820 and migration tower upgrade components are shipped to the customer. The model 600/S10 processor and memory is removed and the HSL adapter hardware is installed in the current systems unit in its upgrade to a Migration Tower I. The migration tower retains the existing PCI card cage, disks, CD-ROM and internal tape configuration. It is given the Model 820 FC # 5033.

The Migration Tower I FC#5033 connects to the new V5R1 system. Like the model 600/S10, it does not support any SPD busses or SPD adapters inside the migration tower. And like the 600/S10, SPD I/O towers can NOT be attached to the #5033 migration tower. A maximum of 10 DASD can be in the migration tower.

Existing 600/S10 memory cannot be used in the new 820 system and remains the customer's property. The processor removed from the 600/S10 in its upgrade to a migration tower is returned to IBM.

Model 620/S20/720 Upgrade To iSeries Model 820*

Model
***620/S20/720**

System Unit

System Unit to Migration Tower

Migration Tower I
#5034/5035

iSeries Model 820

HSL

System Unit

- Existing I/O in Migration Tower I
- HSL attachment
- Existing I/O Expansion Units attach to Migration Tower
- Existing 128 MB/256 MB memory **CAN** be used in the iSeries Model 820

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 620/720/S20 Upgrade to iSeries Model 820

A new Model 820 and migration tower upgrade components are shipped to the customer.

The model 620/720/S20 processor and memory are removed and the HSL adapter hardware is installed in the current systems unit in its upgrade to a Migration Tower I. The migration tower retains the existing PCI/SPD, DASD and Removable Media card cages and IOP, DASD, CD-ROM and internal tape configuration. Existing I/O Expansion Units (for example, FC #5073, FC #5083, FC #5065, etc.) remain attached to migration tower. Migration Tower I is attached to Model 820 via HSL. The migration tower is given the Model 820 FC # 5034 or 5035.

If the beginning model 620/S20/720 had the SPD option, then SPD and PCI adapters are supported inside the migration tower #5034/#5035. If the beginning model 620/S20/720 didn't have the SPD expansion option, then only PCI adapters are supported in the migration tower. Either way, like the 620/S20/720, SPD I/O towers can be attached to the migration tower. A maximum of 10 DASD can be in the migration tower.

Existing 128 MB/256 MB memory can be used in the 820 (32 MB memory cards cannot be used).

The 32 MB memory remains customer property. The processor removed from the 620/720/S20 in its upgrade to a migration tower is returned to IBM.

ADDITIONAL INFORMATION

Migration Tower I (FC #5034/#5035) Details:

Migration Tower I FC #5034 is a migrated Model 620 w/ FC #2175, 2179, or 2180 processor, S20 FC #2161, or 720 FC #2061 (along with any installed FC #5064/#9364 System Unit Expansion). Other 620/S20/720 System Units convert to FC #5035 along with any FC #5064/#9364.

The 620/S20/720 feature code of FC # 9331 specifies an SPD expansion Unit. FC # 9330 or # 9329 specifies a PCI expansion Unit. You can not have both #9331 and #9329/9330.

Migration Tower I (FC #5034/5035) attaches only to the 820/830 models.

Model 620/S20/720 Upgrade to iSeries Model 830

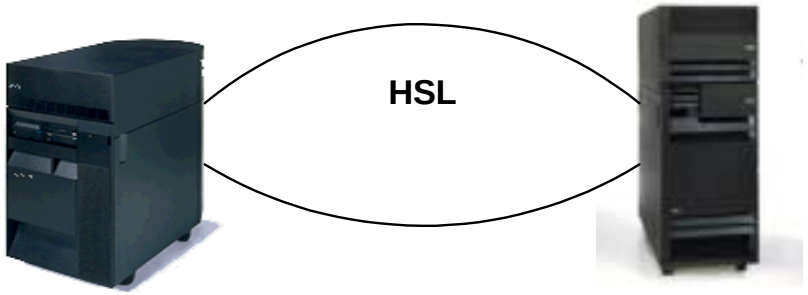
Model
***620/S20/720**

System Unit

System Unit to Migration Tower

Migration Tower I #5034/5035

iSeries Model 830



- Existing I/O in Migration Tower I
- HSL attachment
- I/O Expansion Units attached to Migration Tower
- Existing 128 MB/256 MB memory **CAN** be used in the iSeries Model 830

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 620/720/S20 Upgrade to iSeries Model 830

A new Model 820 and migration tower upgrade components are shipped to the customer.

The 620/720/S20 processor and memory are removed and the HSL adapter hardware is installed in the current systems unit in its upgrade to a Migration Tower I. The migration tower retains the existing PCI/SPD, DASD and Removable Media card cages and IOP, DASD, CD-ROM and internal tape configuration. Existing I/O Expansion Units (for example, FC #5073, FC #5083, FC #5065, etc.) remain attached to Migration Tower I. Migration Tower I is attached to Model 830 via HSL. The migration tower is given the Model 820 FC # 5034 or 5035.

If the beginning model 620/S20/720 had the SPD option, then SPD and PCI adapters are supported inside the migration tower #5034/#5035. If the beginning model 620/S20/720 didn't have the SPD expansion option, then only PCI adapters are supported in the migration tower. Either way, like the 620/S20/720, SPD I/O towers can be attached to the migration tower. A maximum of 10 DASD can be in the migration tower.

Existing 128 MB/256 MB memory can be used in the 830 (32 MB memory cards cannot be used). The 32 MB memory remains customer property. The processor removed from the 620/720/S20 in its upgrade to a migration tower is returned to IBM.

ADDITIONAL INFORMATION

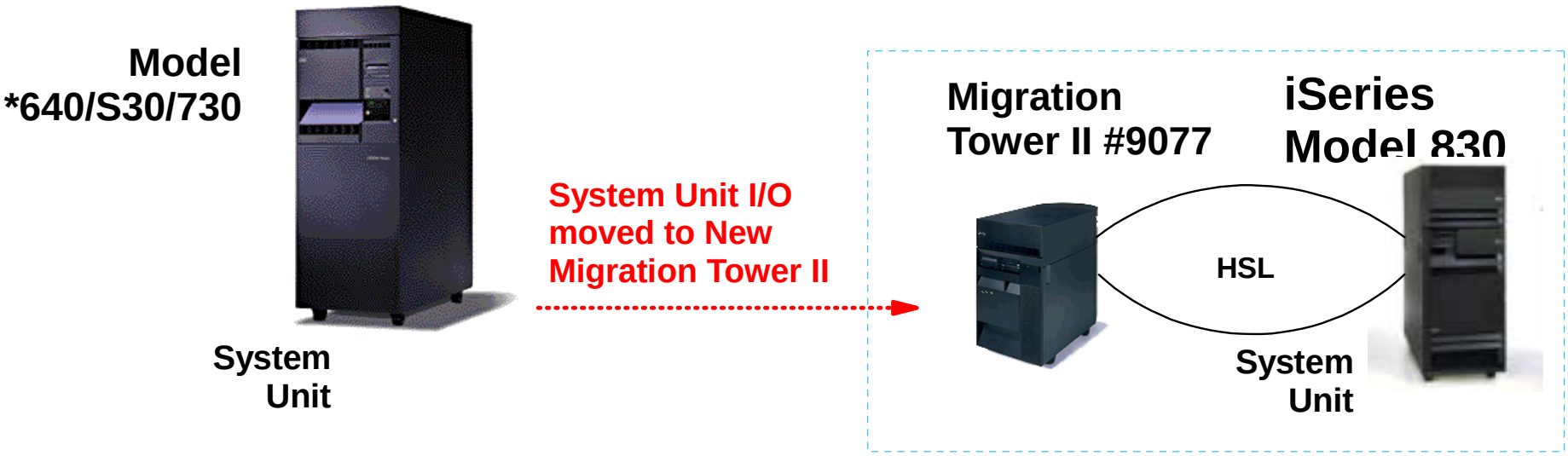
Migration Tower I (FC #5034/#5035) Details:

Migration Tower I FC #5034 is a migrated Model 620 w/ FC #2175, 2179, or 2180 processor, S20 FC #2161, or 720 FC #2061 (along with any installed FC #5064/#9364 System Unit Expansion). Other 620/S20/720 System Units convert to FC #5035 along with any #5064/#9364.

The 620/S20/720 feature code of FC # 9331 specifies an SPD expansion Unit. FC # 9330 or # 9329 specifies a PCI expansion Unit. You can not have both #9331 and #9329/9330.

Migration Tower I (FC #5034/5035) attaches only to the 820/830 models.

Model 640/S30/730 Upgrade to iSeries Model 830



- Migration Tower II shipped to customer
- Existing I/O transferred to Migration Tower II
- Existing System Unit is returned to IBM
- HSL attachment.
- Existing I/O Expansion Units attach to Migration Tower
- Existing memory **CANNOT** be used in the iSeries Model 830

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 640/730/S30 Upgrade to iSeries Model 830

The Model 640/730/S30 is a little different from migration concept described earlier. Unlike other upgrades, the system unit is not converted into a migration tower. This is because these models' system unit don't have the right physical characteristics of size and power consumption appropriate for a migration tower. A brand new migration tower is included in the upgrade.

A new Model 830 and Migration Tower II (FC #9077) are shipped to the customer.

The Model 640/730/S30 system unit's SPD IOP, disk and internal tape configuration is moved to the Migration Tower II. The migration tower is attached to the Model 830 via HSL.

Existing memory cards cannot be used on the 830. The good news is the 830 memory is less expensive than 840 or 730/740 memory and the existing memory remains customer property.

The current System Unit is returned to IBM.

ADDITIONAL INFORMATION

Migration Tower II (FC #5077 / 9077) Details:

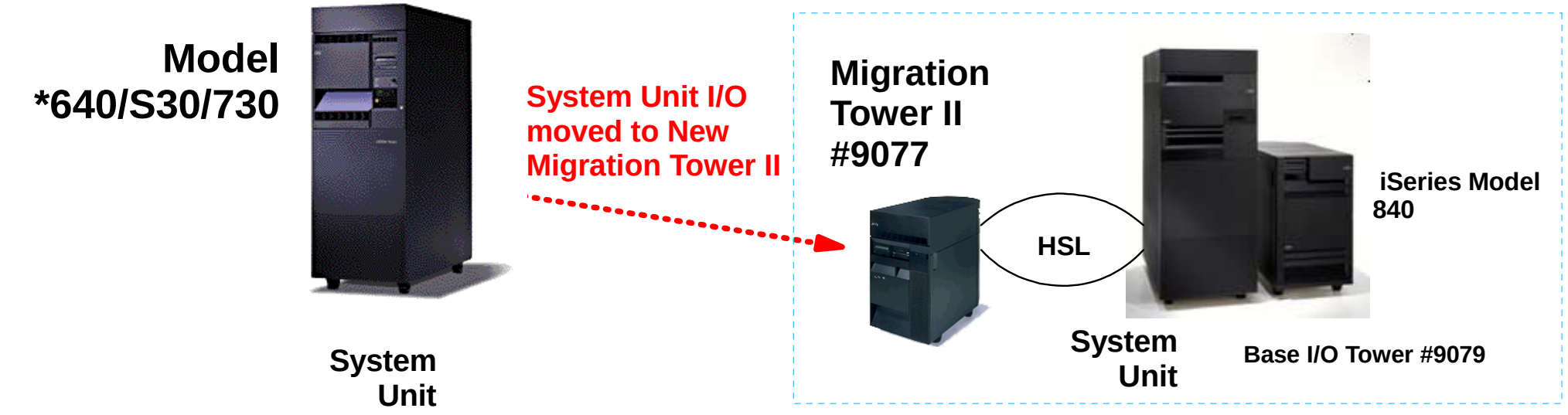
As part of an MES upgrade, the no charge FC # 9077 is used instead of # 5077 to identify the Migration Tower II. If a Migration Tower II is ordered for a new 830/840, FC # 5077 is used.

FC#5057 is a storage expansion unit (nicknamed a "top hat") which sits on top of either a 650/S40/740 base I/O tower or on top of a Migration Tower II. It is an optional feature which holds 16 disk drives. If there are more than 4 disk drives are in the 640/S30/730 system unit which need to be transferred into the migration tower, a 5057 will be required. 640/S30/730s which have a 5055 storage expansion unit (a 640/S30/730 specific top hat which holds 8 drives) should convert the 5055 into a 5057.

Only SPD adapters can used inside the Migration Tower II.

A maximum of 18 existing I/O Expansion Towers can be attached to the Migration Tower II. Any I/O towers which can be attached to the 640/730/S30 can be attached to the migration tower. Examples include the FC # 5065, 5066, 5072, 5073, 5082, 5083.

Model 640/S30/730 Upgrade to iSeries Model 840



- Migration Tower II shipped to customer
- Existing I/O transferred to Migration Tower II
- Existing System Unit returned to IBM
- HSL attachment
- I/O Expansion Units attached to Migration Tower
- Existing memory **CANNOT** be used
  - Partial credit for 1 GB/2 GB cards

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 640/730/S30 Upgrade to iSeries Model 840

The Model 640/730/S30 is a little different from migration concept described earlier. Unlike other upgrades, the system unit is not converted into a migration tower. This is because these models' system unit don't have the right physical characteristics of size and power consumption appropriate for a migration tower. A brand new migration tower is included in the upgrade.

A new Model 840, Base I/O Tower (FC #9079) and Migration Tower II (#9077) are shipped to the customer.

The Model 640/730/S30 system unit's SPD IOP, disk and internal tape configuration is moved to the Migration Tower II. The migration tower is attached to the Model 840 via HSL.

Existing memory cards may not be used on the Model 840. However, partial credit is available for the 1 GB and 2 GB memory cards toward the purchase of new 840 memory cards if desired. Smaller 640/S30/730 memory cards cannot be used in the Model 840 and remain customer property. The current System Unit is returned to IBM

ADDITIONAL INFORMATION continued

Migration Tower II (FC #5077 / 9077) Details:

As part of an MES upgrade, the no charge FC # 9077 is used instead of # 5077 to identify the Migration Tower II. If a Migration Tower II is ordered for a new 830/840, FC # 5077 is used

FC#5057 is a storage expansion unit (nicknamed a "top hat") which sits on top of either a 650/S40/740 base I/O tower or on top of a Migration Tower II. It is an optional feature which holds 16 disk drives. If there are more than 4 disk drives are in the 640/S30/730 system unit which need to be transferred into the migration tower, a 5057 will be required. 640/S30/730s which have a 5055 storage expansion unit (a 640/S30/730 specific top hat which holds 8 drives) should convert the 5055 into a 5057

Only SPD adapters can used inside the Migration Tower II.

A maximum of 18 existing I/O Expansion Towers can be attached to the Migration Tower II. Any I/O towers which can be attached to the 640/730/S30 can be attached to the migration tower. Examples include the FC # 5065, 5066, 5072, 5073, 5082, 5083.

Memory partial credit:

Administratively the partial credit toward 840 memory is done by ordering a feature conversion.

Note that there are a maximum of 16 memory cards in the 840 and a maximum of 20 memory cards in the 740/650/S40. A maximum of 16 feature conversions is possible.

Model 650/S40/740 Upgrade to iSeries Model 840

Model 650/S40/740

Base I/O Tower #9251

Base I/O Tower to Migration Tower II

Migration Tower II #9077

HSL

iSeries Model 840

Base I/O Tower #9079

- Base I/O Tower converted into Migration Tower II
- Existing System Unit returned to IBM
- HSL attachment
- I/O Expansion Units attached to Migration Tower II
- Existing memory **CANNOT** be used
  - Partial credit for 1 GB/2 GB cards

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

A new Model 840, Base I/O Tower (FC #9079) and migration tower upgrade components are shipped to customer.

The Model 650/740/S40 Base I/O Tower (FC #9251) is upgraded to a Migration Tower II (FC #9077). If FC #9251 has FC #5057 Storage Expansion Unit installed, the FC #5057 will remain on #9077. Note all the 650/740/S40 system unit SPD IOP, disk and internal tape is contained in the Base I/O Tower (FC #9251) and is not moved when migrated to the Migration Tower II.

Existing memory cards may not be used on the Model 840. However, partial credit is available for the 1 GB and 2 GB memory cards toward the purchase of new 840 memory cards if desired. Smaller 650/S40/740 memory cards cannot be used in the Model 840 and remain customer property. The current System Unit is returned to IBM

ADDITIONAL INFORMATION

Migration Tower II (FC #5077) Details:

As part of an MES upgrade, the no charge FC # 9077 is used instead of # 5077 to identify the Migration Tower II. If the 650/S40/740 has a FC # 5057 Storage Expansion Unit installed on top of the base I/O tower, the 5057 will remain there, now on top of the FC# 9077 after the upgrade.

ADDITIONAL INFORMATION continued

Only SPD adapters can used inside the Migration Tower II.

A maximum of 18 existing I/O Expansion Towers can be attached to the Migration Tower II.

Any I/O towers which attached to the 640/730/S30 can be attached to the migration tower. Examples include the FC # 5065, 5066, 5072, 5073, 5082, 5083.

Memory partial credit:

Administratively the partial credit toward 840 memory is done by ordering a feature conversion.

Note that there are a maximum of 16 memory cards in the 840 and a maximum of 20 memory cards in the 740/650/S40. A maximum of 16 feature conversions is possible.

There are a number of I/O components such as LAN adapters or Integrated Netfinity Servers which have the same maximum for both the Model 740 and 830. 740 customers considering an 830 upgrade path with large amounts of I/O should ensure the 830's I/O capacity meets their needs.

Model 650/S40/740 Upgrade to iSeries Model 830

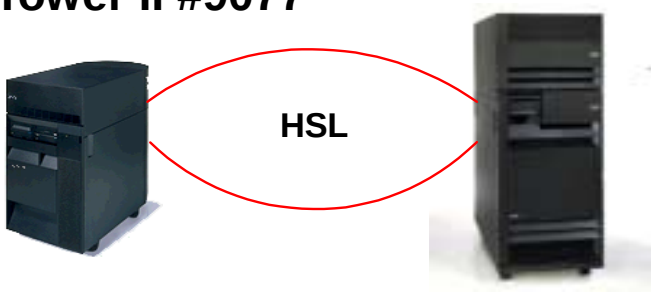
Model
***650/S40/740**

Base I/O Tower #9251

Base I/O Tower to Migration Tower II

Migration Tower II #9077

iSeries Model 830



- Only available for 740 and for newer 650/S40 going to 8-way iSeries Model 830
- Base I/O Tower converted into Migration Tower II
- Existing System Unit returned to IBM
- HSL attachment
- I/O Expansion Units attached to Migration Tower II
- Existing memory **CANNOT** be used

* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 650/740/S40 Upgrade to iSeries Model 830

Note that this upgrade to the 8-way 830 is available for all Model 740s, but only to the larger Model 650/S40s

A new Model 830 and migration tower upgrade components are shipped to customer.

The Model 650/740/S40 Base I/O Tower (FC #9251) is upgraded to a Migration Tower II (FC #9077). If FC #9251 has FC #5057 Storage Expansion Unit installed, the FC #5057 will remain on #9077. Note all the 650/740/S40 system unit SPD IOP, disk and internal tape is contained in the Base I/O Tower (FC #9251) and is not moved when migrated to the Migration Tower II.

Existing memory cards cannot be used on the 830. The good news is the 830 memory is less expensive than 840 or 730/740 memory and the existing memory remains customer property.

The current System Unit is returned to IBM.

ADDITIONAL INFORMATION:

Migration Tower II (FC #5077) Details:

As part of an MES upgrade, the no charge FC # 9077 is used instead of # 5077 to identify the Migration Tower II.

Only SPD adapters can used inside the Migration Tower II.

A maximum of 18 existing I/O Expansion Towers can be attached to the Migration Tower II.

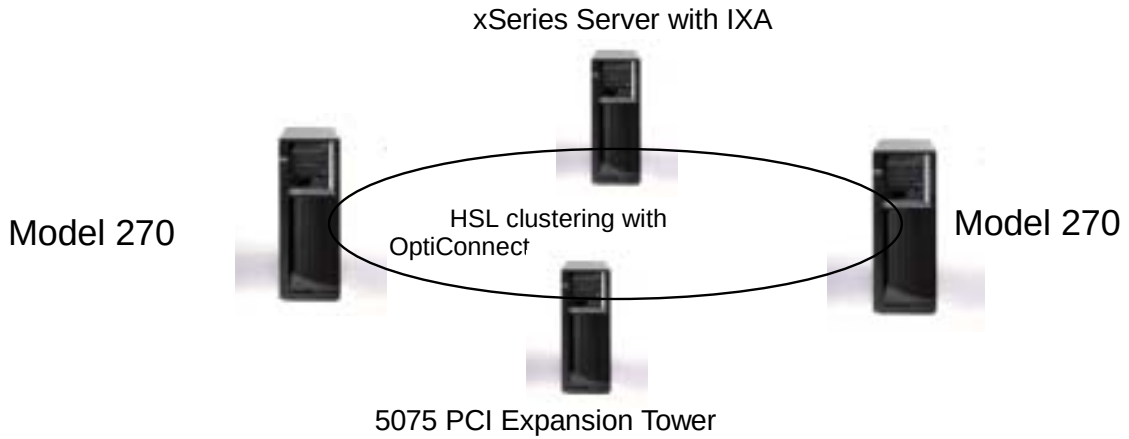
Any I/O towers which attached to the 640/730/S30 can be attached to the migration tower. Examples include the FC # 5065, 5066, 5072, 5073, 5082, 5083.

Only Larger Model 650/S40s:

Upgrade path analysis will show good 740 upgrade paths for these models. Only the largest 650/S40 had the volume and reasonableness to create the upgrade path infrastructure for a 830 8-way.

HSL OptiConnect

Connecting iSeries using the HSL fabric



HSL clustering with OptiConnect

Notes: HSL OptiConnect

HSL technology was introduced in V4R5 as the means for attaching I/O towers to the base system unit. You can use this HSL fabric for high-speed system to system interconnect running ten times faster than the existing SPD OptiConnect which HSL OptiConnect replaces. The result is greatly expanded capability for high-availability options and distributed application scenarios. In the world of e-business, continuous availability and distributed workload are minimum requirements. HSL OptiConnect is available throughout the iSeries product line from the smallest Model 270 to the largest Model 840 with V5R1 processors.

Hardware prerequisites in the iSeries server models announced in 2000:

- #2754 Bus Expansion with 8 HSL ports in Models 830 and SB2 (all processor features except #2400)
- #2777 Bus Expansion with 8 HSL ports in Model 830 processor #2400
- #2755 Bus Expansion with 16 HSL ports in Models 840 and SB3

See also 'New HSL adapters' earlier in this presentation.

This implies that 820 and 270 models with V4R5 processors can't be HSL OptiConnect enabled. The hardware required to make these models HSL OptiConnect or cluster enabled, can only be obtained with an upgrade to the models with the new V5R1 hardware.

Software prerequisite: OptiConnect for OS/400 Base Operating System Software option 23, supports HSL OptiConnect. A single software license supports any combination of HSL, SPD, and Virtual OptiConnect connections between iSeries servers. The OptiConnect software will choose the Virtual OptiConnect path over a HSL or SPD OptiConnect external path if multiple paths are available. When you have installed OptiConnect for OS/400 Base Operating System Software option 23 you may enable HSL OptiConnect to other systems at any time for any partition within the iSeries server. When you enable or disable HSL OptiConnect, the changes take effect immediately.

New HSL Adapters

#2754 Bus Expansion with 8 HSL ports

- Enables Clustering over HSL on iSeries Models 830 and SB2 (all processor features except #2400)

#2777 Bus Expansion with 8 HSL ports

- Enables Clustering over HSL on iSeries Model 830 processor #2400

#2755 Bus Expansion with 16 HSL ports

- Enables Clustering over HSL on iSeries Models 840 and SB3

Enable clustering over HSL on the Model 270 or Model 820

Notes: New HSL Adapters

The HSL adapters mentioned in the previous foil can be purchased to replace the existing HSL adapters in the iSeries models 830, 840, SB2 and SB3 announced in 2000. The installed adapters in these models do not support HSL OptiConnect. If you want to use these models in a cluster using HSL OptiConnect with physical HSL connections between the clustered servers, you must order and install the appropriate HSL adapter for your server. These new adapters also support switching of HSL towers with Independent Auxiliary Storage Pools between HSL connected iSeries servers.

To enable clustering over HSL on a model 270 or a model 820 you must upgrade your existing server to one of the V5R1 processor features. The upgrade contains the parts enabling the HSL ports for clustering. There is no support for clustering over HSL on the V4R5 iSeries hardware of the models 270 and 820.

Virtual LAN

Multiply your connectivity options with LPAR

Up to 16 high speed connections between partitions

- Emulates 1 gb Ethernet Adapter
- Selective communication paths between partitions
- Utilizes iSeries memory bus

No additional hardware required

Supports communication between

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

Included with OS/400 V5R1

Notes: Virtual LAN

Virtual LAN is new with OS/400 V5R1 and compliments Virtual OptiConnect.

Unlike Virtual OptiConnect which essentially was a point to point high speed bus to bus communications method, supporting communication between partitions using APPC and TCPIP, Virtual LAN provides 16 independent high speed internal bus to bus communication paths between logical partitions and supports TCP/IP protocol.

Virtual LAN provides the additional granularity to setup high speed communications between partitions by being selective on which partitions or applications within that partition are allowed to communicate with other logical partitions on the system. More importantly it will allow high speed bus to bus communication between OS/400 partitions and LINUX partitions, since LINUX does not support APPC or OptiConnect. You can select multiple communication paths between partitions and potentially tie in each of these paths to a specific application.

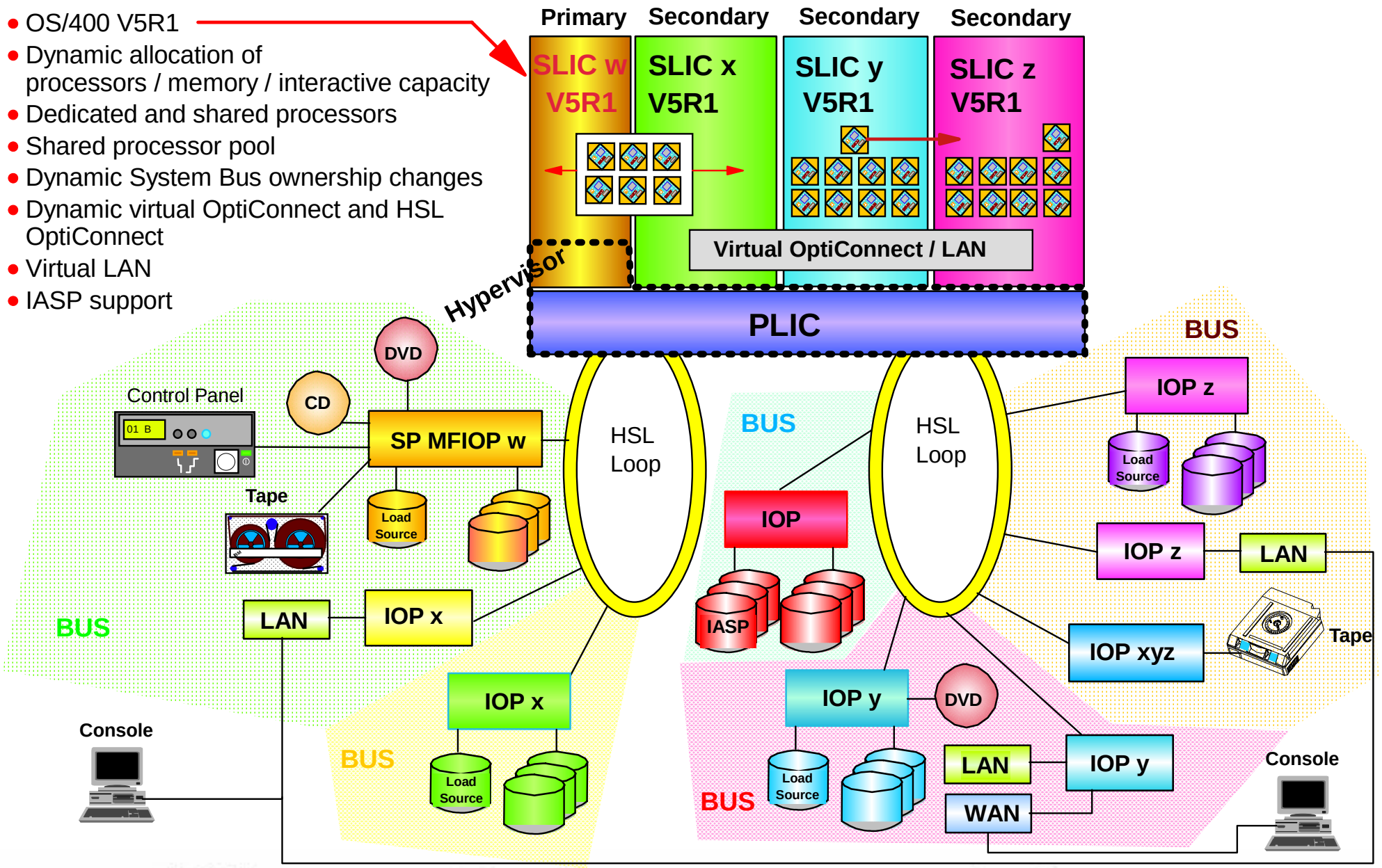
Setup of Virtual LAN is simple, it does not require an IPL or any special hardware or software. Once a virtual communication port is enabled for a given partition, a communication resource eg CMNxx, is created for that partition. The user then creates a high speed 1GB Ethernet line description over this resource and sets up a TCPIP configuration. 16 virtual ports can be enabled.

Virtual OptiConnect will continue to be supported with OS/400 V5R1, and will require the optional chargeable feature of OS/400 to enable high speed point to point internal communications between partitions.

Virtual LAN does not require any additional software and provides the capability to provide multiple communication paths between applications that are executed in each of the partitions.

LPAR V5R1 Conceptional 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



Notes: LPAR V5R1 Conceptional View

The capability to move resources among partition offers great advantages to environments where partitioned applications can be given "additional resources" during performance critical times when another partition has little, if any work to do. For example a Business Intelligence application, with complex queries, is run during nighttime. Resources from a daytime work partition could be moved to the "BI partition" and the required queries could complete very quickly, which in turn could enable that partition's resources to be moved to another partition running a new application.

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.

Notes: LPAR V5R1 Conceptional View-2

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.

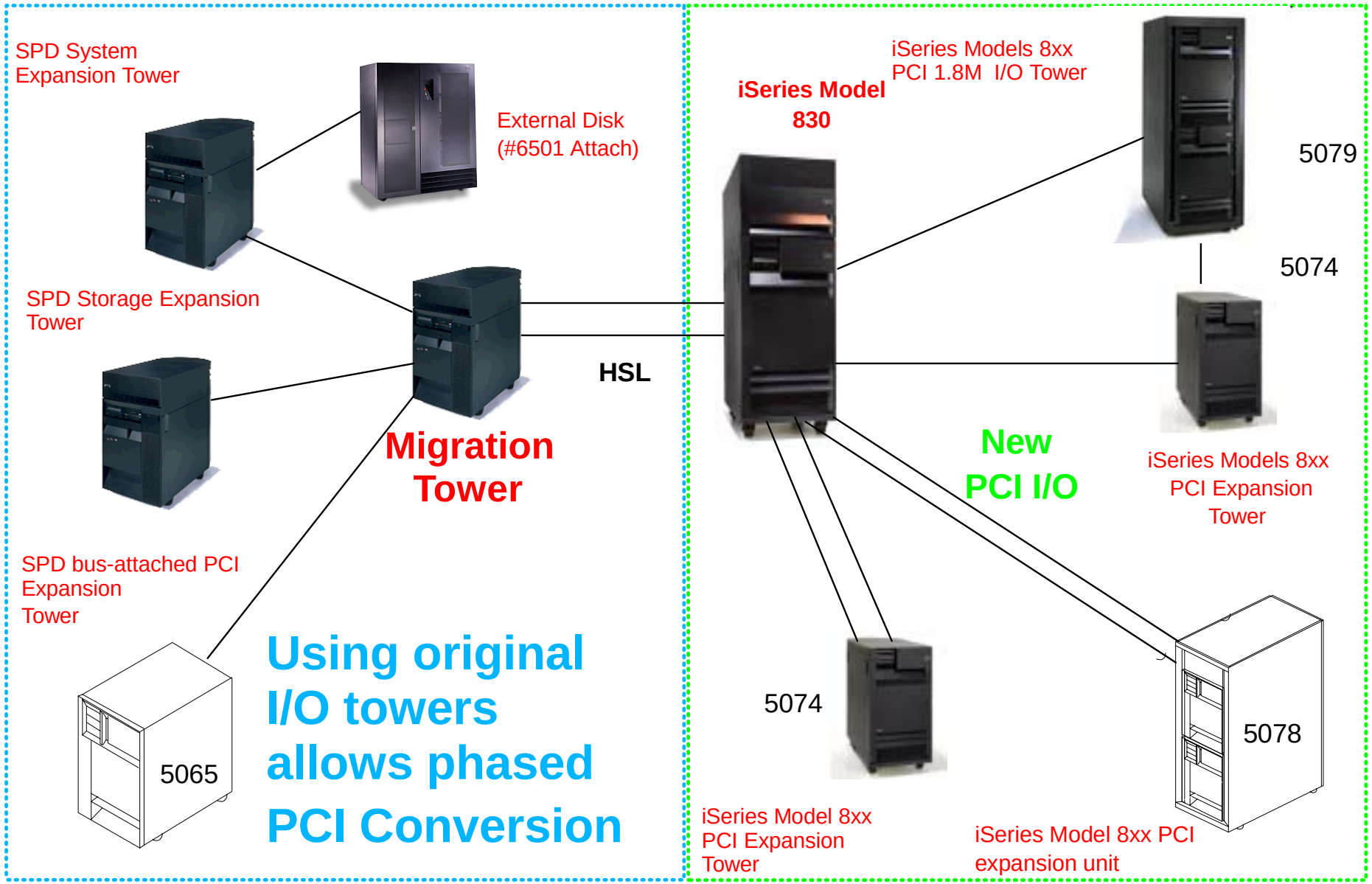
Having the ability to share processors and to include them in processor groups, gives you the possibility to create a primary partition with minimal resources to just use it for LPAR management functions. It also protects it from production or more volatile environments. Such a primary partition is a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

SPD I/O Tower Coexistence



Notes: SPD I/O Tower Coexistence

This is an example of possible I/O environment after an upgrade.

Customer's current I/O Expansion Units (FC #5073, #5082, #5065, etc.) are attached to Migration Tower via the existing SPD optical bus connections. Migration Tower is connected to "new" System Unit via HSL, and any of the new PCI I/O Expansion Units (#5074 or #5079) will be attached to System Unit via HSL.

ADDITIONAL INFORMATION

Other than attachment via the V5R1 Fibre Channel adapter for 270/8xx, any external Disk (9337, "Shark", etc.) must be attached to #6501 Controller installed in Migration Tower II or SPD I/O Expansion Units/towers. I/O tower which support SPD adapters include the FC # 5072, 5073, 5082, 5083.

The migration tower allows customers to phase over to PCI I/O on a more convenient schedule for them. There are clear advantages to quickly moving on to new PCI-based high-speed tape adapters, high-speed LAN and newer Integrated xSeries Servers. Likewise avoiding the use of too-old (slow/small) disk drives and disk drive controllers can improve overall performance. It also assumes that within an ASP (Auxiliary Storage Pool) any differences of disk drive capacity is appropriately managed. Note that same 8/17/35 GB disk drives and disk controllers are used in the SPD-attached 5065 PCI I/O tower as in the new 5074 I/O tower.

Important, you may want to elaborate on the new 5078 PCI expansion tower shown in this example. This expansion unit is a "top hat" that installs on top of a 5074 system expansion tower. The 5078 can also be mounted within a #0551 iSeries rack and then can be stacked four high.. No disk units or removable media devices can be in stalled in a 5078. However it does support :

- **14 PCI slots**
- **A HSL interface to other iSeries via a #9691 adapter**

Important : The 5078 does not need to be on the same HSL loop as a 5074 or 9079.

If you want more information about the 5078, there is an additional foil in additional information at the end of this presentation.

Additional Upgrade Considerations

V5R1 I/O Support

New PCI Considerations

High-Speed Tape Migration

Integrated Netfinity Server Migration

Console

Load Source Disk

Notes: Additional Upgrade Considerations

We've now covered both the concept of the 8xx migration and the specific migration paths for the specific 6xx/7xx/Sxx models.

Now let us look at some additional upgrade considerations.

V5R1 I/O Support

Almost all I/O supported by V4R1 or later is supported with V5R1. Exceptions include the following older hardware:

- Old Cryptographic Processors
  - FC#2620 / #2628
- Older Integrated PC Servers
  - FC#2851, FC#2854, FC#6616 Integrated PC Server
- SPD Fax adapter FC# 2664
- 1/2" reel tape drive
  - IBM 2440, 3422, 3430, 9347
  - IBM 9348 still supported ... recommend moving off 1/2" reels
- IBM 9331 diskette drive model 1 & 2
  - Model 1 & 2
  - Model 11 & 12 still supported ... recommend moving off diskettes
- Old IBM 3995 Optical
  - Models A43, 043, 143, 042, 142
  - New LAN-attached models supported
  - All models no longer supported via FC# 2621 controller

Notes: V5R1 I/O Support

V5R1 no longer supports a number of older I/O devices. They were all withdrawn from marketing some time ago and will soon no longer be serviced by IBM. All of these have alternatives. The key thing is to review your configurations before upgrading to V5R1 and avoid any surprises.

New PCI Considerations for iSeries

Applicable to all iSeries processors

Placement rules

- More Flexible
- More Efficient

Hot Plug capability

- Improved System Availability
- Ease System Growth
- Lower Customer Costs

Notes: New PCI Considerations for iSeries

With the original 270/8xx announcement in 2000, IBM expanded and improved the PCI technology on the iSeries, providing more flexibility, capacity and increased efficiency.

With the Model 6xx/7xx systems, IOPs had to be placed in specific slots. As a result, if high performance in a particular environment was required, a single IOA may have been assigned to an IOP leaving unassigned (empty) slots in the systems unit or towers.

With the 270/8xx product line there is much more flexibility to place IOPs and IOAs in the system unit or towers. Higher performance adapters and controllers are available. And the PCI slots are used more efficiently.

In addition, iSeries new PCI technology supports "Hot Plug" capability. This means a PCI slot can be deactivated by the operator, a PCI IOP or IOA removed or inserted, and the slot reactivated ..... while the iSeries is running! This can be a real help in improving overall system availability, easing growth, expanding configuration flexibility, and lowering operational costs.

ADDITIONAL INFORMATION

There are some obvious limitations in Hot Plug. The IOP or DASD IOA to which the system ASP is associated can not be deactivated without taking down the system. If an IOP is deactivated, all associated IOAs are deactivated at the same time.

High-Speed Tape Migration

Model 8xx PCI adapters offer higher performance for high-speed tape

- New V5R1 FC# 2765 PCI Fibre Channel Tape Controller
  - For iSeries Model 8xx system unit or HSL-attached PCI I/O Towers (#5074/5078/5079)
  - Does not limit the number of disks used in a #5074/5079
  - Fastest possible attachment of 35xx tape with Fibre Channel capability
- V4R5 or V5R1 FC# 2749 PCI Ultra Magnetic Media Controller
  - For iSeries Model 8xx system unit or HSL-attached PCI I/O Towers (#5074/5078/5079)
  - Does not limit the number of disks used in a #5074/5079
  - 3580, 3590 and 3494 tape can run up to 2x faster on HSL
  - Not quite as fast as FC# 2765, but does not need Fibre Channel on tape drive

Notes: High-Speed Tape Migration

There are two high speed PCI tape controllers which are highly recommend for any 6xx/Sxx/7xx upgrade whose configuration has higher speed tape drive. For the fastest tape drives, this is great news. The combination of this new adapter and HSL allows IBM 3580 or 3590 or 3494 tape to run over 2x faster.

The newest PCI adapter announced in 2001 is the PCI Fibre Channel Tape Controller, FC # 2765. It must be installed in new PCI slot in either the Model 8xx System Unit or new PCI I/O Tower (#5074/#5079) or PCI I/O Expansion Unit (#5078/#0578). It cannot be used in a 7xx system or in a migration tower or in a I/O tower attached to a migration tower.

For those who had run into the 6xx/7xx restriction of earlier tape adapters in PCI slots, note that the restriction is removed. When #2749 is installed in #5074/#5079 it does not affect number disks that can be installed in those towers.

In 2000, the PCI Ultra Magnetic Media Controller, FC# 2749, was announced. It is not quite as fast as the Fibre Channel Adapter, but the tape drives do not have to have Fibre Channel capabilities.

V5R1 Console Migration Options

	Models				
V5R1 Consoles	**4xx/5xx /150**	**6xx/Sxx /7xx**	**170/250**	**8xx**	**270**
Communications (Comm)	No	No	No	No	No
Twinax	Y	Y	Y	Y	Y
Operations (Ops)					
- Standard	Y	Y	Y	Y	Y
- LAN Connectivity	No	No	No	Y	Y

No →

Notes:

- AS/400 Communications (Comm) Console on an AS/400 used a different cable than Ops Console and used different software on the PC acting as console.
- Twinax console controller for iSeries must be in System Unit and use FC# 2746 or #4746.
- Remote Control Panel
  - This is Operations (Ops) Console only optional extension
  - Must have a nearby PC running Windows NT/2000 with an ADDITIONAL cable, Remote Control Panel Cable FC#0381 (AS/400) or FC#0382 (iSeries)
  - Downstream (remote) PCs via modem (standard Ops Console) or router/bridge (LAN Connectivity)

Notes: V5R1 Console Considerations

Client Access Console (also known as Communications or Comms Console) does not work with V5R1. It used to work on older systems, but has never worked with the new 270/8xx servers. Either twinax console or Operations Console (also known as Ops Console) are supported.

Ops Console is the more strategic interface offering more function than twinax with the V5R1 Ops Navigator enhancements. There are two cabling options, the standard Ops Console cable or the new for V5R1 LAN Connectivity option which uses standard LAN adapters and wiring.

Please note that if your AS/400 used Comm Console, you need a different cable for Ops Console. Also note that you can not use an SPD adapter as your twinax console as the primary console must be attached to the base system. It cannot be on the migration tower or a tower attached to a migration tower.

For those customers who want to use the optional remote control panel capability, yet another cable must be attached between the AS/400 or iSeries and the PC console. Remote consoles may link through the primary console to access this feature.

V5R1 Operations Navigator Enhancements

What is a Lan Console ?

An Operations Navigator Enhancement

Lan Console allows a single PC to serve as an Operations Console for multiple iSeries partitions and servers

Service Tools Security

- Service Tools Device Profile
- Service Tools User Profile

Specify Codes for iSeries with V5R1

- Specify 5546 for Operations Console on Token Ring LAN
  - Requires #2744 : 4 / 16 / 100 Mbps Token Ring Adapter
- Specify 5548 for Operations Console on Ethernet LAN
  - Requires #4838 : 10 / 100 Mbps Ethernet Adapter

Placement rules and dedicated IP address

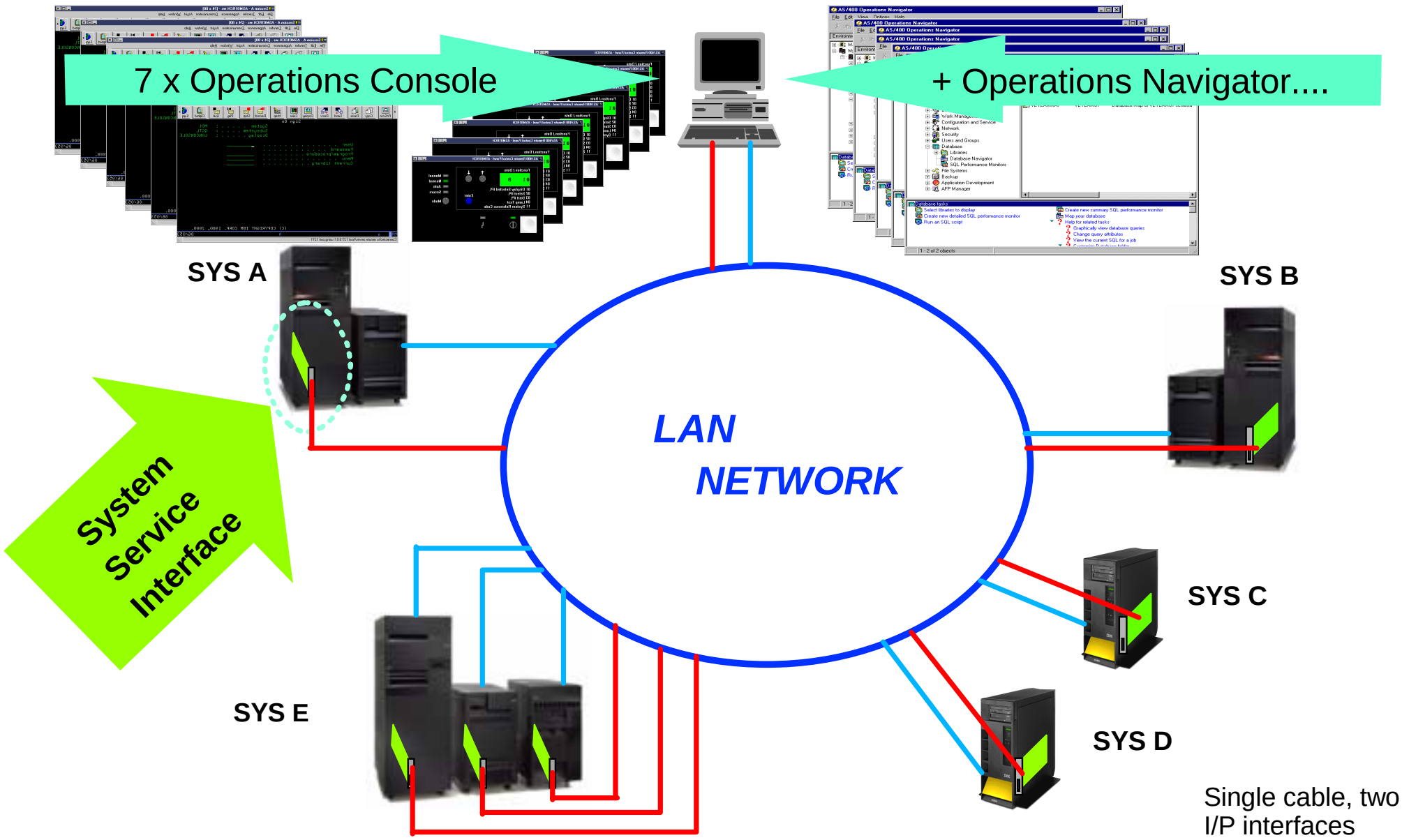
Notes: V5R1 Operations Navigator Enhancements

Operations Console has been enhanced in V5R1 to enable connections across a local area network (LAN), besides enabling directly cabled and dial-in (modem) connections. A single PC can have multiple connections to multiple iSeries servers and can be the console for multiple iSeries servers. An example would be a logically partitioned server using the same PC as the console for all partitions. Since each partition is considered a separate iSeries server, you need a separate IP interface for each partition for which you want to be the console. Operations Console on the LAN allows multiple connections to a single iSeries server, but only one PC can have control of an iSeries server at a time. It also allows multiple local controlling system (LCS) connections, but only one directly cabled LCS configuration. You can use the remote control panel functions on the same PC for any connected iSeries server. You can use the remote control panel for secondary partitions through a LAN connection to the primary partition. The details of the setup wizard and the different possibilities you have for configuring functions on your Operations Console PC connected on the LAN will be explained in the following foils.

You will have a high level of security for the connections of Operations Console on the LAN. Enhanced authentication and data encryption provide network security for console procedures. Operations Console with LAN connectivity uses a version of SSL which supports device and user authentication but without using certificates. Details are fully documented in the Operating System presentation. What you need to know for the purpose of understanding the flow in this presentation however is the concept of the:

- Service Device Profile : the service device profile is a device description with an associated password (can be 128 characters long). Service device authentication assures which physical device is the console. More explanation later in this presentation
- Service User Profile : the service user profiles are not a new concept, there have always been the shipped service user profiles of QSECOFR, QSRV, 11111111 and 22222222. The service user profiles are used to access the service tools functions were this profile has been granted authorization to. New for V5R1 is that you can create service user profiles yourself and grant it authority for specific selected service tools functions.
- Service tools security log : a service user profile with the proper authority can work with the service tools security log and view, display, print, save or restore service tools security log data. The service tools security log contains loggings for actions performed against service tools security such as granting or revoking authority, creating or deleting profiles or attempts to violate service tools security.

Ops Console over the LAN Concept



Notes: LAN Console Concept

Operations Console - Direct attach or via a switched connection has been available for several releases as a console device alternative to twinax attached 5250 workstations. Now in V5R1 a 3rd console device attachment - over an existing LAN network, becomes available. The objective of the Operations Console on the LAN support is to enable a single workstation device to be the console to multiple AS/400 or iSeries systems and/or multiple partitions in a single iSeries or AS/400 system.

The Operations Console on the LAN console attachment is specified as one of the following:

- Specify 5546 for Operations Console on Token Ring LAN
  - Requires #2744 : 4 / 16 / 100 Mbps Token Ring Adapter
- Specify 5548 for Operations Console on Ethernet LAN
  - Requires #4838 : 10 / 100 Mbps Ethernet Adapter

V5R1 Client Access Express either under EZ-Setup wizards or on the client workstation at a later time under Operations Console are used to configure the client workstation side of Operations Console.

On the host/server side, new V5R1 Service Tools Security is used to secure Dedicated Service Tools (DST) functions as well as System Service Tools (SST) functions for Disk Unit and Logical Partition functions from either a console device or Operations Navigator Configuration and Services-Hardware interface. For Operations Console on the LAN there is additional Service Tools Device Profile security that must be configured to perform console functions.

Notes: LAN Console Concepts Cont'd

You can specify certain device profile security that permits only specific PC workstations to perform LAN Console (and Control Panel) functions. Multiple LAN console connections can be active per system/partition at a time, but only one can have an active emulator with console screen data, the others would be void screen data. This is accomplished on a first in first served basis.

As depicted in this foil, Operations Console for the LAN assumes complete control over a specific 270, 8xx LAN adapter per system or partition. If concurrent standard LAN activity, such as running Operations Navigator functions, is desired, a second LAN adapter must be configured and varied on. Separate IP addresses are required.

Operations Console on the LAN does not need a cable (#0382) to be able to work with the functions of the Remote Control Panel. Selecting the function during the setup and given the fact that the privileges have been granted for the Service Device Profile as well as for the Service User Profile using the function is enough to get the Remote Control Panel to work on the PC. When you select the Operations Console on the LAN for your iSeries Server, IBM will deliver one #0367 Operations Console cable with a new order, or deliver you one with an upgrade if that cable is not yet on your configuration.

For more details on setting up Operations Console, refer to:

- V5R1 *Operations Console Setup*, SC41-5508-02
- V5R1 Technical Overview presentation - OS/400

For more details on Service Tools security and Device Profile security, refer to :

- V5R1 *Tips and Tools for Securing your iSeries*, SC41-5300-05
- V5R1 Technical Overview presentation - OS/400

Load Source Disk Drive

A Load Source Drive must be ordered with each new iSeries Model 8xx or upgrade

- Minimum Capacity of 8.58 GB.
- New Load Source Drive capacity is equal to or greater than that of the migrated system

Recommendation: Use RAID or Mirroring for Load Source Drives

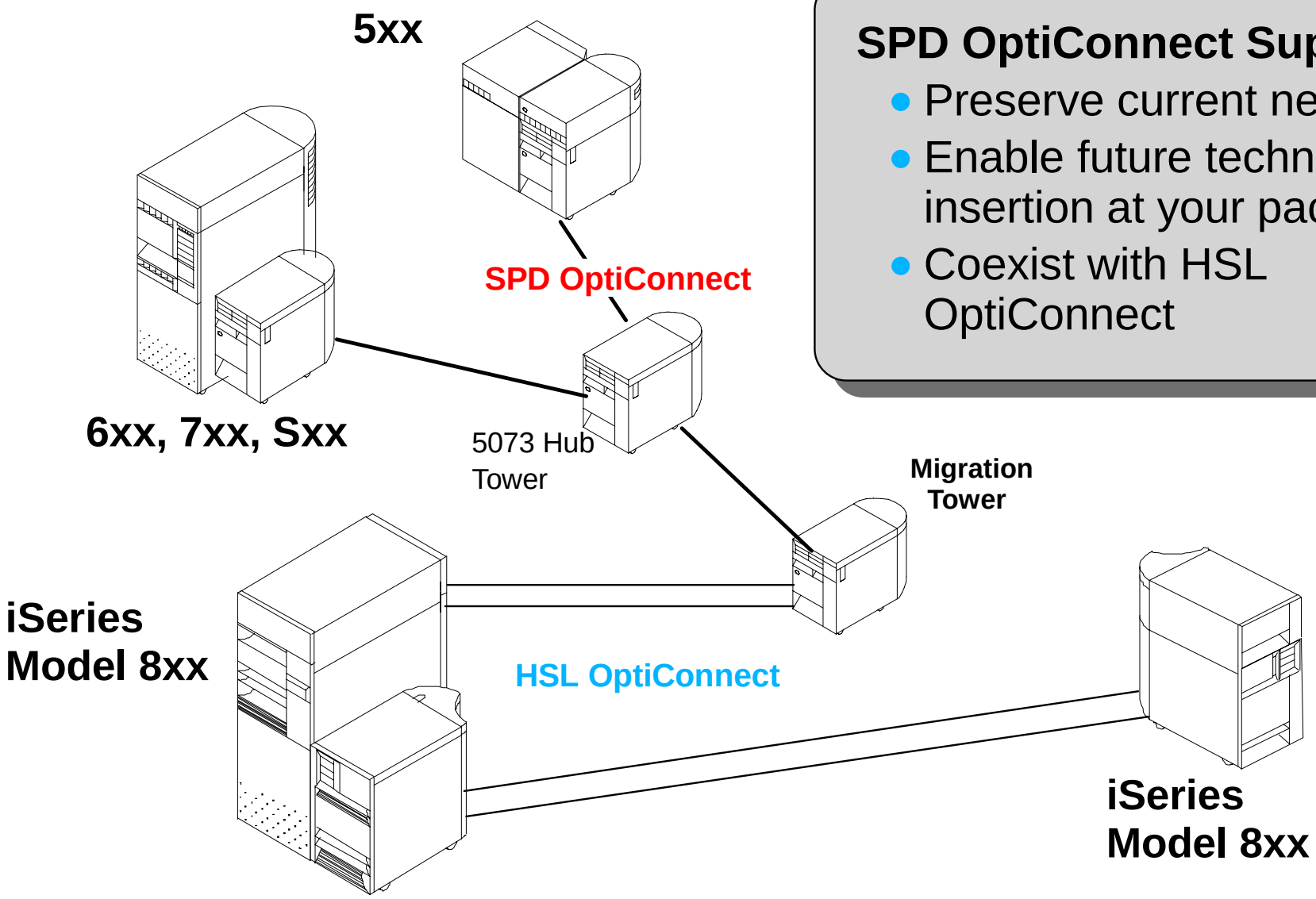
Notes: Load Source Disk Drive

A new load source disk must be ordered with the 8xx system. This disk must have a minimum capacity of 8.58 GB. If the existing system has a 17 or 35 GB load source disk, the new load source disk should have the same capacity to avoid additional installation time and effort.

Load source migration is required as part of the iSeries MES upgrade process. The CE will 'pump' the data from the existing load source disk to the new system unit load source disk.

Mirroring or RAID-5 data protection is recommended for the load source disk. Obviously, this may require more than the minimum one drive to be ordered with the MES upgrade.

SPD OptiConnect Coexistence



SPD OptiConnect Support

- Preserve current network
- Enable future technology insertion at your pace
- Coexist with HSL OptiConnect

Notes: SPD OptiConnect Coexistence

OptiConnect allows horizontal system growth by providing high speed transparent access to data through fiber optic bus connections.

Prior to iSeries, shared SPD busses or "Hub Towers" (typically a #5073 or #5042/#5044) are used to provide intersystem connections called SPD OptiConnect. This capability is preserved via the 8xx migration tower, leveraging the customer's investment.

With V5R1, the higher speed HSL OptiConnect is available for iSeries within 15 meters of each other. For longer distances, the 1 Gbps Ethernet may be a good choice.

Notes: SPD OptiConnect Coexistence

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With V5R1, the higher speed HSL OptiConnect is available for iSeries within 15 meters of each other. For longer distances, the 1 Gbps Ethernet may be a good choice.

LPAR Migration Considerations

LPAR planning required if

- New to LPAR
- Migration from existing LPAR
- Consolidating using LPAR
  - Note: Each partition is treated separately

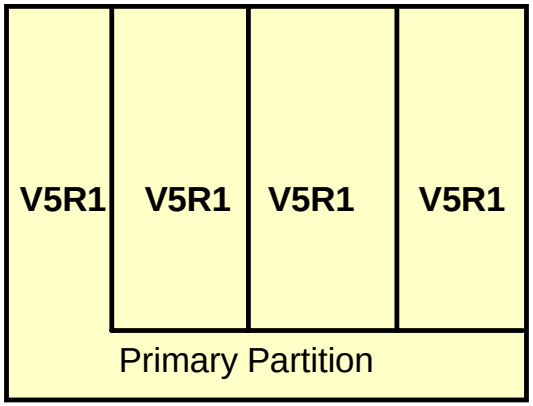
OS/400 Considerations

- Newest iSeries Model 8xx: V5R1 in all partitions
- 6xx/7xx/Sxx/first 8xx partition: V4R5 or V5R1

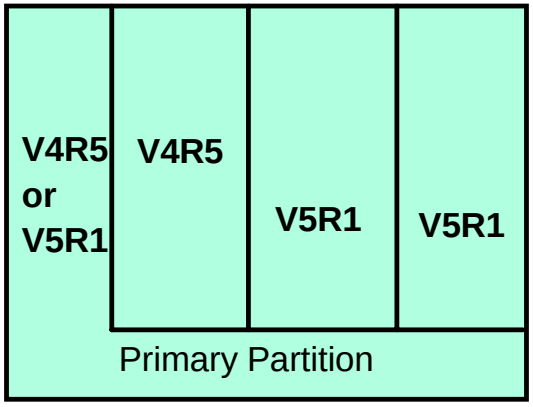
Additional Information available

- http://www.ibm.com/iseries400/lpar/index.htm
- LPAR Redbook - SG24-5439
- LPAR Planning and Implementation Services

New iSeries Model 8xx



**Sxx, 6xx, 7xx, earlier 8xx*
N-Way processors**



Notes: LPAR Migration Considerations

Planning is key to smooth, successful migration

V4R5 and V5R1 can be intermixed on 6xx/Sxx/7xx hardware. Each partition must run V5R1 if using the new 8xx processors announced 2001.

Note: Migration Tower actually results in an additional I/O tower for use in LPAR environment, providing additional I/O capacity and flexibility. This may be of benefit for those customers who are upgrading an existing LPAR environment.

AS/400 Site Planning - Electrical

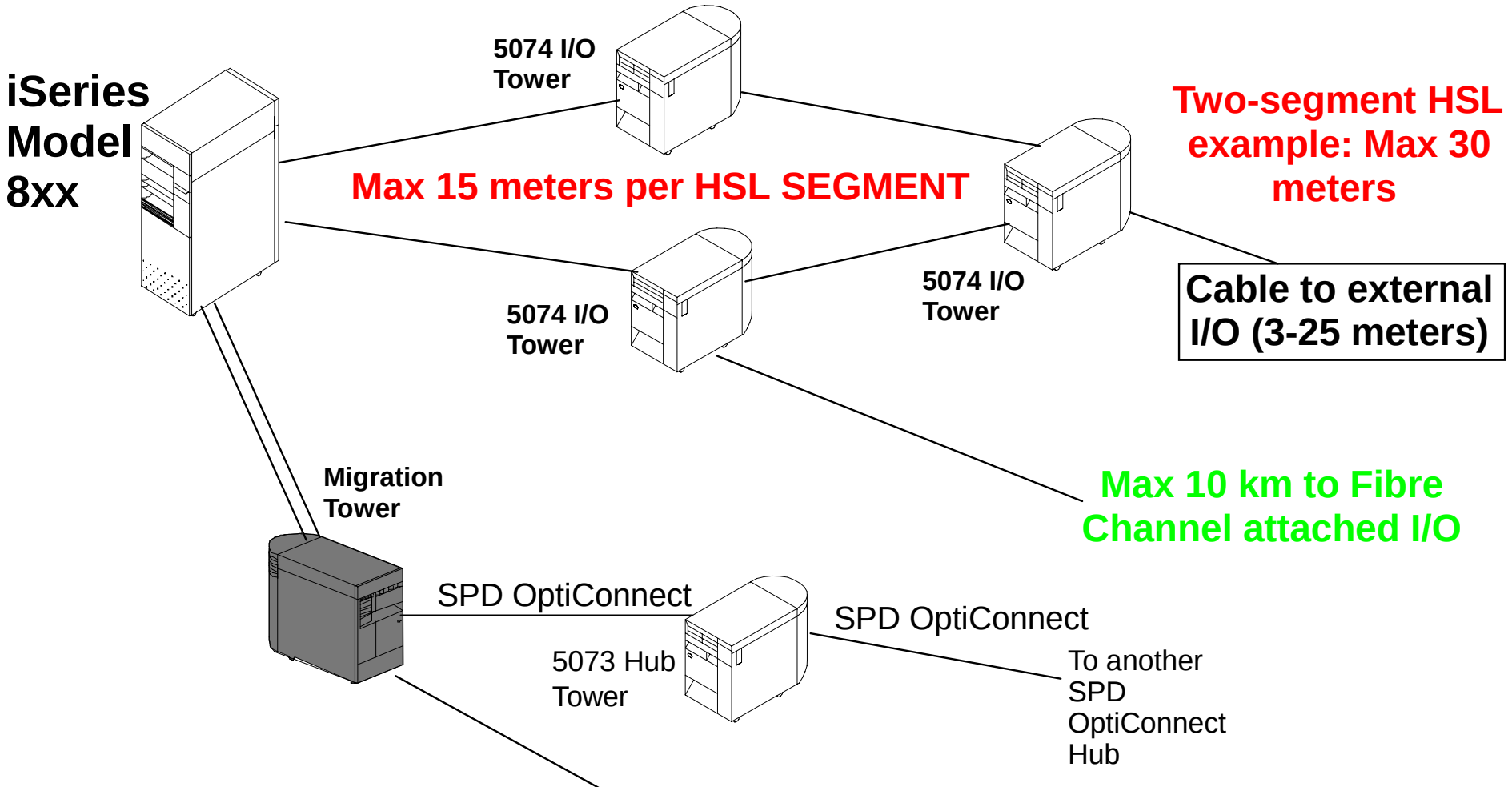
From Model	To iSeries Model	From CEC	To CEC	To Migration Tower	From Base I/O tower	To Base I/O Tower
600/S10	820	110V / 12A or 220V / 6A	110V / 12A **or** **220V / 9A**	110V / 12A or 220V / 6A	NA	NA
620/S20/720	820	220V / 16A	**110V / 12A or 220V / 9A**	220V / 16A	NA	NA
620/S20/720	830	220V / 16A	**220V / 12A**	220V / 16A	NA	NA
640/S30/730	830	220V / 30A	**220V / 9A**	**220V / 10A**	NA	NA
640/S30/730	840	220V / 30A	220V / 30A	**220V / 10A**	NA	NA
650/S40/740	840	220V / 30A	220V / 30A	**220V / 10A**	220V / 10A	220V / 10A

- **Differences in power requirements may require wiring changes**
- Migration Tower requires additional outlet
- FYI .. future dual power cord option for 820, 830, 840

Notes: Physical Planning - Electrical

When planning for the new iSeries, remember to check the electrical power. There are some differences compared to earlier AS/400s. Remember you'll need an extra outlet for the migration tower. Please refer to Site Planning information for a particular situation.

AS/400 Site Planning - Cable Distance



Notes: Physical Planning - Cable Distances

It's important to check your physical site plan for the cable lengths. The HSL distances are different from 6xx/7xx/Sxx cabling distances. Each HSL segment has a maximum 15m (a little over 46 feet for those metrically challenged) distance limitation. This is the maximum distance between two connected towers. As an example, look at the top part of this diagram. A loop with three towers could have one of the towers 30m from the system unit (shown in diagram) while two towers must be at most 15 meters distant.

Current distance limitations for SPD connected towers still apply. For example, #5073 System Expansion Unit could be located up to 500m from a migration tower. The migration tower must be on a 3-15 meter HSL cable.

Cable lengths for specific external I/O devices, like 3570, are unchanged (3-25m cable lengths). This is the cable length from the I/O adapter to the device. But the addition of Fibre Channel with V5R1 allows distances up to 10 kilometers for those devices supporting Fibre Channel.

Also remember to order enough HSL cables so you have the right number for your shop. In order to save the customer money, the configurator will tend to minimize the number of loops. Make sure this meets your performance, configuration (especially LPAR), and availability requirements.

iSeries Site Planning - Uninterruptable Power Supply

Internal Batteries

- The iSeries Model 820 does not have an internal battery
- The iSeries Models 830 and 840 have internal batteries

UPS

- An independent power source is always recommended to enhance system availability

For Additional Site Planning
Visit:
www.ibm.com/iseries400/tstudio/planning/plngstrt.htm

An internal battery is a function within some iSeries 400 and AS/400 models which provides power for a short period of time if the external power fails. Model 820 does not have an internal battery. Previous systems like the Model 620 and 720 did have an internal battery.

Model 830 and 840 have internal batteries. (as did the 730/640/S30 and 740/650/S40)

It is highly recommended that customers do have a UPS or motor generator.

For any additional questions about site planning, please visit the web site.

Additional Information:

Model 250 and 270 do not have internal batteries either.

Note: Continuously Powered Main Storage (CPM) is not available or required for Model 270 or 8xx. CPM was originally required because of the long IPL times in the past (older AS/400s). Now with faster IPL times and other incremental system hardware/software enhancements, CPM doesn't save a significant amount of time.

Note: IBM has previewed the plans to announce dual power cord capability of 820, 830 and 840.

Upgrade Project Responsibilities

Software Upgrade to V5R1

- Customer

Physical Planning

- Customer

Hardware Installation

- IBM Service for MES
- Customer for Customer Set Up (CSU) components

System Test and Acceptance

- Customer

Notes: Upgrade Project Responsibilities

Remember that the customer is the one who knows what is important to their business and how they want their environment to run. Thus there are a lot of customer responsibilities for upgrade project activities on this list. Services from an IBM Business Partner or IBM Global Services could be used to assist in any of these activities.

Services

Some customers may elect to use services from IBM Global Services or IBM Business Partners

IBM Global Services Offerings include

- iSeries Planning and Migration Services
- AS/400 System Transition Service - CISC-to-RISC
- Migration Services for AS/400 - System/Data Migration RISC-to-RISC
- Migration Services for AS/400 Consolidation
- LPAR Planning and Implementation Services
- Installation Planning Services
- ... and more

Sources of Additional Information

Web Pages

- **Base Information:** http://www.ibm.com/iseries400/infocenter
- **Site/physical planning:** http://www.ibm.com/iseries400/tstudio/planning/plngstrt.htm
- **Consolidation:** http://www.eserver/scon/servcon
- **LPAR:** http://www.ibm.com/iseries400/lpar
- **Information Center:** http://www.ibm.com/iseries400/infocenter
- **Technical Studio:** http://www.ibm.com/iseries400/tstudio

Manuals

- CISC-to-RISC Roadmap - SA41-5150 (Only written to V4R5 level, but good insights)
- RISC-to-RISC Roadmap - SA41-5155
- Redbooks
  - AS/400e to iSeries Migration - SG24-6055
  - iSeries Handbook - GA19-5486
  - iSeries and AS/400e System Builder - SG24-2155
  - AS/400 Consolidation Strategies and Implementation - SG24-5186
  - Slicing the AS/400 with Logical Partitioning - SG24-5439
  - AS/400 Clusters - SG24-5194

Notes: Sources of Additional Information

Please consult the iSeries 400 web site or iSeries 400 and AS/400 Redbooks for additional detailed information on a variety of topics.

Things to Remember

Hardware MES upgrades

- 270/8xx to 270/8xx are simple, business-as-usual to explain
- 6xx/Sxx/7xx to 8xx are straight forward to do, but with the new I/O architectures, migration tower and V5R1 feature support, need to be understood
- 6xx/Sxx MES upgrades are available only through September 2001

Smooth, uneventful, low-stress software or hardware upgrades require planning

Avoid "shortcuts" and follow standard upgrade processes

- Install V5R1 prior to a hardware upgrade

Most existing features continue to be used

LPAR provides additional opportunities but requires planning

Notes: Things to Remember

There is a lot of things to consider in your migration. So to summarize, keep these points in mind.

Additional Information

OS/400 Migrations - Software Paths

Supported Path Options - One- or Two-Step Upgrades

- OS/400 greatly eases and shortens upgrade
  - Automatically moves user application data and programs
  - Automatically moves, converts, validates many OS/400 and IBM software environments (profiles, configurations, customizations, message reply lists, authorities, etc.)

Other Options to get to V5R1

- Can get there, but not as easily
  - Closer to UNIX 7 or NT J implementation requiring more research, planning, testing by iSeries and AS/400 knowledgeable personnel
- User's application software and application data can be moved via iSeries and AS/400 Save/Restore utilities (some exceptions like rarely used OV/400 APIs)
- User must also
  - Create new system and user profiles, configurations, application customizations/configurations, authorities, reply lists, etc.
  - Validate new OS/400 release and other iSeries and AS/400 enabling software function changes did not impact user applications (not common, but needs to be checked)

OS/400 Upgrade Path Withdrawal Dates

- When can a one-step supported upgrade no longer be ordered:

From / To ->	V4R3	V4R4	V4R5	V5R1	Future
GA ->	09/98	05/99	07/00	05/01	
V2R3	12/31/00	05/31/01	-	-	-
V3R0.5	12/31/00	05/31/01	-	-	-
V3R1	12/31/00	05/31/01	-	-	-
V3R2	12/31/00	05/31/01	WNA	-	-
V3R6	-	-	-	-	-
V3R7	12/31/00	-	-	-	-
V4R1	12/31/00	05/31/01	WNA	-	-
V4R2	12/31/00	05/31/01	WNA	-	-
V4R3	-	05/31/01	WNA	-	-
V4R4	-	-	WNA	WNA	-
V4R5	-	-	-	WNA	x
V5R1	-	-	-	-	x

WNA: Withdrawal Not Announced at this time

Notes: OS/400 Upgrade Path Withdrawal Dates

The column on the left in blue is where we are in May 2001. The four columns in the table are potential releases you could target going to. If there is a "-" (dash) in the column, that means there is no supported one-step release.

In the future, IBM will announce a withdrawal date and the "WNA" in that particular column will change to a date.

For example, if you were on V4R1 today and wanted to go to V4R4, you need to order the software upgrade before May 31, 2001. After this date IBM will withdraw the ability to order and ship this software upgrade.

A key point on this chart is that there will be only two OS/400 supported upgrade paths in the future. With year 2000 challenges under control in most customer accounts, there is no longer the business requirement for IBM to test and support so many paths. Note that V4R5 is the last release with a one-step upgrade for a CISC release (V3R2). V5R1 does not have a one-step, OS/400-supported upgrade path.

Skip Ship Products for V5R1

The following products do not need a new release to be supported by OS/400 V5R1

- 5733-A38 MQSeries for iSeries V5.2
- 5798-AF3 AFP PrintSuite
- 5733-AS3 WebSphere Application Server Std Edition
- 5733-B2B Connect for iSeries
- 5648-B45 AFP Font Collection for Workstations and OS/400
- 5769-DC1 DCE Base Services for AS/400
- 5769-DC3 DCE DES Library Routines
- 5769-DL1 Dictionary and Linguistic Tools
- 5769-DP3 DB2 DataPropagator for iSeries V7.1
- 5769-FN1 AFP DBCS Fonts
- 5769-FNT AFP Fonts
- 5769-FXD Domino fax for iSeries

- 5697-G14 DB2 Forms for iSeries
- 5697-G23 Warehouse Manager for iSeries
- 5697-G24 QMF for Windows for iSeries
- 5733-IM3 DB2 Intelligent Miner
- 5769-LNP Lotus Enterprise Integrator
- 5769-LNT Lotus Domino Server for iSeries
- 5733-PY2 WebSphere Payment Manager
- 5798-TBG NetView FTP
- 5769-VG1 VisualAge Generator Server for iSeries
- 5769-WA3 WebSphere Application Server V3.5 Adv Edition
- 5798-WC4 WebSphere Commerce Suite

Withdrawn Software with V5R1

All these products have replacements or alternatives.

- 5769 AC1 Cryptographic Access Provider
- 5769 AS1 WebSphere Application Server
- 5769 CE1 AS/400 Client Encryption
- 5769 CF1 Retail Application Interface Suite
- 5733 DME Domino Migration Engine for iSeries
- 5769 FW1 Firewall for AS/400
- Tivo ITD Tivoli IT Director
- 5697 ADS Tivoli ADSAR Distributed Storage Mgr
- 5769 MQ2 MQSeries for AS/400
- 5798 NC3 Net.Commerce for AS/400, V3.1
- 5769 PM1 Performance Management/400
- 5733 PY1 Payment Server for AS/400, V1.2
- 5769 RD1 Content Manager OnDemand for AS/400
  - RD1 Opt 6 OnDemand Client for Windows 3.1
  - RD1 Opt 7 OnDemand Client for OS/2
  - RD1 Opt 8 OnDemand Client for 32 bit Windows
- 5769 SA2 Integration Services for FSIOP
- 5769 SS1 Opt 15 Common Programming APIs Toolkit
- 5769 SS1 Opt 17 OS/400 - PSF/400 Fax Support
- 5798 TBW IBM Wireless Connection for AS/400
- 5798 TBY Facsimile Support for AS/400
- 5639 VW5 Visual Warehouse 5.2
- **5769 WP1 OfficeVision for AS/400**
- 5716 DCT Language Dictionaries for AS/400
- 5763 XD1 Client Access for Windows 95/NT
- 5763 XK1 Client Access Enhanced for Windows 3.1
- Replaced by WebSphere Development Studio
  - 5769 CB1 ILE COBOL
  - 5769 CL1 ADTS CS
  - 5769 CL2 VA RPG and CODE/400
  - 5769 CL3 VisualAge RPG and CODE/400
  - 5769 CX2 ILE C for AS/400
  - 5769 CX5 VisualAge for C++ for AS/400
  - 5769 CX6 ILE C++
  - 5769 PW1 ADTS
  - 5769 RG1 ILE RPG

Alternative Notes: OV/400 's alternative is Domino, but many OV/400 APIs are not supported. 5769-FW1's alternative is probably an Integrated xSeries Server. Tivo-ITD's alternative is probably xSeries based IT director. IBM is withdrawing 5763-XK1 because of Microsoft's withdrawal of Windows 3.1 support.

Notes: Withdrawn Software

There are a number of older software products not supported on OS/400 V5R1. They all have replacements or superseding products, but a couple should be called out. OV/400 has a replacement product, Domino, but the OV/400 APIs which are hopefully no longer used by any customer's application are no longer provided. In fact OV/400 is de-installed if found when V5R1 is installed. Another is the OS/2-based Firewall product. This is replaced with other PC or UNIX-based solutions. IT Director has been withdrawn due to low product sales and it's replacement is xSeries based. Client Access for Windows 3.1 is withdrawn because 3.1 is no longer supported by Microsoft.

Migration Feature Code # 0205

RISC to RISC Data Migration # 0205

- Order this no-charge feature when the new RISC iSeries or AS/400e is replacing another V4 RISC AS/400 (not a serial number MES upgrade). The existing AS/400 must be at the same version/release as the new iSeries or AS/400. See http://www.as400.ibm.com/techstudio/tech_ref/rrmap/

CISC to RISC Data Migration # 0203

- One-step software migration to V5R1
  - FC# 0203 is not available
  - No OS/400-supported, one-step migration from any CISC release to V5R1
- Two-step software migration to V5R1
  - **After May 31, 2001 FC# 0203 is not available**

Notes: Migration Feature Code #0205

Since there are no longer any one-step OS/400-supported CISC to RISC upgrade paths to V5R1, there is no need for the FC# 0203 which was provided for V4R5.

Application Migration

iSeries helps maximize existing business applications

RISC-to-RISC: **Program Level Binary Compatibility**

- All RISC Versions
- Recompile or translation hardly ever required **
  - MES upgrade: Simply run the application. It's ready to go
  - Different AS/400 (different serial number): Simply save off the current system and restore onto the new iSeries or AS/400

CISC-to-RISC: **Program Level Automatic translation** or recompile

- All CISC Versions
- Translation by OS/400 as part of a Save/Restore for applications with observability
- Recompile if observability not enabled (source code required)
- Assumes compilers and any special (non-OS/400) APIs are still available on new version/release. **

** There are a few exceptions. For example, low usage FORTRAN/400, RM/COBOL-85, PASCAL, BASIC, old C/400 compilers are not supported on V4 or V5, but runtime environments are supported meaning the application can run as is. Or since System/36 SSP is not supported starting V4R5, applications using those functions will not work (S/36 Environment is supported.). Or similarly in V5R1, OV/400 APIs are not supported so applications using these APIs may not work.

Notes: Application Migration

iSeries provides great protection. Applications written for S/36 and S/38 still run with no or minimal changes on the iSeries many, many years later. iSeries has been able to provide this while evolving to radically different hardware and adding tremendous function. This is a core iSeries and AS/400 architectural strength and customer advantage.

IBM expects solution providers and customers to feel very confident about moving their production to V5R1. Not only will IBM extensively test this release, but over hundreds of solution providers and customers will have been given the opportunity to test V5R1 by GA.

One-Step Hardware MES Upgrade Paths

TO

FROM

Model	820 Processors Annc'd 2000	820 Processors Annc'd 2001	830	840 Processors Annc'd 2000	840 Processors Annc'd 2001
600	yes				
S10	yes				
620	yes		yes		
S20	yes		yes		
720	yes	yes	yes		
820	yes	yes	yes	yes	yes
640			yes	yes	
S30			yes	yes	
730			yes	yes	yes
830			yes	yes	yes
650			yes	yes	
S40			yes	yes	
740			yes	yes	yes
840				yes	yes

iSeries Model 8xx Interactive CPW points are consistent with 7xx interactive points and more flexible.
6xx/Sxx upgrades orderable only through September 2001

One-Step Hardware MES Upgrade Paths to 820

TO

FROM

Model			820				820			
	Feat		2395	2396	2397	2398	2435#	2436#	2437#	2438#
		N-Way	1	1	2	4	1	1	2	4
600	2129	1	yes							
	2134	1	yes							
	2135	1	yes	yes						
	2136	1	yes	yes						
S10	2118	1	yes							
	2119	1	yes	yes						
620	2175	1	yes	yes						
	2179	1	yes	yes	yes					
	2180	1	yes	yes	yes					
	2181	2	yes	yes	yes	yes				
	2182	4		yes	yes	yes				
S20	2161	1	yes	yes						
	2163	1	yes	yes	yes					
	2165	2		yes	yes	yes				
	2166	4			yes	yes				
	2170	2		yes	yes	yes				
	2177	4			yes	yes				
	2178	4			yes	yes				
720	2061	1	yes	yes	yes	yes	yes	yes		
	2062	1		yes	yes	yes	yes	yes	yes	
	2063	2			yes	yes			yes	yes
	2064	4				yes			yes	yes

- iSeries Model 8xx Interactive CPW points are consistent with 7xx interactive points
- Upgrades from 6xx/Sxx to other models no longer sold after September 2001

2001 processor

One-Step Hardware MES Upgrade Paths to 830/840

TO

FROM

Model			830			840		840	840		
	Feat		2400	2402	2403	2418	2420	2461#	2352#	2353#	2354#
		N-Way	2	4	8	12	24	24	8/12	12/18	18/24
600	2129	1									
	2134	1									
	2135	1									
	2136	1									
S10	2118	1									
	2119	1									
620	2175	1	yes								
	2179	1	yes								
	2180	1	yes								
	2181	2	yes								
	2182	4	yes	yes	yes						
S20	2161	1	yes								
	2163	1	yes								
	2165	2	yes	yes							
	2166	4	yes	yes	yes						
	2170	2	yes	yes							
	2177	4	yes	yes	yes						
	2178	4	yes	yes	yes						
720	2061	1	yes	yes	yes						
	2062	1	yes	yes	yes						
	2063	2	yes	yes	yes						
	2064	4		yes	yes						

- iSeries Model 8xx Interactive CPW points are consistent with 7xx interactive points
- Upgrades from 6xx/Sxx to other models no longer sold after September 2001

2001 processor

640/S30/730 One-Step Hardware MES Upgrade Paths

TO

FROM

Model			820	830			840		840	840		
	Feat		ALL	2400	2402	2403	2418	2420	2461 #	2352 #	2353 #	2354 #
		N-Way	1-4	2	4	8	12	24	24	8/12	12/18	18/24
640	2237	1		yes	yes	yes	yes					
	2238	2		yes	yes	yes	yes					
	2239	4		yes	yes	yes	yes					
S30	2257	1		yes	yes	yes	yes					
	2258	2		yes	yes	yes	yes					
	2259	4		yes	yes	yes	yes					
	2260	8			yes	yes	yes	yes				
	2320	4		yes	yes	yes	yes					
	2321	8			yes	yes	yes	yes				
	2322	8			yes	yes	yes	yes				
730	2065	1		yes	yes	yes	yes	yes				
	2066	2		yes	yes	yes	yes	yes				
	2067	4			yes	yes	yes	yes				
	2068	8			yes	yes	yes	yes	yes	yes		

- iSeries Model 8xx Interactive CPW points are consistent with 7xx interactive points
- Upgrades from 6xx/Sxx to other models no longer sold after September 2001

2001 processor

650/S40/740 One-Step Hardware MES Upgrade Paths

TO

FROM

Model			820	830			840		840	840		
	Feat		All	2400	2402	2403	2418	2420	2461 #	2352 #	2353 #	2354 #
		N-Way	1-4	2	4	8	12	24	24	8/12	12/18	18/24
650	2240	8					yes	yes				
	2243	12					yes	yes				
	2188	8				yes	yes	yes				
	2189	12				yes	yes	yes				
S40	2256	8					yes	yes				
	2261	12					yes	yes				
	2207	8				yes	yes	yes				
	2208	12				yes	yes	yes				
	2340	8				yes	yes	yes				
	2341	12				yes	yes	yes				
740	2069	8				yes	yes	yes	yes	yes		
	2070	12				yes	yes	yes	yes		yes	

- iSeries Model 8xx Interactive CPW points are consistent with 7xx interactive points
- Upgrades from 6xx/Sxx to other models no longer sold after September 2001

2001 processor

One-Step Hardware MES Upgrade Paths to 820

TO

FROM

Model			820				820			
	Feat		2395	2396	2397	2398	2435#	2436#	2437#	2438#
		N-Way	1	1	2	4	1	1	2	4
820	2395	1		yes	yes	yes	yes	yes	yes	
	2396	1			yes	yes			yes	yes
	2397	2				yes				yes
	2398	4								
	2435#	1						yes	yes	yes
	2436#	1							yes	yes
	2437#	2								yes
	2438#	4								

2001 processor

One-Step Hardware MES Upgrade Paths to 830/840

TO

FROM

Model			830			840		840	840		
	Feat		2400	2402	2403	2418	2420	2461#	2352#	2353#	2354#
		N-Way	2	4	8	12	24	24	8/12	12/18	18/24
820	2395	1	yes	yes							
	2396	1	yes	yes	yes						
	2397	2		yes	yes	yes	yes				
	2398	4			yes	yes	yes	yes			
	2435#	1	yes	yes							
	2436#	1	yes	yes	yes	yes					
	2437#	2		yes	yes	yes	yes				
	2438#	4			yes	yes	yes	yes			
830	2400	2		yes	yes	yes	yes				
	2402	4			yes	yes	yes	yes			
	2403	8				yes	yes	yes			
840	2418	12					yes	yes		yes	yes
	2420	24						yes			
	2416	8/12					yes			yes	yes
	2417	12/18					yes				yes
	2419	18/24									yes
	2460#	12						yes			
	2461#	24									
	2352#	8/12								yes	yes
	2353#	12/18									yes
	2354#	18/24									

2001 processor

One-Step Hardware MES Upgrade Paths to 270

TO

FROM

Model			270				270			
	Feat		2248	2250	2252	2253	2302#	2431#	2432#	2434#
		N-Way	1	1	1	2	1	1	1	2
270	2248	1		yes	yes	yes		yes	yes	
	2250	1			yes	yes		yes	yes	yes
	2252	1				yes				yes
	2253	2								yes
	2431#	1							yes	yes
	2432#	1								yes
	2434#	2								

DSD 270 upgrades not shown

2001 processor

Miscellaneous

No model upgrades into or out of Model 250, iSeries Models 270, DSD, SB2, or SB3 (asset swap - different serial number required)

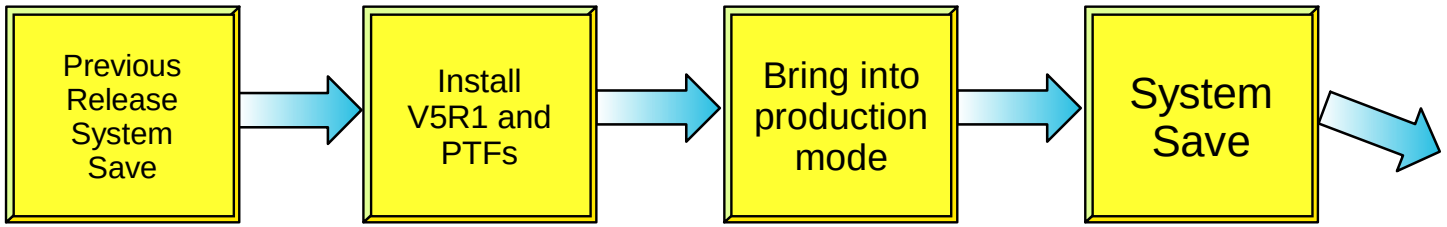
- Processor upgrades within Model 250, iSeries Models 270, DSD, and SB3 are possible
- F/C #0205 RISC-to-RISC Data Migration is available

Upgrades to iSeries Model 820 from 620/720/S20 may need more memory as memory is installed four-cards-at-a-time vs two-cards-at-a-time (quads vs pairs)

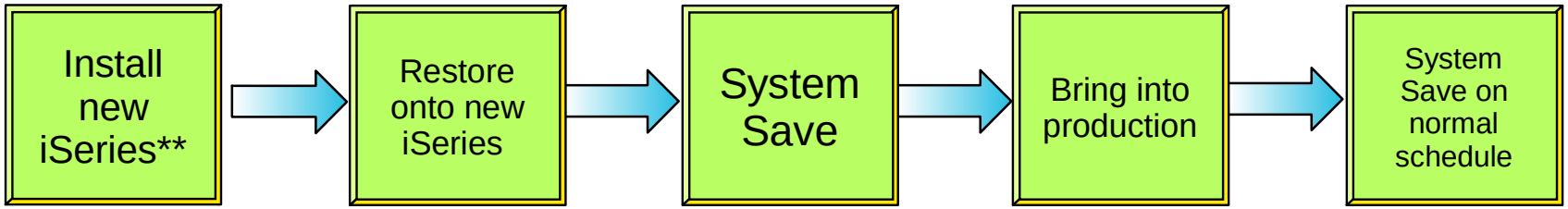
Upgrade Process - Non-MES Hardware

Typical Non-MES Upgrade Process - OS/400 path available (often referred to as "data migration" vs "upgrade")
example AS/400 model 5xx running V4R4

First update software on current AS/400



Then install new hardware (different serial number)



Notes:

- ** Recommend ordering iSeries with FC# 0205
- Many customers will customize this process
- With V5R1 on the current system, it should be much quicker and much easier to move environment onto the new iSeries

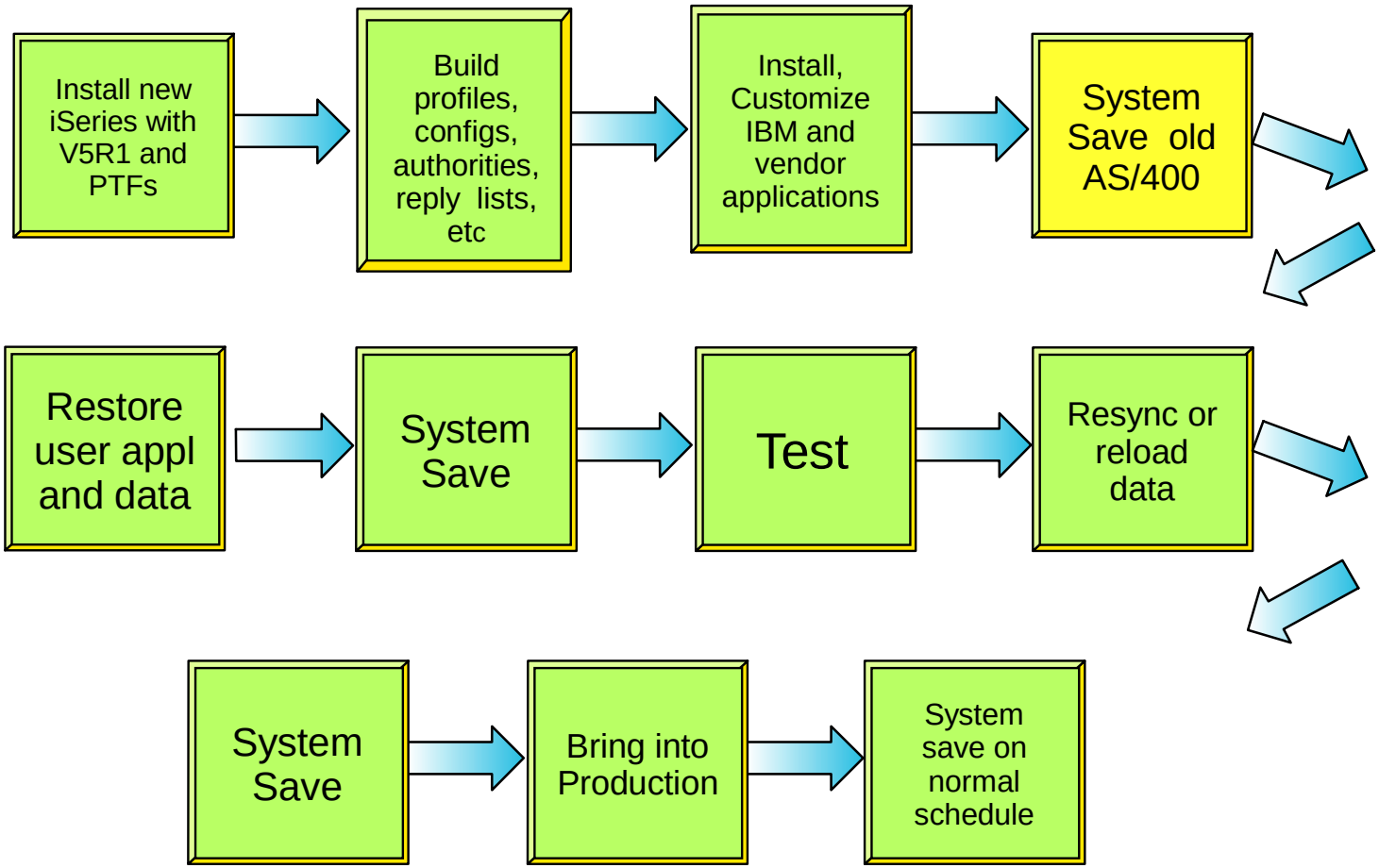
Notes: Upgrade Process - Non-MES Hardware

Many customers will be upgrading just their software or upgrading their environment without a hardware or software upgrade path.

This chart may be used with or in place of the slide in the main charts which assumed an MES upgrade..

Upgrade Process - Non-MES Hardware

Typical Upgrade Non-MES Process
OS/400 path NOT available
(example AS/400 model F70 running V3R2)



Note, many customers will customize this process

Suggested Migration Approach

MES Upgrade to iSeries Model 8xx (same serial number)

Get the existing system to V5R1

- This is done the "first" weekend
- Run for a week
- Make sure the needed physical planning work is done

Turn it over to the CE

- In a well-planned, correctly-ordered upgrade, the CE will:
  - Convert/Install the Migration Tower protecting existing supported I/O and cabling
- Pump what's needed into the new iSeries Model 8xx load source
- Turn the working machine back over to the customer

Any attempts to "Short Cut" the process will result in a much longer overall process, and could require significant billable time to "detangle" an unsupported, "creative" approach

Suggested Migration Approach

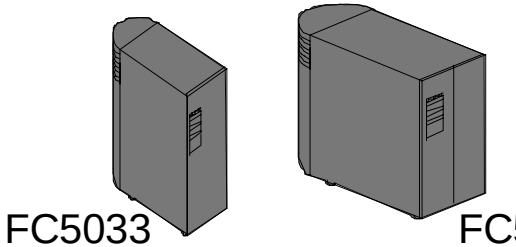
"Upgrading to iSeries Model 8xx, but can't get the existing system to V5R1?"

- Determine why this is not possible
  - A thorough test of V5R1 is required -- do it on a different system
  - The customer can't afford the downtime -- determine when it can be scheduled.
  - If a customer truly cannot afford down time to install/test a new release and/or install new hardware, an additional system with High Availability Software is needed.
- Customers who use a Side-by-Side approach to migrate to an iSeries Model 8xx will not be able to use OS/400's one-step support. The customer will need to do more research, planning and testing, exactly as in an OS/400 unsupported upgrade. *The process will usually take longer than using the supported method!*
  - Support Services are available on a best-effort basis
  - Special concerns occur and billable time is needed to return a "Side-by-Side" machine to a condition where it can be used to perform an upgrade via a migration tower
  - An existing machine's disks cannot simply be added to another machine "with the data intact" -- unloads/reinitializations/reloads must be planned

Notes: Suggest Migration Approach

The previous two foils describe some customer situations or alternative implementation considerations.

iSeries Model 8xx Migration Towers



FC5033

FC5034
FC5035

Migration Tower I

FC5077
FC9077

Migration Tower II

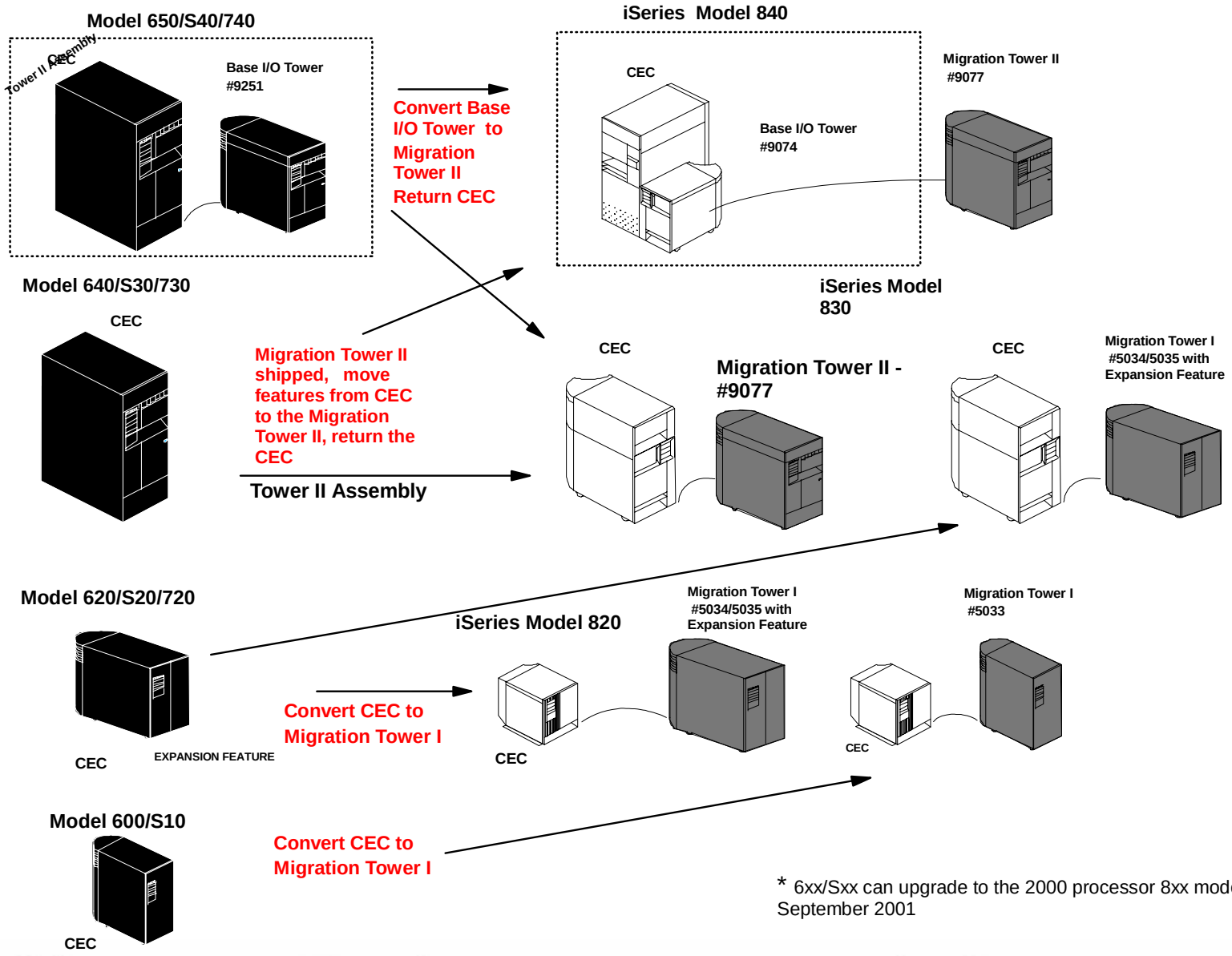
- Migration Tower I attaches to Models 820/830
  - PCI or (PCI and SPD) I/O
  - Single-wide or double-wide
- Migration Tower II attaches to Models 830/840
  - SPD I/O
- One Migration Tower included/created with 8xx MES Upgrade
- Can order Migration Tower feature for non-MES iSeries Models
  - For 820 RPQ # 847120; For 830/840 FC#5077
- Max one Migration Tower attached per Models 8xx

Notes: iSeries Model 8xx Migration Towers

Note the FC # 5034 and FC # 5035 flavors of the Migration Tower I may or may not have the expansion feature (be double wide) as shown in the picture. It depends on how many disk drives can be placed in the unit (which determines the number of power supplies which the configurator needs to know)

Late in 2000, the ability for a model 820 which had not been created as part of a 6xx/Sxx/7xx upgrade to acquire a migration tower I was announced as an RPQ.

Model 6xx/Sxx/7xx/ Migration to Model 8xx



* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

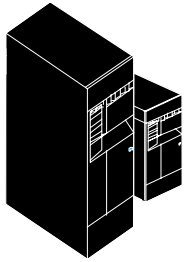
small print, lots of lines, but complete.

This information was shown in the earlier detail slides.

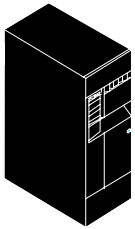
Notes:

Model 6xx/Sxx/7xx Memory Migration to 8xx

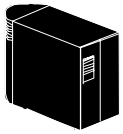
Model 650/S40/740*



Model 640/S30/730*



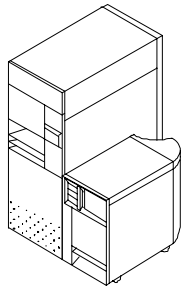
Model 620/S20/720*



Model 600/S10*

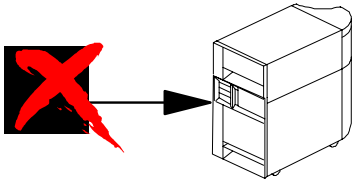
1. Memory Incompatible
2. **Partial Credit available** toward IBM iSeries Model 840 memory
   - 1&2 GB Cards Only
3. Memory is customer property

iSeries Model 840



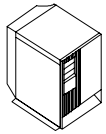
1. Memory Incompatible
2. No Optional Partial Credit
3. Memory is customer property

iSeries Model 830



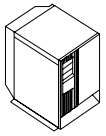
1. **128 & 256 MB Memory Compatible**
2. 32 MB Memory NOT Compatible
   - No Optional Partial Credit
3. Memory is customer property

iSeries Model 820



1. Memory Incompatible
2. No Optional Partial Credit
3. Memory is customer property

iSeries Model 820



* 6xx/Sxx can upgrade to the 2000 processor 8xx models through September 2001

Notes: Model 6xx/Sxx/7xx Memory Migration to 8xx

This information was shown in the earlier detail slides.

6xx/Sxx/7xx Memory Migration Details

From Model	**To** Model

Model	Tech Slots, # in Group	Min - Max Memory smallest & largest cards	Cards that Migrate	Model	Tech Slots, # in Group	Min-Max Memory smallest & largest cards
650/S40/740	River 20 Slots ,4s	1 GB - 40 GB 128 - 2048 MB	**None**	840	Fast River 16 Slots, 4s	4 - 128 GB 1 - 16 GB
650/S40/740	River 20 Slots ,4s	1 GB - 40 GB 128 - 2048 MB	**None**	830	Dimm 64 Slot, 8s	1 - 64 GB 128 - 1000 MB
640/S30/730	River 12 Slots, 2s	.5/1 - 24 GB 128 - 2048 MB	**None**	840	Fast River 16 Slots, 4s	4 - 128 GB 1 - 16 GB
640/S30/730	River 12 Slots, 2s	.5 - 24 GB 128 - 2048 MB	**None**	830	Dimm 64 Slots, 8s	1 - 64 GB 128 - 1000 MB
620/S20/720	Dimm 16/48 Slots, 2s, 4s	64/256 MB - 1.8/8 GB 32-256 MB	**All except 32 MB**	830	Dimm 64 Slots, 8s	1 - 64 GB 128 - 1000 MB
620/S20/720	Dimm 16/48 Slots, 2s, 4s	64/256 MB - 1.8/8 GB 32-256 MB	**All except 32 MB**	820	Dimm 8/32 Slots, 2s/4s	256 MB - 4/32 GB 128 - 1000 MB
600/S10	Simm 6/8 Slots 1s, 2s	64/128-348/512 MB 32 - 64 MB	**None**	820	Dimm 8/32 Slots, 2s/4s	256 MB - 4/32 GB 128 - 1000 MB
Model 170	Dimm 8/16 Slots, 2s, 4s	64/256 MB - .8/4 GB 32-256 MB	**None**	270	Dimm 8/16 Slots, 2s/4s	256 MB - 4/16 GB 128 - 1000 MB

Notes: 6xx/Sxx/7xx Memory Migration Details

Additional details on memory maximums and plugging rules (2s / 4s / 8s)

PCI Adapters - Full Migration

PCI adapters supported natively by either Model 8xx or 6xx/Sxx/7xx
(Model 8xx Migration Tower optional)

*new V5R1

Model 6xx/Sxx/7xx Feature Number to order	Equivalent iSeries Model 270/8xx Feature Number to order	Description
2723	4723	Ethernet IOA
2745	4745	2-line WAN IOA (no int. modem)
2746	4746	Twinaxial Workstation IOA
2748	4748	RAID Disk Unit Controller
2750	4750	ISDN BRI U IOA
2751	4751	ISDN BRI S/T IOA
2761	4761	2-line WAN IOA (one int. modem)
2778*	4778	RAID Disk Unit Controller
2815	4815	155 Mbps UTP OC3 ATM
2816	4816	155 Mbps MMF ATM
2818	4818	155 Mbps SMF OC3 ATM
2838	4838	100/10 Mbps Ethernet IOA

Note: these 4xxx feature codes are Customer Installed Features

Notes: PCI Adapters - Full Migration

Here is a list of twelve adapters which can be used in any iSeries or AS/400 PCI slot. They can be used in the new PCI slots in the 8xx or 270. They can be used in the previous 600/620/S20/720 slot or the PCI I/O tower (FC # 5065/5066).

Note even though these are the same, identical adapters, they are ORDERED differently because in the 8xx and 270, these are customer installed features. The 620/S20/720 and FC#5065 had CEs installing PCI adapters. Once installed in an AS/400 or iSeries, these 2xyz/4xyz adapter cards report the same CCIN number to the server in which it is installed and function identically.

ADDITIONAL INFORMATION

Not shown FC 4800 (left column) and FC 4801 (right column) Cryptographic Coprocessor. Note if MES to 8xx, FC 4800 will be replaced by 4802 as part of the upgrade.

PCI Adapters - via Migration Tower

6xx/Sxx/7xx PCI adapters iSeries Model 8xx supports,
but only via a Migration Tower

Model 6xx/Sxx/7xx Feature Number *	Description
2718	Magnetic Media Controller
2721	2-line WAN IOA
2722	Twinax Workstation IOA
2724	16/4 Mbps Token-Ring IOA
2726	RAID Disk Controller
2729	Magnetic Media Controller
2740	RAID Disk Controller
2741	RAID Disk Controller
2809	LAN/WAN/Workstation IOP
2811	25 Mbps UTP ATM
2819	34 Mbps Coax E3 ATM
2824	LAN/WAN/Workstation IOP
2851	Integrated PC Server 166 MHz
2854	Integrated PC Server 200 MHz
2865	Integrated Netfinity Server 333 MHz

* Note: Not supported on the iSeries Model 270

Notes: PCI Adapters Migrations

These existing PCI adapters can not be inserted in the new Hot-Plug PCI slots in the 270 or 8xx. They can only be used on the 8xx via a migration tower.

PCI Adapters - iSeries Only

Not supported on 6xx/Sxx/7xx or via 8xx Migration tower

iSeries 270/8xx Feature Number	Description	Minimum Release
2743	1 Gb Ethernet/IEEE 802.3 IOA	V4R5
2744	100/16/4 Mb Token Ring IOA	V4R5
2749	Ultra Magnetic Media Controller	V4R5
2760	1 Gb Ethernet UTP IOA	V5R1
2763	RAID Disk Controller -12 drives	V4R5
2765	PCI Fibre Channel Tape Controller	V5R1
2766	PCI Fibre Channel Disk Controller	V5R1
2768	Magnetic Media Controller	V4R5
2772/2773	2-line WAN with Dual Modems IOA	V5R1
2790/2890	Integrated Netfinity Server (700 MHz)	V4R5
2791/2891	Integrated xSeries Server (850 MHz)	V5R1
2817	155 MB MMF ATM IOA	V5R1
2842	PCI Node IOP (Model 270)	V4R5
2843	PCI Node IOP (Model 8xx)	V4R5

Notes: PCI Adapters - No Migration Options

These new PCI adapters can not be used on the 6xx/Sxx/7xx. They can only be used in the new Hot-Plug PCI slots of the model 270 or 8xx. The newest adapters require V5R1 to be supported.

5078 PCI Expansion Features

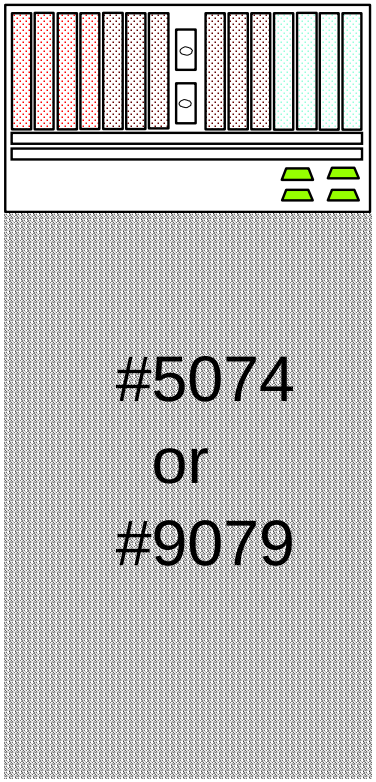
Up to 4 Expansion Features 0578 can be mounted in a 0551 Rack

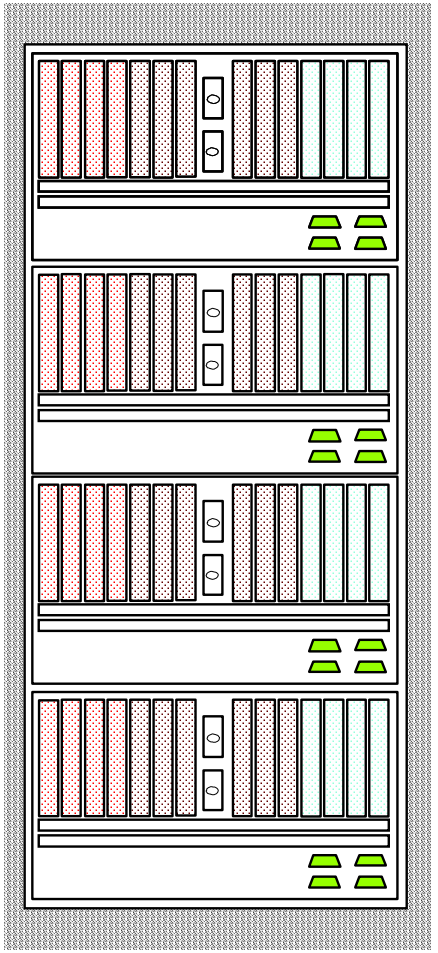
5078 placed on top of 5074 or 9079

Provides additional 14 PCI slots for 11 PCI IOAs

Power Distribution Units in 0551

Cable requirements





Notes: 5078

The #5078 PCI Expansion Unit is a "top hat" that installs on top of the #9079 Base I/O Tower (model 840 only, not allowed with model SB3) or on top of the #5074 PCI Expansion Tower. The #5078 has 14 PCI slots, which allows up to 11 PCI IOAs to be added. Disk units and removable media devices are not supported and may not be installed in the #5078. The #5078 includes a #9691 bus adapter to provide the HSL interface to the system.

The #5078 includes an electrical cable to connect to the #5074 power source. The #5078 may be ordered with a #5074/#9079 on initial orders and the #5074/#9079 will ship with the #5078 installed. The #5078 may also be ordered as an MES install on an existing #5074/#9079. The #5078 may be on the same HSL loop as the #5074 / #9079, or it may be on a separate HSL loop from the #5074/#9079. If the #5078 and the #5074/#9079 are on the same HSL loop, then a #1460 3m HSL Cable must be ordered to connect the #5078 and the #5074/#0979. If the #5074/#9079 and the #5078 are on separate HSL loops, then 1 or 2 of the following HSL cables must be on the order.

- #1460 - 3m HSL Cable
- #1461 - 6m HSL Cable
- #1462 - 15m HSL Cable

The #0578 is the specify for a #5078 mounted in a #0551 iSeries rack (#0551 announced October 2000). Up to 4 units can be mounted in such a rack. One to four Power Distribution Units (#5160, #5161, 5162) must be ordered or present in the #0551 when a #0578 is ordered. Each #0578 has two power cords , while a Power Distribution Unit has six power cord receptacles, this is why a minimum of one Power Distribution Unit is required if one, two or three #0578s are ordered to be installed in the same #0551. A minimum of two Power Distribution Units are required if four #0578s are ordered for the same #0551 iSeries rack.

8xx External DASD (especially Shark)

New for 270/8xx and V5R1 is Fibre Channel adapters.

Model 8xx customers already using the older SPD FC#6501 disk controllers for external disk may not see performance gains by switching to this faster technology unless the 6501s are restricting performance.

But for external disk capable of fibre channel, moving off older SPD technology to newer PCI technology is a good strategic move for 8xx customers. Depending on the customer's disk strategy, replacement by either internal or external disk should be considered.

Notes: 8xx External DASD (especially Shark)

ADDITIONAL INFORMATION:

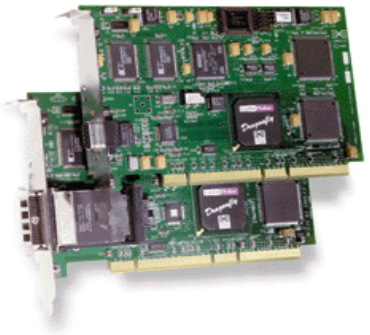
iSeries and AS/400 supports IBM Shark. This is true of the 7xx as well as the 8xx. Today the 7xx attaches the shark with the FC#6501 SPD adapter. The 8xx can use the FC#6501 via a migration tower. But in 2001 with V5R1 and a PCI Fibre Channel adapter, the newer technology PCI adapter is available for the iSeries 8xx or 270. The Fibre Channel offers additional flexibility and speed (adapter) than the FC#6501 .

There is one qualification to the above FC#6501 Shark support statement: The 830 and 840 can get a migration tower II either through an MES upgrade from a 6xx/Sxx/7xx or by ordering a new migration tower II from IBM. The 820 initially could only get a migration tower I through an MES upgrade. As of late 2000, RPQ# 847120 allowed a Migration tower I for an 820 which was not a result of an MES upgrade.

iSeries SAN Hardware Components

Fibre Channel Tape Controller iSeries #2765

- 3590 E11 an E1A
- 3584



Fibre Channel Disk Controller iSeries #2766

- 2105 Models F10 and F20

Fibre Channel Cables

- Multi-mode 62.5 and 50 micron
- Single-mode 9 micron

SAN Infrastructure Components

IBM Managed Hub (3534 Model 1RU)

- 8 ports; 1 Gigabit Interface Converter, 7 short wave optical ports
- Supports zoning (by port)
- Serial, Ethernet/Browser Interfaces

IBM 2109 Switch

- Models S08, S16
- 8/16 port switch, supports zoning
- Supported by V5R1 with Arbitrated Loop via QuickLoop

Notes: SAN Hardware Components

2765

The iSeries PCI Fibre Channel Tape Controller allows a tape which supports the Fibre Channel capabilities reviewed earlier .... 500 meter distance, 10 km with hubs/switches, switching flexibility.

The #2765 PCI Fibre Channel Tape Controller provides fibre channel attachment capability for external tape devices. The #2765 supports point-to-point and arbitrated loop topologies. Each #2765 is shipped with a wrap connector (PN#05N6767). The following options are available to attach SC-type fibre cables :

- #0371 is a two meter LC-SC Adapter kit that can be used to connect the #2765 to a 50µm (50 micron) cable.
- #0372 is a two meter LC-SC Adapter kit that can be used to connect the #2765 to a 62.5µm (62.5 micron) cable.

Fibre channel attachment for tape drives offers tremendous performance capabilities and long distance options. It is also easier for you to share these valuable resources with multiple systems.

The following Tape subsystems with FC capability that are supported by the #2765 PCI Fibre Channel Tape Controller are the 3590 Models E11 or E1A with feature #9510 (on new orders) or feature #3510 (SCSI to FC conversion on installed models) and the 3584 with drive feature #1456.

This new controller offers the highest possible tape performance. The controller itself is rated at 1 Gigabit per second instantaneous capacity. Its capacity is up to 23% greater than the previously fastest tape controller for iSeries announced just last year, the Ultra Magnetic Controller. But before you replace one of these controllers be aware that the ability to use this increased capacity is actually dependent upon the amount of compression in the data being handled by the tape drive. Both the Ultra Magnetic controller and the Fibre Channel controller are extremely powerful. If the data stream is only moderately compressible, there will be no measurable performance difference between the two.

Notes: SAN Hardware Components-2

#2766

The #2766 PCI Fibre Channel DASD Controller provides fibre channel attachment capability for external disk devices. The #2766 supports point-to-point and arbitrated loop topologies. Each #2766 is shipped with a wrap connector (PN#05N6767). Just as for the #2765, the following options are available to attach SC-type fibre cables :

- #0371 is a two meter LC-SC Adapter kit that can be used to connect the #2765 to a 50µm (50 micron) cable.
- #0372 is a two meter LC-SC Adapter kit that can be used to connect the #2765 to a 62.5µm (62.5 micron) cable.

Some iSeries customers may find SAN-attached DASD devices to be appealing for their environment. If consolidating large amounts of DASD from different platforms is important, you should consider SAN. Note, however, a complex commercial business environment usually requires good, predictable response time to maintain user productivity and satisfaction. Carefully consider the performance implications of sharing resources in this environment, as the sharing may introduce more variable performance. For these critical workloads, dedicated direct attach DASD resource can ensure more predictable performance.

Feature #2766, PCI Fibre Channel Disk Controller, for attachment into Storage Area Networks for DASD is offered as an optional feature, when ordered with ***RPQ 847126.***

Fibre Channel Adapters require OS/400 V5R1.

IMPORTANT NOTE: IBM will withdraw #6501 from marketing on July 31, 2001. Attachment to IBM ESS will be through #2766 Fibre Channel Adapter on iSeries and OS/400 V5R1.

Notes: SAN Hardware Components-3

#2766 continued

There are several factors which impact the performance and benefits which an iSeries can realize from a Shark. For this reason, a no-charge, informational RPQ is required when a Fibre Channel disk controller is ordered.

Certainly if compared to the older SPD external disk controller, the new PCI technology is far more advanced and a better long term investment. It also allows a connection to external disk with fewer components, avoiding the use of the migration tower and/or SPD I/O towers. It can also support a Shark up to 10 km away. And if a customer is already committed to a Shark strategy for heterogeneous server reasons and wants to attach iSeries to it, the Fibre Channel is by far the best implementation choice.

Performance one key area which needs to be understood and proper expectations established. Certainly if you compare the performance possible with just one older SPD 6501 controller versus one new PCI Fibre Channel, the Fibre Channel is at least four times faster. But if you already have a Shark installed and attached via enough SPD 6501 controllers such that there are no performance bottlenecks, then replacing the 6501s with Fibre Channel controllers may not yield any performance benefits assuming the workload doesn't change or grow. Replacing SPD technology with newer PCI technology for current and future flexibility is fine, but don't assume you'll automatically see performance benefits without doing a little homework before hand.

The final scenario is the most complex to evaluate. Using Fibre Channel attached Shark compared to "internal" iSeries disk drives. You need to understand that OS/400 advanced architecture has already implemented many of the techniques a disk SAN uses to boost performance. For example, data is automatically and dynamically spread over multiple drives, skip-read-write reduces disk I/O, and caching is done both at the disk controller and also in main memory.

Notes: SAN Hardware Components-4

3534

The IBM Fibre Channel Storage Hub (IBM 3534 Managed Hub) provides unmanaged 7-ports connectivity for Fibre Channel Arbitrated Loop (FC-AL) topologies and supports up to 100 MB/s data transmission speeds between systems and storage systems. Hot pluggable ports enable the attachment of new devices without requiring to restart the host.

The 3534 Managed Hub is used to attach network devices to fiber-based transmission systems such as fibre channel and gigabit ethernet. It converts the serial electrical signals to serial optical signals and vice versa.

This IBM SAN Fibre Channel Managed Hub offers:

- Industry standard Fibre Channel attachment
- High-speed performance utilizing nonblocking switch-based technology.
- Simultaneous 100 MB/second full duplex data transfers across all ports.
- Eight ports, one that is configurable with either a short wave or long wave optical GBIC. (see detail below)
- StorWatch FC Managed Hub Specialist, a Web browser interface for configuration, management, and service.
- Support of industry standard MIBs enabling standard SNMP management.
- IBM SystemXtra support services and financing.

The managed hub is designed for implementing multi-node server clusters and storage systems for high-availability and disaster recovery solutions. Seven ports incorporate fixed short-wave laser optical media for device interconnection at a maximum distance of 500 meters. A single Gigabit Interface Converter (GBIC) slot accommodates an optional GBIC, which supports either short-wave or long-wave laser fibre optic cabling with a maximum distance of 10 kilometers.

Notes: SAN Hardware Components-5

2109

The 2109 SAN FC Switch is offered in two models:

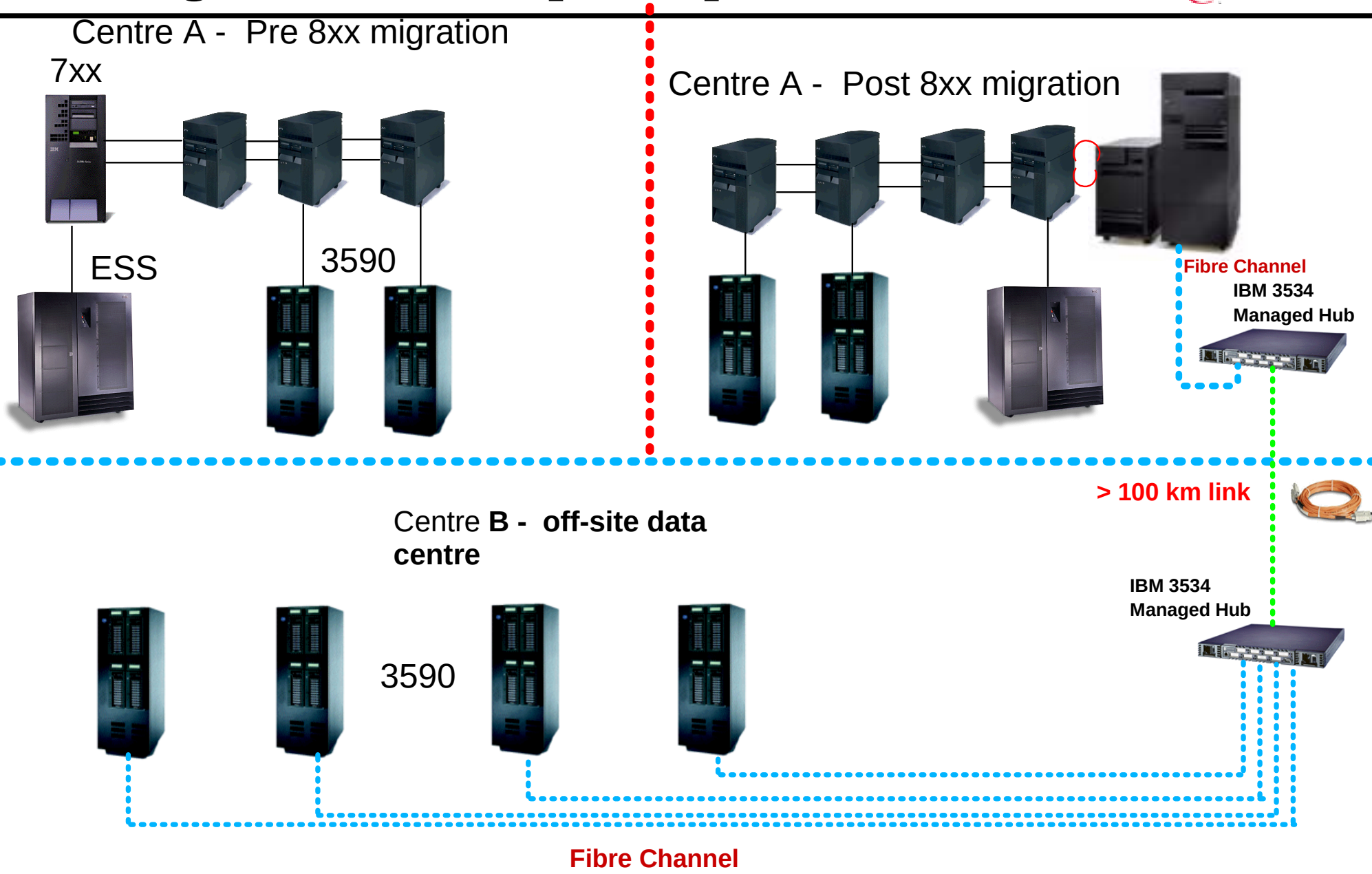
- Model S08, 8-port model for departmental SANs
- Model S16, 16-port model for enterprise SANs

Common features include four short-wave (SW) laser (500M) GBICs (Gigabit Interface Convertor), 10/100BaseT Ethernet port for StorWatch specialist console with Web Interface and either rack mount or desktop packing options. Optional features include one or more SW or long wave (LW, 10 KM) -laser GBICs, redundant power supply and SW, multi-mode 5M/25M FC cables. The eight port model provides for 1 or 4 additional GBICs, a serial port for telnet terminal attachment with a simple command line interface for setting configuration variables such as IP-address, and a 1U (1.75") form factor. The sixteen port model provides for 1 to 12 additional GBICs.

For use on the iSeries, the QuickLoop RPQ provides the firmware that enables devices connected to ports of the switch to be handled as private loop devices. QuickLoop creates a unique fibre channel topology that allows host bus adapters (such as the #2765 and #2766) that use fibre channel arbitrated loop (FC-AL) without knowledge of SAN fabric, commonly to communicate with fibre channel arbitrated loop storage devices through IBM 2109 Fibre Channel Switches. QuickLoop allows individual switch ports to be designated as arbitrated loop ports, allowing a private host initiator to communicate with arbitrated loop storage devices as though they were all contained in one logical loop. These QuickLoop switch ports can be located on one switch, or on two switches either directly connected to each other or connected within a SAN fabric. A SAN fabric can contain many independent Quickloops but only one or two switches can be designated to build a single logical arbitrated loop in which private loop initiators can communicate.

The iSeries hardware features are discussed on the following foils.

8xx migration & SAN participation



Notes: 8xx migration & SAN participation

In the first box for centre A we see the pre 8xx environment, it would typically be a 7xx with some expansion towers. It has two 3590 locally attached via ultra SCSI II adapters, probably 6534. It also has a ESS shark attachment via a 6501 card in the main CEC (Card enclosure or to give it its full name..Central Electronic Complex.).

After the 7xx is successfully upgraded and migrated to the 8xx it can now take full advantage of, in this example, in the participation in an off-site data warehousing environment. In this scenario the customer has elected to install during the upgrade/migration a #2765, which will now allow connection via the new 3534 managed hub access to all off-site 3590 e11 and e1a tape drives.

The new fibre channel link allows connection as stated earlier of up to 100 kilometers.

Following the benefits charts are some of the possible combinations of environments achievable with the 2765 and 2766 adapters.

Benefits to this environment

Enhanced Connectivity

Storage Management Disciplines & Standardization

Backup/Recovery Performance Improvements

Disaster Tolerance

Resource Sharing

High Availability/Clustering

Notes: Benefits in this environment

Enhanced Connectivity:

- Better distance, performance, scalability, addressability
- 5, 10, 100 km distances between nodes over single fibre
- 100 MB/sec bandwidth
- Just in time capacity
- Cabling simplification

Process Improvements

- Storage Management Disciplines and Standardization
- Improved tolls and processes
- Improved consistency in quality of service
- Lower operational costs
- Enhanced management simplicity

Backup/Recovery Improvements

- Minimal impact on production systems
- Faster, more efficient data recovery

Additional SAN examples

Example 1

Multiple iSeries to multiple ESS in point-to-point

iSeries

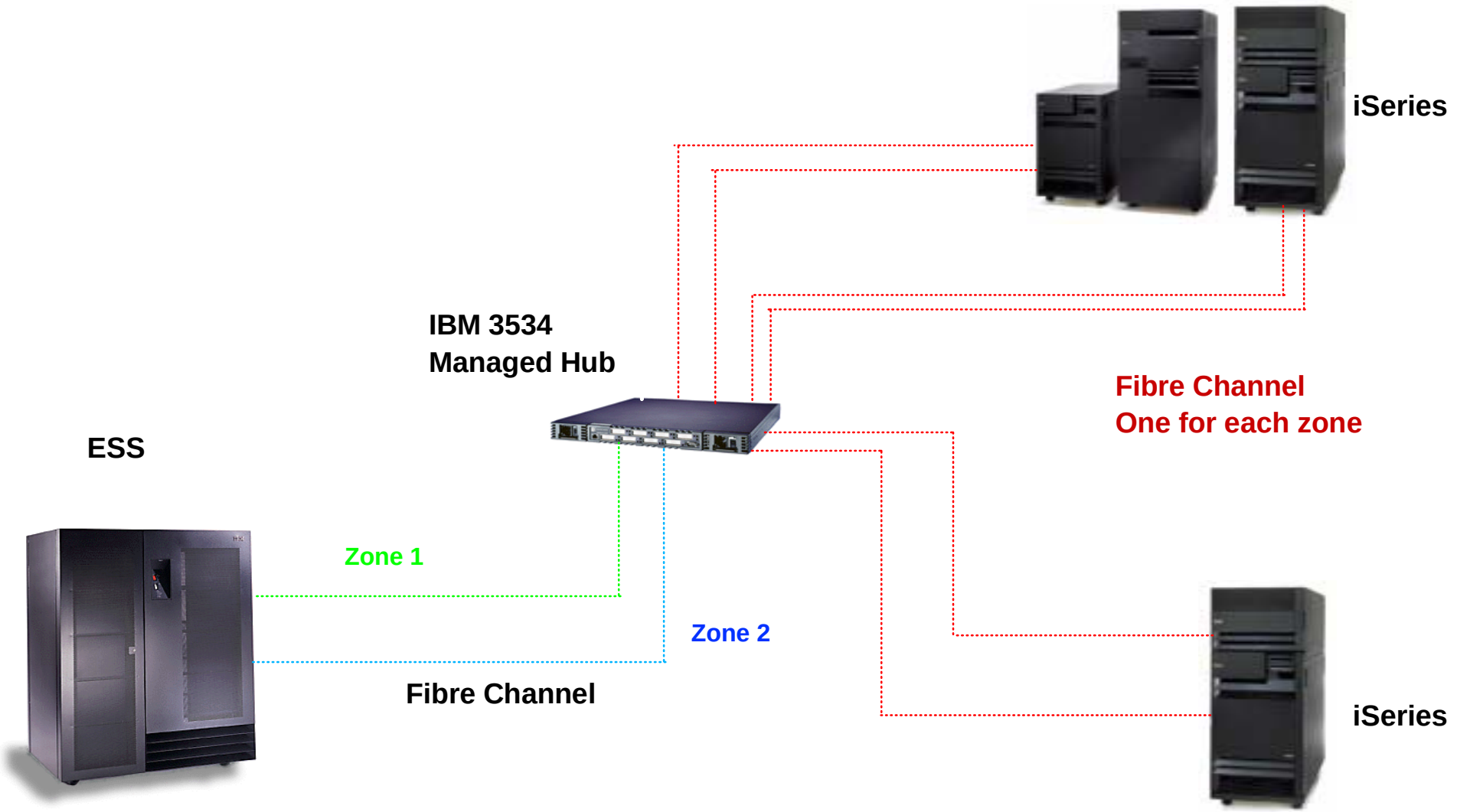
Fibre Channel

ESS

iSeries

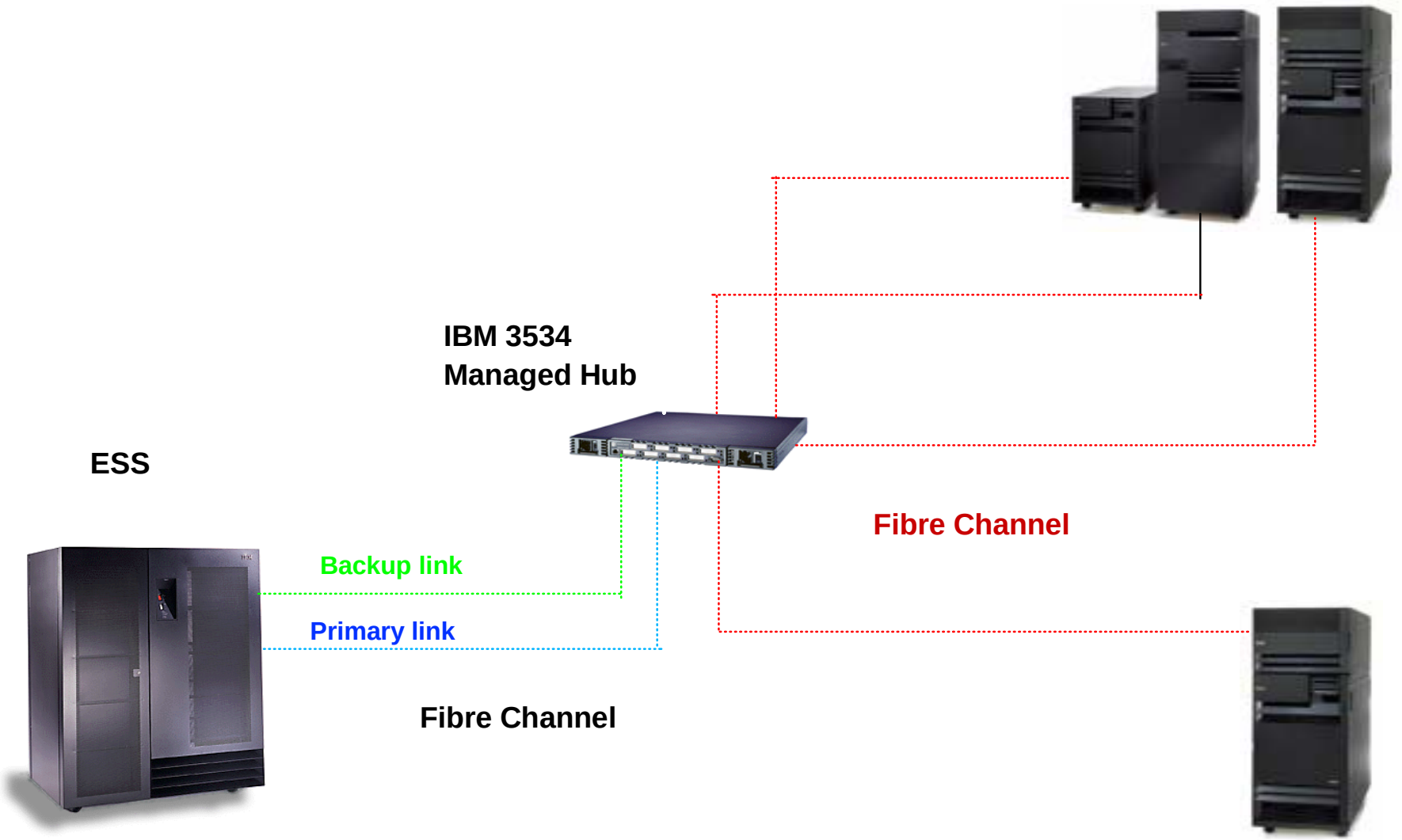
Example 2

Multiple iSeries - ESS FC/AL via Zoned Hub



Example 3

Multiple iSeries to ESS FCAL via hub with backup link



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