IBM System i™

System i Integration with BladeCenter and System x

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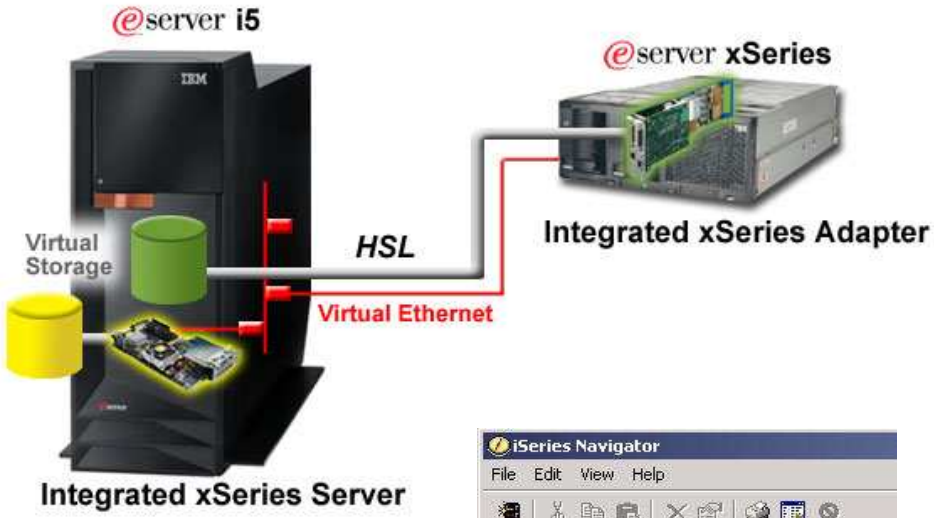
i want stress-free IT.

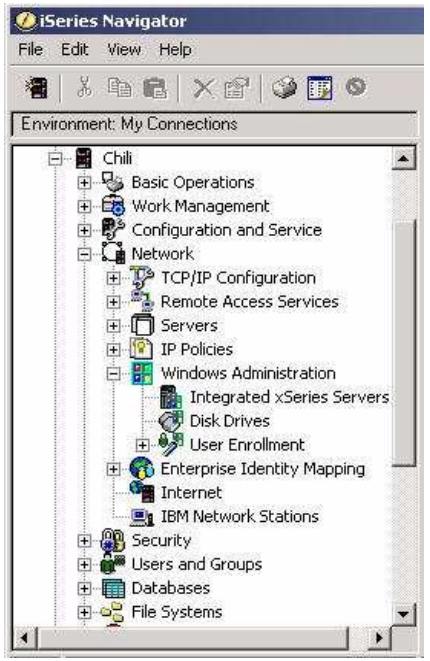
i want control.

i want an i.

Why Are Customers Integrating System x?

- **Virtual Storage**
- **Virtual Ethernet**
- **Simplified Backup**
- **Consolidated Management**
- **Combined User Admin**
- **Availability Options**





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What Are Customers Requesting?

- **More servers per System i**
- **BladeCenter connection**
- **Lower hardware cost**
- **Broader range of System x**
- **Leverage open standards**

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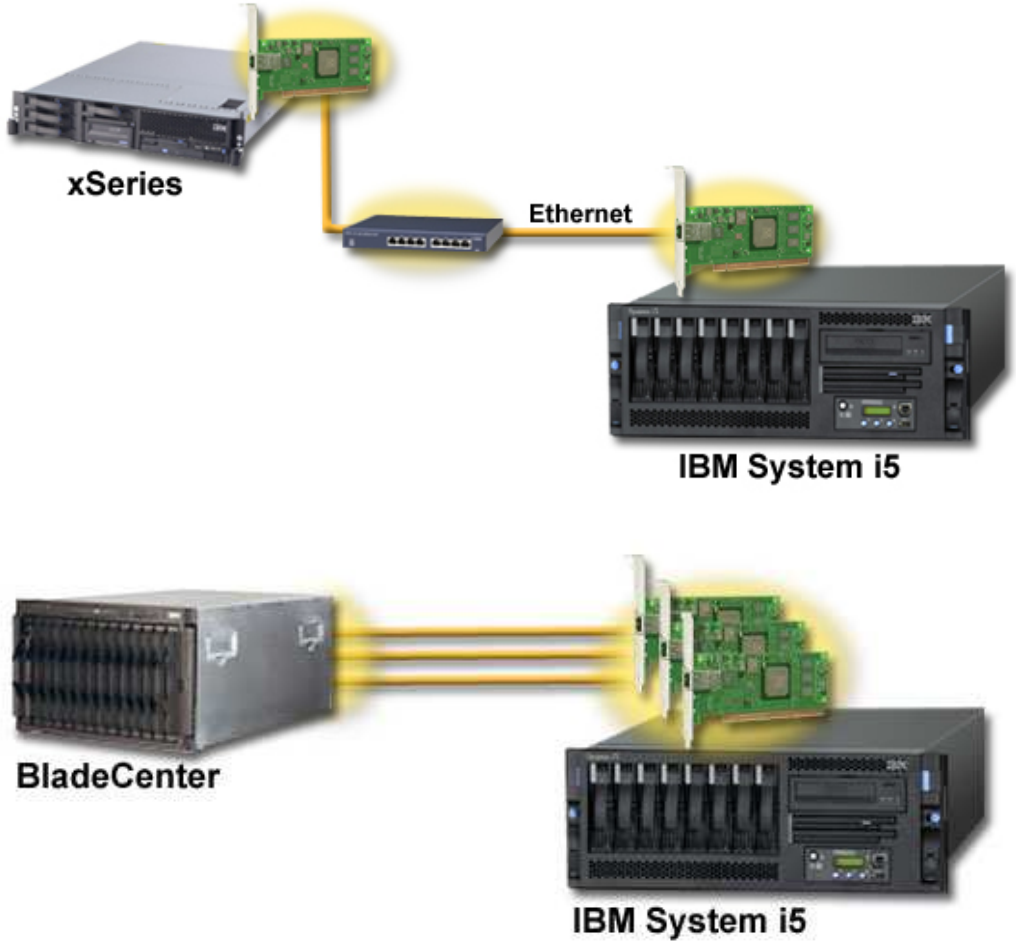
System i Integration with BladeCenter and System x

iSCSI connection between System i and BladeCenter System x using iSCSI HBAs (Host Bus Adapters), standard ethernet cables and switches.

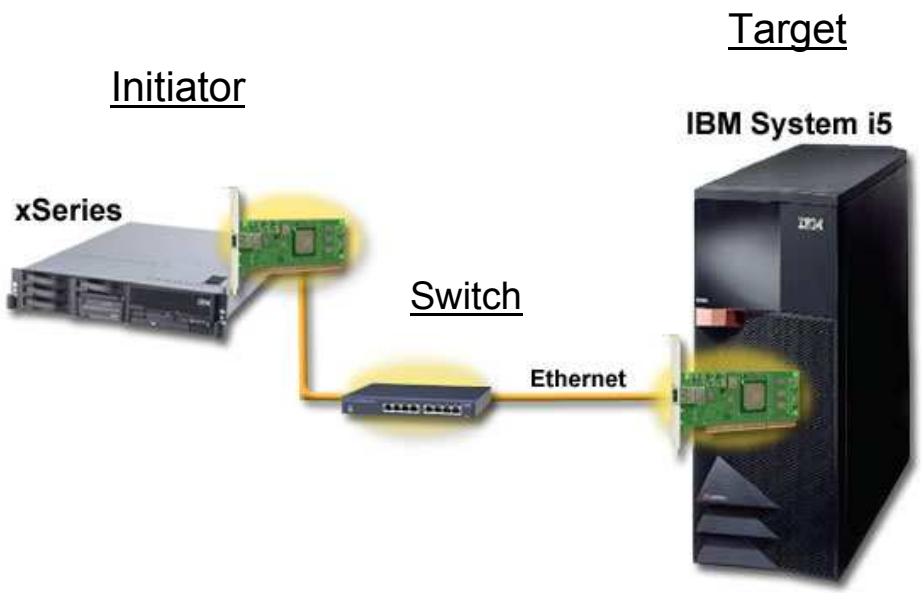


What is iSCSI?

iSCSI - internet SCSI (Small Computer System Interface), SCSI commands sent across a network in TCP/IP packets. It was developed as a storage networking standard for linking data storage facilities

Initiator - system making the iSCSI requests for data

Target - system receiving the iSCSI requests for data



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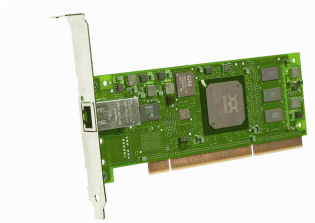
What Are We Connecting? - System i5 (Target)

- Models 520, 550, 570 and 595
- iSCSI HBA for System i5

Feature #	Description	CCIN #	Price DKK
5783	Copper HBA	573B	7.458
5784	Fiber HBA	573C	12.475

  - Smart IOA 32/64 bit 3.3v slot
  - Will connect 1 to 8 System x servers/blades*
- i5/OS V5R4
  - Integrated Server Support (5722-SS1 opt. 29)
  - Digital Certificate Manager (5722-SS1 opt. 34)



- IBM HTTP Server for iSeries (5722-DG1)
- TCP/IP Connectivity Utilities for i5/OS V5R4 (5722-TC1)
- IBM iSeries Access for Windows (5722-XE1)
- IBM Director 5.10 (no cost option of Virtualization Engine (5733-DR1))
- Can coexist with previous Integrated xSeries technologies (IXA/IXS)

* Actual number will depend upon amount of I/O bandwidth required per server

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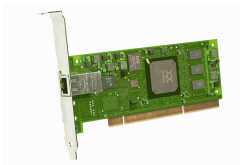
What Are We Connecting? - System x (Initiator)

- Supported System x/xSeries:
  - x236, 3550(x336), 3650(x346), 3850(x366) and 3950 (x460)
- Open bay (diskless server)
- IBM iSCSI HBA(s)

Part #	Description
30R5201	Copper HBA
30R5501	Fiber HBA

  - 32/64 bit 3.3v PCI-X slot
  - Supports 1 to 4 HBA(s) per server
- RSAII Slimline Adapter 2 required on some models (see specific model details)



- Windows Server 2003 with SP1 and R2
- Linux support - Available 2H 2006
- Gigabit Ethernet switch
- Ethernet cables (CAT6 or CAT 5e - 100m max dist)
- Fiber cables (500m - 50/125, 220m - 62.5/125 max dist)

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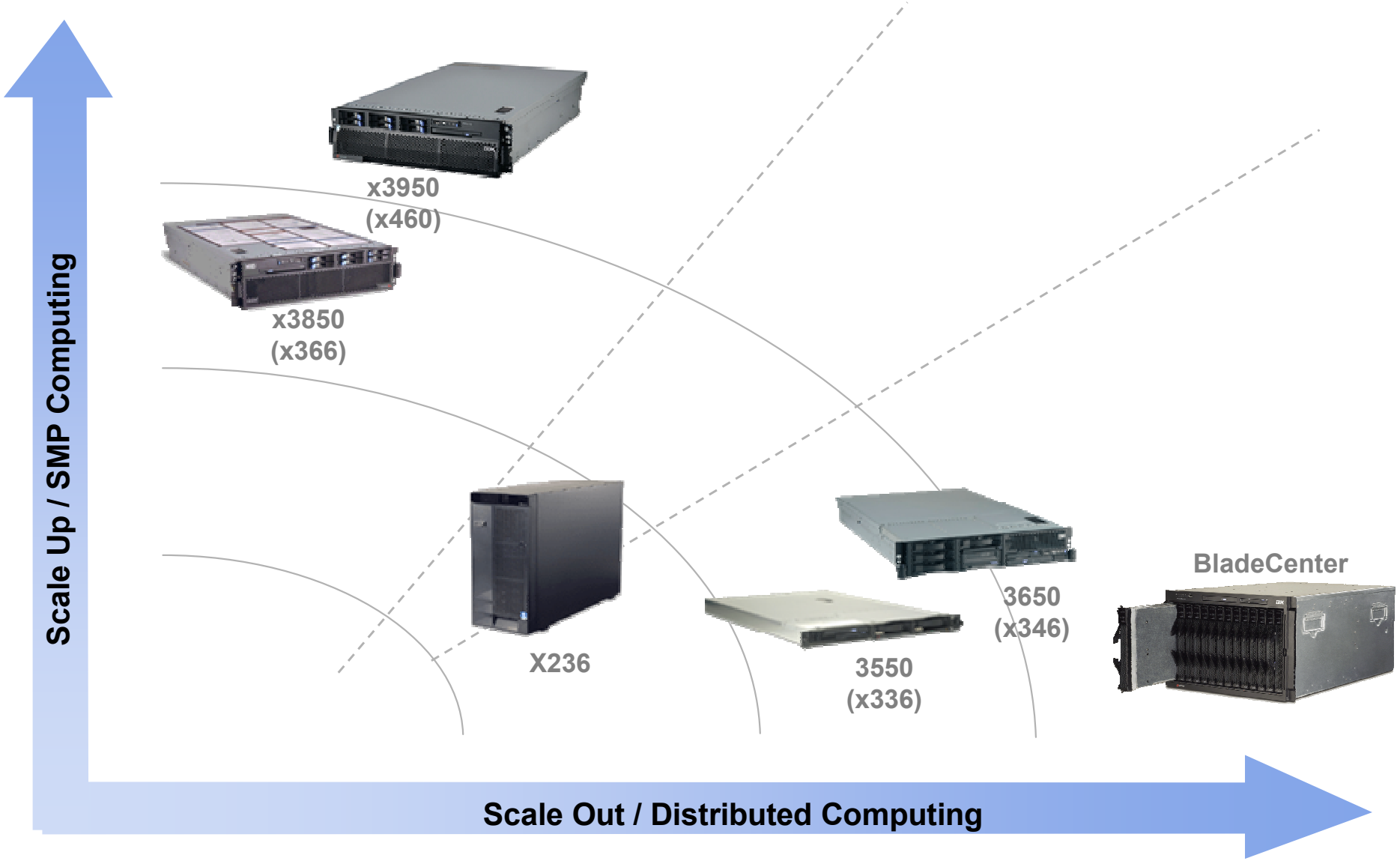
IBM System x Portfolio Integrating with System i



See ibm.com/systems/i/systemx/iscsi/servermodels for details

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What Are We Connecting? - BladeCenter (Initiator)

- BladeCenter chassis
  - Requires iSCSI I/O expansion card support
- Blade server(s)
  - Selected disk-less Intel and AMD processor-based blades with iSCSI I/O expansion card
- Gigabit Ethernet switch(es) or Pass-thru Module(s) for iSCSI connection in bays 3 & 4
- Gigabit Ethernet switch or Pass-thru Module for external network connection in bays 1 & 2
- Windows Server 2003 with SP1 and R2
- Linux support - Available 2H 2006
- Ethernet cables (CAT6 or CAT 5e - 100m max dist)
- Fiber cables (500m - 50/125, 220m - 62.5/125 max dist)

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BladeCenter

Chassis Supported

- 8677xxx
- 8852xxx - New BladeCenter H

Blade servers Supported

- 8843xxx - HS20 (Intel Xeon)
- 7981xxx - HS20 (Intel Xeon)
- 8850xxx - LS20 (AMD Opteron)

I/O Expansion Adapter

- 32R1923 - iSCSI adapter

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BladeCenter (continued)

Switch Modules	Part Number	Ext. Ports
IBM Server Connectivity Module for BladeCenter	39Y9324	6
Cisco Systems Intelligent Gigabit Ethernet Switch Module	13N2281	4
Nortel Networks Layer 2/3 Copper Gb Ethernet Switch Module	26K6530	6
Nortel Networks® Layer 2-7 Gigabit Ethernet Switch Module	73P9057	4
BladeCenter 4-port Gigabit Ethernet Switch Module	13N0568	4
IBM eServer BladeCenter (TM) Copper Pass-thru Module	73P6100	N/A
Cisco Systems® Fiber Intelligent Gigabit Ethernet Switch Module	26K6547	4
Nortel Networks Layer 2/3 Fiber Gigabit Ethernet Switch Module	26K6531	6
IBM eServer BladeCenter Optical Passthru Module	02R9080	N/A

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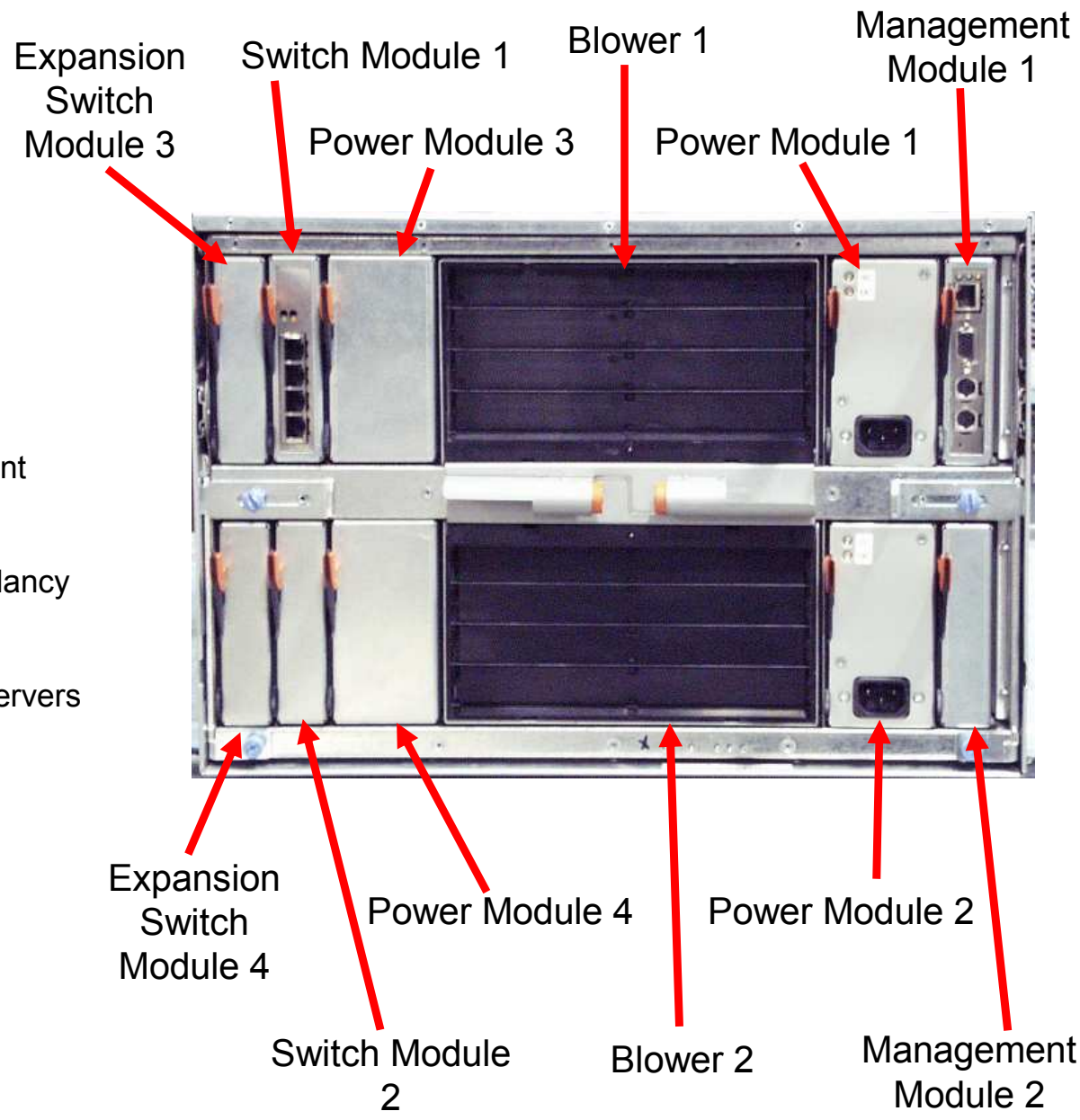
BladeCenter Components for System i5 Integration

- BladeCenter Chassis
- Blades (1-14)
  - Each with iSCSI HBA (initiator)
- Power Supply Modules
  - 2 are standard (Blades 1-6)
  - 2 are offered as option (Blades 7-14)
- BladeCenter Management Modules
  - Full remote video redirection
  - Out-of-band / lights out systems management
  - Concurrent Serial connectivity
  - 1 standard, 2nd offered as option for redundancy
- Switch(es) or Passthrough Modules for Bays 1 & 2
  - Exposes Blade Ethernet ports to clients & servers
- Switch(es) for Bays 3 & 4
  - I/O expansion card connection for Blades to System i5 iSCSI HBA (target)
- Flatpanel Monitor
- Rack and Power Distribution Units (PDU's)
  - For Local Console Manager & Monitor
  - For BladeCenter Chassis



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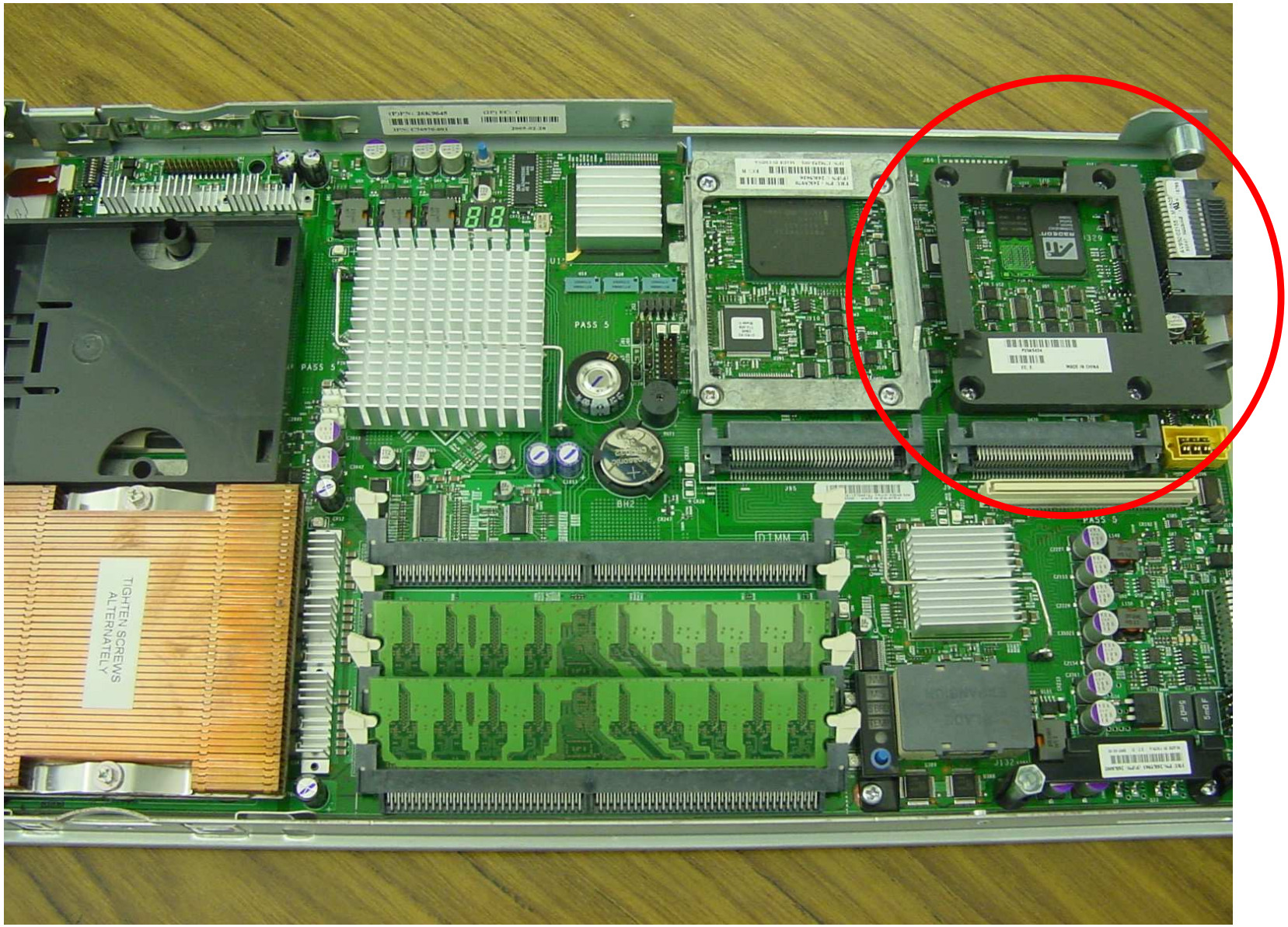
Blade iSCSI I/O Expansion Card Slot



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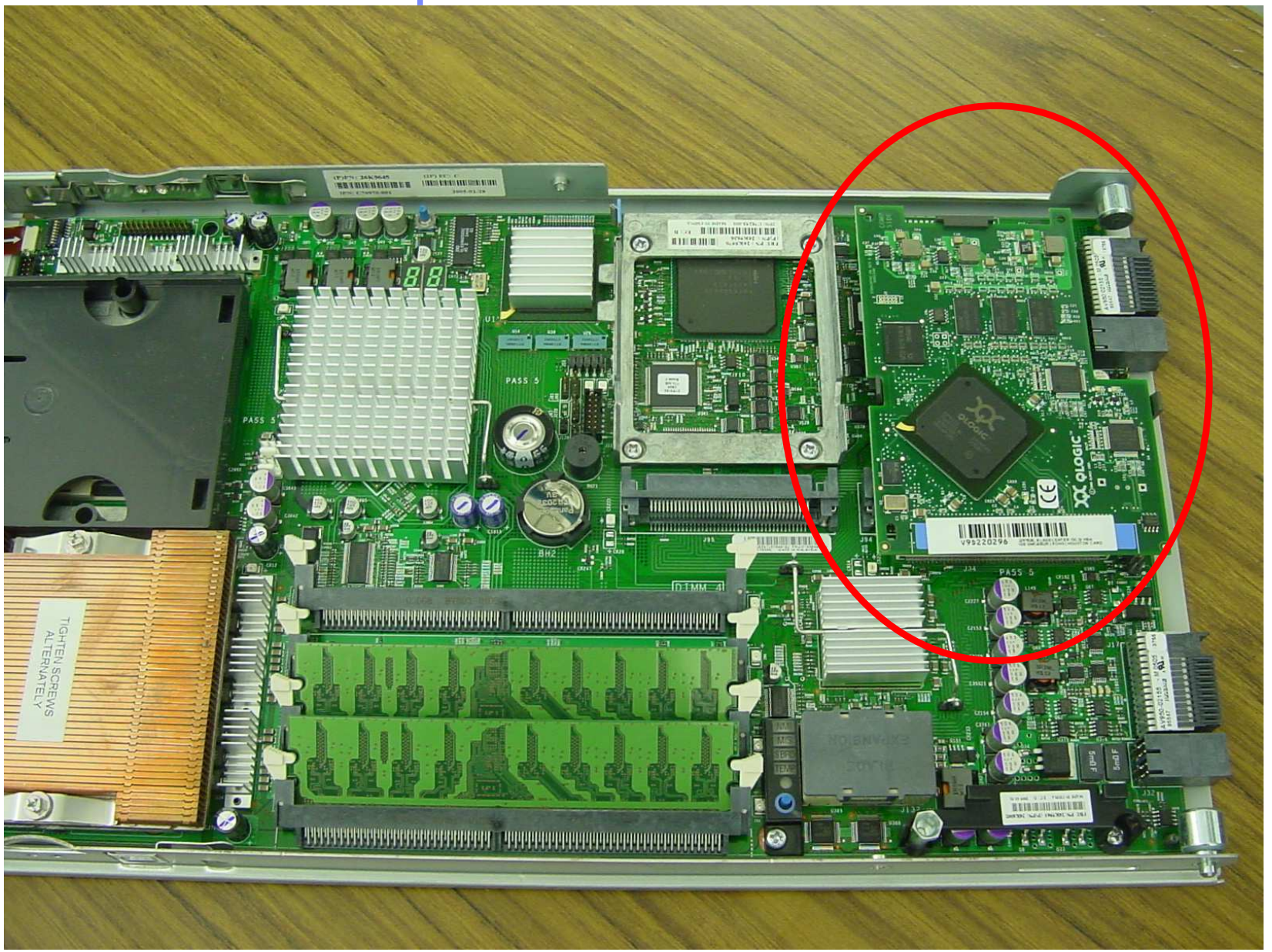
Blade iSCSI I/O Expansion Card



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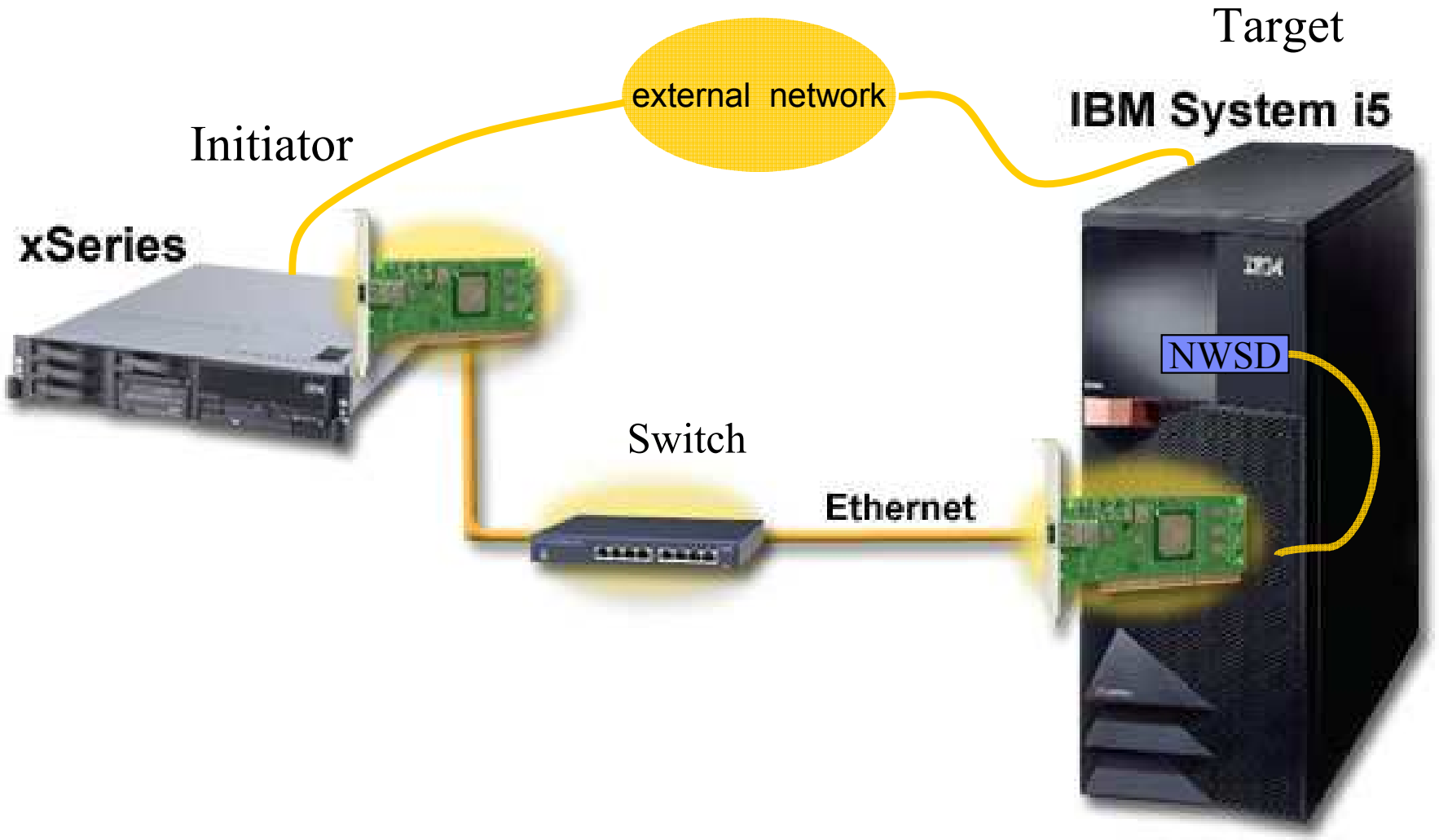
Simple Connection to xSeries via iSCSI



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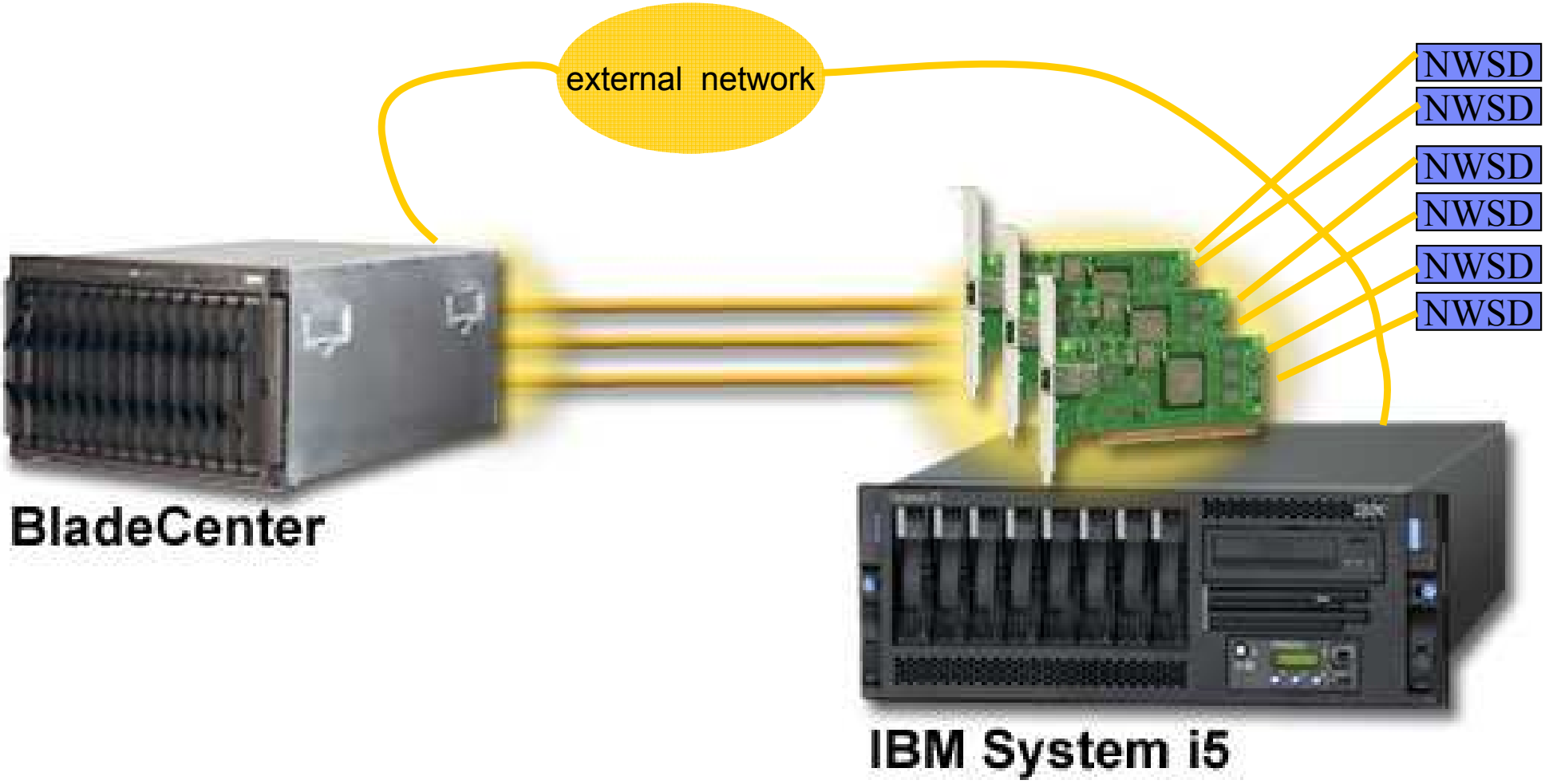
Simple Connection to BladeCenter via iSCSI



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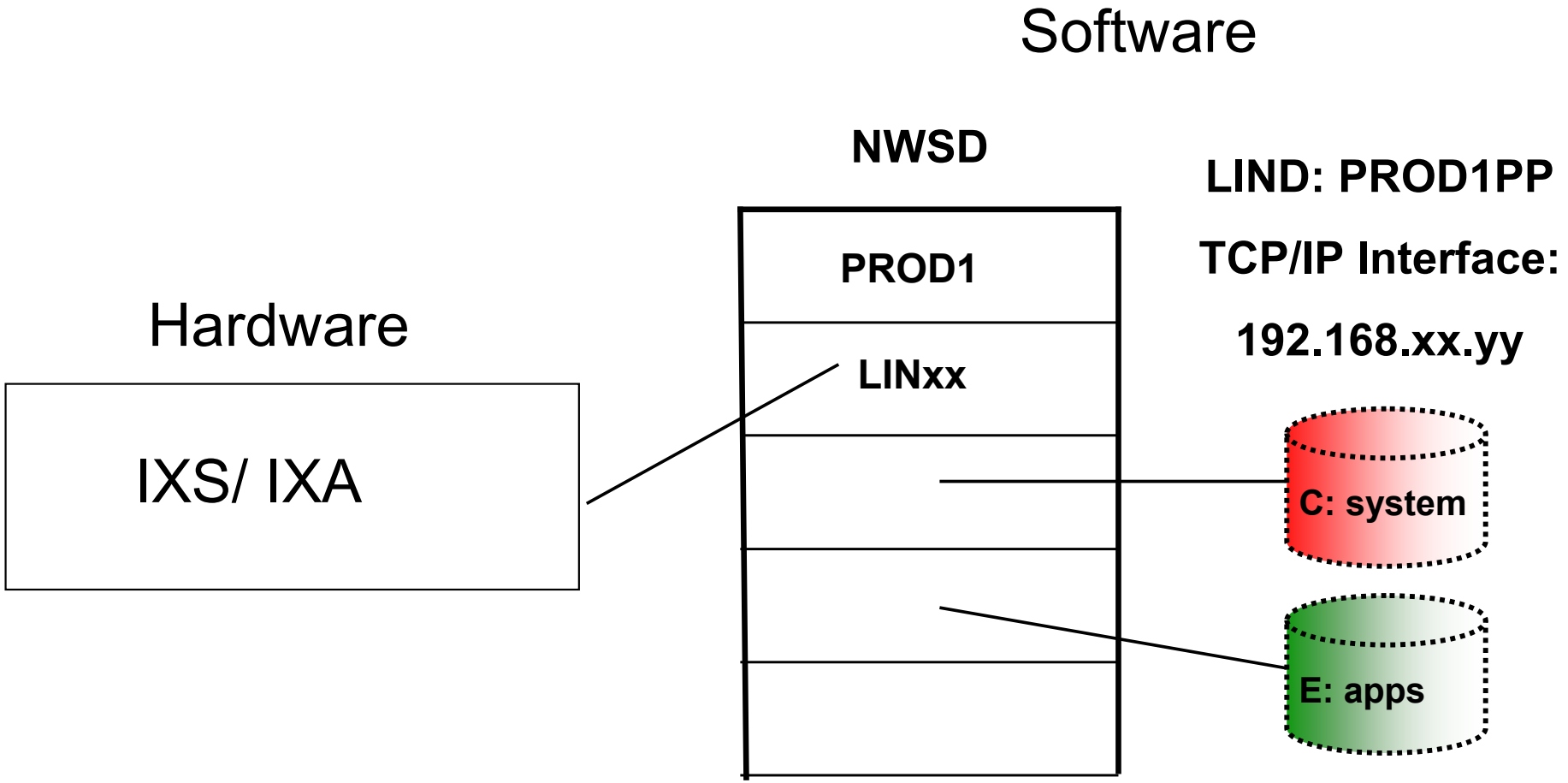
IXS/IXA Object Model



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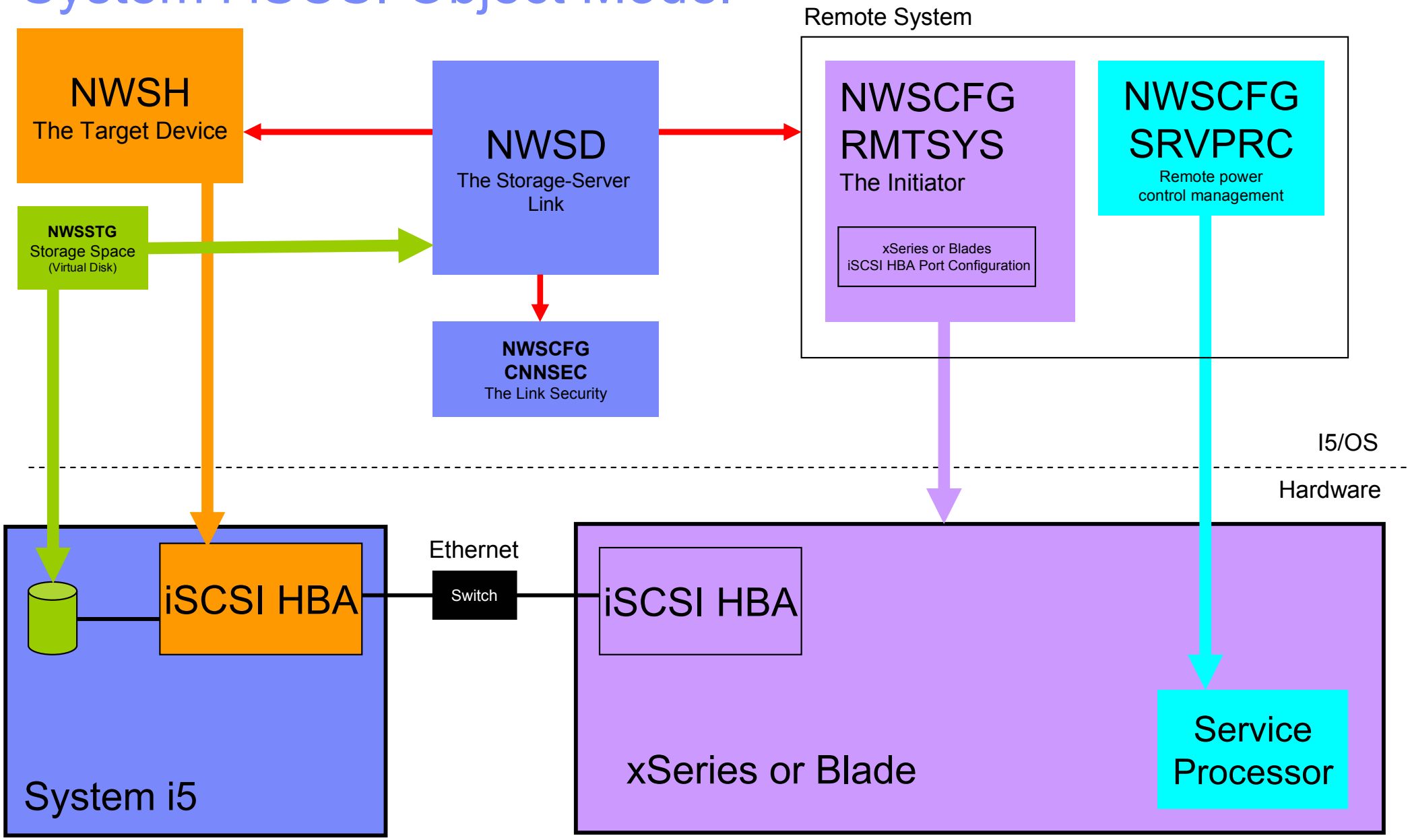
System i iSCSI Object Model



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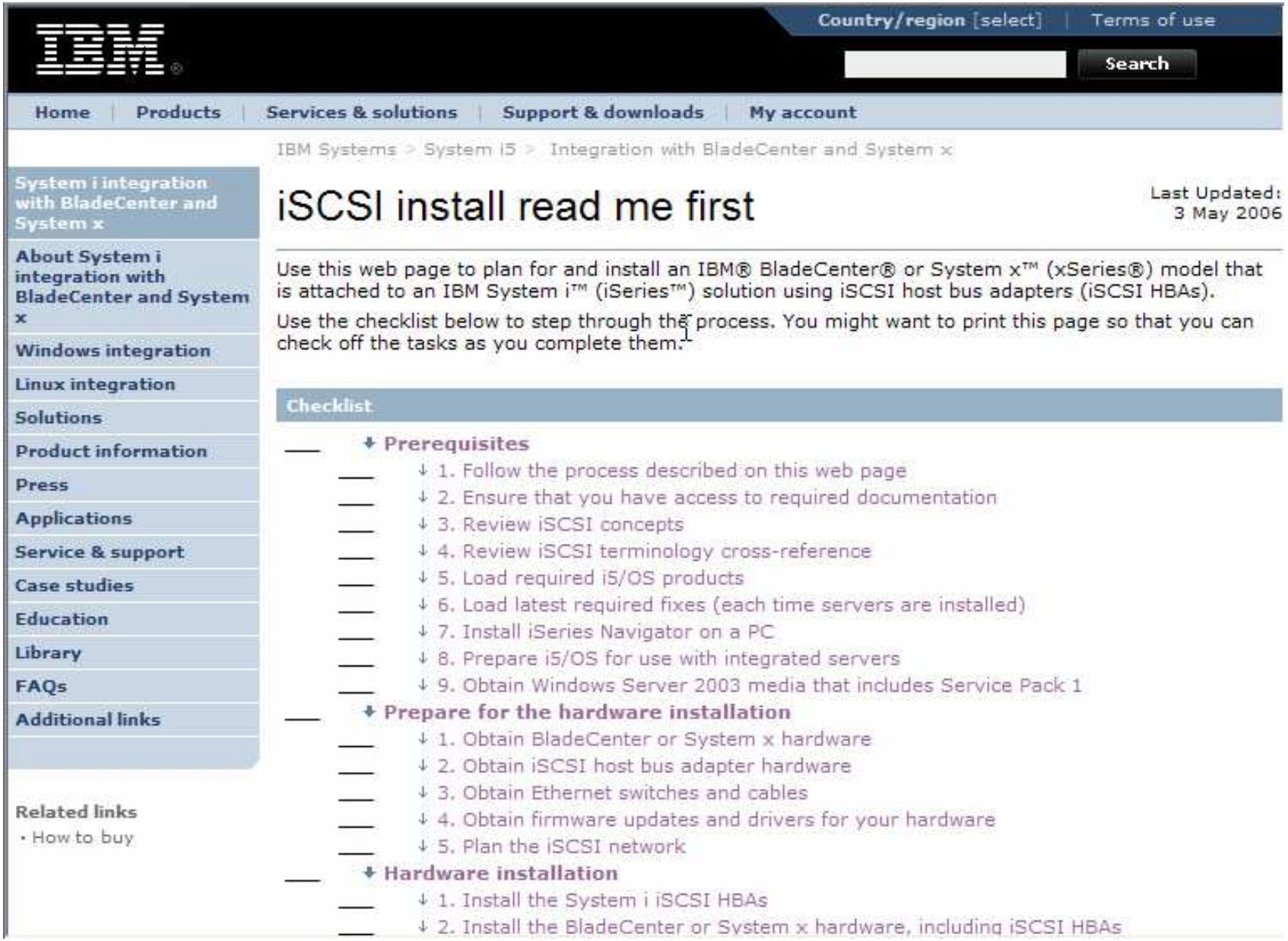
iSCSI install read me first - Place To Start!!!!!



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iSCSI install read me first

Last Updated:
3 May 2006

Use this web page to plan for and install an IBM® BladeCenter® or System x™ (xSeries®) model that is attached to an IBM System i™ (iSeries™) solution using iSCSI host bus adapters (iSCSI HBAs).

Use the checklist below to step through the process. You might want to print this page so that you can check off the tasks as you complete them.

Checklist

- **Prerequisites**
  - 1. Follow the process described on this web page
  - 2. Ensure that you have access to required documentation
  - 3. Review iSCSI concepts
  - 4. Review iSCSI terminology cross-reference
  - 5. Load required i5/OS products
  - 6. Load latest required fixes (each time servers are installed)
  - 7. Install iSeries Navigator on a PC
  - 8. Prepare i5/OS for use with integrated servers
  - 9. Obtain Windows Server 2003 media that includes Service Pack 1
- **Prepare for the hardware installation**
  - 1. Obtain BladeCenter or System x hardware
  - 2. Obtain iSCSI host bus adapter hardware
  - 3. Obtain Ethernet switches and cables
  - 4. Obtain firmware updates and drivers for your hardware
  - 5. Plan the iSCSI network
- **Hardware installation**
  - 1. Install the System i iSCSI HBAs
  - 2. Install the BladeCenter or System x hardware, including iSCSI HBAs

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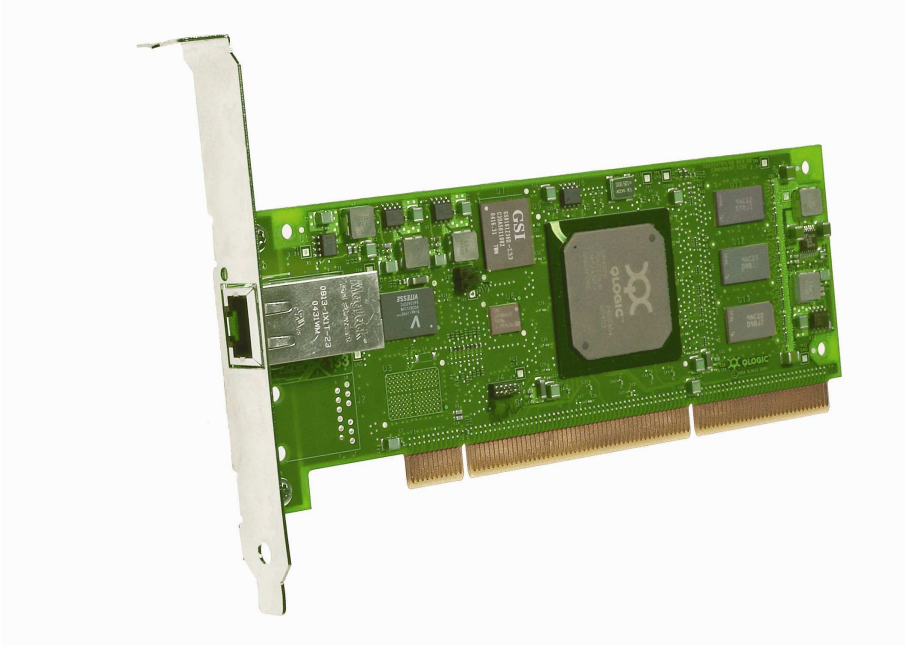
System i5 iSCSI HBA System Limits



System i5	Maximum iSCSI HBAs
520	21
550	42
570 1/2-way	21
570 2/4-way	42
570 4/8-way	84
570 5/8-way	84
570 9/12-way	126
570 8/16-way	168
570 13/16-way	168
570 2/16-way	168
595 8/16-way	168
595 16/32-way	168
595 32/64-way	168
595 4/32-way	168

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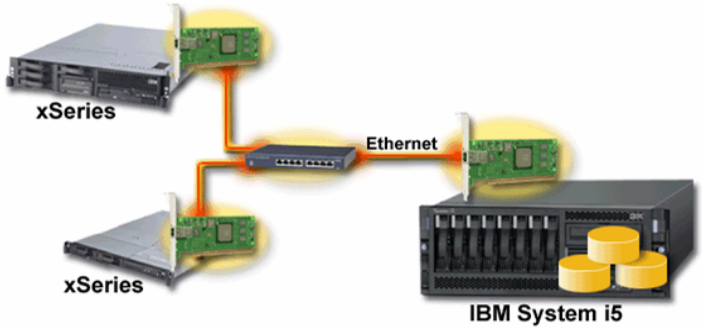
iSCSI details are on our website

- See information on the System i, BladeCenter and System x Integration website
- iSCSI HBA ordering information for System x & blade servers
- System x & blade servers planned for System i support
- Ethernet switch requirements
- Install Read Me First (the place to start)
- Installation overview Flash (May)
- Education link for classes

ibm.com/systems/i/bladecenter

ibm.com/systems/i/systemx

Product Preview*: System i5 integration with IBM eServer xSeries systems and BladeCenter® via iSCSI



IBM intends to extend its integrated xSeries solutions in 2006 by leveraging industry-standard iSCSI technology to attach selected xSeries systems and BladeCenter to the System i5 platform.

New iSCSI Host Bus Adapters will enable you to exploit System i5 virtual storage, networking, and tape resources to help simplify the operations of your Windows Server System infrastructure.

System i5 integration with xSeries systems and BladeCenter via iSCSI will be supported on i5/OS V5R4 and will be able to coexist with Integrated xSeries Servers and xSeries systems attached via Integrated xSeries Adapters.

The following iSCSI-related web pages are provided for education and planning purposes:

- iSCSI install read me first
- iSCSI host bus adapter (iSCSI HBA)
- xSeries and BladeCenter models supported with iSCSI
- Ethernet switches for iSCSI

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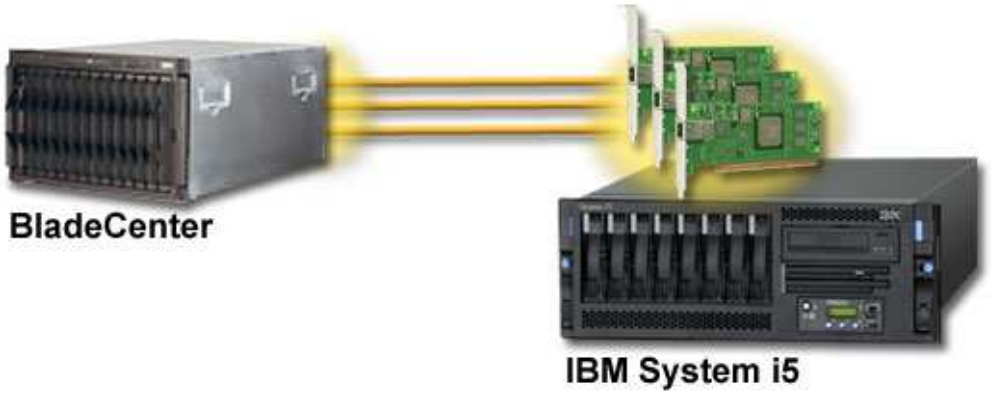
Summary

- iSCSI - industry standard
- BladeCenter connection
- Integrated solution
- Same virtual function as Integrated xSeries solution
- Redundancy and performance options
- Can co-exist with current IXS and IXA solutions



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AS/400e	@server	iSeries	BladeCenter
Blue Gene	IBM	OS/400	System x
e-business on demand	IBM (logo)	System i	xSeries

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