

iSeries and external storage

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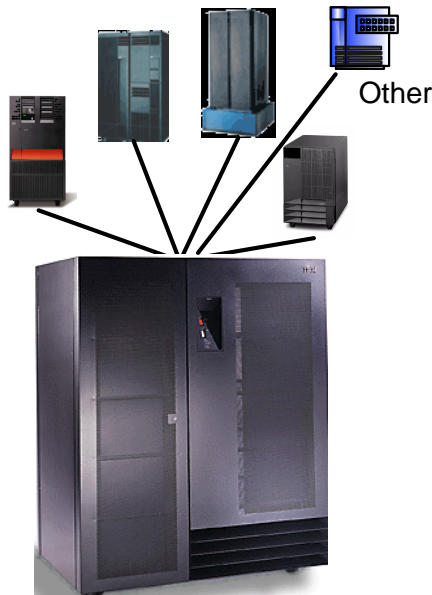
Mark Huntley

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External disk

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Storage Consolidation

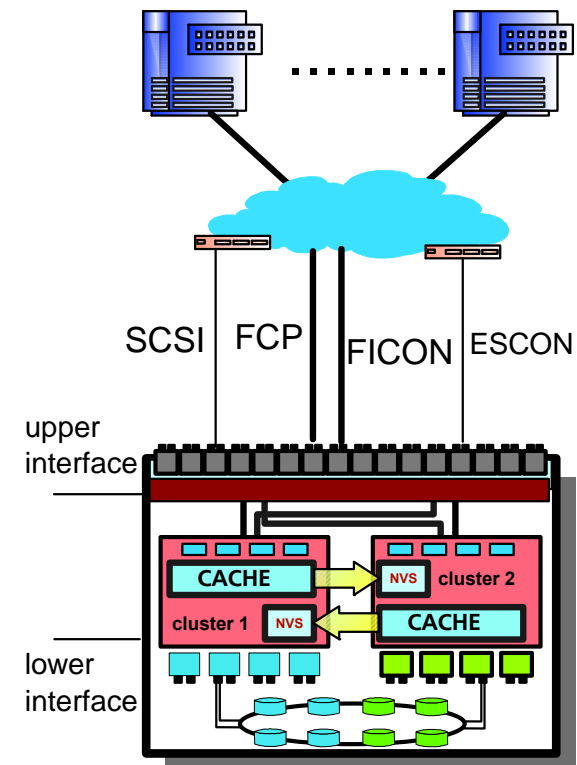


ESS

Features:

- ▶ 420GB - 11TB
- ▶ 16/32 host attachments
 - FCP, SCSI and ESCON (upper interfaces)
- ▶ 8x 160MB/sec SSA loops
 - (lower interfaces, device adapters)
 - up to 386 disk drives
 - 9.1, 18.2 and 36.4GB disk drives
- ▶ Raid-5 or JBOD
- ▶ 2x 4-ways storage servers
 - Cluster failover
- ▶ Up to 16GB Fast-Read Cache
 - 2x 192MB NVS
- ▶ Enterprise Storage Specialist
 - Web interface for configuration
- ▶ Heterogeneous server support
 - S/390, UNIX, iSeries-AS/400, NT, Novell
- ▶ Advanced functions
 - PPRC, Flashcopy,

SAN



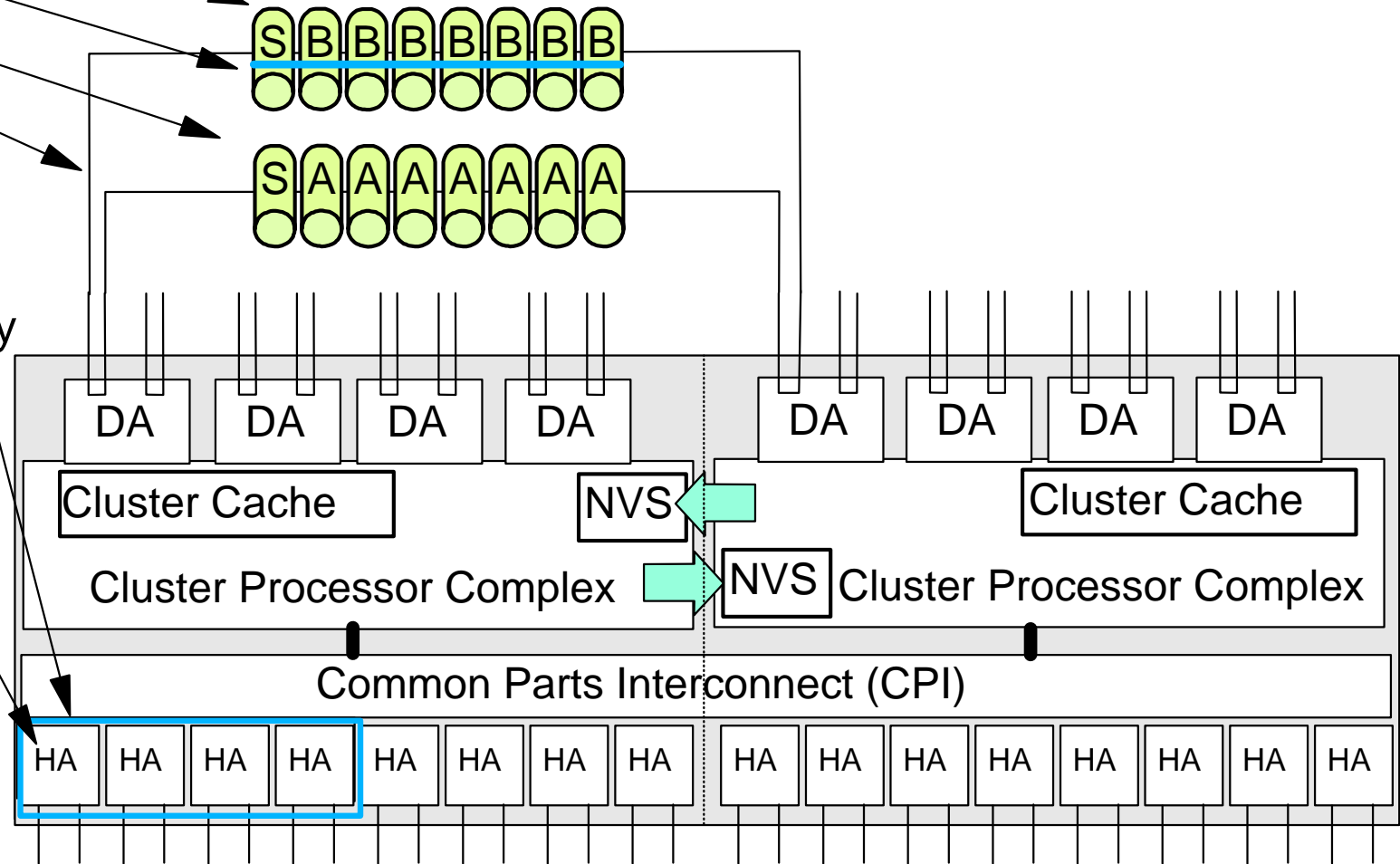
This is a general overview of the Enterprise Storage Server. For more details see www.storage.ibm.com.

Basically it provides:

- ▶ 420GB - 11TB on up to 386 disk drives. The drives can be 9.1, 18.2 and 36.4GB. These drives can be configured as Raid-5 or JBOD.
- ▶ The drives are connected 8x 160MB/sec SSA loops
- ▶ External servers can be attached through 16/32 host attachments
- ▶ FCP, SCSI and ESCON (upper interfaces) are available.
- ▶ Heterogeneous server support with S/390, UNIX, iSeries-AS/400, NT, Novell
- ▶ Each ESS has two cluster which are really 2x 4-way storage servers providing resiliance through Cluster failover. Within each cluster there is up to 16GB Fast-Read Cache and 2x 192MB Non-Volatile Storage.
- ▶ Enterprise Storage Specialist provides the interface into the ESS via a Webbrowser for configuration
- ▶ Advanced functions like Point-to-point Remote Copy (PPRC) and FlashCopy have recently become available. These products will soon be available on iSeries.

ESS terminology

- DDM
- LUN
- Array
- SSA Loop
- Cluster
- Cluster cache
- NVS
- Host adapter bay
- Host adapter

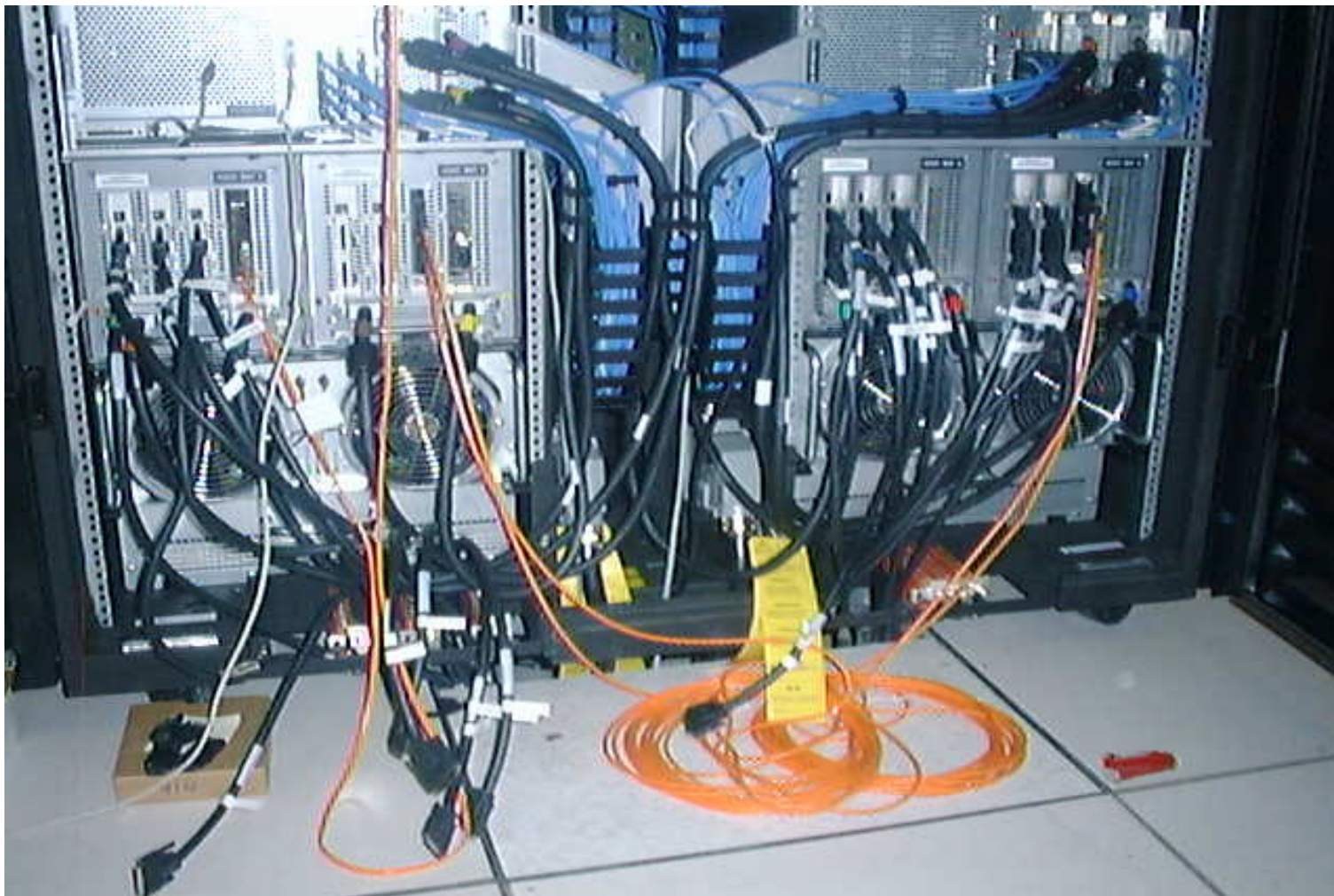


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The chart shows the internal structure of an ESS.

The fiber from the server connects into the ESS on a host adapter within a host adapter bay. The I/O then is accepted into the cluster, any writes are put into NVS on the other cluster. The I/O is then released.

The cluster then writes the I/O to the disk across the SSA loop.



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StorWatch Solutions

Enterprise Storage Server Specialist

Introduction

Status

Problem Notification

Communications

Storage Allocation

Users

Licensed Internal Code

Copy Services



Welcome to IBM StorWatch Enterprise Storage Server Specialist

Machine Type: 2105
Machine Model: E20
Serial Number: 075-14419
WWNN: 5005076300C00A40

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Configuring storage

The screenshot displays the 'Enterprise Storage Server Specialist' interface. The top window, 'Add Volumes (1 of 2)', shows a navigation pane with hosts like 'EsconNet', 'T18FC', 'T32', 'TC2', 'rchast27', 't18a', and 't18b'. A legend indicates storage states: Host Storage (purple), Assigned (red), Unassigned (yellow), and Not Allocated (green). The bottom window, 'Add Volumes (2 of 2)', provides configuration details for a RAID-5 Array.

Available Free Space

Storage Type	Available Capacity	Maximum Volume Size
RAID-5 Array	96.62 GB	36.0 GB

Volume Attributes

Select a Volume Size

- 4.19 GB
- 8.59 GB
- 17.55 GB

Number of Volumes (Enter 1 to 11): 1

Select AS/400 device model

Protected Unprotected

New Volumes

Number	Volume Size	Storage Type	Device Model
Total:	0 GB		

Volume Placement

Place volumes sequentially, starting in first selected storage area

Spread volumes across all selected storage areas

Buttons: Cancel Adding Volumes, Clear View, Add >>, << Remove, << Back, Perform Configuration Update, Cancel Configuration Update

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- Fiber distances
 - 2km with 50 micron
 - 3km with 62.5 micron
- Extended Distance Feature (XDF)
 - 20 - 104km

