Data Server Subsystem System/Hardware Implementation

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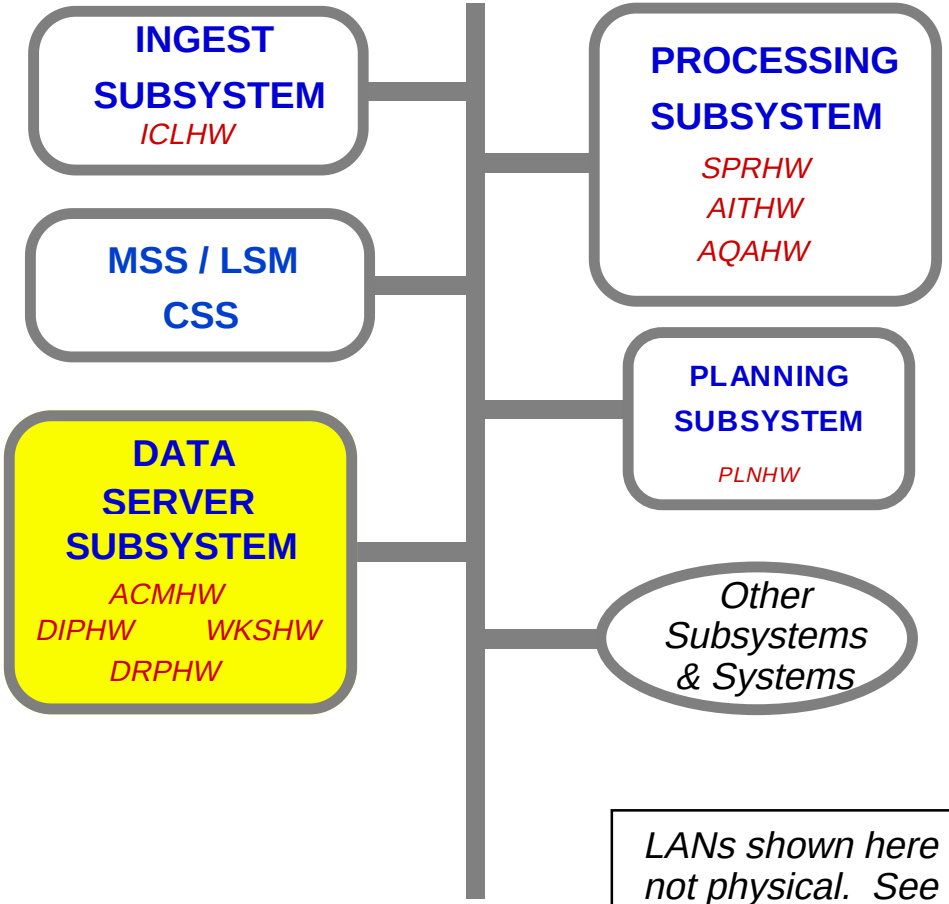
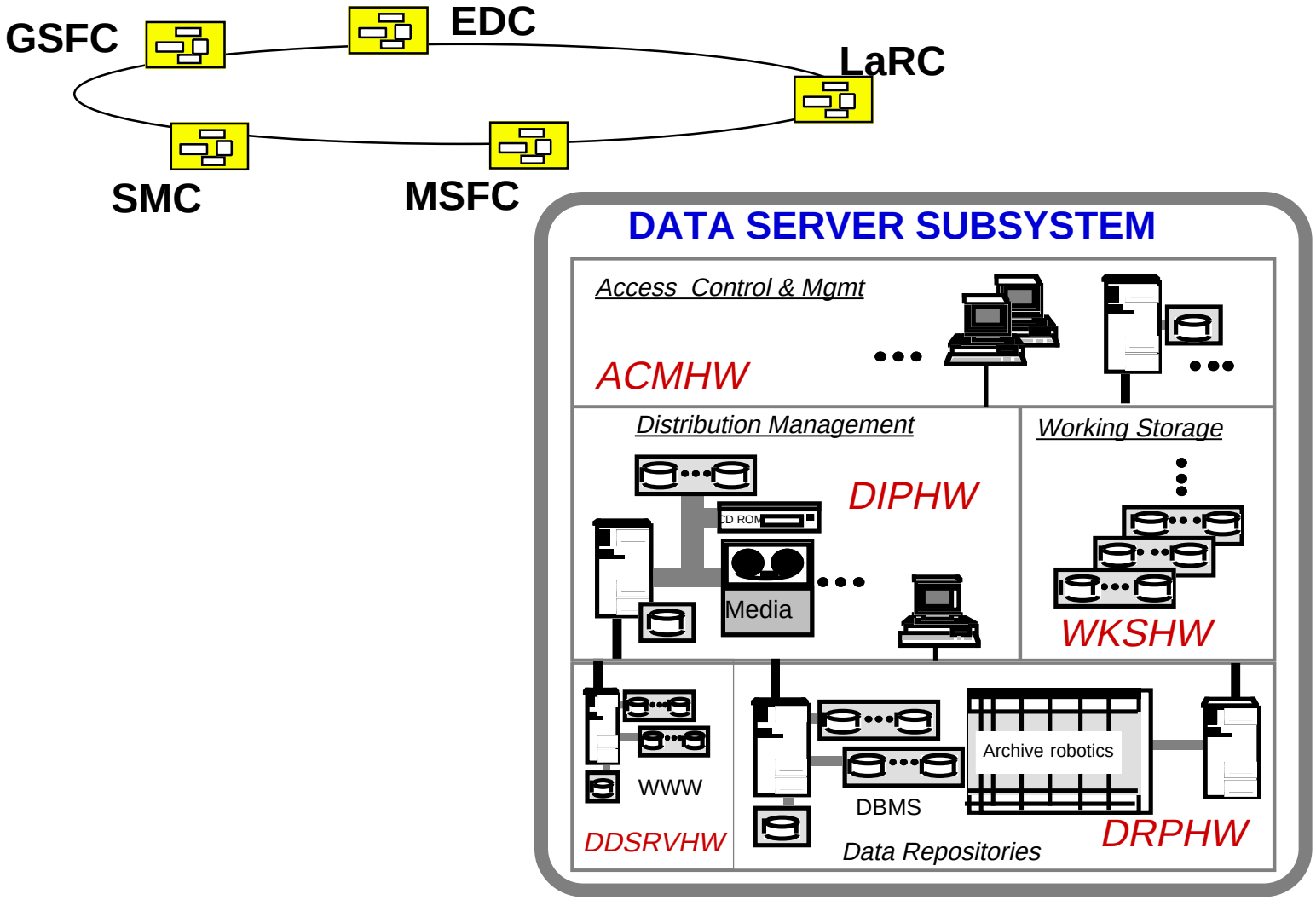
Data Server Subsystem
Subsystem Context



LANs shown here are conceptual not physical. See ISS LAN layouts for full details on FDDI subnetworks

Data Server Subsystem
Release A Reference Diagram



Data Server Subsystem Hardware CIs

- Access Control and Management (ACMHW)
  - Administration Stations (AS)
  - Access/Process Coordinators (APCs)
- Working Storage (WKSHW)
  - Initial “Landing Point” for all Incoming Data
  - Primary Location for Processing Subsystem Data Access
- Data Repository (DRPHW)
  - Data Base Repository
  - File Server
  - Robotics and Tape Drives
- Distribution and Ingest Peripherals (DIPHW)
  - Hard Media Peripherals
  - Distribution Host and Disks
- Document Data Server (DDSRVHW)
  - WWW Host
  - Document Storage

Data Server Subsystem General Sizing Assumptions

- **TRMM Support for One Year Beyond Launch (Baseline 1/95)**
  - **Change from PDR 44 day approach**
- **V0 Migration Over Rel. A Duration (Baseline 6/95).**
  - **Data Sets Identified in Rel. A Initial Operation + Data Sets Identified in Rel. A Initial Operation**
- **Dynamic Modeling Used in Sizing the Robotics and Tape Drives of the Data Server Archive**
  - **Release A needs fractional devices per site in most cases**

Data Server Subsystem General Sizing Philosophy

- **APC Disk Size = (Daily Data Server Data Intake) x 2 days**

  All <u>DAAC external</u> electronic push/pull staging is on the APC disk.

- **Working Storage Disk Sizing:**

  Production Staging Area (+10% for failed products)
  + Electronic Distribution/Ingest Staging Area [User modeling access pattern prediction for 1/2 hour of operation - 4 users accessing simultaneously]
  + Hard Media Distribution/Ingest Staging Area [single largest data granule]

  There is residency period associated with the production staging area. No latency is associated with the electronic and hard media distribution/ingest areas.

- **Distribution (hard media) Disk Size = Daily Data Server Data Intake**

Data Server Subsystem DAAC Specific Equipment Purchases

Equipment	GSFC	LaRC	MSFC
ACM HWCI			
AS Workstations	2 ea	2 ea	2 ea
APC Hosts	2 ea	2 ea	2 ea
DIP HWCI			
Distribution/ingest Peripherals Management Hosts	2 ea	2 ea	2 ea
2 ea 8 mm Tape Drives with a Stacker	2 ea	2 ea	2 ea
6250 Tape Drive	1 ea	1 ea	1 ea
CD ROM Drive	1 ea	1 ea	1 ea
DRP HWCI			
FSMS Server Host	2 ea	2 ea	2 ea
DBMS Server Host	2 ea	2 ea	2 ea
DDS HWCI			
DDS Host	2 ea	2 ea	2 ea

Data Server Subsystem DAAC Specific Equipment Purchases

Equipment	GSFC	GSFC	LaRC	LaRC	MSFC	MSFC
	Calculated/Modeled	Procured	Calculated/Modeled	Procured	Calculated/Modeled	Procured
ACM HWCI						
APC Associated Disk	42.4 GB	45 GB	37.2 GB	40 GB	44 GB	45 GB
DIP HWCI						
DIP Server Assoc. Disk	21.2 GB	22 GB	17.1 GB	20 GB	20.1 GB	22 GB
WKS HWCI						
WKS Disk	40.6 GB	45 GB	49.6 GB	50 GB	35.2 GB	40 GB
DRP HWCI						
Robotics	0.07	1	0.11	1	0.05	1
Tape Drives	0.28	2	0.47	2	0.15	2
DMBS Assoc. Disk	3.08 GB	10 GB	396.7 MB	10 GB	659.5 MB	10 GB
DDS HWCI						
DDS Associated Disk	142 MB	6 GB	138 MB	6 GB	402 MB	6 GB

Data Server Subsystem Scalability Through Release B

- NAS Concepts Enable Disk “Pools” to be Enlarged, thereby Benefiting More Than One Need
- Horizontal Scaling by Adding Servers and Storage Resources
- DBMS server upgrades

Data Server Subsystem Evolvability

- **Segmentation of Architecture Allows for Technology Insertion with Minimal System Disruption**
- **Data Can Migrate Into New Storage Technologies, Techniques, and Locations Without the User Being Aware**
- **Creation of New Logical Data Servers Allow for Data to be Related in New Ways**