

# Release A CDR RID Report

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**Originator** Gary Veum, Hal Folts **Phone No** 301-286-1073  
**Organization** V0 networks, ESDIS  
**E Mail Address** gary.veum@gsfc.nasa.gov  
**Document** Overview of Release A SDPS and CSMS System Design  
Specification for the ECS Project.

Section	Page	Figure Table
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<b>RID ID</b>	CDR 87
<b>Review</b>	SDPS/CSMS
<b>Originator Ref</b>	DSNO 2
<b>Priority</b>	2

**Category Name** ISS Design **Actionee** ECS  
**Sub Category**  
**Subject** Single switch-router architecture

## **Description of Problem or Suggestion:**

The design architecture of having production and Internet traffic come through the same switch and EBnet router may not be robust enough or scalable for future needs in Release B and beyond.

## **Originator's Recommendation**

ECS should show that the proposed architecture can clearly handle the Release A loads, including all down time, scheduled and unscheduled, and including all peak loads for Release B. Since the design must scale to Release B, ECS should explain the evolution path to more robust and scalable design architectures, specifically, the capability necessary to separate the ingest flows, the inter-DAAC flows, and the outflows to the Internet and QA SCFs, in an evolutionary way as needed in the future.

## **GSFC Response by:**

## **GSFC Response Date**

**HAIS Response by:** D. Moore

**HAIS Schedule** 9/20/95

**HAIS R. E.** D. Moore

**HAIS Response Date** 9/22/95

This RID addresses two concerns: 1) Show that the R-A design meets performance and RMA requirements; and 2) Show how the architecture will scale to R-B and beyond. Each will be addressed separately.

1) The R-A DAAC architecture satisfies all performance and RMA requirements as documented in the following. The data flow estimates used as input into the design process are described in section 3.4.1.1 of each of the DAAC-specific volumes (for LaRC, GSFC, MSFC, and EDC). Specifically, Table 3.4.1.1-1 shows the peak data flows arranged by flow type between and within subsystems. Table 3.4.1.1-2 aggregates these flows to present the peak flow appearing on each network FDDI ring. These tables show that the 100 Mbps FDDI architecture is capable of supporting the expected R-A loads. An RMA analysis was presented in the document "Release A Availability Models/Predictions for the ECS Project" (515-CD-001-003, dated July 1995). It shows that the network equipment (in conjunction with all other hardware required to perform a particular function) meets all RMA requirements.

2) Because the network loads in R-A are small, the R-A topology is adequate to handle all flows (both user and processing) on the same architecture. In R-B, this will not be the case at some DAACs (such as LaRC and GSFC), due to the large increase in data flows.

In the larger R-B facilities, the user and processing flows will be separated so that each flow uses different network resources. This may be accomplished by installing a second FDDI network to handle only user flows (which would connect only to those machines interacting directly with the users) and keeping the R-A FDDI network for all the processing flows (such as for L0 ingest and for receipt of DAAC-DAAC flows). Also, given the high processor requirements, HAIS is considering connecting the Science Processors and Data Server machines via a high-speed technology such as HiPPI. This would allow the very large data transfers required for staging and destaging data to be handle by a totally separate network. (This network would not be IP-based and would be transparent to the users and other DAACs.)

HAIS is continually evaluating topologies to handle the increased loads in R-B and beyond, and is involved in several prototyping efforts to meet these loads. A possible topology reflecting the above discussion is shown in the attached diagram. A more detailed (but still preliminary) design for migration to R-B will be presented at the R-B IDR in October/November 1995. The final design for migration to Release B will be presented in the R-B CDR currently scheduled for March/April 1995.

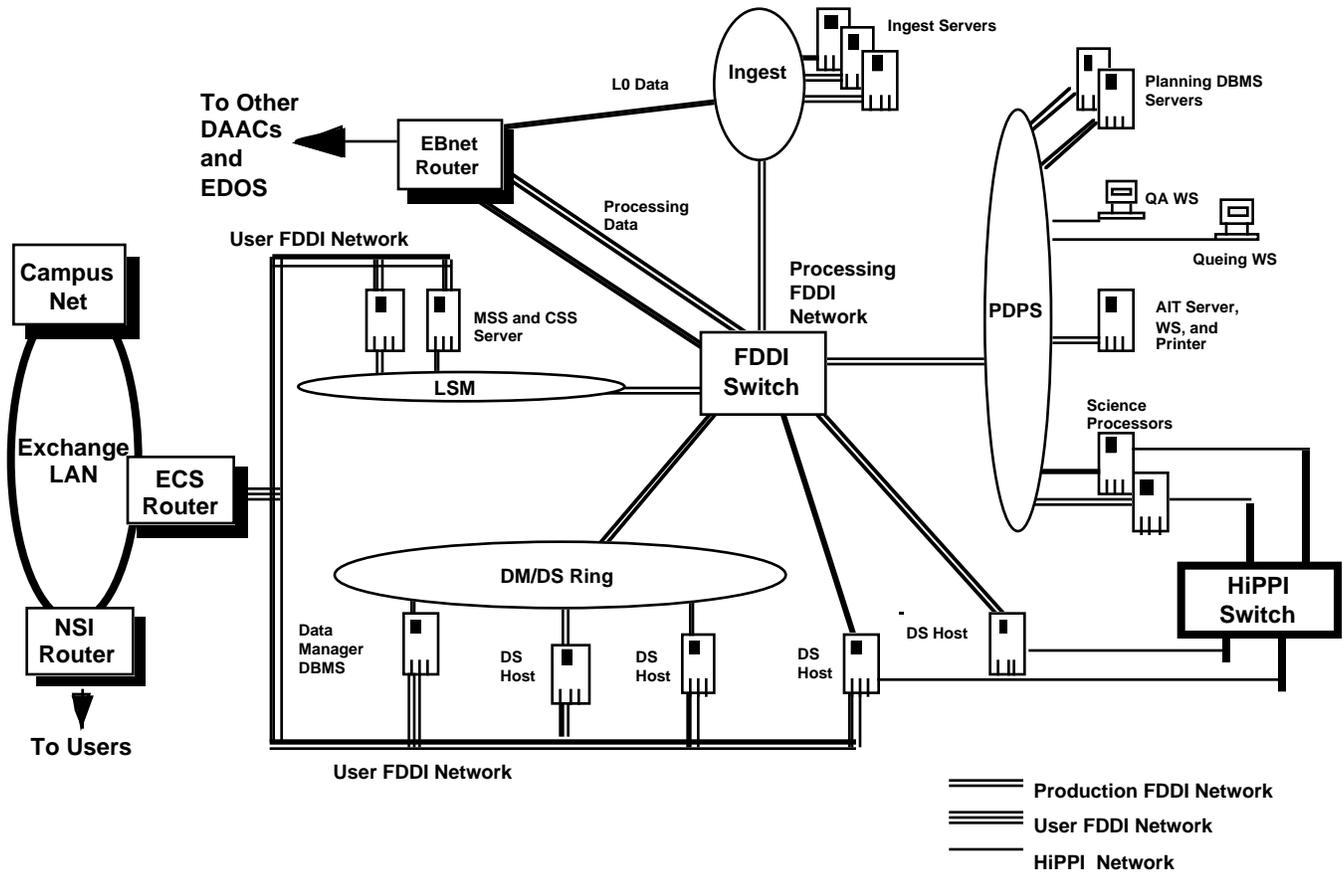
# Release A CDR RID Report

Status Closed

Date Closed 9/28/95

Sponsor desJardins

\*\*\*\*\* Attachment if any \*\*\*\*\*



Response to CDR RID 87: Possible R-B Network Topology Separating Processing and User Flows