

PDR RID Report

Date Last Modified 5/3/95
Originator Mike Moore
Organization GSFC ESDIS
E Mail Address mike.moore@gsfc.nasa.gov
Document PDR

Phone No 301-286-0795

RID ID PDR 217
Review CSMS
Originator Ref
Priority 2

Section

Page

Figure Table

Category Name Design-ISS

Actionee HAIS

Sub Category

Subject ESN Load

Description of Problem or Suggestion:

The load of inter-DAAC query and response data flow will likely result in highly varying loads on the ESN. It is not clear that the ESN design and model adequately address these varying loads. Furthermore, the suggested load (50 browses per hour) may be low and could easily grow by an order of magnitude in the Release B time frame. Such varying loads may negatively impact reliability and performance of delivery of production dependency data.

Originator's Recommendation

Reexamine current load estimates and varying nature of load and ensure these issues are addressed in ESN models and resulting design. Consider moving query and response flows from ESN to NSI/Internet.

GSFC Response by:

GSFC Response Date

HAIS Response by: Forman

HAIS Schedule 2/28/95

HAIS R. E.

HAIS Response Date 4/4/95

We agree that the dynamic nature of the inter-DAAC queries and response data flows can create varying loads on the ESN wide area network (WAN). This load largely depends on where the initial user query is received, on the location of data sets within ECS, and on the interconnection of the DAACs. The bandwidth estimates specified in the "Communications Requirements for the ECS Project" document are based on factors including science user scenarios, science user demographics, number of system accesses per year, interest in data products by science-user community, and probability of access to data sets located at other DAAC(s).

These estimates are planned to be refined at each release IDR to reflect better estimation and understanding of the user interaction with EOSDIS. Furthermore, an optimization of GFE WAN link bandwidth will be aided by a dynamic analysis of the inter-DAAC flows. This dynamic analysis is currently in progress and is expected to provide results prior to Release A CDR. The ISS design will incorporate results of this analysis, as appropriate.

Transporting the inter-DAAC queries and response data over NSI may reduce the ESN load fluctuations. However, this approach has several design implications. Specifically, issues related to timeliness of browse responses, routing, and coordination with NSI have to be further analyzed to understand the overall system wide effect. Our current estimate is that the inter-DAAC production data ranges from approximately 50 to 500 times the inter-DAAC query and response data volume. Because of the relatively small volume of inter-DAAC query traffic load, the advantage of transporting inter-DAAC query and response data over NSI may not be justified because of the routing complexities required to implement this data separation.

Status Closed

Date Closed 5/3/95

Sponsor desJardins

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