NetDRMS & Data Sharing

(http://jsoc.stanford.edu/netdrms/)

A data management system developed by and for the HMI-AIA Joint Science Operations Center of SDO to handle a data flow of approximately 1.5 petabyte/yr with quick-look latency ~min, science data latency ~day.

NetDRMS extends the capabilities of the JSOC system to additional locations with peer-based data sharing.

JSOC Data Management

Data Record Management System (DRMS)

Ancillary data describing each record in each data series, including pointers to locations of data segments in SUMS; implemented in Postgres; multiple independent implementations can interact
– "FITS Header"

Storage Unit Management System (SUMS)

Data segments (large files) associated with records in DRMS; based on combination of dedicated disk storage and optional tape systems; each SUMS tied to its DRMS; interoperation through DRMS only
– "FITS Data"

Analysis Module DRMS API

Provides direct I/O access through selected DRMS to analysis programs;
C and Fortran API implemented
JSOC & AIA pipeline processing implemented with DRMS API

Data management system is extensible to an interoperating network of data archives/ analysis centers with both shared and private data tables; O(10) sites interested and/or

NetDRMS Data Management

Data organized into Data Series, corresponding to DB tables

Each Data Series organized into Records, corresponding to DB table rows

Each Data Record may be associated with one or more Segments corresponding to files in SUMS storage

Data Series origin identified through name-space management

Data Segment origin identified through SUMS ID's

NetDRMS Architecture