Real Time and Archival DODS/ADDE Server for the OU School of Meteorology and Unidata Community

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Purpose

The University of Oklahoma School of Meteorology (SoM) has been a long time participant in the Internet Data Distribution (IDD) program. It has served as an upper tier site for many of the IDD participants. In keeping with that tradition, SoM sought funds to create a site that would serve the next generation of weather display software, the Integrated Data Viewer (IDV).

The purpose of this equipment grant was to set up for the SoM and Unidata communities, an additional DODS/ADDE (Distributed Oceanographic Data System/Abstract Distributed Data Environment) server. Through this server, real time data could be used by the IDV for both class and research activities. In addition, the SoM is in the process of creating both a climate data archive, consisting of observational and model output sources, and mobile 5-mm Doppler radar data from the SMART radar (SMART-R) research program (http://www.nssl.noaa.gov/smartradars).

Equipment

The basic system is a dual AMD Opteron 244 NAS system, with 2 GB of RAM memory. With 24 250 GB SATA disk drives set as 2 RAID 5 partitions, the system is ready to serve up nearly 4 TB of storage. The server is set up using Fedora Core 4 (FC 4) Linux distribution for the operating system.

There was an additional benefit not anticipated, but greatly appreciated, that came about as result of the equipment grant award. The SoM Climate group provided addition funds for an additional 2 TB of disk storage for use by the climate group. It is currently attached to the main server and is being used by the Climate group to store their data sets. It is their goal to move finalized sets to the main storage for use by the community.

The name of the system, mandelbrot.metr.ou.edu (IP: 129.15.198.80) was chosen to reflect current naming paradigms for large file and process servers. Users will be able to find services at the above adders.

Fig. 1 The NAS server atop the UPS with the climate raid above it.

Current Status

The server is now up and running. The computing group had some initial problems with many of the Unidata software packages and the Red Hat Enterprise operating system, which was originally installed on the machine. After discussions with Unidata Support, Fedora Core was installed and installing of the Unidata software packages has been proceeding. McIDAS, LDM and Gempak have been installed and their initial testing is complete. The DODS and ADDE servers have been built but have not yet been tested.

The LDM and McIDAS are currently ingesting weather and satellite data. The server should be fully operational and the ADDE access available to the community by the end of the Fall 2005 term. The DODS server has also been installed and is awaiting testing. In the meantime, data from both the climate and radar groups are being processed by their respective groups to be uploaded to the server. The data format for the climate data sets has been chosen to be NetCDF. A radar format has not been finalized, but most likely will be the DORADE file format.

Future

The SoM will be moving in Spring 2006 to a new facility. During this time, upgrades to the computing systems currently being used by the department will be made. New primary LDM data ingest machines will be installed. At this time, memory to the NAS server will be made, moving from 2 GB to 6 GB RAM. With faster networking and data ingest, plans will be formulated for what future data sets might be added to the NAS server for use by the community.

Faculty will be given a series of seminars about the capabilities of the IDV later this term and on into the Spring 2006 term. The computing staff will be working with faculty on curriculum to create exercises and problem sets that make use of the IDV. As those resources are refined, they will be made available for the rest of the community.