



Director's Report

Unidata Policy Committee Meeting

22-23 September 2005

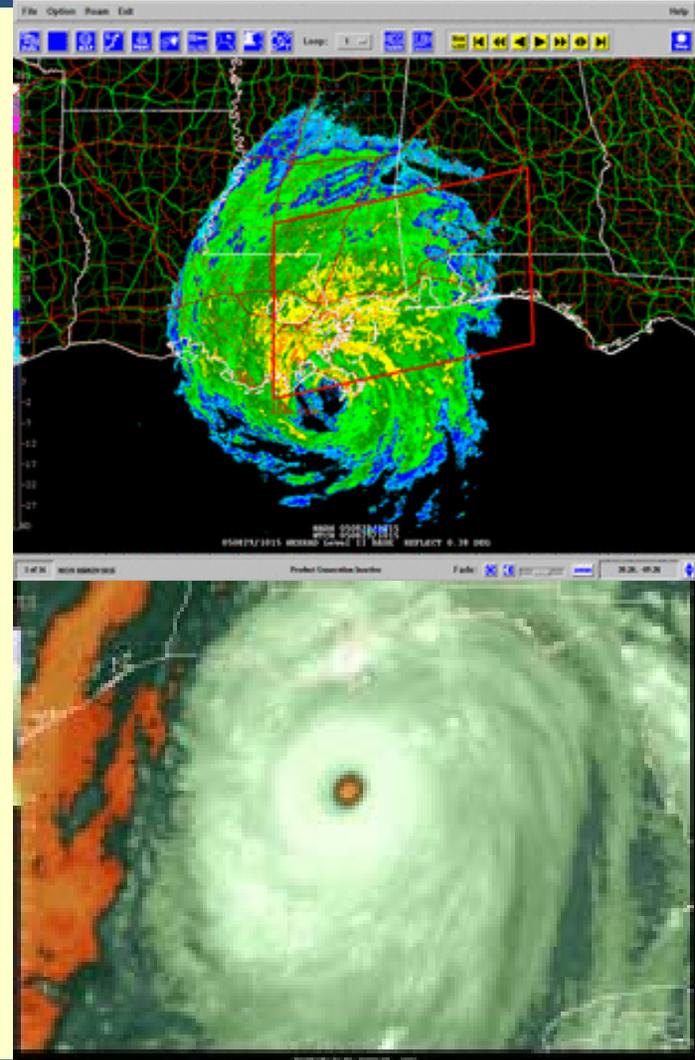
NSF, Arlington, VA

Mohan Ramamurthy
Unidata Program Center
UCAR Office of Programs
Boulder, CO

Unidata System use During Katrina



- Unidata systems demonstrated their robustness when Hurricane Katrina battered the Gulf Coast, proving invaluable to emergency operations at the Southern Region Climate Center at LSU.
- The SRCC, an active member of the Unidata community, is a top-tier NOAAport ingest site for the IDD using Unidata's NOAAport satellite ingest software. For analysis and visualization of data, they use GEMPAK a software package upgraded and maintained by the program center.
- Prior to, during, and following passage of Hurricane Katrina. the SRCC used IDD data to brief emergency managers at the Louisiana Office of Homeland Security and Emergency Preparedness.

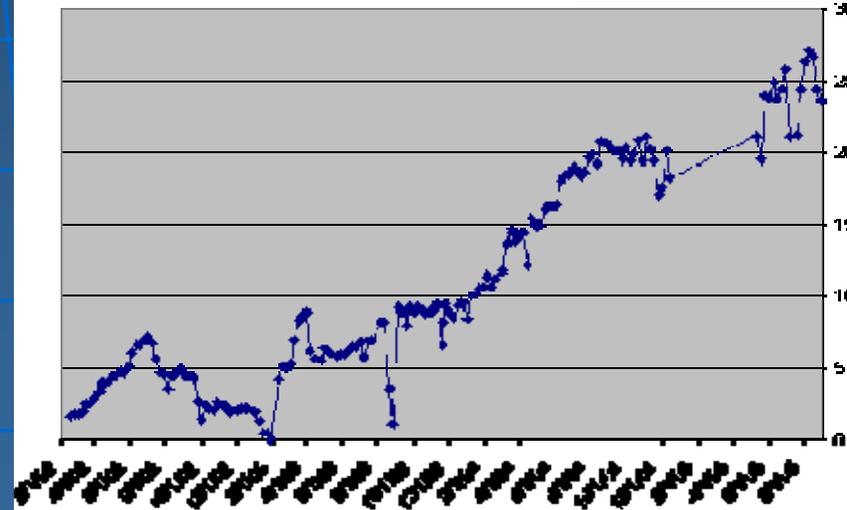




unidata

Data Distribution

- About 289 machines in 157 network domains are running LDM-6 and reporting real time statistics in the IDD.
 - The average hourly volume of data flowing through the IDD has increased to about 3.0 Gigabytes, with a maximum rate of approximately 4.5 Gigabytes.
- Data Volumes flowing through Internet 2 have experienced a 50% increase over the past year from 14 TB of data to 21 TB now.
- Recently, RASS data from NOAA Profiler Network has been added to the IDD. UPC working to display the data in viz. tools.

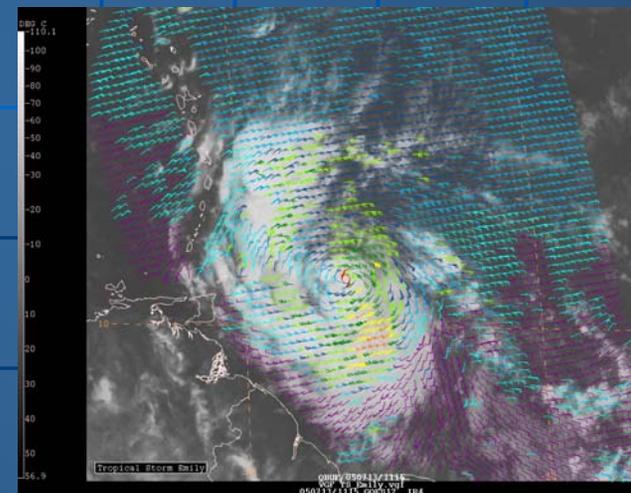
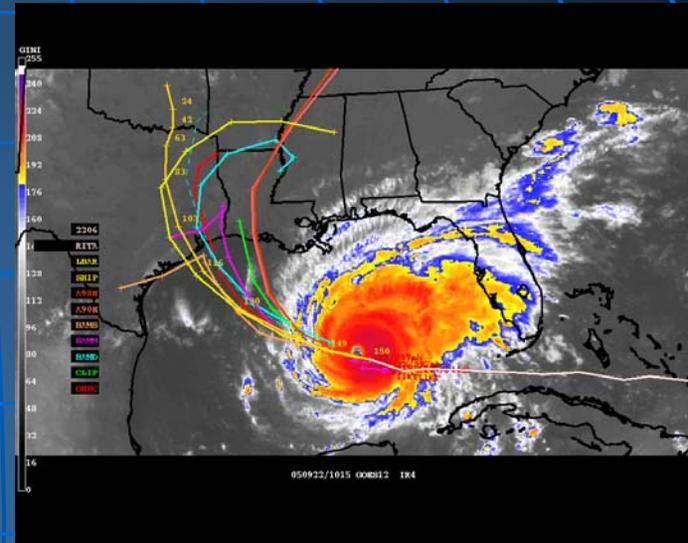


RASS: Radio Acoustic Sounding System



Software Development and Usage

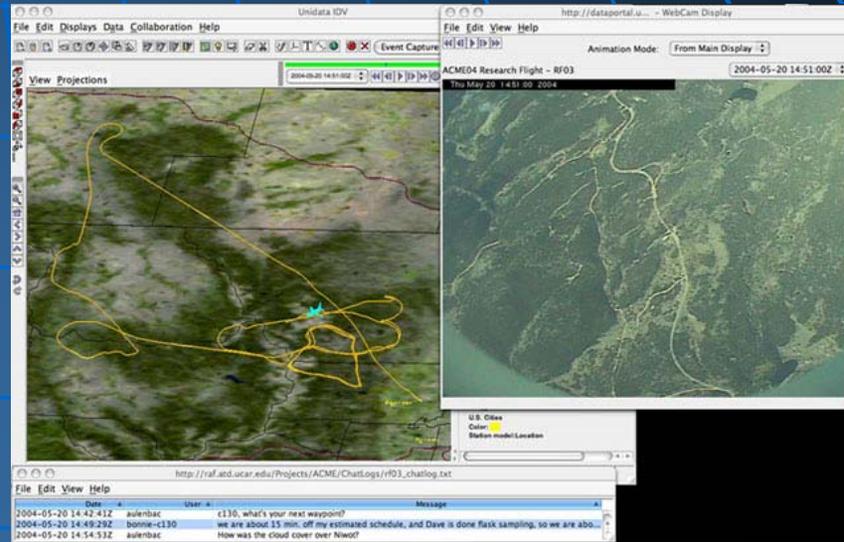
- LDM 6.4.1 released; supports automatic switching between primary and alternate transfer-mode by downstream LDMs – no more need for manual failovers!
- GEMPAK: Two new releases since my last report; Latest release 5.8.3a; Downloads of Linux binaries outnumber those for other operating system by a wide margin.
- McIDAS Version 2005, released in July, has had downloads from 21 unique sites; in comparison, there have been downloads from 102 unique sites for McIDAS 2004;





Integrated Data Viewer

- The use of IDV continues to increase. Over the period of July 5 to Sep. 9, 2005, the IDV was used an average of 127 times per [week] day. In comparison, the IDV was used an average of 62 times last year during a similar period.



Downloads since March 18:

Total unique sites: 617

US: 294

Non-US: 155

Unknown: 168 (IP only)

By version:

pre1_2: 123

1_2: 210

1_2b2: 451



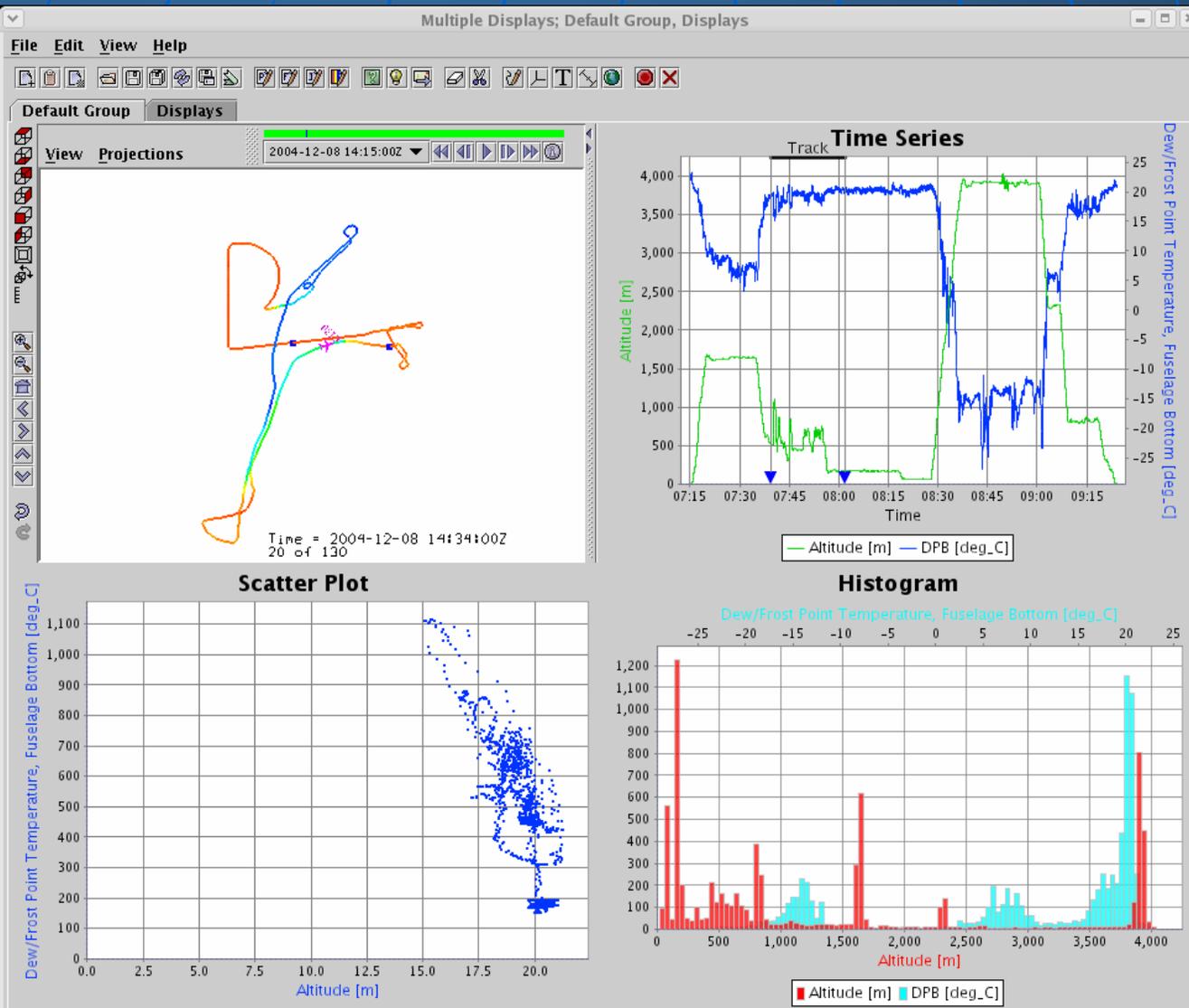
C130 flight track from Airborne Carbon in the Mountains Experiment displayed in the IDV

These numbers are underestimates of the true numbers!



unidata

A New Graphing Capability in the IDV



The IDV developers have been working closely with NCAR divisions to improve the access to and display of field project data.

New graphing capabilities were added for time series, histogram, and scatter plots.



Sunglass Advisory!!!!

- Those of you who are sensitive to bright colors, please get out your sunglasses.
- Here comes a highly colorful slide...

**Atmospheric/Ocean
Science Client**

WCS

GIS Client

netCDF

WCS

**OPeNDAP
data interface**

**ADDE
data interface**

**NetCDF
data interface**

**WCS
interface**

**THREDDS
catalog
interface**

THREDDS Data Server

**netCDF,
Jgoffs,
DMSP, etc**

**AREA, grid,
station, etc.**

**netCDF,
HDF5,
GRIB, GINI,
etc**

**Data from
DBMS**

**THREDDS
Catalogs**

Common Data Model – TDS



Primary
Interfaces



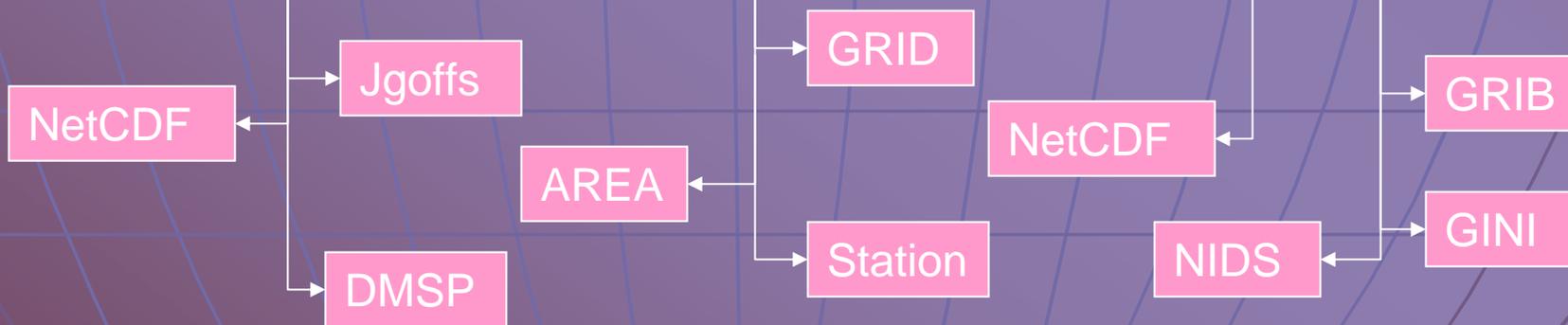
Underlying
Interfaces



Local/Remote
Services



File
Formats





Common Data Model: An Update

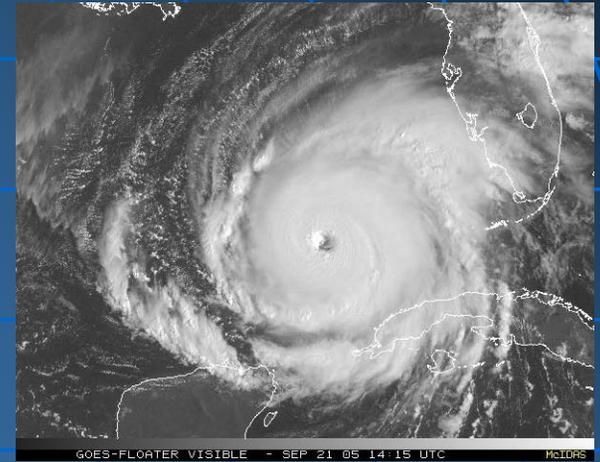
- NetCDF, HDF, and OPeNDAP developers have begun to discuss moving towards the Common Data Model, providing
 - useful mappings among the three data models
 - opportunities to tweak the data models to mitigate differences
 - a plan to make OPeNDAP the remote access protocol for netCDF-4 and netCDF-4 the persistence format for OPeNDAP

This is an important long-term effort.



LEAD Update

- ❖ The LEAD project successfully completed the two-year NSF site review in July. As a result, NSF actually gave additional funding for two new students.
- ❖ The Unidata LEAD team is designing and building the THREDDS Data Repository, based on a modular framework.
- ❖ Locally steered WRF running on the Unidata LEAD testbed four times daily;
- ❖ ADAS (assimilated) hourly fields also made available on the UPC testbed.
- ❖ For both WRF and ADAS datasets, we are generating THREDDS catalogs and serving the output files via OPeNDAP;
- ❖ The Unidata LEAD testbed has completed its phase 2 implementation.

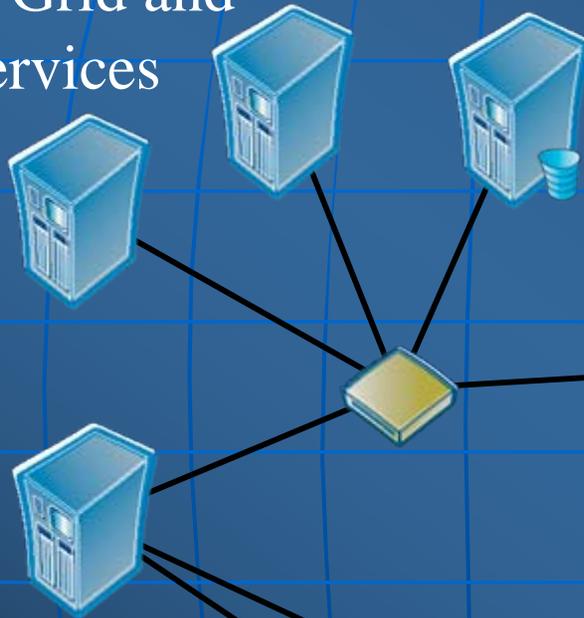




Unidata LEAD Testbed

unidata

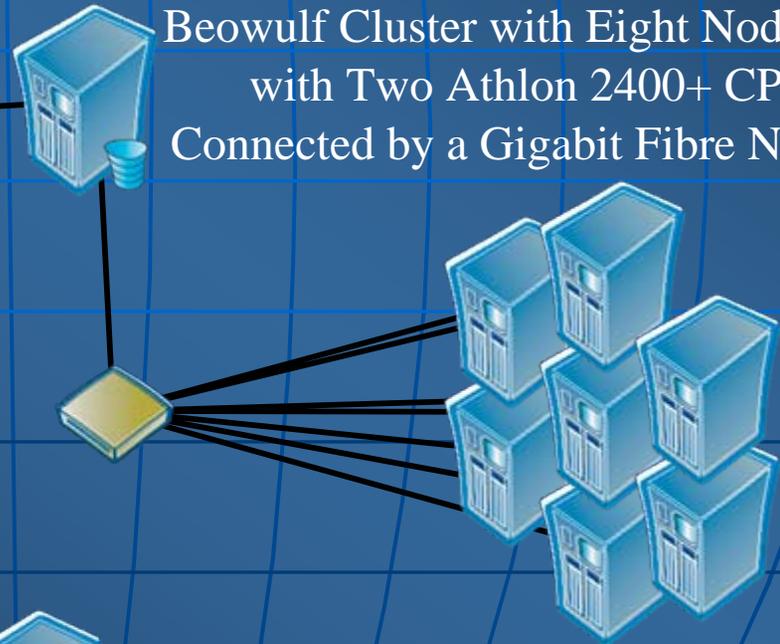
Portal Servers for Web,
OpenDAP, Grid and
LDM Services



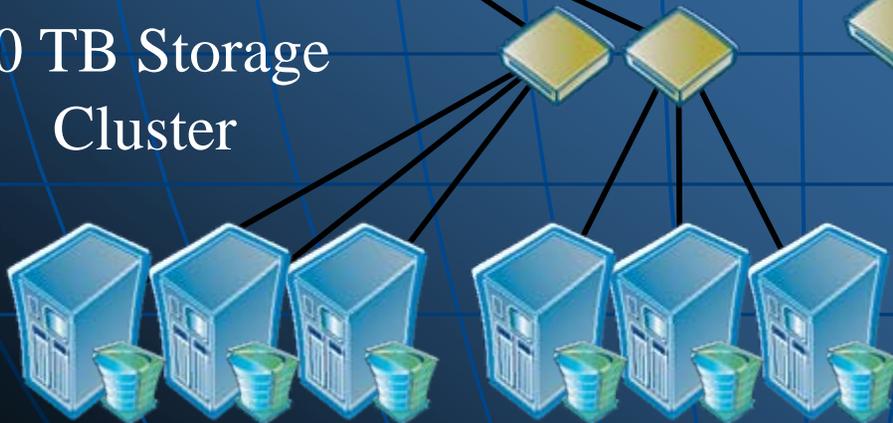
~30 GFLOP

Processing Cluster

Beowulf Cluster with Eight Nodes each
with Two Athlon 2400+ CPUs
Connected by a Gigabit Fibre Network



40 TB Storage
Cluster



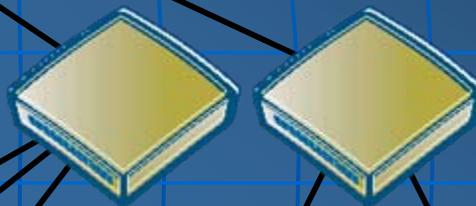


LEAD Storage Cluster

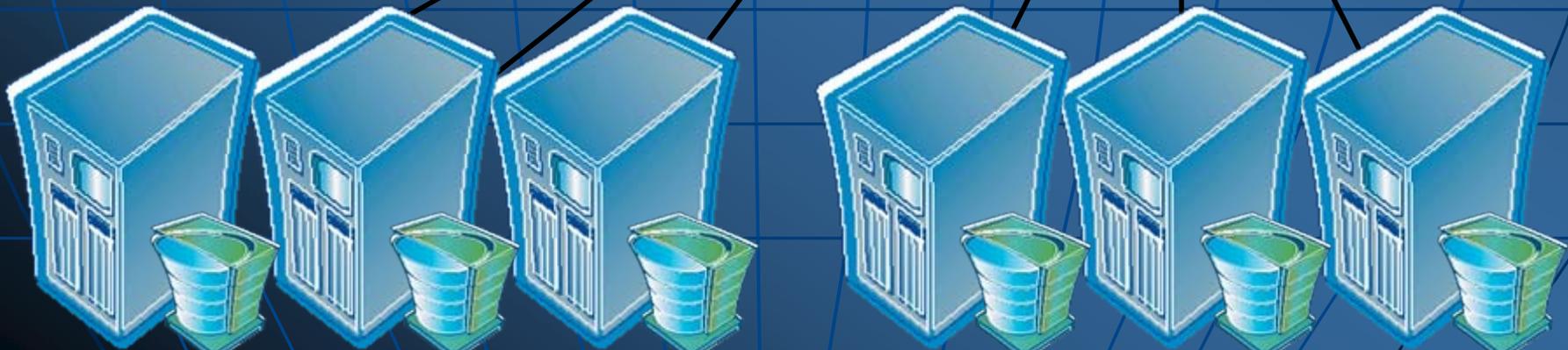
Gateway Builds and Offers Two 20 TB RAID Volumes using mdadm, LVM, XFS and NFS



Nodes Publish Volumes with iSCSI over a Gigabit Network



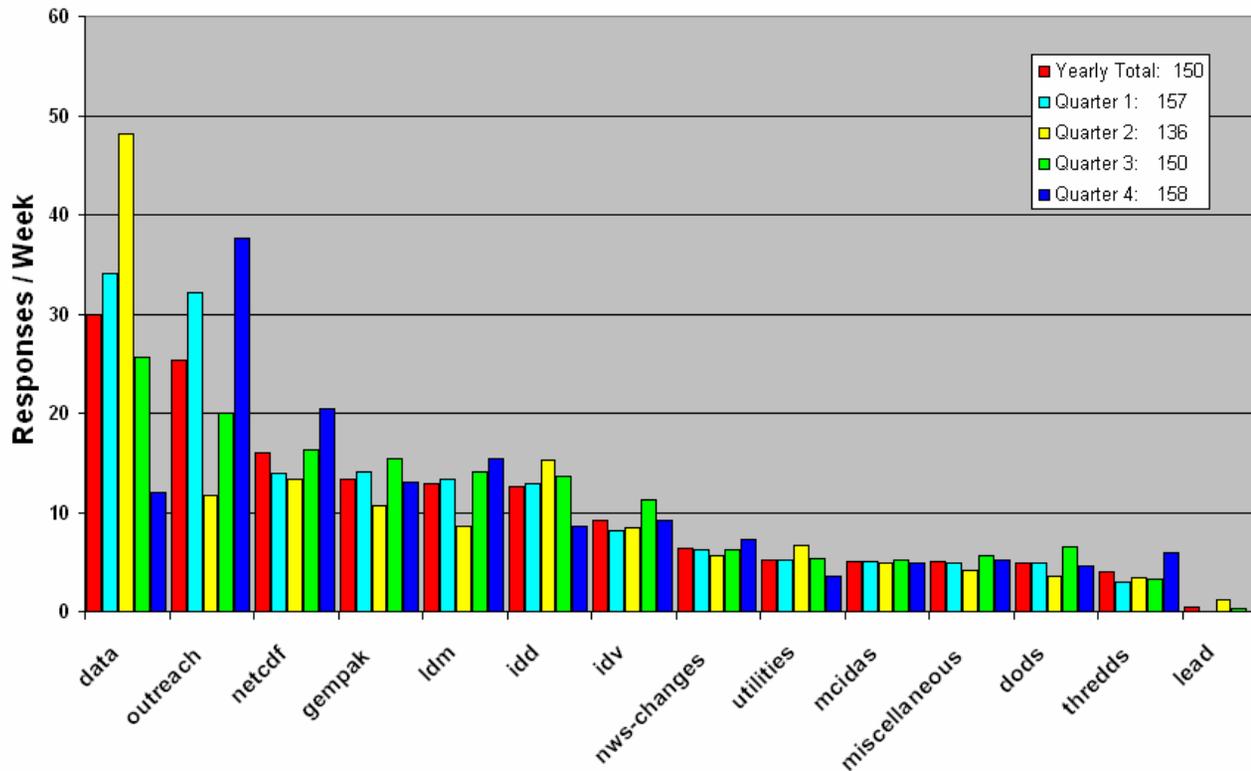
Six Storage Nodes each with Twenty-four 400 GB Hard Drives for Two 4 TB RAID 5 Volumes





Email Support Load

Unidata Support by Category



- The total support load at the UPC remains high but steady.
- Web-based support system (eSupport) is about two months behind target; Planning to introduce eSupport to the community in a test mode in October.
- Support required for data (LDM, IDD) is comparable to that for visualization packages (GEMPAK, IDV, and McIDAS)
- The IDV support LOAD continues to grow as more users adopt the package.

2005 Training Workshops

- Training Workshops: Annual Software Training Workshops are offered free of charge once each year.
- The workshops are more popular than ever and are over subscribed.
- 68 participants from 5 countries participated in this year's workshops on LDM (2 sessions), GEMPAK, McIDAS, and IDV (3 sessions).
- Workshop materials are available online and the sessions are webcast live to the community.





SOARS Participation

- UPC staff continue to be actively involved in SOARS.
- Alisha Fernandez-Science
 - Science mentor: Jennifer Oxelson & Lawrence Buja, SCD
 - Enhancing access to climate model metadata via a web-accessible database;
- Shanna-Shaye Forbes
 - Science mentor: Anne Wilson
 - Adapting existing decoder software to enable data distribution via InterNet News
- Three writing/community protégés:
 - Clarence Mann (Writing mentor – Ethan Davis)
 - Nicolle Ngo (Writing mentor – Jo Hansen)
 - Keith Goodman (Community mentor: Jeff Weber)





Unidata's New Web Site

- Plaza Version 2: Launched last week.
- The second version Unidata's community web portal features a fresh new look and many new capabilities.
- A new database schema has been created to address current and future needs.
- Eventually, e-support will be integrated into the website.

The screenshot displays the Unidata website interface. At the top, the Unidata logo is accompanied by the tagline "Providing data, tools, and community leadership for enhanced Earth-system education and research." Below this is a navigation bar with links for Data, Tools, Community, Downloads, Support, Projects, and About Us. The main content area is divided into several sections: "Data and Tools" which lists various data sources and software; "What's New @ Unidata" featuring a "UnidataCommunal" section with a calendar and a "2005 Training Workshop for Unidata Software" announcement; and "Unidata@Home" with a "Welcome SORIS Students" message. On the right side, there are search and login options, along with "Tropical Update" and "IDV Glis Display" sections, each featuring a satellite or weather map image. The footer contains logos for the University Corporation for Atmospheric Research (UCAR) and the National Science Foundation (NSF), along with contact information for the Unidata office in Boulder, CO.

More tomorrow...

Equipment Awards 2005: A Recap



unidata

- We received 24 proposals, totaling \$465,548 (with UCAR overhead);
- Available amount: \$100K;
- Seven proposals were funded;
- The success rate in this round was significantly lower than in previous years;
- In the future, will have find ways to manage community expectations with more targeted solicitations;



Institution	Proposal	Funded Cost (not including OH)
Iowa State University	Increasing GIS Web Services Capacity to Serve the Unidata Community	\$12,000
Louisiana State University	IDD Community Infrastructure Enhancement at LSU	\$15,200
Pennsylvania State University	Transition of Unidata IDD Relay Service to a 64-Bit Architecture	\$7,000
University of Hawaii at Manoa	VisionLab 2005	\$11,700
University of Missouri-Kansas City	Enhancing Meteorological Education and Climate Research, and K-12 Educational Outreach at the University of Missouri-Kansas City	\$19,000
Purdue University	Equipment to Enhance the Capacity to Process and Disseminate Value-added Weather Data at Purdue University	\$7,000
Western Illinois University	New Establishment of Unidata Site for Meteorological Education	\$4,000
	Total	\$75,900



Proposal Activity

- A Virtual Operations Center (VOC) for Field Experiments in Atmospheric Science – a proposal to NSF is under preparation.
 - Proposal effort led by NCAR/EOL and includes Unidata and NCAR/SCD as collaborators.
 - Unidata's contributions:
 - Mostly in IDV development; 0.5 FTE shared with EOL.
 - Indirectly, in Data Access Infrastructure (THREDDS, netCDF, and LDM)
 - Education and outreach



unidata

State of the Program: A Snapshot

- Community relations : Green
- Data flows : Green
- Software development : Green
- Collaborations : Green
- Staffing : Green
- Support : Green
- Finances : Yellow (negative cash flow projected for FY06 & FY07)