CONDUIT and
NAWIPS Migration to AWIPS II
Status Updates

2014 Unidata Strategic Advisory Committee

NCEP Central Operations

May 20, 2014

CONDUIT

Cooperative Opportunity for NCEP Data Using IDD Technology

- CONDUIT content has remained the same for 2 years due to resource limitations on the existing systems, and moving support of these systems from the WOC to NCO.
  - *3 day outage occurred from May 2 – May 4 … accelerated the process to move to NCWCP*

- New CONDUIT systems in NCWCP have been tested and currently being used to pull data by Unidata.   These systems have significantly larger LDM queues and will allow for expansion of the datastream. "Official" operational declaration will be by end of this month.

- Unidata and NCEP agreed to expand the CONDUIT datastream on NCWCP systems even though Boulder systems can not be expanded until mid-2015. This means CONDUIT will have a degraded backup in the event NCWCP is down.

- Once NCWCP CONDUIT boxes are operational we'll revisit the last list of requested additions from 2012 and re-evaluate what should be added/deleted

CONDUIT

Cooperative Opportunity for NCEP Data Using IDD Technology

Upcoming MODEL Items of Interest

- HIRES Window – mid-June 2014.
    - Separate East/West CONUS grids will be replaced by 1 full CONUS grid. Legacy East/West grids will stay on NOAAPORT, but full CONUS could be sent to CONDUIT

- GFS Upgrade to T1534 resolution – late Summer/early Fall 2014.
    - 0.25 degree output grids will be available and could be added to CONDUIT.

- HRRR – late Summer/early Fall 2014.
    - 2.5km CONUS NDFD grid will be available on NOAAPORT. Additional output on native 3km grid could be made available to CONDUIT.

AWIPS Status …
It's been a year

- Last brief to Unidata SAC was May 2013
  - Significant progress has been made … still some hurdles to tackle

- NWS/WFO AWIPS II Deployment well underway

- All NAWIPS baseline functionality has been baselined in AWIPS II – OB14.2.1 (June 2014 Operational Deployment)

- Performance is at or better than NAWIPS

- Our focus over the past year:
  - Fixing Critical, High, Major bugs,
  - Non-SBN dataflow / File exchanges
  - Cont. build / development environment
  - System configurations
  - Testing Thin Client for COOP
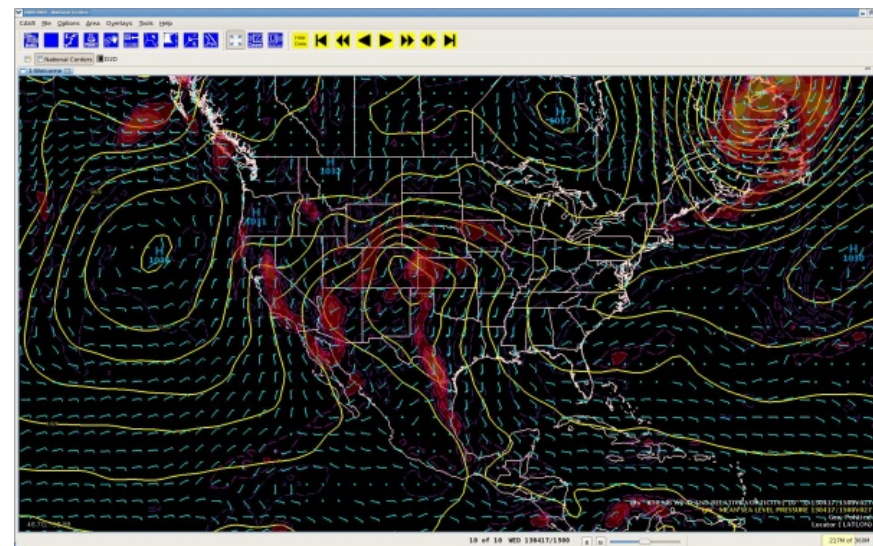
AWIPS Status …
At the National Level

- All River Forecast Centers running AWIPS II

- All NCEP Centers running AWIPS II

- All Regional HQ sites running AWIPS II

- WFOs
  - 24 WFOs * (3 groups of eight) running AWIPS II
  - 30-day test at Group 2 WFOs successfully completed February 24th @ 12Z
  - Group 3 beginning their 30-day test
  - Group 4** installations in June/July
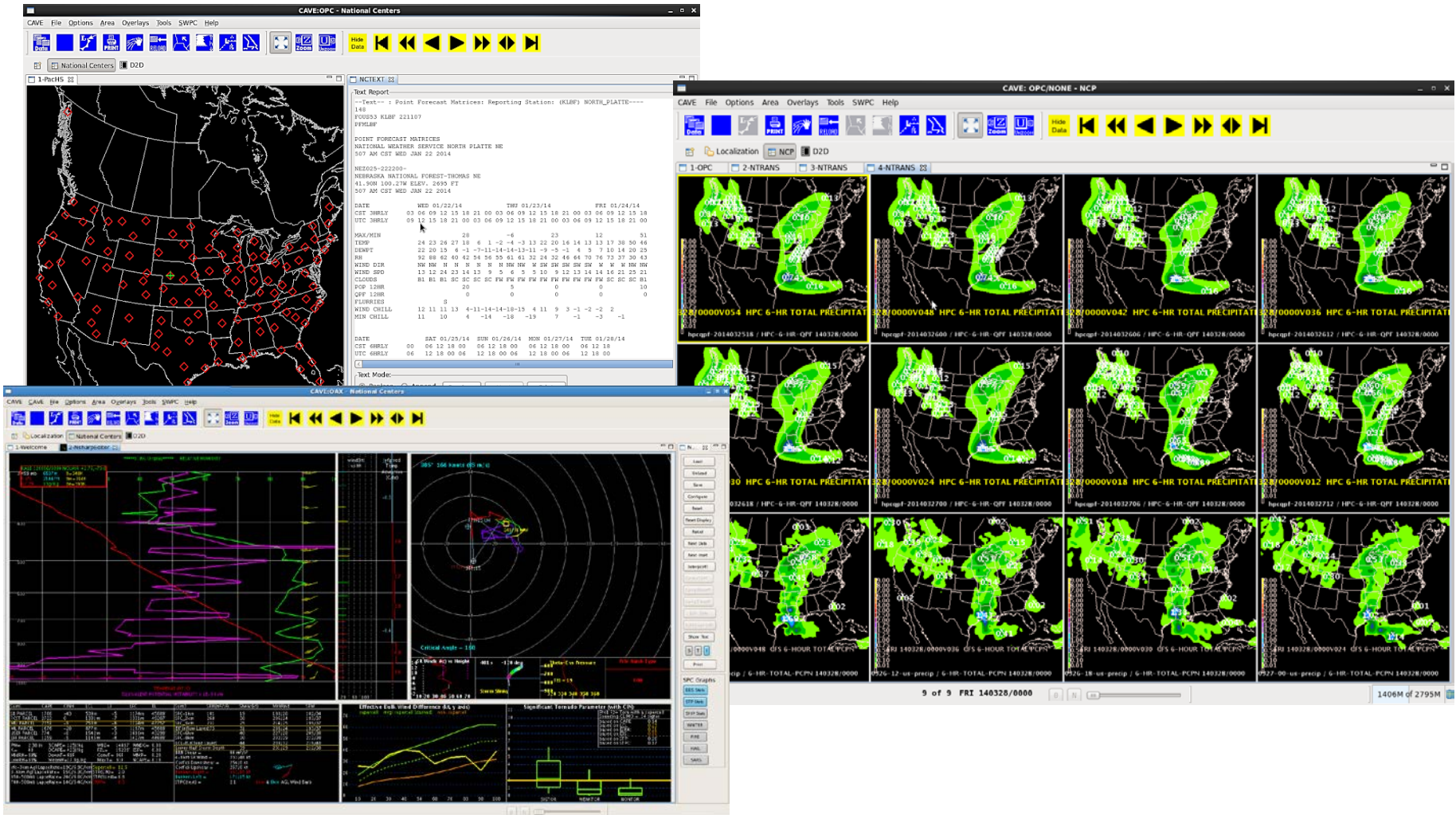 - Migration Target for all WFOs – FY15Q4
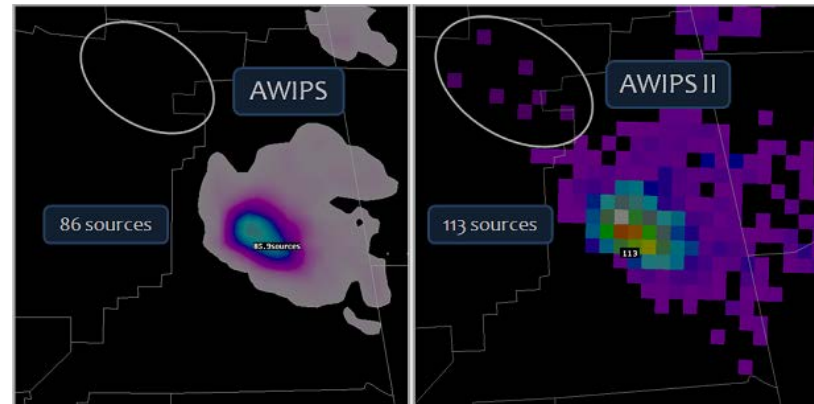
* OAX, BOU, OUN, HGX, HUN, BYZ, BOX, RNK, ARX, MKX, PQR, DMX, RAH, BOI, SLC, AFG
MRX, PUB, MFL, CTP, OTX, GID, GJT, AFC

** GLD, DDC, FSD, HNX, MSO, EKA, GYX
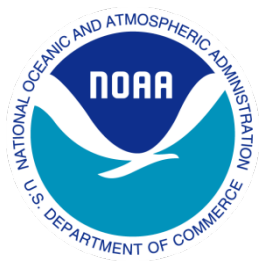
Latest Developments
# National Center Perspective

Space Weather-Related Completed Functionality

- Solar imagery display in the NCP

- Ability to display Boulder Magnetometer Plot

- Ability to display earth-based gridded fields

- Terminator Line/Day-Night Shading/Sub-solar point

- Solar Image Functions

  - Forecasters can request mathematical difference between images, by time or adjacent in sequence

  - Will use lessons learned for earth satellite function

imageFunction=runDiffTime(timeDiffer)
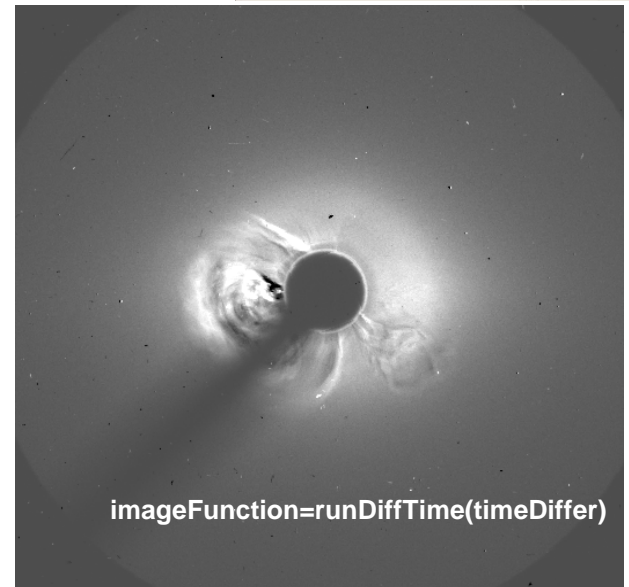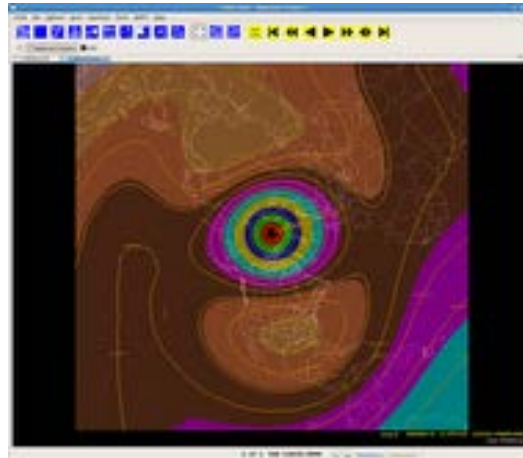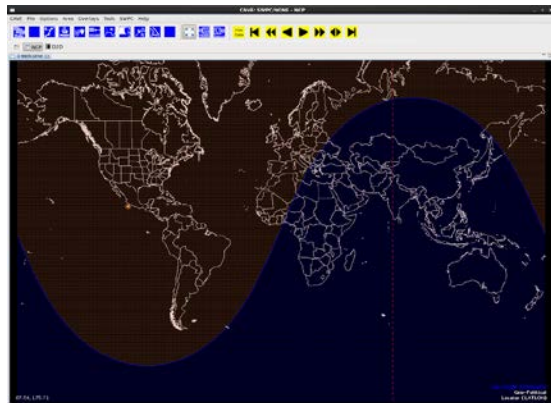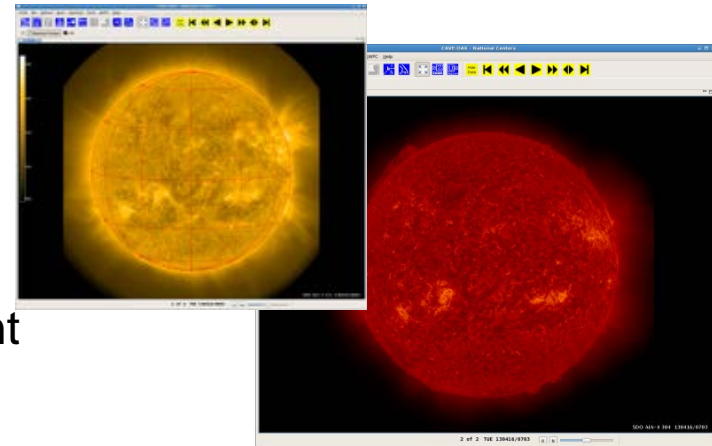
GEMPAK and AWIPS II

- Background
    - The only datasets available on a AWIPS system are in the AWIPS database/HDF5 files, there will be no GEMPAK files available for the NCEP Centers
    - NCEP needed a way to access the database from the GEMPAK applications in order to migrate many legacy functions
    - AWIPS provides a method of requesting data using THRIFT via a combination of Python and Java code
- So…….
    - Functionality was added to the Data Management level of the file access which made it available to all GEMPAK programs that read data (writing back to the AWIPS database is not supported)
    - A new library of C source code for Data Access was added which calls Python scripts ($NAWIPS/scripts/python) to interface with the THRIFT request services and put the resulting information into GEMPAK data management arrays
    - The information to request for a particular data type is controlled by an XML table ($GEMTBL/data-access/*.xml), which specifies the Python script and the database query constraints
    - For more information:

    http://www.nco.ncep.noaa.gov/sib/nawips/GEMPAK_AWIPSDB_Notes.pdf

Status of Trouble Ticket Reports
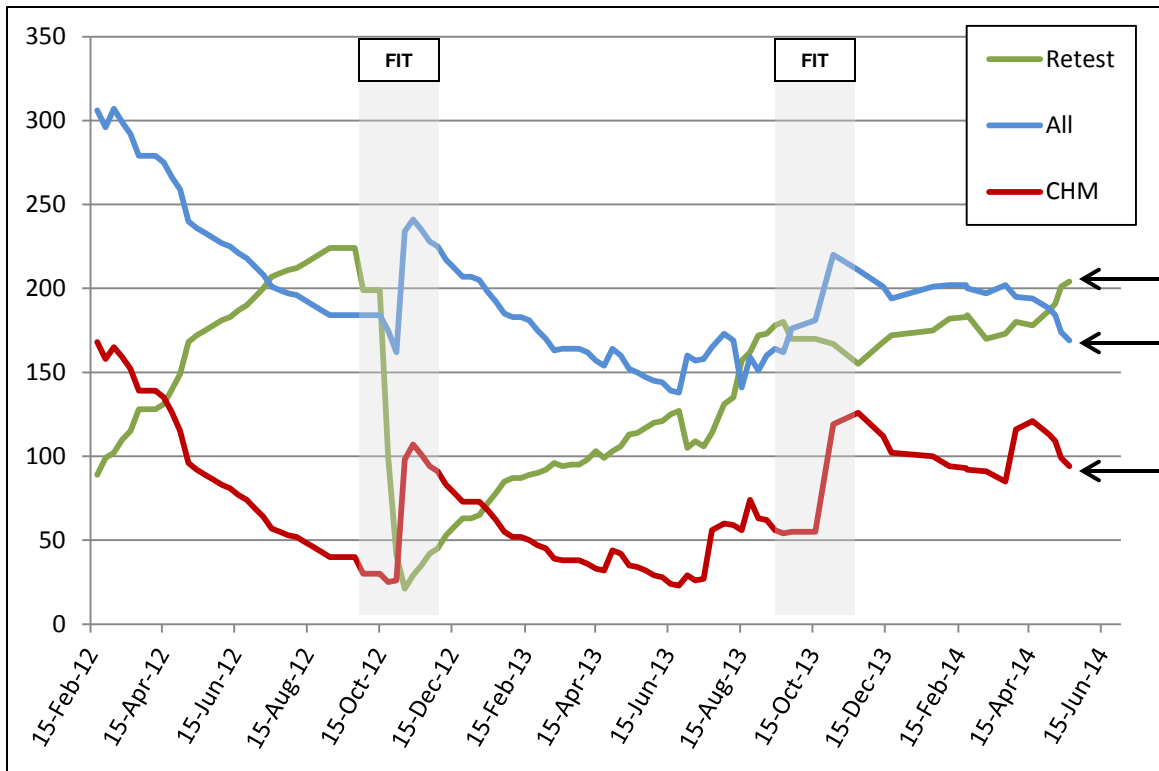
19 May 2014

- 6 Un-adjudicated

204 Ready for Retest

169 Open TTRs

94 CHM – 15+26+53 CHM

TTRs Classified as Critical / High / Major (CHM)
Repeatable problem that prevents or compromises the delivery of products or services

Critical - No alternate solution is available.
High - A temporary workaround is available, but is too cumbersome or workload intensive to sustain operations.
Major - A workaround is available to allow continuation of operations; however, workaround not acceptable for software acceptance.

Thin Client Status

- Thin Client is AWIPS II CAVE that runs in remote mode connected to an instance of EDEX via an Apache proxy server to access AWIPS II data

- NCEP Centers are looking to using the Thin Client to support their COOP plans
  - NCO/SDM and CPC are testing functionality and performance
  - NCO and RTS/Omaha have developed the capability to launch products remotely via the Thin Client ~ functionality expected be delivered in July 2014

- Workstation / Laptop Specs Required for Thin Client – recommend at least 16GB memory for NCP

Linux OS

Table 14.3.1-2 lists the required and recommended hardware and software specifications for the ARD workstations at the CWSUs that will host the Thin Client on the Linux OS.

Table 14.3.1-2. Thin Client Linux Version Hardware/Software Specifications

Specification	Hardware/Software Requirements	Recommended/Comments
Processor	Intel Xeon E5620	
Memory	6GB	
Disk Space	At least 1.5GB on the partition holding /awips2 (for the software installation); and at least 1GB per user on the partition that holds the user cache directories, which would usually be /home	
Operating System	Linux	
Video Card	Nvidia, OpenGL 2.0 or better, 512MB or more	Nvidia GPU Quadro FX 580 512MB GDDR3. Two graphic adapters, each capable of managing two screens (same as used in LX workstations)

Priorities in FY14 / FY15

- Shepherd Centers through final System OT&E, and finally into and through Field OT&E
  - Fix any critical bugs and improve performance as needed

- NCEP-focused software releases supported by Raytheon expected through this year

- Move forward with new development projects
  - SWPC migration
  - WPC "MasterBlender" Ensemble implementation in NCP
  - Migration of ATCF to AWIPS2
  - Hazard Mapping Service migration (NESDIS)
  - Dvorak Technique
  - Ecological Forecasting(NOS HAB) and Arctic Techniques

- Planning of all development activity above and Centers' new requirements

NCEP / Unidata Partnership

- For over 15 years NCEP has partnered with Unidata to provide and support NCEP software and data to the weather academia/research community

- After two year freeze for CONDUIT, expansion will be possible in late FY14 to early FY 15 - Updates will be for the HIRES Window, HRRR and higher-res GFS

- NCEP would like to explore collaboration projects with Unidata in FY15
  - *How can we work together to enhance the AWIPS experience at the Universities?*

- **NCEP continues to view Unidata as a critical partner for NCEP's total mission**