AWIPS II: The Metro State Experience

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METROPOLITAN STATE UNIVERSITY℠
OF DENVER

METEOROLOGY

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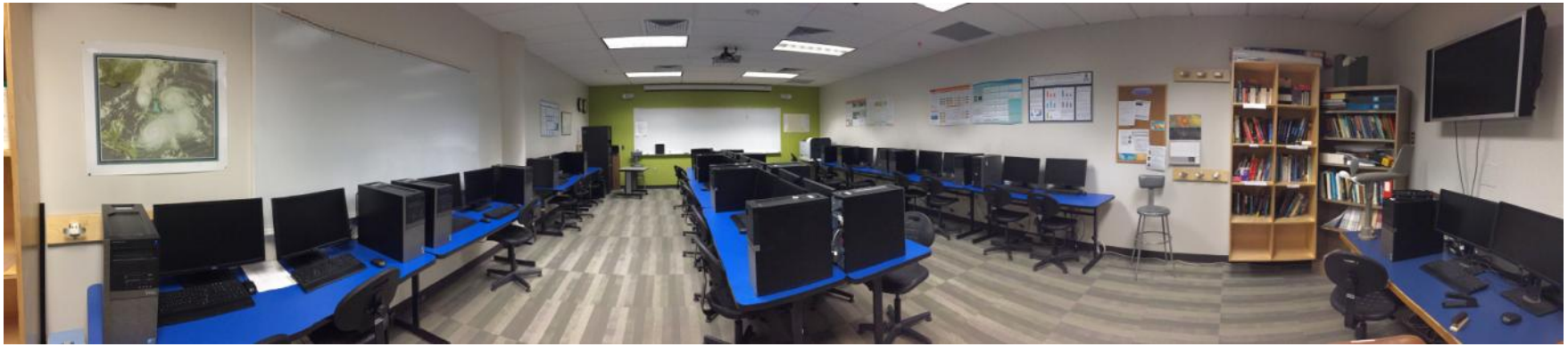
Overview

weather lab:

- 27 Dell Optiplex 960 computers
- 1 Video Projector
- 1 42” LCD Display
- 1 HP Color LaserJet Printer



weather classroom:

- 1 Dell Optiplex 960 computer
- 1 Video Projector
- 30+ student capacity

AWIPS II: The Metro State Experience Overview (cont.)

- Metropolitan State University of Denver was one of seven institutions to receive an Unidata equipment award in 2014.
- Sam Ng and Chris Kimmett are the co-PIs on the computing grant.
- Unidata approved of the following items:
  - high end video cards (2GB); approximately 15 units
  - a mid-range EDEX server (~ $7000)

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Overview (cont.)

- The MSUDenver LAS Dean was able to supply additional funding to combine with the Unidata Equipment grant to enhance the overall proposal (+$5000)
- 25 x PNY Technologies NVIDIA NVS 510 DP DVI PCIE 2GB 4 MINI DP (video card)
  - $350-400 per card
- 1 X EDEX Server (HP ProLiant DL380p Gen 8)
  - ~ $11,000

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Computers Specifications

EDEX Server

- HP ProLiant DL380p Gen 8
- 2 x 16 core Intel Xeon E5-2650 v2 @ 2.6 GHz
- 32 GB RAM (8 x 4 GB 1866 Mhz DDR3 SDRAM)
- 146 GB 15K HDD - Running OS
- 1.8 TB 10K HDD - Storage
- 300 GB SSD - Radar Data
- 1 Gigabit Network Interface
- RHEL 64 bit Server - version 6.6

Lab Machines (CAVE Clients)

- Dell Optiplex 960
- Intel Core 2 Duo CPU @ 3.0 GHz
- 8 GB RAM (800MHz DDR2 SDRAM)
- 160 GB 7.2K HDD
- 1 Gigabit Network Interface
- Nvidia 2GB PCIe x16 graphic card
- RHEL 64 bit Workstation - version 6.6

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Challenges

- Compiling AWIPS was simple and painless.
- Getting the data to show up properly on AWIPS-2 was challenging.
- Our EDEX server is equipped with a 300GB SSD which is required for high-volume data ingest such as:
  - NEXRAD3 (Dual-Pol Products)
  - GEFS (Future Implementation)
  - 0.25° GFS (Possibly)

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Challenges (Cont.)

- Observational data were working and updating correctly except for the upper air data, which is not available on the current AWIPS build.

- Model datasets were not updating properly.

- Only several CAVE Clients were able to open before EDEX server crashed.

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Fixing the Issues

- Needed to readjust the **pqact.conf** file on the EDEX server's LDM.
  - Commented out the CMC GEM and NAVGEM lines
    - Bad tables
    - Made the grib decoder crashed
    - Thanks to Jeff Weber and Michael James for helping out to diagnose the problem.

- Adjusted the HEAP size request in the **request.sh** and **wrapper.conf** files to fix the issue of opening multiple CAVE clients.
  - Changing the **request.sh** resolved the heap memory issue that would crash the ingestGrib process.
  - Changing the **wrapper.config** resolved the heap memory issue the would crash the qpid process.

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Fixing the Issues (cont.)

- **in:** /awips2/edex/etc/request.sh

```
export INIT_MEM=128 # in Meg
if [ "$EDEX_ARCH" == "64-bit" ]; then
    export MAX_MEM=2048 # in Meg
else
    #export MAX_MEM=1280 # in Meg
    export MAX_MEM=2048 # in Meg
fi
```

- **in:** /awips/qpid/conf/wrapper.conf

```
# Maximum Java Heap Size (in MB)
#wrapper.java.maxmemory=1536
wrapper.java.maxmemory=3072
```

Photograph courtesy of Douglas Dirks.

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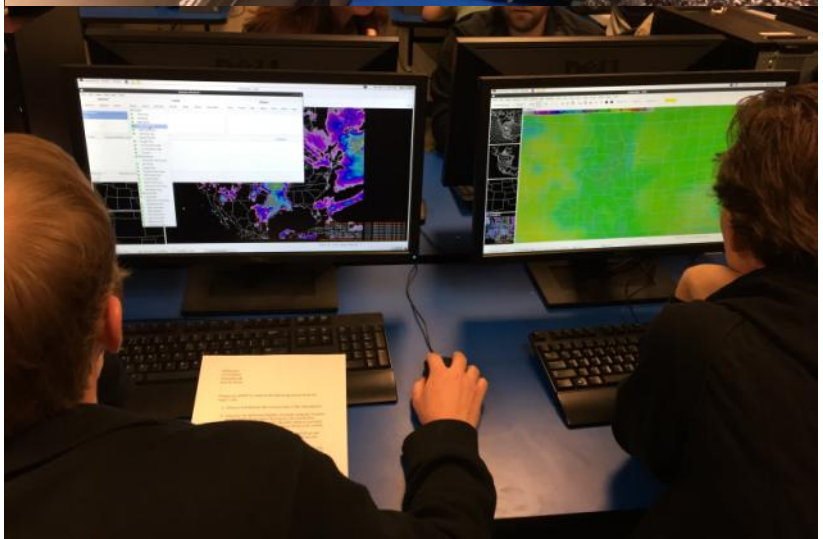
Current Usage and Success

- Up to 20 CAVE clients have been open simultaneously.
- Cave clients have been open for several weeks at a time without crashing.
  - Even during EDEX server resets.
- AWIPS-2 is best use for nowcasting and forecasting only
  - Forecasting Lab
    - Lake-effect Snow Event
  - Weather Analysis Techniques
    - Anticipating the Short- to Medium-Range Weather Pattern
  - Mesoscale Meteorology
    - Mountain Waves Lab



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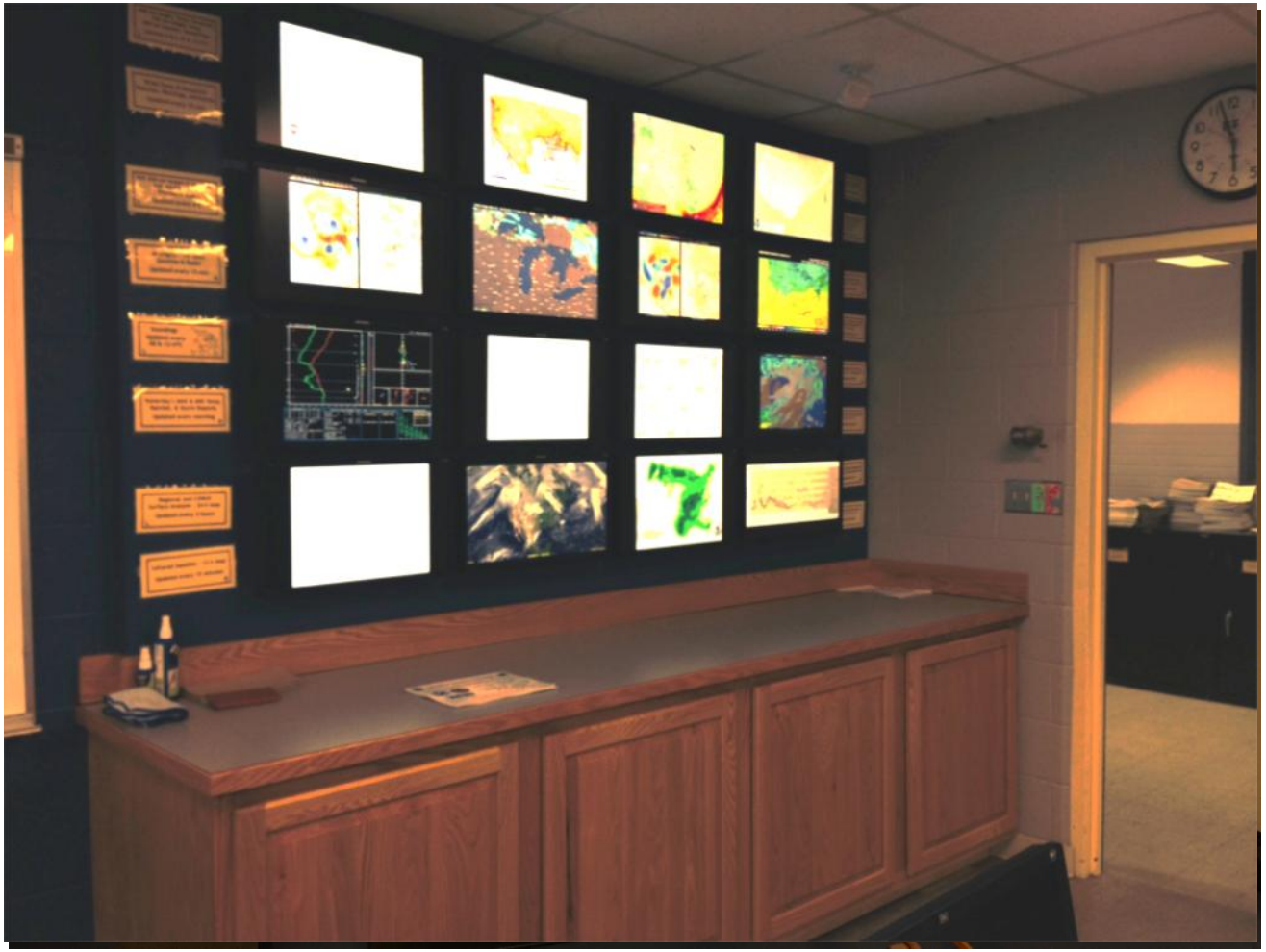
Current Usage and Success



MSUDenver makeshift weather map wall; it is not as fancy as CMU's but our map wall is powered by AWIPS-2 and IDV!

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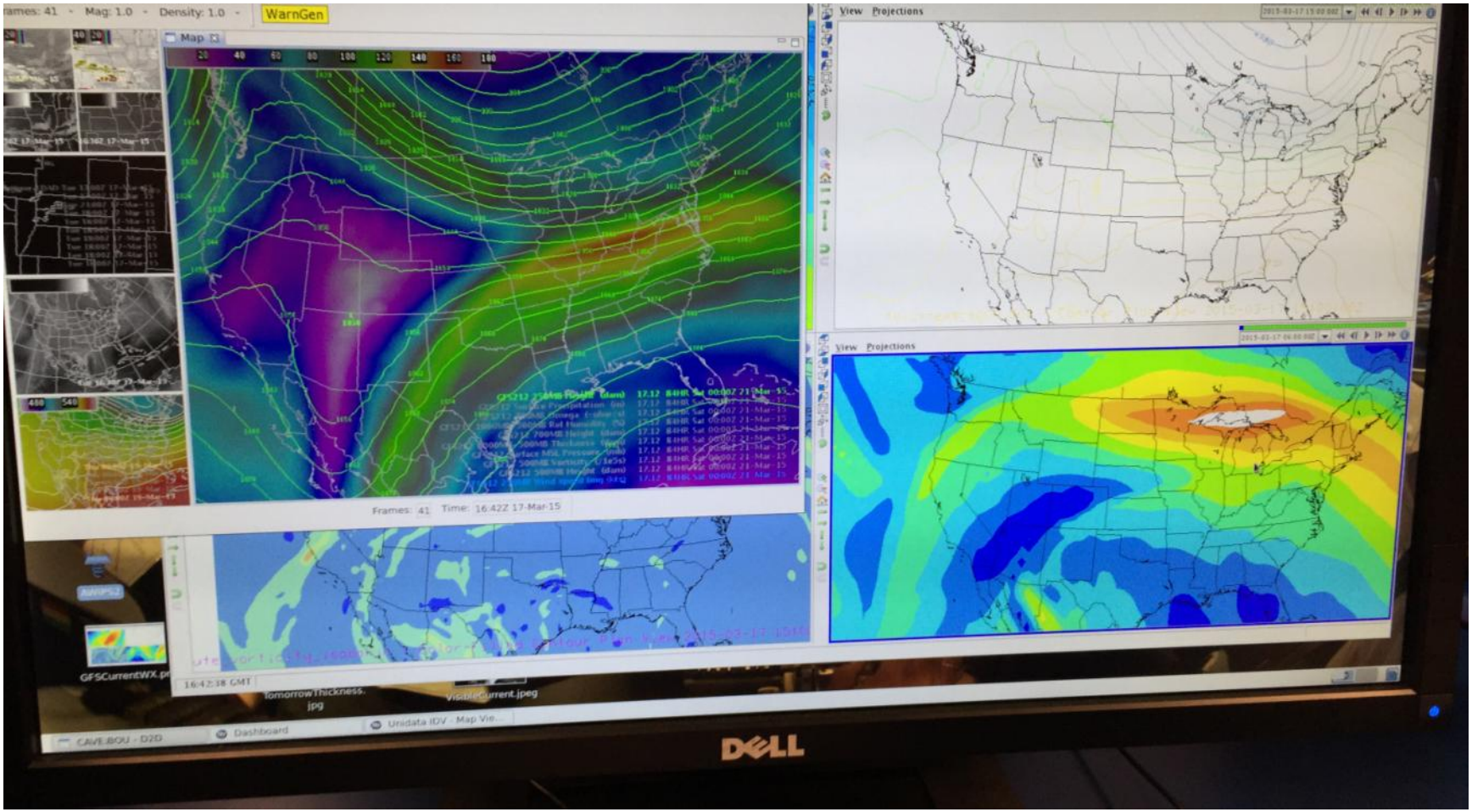
Current Usage and Success



Yes! AWIPS-2 running along side by side with IDV is possible!

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Current Usage and Success

- Finally, running VmMware Fusion and VPN, I am able to run AWIPS-2 on my MacBook with no noticeable delay if my internet connection is robust.