AWIPS II:
The Metro State Experience

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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
• 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 MSU Denver 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 that 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!
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.