



NAWIPS Migration to AWIPS II Status Update

Unidata Policy Committee Meeting



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NCEP Central Operations
23 May 2011



Topics

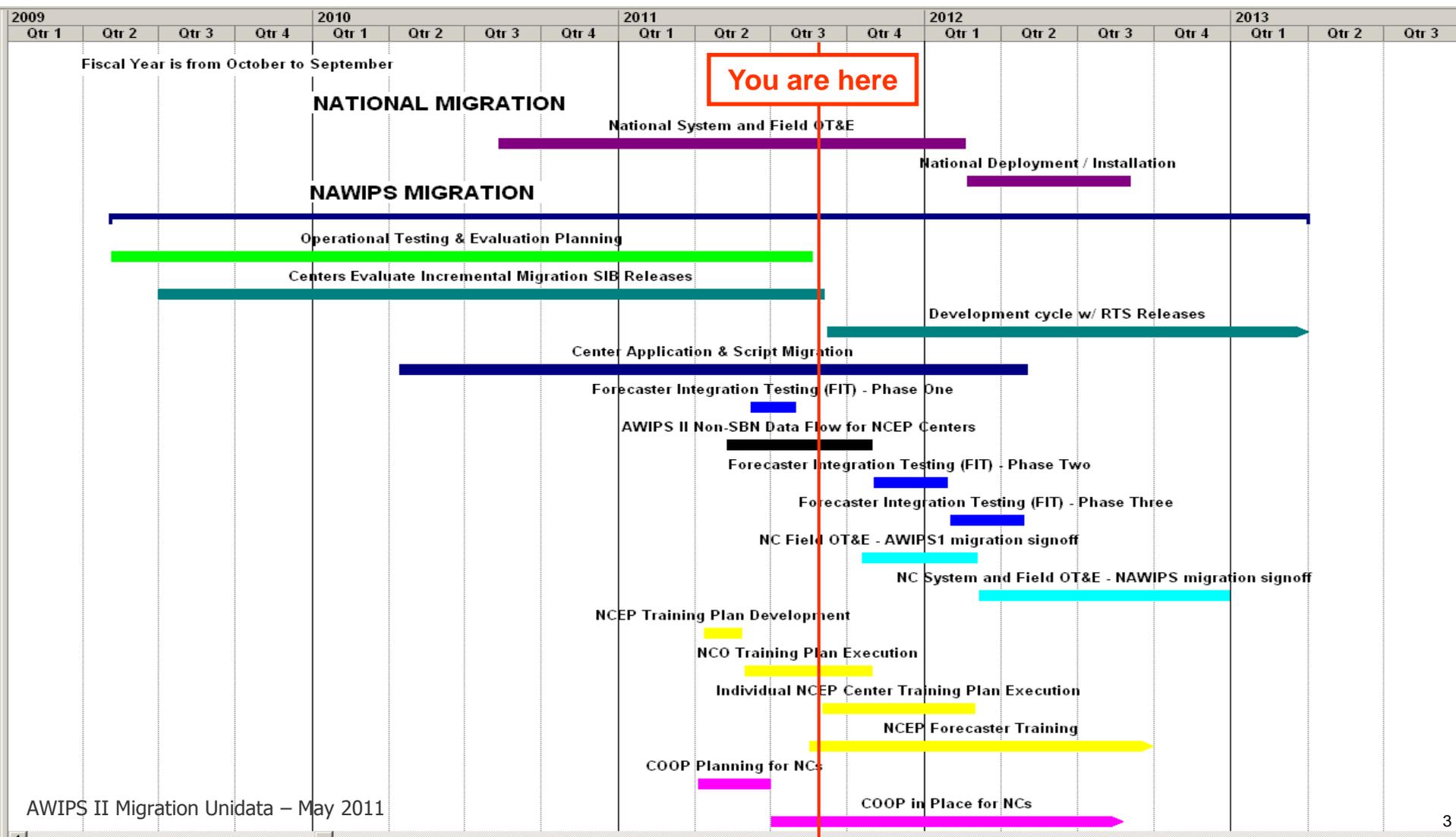


- Project Status / National Status
- Activities since October
- Forecaster Integration Training
- Trouble Ticket Report Status
- Data Flow
- Training
- Unidata Involvement and Benefits
- Final Thoughts...





Current Full AWIPS II Migration Schedule





AWIPS II Software Release Schedule Update



NWS AWIPS II	Schedule
System OTE	Jan – July 2011
Field OTE including National Centers (4 month duration)	July 18 – November 18 2011
Begin National Deployment (WFOs + NCs)	November 2011
Unidata to Receive AWIPS II	Winter 2011

S/W Release #	Build Release ID	Code Freeze Date	Code Delivery	Test Period
4	OB11.4 (R2G1)	3/25/2011	4/11/2011	4/18/2011 - 4/29/2011
5	OB11.5 (R2G2) – NCEP Perspective and NCEP Baseline Modules & Decoders	4/22/2011	5/9/2011	5/16/2011 - 5/27/2011
6	OB11.6 – Second update of NCEP Perspective	5/20/11	6/3/2011	6/6/2011- 6/17/2011
7	OB11.7 – Third update of NCEP Perspective – AWIPS II Version prior to Field OT&E	6/10/11	6/20/11	6/27/2011 -7/1/2011



Project Information and Highlights

Leads: Michelle Mainelli / David Plummer

Scope:

- Migrate current AWIPS I functionality to AWIPS II HW/SW architecture
- Migrate current NAWIPS functionality to the AWIPS II HW/SW architecture,
- Support the National AWIPS Program by assisting in Discrepancy Reports (DRs)
- Completion of migration of local NAWIPS applications to AWIPS II at NCs
- Creation of new COOP plans for SPC, AWC, SWPC, and NCO
- Removal of AWIPS I at NCEP / Complete Removal of N-AWIPS at NCEP

Expected Benefits:

- NCEP integration into NWS AWIPS environment, / Improve NWS collaboration
- NCEP better positioned for future software and technological upgrades.



Issues/Risks: (* = new)

1. Issue: Initial HW/Network/AWIPS architecture to support non-SBN data flow does not satisfy NCP performance
2. Risk: Local script and applications take longer to migrate to AWIPS II
3. Risk: WWB AWIPS II migration can be impacted due to NCWCP move
4. Risk: Possible cooling and electrical issues to support AWIPS II at SWPC
5. Issue: GFE issues during NWSHQ FIT
6. Risk: Product Generation code not fully resolved
7. * Risk: AWIPS II equipment move to NCWCP
8. * Risk: Not having HW/SW at Scott AFB and Offutt AFB to support COOP

Mitigation:

1. Test other alternatives for a buyable solution, if necessary. Working group has been spun up with RTS and OST members.
2. Allocate SIB resources to assist in migration
3. Extend NAWIPS Field OTE to AWIPS II
4. Delay installation of AWIPS II at SWPC
5. DRs have been submitted to AWIPS Program/RTS
6. Working through OST on who has responsibility of the code
7. * Re-start original task with RTS / coordinate with AWIPS Program on moving the equipment – ensure SOW /Funding is covered.
8. * Continue to engage OST on plans to move forward



Scheduling

Task/Milestone	Target	Status
Baseline NCEP perspective submitted to OST	12 January 2011	Completed
User/Admin Documentation First Draft/NCO	18 January 2011	Completed
Accepted NCEP-wide Training Plan	24 February 2011	Completed
NCO Module 1 Overview	March 2011	Completed
NCO Module 2 Topology	May 2011	Completed
NCO Module 3 NCP	July 2011	Planned
COOP Plans for NCs Developed	31 March 2011	Completed
Baseline NC Perspective/Cave released by RTS	May 2011	Completed
Robust Non-SBN Data Flow established	1 May 12 May 2011	Delayed
Begin Forecaster Integration Testing Phase 2	1 August 2011	Planned
Begin Forecaster Integration Testing Phase 3	31 October 2011	Planned
HW Installation Completion by RTS		
SPC, NHC, AWC, WWB	Feb-April	Completed
SWPC	June 2011	Delayed
Begin National Field OTE	18 July 2011	Planned
Removal of AWIPS I at NCEP	Beginning Nov 2011	Planned
Removal of NAWIPS at NCEP	Completed by FY12Q4	On Track



Associated Costs:

Finances

NCO – 6 FTE/14 Contractors, AWC–1.59 FTE, CPC–1.0 FTE, HPC – 2.6FTE , NHC – 0.75 FTE, OPC – 1.0 FTE , SPC – 2.85 FTE, SWPC – 0.2 FTE, SAB – 0.25 FTE

- **Costs to cover COOP plans have not be allocated/budgeted**
- **Funding Sources:** NCO Base, APO, APO transition funds, Each NC Base Funding

Additional Funding Sources: \$1M APO Transition funds + \$400K APO annual funding + \$240-400K NCO Base



Management Attention Required



Potential Management Attention Needed



On Target



NAWIS/AWIPS I to AWIPS II Migration Status – Risks



- **Issues/Risks**

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NAWIPS/AWIPS II Activities Since October



- Over 95% Software Migration Complete
 - *Delivered NCEP Baseline Modules & Decoders to Raytheon*
 - *Delivered NSHARP to Raytheon for incorporation in D2D*
 - *Delivered National Center Perspective to RTS end of April*
- Began Forecaster Integration Testing (FIT) in February 2011
 - *Currently the FIT are on hold until robust data flow is established*
- Establishing automated Data Flow of non-SBN data into AWIPS II
- Conducted Monthly Briefings to NCEP Directors and OST Director
- GEMPAK Releases – 6.3 January, 6.4 June 1
 - *<http://www.nco.ncep.noaa.gov/sib/nawips/>*
- Submitted monthly updates for Unidata Newsletter



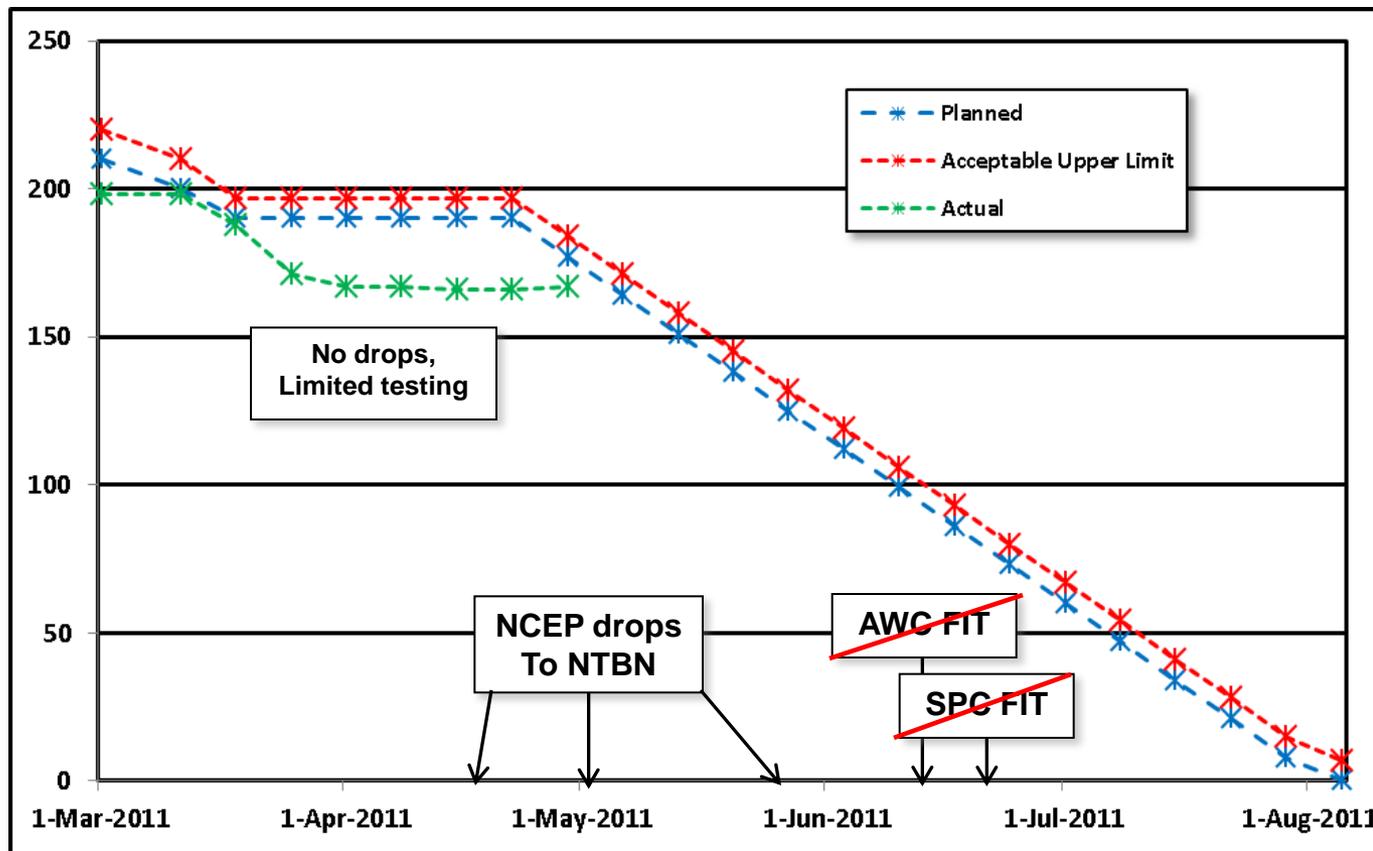
Forecaster Integration Testing Plan



- Each Center has created their own testing plan to conduct at either a FIT on NCEP Test Bed or on their own AWIPS II system once installed
 - Testing plans include the following:
 - Text Product and Graphical Product Generation
 - Data display – model, observational data, satellite, radar etc.
 - Dissemination of products
 - Exchange of products within NCEP Centers
 - System Performance
- Created a three-tier approach for testing National Center Perspective
 - **First FIT** – Forecasters/IT Specialists are invited to NCEP Test Bed to get familiar with AWIPS II – receive overview training of variances – display data – test product creation
 - **Second FIT** – Forecasters/IT Specialists are invited to test data display/product creation once automated data flow is set up. Retest fixed DRs and test the performance of the system.
 - **Third FIT** – Forecasters/IT Specialists are invited to give a final test of the system including performance
- SIB working with OST/NWSTC about their FITs to improve ours



Status of NCEP Trouble Ticket Reports



- 167 DRs open as of 4/22/11
- 48 are ready for Retest on NTBN (NCEP Test Bed)
- 58 Critical, High, or Major
- Many DRs are related to data display issues.

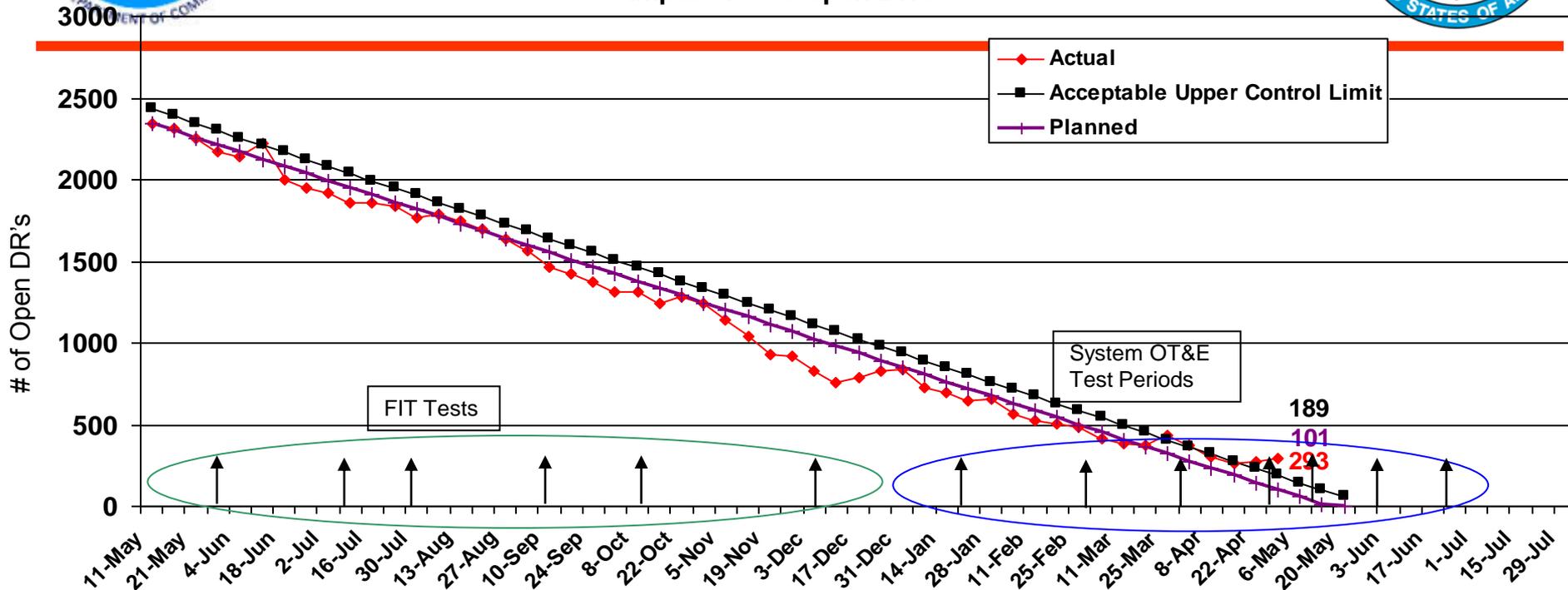


DR Progress Tracking

Open Planned v.s. Actual (05/02/11)



Impact 1 --> 3 Open DR's



Actuals as of (05/02/11)

- 19 net DR increase, (v.s. 44 planned decrease)
3 wk. rolling avg. = xx net decrease per week
- 2.23 DR's per person per week, for current wk.
 - 1.41 wk. ending 04/22, 1.72 wk. ending 04/15
- Raytheon staff: 39 (unchanged from 6/28/10)
- 87 DR's fixed last week. Avg. 70/wk, last 3 wks.
 - 55 wk. ending 04/22, 67 wk. ending 04/15
- 29% rework rate (13 failed DR's out of 45 tested)
 - 10% wk. ending 04/22, 19% wk. ending 04/15
- 9 New DR's last week Avg. 18/wk, last 3 wks
 - 28 DRs wk ending 04/22, 16 DRs wk. ending 04/15



AWIPS II Data Flow for NCEP Centers



- Obtain a robust data ingest method for AWIPS II to migrate and test NAWIPS migrated code. An acceptable method for ingest at all sites is required for both performance and from a security view point.
- 3 Proposals:
 - **SSH/Rsync:** establish a daemon process on AWIPS II that will create an SSH/Rsync connection to a remote site/system for the purpose of syncing up a data directory * **Approach was tried but proved not to meet NCEP Req**
 - **LDM:** Establish an LDM process on either the CPSBN Servers for the PX/DX clusters that will contact and establish an LDM connection through the LDAD Firewall w/out requiring data to be dropped onto the LDAD Servers prior to pulling into AWIPS. ***Approach will be explored in parallel to below**
 - **Direct Connect:** Allow access between AWIPS II Systems and the Central Computing System to access large data sets such as GRIB2 model data.
***Approach currently being explored.**



Training Plan



- NWSTC will provide sys admin training for AWIPS II ~ FY11Q3
- AWIPS II Documentation will be provided by Raytheon
- System Overview Presentation (NCP) by NCO – PPT - completed
- General System Topology (NCP) by NCO - PPT - completed
- NCP/AWIPS II User Interface Introduction – Webinar Early July
 - Eventually a video of the tutorial will be available (once interface is finalized)
- Open the NCO Test Bed for Unidata Community for training purposes – “train the trainers”





Documentation and Training Materials



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article discussion edit history

N-AWIPS Migration

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 - 1.2 Information and support
 - 1.3 Functional Areas

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Welcome to the AWIPS II Migration Project

This page provides information about the NAWIPS-to-AWIPS II Migration Project

Project Background and Description

AWIPS2 is the new software architecture being developed for AWIPS to meet the needs of the National Weather Service. Raytheon, the prime contractor as authorized by the National Weather Service, is developing AWIPS2 including NCEP and NAWIPS applications. The migration of the NAWIPS Systems Integration Branch, and is planned for FY09-10.

Information and support

- [NTBN - NCEP AWIPS Testbed](#)
- [FAQs](#)
- [Weekly Scrum Minutes](#)
- [NAWIPS Migration TTR site login](#)
- [Join us information and notes](#)
- [Functionality and Training](#)
- [NAWIPS Migration workshop, August 17-19, 2010](#)
- [Hardware Requirements](#)
- [Running CAVE remotely](#)
- [Test Case Template](#)

Functional Areas

Status of major areas of development

- [NC - General](#)
- [NC - Data Selection](#)
- [NC - Data Display](#)

- Wiki site developed by SIB
- Includes weekly status updates of NCEP Test Bed.
- Includes minutes and action items from weekly scrum meetings with the Centers
- Includes documentation on the variances between NAWIPS and National Center Perspective (NCP)



Documentation and Training Materials



www.nws.noaa.gov

National Weather Service

AWIPS Technology Infusion

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AWIPS Migration

Local Application Training – **Ashley Kells (OST/SEC)**

Session I

[Recording Session Thursday Feb 3, 2011 2:00 EST](#)

[Power Point presentation](#)

[DRAFT Local Application Migration Steps](#)

Instructor: James Calkins, NOAA/NWS, Silver Spring, MD Feb 3, 2011

Topic: Local Application Migration Training

Session II

[Recording Session Wednesday Feb 16, 2011 2:00 EST](#)

Topic: Subversion_Subscription

Instructor: John Olsen, NOAA/NWS, Silver Spring, MD Feb 16, 2011

[Recording Session Thursday Feb 17, 2011 2:00 EST](#)

Topic: GFE Smart Tools

Instructor: John Olsen, NOAA/NWS, Silver Spring, MD Feb 16, 2011

[Schedule and Related Information](#)

[Archives - Developer Training Archives](#)

- Training provided by the AWIPS Program Office.
- Provides a good overview of the AWIPS II from a system perspective
- Provides overview on how to migrate local apps in AWIPS I environment to AWIPS II.

http://www.nws.noaa.gov/ost/SEC/AE/AWIPSII_LA_Migration_Training.htm



Unidata Involvement



- AWIPS II migration efforts first priority of NWS in FY11 and FY12
- Weekly Migration Telecons with Centers and Unidata
- SIB is committed to assisting in software configuration and training forecasters and key personnel at Unidata in FY11 and FY12
- Unidata has become more actively involved with NWS/OST AWIPS Program
- Liaison with the University community
- **NCEP continues to view Unidata as a critical partner for NCEP's total mission**





Benefits for Unidata Users



- Facilitate Research to Operations
- Classroom tool/training
 - *Weather Event Simulator ~ Development 2012 / Delivery 2013*
- One NWS Operational System
 - *National Field OTE & National Deployment*
- Less data processing required
- Run your own EDEX to create database
- Modern development environment/platform
 - *Flexible & expandable architecture*
 - *Object oriented languages such as Java and Python*





Final thoughts...



- AWIPS National Program Field OTE has slipped around one month and National Deployment slipped from Sep to begin Oct/Nov 2011
 - Allowed more time for NCO to migrate software into baseline
- NCEP transition remains highly dependent on National AWIPS Program Schedule
- NCO has encountered a few stumbling blocks over the last six months – HW install/Dataflow/Software integration by Raytheon; however, these blocks have NOT resulted in significant delays in schedule
- Strong partnership will remain between NCEP and Unidata through transition and in the years to follow



Questions ?



*“From the Sun to the Sea...
Where America’s Climate, Weather, Ocean and Space
Weather Services Begin”*



GEMPAK Support and AWIPS II Licensing



- GEMPAK will be supported until a full replacement is ready
 - *GUIs deprecated eventually*
- Unidata support of GEMPAK for 18 months after 1st release
 - ~ *Summer 2013*
- AWIPS Program will deliver code to Unidata in the future
 - *First release expected Winter 2011*
- Licensing of software
 - *GEMPAK developed by the Federal Government – open software*
 - *Once NWS implemented, AWIPS II will have open software policies; however, obtaining the code may need to go through a FOIA request – requests will be expedited from Unidata*
 - *Some decoders (such as lightning decoder) and tools to disseminate products will be removed in non-government version*



AWIPS II Hardware Configuration for NCEP



DX – EDEX Cluster (4)
DX – Database Cluster (2)
PX – Pre-processors (2)
LS – LDAD Processors (2)

HP DL 380

Dual Quad Core E5520

8+ GB

2x146 GB 15k SAS – RAID 1

CP - Comms Processor (2)

HP DL 380

Single Quad Core E5520

6 GB

1x146 GB SAS

LX – Workstations (8)*

HP Z800

Quad Core X5550 2.66 GHz

16 GB

1x146 GB 15k SAS

2x nVidia GTS250 1024MB

4x 20-inch widescreen monitors

Storage

NetApp FAS3160C

26 TB total disk space using SAS drives

Infrastructure

Cisco 2960 Switch

Cabling / Firewall / Racks

Novra SBN Ingest

Printers .. Etc