



NAWIPS Migration to AWIPS II Status Update

Unidata Users Committee Meeting



NCEP Central Operations

11 April 2011



Topics

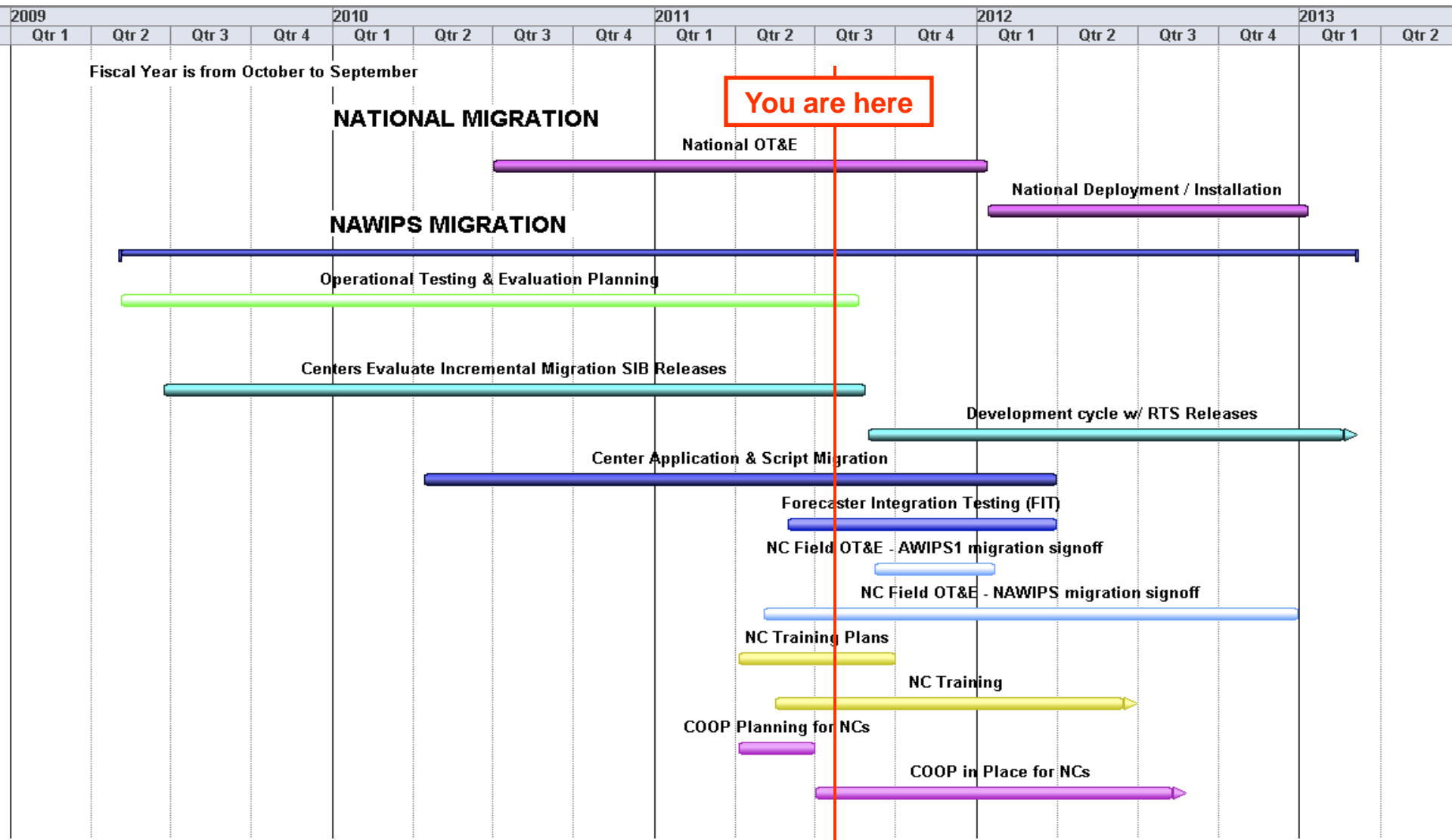


- Project Status / National Status
- Activities since October
- Forecaster Integration Training
- Trouble Ticket Report Status
- Data Flow
- Training
- Unidata Involvement and Benefits
- Final Thoughts...





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	July – October 2011
Begin National Deployment (WFOs + NCs)	October 2011
Unidata to Receive AWIPS II	Winter 2011

S/W Release #	Build Release ID	Code Freeze Date	Code Delivery	Test Period
1	OB11.1 (R1G1; R1G1-8)	12/31/2010	1/18/2011	1/24/2011 - 2/4/2011
2	OB11.2 (R1G2; R1G2-9)	2/4/2011	2/22/2011	2/28/2011 - 3/11/2011
3	OB11.3 (R1G3)	2/25/2011	3/14/2011	3/21/2011 - 4/1/2011
4	OB11.4 (R2G1) – NCEP Baseline Modules & Decoders	3/25/2011	4/11/2011	4/18/2011 - 4/29/2011
5	OB11.5 (R2G2) – NCEP Perspective	4/22/2011	5/9/2011	5/16/2011 - 5/27/2011
6	OB11.6	6/10/11	6/20/2011	6/27/2011 - 7/01/2011



NCEP

PMO-094: AWIPS2 Migration Project Status as of 7 April 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
- Complete Removal of AWIPS I at NCEP
- Complete Removal of N-AWIPS at NCEP

Expected Benefits:

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

Issues/Risks:



1. Initial Hardware/Network Config./AWIPS II architecture does not satisfy performance requirements of the National Center Perspective (NCP)
2. Delay in baseline integration of NCP by OST/RTS
3. Costs to cover COOP install/maintenance/support not initially covered
4. Lack of system knowledge at NCO delays real-time data flow of AWIPS II
5. Lack of coordination with OST and RTS on AWIPS II current development/task activities
6. Local script and applications take longer to migrate to AWIPS II
7. WWB migration can be impacted with AWIPS II migration due to NCWCP

Mitigation:

1. Test other alternatives for a buyable solution, if necessary. Working group has been spun up with RTS and OST members.
2. RTS/OST adding support for NCO to accomplish this task on time. (in progress)
3. NWS National AWIPS Program is looking for funding options
4. Seek direct assistance from RTS to help solve system issues (task issued)
5. Start weekly calls with OST and RTS to ensure open lines of communications
6. Allocate SIB resources to assist in migration
7. Extend NAWIPS Field OTE to AWIPS II



Scheduling

Task/Milestone	Status	Target
Baseline NCEP perspective submitted to OST	Completed	12 January 2011
User/Admin Documentation First Draft/NCO	Completed	18 January 2011
Accepted NCEP-wide Training Plan	Completed	24 February 2011
Baseline NCEP Edex/Decoders released by RTS	On Track	14 March April 2011
Baseline NC Perspective/Cave released by RTS	Delayed	May 2011
Interface to data acquisition/dissemination Sys	On Track	1 May 2011
HW Installation Completion by RTS		
SPC and NHC	Completed	4 Feb & 24 Feb
AWC	Completed	18 Mar
WWB and SWPC	On Track	April and June
COOP Plans for NCs Developed	Completed	31 March 2011
National Field OTE for NCEP	On Track	Summer 2011 (July)
Removal of AWIPS I at NCEP	On Track	Beginning 30 Sept 2011
Removal of NAWIPS at NCEP	On Track	Completed by FY12Q4



Finances

Associated Costs: All NAWIPS team members (5.5 FTE + 9 Contractor + 5 additional contractor staff) . Includes one FTE addressing NAWIPS bug fixes and table updates.
 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**

1. *Initial Hardware/Network Config./AWIPS II architecture does not satisfy performance requirements of the National Center Perspective (NCP)*
2. *Delay in baseline integration of NCP by OST/RTS*
3. *Costs to cover COOP install/maintenance/support not initially covered*
4. *Lack of system knowledge at NCO delays real-time data flow of AWIPS II*
5. *Lack of coordination with OST and RTS on AWIPS II current development/task activities*
6. *Local script and applications take longer to migrate to AWIPS II*
7. *WWB migration can be impacted with AWIPS II migration due to new building move (NCWCP)*

- **Mitigation**

1. *Test other alternatives for a buyable solution, if necessary. Working group has been spun up with RTS and OST members.*
2. *RTS/OST adding support for NCO to accomplish this task on time.*
3. *NWS National AWIPS Program is looking for funding options*
4. *Seek direct assistance from RTS to help solve system issues ASAP (in progress)*
5. *Start weekly calls with OST and RTS to ensure open lines of communications (activated)*
6. *Allocate SIB resources to assist in migration*
7. *Extend NAWIPS Field OTE to AWIPS II*



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*
 - *Next delivery of NC Perspective to RTS end of April*
- Began Forecaster Integration Testing (FIT) in February 2011
- 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 Early May
 - *<http://www.nco.ncep.noaa.gov/sib/nawips/>*
- Submitted monthly updates for Unidata Newsletter



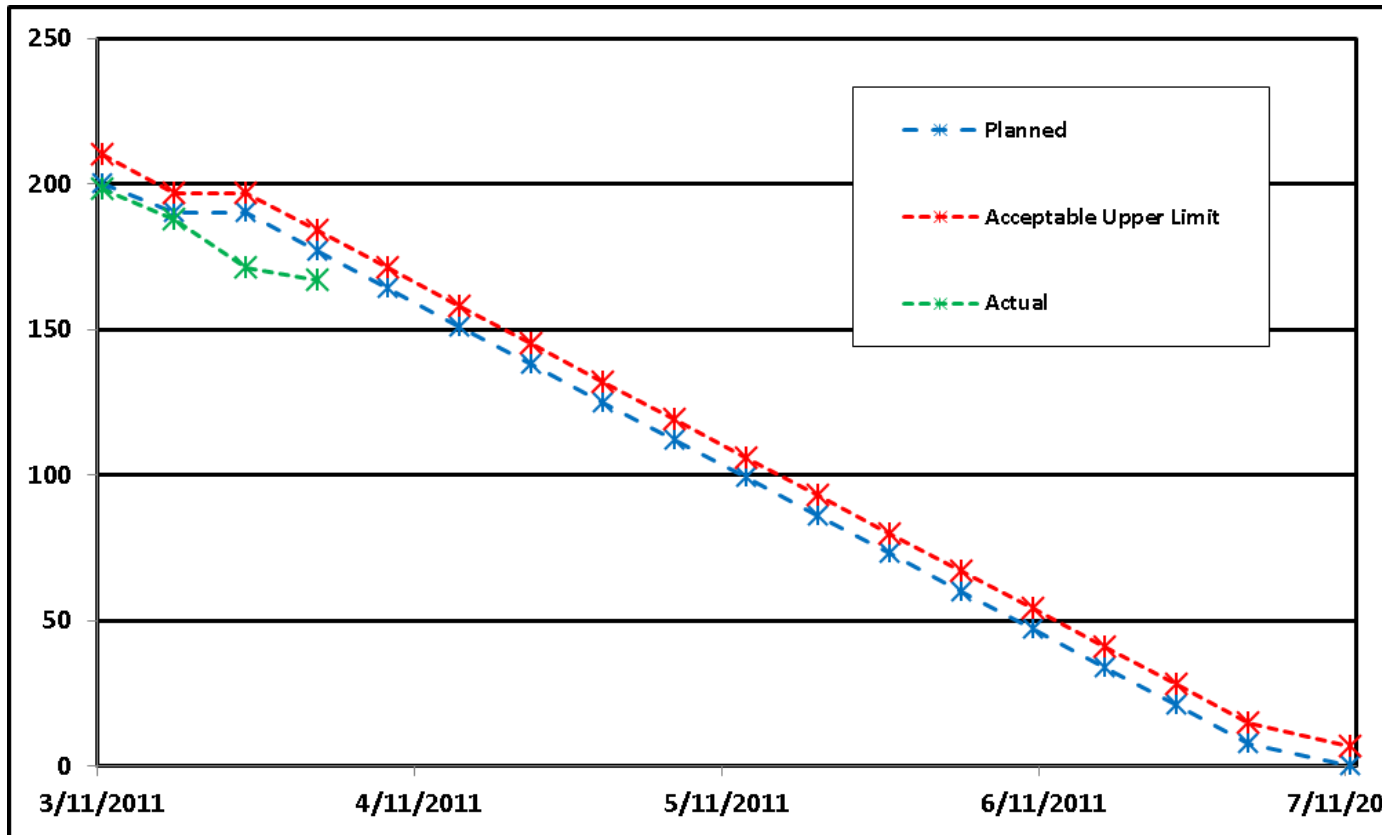
Forecaster Integration Testing Plan



- 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 4/8/11
- 45 are ready for Retest on the Test Bed
- 69 Critical, High, Major
- Most DRs are related to data display issues.

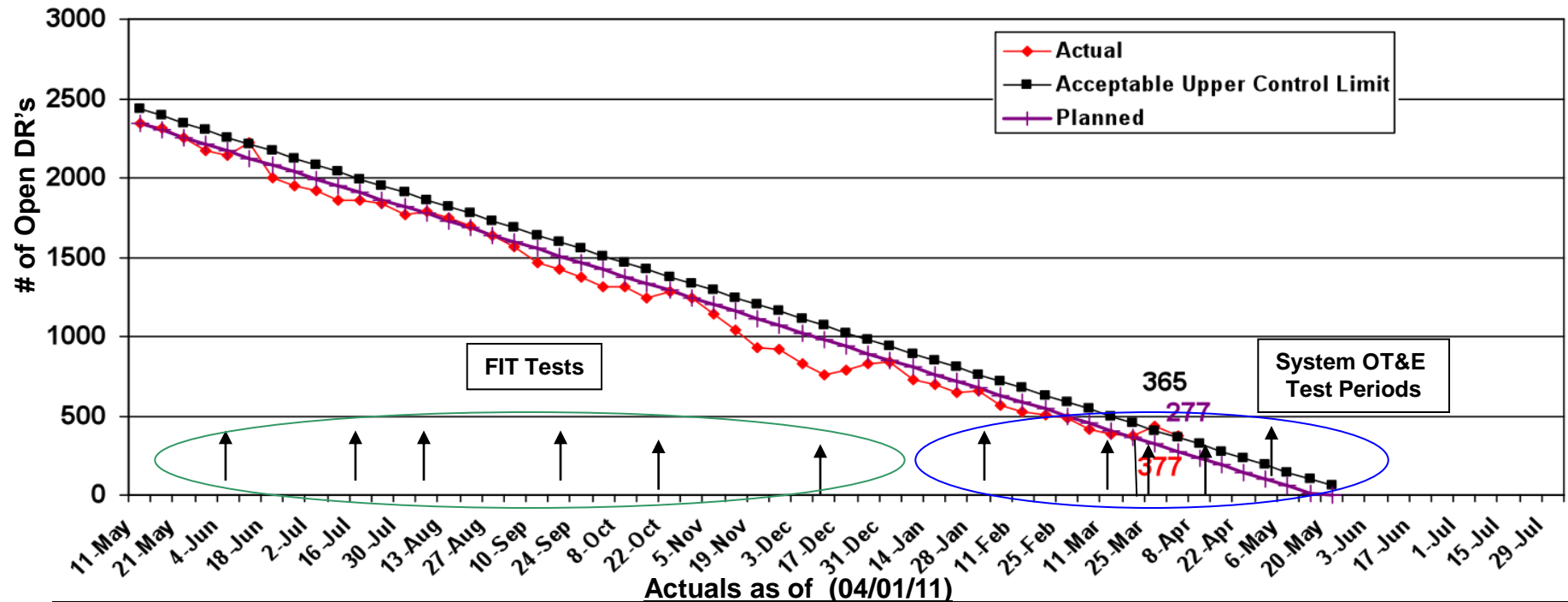
- Since January 1 – SIB has a closure rate of ~12 per week (either closing, or ready for re-testing)
- Open DRs include results from all FITs.



Status of National TTRs Open Planned v.s. Actual



Impact 1 --> 3 Open DR's



Actuals as of (04/01/11)

- 57 net DR decrease, (v.s. 44 planned)
3 wk. rolling avg. = 3.6
- 2.38 DR's per person per week, for current wk.
1.95 wk. ending 03/11, 3.15 wk. ending 03/04
- Raytheon staff: 39 (unchanged from 6/28/10)
- 123 DR's fixed last week. Avg. 102/wk, last 3 wks.
93 wk. ending 03/18, 90 wk. ending 03/25
- 18% rework rate (7 failed DR's out of 38 tested)
50% wk. ending 03/18, 15% wk. ending 03/25
- 91 New DR's last week Avg. 111/wk, last 3 wks
95 DRs wk ending 03/18, 148 DRs wk. ending 03/25



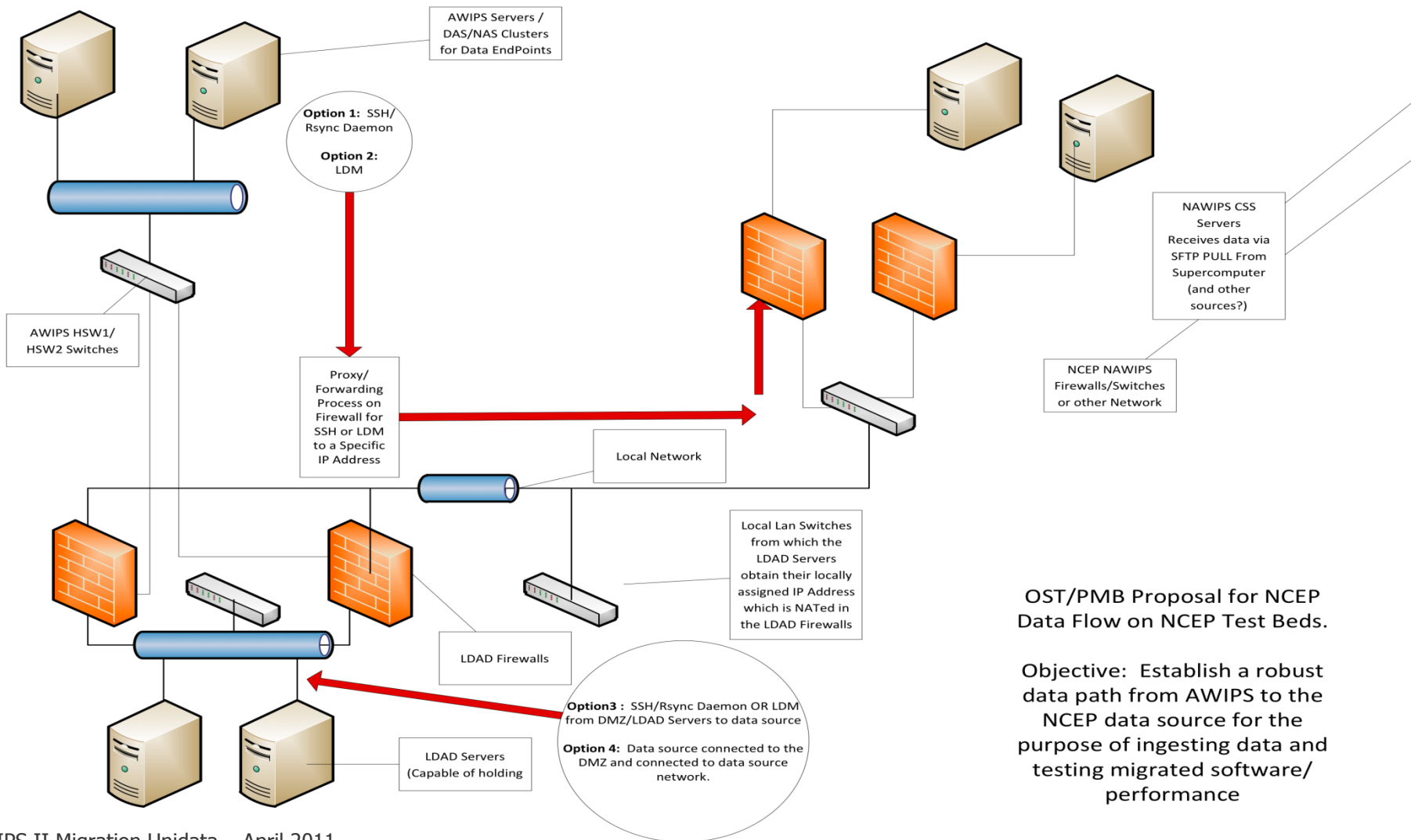
AWIPS II Data Flow for NCEP Centers



- 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
 - **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
 - Solution one or two above except these process would be initiated from LDAD and data would be dropped onto LDAD



AWIPS II Data Flow for NCEP Centers



OST/PMB Proposal for NCEP Data Flow on NCEP Test Beds.

Objective: Establish a robust data path from AWIPS to the NCEP data source for the purpose of ingesting data and testing migrated software/performance



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
- General System Topology (NCP) by NCO - PPT (eventually video)
- NCP/AWIPS II User Interface Introduction – Webinar Early May
 - 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

Contents [hide]

- 1 Welcome to the AWIPS II Migration Project
 - 1.1 Project Background and Description
 - 1.2 Information and support
 - 1.3 Functional Areas

[edit]

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 to AWIPS2 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



The screenshot shows the NOAA website interface. At the top, it says "National Weather Service" and "AWIPS Technology Infusion". The URL "www.nws.noaa.gov" is visible in the top right. A navigation bar includes "Site Map", "News", "Organization", a search box, and "MWS All NOAA Go". The main content area is titled "AWIPS II Local Application Migration Training" and lists "Session I" through "Session V". Under "Session I", there are links for "Recording Session Thursday Feb 3, 2011 2:00 EST", "Power Point presentation", and "DRAFT Local Application Migration Steps". The instructor is listed as "James Calkins, NOAA/NWS, Silver Spring, MD Feb 3, 2011". A sidebar on the left contains various navigation links like "Office of Science and Technology Home", "Systems Engineering Center Home", "AWIPS Technology Infusion Home Page", "About ATI", "Governance", "Site Migration", "Presentations and Papers", "Testing", "Training", "What's New", and "Contact Us". At the bottom of the page, there is a "USA.gov" logo and a footer with contact information and a disclaimer.

- 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
- 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
- As the migration gets closer to full deployment – Unidata will have more involvement 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*
 - *Some decoders (such as lightning decoder) and tools to disseminate products will be removed in non-government version*
 - *NCO will discuss with NOAA Legal Affairs on particulars to develop a clear understanding for all users*



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