Integrating NAWIPS into the New NWS Service Oriented Architecture

Migrating NAWIPS to AWIPS II

Scott Jacobs
Software Technical Lead
National Centers for Environmental Prediction
24th Conference on Interactive Processing Systems
AMS Annual Meeting 2008 Paper 6A.3
23 January 2008
Purpose

• Provide an understanding of the plans for migrating NAWIPS functionality to the AWIPS II environment
NAWIPS Migration

Goals

• Enhance collaboration among Centers, WFOs, RFCs and customers
  – **Deliver products and services in industry and customer centric formats**
  – **Enable collaborative development between local, national and outside developers**

• Provide seamless, flexible and extensible weather enterprise that integrates all levels of NWS operations
  – **Integrate service delivery via the migration of AWIPS and NAWIPS into a common Service Oriented Architecture**
  – **Integrate visual collaboration throughout the organization**
  – **Put new science into operations faster**
  – **Make same science tools available to all levels of NWS operations via common algorithm library and tool sets**
NAWIPS Migration
Roadmap

NAWIPS Migration

- 2008 Migration Planning
  - Centers Review and Approve Plan
  - Software/Functionality Migration
  - Center Developer Training
  - User Training
  - Site Admin Training
- Evaluate Incremental Migration Releases
- OT&E Planning
- OT&E
- Deployment
- Deployment Decision Point
- New Release Schedule

NAWIPS Legacy Maintenance

- 5.11.2 - 5.11.4 Bug Fixes
- Emergencies Only!

= Calendar Year
= Fiscal Year

23 January 2008
24th IIPS 6A.3: NAWIPS Migration
NAWIPS Migration
Responsibilities

- **Planning**
  - NCEP and OST
  - Some Raytheon support for architectural discussions

- **Application Migration**
  - NCEP migrates NAWIPS with Raytheon support
  - **Testing**
    - Incremental ("alpha") testing of migrated functionality
    - Verification and validation – test to break
    - OT&E

- **Training**
  - Developer training
  - Site admin training

- **Government (NCEP) will maintain migrated NAWIPS applications in AWIPS II era**
  - NCEP develops new application level functionality
  - Raytheon maintains infrastructure and architecture
NAWIPS Migration
Re-Architecture Approach

• Preserve existing NAWIPS functionality
• Minimize changes to user interfaces – “Grey Box” conversion
  – Minimizes user training of forecasters and administrators
• Leverage use of AWIPS II services, functionality and development tools to optimize migration
  – AWIPS II uses open source projects – No proprietary code
  – AWIPS II is platform independent
• Migrate NAWIPS functionality incrementally to AWIPS II to reduce risk
  – Multiple deliveries planned for FY09 and FY10 for testing and evaluation purposes
NAWIPS Migration
FY08 Activities

• Goals
  – Gain expertise in AWIPS II technologies and architecture
  – Ensure that AWIPS II architecture can support NCEP requirements
  – Develop NAWIPS migration plan for FY09/10 execution

• Activities
  – Take training: SOA, Java, RTS developer
  – Participate on AWIPS II teams: IV&V, IWT testing
  – Conduct NCEP-OST monthly coordination meetings to support migration planning
  – Participate in RTS TIMs, including NCEP-specific issues
  – Conduct NAWIPS vs. AWIPS II Gap Analyses
    • Software, hardware, network and data flow
    • Prototype in AWIPS II ADE
      • GUIs, decoders, displays, diagnostics
NAWIPS Migration
Issues and Challenges

• GEMPAK batch processing
  – How do we support batch processing with an interactive system?
  – How do we support batch processing in a super computer environment?

• GEMPAK scripting
  – How does this drive training and local application development?
  – What is the impact on transition?

• Local apps
  – How will “local apps” for the National Centers and outside users be handled?

• Conversion of archived data sets to new data standards

• University and Unidata support
NAWIPS Migration
Issues and Challenges

• **Performance in AWIPS II architecture**
  – Handling large global data sets, including ensembles
  – Handling a large number of concurrent users

• **Use of AWIPS II vs. NCEP hardware and network infrastructure decision factors**
  – AWIPS II must support ingest of NCEP unique data sets
  – AWIPS II must scale to support NCEP processing requirements
  – Can AWIPS workstation hardware support NCEP requirements?
  – Evaluating gaps and deltas between AWIPS and NAWIPS current system implementations
NAWIPS Migration
Issue and Challenges

• **NAWIPS moratorium required during migration period**

  – *Migration complexity – enhancing existing NAWIPS while migrating not practical
  – *Resource constraints

• **Routine NAWIPS maintenance only**

  – *Bug fixes only
  – *Table, map updates as necessary
Summary

- NAWIPS Migration an essential part of AWIPS Evolution
  - Migration preparation and planning underway
  - Migration executed in FY09 and FY10
  - Deployment complete FY11
  - Migration will improve NWS collaboration
  - Migration will improve NWS products and services