CHPS

Chris Dietz
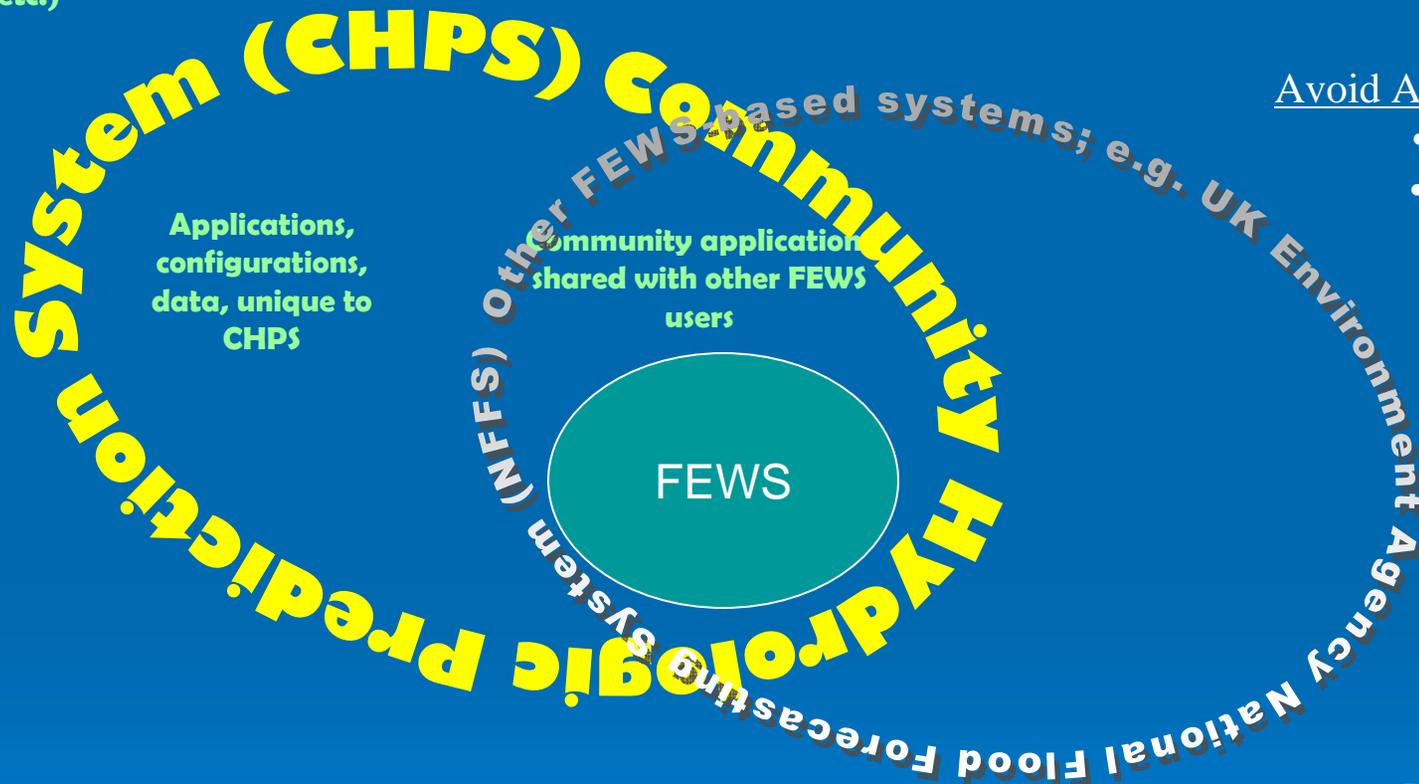## CHPS Project Leader, OHD HL HSEB

RFC DOH Workshop
Silver Spring, MD
July 15, 2008

Terminology

FEWS features have potential application to the entire FEWS user community (generic time-series storage, displays, workflows, etc.)

Preferred Usage
- "FEWS for CHPS"
- "CHPS and FEWS"
- "CHPS or FEWS"

Avoid Ambiguous Usage
- "CHPS/FEWS"
- "CHPS-FEWS"

System (CHPS) Community Hydrologic Prediction

Other FEWS-based systems; e.g. UK Environment Agency National Flood Forecasting System (NFFS)

Applications, configurations, data, unique to CHPS

Community application shared with other FEWS users

FEWS

FEWS is a suite of configurable modules which can store, manipulate, and display time series data using your own and community applications.

CHPS is a uniquely configured realization of FEWS, using RFC-specific data and applications.

07-15-2008

Other FEWS-based systems (e.g., NFFS) are *different* realizations of FEWS.

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General Approach

➢ CAT RFCs bear the brunt of the pain for all!

- CAT RFCs go through migration one year ahead of other RFCs to work out wrinkles

- CAT RFCs act as mentors for other RFCs during the main CHPS migration

Implementation Strategy

➢ Clear planning and execution

- Gap analysis for essential operations
  - Use of existing calibrated parameter sets is essential
- Preprocessing and post-processing utilities
- AWIPS II integration
- Staff training
- Technical support
- RFC contributions (individual, groups, regions)
- Many others…

Implementation Strategy (cont'd)

- ➤ **Port models that require calibration**
  - BASEFLOW, SARROUTE, CONS_USE, LAG/K, LAY-COEF, TATUM,
  - TIDEREV, MUSKROUT, RES-J, RSNWELEV, SNOW-17, CHANLOSS,
  - STAGE-Q, SSARRESV, STAGEREV, UNIT-HG, RES-SNGL, SAC-SMA

- ➤ **Create adapters for several new models (e.g. HEC-RAS)**

- ➤ **Rely on existing FEWS data and display utilities with identified enhancements**
  - CLEAR-TS, CHANGE-T, ADD/SUB, SET-TS, MULT/DIV, NOMSNG, MERG-TS,
  - MEAN-Q, WEIGHT-TS, LOOKUP3, LOOKUP, DELTA-TS, ADJUST-Q,
  - ADJUST-H, ADJUST-T, PLOT-TS, PLOT-TUL

Implementation Strategy (cont'd)

- Provide for forecaster run-time modifications
  - IGNORETS, FMAP, SSARREG, MFC, RRICHNG, SWITCHTS, TSCHNG,
  - CHGBLEND, WECHNG, RAINSNOW, RRIMULT, WEADD, TSADD, SACCO,
  - AESCHNG, ROMULT, SETMSNG, UADJ, ROCHNG, UHGCHNG, SETQMEAN,
  - UHGDATE, QCSHIFT, QPSHIFT, HECRAS

- Provide for existing level of ensemble operations, products, and services
  - Port ESP, ESPADP, ENS_PRE, ENS_POST, to use FEWS architecture and data resources
  - Leverage FEWS existing ensemble capabilities
  - Future: XEFS
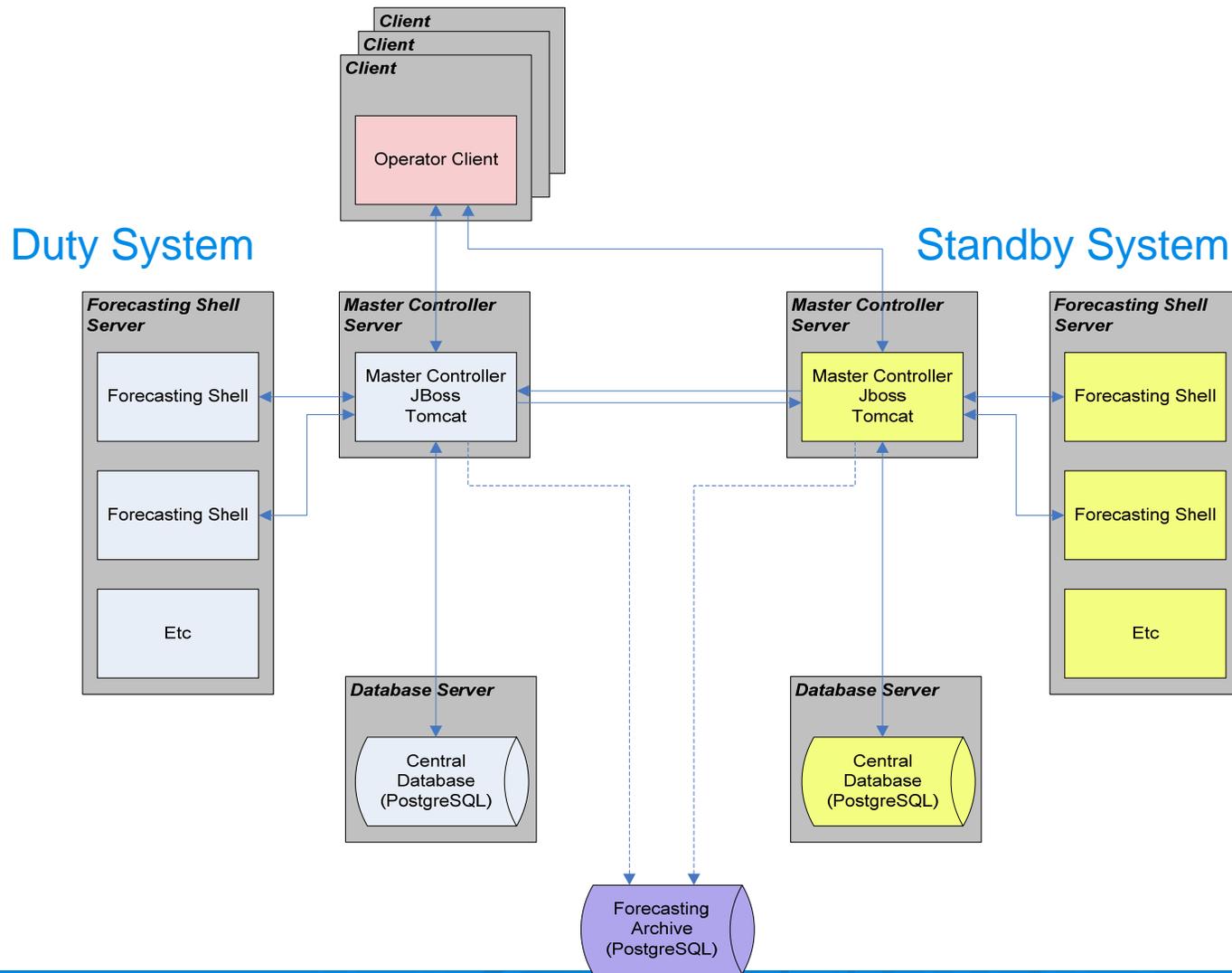
Implementation Strategy (cont'd)

- ➢ **Two tiers of deployment**
  - ● CAT RFCs (AB, CN, NE, NW)
    - • Initial hardware delivery in October 2008
    - • Initial migration software and training in January 2009
    - • Operational hardware delivery summer 2009
    - • Parallel operations by October 2009

  - ● Remaining 9 RFCs
    - • Initial hardware delivery in October 2009
    - • Migration/Systems training – Fall 2009
    - • Migration begins January 2010
    - • Parallel operations by October 2010

- ➢ **RFCs not required to drop NWSRFS until "fully ready"**

Project Timeline

FEWS Hardware Infrastructure

Client
Client
Client

Operator Client

Duty System

Standby System

Forecasting Shell Server

Forecasting Shell

Forecasting Shell

Etc

Master Controller Server

Master Controller
JBoss
Tomcat

Master Controller Server

Master Controller
Jboss
Tomcat

Forecasting Shell Server

Forecasting Shell

Forecasting Shell

Etc

Database Server

Central
Database
(PostgreSQL)

Database Server

Central
Database
(PostgreSQL)

Forecasting
Archive
(PostgreSQL)

Current Status

- Gap analysis
- Define Baseline Operational Capability (BOC)
- OHD models
- FEWS enhancements
  - MODs
- Migration tools
- Hardware (CAT sites)
- AWIPS II integration
- HEC-RAS

Next….
- Hardware for non-CAT RFCs
- Calibration
- Verification
- XEFS
- Local applications
- Distributed Modeling

Science Questions

- ➢ What to do about MAPE?
- ➢ Parallel Operations:
  - • Comparison of forcing data
  - • Comparison of forecasts

Useful Resources

➢ Deltares wiki page for NWS FEWS users:

- https://public.deltares.nl/login.action?os_destination=%2Fdisplay%2FFFEWSUSA
- Userid nws; Password nws123

(Or go to https://public.deltares.nl/, click on "Log In", enter userid and password, then select DELFT-FEWS USA. This takes you to the same NWS FEWS area.)

(For wiki help, visit http://www.atlassian.com/software/confluence/)

➢ rfc.chps@noaa.gov – Harold and Chris will answer your questions

DOH To Do List

- ➤ Share your CHPS knowledge with others in your office
- ➤ Submit ideas for analyzing local applications; then volunteer to participate
- ➤ Send list of MODs in operational use at your RFCs to Randy Rieman
- ➤ Respond to Harold's email "OFS IFP functionality & CHPS/FEWS - Action: July 11"
- ➤ Ask questions about CHPS or FEWS - rfc.chps@noaa.gov.
- ➤ Go to wiki page (slide 12) and learn

Questions?