

# **NWS VIRTUAL LABORATORY**

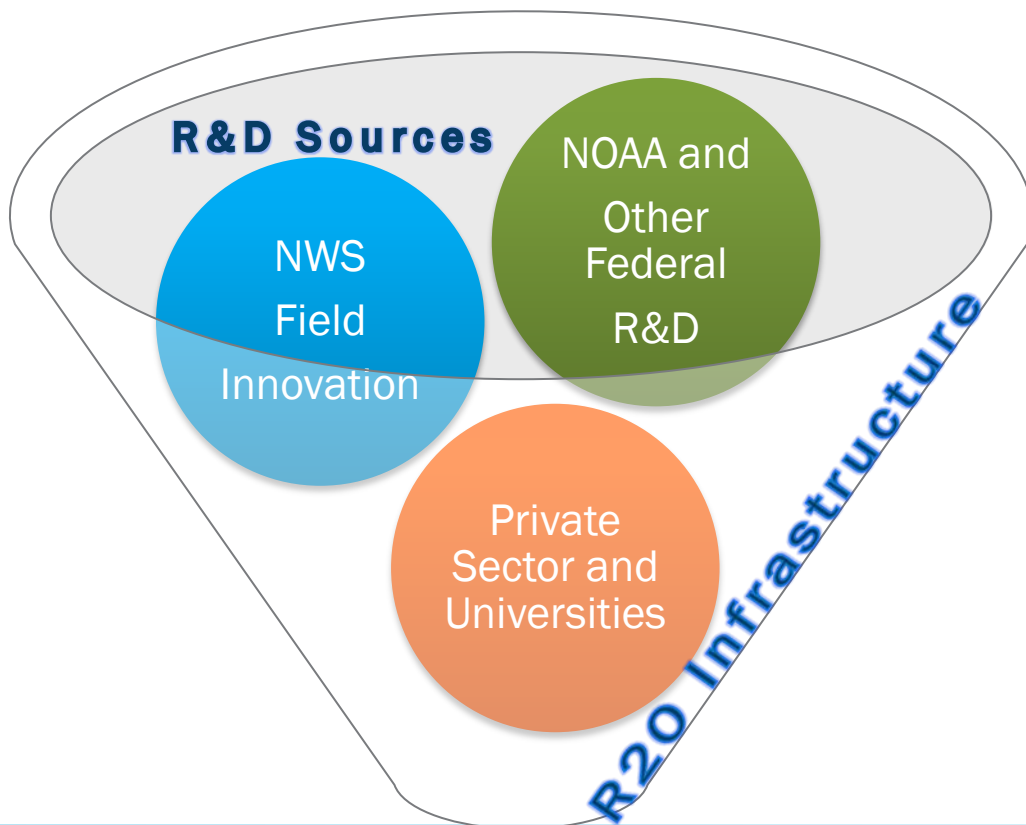
IMPROVING R20/O2R USING  
COLLABORATION AND DEVELOPMENT  
SERVICES

January 15, 2014

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# NWS R20



NWS Operations

# *NWS Virtual Laboratory*

The Virtual Laboratory (VLab) is a set of services and IT framework which enables NWS employees and their partners to share ideas, collaborate, engage in software development, and conduct applied research.

*The Goal of VLab is to manage innovation, streamline O2R, and accelerate R2O in NOAA.*

*VLab provides NWS's R&D partners with a clear and inexpensive path to operations.*

A Carrot, rather than Stick, approach  
to improving  
R2O/O2R

# *Brief History of VLab:*

- February 2012: Cross-NWS VLab Vision Team chartered
- October 2012: VLab Vision document briefed to NWS Management
- February 18, 2013: VLab IOC date

<https://nws.weather.gov/innovate/>

# *Implementation of the VLab:*

- Reduces the time and cost of transitions of research and development projects to enterprise operations,
- Minimizes redundancy and leverages complementary, yet physically separated, skill sets,
- Forges scientific and technical solutions based on a broad, diverse consensus, and
- Promotes an R2O/O2R culture based on collaboration and trust

## Guiding Principles:

Transparency

Teamwork

Flexibility

Responsiveness

Accountability

# Scope

- VLab is open to all NOAA employees\*
- The VLab supports both informal collaboration and prototyping as well as formal, structured development
- The VLab development is targeted to the following operational systems:

Advanced Weather Interactive Processing System (AWIPS)

Weather and Climate Operational Supercomputing System (WCOSS)

NWS Internet Dissemination System (NIDS)

\*NOAA users can request access for external partners

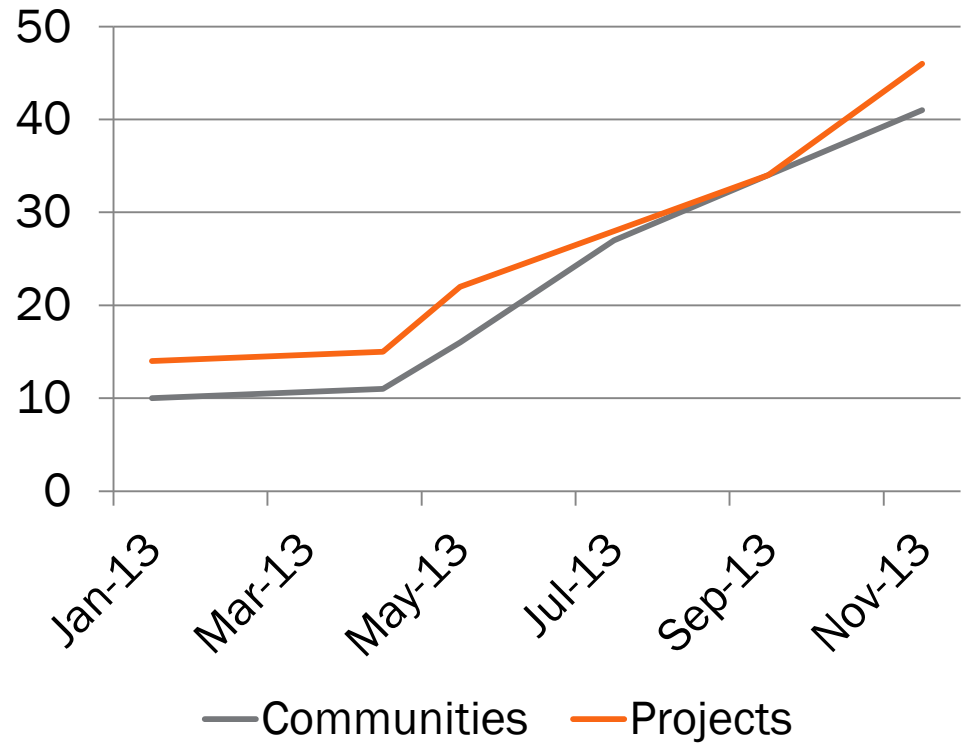
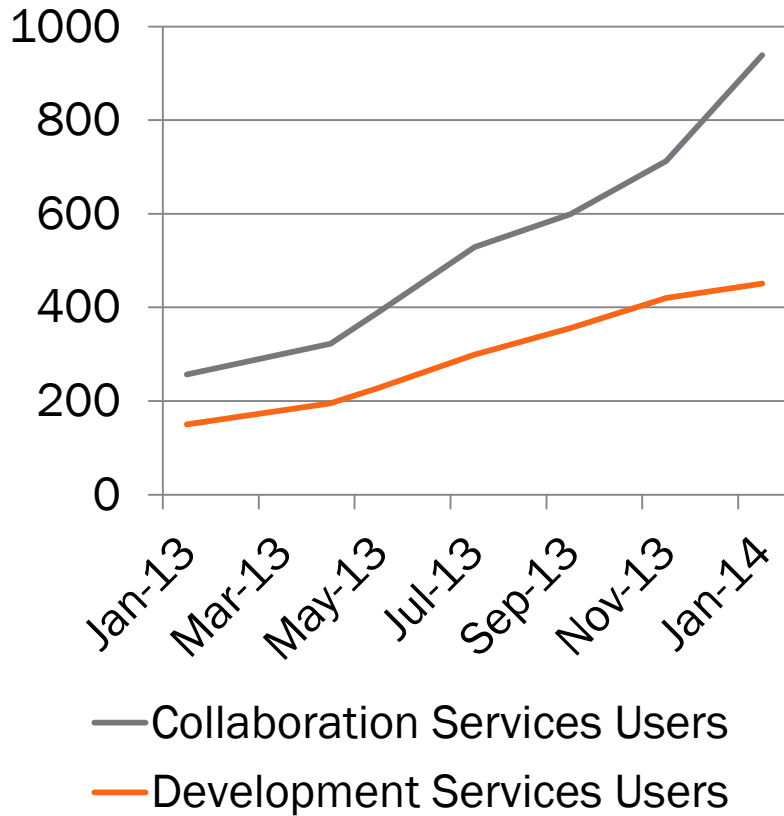
VLab is NOT an “end-around” of existing NWS governance processes and procedures.

# WRN Roadmap 2.0

## P. 63:

*Design and implement a **Virtual Laboratory (VLab)**. Initial capabilities of the VLab will be to implement an innovation portal for tracking, sharing, and collaborating on development projects, including AWIPS software development. Being based in the cloud or cloud-like environment, the VLab will be a fundamental change in software development strategy for forecaster applications and will enhance both O2R and R20.*

# VLab Status





# *Recent VLab Projects*

- Model Blender (Sandy)
- MRMS (Sandy)
- SLOSH/Extratropical Storm Surge (Sandy)
- NUOPC - Physics Interoperability Group
- IDP
- NDFD Forecast Evaluation
- Aviation Forecast Verification Tool
- Ensemble Tool (FDSE)
- FACETs PHI Tool
- LAMP
- RWS

# *Recent VLab Communities*

- Environmental Modeling Center
- Rip Currents
- Google Analytics Findings: Toward More Effective Websites
- Tropical AWIPS Information
- Warning Decision Training Branch
- MRMS
- NWS Social Media
- Integrated Warning Team - Partners of NWS Northern Indiana

# SCIENCE SHARING LIBRARY



## VLab Science Sharing Library

is a national repository for science and technology documents. It allows users to easily upload and share materials relevant to improving NWS operations.

# VLAB ADJUNCT POSITIONS



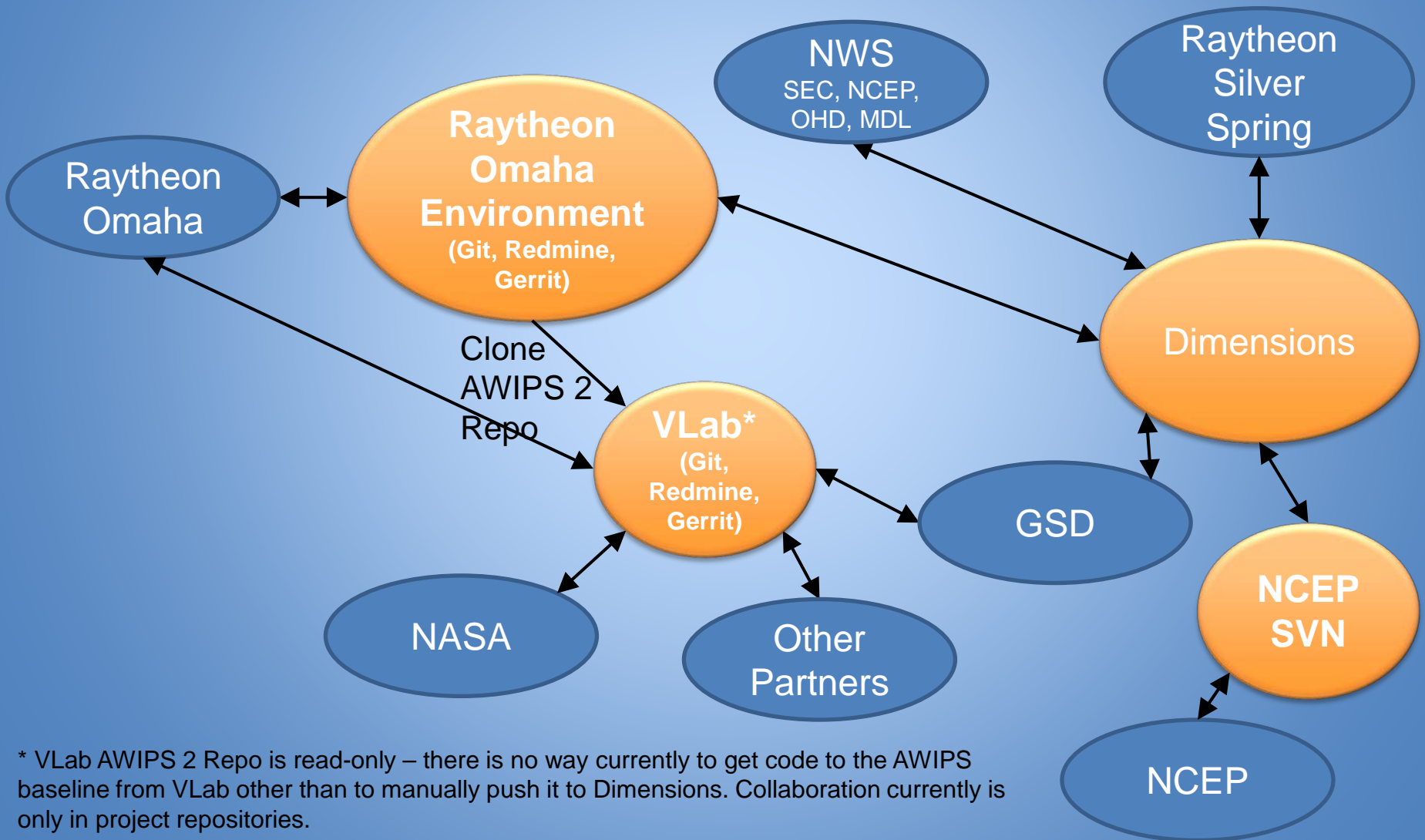
## VLab NRAP Positions

allow you to apply your skills to work remotely, part time, on high-priority NWS projects.

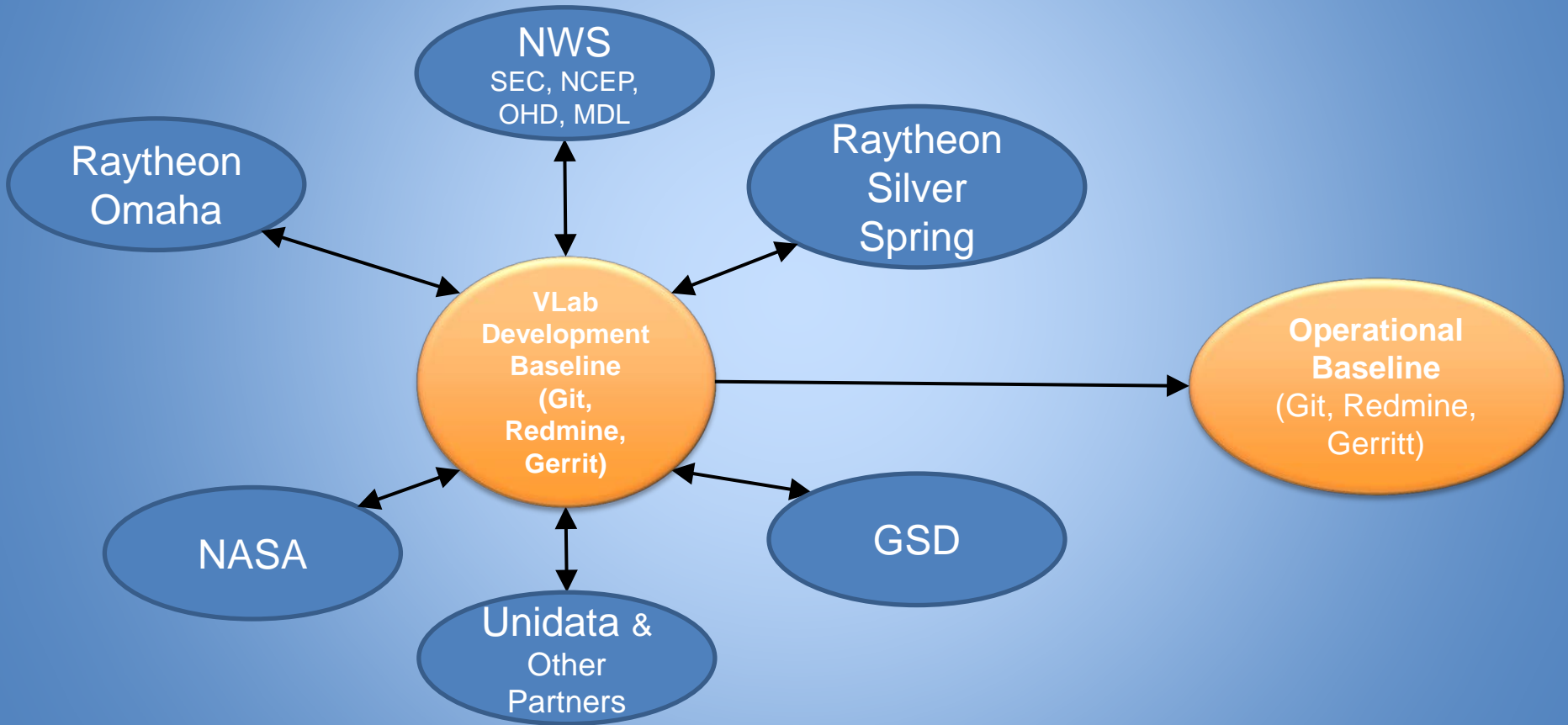
# *Back-Up Slides*



# AWIPS II Development Status Quo



# AWIPS II Development VLab Solution



# *Customer Feedback on VLab*

“When the NWR/BMH project was starting, our team needed a place where we could not only track requirements/issues, but also integrate them with our software repository. VLab satisfied all those requirements and more. We've since expanded our use of VLab to include Gerrit and Jenkins, which will allow us to deliver higher quality software via continuous integration.”

- Jim Calkins

NWR/BMH Development Team Lead  
Office of Science and Technology



# *Customer Feedback on VLab*

“All the team is using the repository and find it easier to find things and track committed changes. It has greatly increased team productivity over the old Trac/SVN site we used to use.”

-Matt Davis

Iris Project Manager  
ITO - WFO La Crosse, Wisconsin

# *Customer Feedback on VLab*

“I note how extremely valuable it is to have external coders be able to review source code and even submit new code to the repo.”

-Aaron Anderson  
mPing Project Manager  
ITO – WFO Norman, Oklahoma

# *Customer Feedback on VLab*

“I think the NWS has really benefited from this tool in its ability to bring software together into one place, which is much improved software management. It was a painless experience to set up the code repository. This is a problem that has stifled creativity for many years in the NWS, and has caused redundant development. So VLab has solved those issues.”

-Jason Burks,  
AWIPS Developer, NASA SPoRT

# *Customer Feedback on VLab*

“We were using Rational Clear Case before, but Git is much preferred by teleworkers because they can unplug from the core repository but still do development.”

-Warrick Moran

NOAA Weather Wire-EUC/Nlets Project Manager

NWS Office of Operational Systems

# *Customer Feedback on VLab*

“The ticketing system helps me manage problems, requirements, tasks, and their associated documentation in a single location. Forecasters that use the system are pleased that they can see the status of issues that affect them.”

-Kimberly Barks

ITO – WFO Greenville/Spartanburg

# *Customer Feedback on VLab*

“The collaborative implementation process for MDL and NCO is greatly improved through use of the Virtual Lab. Utilizing the VLab's subversion repository allows MDL to meet the NCO requirement that all implementations be under Subversion. It also streamlines the entire RFC process, decreasing the number of required submissions, eliminating redundancy, and reducing the likelihood of avoidable delays.

-Scott Scallion

MDL, Office of Science and Technology