

# NextGen and the Exchange Network



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To  
Region 1,2&3 Exchange Network Meeting  
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Philadelphia, PA



# Topics

- SDWIS State Legacy
- Exchange Network and Drinking Water Data
- Leveraging the Web – NextGen
- E-Enterprise and NextGen
- NextGen High Level Schedule



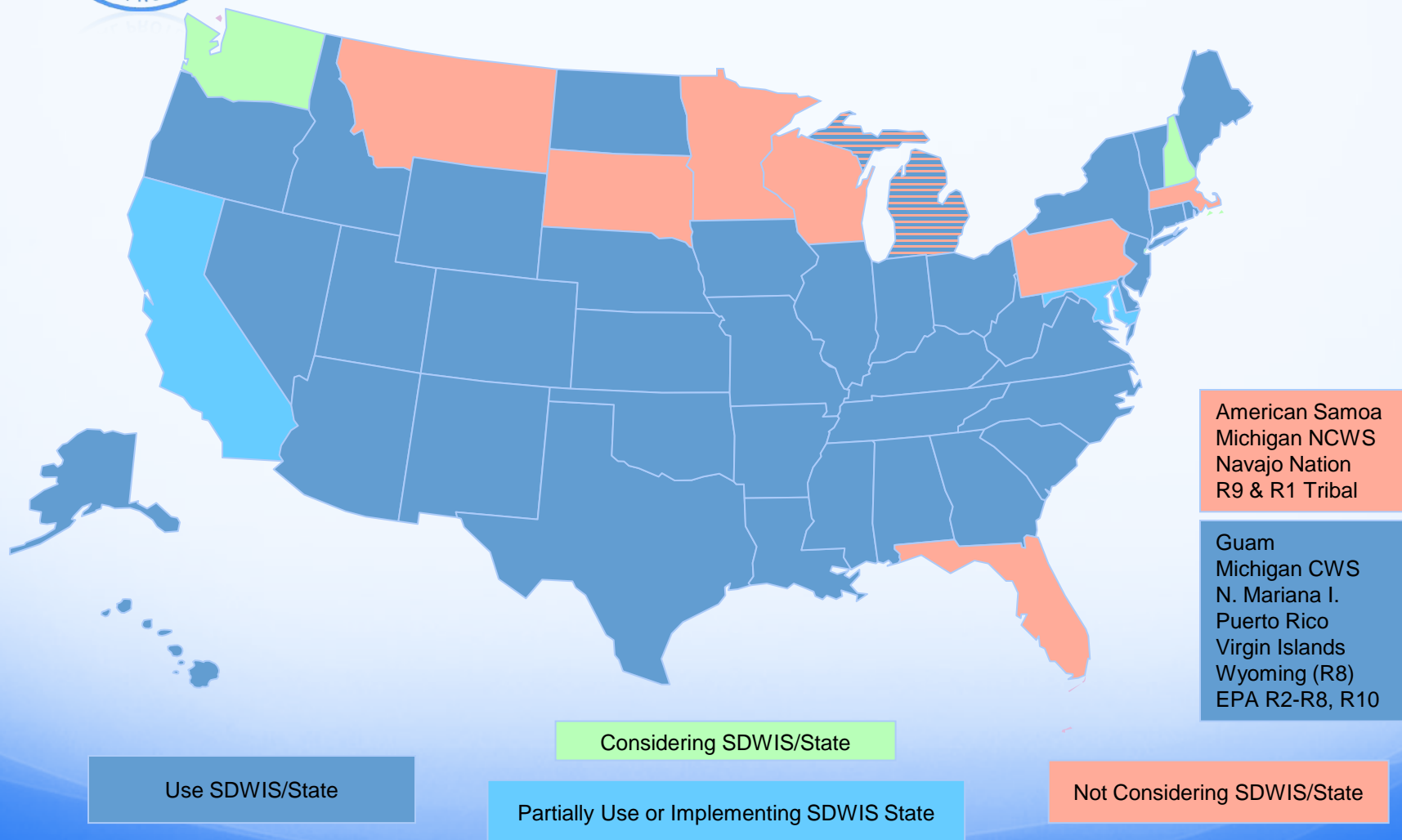
# SDWIS State Features

SDWIS State helps Drinking Water Primacy Agencies (DWPAs) manage their Public Water System Supervision (PWSS) Programs

- Determines water system non-compliance with EPA Drinking Water rules
- Stores water system engineering information
- Maintains drinking water buyer/seller relationships and ownership information
- Processes laboratory samples/sample results
- Assists in setting up monitoring/ sampling schedules
- Maintains Water System Administrator, Operator & Emergency contacts
- Tracks assistance and enforcement actions
- Reports inventory, actions, Pb/Cu data to EPA



# 54 of 68 Drinking Water Primacy Agencies Use SDWIS State



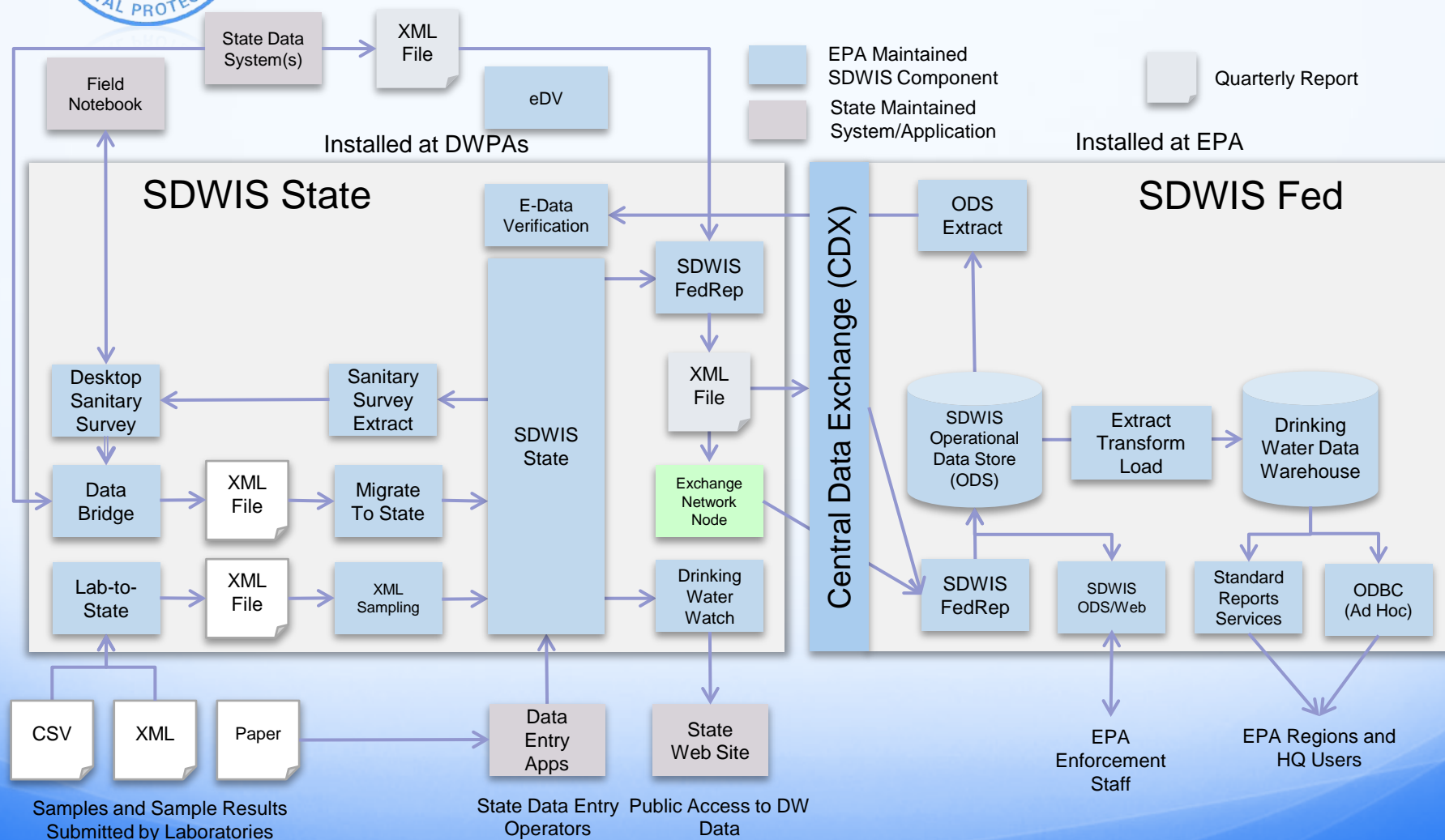


# Running SDWIS State

- Each DWPA maintains its own SDWIS State instance
- At least three versions of SDWIS state now in use
  - DWPAs using older versions cannot report violations of the latest drinking water rules to EPA
  - Some do not have the IT staff to keep up with new SDWIS State Releases
- A handful of DWPAs use SDWIS State to its fullest
  - Many run other systems and use SDWIS State to consolidate data for reporting to EPA
- There are many add-on applications developed by DWPAs that exchange data with SDWIS State



# SDWIS State Components and Data Flows





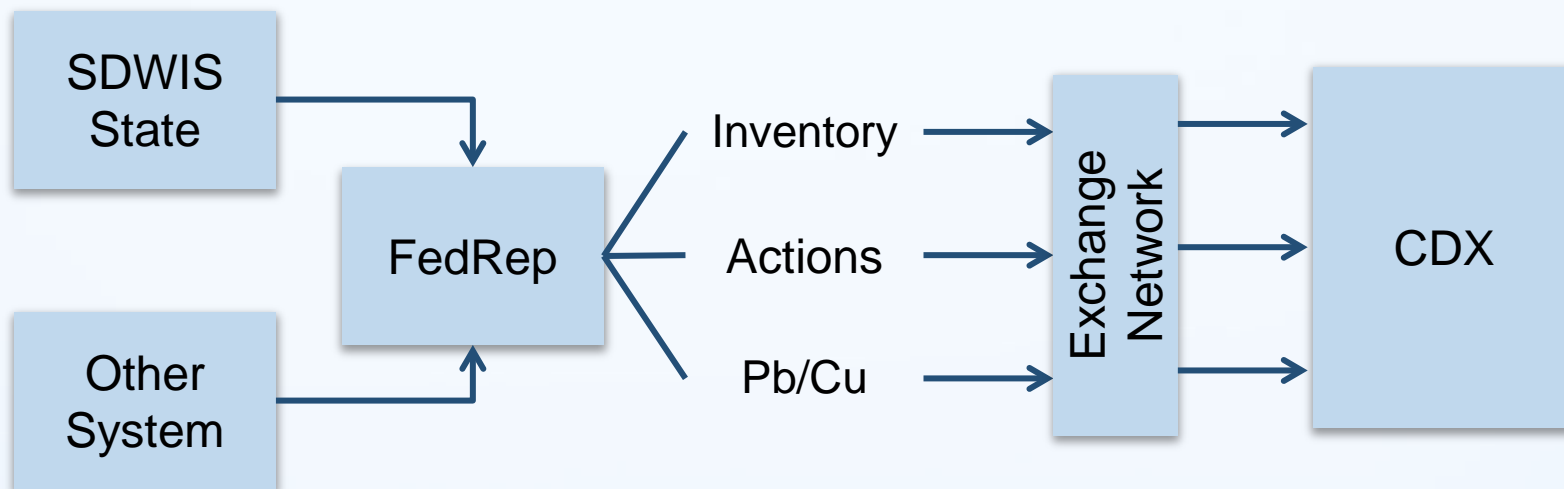
# SDWIS State Data Flows

- Comma separated value (CSV) files to move data into SDWIS State from other systems
  - Plant inspection report results, lab samples/results
- XML files
  - eDWR for electronic reporting of lab results to DWPAs
  - SDWA 3.0 XML schema for reporting data to EPA
- Open Database Connectivity (ODBC) for interactive exchange between SDWIS and other DWPA systems
  - Used by many DWPA “add ons” and interfacing applications





# SDWIS State to EPA Data Flow (Current)

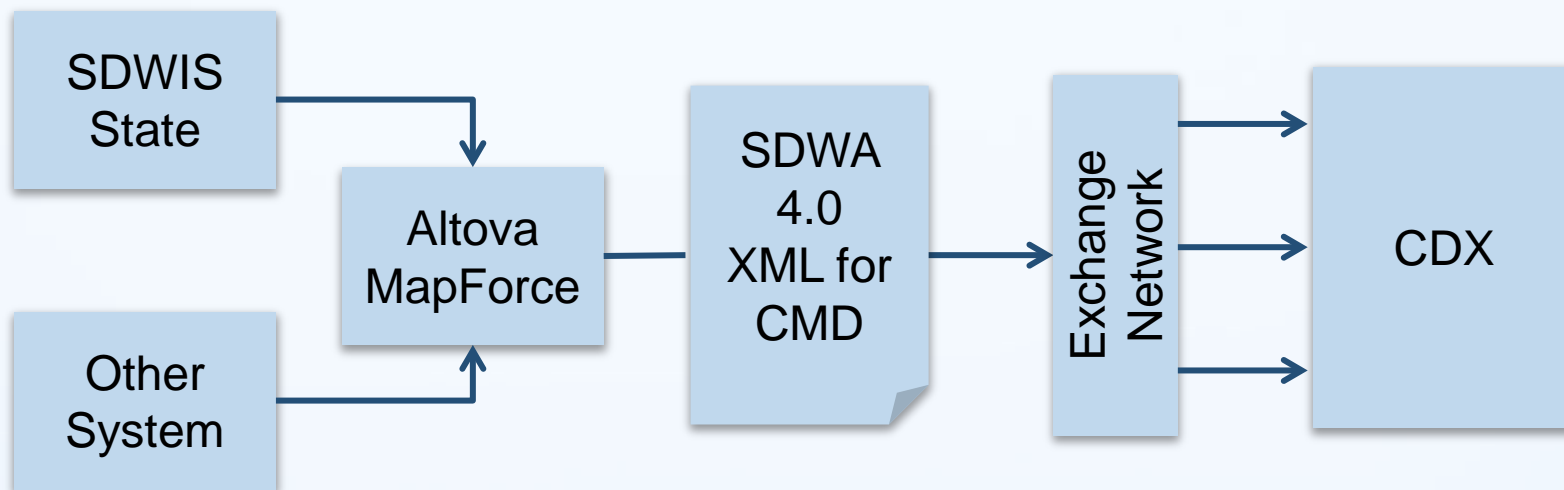


- All DWPAs use FedRep to validate the SDWA XML document
  - FedRep also extracts data from the SDWIS State database
- Every DWPA runs their own copy of FedRep regardless if they use SDWIS State





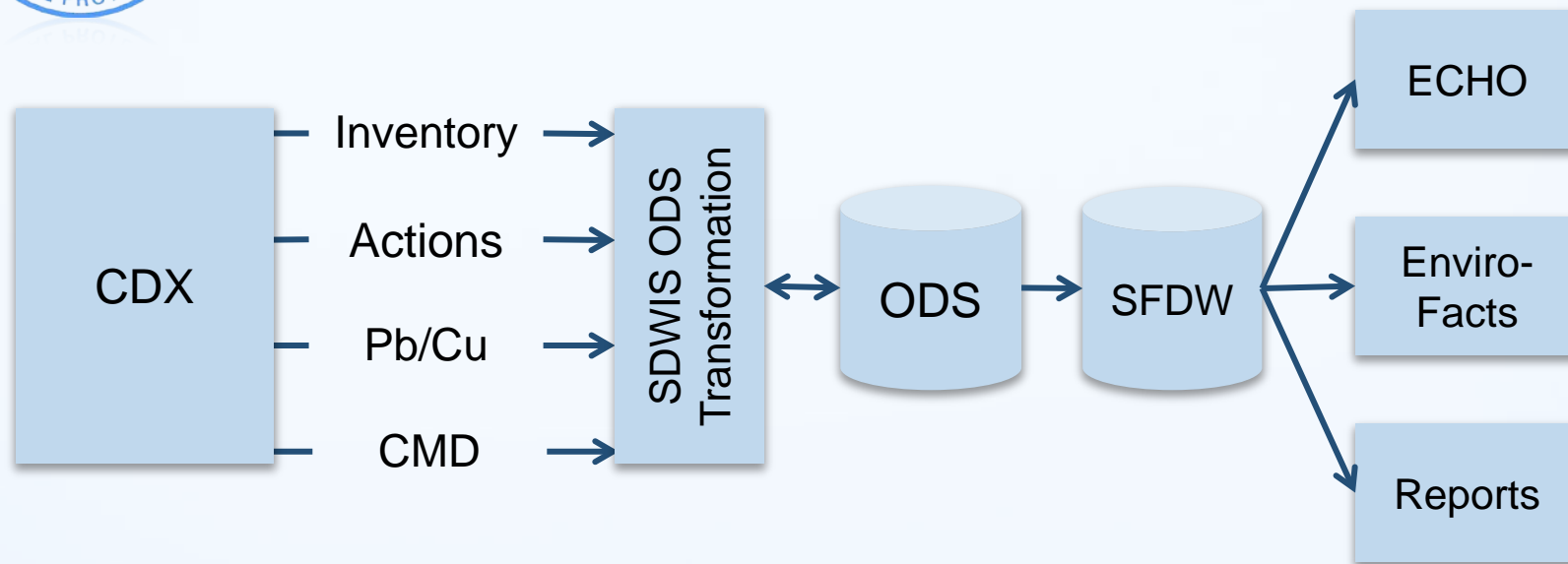
# Compliance Monitoring Data Flow to CDX (Future)



- New voluntary data flow for Compliance Monitoring Data
- Uses off-the Shelf Altova Mapforce data mapping tool to extract data from various systems/files and format it into a compliant XML file
- DWPAs would continue using FedRep for reporting “traditional” data to EPA



# SDWIS Data Flows – New SDWA 4.0 Schema & SDWIS Fed



- ODS Transformation Services checks the submissions and adds referential integrity to the resulting database objects
- SDWIS Fed Data Warehouse (SFDW) creates new objects based on reported and derived data optimized for querying
- SFDW extracts go to OECA's ECHO system, EnviroFacts, and various "canned" reports



# Leveraging the Web - NextGen

## Legacy SDWIS State

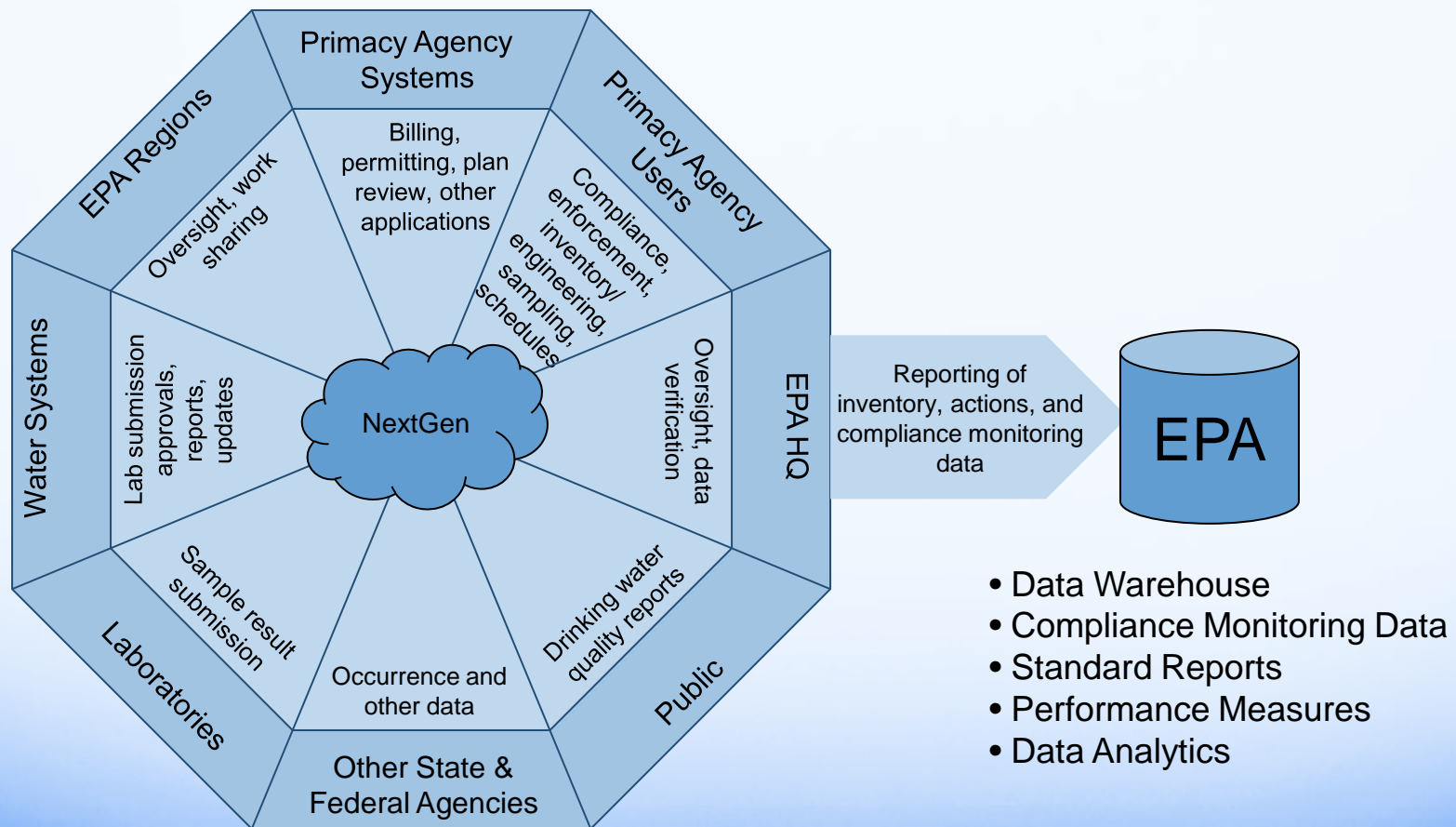
- Each Primacy Agency runs their own system
- Must maintain their own SDWIS IT infrastructure
- Quarterly reporting to EPA is a manual process
- File transport based data exchange

## NextGen

- One centralized system for all DWPAs
- Uses a shared infrastructure accessible from the web
- Automated quarterly reporting to EPA
- Web services based data exchange

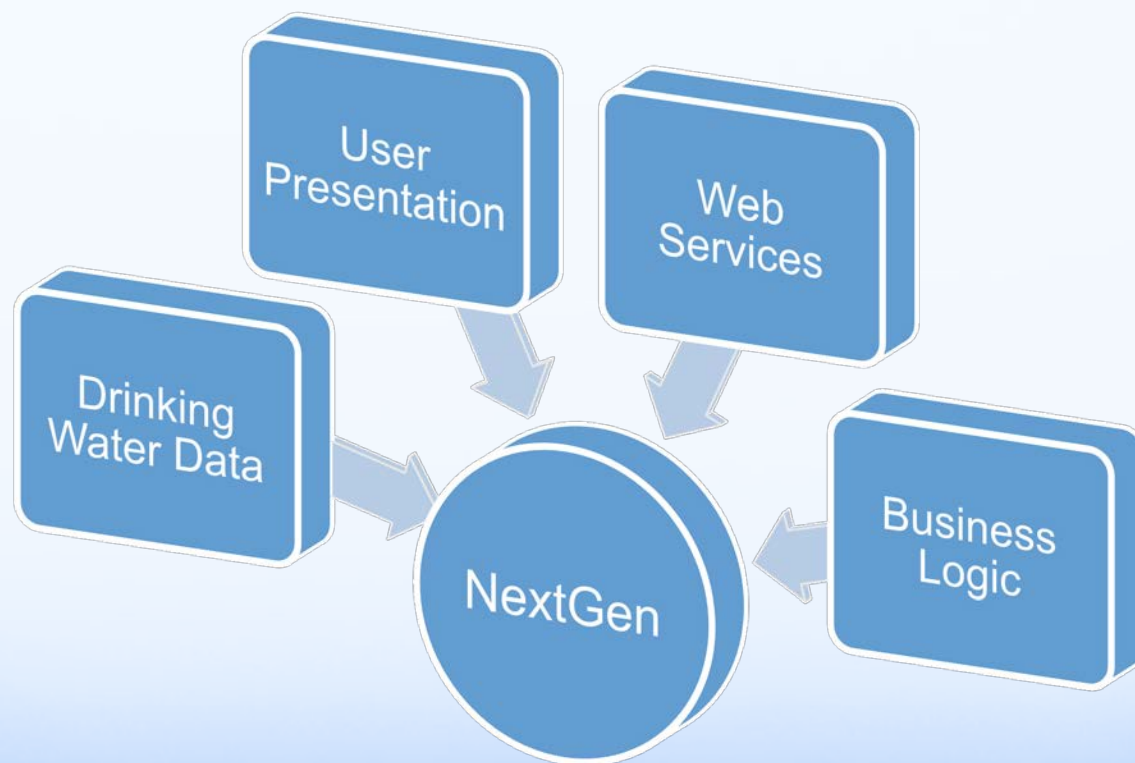


# NextGen Stakeholders and their Business Needs





# NextGen Components





# Drinking Water Data

- Single database hosting data for all DWPAs
- Security model prohibits one DWPA from accessing another DWPA's data
  - However, security access can be granted on a case-by-case basis
- Potential for replacing FedRep process and flowing potentially large XML data files
- Database design similar to SDWIS State
  - Modifications supporting security model and performance



# User Presentation

- User interface delivered to a standard web browser
  - Built-in, extensive error checking
- Access NextGen anyplace having web connectivity
  - Wi-Fi or cellular
- DWPA System Administrator can tailor the display
  - Unused, non-mandatory features of NextGen can be “turned off”
- Greater use of alerts and messages





# NextGen User Presentation (Prototype)

Welcome: TEST@NEXTGEN.GOV Logout

Next Gen Home Security Administration Water System

Home > Manage Water System > Create/Edit Water System

Save Cancel

Administrative Information Service Characteristics Service Connections Population Served Show All

PWS ID: Contact Name:  
PWS Name:

### Administrative Information

\*PWSID 01 - 3009000 PWS State ID 3009000

\*PWS Name Andover Water Dept

\*Activity Status Active \*Activity Date 11/30/2012

State Massachusetts County Essex

### Administrative Contact Information

Salutation Mr.

First Name Seymore Last Name Wells Middle Name Deep

Address Line 1  
Address Line 2

City State Select ZIP Code 01810-2974  
Province/Region Postal Code

Phone Number Email

Country United States



# Web Services

- File-based SDWIS data flow components replaced with secure web services
  - Altova MapForce can also interact with web services
- Interfacing applications will call secure web services instead of using ODBC
- Intention is to have web services published and available from the Exchange Network
- Web services will also “wrap” parts of the user presentation



# Business Logic

- Uses an off the shelf Business Rules Engine:
  - Evaluate data and determine if a violation of a drinking water rule has happened
  - Create alerts and notify users when actions are about to become overdue
- Advantages of using a Business Rules Engine:
  - Rule logic is separated from the programming code, making it easier to develop and maintain NextGen
  - Can accommodate local rules
  - Logic for new drinking water rules can be added without having to issue a new software release



# Toward E-Enterprise – The EN Lab Portal

- “One stop” portal where laboratories can submit lab data related to a public water system
  - Large labs submit results to individual DWPAs
- EN lab portal will “route” lab data submissions to the appropriate DWPA
- Developing use cases for
  - CROMERR compliance (using CROMERR web service?)
  - Notifications of submitted data to appropriate users
  - Public water system review of submitted data
- Potential application for other media programs?



# Nextgen High Level Schedule

NextGen  
Version 1  
Complete: Sep  
30, 2014

End of SDWIS  
State Support  
from EPA: Sep  
30, 2015

Future  
Versions of  
Next Gen



# Questions?

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