



The Exchange Network Virtual Node EN2014

Agenda

- ▶ Introductions and Objectives
- ▶ Overview of the Virtual Node
- ▶ Conceptual Architecture
- ▶ Virtual Node Configuration
- ▶ Virtual Node REST Services
- ▶ Demonstration



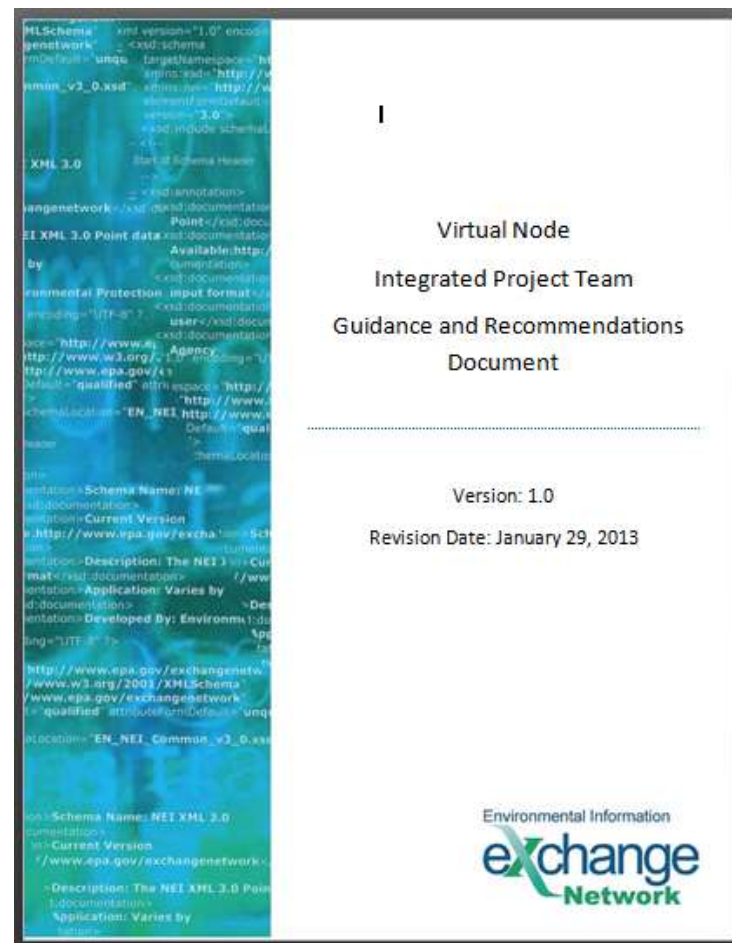
Introductions and Objectives

- ▶ What organization are you with and what is your role?
- ▶ What are you hoping to learn today about the Virtual Node?
- ▶ Are you interested in a particular data flow or use case for using the Virtual Node?
- ▶ Do you have any upfront questions or concerns about using the Virtual Node?
- ▶ What help do you need to get started?

Overview

Path to establishing a Virtual Node platform

- ▶ IPT Charter adopted August 28, 2012
- ▶ Information collection & IPT requirement sessions (8 states, 4 tribes, multiple vendors)
- ▶ IPT Meetings occurred over a period of 5 months
- ▶ Recommendations document based on IPT input and feedback created



Overview of the Virtual Node

What is the Virtual Node?

- ▶ A central node server that hosts any number of partner nodes: state, tribe, region, agency, etc.
- ▶ Each partner node is configured on the Cloud Node Platform by filling out forms in a web application (eliminating partner node HW/SW)
- ▶ Each partner node functions like a conventional node only it is easier and cheaper to set up and maintain

Overview of the Virtual Node

What benefits does the Virtual Node provide?

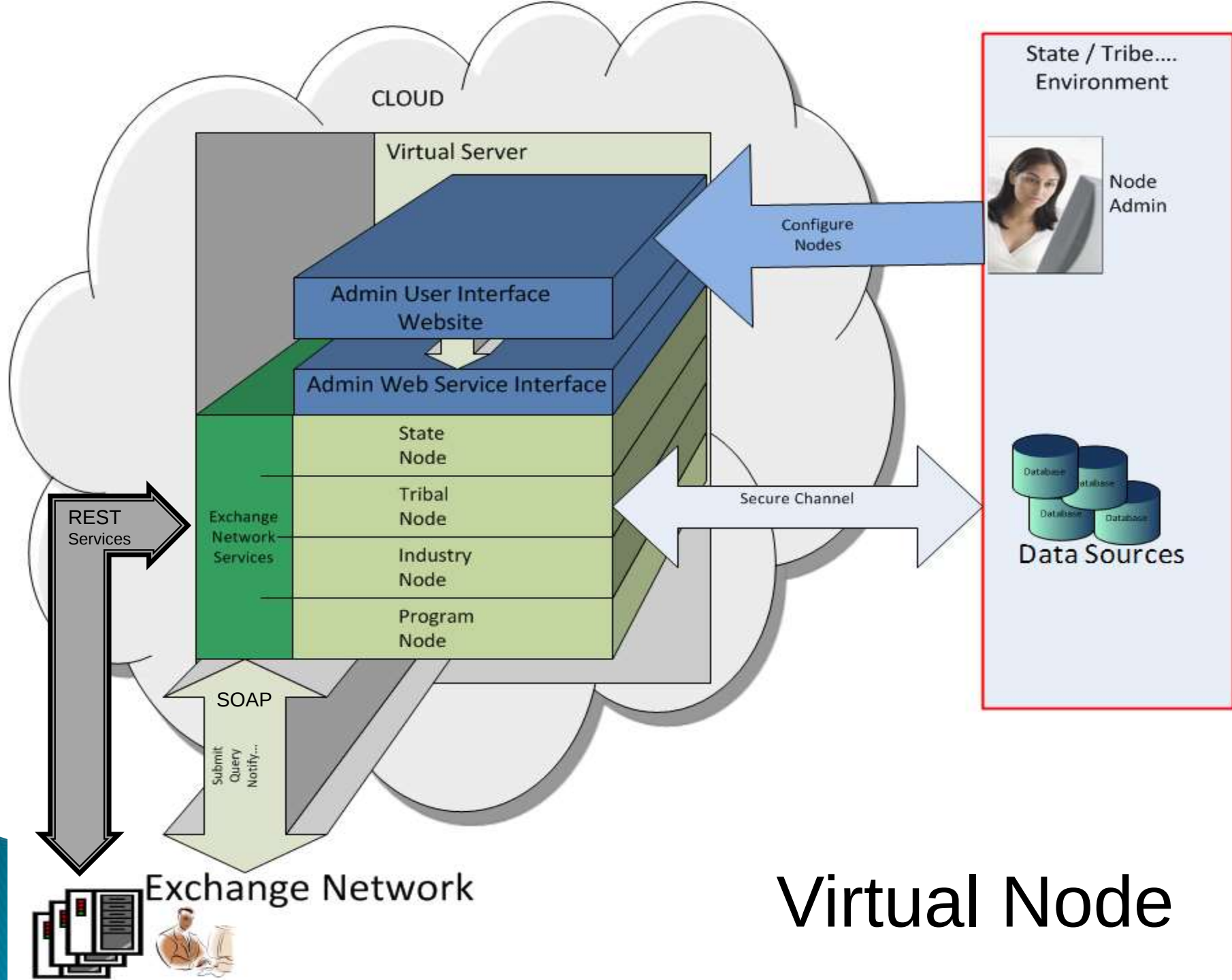
- ▶ Provide a Low Cost Node Option for Partners
- ▶ Decrease Operations and Maintenance Costs
- ▶ Simplify Development and Maintenance
 - New mapping model



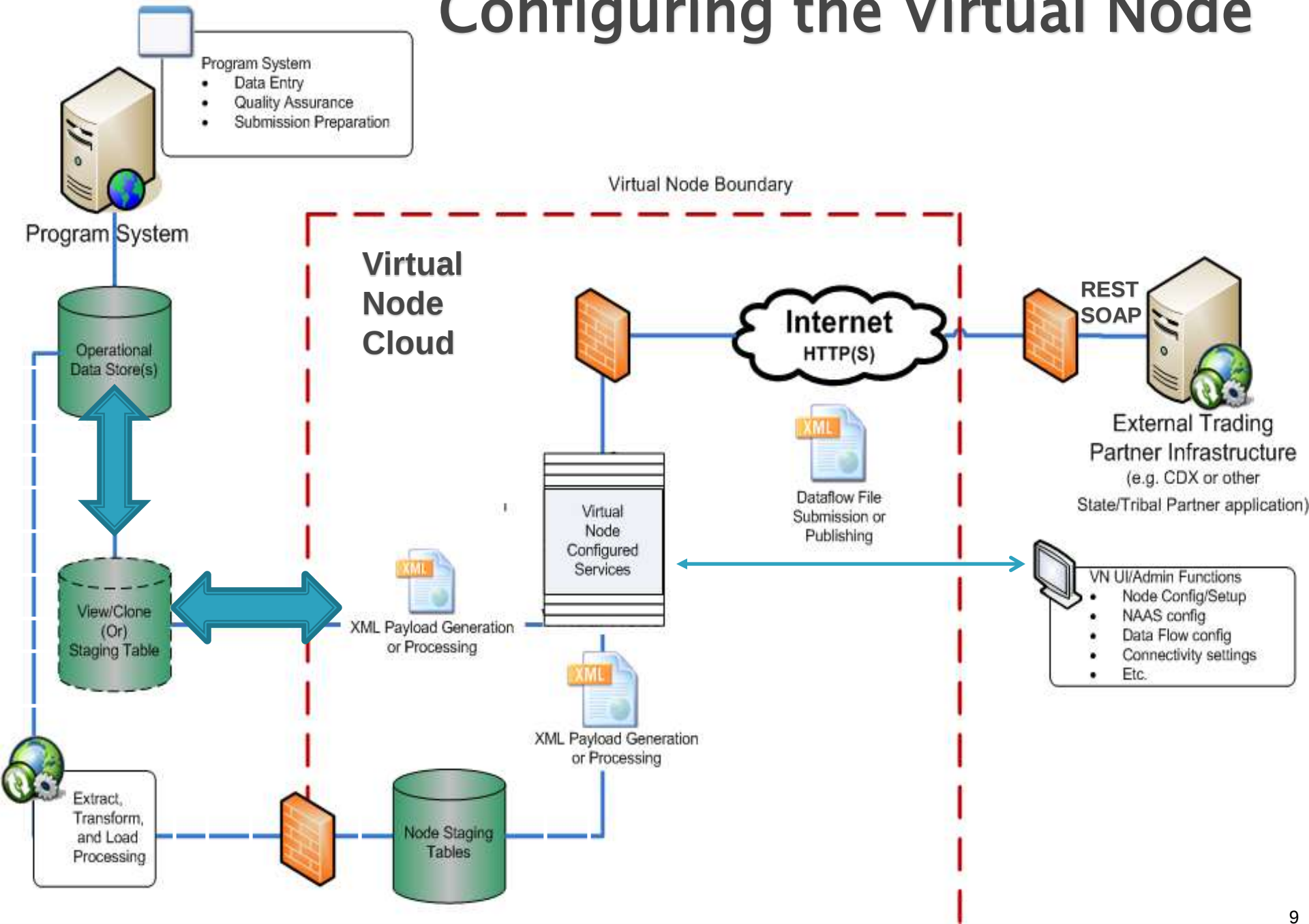
Overview of the Virtual Node

Virtual Node Advantages

- ▶ **Highly Agile:** A new partner node can be created with a simple configuration form
- ▶ **Eliminates Node Maintenance:** Nodes are centrally managed, secured and serviced
- ▶ **Common Architecture:** New and approved features will be shared by all nodes (your input is needed)
- ▶ **Virtual nodes can inherit services from the 'base-node'**
- ▶ **The Discovery/ENDS service information can be published and maintained automatically**



Configuring the Virtual Node



Configuring a Service in the Admin Tool

Test User | [Profile](#) | [Logout](#)



[Home](#) | [About](#) | [FAQs](#) | [Help](#)

Virtual Node Administration Platform (VNAP)

[Node Dashboard](#)

Services Setup Wizard

Steps

1. Database
2. **Service**
3. Template
4. Finish

Node ID / Description:
CWANJ – Clean Water
Act NJ Waterways

Dataflow:
CWANJ

Service Settings

[Review these requirements](#)
to ensure your node is
working.

Method Type

Solicit

V

[Explanation of Fields](#)

Workflow

Select a workflow...

V

Service Status

Enabled

V

Service Description

Display all water transaction
data

Data Source

cgi.oracle.test

V

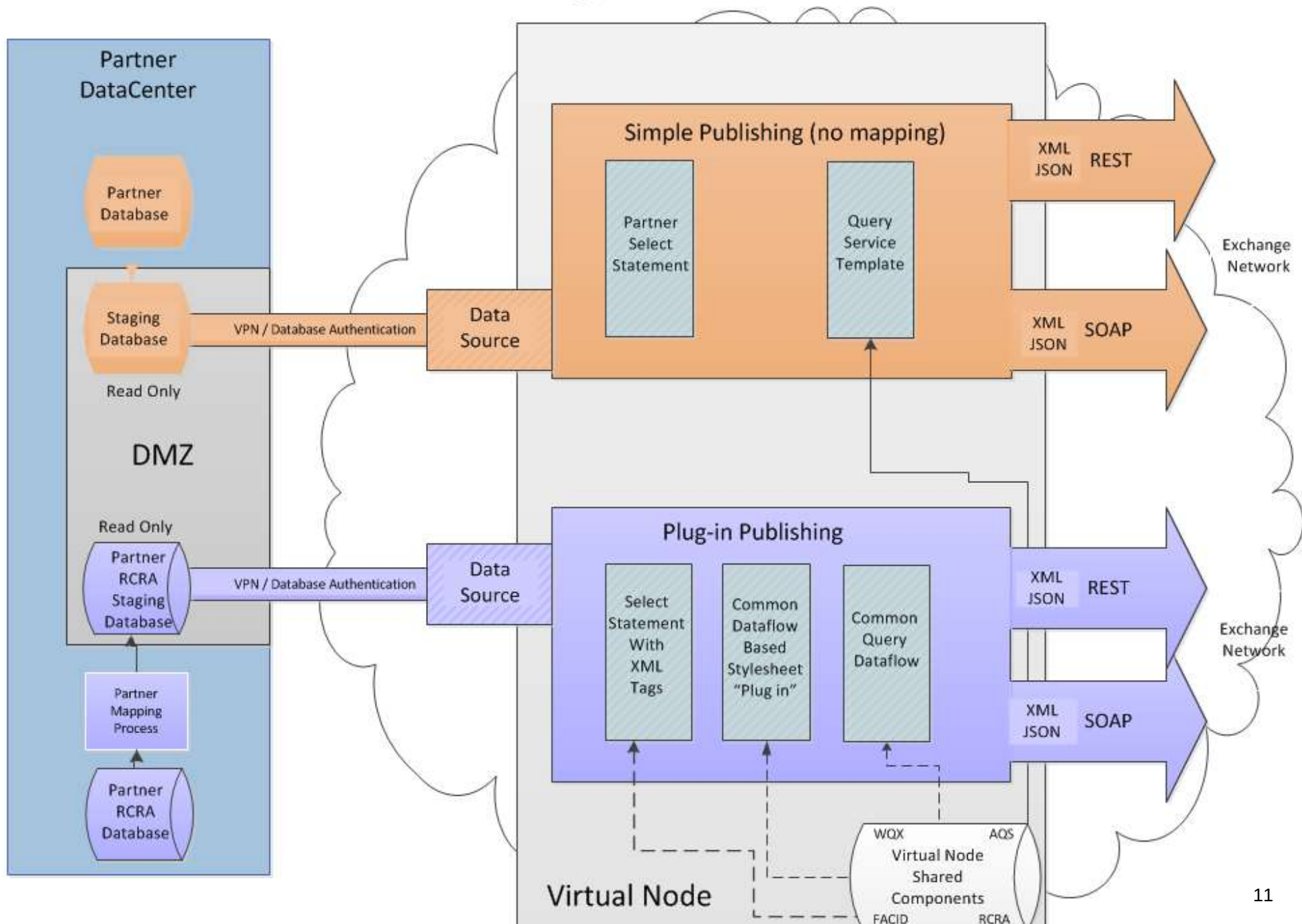
Please select an existing
data source and provide
SQL statement to test

SQL Statement

SELECT * FROM {TABLE} WHERE {FIELD}.{TABLE}

TEST QUERY

Publishing Models



Business Example: REST Services

Search and display results

Manage Facilities

The map will display your facilities as they exist in FRS. Click on the facilities in the table to zoom to a facility. Click the facility points on the map for more options.

Organization: CGI Federal

EPA Registry ID	Facility Name	Facility Address		
100185050469	Bob Harbor	Shelter Island	Edit	Remove
100185018469	Brant Beach Water Department	Brant Beach	Edit	Remove
100185014469	Bright Township MUA	Brick Township	Edit	Remove
100185045469	CEJES INSTITUTE	Pomona	Edit	Remove
100185053469	Croft Hills		Edit	Remove

Showing 1 to 5 of 49 entries

Filter Operating Status

Show All Facilities | Add Sub Facility | Select Sub Facilities

Map view showing facility locations on a map.

Search Facilities

Find Existing Facility

Use the search form below to search for existing EPA facilities. Fill in at least two search criteria to improve the search results.

EPA Registry ID:

Facility Name:

Facility Address:

City:

State:

ZIP Code:

For more advanced searching options, please locate your EPA Registry ID using EPA's [Facility Search](#).

CDX Help Desk: 800-896-1965 / 970-494-5000 for callers from Puerto Rico and Guam

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Business Example: REST Services

Search and display results

The screenshot displays the TRI-MEweb application interface in a Mozilla Firefox browser window. The address bar shows the URL <https://trimeweb.epa.gov/trimeweb/StartupTRIME>. The user is logged in as TIMOTHYBIZAL, CGI FEDERAL. The application has a navigation bar with tabs: Welcome, My Facilities, Prepare, Validate, Transmit, Review, Certify, eFDP. Below this is a sub-navigation bar with links: Select Year, Select Facility, Forms, Waste Management, On-site Release/Disposal, On-site Waste Mgmt, Off-site Transfer, Source Reduction/Recycling, Misc Info, Summary.

The main content area is titled "POTW Name and Address" (Form R Part 8, Section 6.1). It includes a search form with fields for Address, City, State, and ZIP Code. A table of locations is displayed below the form, with columns for Select, NPDES ID, and Name. The table lists several locations, including 1000 FT W H 45, 3000' E OF INTERX W RAYFORD RD., ADDICKS UD WWTP, ADDICKS UTILITY DISTRICT, ARTHUR BAYER PARK WWTP, ATASCOCITA REGIONAL WWTP, BAYWOOD WWTP, and BAYWOOD WWTF.

The second screen, titled "Discharges to Surface Waters: Add Discharge" (Form R, Part 8, Section 5.3), is also visible. It includes a map of Santa Maria, Texas, with a green pin indicating the location. The map shows streets such as W Main St, W Alvin Ave, E Alvin Ave, E Donnan Rd, W Bellville Rd, and W Bellville Rd. The map is labeled "Santa Maria" and "CARROLL DISTRICT". The map also shows "BAYWOOD" and "BAYWOOD WWTF". The map includes a scale bar for 1 mile and a "Recenter Map" button. The map is titled "Step 1: Stream or Water Body Name" and "Step 2: Total Quantity (pounds)". The map also includes a "Range Code" dropdown menu and a "Basis of Estimate" dropdown menu. The map also includes a "Step 4: % from Stormwater" dropdown menu.

The bottom of the application shows a navigation bar with buttons: Back, Index, Next, Go To Form Mode, View Form, and Validate. The footer includes helpful links: USEPA Home, TRI Program Home, Reporting Forms and Instructions (PDF), and TRI-MEweb Version RY2013.01.

Select	NPDES ID	Name
☐	TX0054798	1000 FT W H 45
☐	TX0126152	3000' E OF INTERX W RAYFORD RD.
☐	TX0112585	ADDICKS UD WWTP
☐	TX0064432	ADDICKS UTILITY DISTRICT
☐	TX0096065	ARTHUR BAYER PARK WWTP
☐	TX0058963	ATASCOCITA REGIONAL WWTP
☐	TX0022853	BAYWOOD WWTP
☐	TX0081804	BAYWOOD WWTF

Business Example: REST Services

Pick lists and help text for terminology

Tribal Search

Search for facilities by Tribe. Use the first drop down list to find facilities by tribe or near the tribe's geographic location. To search by Tribe use the second drop down list. When searching near a tribe's geographic location, identify the distance of interest by selecting the radio button containing the distance preference of the search. This is not an exhaustive collection and not all data and facilities may be captured in the search results.

Note: When searching for facilities by Tribe or near a Tribe without selecting a specific Tribe, please use additional query options above, such as the "Geography Search." Otherwise the search may be slower than a normal search.

Search for facilities on or near any Tribe in the area:

OR

Search for facilities on or near a specific Tribe, as entered in the box below:

☒ Tribes in the continental US ☐ Alaska Native Villages

Houlton Band of Maliseet Indians

EPA Region 1 (Connecticut, Maine, Massachusetts)

Aroostook Band of Micmacs
Houlton Band of Maliseet Indians
Mashantucket Pequot Indian Tribe
Mohegan Indian Tribe of Connecticut
Narragansett Indian Tribe
Passamaquoddy Tribe
Passamaquoddy Tribe of Maine (Indian Township)
Passamaquoddy Tribe of Maine (Pleasant Point)
Penobscot Nation
Wampanoag Tribe of Gay Head (Aquinnah)
EPA Region 2 (New Jersey, New York, Puerto Rico)
Oneida Nation of New York
Onondaga Nation
Saint Regis Mohawk Tribe
Seneca Nation of Indians
Tonawanda Band of Seneca
Tuscarora Nation

EPA Region 4 (Alabama, Florida, Georgia, Kentucky)
Select a search option from the drop down menu: do not enter up to 5 digits.

• [UV Index](#)

Other Sites of Interest

- [Geospatial Download](#)
- [EnviroMapper](#)
- [MyEnvironment](#)

Hydraulic Fracturing

View

Edit

Submitted by [jsoosiah](#) on Wed, 02/06/2013 - 16:21

Natural gas plays a key role in our nation's clean energy future. The U.S. has vast reserves of natural gas. Advances in horizontal drilling and hydraulic fracturing have unlocked vast reserves of shale formations.



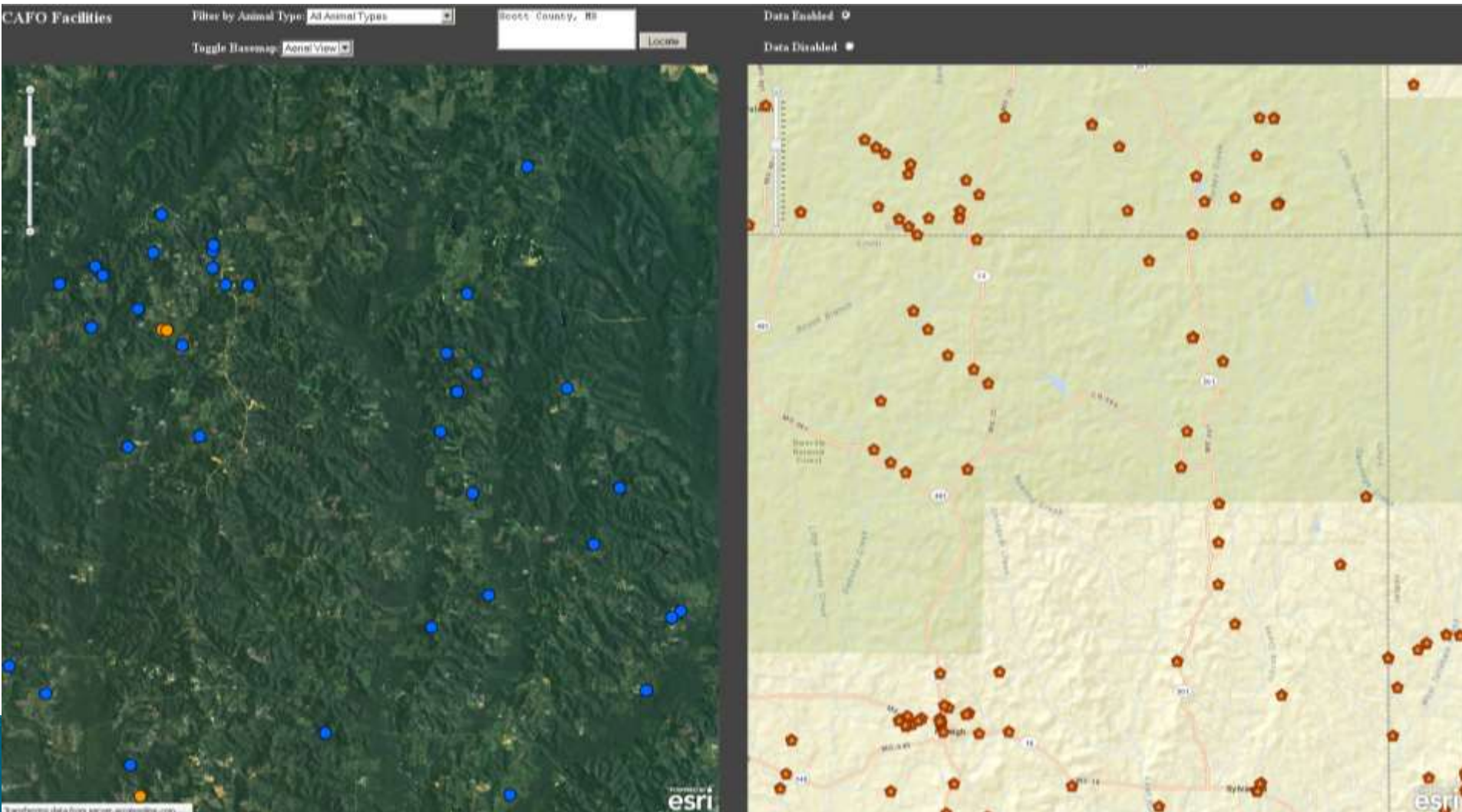
Natural gas

A combustible mixture of methane and other hydrocarbons used chiefly as a fuel.

Subject

Business Example: REST Services

“Merging” data geospatially for complete coverage



Virtual Node Demo

REST Service

- Virtual Nodes can create REST type services for publishing your data without additional configuration
- This is what a REST service URL looks like for a virtual node service
- [https://virtualnodetest.epacdxnode.net/nodedataservice?
node={nodename}&
dataflow={dataflowname}&
request={serviceName}&
paramName=paramValue&
token={token}&
rowId={rowId}&
maxRows={maxRows}&
format=json|xml](https://virtualnodetest.epacdxnode.net/nodedataservice?node={nodename}&dataflow={dataflowname}&request={serviceName}¶mName=paramValue&token={token}&rowId={rowId}&maxRows={maxRows}&format=json|xml)

GetCountyCode – actual REST service on my ChrisClark Virtual Node:

JSON format:

<https://virtualnodetest.epacdxnode.net/nodedataservice?node=ChrisClarkNode&dataflow=GeoServices&request=GetCountyCode&state=Virginia&format=json>

XML format:

<https://virtualnodetest.epacdxnode.net/nodedataservice?node=ChrisClarkNode&dataflow=GeoServices&request=GetCountyCode&state=Virginia&format=xml>

Optimizing Business Processes

- ▶ Shared dataflow definitions (“plug-in”)
 - Allows you to copy dataflows from a template
 - Current dataflows supported
 - AQS
 - ICIS Air
- ▶ Steps to deploy a dataflow
 - Import shared definition
 - Update Notifications, Header and Endpoints
 - Map your native database to the staging tables
 - Set up VPN connection
 - NO CODING – all configuration

ICIS AIR Workflow

- ▶ ICIS–AIR Query service
 - retrieves data
 - construct XML document.
- ▶ Submit ICIS–AIR XML document (retry if it fails).
- ▶ Retrieve processing status (GetStatus)
- ▶ Download QA server validation report
- ▶ Check ICIS processing status
- ▶ Download ICIS–AIR report
- ▶ Parse report and record accepted and rejected records in the transaction tracking table
- ▶ Remove accepted records from staging tables
- ▶ Notify admins and submitters

Documentation

- ▶ Virtual Node Administration Guide
- ▶ Virtual Node Lab Guide
- ▶ ICIS–AIR Setup Guide
- ▶ AQS Setup Guide

Open Discussion



What use cases are you considering?



Did we miss a question you had?



What help do you need to get started?



Demonstration

- » Virtual Node Setup
- » Data Flow Configuration
- » Question and Answers