

Exchange Network Tools and Shared Services

May 2010



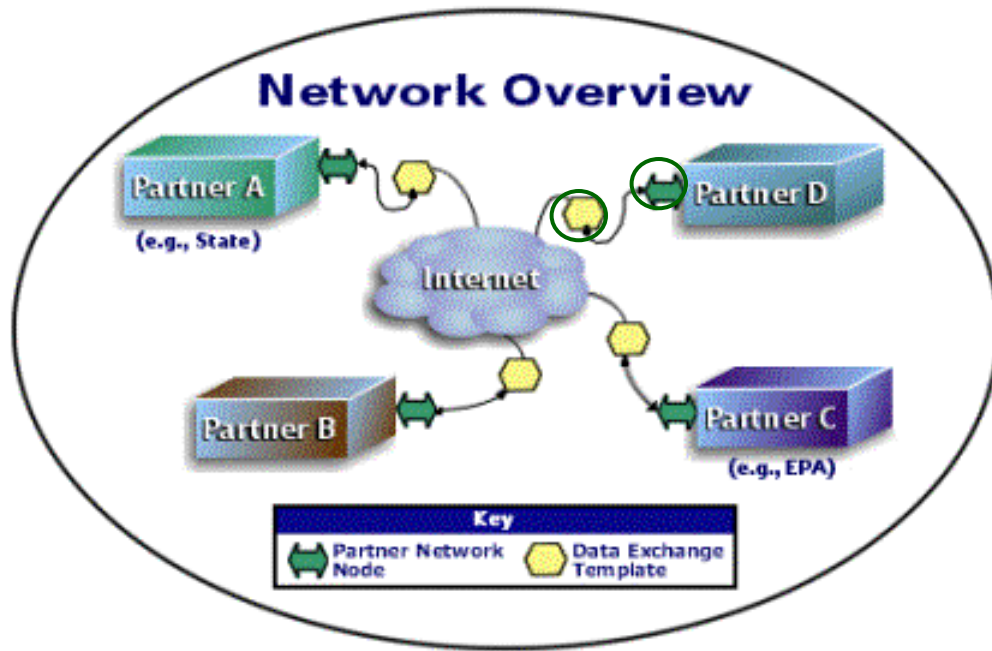
For Conference Purposes Only

Topics

- Background
- Discovering Information and Data Services on the Exchange Network
- Accessing Exchange Network Data
- Exchanging Data Quickly and Easily
- Simplifying Services
- Improving Data Quality

What is the Exchange Network?

“a secure Internet- and standards-based approach for exchanging environmental data and improving environmental decisions”



Key Components

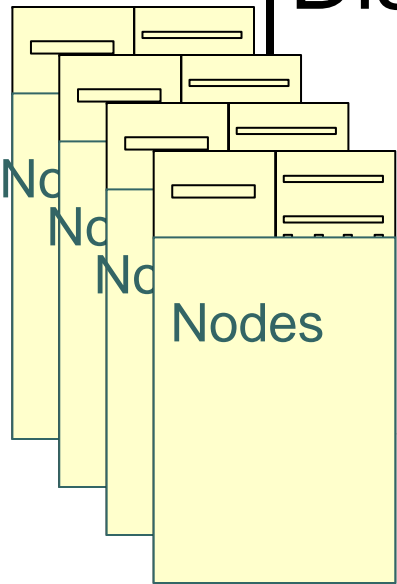
- Data Standards
- Nodes
- XML Schema
- Trading Partner Agreements
- Grant Program

Discovering Information



- What nodes are on the Exchange Network?
- What services does each node offer?
- What parameters are required for a service?

Discovery Enables Powerful Tools



Query
Submit



Dashboard Tool

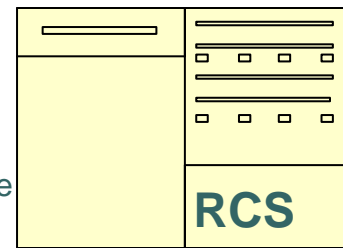
Service
Descriptions
(metadata)



Service
Descriptions
(metadata)



Reusable
Component
Services



For Conference



Service Examples:

Region 7 State Emergency Response Data

- Site name, location and contact details for
 - Agricultural Chemicals
 - Air
 - Chemical Storage
 - Hazardous Waste
 - Livestock
 - Public Water Supply
 - Remediation
 - RMP
 - Solid Waste
 - Tanks
 - Wastewater
 - Water Use Permit
- Chemical Storage details
- Livestock details
- Public Water Supply details



Why Discovery?

- Simplifies and Improves Access to Network Information
- Supports User Friendly Tools
- Automatically collects and updates Network meta data for discovery
- Simplifies Administration

The background features a dark, textured surface with intricate, wavy patterns in shades of green and blue. A central, glowing, insect-like figure with a bright red and purple light source is partially obscured by these patterns, creating a sense of depth and mystery.

Accessing Exchange Network Data

For Conference Purposes Only



Accessing Exchange Network Data

Service Dashboard

Network Browser

Software Developer Kits

Syndicating Data (RSS Feeds)

RESTful Services



What is the Exchange Network Services Dashboard?

- EPA's **next generation** web interface to the Exchange Network
- An **easy-to-use** web site designed for the casual program user and the more advanced technical users
- A **more personalized experience** that allows you to quickly access the services and data that you use most often
- A **simple flexible interface** for submitting data to any node or data flow without installing a node client

Home

My Dashboard

Exchange Network Services

News & Data Channels

Home Page

MY DASHBOARD

Quickly access the services and queries you use, check on the status of your requests, and view your News & Data Channels



EXCHANGE NETWORK SERVICES

Send, get, and download information from Exchange Network partners



NEWS & DATA CHANNELS

View news and data feeds from Exchange Network partners, subscribe to channels of interest, or contribute your own content to these channels



My Quick Links

[Manage](#)

- » [Send Info to the Emissions Inventory System](#)
- » [Check your Submission \(QA Services\)](#)
- » [Find an Exchange Network Service](#)
- » [Exchange Network Discovery Services \(ENDS\)](#)
- » [About the Services Dashboard](#)

Easier Access to Exchange Network Services and more...

- ✓ Find, Exchange, and Validate data quickly and easily!
- ✓ Wizards and personalization simplify use and reuse!

....Jump in and Floor it!

Learn more about the
SERVICES DASHBOARD



What is the Exchange Network Browser?

- A user friendly web browser interface for creating queries on the Exchange Network
- Integrates additional non EN content
- Custom Integrations to NJ and USGS data
- Supports Stylesheets and graphs
- Will soon be integrated with the Discovery Services



Exchange Network SDK

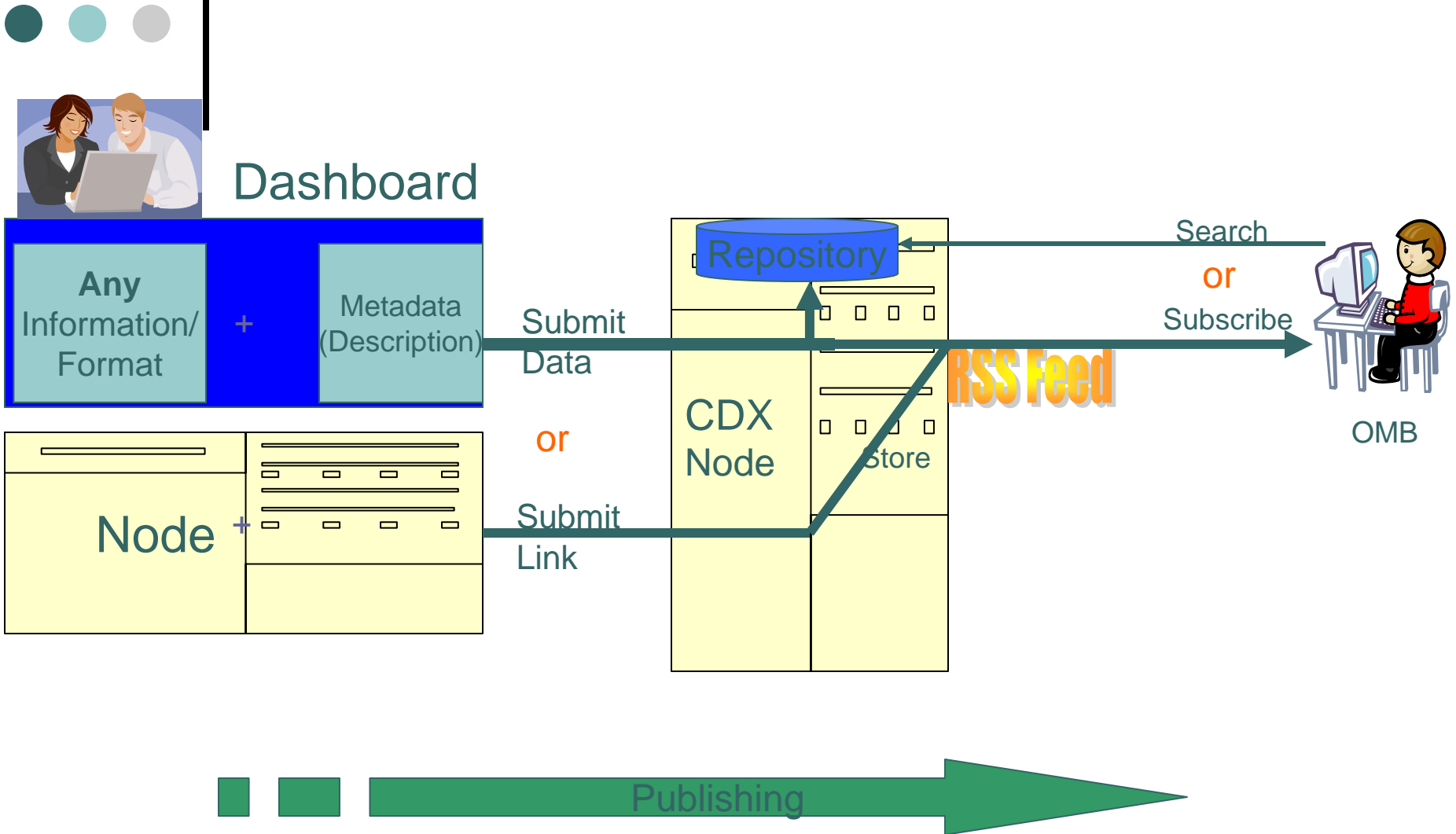
- Software Developer Kit (**SDK**) - simplifies integrating EN web services into your applications
- A few lines of script can call any Network Service

- `myClient.SetCredential "superdadatron@gmail.com", "xxxxxxxxxxxxx","password"`
- `myClient.SetProperty "WSDLFile", "https://cdxnode.epa.gov/schema/v1.1/cdx.wsdl"`
- `myClient.AddSQLParam "DC"`
- `myClient.AddSQLParam "EXXON"`
- `resultSet = myClient.Query("GetFacilityByName",0,-1)`

Syndication Services (RSS Feeds)

- A Powerful Framework for Information Publishing and Retrieval via feeds (special XML documents)
- Really Simple Syndication (RSS)
 - A standard format used to publish frequently updated content such as blogs, and news feeds
 - Simplifies access to web sites information

Dashboard Publishing to Recovery Data Feed



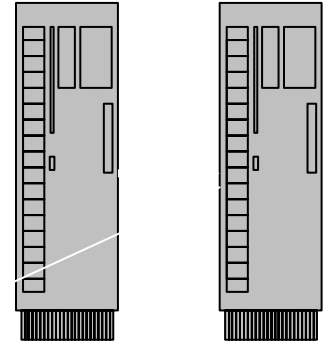
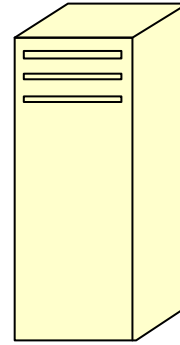
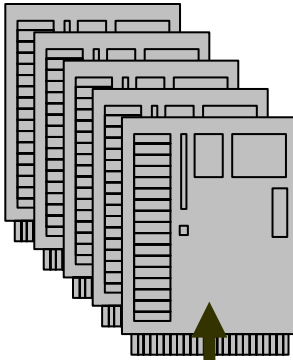
Publish Anywhere Content is Created

Web Browser

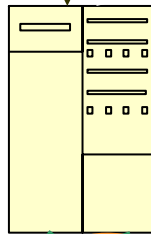
Exchange Network

Business Tools

Any Flow of Information



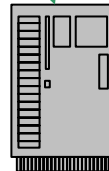
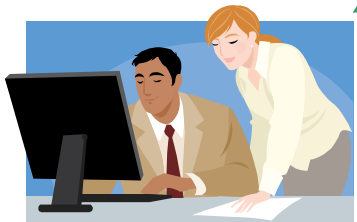
Data, Documents, etc. with Metadata Description



Publishing Services

RSS

Consumers/Subscribers



reference Pur,





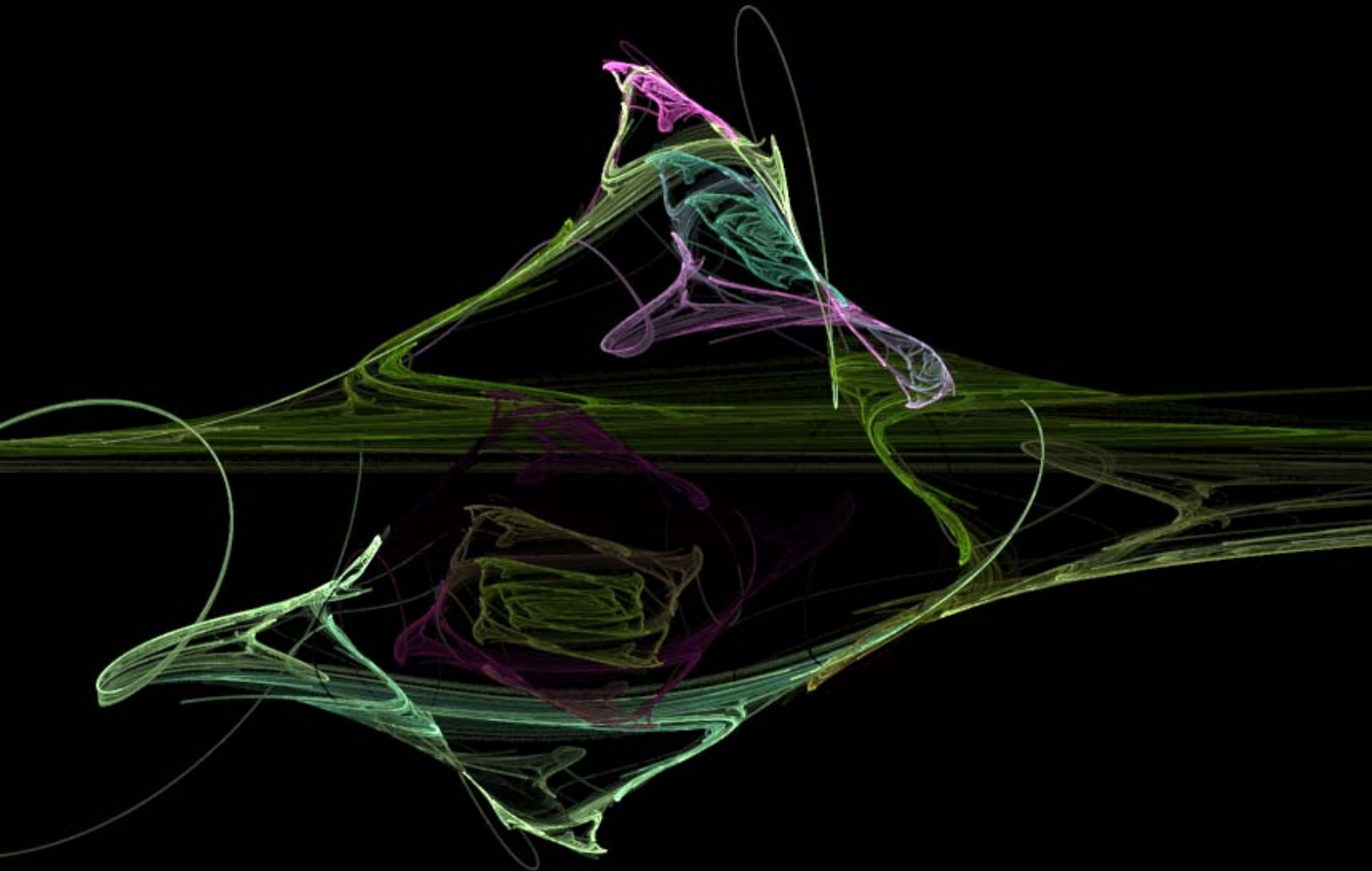
Syndication Services

- Provides a standard mechanism for syndication
 - Any type of information
 - Any dataflow that has an EN Header
- Currently being used for
 - Recovery.gov reporting
 - ORD PHASE Data exchange



Syndication Service Benefits

- Supports Network Wide Publishing/Syndication
- Easily Configurable
- Syndication of Environmental Data
- Reuse Existing Technologies at Low Cost



Exchange Network REST Proxy Service



Exchange Network REST Proxy Service

- REST - **Representational State Transfer** is an approach for getting information content from a Web site by reading a Web page that contains an [XML](#) file
- This new service allows partners to access Exchange Network services using a REST style URL
 - (The Proxy handles SOAP messaging for you)
- Uses Network Authentication and Authorization and works just like a standard Network message.



Authenticate with REST in Test

<https://cdxnode2.epacdxnode.net/Node2RestWS.svc/Authenticate?Id=cdx&Credential=test>

<https://cdxnode2.epacdxnode.net/Node2RestWS.svc> ← Proxy server address

[/Authenticate?](#)

← Method

[Id=cdx&](#)

← User ID

[Credential=test](#)

← Password



Query Discovery for “facility” Services

<https://ends2.epacdxnode.net/RestProxy.svc/>

←Server

Query?

←Method

Node=ENDS2&

←Node

Dataflow=ENDS_v20&

←Dataflow

Request=SearchService&Params=keywords|facility&

←Search

RowId=0&MaxRows=20&

←Rows

Token=

←Token

csm:liKaBeCRDqKxNTEdID7_nArYAL0SFckiINLDwfsKf5fpCIEkR
aFXrFFuSnnFVntT.Zu9V_AwRdhuDH0EOS5Zx44Fyw2qsDi5sHA2
lbnaLumpYUg7JK7nGw8_pNMTictot.fQh0BOQNvIYCUIPrOis_Hw

””



Query FRS 3.0

[https://cdxnode2.epacdxnode.net/Node2RestWS.svc/Query?](https://cdxnode2.epacdxnode.net/Node2RestWS.svc/Query?Node=ENDS2&Dataflow=FRS_v3_0&Request=GetFacilityList&Params=ZIP_CODE|20001&)
Node=ENDS2&
Dataflow=FRS_v3_0&
Request=GetFacilityList&
Params=ZIP_CODE|20001&

←Proxy address
←Method
←Node
←Dataflow
←Service
←Parameters

Token=csm:liKaBeCRDqKxNTEdID7_nArYAL0SFckiINLDwfsKf5fpCIEkRaFXrlgpII
KQ511G.qwOemocrGcuFo7MtA0FDLigwXj0KZ8aclARwbwOOwmPau339-
vwoTS1eEkbFjqRs.5DPiemNDaiM,.



Uses of REST Proxy

- REST publishing allows any program that can open a URL to perform an EN Query
- Such as
 - MS Word, Excel, Access, PowerPoint, XMLspy, Internet Explorer, Firefox...
 - Program that uses a File->Open dialogue box.
 - Scripting languages with Open URL support



What does it mean?

- You can query data very easily with these URL templates
- You could embed EN data in Word Documents
- You can more easily query and Integrate the Exchange Network into what you do

Quality Assurance Services



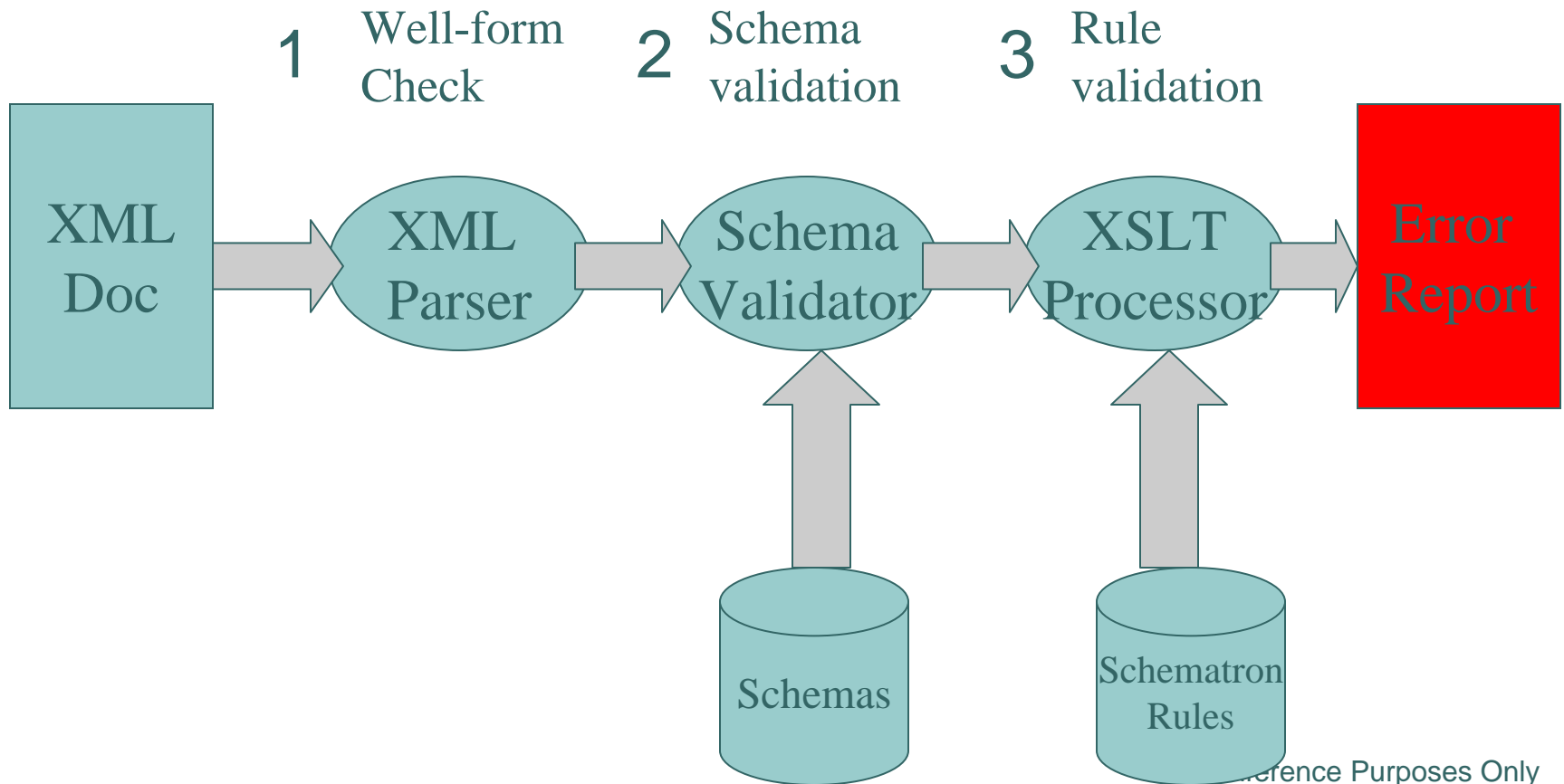


Quality Assurance Services

- The Exchange Network has been using the Schematron technology since 2003.
- QA services are shared web services for data validation using both schema and Schematron.
- Many data flows are currently using Schematron validations
- Browser based QA interface:
<https://tools.epacdxnode.net>

(Note: This service lets you test any web service definition - WSDL)

Validation Process



Where can it be used? (Hint: Anywhere)

- ✓ Manual validation from a any Browser
- ✓ User Client Tools - Data Mapping / Submission
- ✓ State Node Workflows – Validate data on node before submission
- ✓ CDX Workflows – Validate Data During CDX processing
- ✓ Program System Applications – Validate Data for web applications



Examples of Validation Checks

- Table Lookups
- Date Format and Range checks
- Compare a value against a specified format.
- Basically anything you would need to check..... and fast



Take Home

- Helps Exchange Network Data Stewards Improve Data Quality
- QA Services are the recommended design approach
- Consider QA Services for your next exchange for
 - Validation from Browser
 - User Client Tools
 - State Node Workflows
 - CDX QA
 - Web applications (single rules engine)



Open Source Nodes

OpenNode2

<http://code.google.com/p/opennode2/>

eNode

<http://code.google.com/p/en-node2/>

CGI Node

<http://irmsapps.ams.com/Node2.0/Deliverables/Node2%2020080408%20Install%20Package.zip>

EPA NGN Node

<https://test.epacdxnode.net/ngn>



Tools and Links

- EPA Schema Checker Tool - <http://tools.epacdxnode.net/>
- EPA Web Client - <https://nodewebrss.epa.gov/user/default.aspx>
- Windsor Node Client Lite - <http://www.windsorsolutions.biz/nodeclient/>
- EN Document Validation Service - <http://tools.epacdxnode.net/>
- Node Test Tool - <http://216.139.239.67/nct/home.mvc>
- Exchange Network Wiki-
http://exchangenetworkwiki.com/wiki/index.php/Main_Page

Questions