

Using CDX and the Exchange Network Services

US Environmental Protection Agency
Office of Environmental Information



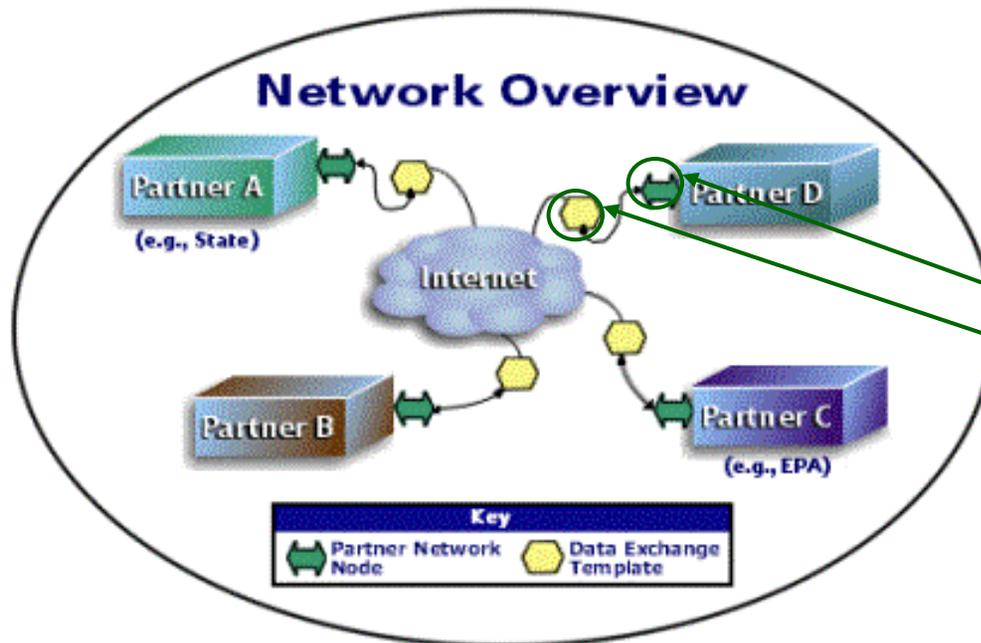


Topics

- What is the Exchange Network?
- Network Nodes and Web Services
- Setting Up and Using Services
- Exchange Network Governance

What is the Exchange Network?

An Internet and standards-based method for exchanging environmental information between partners

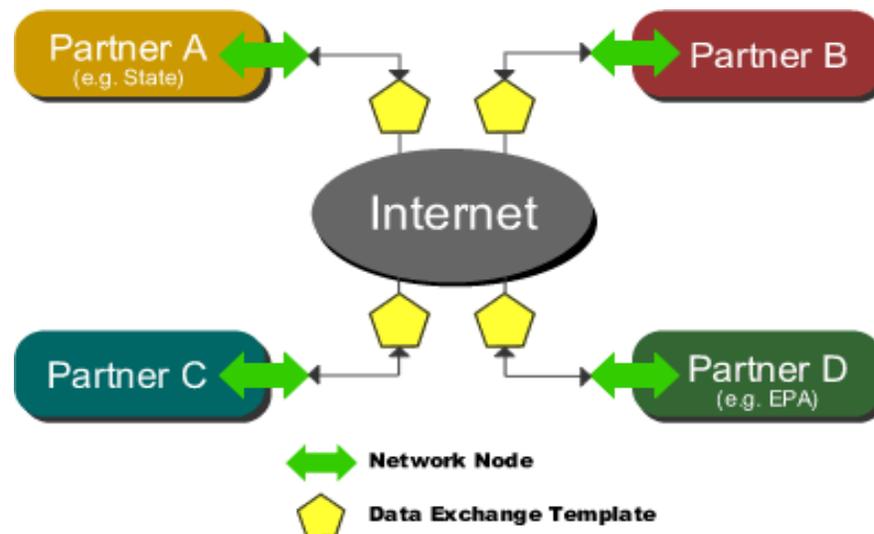


Key Components

- Data Standards and Standard Protocols
- Nodes
- XML Schema/Registry
- Trading Partner Agreements
- Grant Program

Purpose of Network

- Supports automated exchange of data
- Enables timely and accurate exchange
- Reduces reporting burden
- Improves data quality



Types of Data Exchanges on the Network

State-to-EPA

- Facility Data to FRS
- Water Quality Data to WQX
- Drinking Water Data to SDWIS
- Haz Waste Data to RCRAInfo
- Air Emissions Data to NEI
- Air Quality Data to AQS

EPA-to-State

- TRI Data Submissions
- Substance and Chemical Data
- Facility Data from FRS
- Air Quality Data

State-to-State

- Water Quality Data
- Hazardous Waste Transporters
- Air Quality Data
- Homeland Security Data

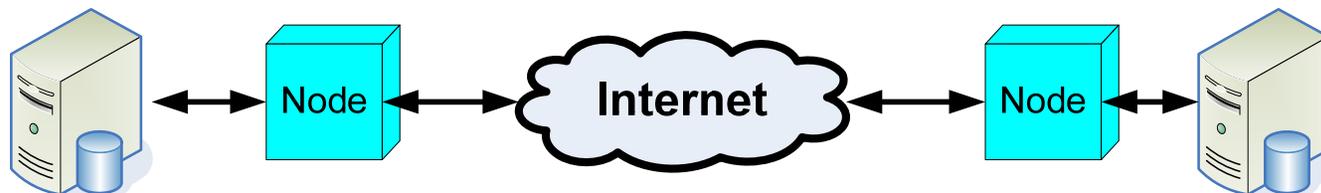
Intrastate

- Environmental Data to Health Departments
- Drinking Water Labs to States
- Homeland Security/Law Enforcement Data
- County Water Data

What is a Network Node?

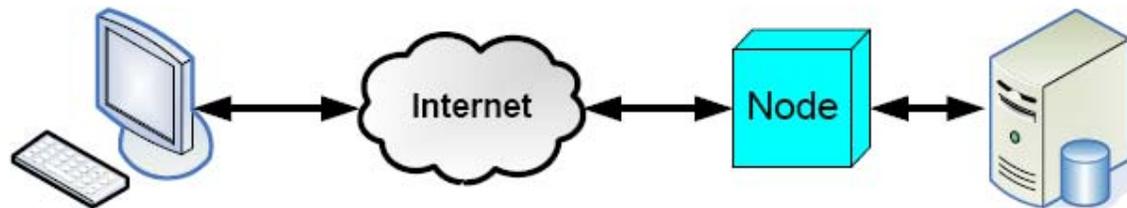
*“A simple environmental information **Web service** that initiates requests for information, processes authorized queries, and sends/receives the requested information in a standard format.”*

- Is a Server accessible on the Web
- Complies with the protocols to ensure secure exchanges
- Sends and receives standards-based messages
- Returns requested information as XML
- Each partner has only one Node

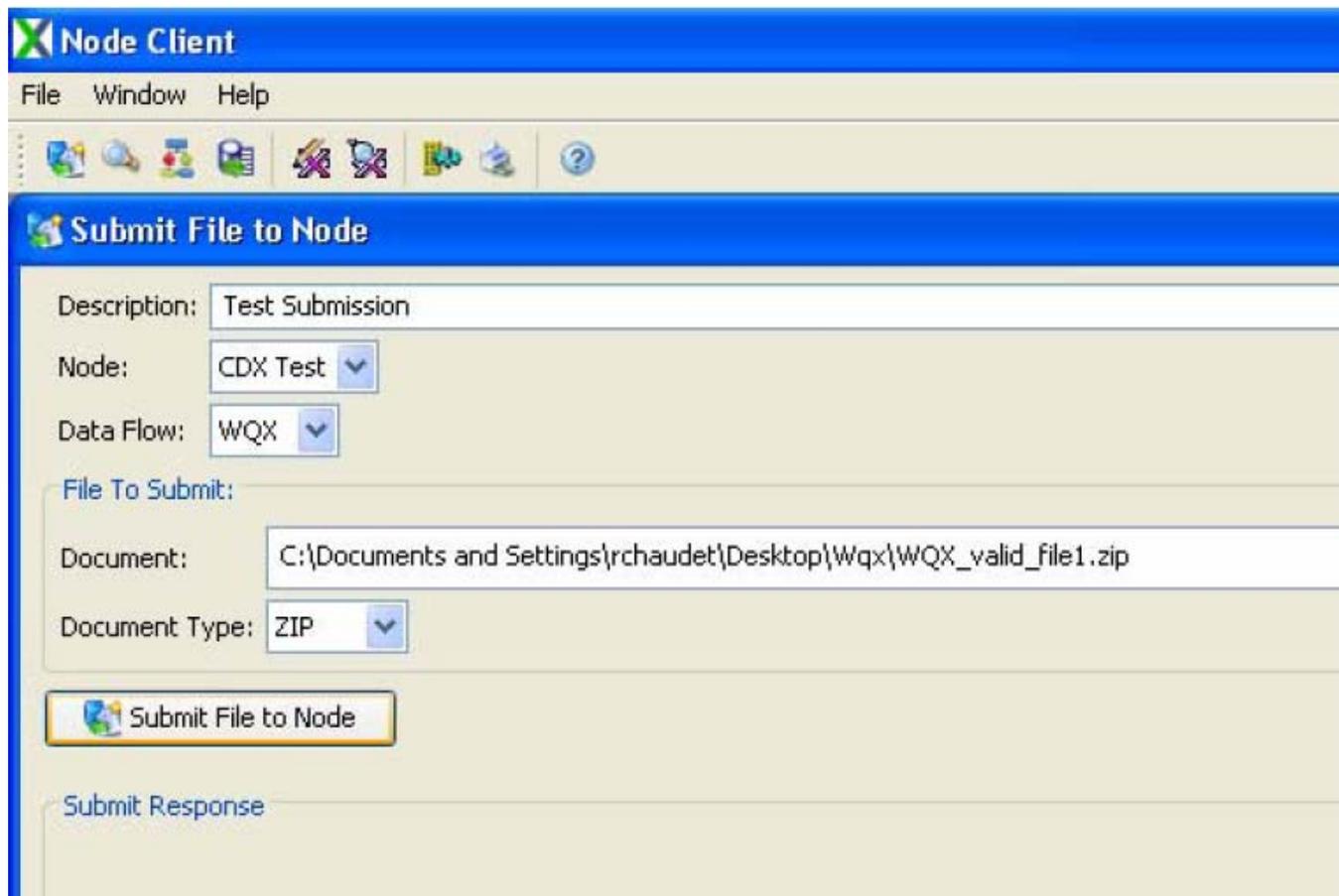


Node Client Applications

- Simplify access to services on full Network Nodes
 - Cannot listen (and respond) to requests from other nodes
- Human-to-Machine interaction
- Easy to install and use
- Available in .NET and JAVA versions
- Node Client Software Developer Kit (**SDK**) - simplifies integrating Node client functions (web service calls) with just a few lines of script



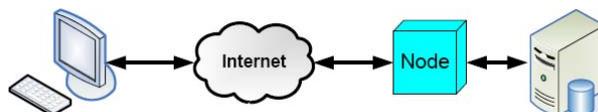
Node Client EPA JAVA/Velocity



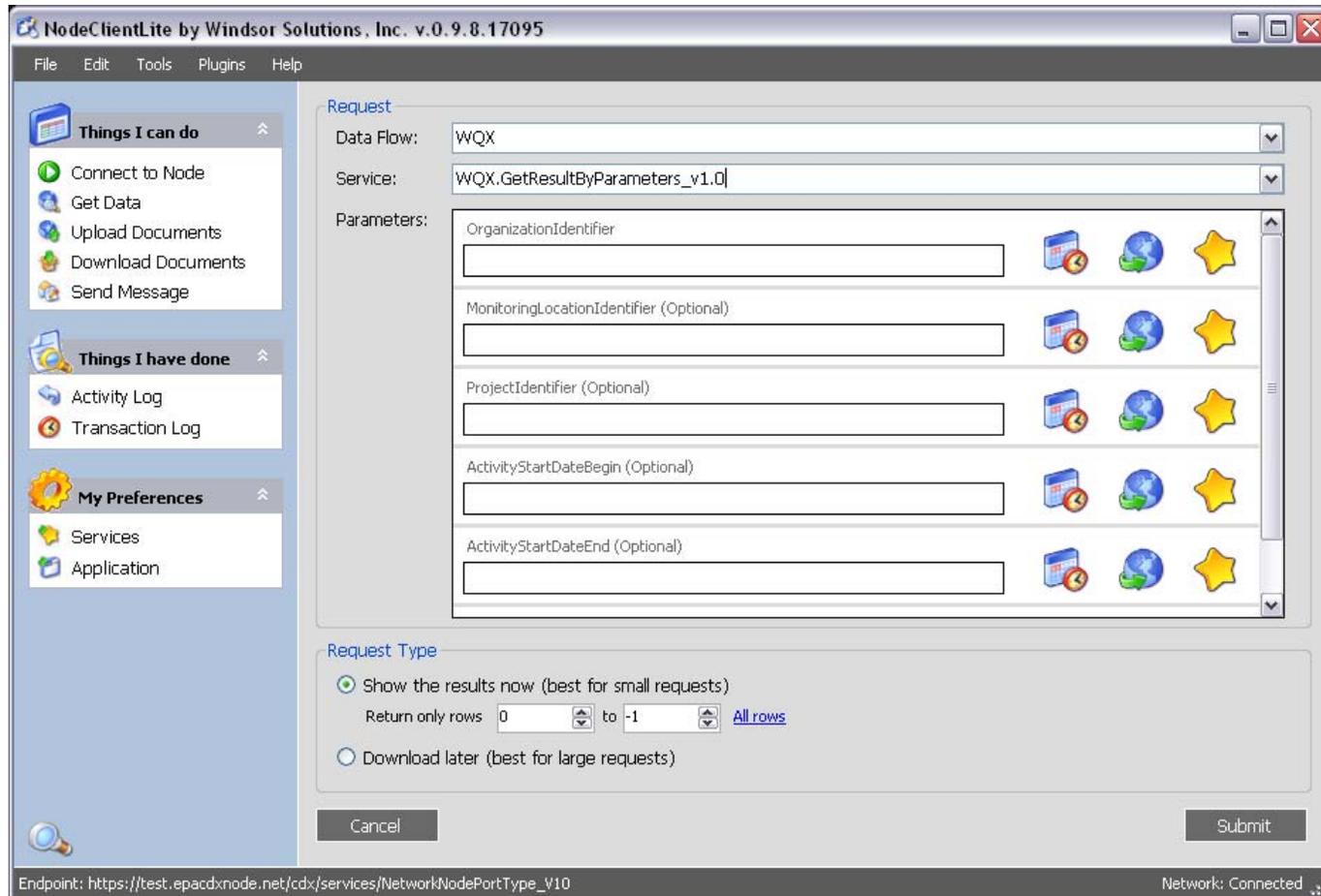
The screenshot shows the 'Node Client' application window. The title bar reads 'Node Client'. The menu bar includes 'File', 'Window', and 'Help'. The toolbar contains several icons for file operations. The main window is titled 'Submit File to Node' and contains the following fields:

- Description: Test Submission
- Node: CDX Test (dropdown)
- Data Flow: WQX (dropdown)
- File To Submit: (label)
- Document: C:\Documents and Settings\rchaudet\Desktop\Wqx\WQX_valid_file1.zip
- Document Type: ZIP (dropdown)

At the bottom of the dialog, there is a 'Submit File to Node' button and a 'Submit Response' label.



Node Client Lite (Windsor -.NET)



Network Desktop (EPA -.NET)

The screenshot displays the 'Network Desktop Client' application window. The title bar reads 'Network Desktop Client'. The menu bar includes 'File', 'Tools', 'Security', 'Options', and 'Help'. The toolbar contains icons for 'Home', 'Query Wizard', 'Submit Wizard', 'QA Wizard', and 'History'. The main content area is titled 'Exchange Network Submit Wizard' and contains a text box with the following text: 'This page allows you to select a data flow and a document to be submitted. The transaction ID parameter is optional, it is used only if the file is associated with a previous submission.' To the right of this text is a 'Choose File to Submit' section with a 'Submit' button. Below this, there are several input fields: 'Choose an Endpoint:' with the value 'https://cdxnode.epa.gov/cdx/services/NetworkNodePortType_V10'; 'Transaction ID:' with an empty field; 'Exchange:' with the value 'WQX'; 'Document:' with the value 'C:\Temp\WQX.zip'; and 'Document Type:' with radio buttons for 'XML', 'ZIP' (which is selected), and 'Other'. At the bottom right, there are 'Previous' and 'Next' buttons.

Network Desktop Client

File Tools Security Options Help

Home Query Wizard Submit Wizard QA Wizard History

Exchange Network Submit Wizard

This page allows you to select a data flow and a document to be submitted. The transaction ID parameter is optional, it is used only if the file is associated with a previous submission.

Choose File to Submit 1 2 3

Submit

Choose an Endpoint:

Transaction ID:

Exchange:

Document:

Document Type: XML ZIP Other

Previous Next

Heartland Emergency Response Client (HERE)

The screenshot displays the HERE Client Help application interface. The main window is titled "HERE Client Help" and contains a navigation menu on the left with items: About HERE Client, Application Setup, Dashboard, Search, and Site Detail. The central area is titled "Dashboard" and includes a description: "The Dashboard provides summary-level information about the HERE Client as well as access to the task scheduler."

The dashboard is divided into several sections:

- Application Status:** Shows Network Status (Connected), Site Record Count (94169), and Last Updated On (3/18 11:01 AM). A button "Click to map all sites" is present.
- Data Status by Source:** A table listing data sources and their counts:

Livestock	5,943
Public Water Supply	01
Remediation	2,076
Solid Waste	855
Tanks	15,303
Wastewater	2,397

Below this table, there are two sections for "MO" and "NE" with their respective counts:

MO	3/18 11:01 AM
Chemical Storage	7,018
Livestock	631
Public Water Supply	15,697
NE	3/18 11:01 AM
Air	3,517
Chemical Storage	5,357
- Saved Searches:** A dropdown menu showing "Sample Facility" with "Load" and "New" buttons.
- Data Snapshots:** A bar chart titled "Top 10 record counts by environmental Interest". The x-axis categories are: Chemica, Public W, Livestoc, Tanks, Air, Wastew, Remedia, Solid W, and Hazardo. The y-axis ranges from 0 to 40,000.
- Tasks:** A section titled "Data Download" with a "New" button. It shows "Last Run: 2007-08-07 09:29" and "Next Run: 2007-08-07 09:29".

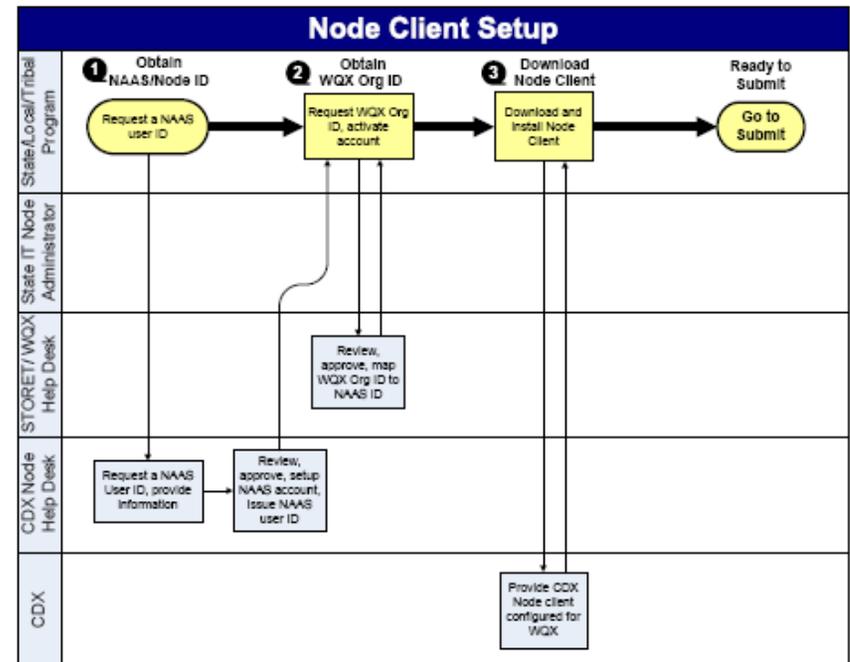
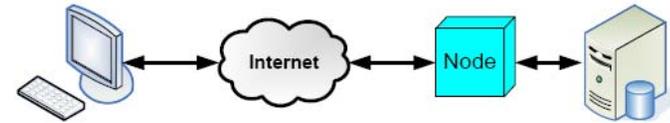
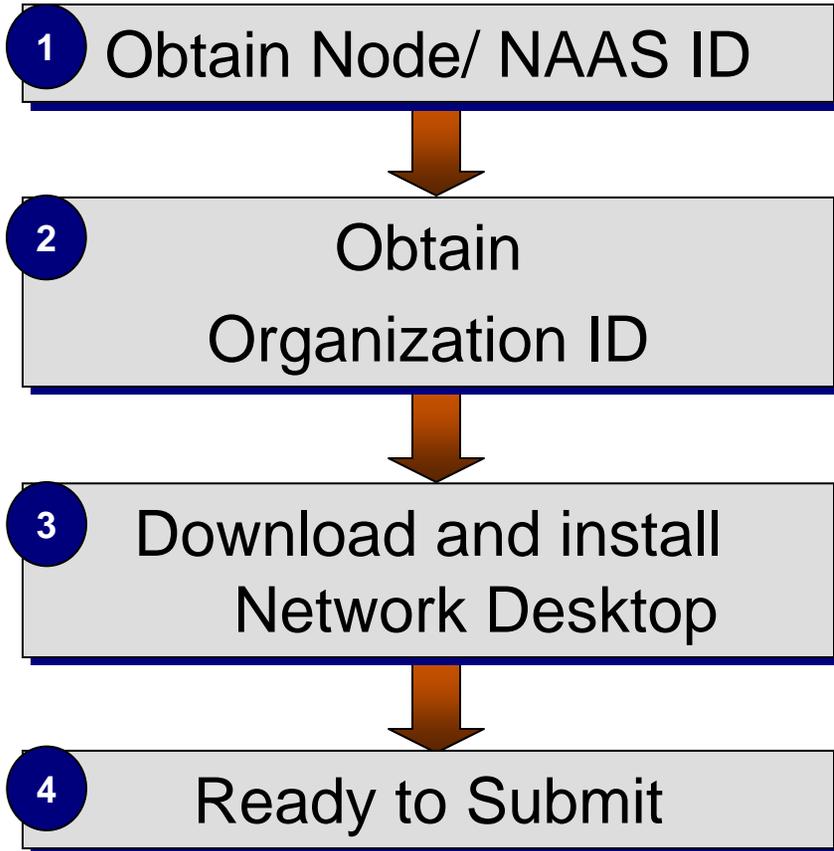
The bottom of the window shows the Windows taskbar with the Start button, several open applications (RE: HERE scr..., Lotus Domino D..., Presentations, WinZip - Help.Zip, HERE Client Help), and the system tray with the time 1:09 AM.

Web Service

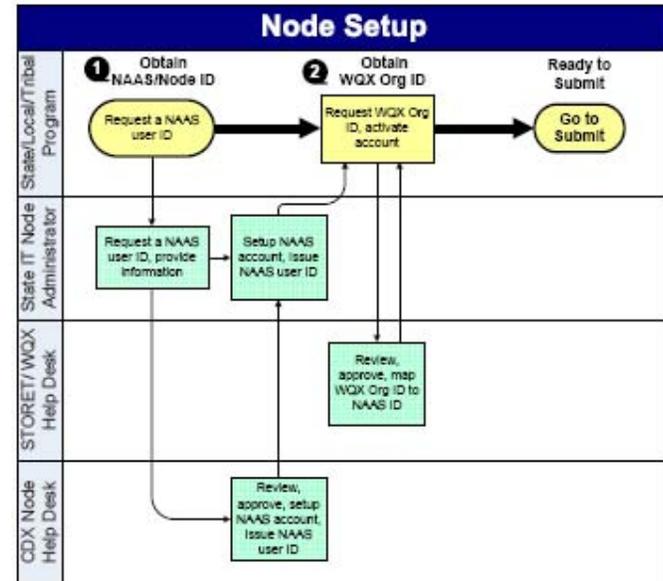
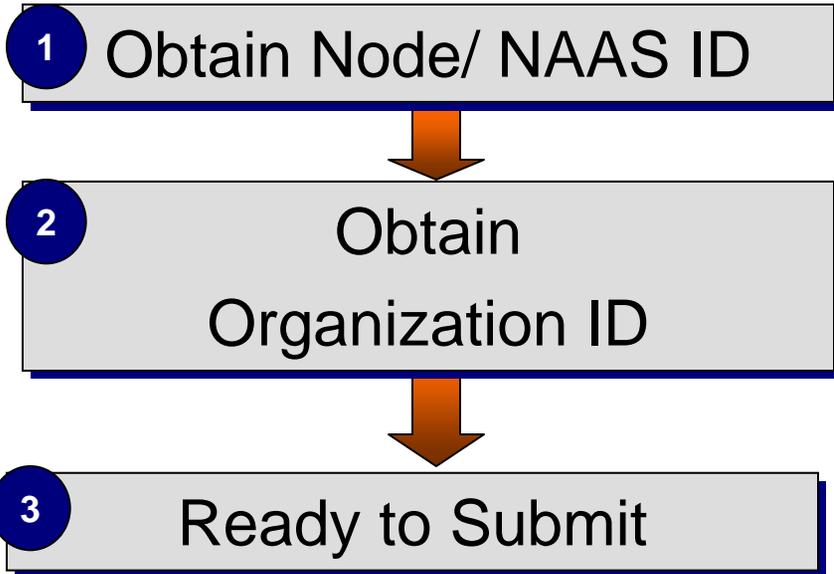
- Definition: Information sources/application components whose functionality and interfaces are exposed to consumers using ***standard messaging protocols*** including:
 - Extensible Markup Language (XML) for the payload or file,
 - Simple Object Access Protocol (SOAP) as a wrapper for the payload,
 - Web Services Description Language (WSDL) for network exchange functions and services, and
 - Hypertext Transfer Protocol (HTTP) for secure communication via the internet

Basically: A machine readable Email message

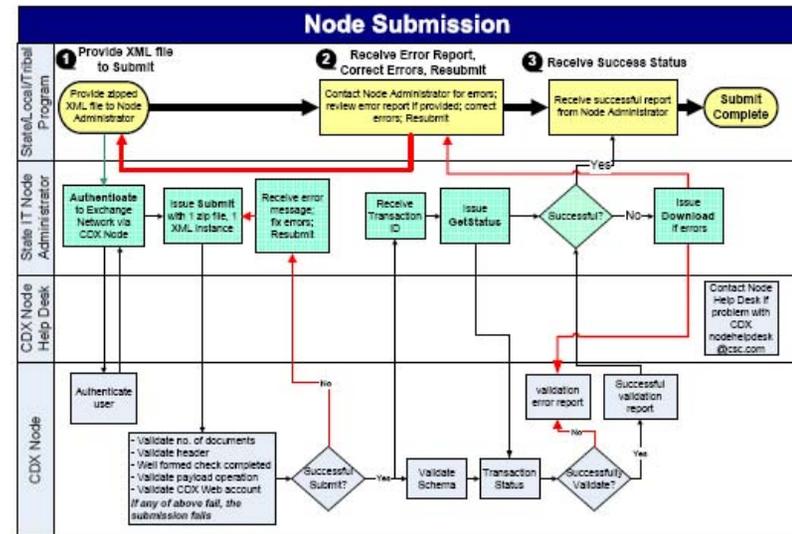
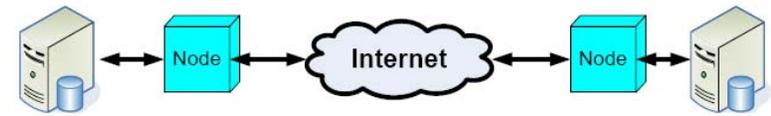
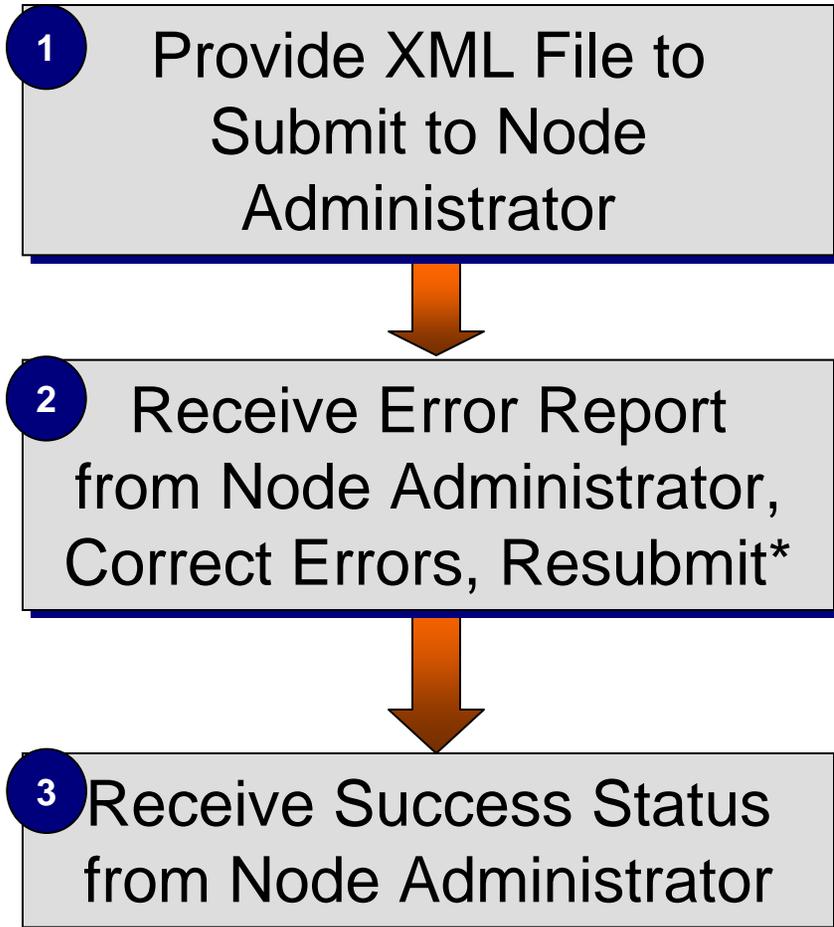
Network Desktop Setup



Network Node Setup



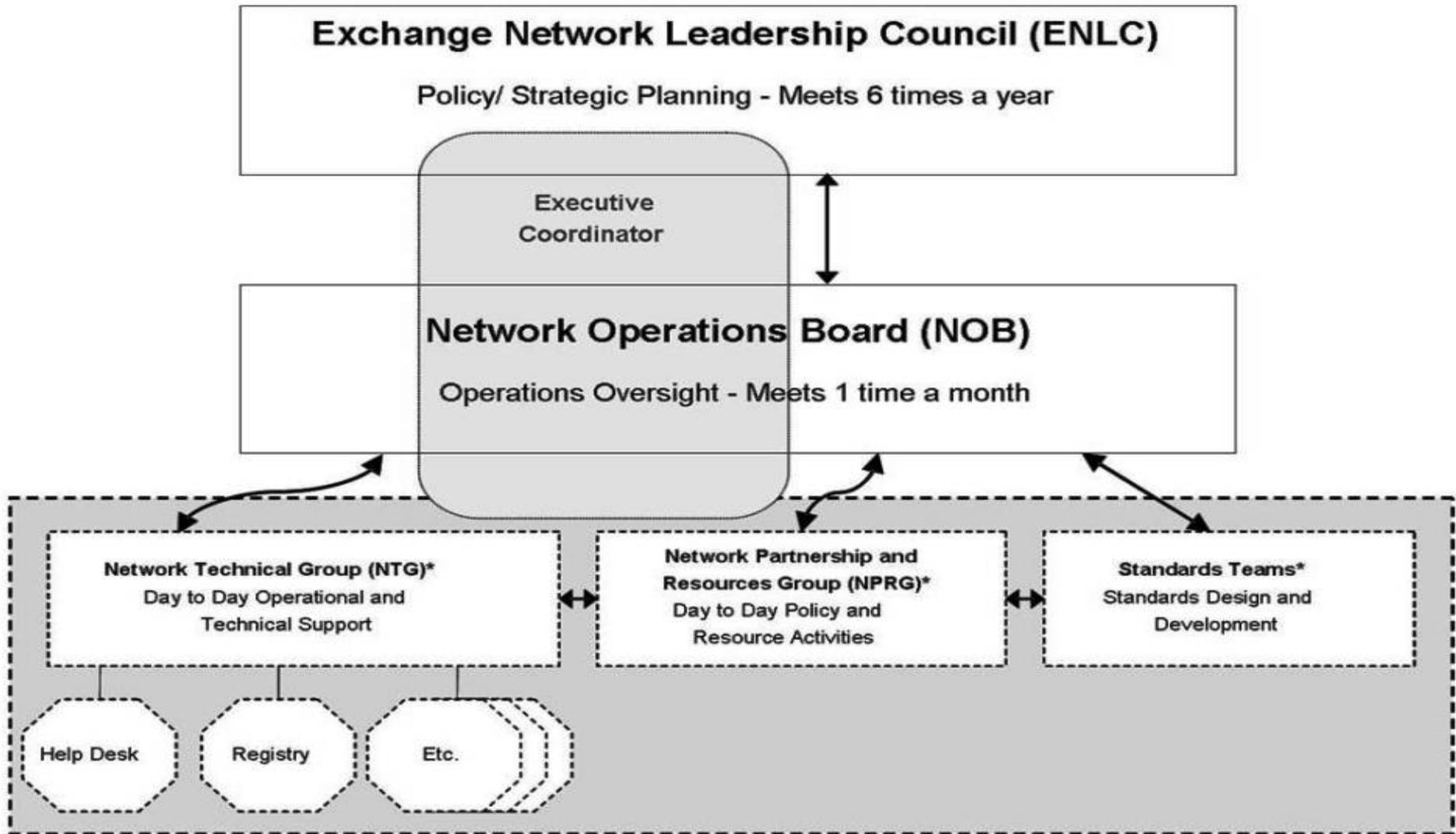
Network Node Submission



Talk to Your Node Administrator!

*Node 2.0 can send e-mail status to user

Exchange Network Governance



Resources

- EPA Exchange Network
<http://www.epa.gov/exchangenetwork>
- Exchange Network
<http://www.exchangenetwork.net>
<http://www.exchangenetwork.net/node/>
- CDX
<http://www.epa.gov/cdx/>
- Node Help Desk
 - nodehelpdesk@csc.com
 - 1-(888)-890-1995