Earth Observing System Clearinghouse

Overview for Data Partners

03/19/2004

What is ECHO?

- **A clearinghouse of spatio-temporal data and services**
  - Offers multi-disciplinary content to a growing number of Earth science applications and interdisciplinary research efforts
  - Allows data providers to expose their data holdings to a broader user base
  - Offloads some advertisement and search responsibilities for data providers
- **An enabling framework that allows different data systems to work together**
  - Streamlines access to digital data and materials
  - Facilitates the creation of custom client applications that optimize data acquisition and provide unique functionality for specific end-user communities
  - Promotes sharing of data, services, and tools among distributed individuals and organizations
- **A data and service order broker**
  - Brokers orders from client applications to data providers
  - Provides tracking services for both the client and data provider

What is an ECHO Data Partner?

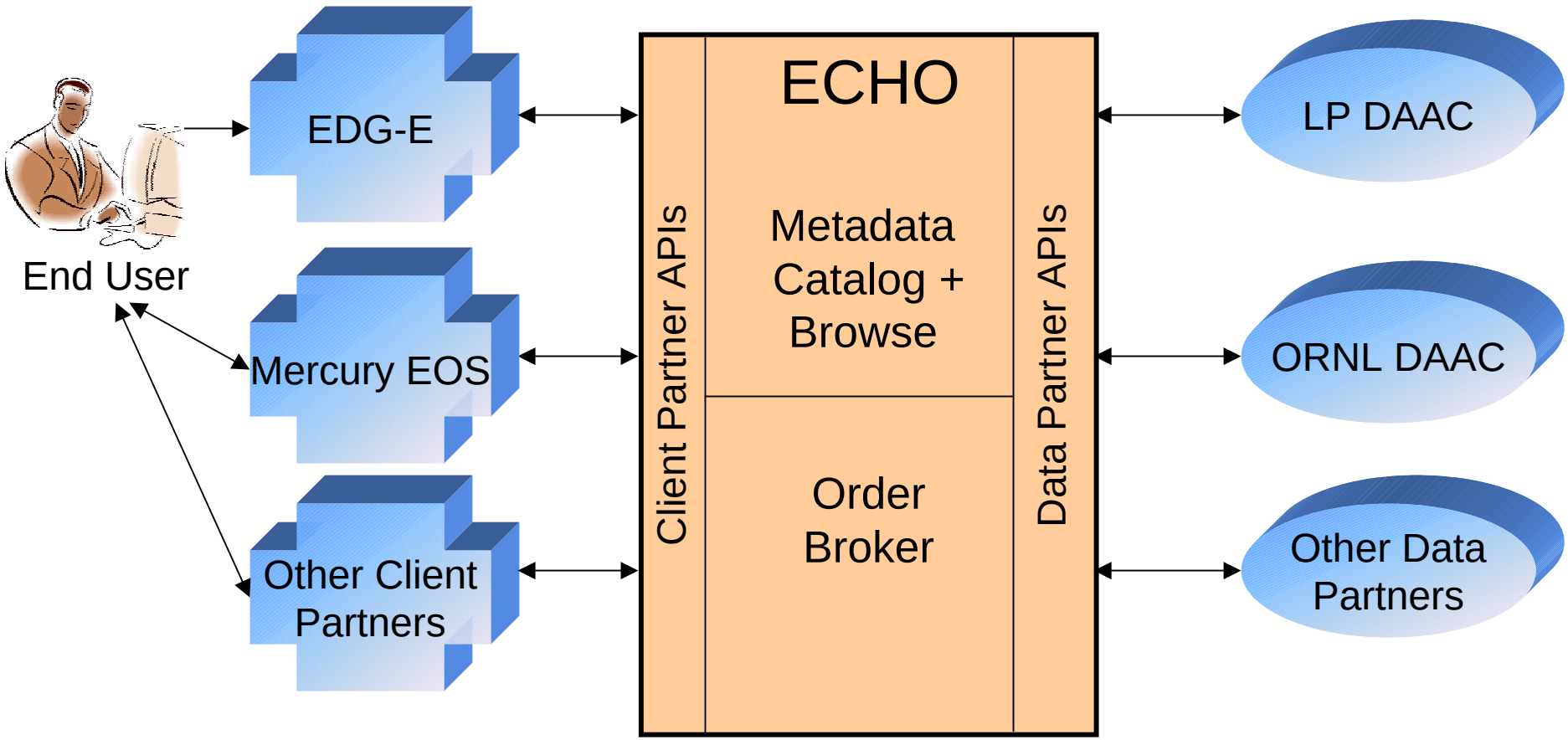
Data Partners participate in ECHO by

- Making metadata that represent their Earth science data holdings available for search
- Providing a mechanism to allow client applications and service providers to access their data holdings, either by
  - Order distribution
  - Online access

ECHO Objectives for Data Partners

- Provide tools and resources that facilitate ease of use
- Present an application programming interface (API) that allows organizations to build their own user and system interfaces
- Provide searches that respond quickly
- Broker orders for both data and services
- Minimize operational costs for participation
- Build a scalable system that can handle large numbers of requests
- Incorporate the best information technologies to continually improve the system

ECHO Context Diagram



Current ECHO Data Partners

(March 2004)

- **Operational**
  - Goddard Space Flight Center Earth Sciences ECS DAAC (GES DAAC)
  - EROS Data Center Land Processes ECS DAAC (LP DAAC)
  - Oak Ridge National Laboratory DAAC (ORNL DAAC)
- **In Test**
  - Langley Research Center ECS DAAC (LaRC DAAC)
  - National Snow and Ice Data Center ECS DAAC (NSIDC DAAC)
  - Socioeconomic Data and Applications Center (SEDAC)
- **In Development**
  - Alaska SAR Facility DAAC (ASF DAAC)
  - Stennis Space Center Science Data Purchase Project (SSC SDP)
- **Planned**
  - MODIS Ocean QA Browse Imagery (MQABI)
  - National Snow and Ice Data Center V0 DAAC

ECHO Clients - Operational

(March 2004)

- **Mercury EOS**
  - **Web-based ORNL search and order system for the Oak Ridge National Lab (ORNL) DAAC that has been in operations since 2002. Mercury EOS is available online at http://mercury.ornl.gov/ornleos/**
- **SImple MODIS ECHO Client**
  - **Search and order reference client developed by ECHO Ops that is currently being brought into production on the *MODIS Land Rapid Response System* to provide a "direct connect" function for the *Gallery* and *Real-Time* browse images distributed at http://rapidfire.sci.gsfc.nasa.gov/**
- **AnnoTerra**
  - **Demonstration search client that demonstrates the use of Semantic Web technologies in linking *Earth Observatory* newsfeeds and *Global Change Master Directory (GCMD)* records with ECHO datasets. More information about AnnoTerra is available at http://annoterra.ssaihq.com**

ECHO Clients - In Test

(March 2004)

- **Power User Interface:**
  - A command-line Perl program developed by ECHO Dev to support bulk ordering by a limited number of special user groups. ECHO Dev plans to distribute this utility client to Data Partners for implementation in controlled, internal use scenarios
- **MODIS Land Global Browse Images website:**
  - The MODIS Land Science Team is currently testing use of the ORNL "shopping cart" with a small back-end ECHO client to provide order functionality for the MODIS Land Global Browse Images website (http://landqa2.nascom.nasa.gov/browse)
- **Data Validation User Interface:**
  - Desktop navigation/discovery tool created to facilitate identification and acquisition of coincident multi-instrument, multi-DAAC data sets for MODIS Land Data Validation Team. For more information on DVUI contact Beth.E.Weinstein@nasa.gov

ECHO Clients - In Development

(March 2004)

- **EDG-E:**
  - **The next generation of the *EOS Data Gateway (EDG)* is being built using ECHO; for more information on EDG-E, please contact Mark Nestler (nestler@gst.com)**
- **WISRD:**
  - **The Web Interface for Searching, Subsetting, Stitching, Resampling, Regriding, and Reformating Data (WISRD) is a web-based search and order interface for swath, scene, and gridded datasets from the National Snow and Ice Data Center (NSIDC). Users can choose their grid projection and grid resolution for both the search area and the delivered data products.**
- **SNOWI-E:**
  - **An ECHO version of the NSIDC *Search 'N Order Web Interface (SNOWI)* that provides a quick and easy way to order data from NSIDC and other DAACs.**
- **NEO:**
  - **A new initiative by the creators of the *Earth Observatory* to merge the capacity for quickly and easily browsing EOS data with the ability to order data. In the first system prototype, Neo's web-based user interface will guide non-expert users in the discovery, exploration, and acquisition of EOS MODIS browse products and their underlying data sets.**

Partners Role in ECHO Development

ECHO Partners participate in the requirements and design reviews for each new version of the system

- **Data Partner requirements met in current release:**
  - Increased Access Control List (ACL) functionality to allow Data Partners to create rules for dataset access based on temporal conditions (insert date, production date, and acquisition date)
  - Configurable ingest proxy provides a mechanism to create a provider-specific mapping layer to allow ingest of collections and granules whose native format does not match the ECHO format
  - User preferences for default contact, billing, and shipping information
- **Upcoming functionality added for Data Partner:**
  - Implementation of NSIDC's *Backtrack* search algorithm to improve query functionality for multi-orbit swath data
  - Addition of a new Provider Account Service function to improve Data Partner reconciliation capabilities (Inspect Dataset Request)
  - Enhancement of the Catalog Service to support granule searches using Provider Insert Date, Provider Production Date, and Acquisition Date

What is ECHO Operations?

- The ECHO Operations Team (ECHO Ops) is the point of contact for direct interaction between ECHO, its Partners, and end users.
- ECHO Ops is responsible for the operation and maintenance of the ECHO operational and Partner test systems.
- ECHO Ops general support for Data Partners includes:
  - Problem tracking and resolution
  - Working with Partners to identify new / evolving requirements for the ECHO system and user support services
  - Preparing and evaluating materials, tools, and events to support ECHO users
  - Ingest management and accounting
  - System availability and performance monitoring
  - Promoting and engaging new Client Partners
  - Advertising Data Partner holdings and availability of new datasets

Support for New Data Partners

- **Data Partner Application**
  - Partner completes application form
  - Reviewed by ECHO Ops in conjunction with Project Managers to determine compatibility with ECHO scope and goals set forth by the ECHO Technical Committee (ETC)
- **Initial Setup**
  - Establish primary user accounts on operational and test systems
  - Provide access information and tools (e.g. PUMP)
  - Help to establish/implement policies, options, and other configurations in ECHO system
- **Establish an Operations Agreement (OA)**
  - Based on ESDIS ECHO template OA

Support for Test Data Partners

- **API Support**
  - Assist Partner in understanding relevant components of the ECHO API
- **Metadata Mapping**
  - Assist in the creation of metadata schema (if needed)
  - Assist in the creation of metadata ingest files that conform with the ECHO DTD
- **Access Control**
  - Assist Partner in using PUMP to manage data set access rules
- **Test Support**
  - Coordinate ingest of metadata on ECHO test system
  - Provide resources for Partner testing of search and order distribution processes
    - "Dummy" Providers
    - Canned XML scripts

Support for Operational Data Partners

- **Ingest Plan and Schedule**
  - Assist Partner in establishing ingest priorities
    - Among the different datasets or “Collections”
    - For different time periods in the historical archive
    - Requirements for keeping ECHO up to date with Partner’s current and future data processing
  - Incorporate Partner metadata ingest in ECHO master schedule
  - Generate weekly ingest and holdings reports
- **Support for Metadata Reconciliation**
  - Assist Partner in understanding how to use the API to generate reconciliation data
  - Provide additional reconciliation data as needed (e.g. database “dump” files)
- **Support for Order Management**

Contacts and News

- **For programmatic information, contact Beth Weinstein (ECHO Operations Manager) at Beth.E.Weinstein@nasa.gov**
- **For technical information or user support, contact the ECHO Operations Team at echo@killians.gsfc.nasa.gov**
- **Keep up-to-date with ECHO through**
  - **ECHO website (http://eos.nasa.gov/echo):** Provides information on ECHO schedules, upcoming functionality, holdings summary, APIs and DTDs, and other resources and reference information
  - **ECHO mailing lists:**

    echo-all@killians.gsfc.nasa.gov **-** General mail list for use by the extended ECHO community

    echo-status@killians.gsfc.nasa.gov **-** List for ECHO community members who want to receive notification of system downtime and failure alerts

    echo@killians.gsfc.nasa.gov - List for communicating with the ECHO Ops team
  - **ECHO Technical Committee (ETC):** An open ETC telecon is held every Thursday at 3:30 PM ET. For more information on how to participate, please contact Beth Weinstein

Resources – ECHO URLs

- **Project web site: http://eos.nasa.gov/echo**
- **API documentation: http://api.echo.eos.nasa.gov/echo/message_detail.html**
- **Operational system access points**
  - **XML Message Test Facility: http://api.echo.eos.nasa.gov/echo/rmi/EchoTestFacility.jsp**
  - **Client access via SOAP (incl. PUMP): api.echo.eos.nasa.gov/soap/servlet/rpcrouter**
  - **Metadata FTP: ingest.echo.eos.nasa.gov**
  - **Browse imagery: browse.echo.eos.nasa.gov**
- **Test system access points**
  - **XML Message Test Facility: http://beamish.gsfc.nasa.gov:5000/echo/rmi/EchoTestFacility.jsp**
  - **Client access via SOAP (incl. PUMP): beamish.gsfc.nasa.gov:5000/soap/servlet/rpcrouter**

Resources – Documents and Tools

- **ECHO Documentation is maintained online at http://www.echo.eos.nasa.gov/echo-docs.shtml**
  - **ECHO 5.0.1 Features/Functionalities (coming soon ECHO 5.5)**
  - **ECHO API Changes between Version 5.0 and 5.0.1**
  - **ECHO User's Guide**
  - **ECHO DTD Tag Directory**
  - **ECHO Acronym List**
- **Information on the Provider User Management Program (PUMP) and a download link is available at:**

  http://www.echo.eos.nasa.gov/datapartner-resources.shtml

ECHO Operations Workshop

- **The Spring 2004 ECHO Operations Workshop will be held at NASA Langley Research Center (LaRC) in Hampton, Virginia during April 26 – 27, 2004**
- **Send participation info to Beth.E.Weinstein@nasa.gov**
- **Agenda Topics include:**
  - **Upcoming ECHO Functionality**
  - **Provider Reconciliation**
  - **Metadata Ingest**
  - **Performance and Availability**
  - **Data Management with PUMP**
  - **Data Partner Role in Facilitating Clients**
  - **ECHO Services**
  - **Final Review of Version 7.0 Requirements and Priorities**
  - **ECHO Ops – Current and Future Plans**

View full agenda at **http://www.echo.eos.nasa.gov/ops-workshop.shtml**