

“Supporting near real-time updates of geographic features in a distributed environment”

Overview

CubeSERV® GeoSynchronization Service is a secure, standards-based Web Service that supports distributed editing of features in a network composed of multiple Web Feature Servers using Real Simple Syndication (RSS) feeds to advertise, authorize and propagate changes.

During the past 5 years many Spatial Data Infrastructures (SDI) have been deployed around the world. These information infrastructures are now characterized by the use of OGC compliant geo-processing software tools such as Web Map and Web Feature servers. These tools allow data provider organizations to deploy increasingly efficient networks capable of responding to dynamic requirements for using geospatial data. In this context, data provider organizations are being called upon to deliver current and timely data over the Web infrastructure. The CubeWerx GeoSynchronization Service empowers data providers by mediating distributed editing of their geospatial resources, using industry standard AtomPub and GeoRSS feeds.

The GeoSynchronization Service (GSS) presents the following characteristics:

- An authorized data collector proposes feature changes (including new features) to one or more Geospatial WFS services without physically connecting to the target data store.
- An authorized data integrator validates proposed feature changes and posts appropriate responses to the resolution feed of the GSS to be reviewed by the submitter.
- An authorized data integrator, upon a positive response to a proposed change, applies those changes to his own WFS service and optionally posts the resulting WFS transaction into the replication feed of the GSS to be replicated by a subscriber to that feed.
- Data integrators or data collectors can maintain their WFS services in their own close-to-source environment on the network and exercise full control over their resources.
- GSS participants can subscribe to any published feed and receive feed entries corresponding to their subscriptions.

Synchronization Via RSS Feeds

The service is driven by RSS (Real Simple Syndication) feeds with geographic extensions (GeoRSS). Each party involved subscribes to one or more of:

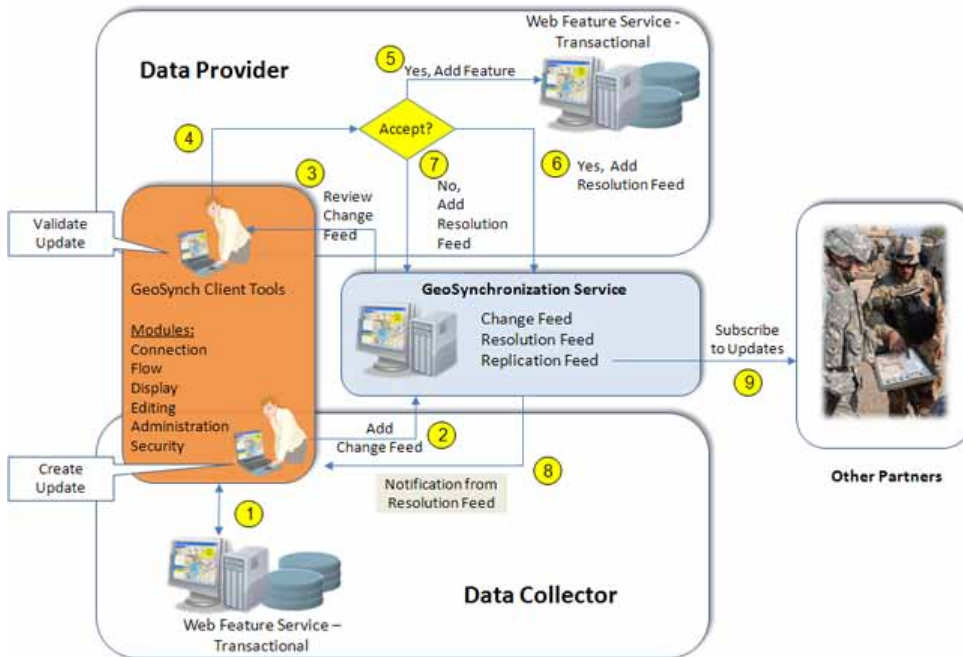
A Change Feed - An RSS feed used by data collectors, perhaps in the field, to submit proposed changes to a central database.

A Resolution Feed - An RSS feed updated by data providers to inform collectors about the status of their submissions.

A Replication Feed (Optional) - An RSS feed that may be used by a third party to replicate the changes happening in a data provider's resource.

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An Example Scenario



Software Specifications - CubeWerx® GeoSynchronization Service

Operating system requirements:

SUN Solaris, Linux (Red Hat ES or Fedora Core or SUSE)

Other software requirements

Oracle 8i, 9i, 10g or 11g is required, as is a Web Server, such as Apache or IIS.

In the scenario above:

1. Using a GeoSynchronization Service (GSS) client, the data collector creates a new proposed feature.
2. The GSS posts the new feature to the Change RSS feed.
3. The Data Provider, monitoring the Change feed receives a notification of a proposed change,
4. The Data Provider makes a decision on the proposed change
5. If the change is accepted the GSS automatically updates the Provider's Web Feature Service (WFS)
6. It also adds an entry to the resolution feed, so that the Collector may receive a notification about his proposed change.
7. If the change is not accepted, no change is made to the Provider's WFS, and the notification feed is updated to inform the Collector of the rejected change.
8. The Collector monitors the resolution feed to receive these results
9. (Optional) Other partners may subscribe to a replication feed to automatically synchronize local copies of the Data Provider's information.



CubeWerx®

Global Sales
CubeWerx Inc.
 Gatineau, QC, Canada
 sales@cubewerx.com
 Tel: (819) 771-8303
 www.cubewerx.com

USA Sales:
CubeWerx USA LLC
 Lake Ridge, Virginia
 Tel: 703.491.9543
 jharrison@cubewerx.com

United States Reseller:
The Carbon Project
 Alexandria, Virginia
 info@thecarbonproject.com
 Tel: 703.491.9543
 www.thecarbonproject.com

**Australia, New Zealand and Asia
 Pacific sales:**
CubeWerx Australia Pty Ltd
 brad.spencer@cubewerx.com.au
 Tel/Fax: +61 (0)2 9481 7024
 www.cubewerx.com.au