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A very diverse data and metadata ecosystem



Advantages

- A repository with tools where ESIP members can store, visualize, share, and map their ontologies
- Ontology versioning managed within the portal
- Community sourcing of ontology maintenance
- Low-budget solution

Challenges

- Maintenance
- Governance
- Integration into ESIP infrastructure
- Advertisement of portal contents
- Reconciliation of conflicts among ontologies
- Federation of ontologies

Objectives

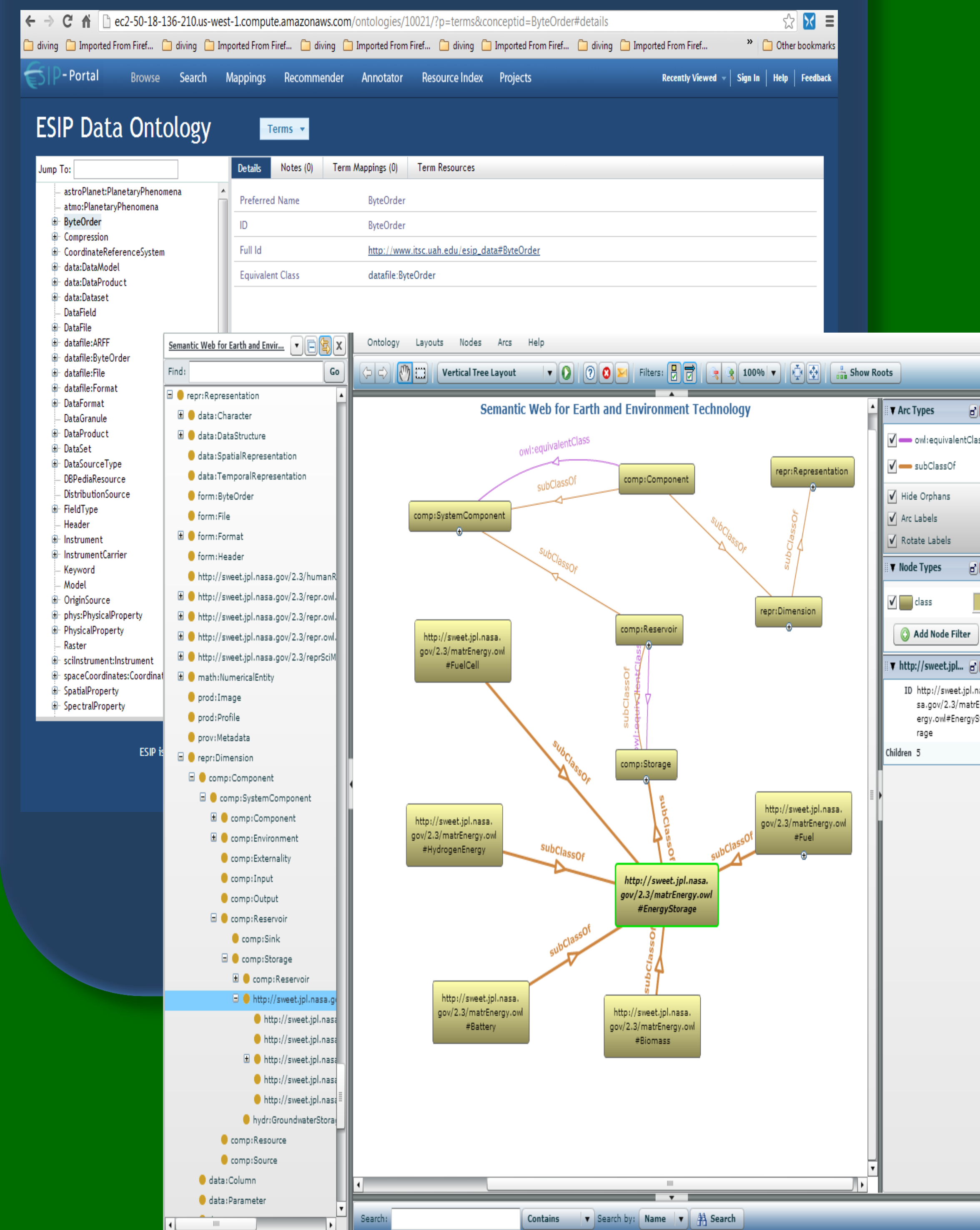
- Simulations, models, experiments, remote sensing, GIS, molecular and -omic databases, publications
- Numerous metadata schemas
- Workflows, scenario development, data and process re-use, provenance
- Complex systems of systems, networks of projects, repositories, archives, publishers
- Enable earth and environmental science ontologies to be accessible from the Web
- Host ontology services in a scalable public cloud
- Incorporate tools for managing, accessing, searching, browsing, and disseminating ontologies

Approach

- Investigate and set up a private cloud computing environment at USC for serving ESIP ontologies
- Investigate and set up an Amazon AWS point of service for serving ESIP ontologies
- Obtain and install the BioPortal image
- Produce ESIP-related descriptions for re-branding of BioPortal into an ESIP portal
- Produce outreach material to publicize and assist users with the ESIP-Portal

Implemented Portal

ONTOLGY NAME	VISIBILITY	TERMS	NOTES	REVIEWS	PROJECTS	UPLOADED	CONTACT
Basic Formal Ontology (BFO)	Public	22	0	0	0	08/07/2012	
Contour Map WDO (CM-WDO)	Public	65	0	0	0	08/18/2012	Leonardo Satayandia
Coastal Modeling WDO (CM-WDO)	Public	88	0	0	0	08/18/2012	Leonardo Satayandia
Data Fusion project WDO (DF-WDO)	Public	45	0	0	0	08/18/2012	
Ecology Knowledge WDO (EC-WDO)	Public	64	0	0	0	08/18/2012	
ESIP Data Ontology (ESIPData)	Public	188	0	0	0	08/27/2012	Rahul Ramachandran
ESIP Service Ontology (ESIPService)	Public	13	0	0	0	08/27/2012	Rahul Ramachandran
Hind's Code WDO (HC-WDO)	Public	55	0	0	0	08/18/2012	
ISOC ontology (ISOC)	Public	185	0	0	0	08/21/2012	
OROE (OROE)	Public	49	0	0	0	08/07/2012	Ben Leinfelder
OROE-SEC (OROE-SEC)	Public	630	0	0	0	08/07/2012	Ben Leinfelder
Plant Ontology (PO)	Public	1,429	0	0	0	08/04/2012	Plant Ontology Consortium
Proof Markup Language - Justification (PML-J)	Public	29	0	0	0	08/18/2012	
Proof Markup Language - Provenance (PML-P)	Public	31	0	0	0	08/17/2012	
Quick Link WDO (QL-WDO)	Public	366	0	0	0	08/18/2012	
Reflectance Data Gathering WDO (RDG-WDO)	Public	29	0	0	0	08/18/2012	
Semantic Web for Earth and Environment Technology (SWEST)	Public	4,532	0	0	0	08/04/2012	ESP
Site Selection WDO (SS-WDO)	Public	48	0	0	0	08/18/2012	
Third Provenance Challenge WDO (THP-CWDO)	Public	52	0	0	0	08/18/2012	
Virtual Solar Terrestrial Observatory (VSTO)	Public	201	0	0	0	08/07/2012	Peter Fox
Workflow Ontology (WDO)	Public	29	0	0	0	08/14/2012	Leonardo Satayandia



What worked

- Very small budget
- Volunteer effort for the mentors
- Work with undergraduates
- Pre-existing relationships
- Platforms designed for interoperability and re-use
- Open source APIs
- Straightforward deployment in the AWS Elastic Cloud (EC2)
- Required creation of custom image

Collaborations

- ESIP Federation Semantic Web Cluster
- ESIP Federation Products and Services
- National Center for Biomedical Ontologies
- University of South Carolina – Center for IT
- ORNL – Scientific Data Group

What did not work

- Custom image doesn't contain all features
- Lack of continuity
- Lack of incentives for mentors
- Need for better evaluation of ontologies