

Data and Modeling Services

Presentation to the LWS MOWG

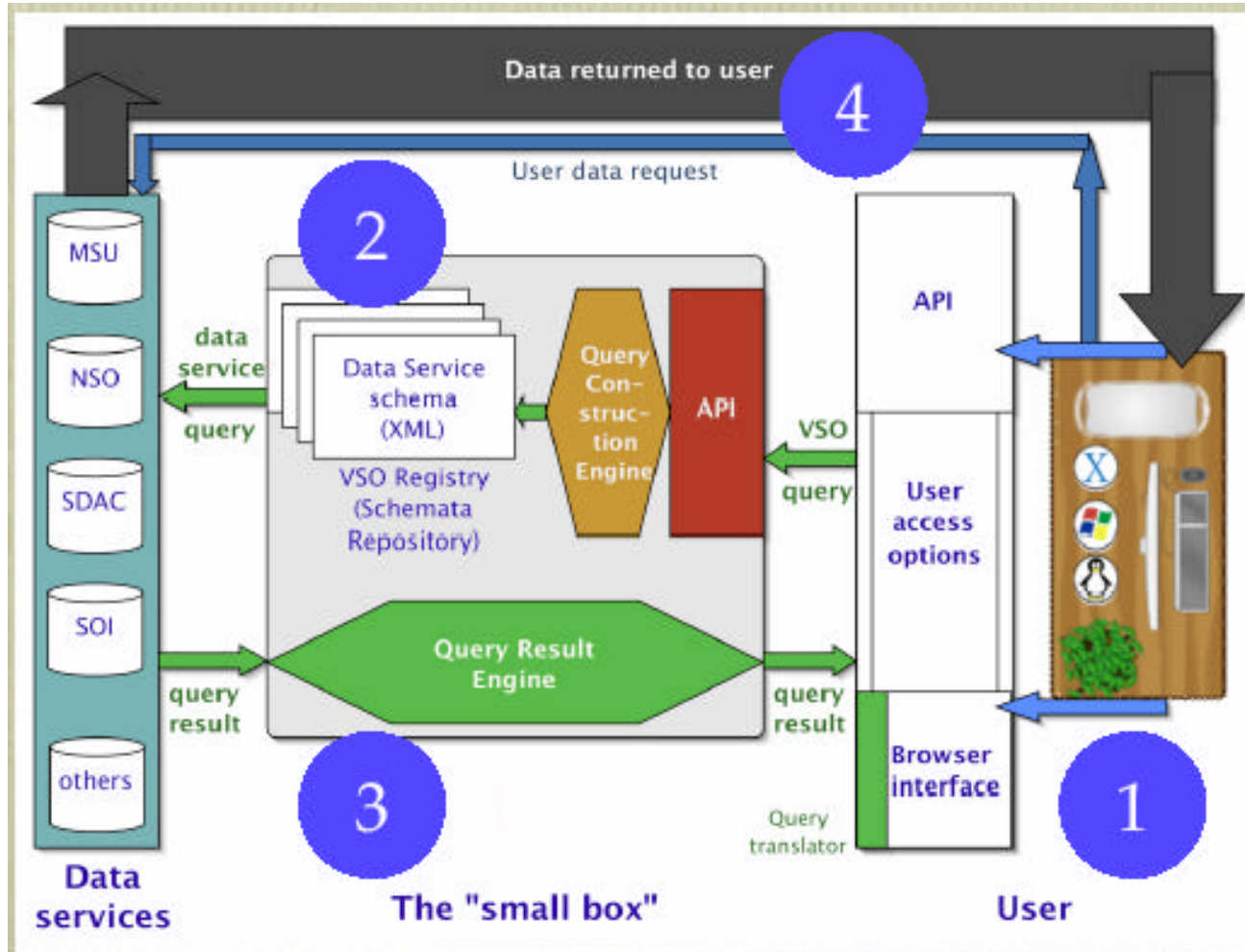
Chuck Holmes

Sun-Earth Connection Division

June 20, 2003



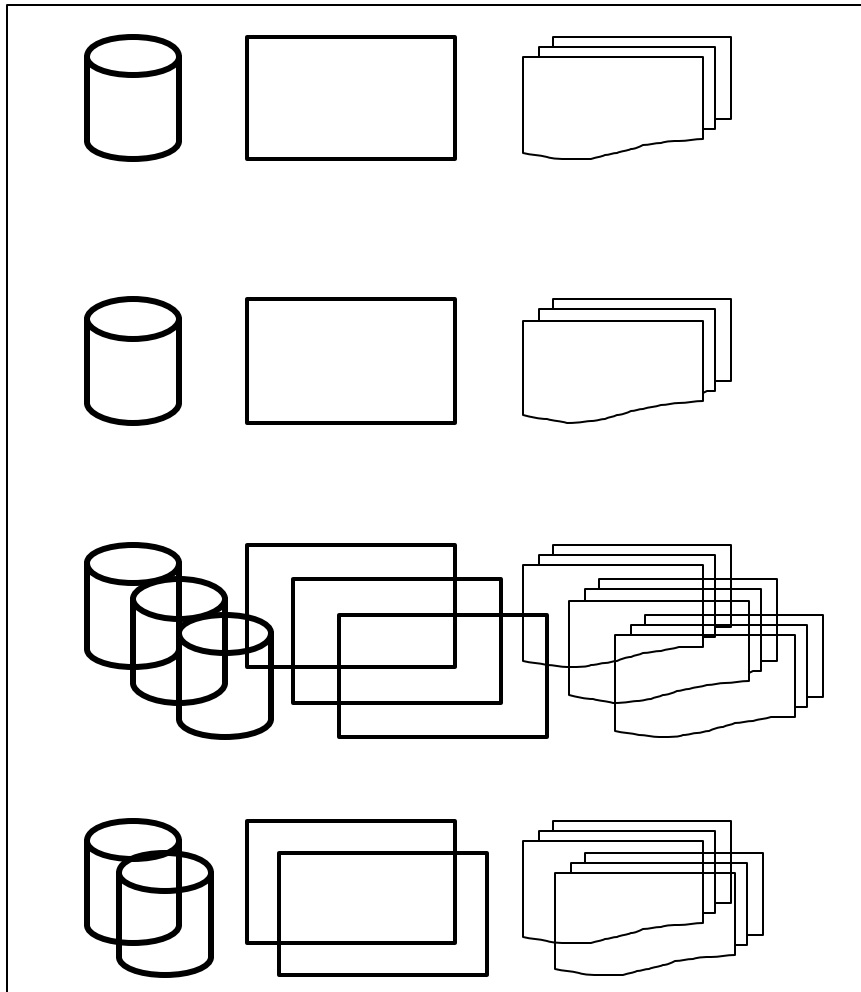
The Virtual Solar Observatory Concept



1. Access through a browser or an API
2. "Small box" uses registry of XML data service schema to construct appropriate queries for each relevant data service
3. API or browser can refine queries
4. Final data transfer is direct to requestor (no middleman)



A Concept for the SEC/LWS Data Environment via 'small boxes'



✍ **Virtual Solar Observatory**

✍ **Virtual Heliospheric Observatory**

✍ **Virtual Magnetospheric
Observatories**

✍ **Virtual ITM Observatories**

Services <-> VxOs <-> Analysts' tools



Progress

✍ VSO

- ✍ Starting to prototype: NSO in the lead, with SDAC, Stanford, MSU
- ✍ Looking ahead on how to
 - ✍ Evaluate utility for and acceptance by the solar research community.
 - ✍ Link new 'analyst's tools' into the VSO architecture.

✍ VHO

- ✍ The 'L1-in-situ' community is self-organizing under the leadership of Adam Szabo
- ✍ NRA for the L1 Cluster
- ✍ Submitted a white paper with a design concept

✍ VMOs

- ✍ Several initiatives - Space Physics Archive Search & Exchange (SPASE), etc.
- ✍ Presentation at Yosemite conference in Feb 03.
- ✍ LWS data systems engineering is prototyping capabilities w/ Polar/Wind/Geotail data.

✍ VItmO

- ✍ Organized a white paper around the TIMED data system.
- ✍ Discussing at GEM, CEDAR meetings, etc.



Draft Recommendation from SEC Data & Computing WG

Sun-Earth Connections Virtual Observatories Initiative

Progress in understanding Sun-Earth Connections increasingly requires integrating model results with data from multiple missions, multiple spacecraft and multiple instruments from a single spacecraft.

- ✍ **Correlative data from ground observatories can also be essential. A scientist needs to be able to quickly determine whether the data needed for a given investigation are available and if available to access them.**
- ✍ **The need to find and obtain data from models, multiple instruments, and missions can be met by creating a Sun-Earth Connections data system organized by sub-discipline (solar, heliospheric, magnetospheric, and upper atmospheric {thermosphere, mesosphere, and ionosphere}).**

The proposed "Sun-Earth Connection Data and Modeling Services" line will establish a set of interoperable, distributed, virtual observatories via competitive selection.

Successful proposals will demonstrate their adherence to a fully integrated data environment.



Recent Hq activities

- ✍ **Current NASA budget building processes are inserting a new line into the SEC MO&DA program:**
 - ✍ Data & Modeling Services with funds starting in FY-04.
 - ✍ The programmatic home for the VxOs and finding computer cycles for the SEC modeling participants.
 - ✍ Use NRA and Senior Review processes for entry and ‘sustaining’ activities in this line.
 - ✍ These processes will help set a proper funding level for this line.
- ✍ **SEC ‘grandfathered’ the CCMC into this line w/ a sustaining baseline and ‘encouragement’ to propose for enhancements,**
- ✍ **We will work with the SEC D&C WG to**
 - ✍ Define the ‘rules’ for new modeling services capabilities.
 - ✍ Refine or redefine policies and procedures for the long-term management of the permanent data stores:
 - ✍ Central depository vs distributed depositories
 - ✍ Develop concepts to ‘link’ the VxOs into the SEC VO.