



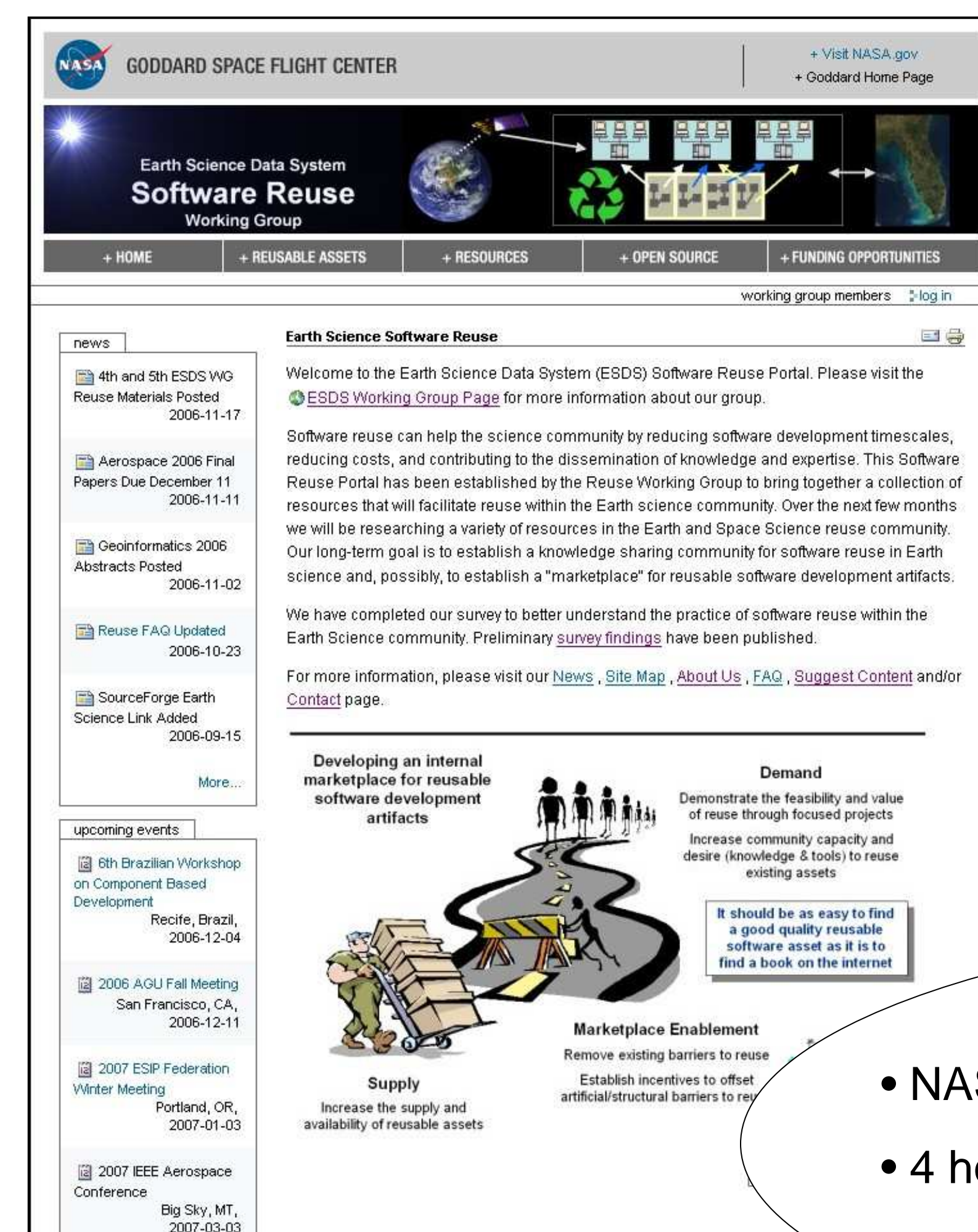
The Software Reuse Portal: A Case Study in Packaging Software to Contribute to Reuse Practices

What was reused?

- Plone open source content management system (<http://plone.org/>) running on top of Zope application server (<http://www.zope.org/>).
- Design/Layout: NASA style sheets, template for the header and footer
- Database interface code was leveraged to create our "Suggest an Asset" feature
- Trade Studies from other webmasters

Key Drivers for Software Reuse Portal

- Serve the community of Earth science data systems and software developers who are interested in reuse
- Serve as a gateway for reuse information relevant to the community
- Establish a portal for the community to share resources on reuse
- Distribute various resources on reuse to the community
- Foster easier access to resources on reuse



Software reuse portal web site developed in 6-8 weeks through reuse

Other Plone sites following NASA Affinity were developed using the same approach

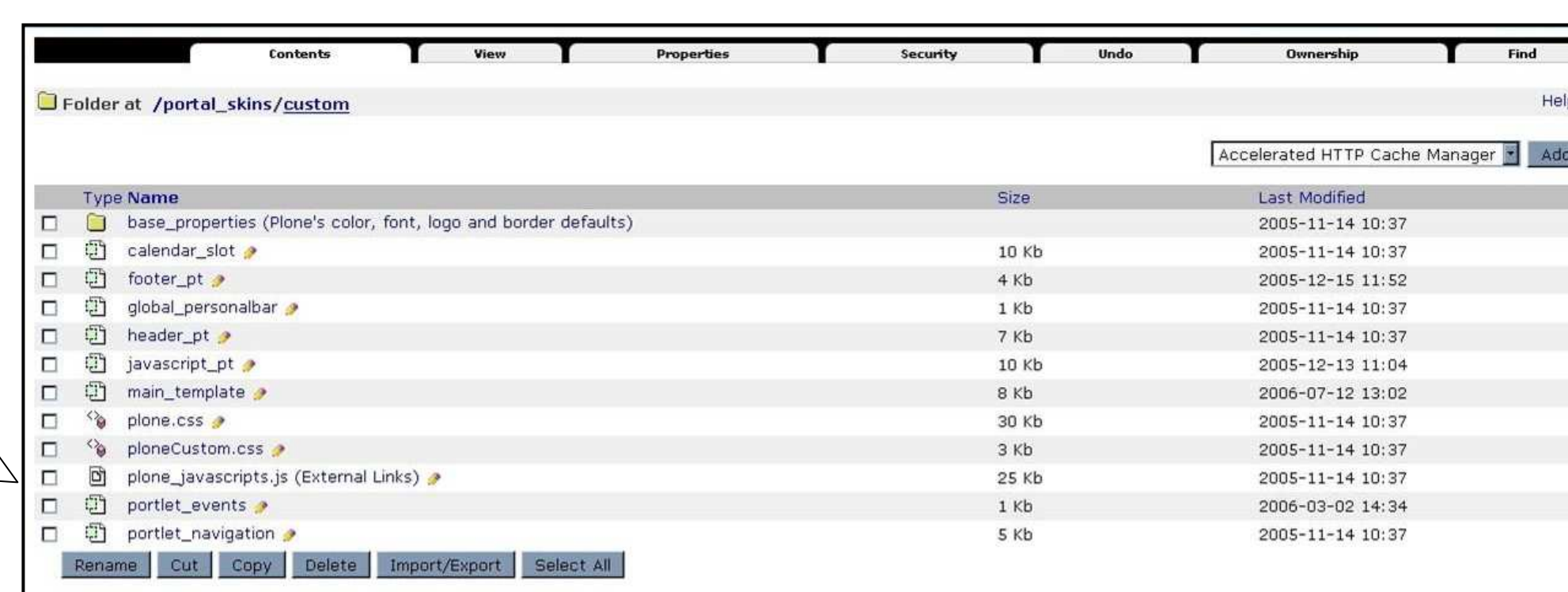
Benefits Include:

- NASA Affinity – complies with policy and standards
- 4 hours to install, configure, and take control of the new site
- Easy collaboration with the community (Plone features)

<http://softwarereuse.nasa.gov/>

Zope Management Interface

- Easily integrate skins from one Plone site to another
- Safely customize your page templates

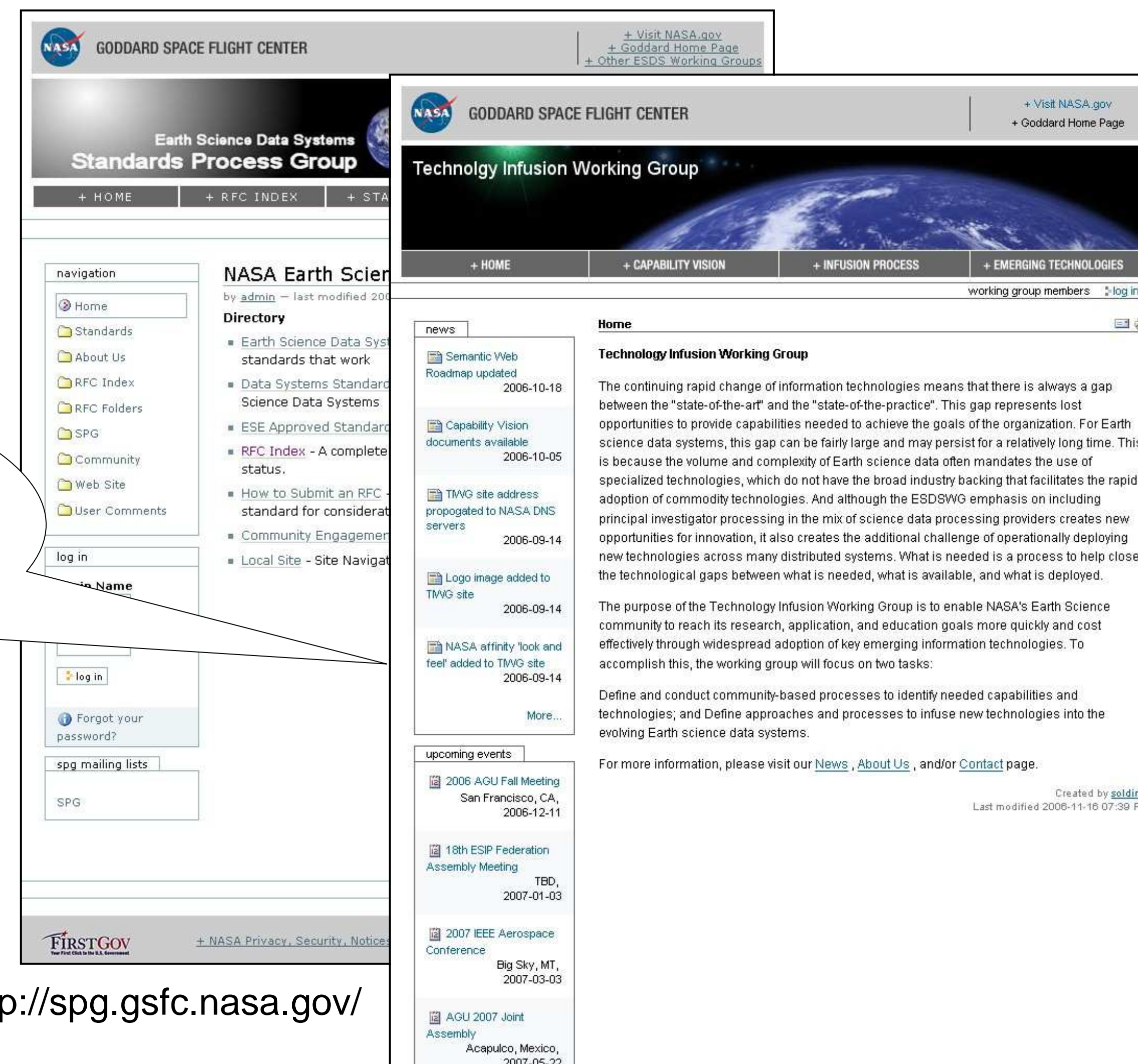


Abstract

The packaging of software assets can improve the possibility of software reuse. If a software asset is packaged with appropriate documentation and necessary resources to support its reuse, the software asset can be utilized more efficiently. Easily integrable software is, in turn, more likely to be shared with others and reused by the recipients. The NASA Earth Science Data Systems' (ESDS) Software Reuse Working Group has developed a website to serve as a portal to support reuse practices within the Earth science community. In addition, the ESDS Software Reuse portal also serves as an example of software reuse practices, both as a recipient and as a contributor to reuse.

The portal is built on reusable software and also has been offered as a reusable asset. As a recipient of reuse, the software reuse portal utilizes open source software and has been designed and developed using ideas received from members of the software reuse community who serve as members of the working group. As a contributor to reuse, the portal has been shared with other groups to assist in the design and development of websites to serve other communities. By packaging the software asset and collecting lessons learned from each reuse contribution, the working group improves capabilities for subsequent reuse recipients to reuse the portal and its features.

In our case study, we describe (1) the packaging of software assets we consume and (2) how we successfully packaged software for reuse by others. We examine the components that can be packaged with a real software asset and how packaging can be improved to support reuse. Also, we will discuss the importance of passing on "lessons learned" to future consumers.



<http://techinfusion.gsfc.nasa.gov/>

2006 AGU Fall Meeting Paper Number: IN13D-1176

What was offered for reuse?

- Software / Hardware Infrastructure
 - Shared Linux server
 - Apache web server
 - Zope / Plone installation
- Plone Skin tailored for NASA "look and feel"
- Custom database functions and features
- Lessons Learned
 - "How to Manage Users and Privileges"
 - "How to Configure Apache for a New Plone Site"
 - "How to Setup Workflow Management"

How was it packaged?

- Documentation
 - Quick Start, General Operating Procedures, Integration Instructions, Reference Guide, and Source Documentation included in package
- Compressed Zip Archive
 - Packages all necessary files in one file
 - Documentation and source code packaged together
- Advantages of packaging software and related information for reuse
 - Reduces complexity
 - Lowers technological barriers to adoption
 - Enables efficient installation and reuse
 - Allows for rapid creation of similar Plone sites following NASA Affinity

Next Steps

- Provide additional resources on reuse recommended by community members
- Develop a reuse enablement system for the community to share reusable software
- Integrate the reuse enablement system with the Software Reuse Portal

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