Registered File Support for Critical Operations Files at SIRTF

G. Turek, T. Handley, J. Jacobson, J. Rector
Infrared Processing & Analysis Center/SIRTF Science Center
California Institute of Technology, M/S 100-22
1200 E. California Blvd., Pasadena, CA 91125

Presenting Author's E-mail Address gaby@ipac.caltech.edu

Abstract:
The SIRTF Science Center's (SSC) Science Operations System (SOS) has to contend with nearly one hundred critical operations files via comprehensive file management services. The management is accomplished via the registered file system (otherwise known as TFS) which manages these files in a registered file repository composed of a virtual file system accessible via a TFS server and a file registration database.

The registered file system presents a virtual interface made up of a collection of *file types*. Whenever you want to add files, get files, or add or get information about files you do so in the context of a file type. Files types have names, like "image", "ephemeris", or "cmdCdl", so one adds an "image" file or you get an "ephemeris" file or you list the "cmdCdl" files. One does not need to know where the files actually are or what server you need to connect to; you just need to know about file types. TFS is secure, so you may not do much until you've been granted the capability to execute commands for different file types.

The TFS server provides controlled, reliable, and secure file transfer and storage by registering all file transactions and meta-data in the file registration database. An API is provided for application programs to communicate with TFS servers and the repository. A command line client implementing this API has been developed as a client tool.

This paper describes the architecture, current implementation, but more importantly the evolution of these services based on evolving community use cases and emerging information system technology. Of particular interested will be the lessons learned (methodology, technical, management, and implementation).

The Space Infrared Telescope Facility (SIRTF) will perform an extended series of science observations at wavelengths ranging from 20 to 160 microns for five years or more. The California Institute of Technology has been selected as the home for the SIRTF Science Center (SSC). The SSC is responsible for evaluating and selecting observation proposals, providing technical support to the science community, performing mission planning and science observation scheduling activities, instrument calibration during operations and instrument health monitoring, production of and access to archival quality data products, and management of science research grants. The science payload consists of three instruments delivered by instrument Principal Investigators located at University of Arizona, Cornell, and Harvard Smithsonian Astrophysical Observatory. The SSC is responsible for design, development, and operation of the Science Operations System (SOS) which will support the functions assigned to the SSC by NASA.

Keywords: operations, file systems, science data processing, database management system, distributed data management.