

**Technical Support for the Office of Space Science (OSS)
Description of Work**

10.47 Technical Support for the Office of Space Science (OSS)

10.47.1 General

The purpose of this task is to support current hardware and software systems used within the Office of Space Science (OSS) and to develop and maintain new systems based on state-of-the-art and leading edge technologies, custom development, and commercial off-the-shelf products. The support shall also include qualitative and quantitative studies that assist the OSS in making strategic IT decisions.

10.47.2 Applications Development, Maintenance and Training

The vendor shall develop (or recommend), deploy and maintain solutions to support the Office of Space Science. These solutions and recommendations will be based on comprehensive evaluations of state-of-the-art technologies and the prevailing trends in the industry and will apply to all legacy systems and current projects, as well as future needs analyses.

- The vendor shall develop, enhance, implement and maintain:
 - A. Dynamic Web-based applications such as the OSS E/PO Annual Report and the Flight Project Data Book, on public and internal application servers;
 - B. Client/Server applications, such as DFMS, on end-user Local Area Networks or stand-alone work stations;
 - C. Comprehensive microcomputer or mainframe-based applications networked across one or more NASA organizations; and,
 - D. Other applications and utilities as required by OSS management.
- The vendor shall support existing UNIX and NT activities for OSS, including activities such as:
 - A. Routine system administration;
 - B. Establishing and maintaining HTTP, FTP and other server functions; and,
 - C. Installing and initializing or compiling required software applications.
 - D. Determining which servers should be migrated to an operational environment;

- The vendor shall evaluate, design, acquire, and deploy servers to meet the requirements of the Enterprise and perform all related IT operations and maintenance functions, including account administration. The vendor shall provide end-to-end service management and customer support to facilitate end-user IT needs.
- The vendor shall develop and conduct ADP/T user training to orient, instruct, or refresh users on the concepts, technical details, and/or proper operating procedures of specified OSS-unique applications. Training shall be tailored to the end user in the customer's office environment and may include the establishment of back up, recovery and security procedures, assistance in establishing spreadsheets, and other administrative support. Training may be required at various times and frequencies to accommodate customer schedules.
- The vendor shall attend at least two technology demonstrations/trade shows and provide recommendations regarding the selection, testing and implementation of emerging technologies that can be incorporated into OSS business.
- The vendor shall provide for at least two developer training opportunities to support of these initiatives.
- The vendor shall provide, or arrange for, technology briefings on the relevance of advanced IT applications and state-of-the-art IT tools, to OSS senior staff as requested. This includes, the following types of briefings: vendor demonstrations, brown-bag seminars, formal briefings, VITS conferences, technology summits, etc.

10.47.2.1 Deliverables

Deliverables will consist of the following items:

- Evaluation, demonstration, and implementation of new Internet applications for HQ Program Office needs, on schedules negotiated for each application.
- Evaluation of new software releases and technical recommendations for potential adoption.
- Examination and incorporation of Visual Basic, C++, Java, Citrix client, SQL Server and Oracle and other COTS tools in the OSS environment as authorized by OSS.

10.47.3 The NASA Science Internet

- The vendor shall design, develop, demonstrate, and/or evaluate and prototype solutions that exploit emerging advanced Internet application technologies and shall continue to maintain and support existing systems. These activities should include the following:
 - A. conversion of client server applications to Web-based solutions, when called for;
 - B. use of databases to generate query-based HTML code on demand;
 - C. implementation of strongly authenticated and encrypted session capabilities into existing WAN, MAN and LAN configurations; and
 - D. investigation of state-of-the-art technologies such as XML, Web Services, and wireless applications and integration of these technologies with existing Enterprise capabilities.
- The vendor shall develop and exploit WWW information services and products for OSS by providing resources for adding to or changing existing Web-related material and for editing and formatting this material. These activities include:
 - A. The use of broadcast video and audio;
 - B. The use of on-demand video and audio;
 - C. Voice and video teleconferencing
 - D. Web-enabled front end systems associated with database-back end systems;
 - E. Interactive Web applications (i.e., whiteboard/collaborative tools);
 - F. Forms entry and data uploading across multiple WAN databases.
 - G. The use of Synchronized Multimedia Integration Language (SMIL), an XML vocabulary, to fully integrate multimedia components into Web presentations;
- The vendor shall work with OSS personnel to assess the physical and technical infrastructure of the OSS network and server environment, both as it currently exists and as it might evolve. This assessment will take the form of an engineering task to gauge and monitor local area and wide area network throughput, traffic peaks, and server demand. The assessment will be undertaken with the goal of advising the OSS as to the impact on OSS-unique and Headquarters infrastructure of anticipated higher use of Internet and WWW-applications. The assessment will also take an engineering approach

to examining server architecture with a goal of providing solid engineering recommendations as to server configuration (UNIX or other) and LAN/WAN configuration.

- The vendor shall provide demonstrations and training on the deployment and operation of these advanced Internet applications to NASA programs, NASA collaborators as required, and NASA Headquarters ADP support service providers as appropriate. The vendor shall engage wide-area networking (WAN) expertise to maximize access to NASA information resources by both external groups (to NASA) and other internal groups (components of Program Offices located at Field Centers, for instance).

10.47.3.1 Deliverables

Deliverables will consist of the following:

- Continued maintenance and support of existing Web sites such as "Send Your Name to Mars", OSS Kid's Page, Hale-Bopp Amateur Astronomer Pictures, Leonids Meteor Shower, and the NASA Starshine student experiment page;
- Enhancements to the OSS Weekly Report, OSS Monthly Flight Program Review, OSS International Database, OSS Weekly Management System, OSS Information Management, and OSS Absence Calendar systems shall be provided as new technologies become available.
- Design, develop, implement and demonstrate a prototype of the new Code S Flight Project Databook database and incorporate this into the existing OSS Home Page.
- Completely revise the OSS Education/Public Outreach Annual Report System to meet the evolving requirements of this highly successful system. Assist the OSS in charting the future of this system, not only for the OSS but for the Agency as a whole, in coordination with the new Education Office (Code N);
- Examine and incorporate emerging technologies, such as, Java servlets, XML, VRML, WML, Web Services, etc., to enhance graphical and structural elements of OSS home pages and to increase the reusability of content for such purposes as syndication to the NASA portal and reporting in alternate output formats.
- Investigate and demonstrate existing and future Internet-based collaborative tools;
- Investigate technologies and industry best practices that promote and exploit the sharing of resources, such as code libraries, distributed systems, and grid computing;
- Modify and document changes to basic Internet software, including changes to the World Wide Web, Multi-cast MBone video, etc., on negotiated schedules.
- Continued support of the OSS Video Teleconferencing System, enhancing its capabilities as new products and services come onto the market;

- Provide technical assistance/recommendations of HW/SW which improve OSS productivity and acquire test beds to demonstrate feasibility of the technology cost benefit opportunities.

10.47.5 Metrics

The performance standards specified in paragraphs 10.3.3 and 10.3.4 are applicable to this task order.