

Exhibit 300 (BY2009)

PART ONE	
OVERVIEW	
1. Date of Submission:	2007-09-07
2. Agency:	026
3. Bureau:	00
4. Name of this Capital Asset:	NASA Center for Computational Sciences
5. Unique Project Identifier:	026-00-01-02-01-1502-00
6. <i>What kind of investment will this be in FY2009?</i>	
Mixed Life Cycle	
7. <i>What was the first budget year this investment was submitted to OMB?</i>	
FY2003	
8. <i>Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap.</i>	
<p>The NASA Center for Computational Sciences (NCCS) supports primary scientific modeling in Earth and space sciences, engineering applications, and the exploration initiative. The NCCS is a key resource in the effort to restore international leadership to the U.S. program in weather and climate prediction, to increase the understanding of Earth's climate system, natural and human influences on climate, and consequences for life on Earth. NCCS system applications will lead to greater understanding of the Earth system, the solar system, and the universe through computational use of space-borne observations and computer modeling. The NCCS' high performance computer systems, mass data storage systems, and high performance networks serve about 600 users. NCCS is an ongoing operational data center, with cyclical acquisition of supercomputer systems and contract services. Most hardware assets have an approximate three to four year lifecycle. NCCS constantly refreshes and updates its suite of hardware, software, mass storage, and network infrastructure, consistent with resource availability. NCCS funding is Mixed Life Cycle based on current guidance - most dollars are Steady State, but new high performance system acquisitions are classified as DME. The cyclical acquisition of supercomputer systems and contract services is classified as Mixed Life Cycle overall. This investment closes an agency performance gap that would appear if the investment were not present - that NASA computational Earth and space scientists, who examine physical phenomena of interest by building large mathematical models, models that frequently incorporate science data gathered from Earth-observing satellites as well as other sources - would not have systems for model execution that have as much capability, capacity, and functionality as the NCCS systems that are specifically designed and optimized for these workloads - and so would not achieve progress in NASA's scientific goals as rapidly as they do now, or in some cases achieve any progress at all.</p>	
9. <i>Did the Agency's Executive/Investment Committee approve this request?</i>	
yes	
9.a. <i>If "yes," what was the date of this approval?</i>	
2007-06-15	
10. <i>Did the Project Manager review this Exhibit?</i>	
yes	
11. <i>Project Manager Name:</i>	
W. Phillip Webster, Ph.D.	
<i>Project Manager Phone:</i>	
(301) 286-9535	
<i>Project Manager Email:</i>	
william.p.webster@nasa.gov	
11.a. <i>What is the current FAC-P/PM certification level of the project/program manager?</i>	
Senior/Expert-level	
12. <i>Has the agency developed and/or promoted cost effective, energy-efficient and environmentally sustainable techniques or practices for</i>	

<i>this project.</i>	
yes	
12.a. Will this investment include electronic assets (including computers)?	
yes	
12.b. Is this investment for new construction or major retrofit of a Federal building or facility? (answer applicable to non-IT assets only)	
no	
13. Does this investment directly support one of the PMA initiatives?	
yes	
If yes, select the initiatives that apply:	
Competitive Sourcing Expanded E-Government R and D Investment Criteria	
13.a. Briefly and specifically describe for each selected how this asset directly supports the identified initiative(s)? (e.g. If E-Gov is selected, is it an approved shared service provider or the managing partner?)	
ComSou: NCCS outsourced acq/integration of hpc systems formerly done in-house (~ A-76); ExEgov: uses open system standards to promote interoperability; facilitates interoperability by acquiring systems w/internal arch promoting standards for parallel processing. Rsrcs&infrastructure are web-enabled; R&DInCr: Increased computer system perf. results in improved science analysis. Improvements are linked to computing performance.	
14. Does this investment support a program assessed using the Program Assessment Rating Tool (PART)?	
yes	
14.a. If yes, does this investment address a weakness found during the PART review?	
no	
14.b. If yes, what is the name of the PARTed program?	
Earth-Sun System Research	
14.c. If yes, what rating did the PART receive?	
Moderately Effective	
15. Is this investment for information technology?	
yes	
16. What is the level of the IT Project (per CIO Council's PM Guidance)?	
Level 2	
17. What project management qualifications does the Project Manager have? (per CIO Council's PM Guidance)	
(1) Project manager has been validated as qualified for this investment	
18. Is this investment identified as high risk on the Q4 - FY 2007 agency high risk report (per OMB memorandum M-05-23)?	
no	
19. Is this a financial management system?	
no	
19.a.2. If no, what does it address?	
The NCCS provides large scale computing and data storage that supports compute intensive modeling and analysis activities for ~700 NASA Science Mission Directorate (SMD) users across nearly 100 computational projects in the Earth Sciences and space science areas. The NCCS supports an interactive analysis environment for scientists to evaluate results of model runs. The NCCS is prototyping a data portal that supports data access and transfer services, web-based model development, & data sharing.	
20. What is the percentage breakout for the total FY2008 funding request for the following? (This should total 100%)	
Hardware	58
Software	2
Services	39

Other 2

21. If this project produces information dissemination products for the public, are these products published to the Internet in conformance with OMB Memorandum 05-04 and included in your agency inventory, schedules and priorities?

yes

22. Contact information of individual responsible for privacy related questions.

Name

Patti Stockman

Phone Number

202-358-4787

Title

NASA Privacy Officer

Email

patti.stockman@nasa.gov

23. Are the records produced by this investment appropriately scheduled with the National Archives and Records Administration's approval?

yes

24. Does this investment directly support one of the GAO High Risk Areas?

yes

SUMMARY OF SPEND

1. Provide the total estimated life-cycle cost for this investment by completing the following table. All amounts represent budget authority in millions, and are rounded to three decimal places. Federal personnel costs should be included only in the row designated Government FTE Cost, and should be excluded from the amounts shown for Planning, Full Acquisition, and Operation/Maintenance. The total estimated annual cost of the investment is the sum of costs for Planning, Full Acquisition, and Operation/Maintenance. For Federal buildings and facilities, life-cycle costs should include long term energy, environmental, decommissioning, and/or restoration costs. The costs associated with the entire life-cycle of the investment should be included in this report.

All amounts represent Budget Authority

	PY 2007	CY 2008	BY 2009
Planning Budgetary Resources	0.051	0.048	0.048
Acquisition Budgetary Resources	2.426	4.359	4.382
Maintenance Budgetary Resources	12.237	9.237	9.207
Government FTE Cost	2.199	2.285	2.377
# of FTEs	11	14	14

Note: For the cross-agency investments, this table should include all funding (both managing partner and partner agencies).

Government FTE Costs should not be included as part of the TOTAL represented.

2. Will this project require the agency to hire additional FTE's?

no

3. If the summary of spending has changed from the FY2008 President's budget request, briefly explain those changes.

The summary of spending totals for each fiscal year are unchanged since the final BY08 OMB 300 submission; however, the Planning, Acquisition, and Operations & Maintenance subtotals have changed to reflect and be consistent with improved EVM accounting.

PERFORMANCE

In order to successfully address this area of the exhibit 300, performance goals must be provided for the agency and be linked to the annual performance plan. The investment must discuss the agency's mission and strategic goals, and performance measures (indicators) must be provided. These goals need to map to the gap in the agency's strategic goals and objectives this investment is designed to fill. They are the internal and external performance benefits this investment is expected to deliver to the agency (e.g., improve efficiency by 60 percent, increase citizen participation by 300 percent a year to achieve an overall citizen participation rate of 75 percent by FY 2xxx, etc.). The goals must be clearly measurable investment outcomes, and if applicable, investment outputs. They do not include the completion date of the module, milestones, or investment, or general goals, such as, significant, better, improved that do not have a quantitative measure.

Agencies must use the following table to report performance goals and measures for the major investment and use the Federal Enterprise

Architecture (FEA) Performance Reference Model (PRM). Map all Measurement Indicators to the corresponding Measurement Area and Measurement Grouping identified in the PRM. There should be at least one Measurement Indicator for each of the four different Measurement Areas (for each fiscal year). The PRM is available at www.egov.gov. The table can be extended to include performance measures for years beyond FY 2009.

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
1	2007	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	719%
2	2007	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 5.5	17.6
3	2007	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	90%
4	2007	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~80%	Maintain 90%	95%
5	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
6	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 6.5	TBD
7	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	TBD
8	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~80%	Maintain 90%	TBD
9	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
10	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 7.0	TBD
11	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
12	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Maintain 90%	TBD
13	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
14	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 7.5	TBD
15	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	TBD
16	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Maintain 90%	TBD
17	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
18	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 8.5	TBD
19	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	TBD
20	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Maintain 90%	TBD

EA

In order to successfully address this area of the business case and capital asset plan you must ensure the investment is included in the agency's EA and Capital Planning and Investment Control (CPIC) process, and is mapped to and supports the FEA. You must also ensure the business case demonstrates the relationship between the investment and the business, performance, data, services, application, and technology layers of the agency's EA.

1. Is this investment included in your agency's target enterprise architecture?

yes

1.a. If no, please explain why?

Not Applicable

2. Is this investment included in the agency's EA Transition Strategy?

yes

2.a. If yes, provide the investment name as identified in the Transition Strategy provided in the agency's most recent annual EA Assessment.

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2.b. If no, please explain why?

Not Applicable

3. Is this investment identified in a completed (contains a target architecture) and approved segment architecture?

no

4. Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to <http://www.whitehouse.gov/omb/egov/>.

Component: Use existing SRM Components or identify as NEW. A NEW component is one not already identified as a service component in the FEA SRM.

Reused Name and UPI: A reused component is one being funded by another investment, but being used by this investment. Rather than

answer yes or no, identify the reused service component funded by the other investment and identify the other investment using the Unique Project Identifier (UPI) code from the OMB Ex 300 or Ex 53 submission.

Internal or External Reuse?: Internal reuse is within an agency. For example, one agency within a department is reusing a service component provided by another agency within the same department. External reuse is one agency within a department reusing a service component provided by another agency in another department. A good example of this is an E-Gov initiative service being reused by multiple organizations across the federal government.

Funding Percentage: Please provide the percentage of the BY requested funding amount used for each service component listed in the table. If external, provide the funding level transferred to another agency to pay for the service.

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
1	Modeling	NCCS provides high performance computer (HPC) systems (100's to 1000's of processors) to Earth & space science researchers. Services are processing, infrastructure, & data storage. Component: Modeling. Users run large numerical simulations of physical systems & own the applications. NCCS provides hardware, software tools (development tools, debuggers, compilers, math libraries) & tech services. Systems are tuned for efficient processing of large, complex science models.	Knowledge Discovery	Modeling			No Reuse	80

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
2	Information Retrieval	NCCS provides network infrastructure & services that promote knowledge & information discovery, retrieval, & sharing. Platforms & network services allow high bandwidth sharing of very large data sets across backbones & switches, web-accessibility to raw data (e.g., satellite observations), assimilated & modeled data sets, and intellectual capital (scientific research papers, etc). Users own the data; NCCS provides infrastructure that allows the data to be stored, retrieved, and shared.	Knowledge Management	Information Retrieval			No Reuse	3
3	Information Sharing	Description is the same as for Information Retrieval.	Knowledge Management	Information Sharing			No Reuse	2
4	Knowledge Capture	Description is the same as for Information Retrieval.	Knowledge Management	Knowledge Capture			No Reuse	1

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
5	Data Exchange	The NCCS mass storage subsystems are in excess of 2 Petabytes of storage. NCCS provides hierarchical storage subsystems (tape silos, disks, servers, network infrastructure, and system software) that securely store and swiftly retrieve very large data sets. NCCS is evolving its storage platforms using commercial (e.g., SGI's Data Migration Facility) software products to serve the Goddard Earth and space science research user community better.	Data Management	Data Exchange			No Reuse	4
6	Data Warehouse	Description is the same as for Data Exchange.	Data Management	Data Warehouse			No Reuse	0
7	Extraction and Transformation	Description is the same as for Data Exchange.	Data Management	Extraction and Transformation			No Reuse	5
8	Loading and Archiving	Description is the same as for Data Exchange.	Data Management	Loading and Archiving			No Reuse	3
9	Data Classification	Description is the same as for Data Exchange.	Data Management	Data Classification			No Reuse	0
10	Data Recovery	Description is the same as for Data Exchange.	Data Management	Data Recovery			No Reuse	1

5. To demonstrate how this major IT investment aligns with the FEA Technical Reference Model (TRM), please list the Service Areas, Categories, Standards, and Service Specifications supporting this IT investment.

FEA SRM Component: Service Components identified in the previous question should be entered in this column. Please enter multiple rows for FEA SRM Components supported by multiple TRM Service Specifications.

Service Specification: In the Service Specification field, Agencies should provide information on the specified technical standard or vendor product mapped to the FEA TRM Service Standard, including model or version numbers, as appropriate.

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
1	Data Exchange	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Switches: Brocade, Cisco, Compaq, EMC, Extreme Networks, Force 10, SGI
2	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Controllers: StorageTek, Compaq, Pantia Systems,
3	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	UPS: Data Direct
4	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Power Distribution: Liebert, United Power Distribution
5	Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	CD-ROM: Sony, Toshiba
6	Data Exchange	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Probe: Netscout
7	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Supercomputers: SGI Origin, Altix; Compaq ES45
8	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Desktops & Workstations: Apple, Compaq, Dell, Digital, Gateway, Micron, SGI, Sony, Sun
9	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Laptops: Apple, Dell, Gateway, IBM, Lenovo
10	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Servers & Rackmounts: Apple, Compaq, Dell, Digital, Hewlett-Packard, IBM, PCW, Penguin, SGI, Sun, Unisys
11	Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Displays & Monitors: Acer, Apple, Compaq, Crestron, Dell, Digital, Gateway, Hitachi, Micron, NCD, NEC, Panasonic, Radius, SGI, Sony, Storagetek, Sun, Viewsonic, Samsung
12	Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Consoles: SGI, Sun
13	Extraction and Transformation	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Scanners: Telxon
14	Extraction and Transformation	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Cameras: Elmo
15	Information Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Projectors: Sharp
16	Information Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Printers: Xerox, Hewlett-Packard, Mannesmann Tally, Apple

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
17	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Disk Arrays/RAID: Compaq, Data Direct, Hewlett-Packard, Hitachi, SGI, Sun
18	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Disk Drives: Megadrive, Box Hill, Sun, Andataco,
19	Loading and Archiving	Service Platform and Infrastructure	Database / Storage	Storage	Tape Libraries: Storagetek
20	Loading and Archiving	Service Platform and Infrastructure	Database / Storage	Storage	Tape Drive: Exabyte, IOMega, Storagetek
21	Information Retrieval	Service Access and Delivery	Access Channels	Web Browser	Open Source Lynx, Mozilla, w3m, wget, Firefox, Ice Weasel
22	Information Retrieval	Service Access and Delivery	Access Channels	Web Browser	Apple Safari; Red Hat Firefox, Mozilla; Microsoft Internet Explorer
23	Information Retrieval	Service Access and Delivery	Access Channels	Wireless / PDA	PalmSource Conduit Manager, Desktop Manager, HotSync, SetUp, Transport Monitor; Apple iSync; palmOne Note Pad, Send To, Voice Memo; Red Hat pilot-link
24	Information Retrieval	Service Access and Delivery	Access Channels	Collaboration / Communications	Open Source evolution, Exim, Gforge, Mailman, Mailx, Mutt, Postfix, Procmail, Thunderbird, Twiki, Jive Clearspace, Ice Ape
25	Data Exchange	Service Access and Delivery	Access Channels	Collaboration / Communications	Qualcomm Eudora; Apple Mail; Microsoft Entourage; IBM Lotus Notes
26	Information Retrieval	Service Access and Delivery	Access Channels	Collaboration / Communications	Red Hat evolution, Fetchmail, Mailx, Mozilla Mail, Mutt, Postfix, Procmail
27	Data Exchange	Service Access and Delivery	Access Channels	Other Electronic Channels	Nagios - Debian Linux
28	Information Retrieval	Service Access and Delivery	Delivery Channels	Internet	Apache and Tomcat on Linux, Firefox, MS Internet Explorer
29	Information Sharing	Service Access and Delivery	Service Requirements	Authentication / Single Sign-on	Sun V240, RSA
30	Modeling	Service Access and Delivery	Service Transport	Supporting Network Services	Open Source bootp, dhcp, dnstools, dovecot, host, ldap, mpack, snmp
31	Modeling	Service Access and Delivery	Service Transport	Supporting Network Services	Red Hat bind-libs, bind-utils, dhclient, dhcp, net-snmp, openldap
32	Modeling	Service Platform and Infrastructure	Support Platforms	Platform Independent	Debian Linux; Red Hat Linux; SGI IRIX, SUSE Linux; Altair PBSpro; Etnus totalview
33	Modeling	Service Platform and Infrastructure	Support Platforms	Platform Independent	Open Source j2re, j2sdk, j2se, java; Apple Java; Red Hat jpackage; SGI Failsave, Performance Co Pilot, Speed Shop
34	Modeling	Service Platform and Infrastructure	Support Platforms	Platform Dependent	Apple OS; Microsoft Windows XP

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
35	Information Sharing	Service Platform and Infrastructure	Delivery Servers	Web Servers	Open Source apache, tomcat, httpd
36	Modeling	Service Platform and Infrastructure	Software Engineering	Integrated Development Environment	Open Source vide, Eclipse
37	Modeling	Service Platform and Infrastructure	Software Engineering	Software Configuration Management	Open Source automake, autoproject, cvs, cxref, debconf, debhelper, debianutils, dpkg, dpkg-dev, dselect, make, makedev, FinkCommander, Subversion, cfengine
38	Modeling	Service Platform and Infrastructure	Software Engineering	Software Configuration Management	Red Hat automake, cvs, make, MAKEDEV
39	Modeling	Service Platform and Infrastructure	Software Engineering	Modeling	Gentleware Poseidon
40	Data Classification	Service Platform and Infrastructure	Database / Storage	Database	Open Source mysql, postgresql, sybase-ase; Red Hat db4, mysql, tora; Oracle
41	Data Classification	Service Platform and Infrastructure	Database / Storage	Database	Apple Address Book, Migration Assistant; Microsoft Access, Database Utility, Database Daemon, Query; Filemaker; OpenBaseManager
42	Extraction and Transformation	Service Platform and Infrastructure	Database / Storage	Storage	SGI CXFS, DMF, TMF, TPSSM
43	Modeling	Component Framework	Business Logic	Platform Independent	Open Source g++, g77, Abiword, Acroread, amvisd, bitdefender, clamav, Perl, PDFscreen; Red Hat gcc-c++, gcc-java, OpenOffice; Intel comp (c++, Fortan), -mkl; SGI/Cray Scientific Library
44	Knowledge Capture	Component Framework	Business Logic	Platform Dependent	Microsoft Office, Graph, Organization Chart, FrontPage, Money; Open Source OpenOffice, NeoOffice, Emacs; SGI MIPSpro
45	Data Classification	Component Framework	Business Logic	Platform Dependent	Apple ODBC, Pages, Preview, Keynote; Adobe Reader; Network Associates McAfee VirusScan, Virex
46	Knowledge Capture	Component Framework	Presentation / Interface	Content Rendering	NCAR Graphics; ITT IDL
47	Information Sharing	Component Framework	Security	Supporting Security Services	Support Services; Security Plan; RSA SecurID, OpenBSD, Debian Linux, syslog.ng
48	Loading and Archiving	Component Framework	Data Management	Database Connectivity	Oracle, Red Hat Linux; MySQL, Debian Linux
49	Modeling	Service Interface and Integration	Integration	Middleware	SGI mpt, PCP; Open Source mpich, SSH, SSL
50	Loading and Archiving	Service Interface and Integration	Interoperability	Data Format / Classification	NCSA Hierarchical Data Format; UCAR Network Common Data Format

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
51	Modeling	Service Platform and Infrastructure	Delivery Servers	Application Servers	Compaq ES45, SGI Altix
52	Information Sharing	Service Platform and Infrastructure	Delivery Servers	Portal Servers	Hewlett Packard DL145 Servers, Sun 4100 File Servers, IBM GPFS
53	Data Recovery	Service Platform and Infrastructure	Database / Storage	Storage	Tape Libraries: Storagetek
54	Data Recovery	Service Platform and Infrastructure	Database / Storage	Storage	Tape Drive: Exabyte, IOMega, Storagetek
55	Data Recovery	Service Interface and Integration	Interoperability	Data Format / Classification	NCSA Hierarchical Data Format; UCAR Network Common Data Format

6. Will the application leverage existing components and/or applications across the Government (i.e., FirstGov, Pay.Gov, etc)?

yes

6.a. If yes, please describe.

NCCS participation in application and component sharing includes the following: * Application Software. There exist international communities of Earth and space scientists that share and re-use diverse components and applications, including both data and programs, across the Government and globally. This includes Earth and space scientists that are users of NCCS systems. (The scientists own the software components, applications and the data, but use the NCCS for high-performance computing and mass storage.) The Earth System Modeling Framework (ESMF) is a good example of a joint effort of NCCS, NASA Goddard, and other agencies to leverage application components across the Government. Sharing of NCCS-resident data across the global Earth and space science communities is immense. * System Software. Open source software is shared globally, not just in the Government's space. The software is available for free. NCCS use of open source system software is increasing steadily. Important examples: Linux, an operating system running at NCCS on desktops, servers, and cluster supercomputers; Twiki, a tool that NCCS uses primarily for collaboration, configuration management, and project management; Source Motel, a tool for sharing and managing code as well as ideas; MySQL, an open source data base management system; Nagios, a system monitoring package; Apache, an open source web server; various system security tools and an assortment of other system software packages and components. * System Architecture. The NCCS working with NASA Ames on OneNASA tools and processes to allow processing across both centers. Components that implement this shared architecture include the following: Data Centric/Data Intensive Computing, where the NCCS is evolving to a configuration where processors are (topologically) arranged around a central data resource, providing common interfaces to resources that enhance usability and storing data in a global address space; Common Interfaces, where use of Linux clusters with common systems software will facilitate the development of user interfaces that are common across platforms and will facilitate migration across platforms over the long term and where unique system software will recede or be masked behind common interfaces; and Consolidated Storage, where storage devices are consolidated and accessible over a storage area network from multiple processor platforms.

PART TWO

RISK

You should perform a risk assessment during the early planning and initial concept phase of the investment's life-cycle, develop a risk-adjusted life-cycle cost estimate and a plan to eliminate, mitigate or manage risk, and be actively managing risk throughout the investment's life-cycle.

Answer the following questions to describe how you are managing investment risks.

1. Does the investment have a Risk Management Plan?

yes

1.a. If yes, what is the date of the plan?

2006-10-31

1.b. Has the Risk Management Plan been significantly changed since last year's submission to OMB?

no

3. Briefly describe how investment risks are reflected in the life cycle cost estimate and investment schedule:

The Risk Management Plan (submitted to OMB in 2006) addresses all of the risk categories called out in prior releases of Circular A-11 Part 7 and includes schedule, initial cost, life-cycle cost, technical obsolescence, feasibility, system reliability, dependencies & interoperability, surety, procurement, project management, project failure, organization & change management, business, data, technology, strategic, security, privacy, and project resource risks. The plan depicts a continuous risk management process that includes identification, analysis, planning, tracking, controlling, and communicating risks and their mitigations. For each risk category, the plan identifies an individual with principal responsibility and one or more support staff. The plan also describes NCCS process details for each type of risk. The Risk Management Plan describes appropriate mitigations for each category of risk. Examples include the use of phased procurements to mitigate against resource risk; use of IT standards to mitigate against interoperability and obsolescence risks; service levels, acceptance tests, and contract types to mitigate reliability risks. There are extensive protections in the NCCS suite of IT security plans and procedures to mitigate security, privacy, surety, and related risks. Note that costs have been risk-adjusted in the Alternatives Analysis. Risks common to all alternatives: a) bleeding edge supercomputer technology; b) rapidly evolving marketplace; c) changes in user workload composition; d) limited supply of staff skilled in evolving supercomputer technology. Net impact: \$10M LCC all alternatives. Alternative 2 additional risks: e) reduced competition for hardware; f) use of inaccurate performance (benchmark) data. Net impact \$15M. Alternative 3 additional risks: e) reduced competition for hardware; g) suboptimal choice of either integrator or hardware or both. Net impact: \$5M. (No unique risks for Alternatives 1 and 4.) The relative risks associated with reduced or enhanced competition for systems or services is one of the key drivers of cost differences across alternatives, and this is reflected in the relative costs and benefits of the alternatives. Technical, feasibility, reliability, interoperability and other similar risks are mostly a wash across the four acquisition alternatives considered.

COST & SCHEDULE

1. Does the earned value management system meet the criteria in ANSI/EIA Standard 748?

yes

2. Is the CV% or SV% greater than $\hat{A} \pm 10\%$?

no

3. Has the investment re-baselined during the past fiscal year?

no

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