Exhibit 300 (BY2010)

PART ONE	
OVERVIEW	
1. Date of Submission:	2008-09-08
2. Agency:	026
3. Bureau:	00
4. Name of this Capital Asset:	NASA Center for Computational Sciences
5. Unique Project Identifier:	026-00-01-04-01-1502-00

6. What kind of investment will this be in FY2010?

Mixed Life Cycle

7. What was the first budget year this investment was submitted to OMB?

FY2003

8. 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.

The NASA Center for Computational Sciences provides the primary scientific modeling and analysis environment for SMD Earth Science, Heliophysics, Solar System Exploration, and Astrophysics Science. The NCCS provides hardware, software, networks, tools, training, and consulting resources to address the full life cycle of these research requirements. Its high-end computing and data services have special emphasis on the data-intensive activities inherent to computational modeling applications involving space-borne observations to research the origins, evolution, and destiny of the universe and to understand the nature of the strange phenomena that shape it. The NCCS high performance computer systems, mass storage systems, and high performance networks serve about 600 users across 130 computational projects. 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 regularly refreshes and updates its suite of hardware, software, mass storage, and network infrastructure, to ensure that NCCS services continue to meet the evolving needs of its users and support their mission processes, consistent with Agency and Center IT goals. NCCS assets include: HEC compute hosts with a 25 TFLOP Linux cluster and 7 TFLOP SGI Altix cluster; 350 TB of GPFS and CXFS-managed on-line disk; 17 PB DMF-managed mass storage data archive; SGI and LNXI analysis/visualization environments with standard and customized software tools; 128 CPU data portal with 120 TB on-line storage; code development repository; and a scientific visualization studio supporting specialized high-definition analysis and movie making capabilities. With advances in computing capability, computational modeling and simulation have become equal partners to experiment and theory in achieving scientific and engineering progress. As a result, high-end computing at the NCCS provides broad support for NASAâ€™s Strategic Goals and leverages precious human resources â€“ NASAâ€™s scientists and engineers â€“ by reducing time to solution and enabling ever more complex simulations. Also, through enhanced interoperability NCCS provides backup and continuity of operation to the ARC/HECC facility for high-priority missions, further leveraging NCCS investments. NCCS systems align with NASA Enterprise Architecture to provide integration of large-scale Earth and space science information assets.

9. Did the Agency's Executive/Investment Committee approve this request?

yes

9.a. If "yes," what was the date of this approval?

2008-06-19

10. Did the Program/Project Manager review this Exhibit?

yes

11. Program/Project Manager Name:

W. Phillip Webster, Ph.D.

Program/Project Manager Phone:

(301) 286-9535

Program/Project Manager Email:

william.p.webster@nasa.gov

	11.a. What is the current FAC-P/PM certification level of the project/program manager?
	Senior/Expert/DAWIA-Level 3
	11.b. When was the Program/Project Manager Assigned?
	2005-08-11
	11.c. What date did the Program/Project Manager receive the FACP/PM certification? If the certification has not been issued, what is the anticipated date for certification?
	2008-08-08
	12. Has the agency developed and/or promoted cost effective, energy-efficient and environmentally sustainable techniques or practices for this project.
	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:
ompetitive Sourcing	
xpanded E-Government	
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?
	10004392 - NASA 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 2008 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?

NCCS maintains a comprehensive mission-focused set of HEC resources & services that address specific challenges of computation-intensive & data-intensive science & engineering endeavors. User-facing services support the full life cycle of SMD requirements; including: s/w development, code porting & optimization, model submission, execution & monitoring; data analysis & visualization; community-based model development & evaluation; data archival & stewardship; user training; & help desk support.

20. What is the percentage breakout for the total FY2010 funding request for the following? (This should total 100%)

Hardware	36
Software	4
Services	57
Other	3

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

(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 & Earlier	PY	CY	BY
	-2007	2008	2009	2010
Planning Budgetary Resources	0.446	0	0	0
Acquisition Budgetary Resources	41.535	5.255	5.236	5.095
Maintenance Budgetary Resources	97.488	10.952	10.797	10.324
Government FTE Cost	9.651	2.28	2.39	2.506
# of FTEs	76	14	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 FY2009 President's budget request, briefly explain those changes.

The summary of spending totals for each fiscal year have changed since the FY09 budget request. NCCS received additional funding and future funding guidelines from NASA headquarters. Due to latent demand for computing resources, these additional funds can be spent productively on additional high performance computing capacity.

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 the next President's Budget.

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
1	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - HPC Return on Investment / Total Cost of Ownership	100%	200%	179%
2	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Aggregate Compute Capacity (TFLOPS, peak);Compute capacity for execution of complex Earth and Space Science models, enabling scientific progress	31.25 TF	61.16 TF	71.25 TF
3	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	System Administration â€“ Mapped from system integration contractorâ€™s award fee and composed of metrics for	~ 80%	Maintain 90%	85%

					system performance, technical services, and project management			
4	2008	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Scientific and Technological Research and Innovation	System Acquisition â€" Mapped from system integration contractorâ€™s award fee metric for system acquisition	~80%	Maintain 90%	87%
5	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
6	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Aggregate Compute Capacity (TFLOPS, peak);Compute capacity for execution of complex Earth and Space Science models, enabling scientific progress	71.25 TF	120.94 TF	TBD
7	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	System Administration â€" Mapped from system integration contractorâ€™s award fee and composed of metrics for system performance, technical services, and project management	~ 80%	Maintain 90%	TBD
8	2009	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	System Acquisition â€" Mapped from system integration contractorâ€™s award fee metric for system	~80%	Maintain 90%	TBD

					acquisition			
9	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
10	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Aggregate Compute Capacity (TFLOPS, peak);Compute capacity for execution of complex Earth and Space Science models, enabling scientific progress	120.94 TF	197.28 TF	TBD
11	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	System Administration â€" Mapped from system integration contractorâ€™s award fee and composed of metrics for system performance, technical services, and project management	~ 80%	Maintain 90%	TBD
12	2010	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	System Acquisition â€" Mapped from system integration contractorâ€™s award fee metric for system acquisition	~ 80%	Maintain 90%	TBD
13	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
14	2011	Goal 3: Develop a balanced overall	Technology	Load levels	Aggregate Compute Capacity (TFLOPS,	197.28 TF	288.45 TF	TBD

		program of science, exploration and aeronautics.			peak);Compute capacity for execution of complex Earth and Space Science models, enabling scientific progress			
15	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Customer Results	Customer Satisfaction	System Administration â€" Mapped from system integration contractorâ€™s award fee and composed of metrics for system performance, technical services, and project management	~ 80%	Maintain 90%	TBD
16	2011	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	System Acquisition â€" Mapped from system integration contractorâ€™s award fee metric for system acquisition	~ 80%	Maintain 90%	TBD
17	2012	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Processes and Activities	Productivity	Productivity - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
18	2012	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Technology	Load levels	Aggregate Compute Capacity (TFLOPS, peak);Compute capacity for execution of complex Earth and Space Science models, enabling scientific progress	288.45 TF	407.00 TF	TBD
19	2012	Goal 3: Develop a balanced overall program of	Customer Results	Customer Satisfaction	System Administration â€" Mapped from system integration	~ 80%	Maintain 90%	TBD

		science, exploration and aeronautics.			contractorâ€™s award fee and composed of metrics for system performance, technical services, and project management			
20	2012	Goal 3: Develop a balanced overall program of science, exploration and aeronautics.	Mission and Business Results	Goods Acquisition	System Acquisition â€“ Mapped from system integration contractorâ€™s award fee metric for system acquisition	~ 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?

yes

3.a. If yes, provide the six digit code corresponding to the agency segment architecture. The segment architecture codes are maintained by the agency Chief Architect.

326-000

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	Computational Services - HPC compute resources for modeling, simulation and analysis; infrastructure interconnect; operating system and related system software; code development environment/tools; maintenance; facility costs and system operation.	NCCS provides high performance computer (HPC) systems to Earth & space science researchers. Users run large numerical simulations of physical systems and own the applications. NCCS provides hardware, software tools (development tools, debuggers, compilers, math libraries) and technical services. Systems are tuned for efficient processing of large, complex science models.	Knowledge Discovery	Modeling			No Reuse	62
2	Data Archival & Stewardship Services - includes Data Warehouse, Meta Data Management, Extraction and Transformation, Data Recovery, Data Classification, and related system software components; includes facility costs and system operation.	The NCCS mass storage subsystems provide in excess of 16 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 software products to	Data Management	Data Warehouse			No Reuse	5

		better serve the Goddard Earth and space science users, providing sophisticated tools to help users find, access, and manipulate large science datasets.						
3	Data Access & Sharing Services: Information Retrieval, Information Mapping/Taxonomy, Information Sharing, Categorization, Knowledge Capture, Knowledge Distribution & Delivery & related system software components; includes facility costs & system ops.	NCCS provides network infrastructure, tools & services that promote knowledge & information discovery, retrieval, & sharing. Platforms & network services allow high bandwidth access and sharing of very large data sets across backbones & switches, web-accessibility to raw data (e.g., satellite observations), assimilated & modeled data sets. Users own the data; NCCS provides infrastructure and tools that allow the data to be stored, retrieved, and shared.	Knowledge Management	Information Sharing			No Reuse	4
4	User Services - Help Desk, Account Support, User Telecons, On-line Help and Tutorials, Consulting, and Training in Computational Science.	The NCCS provides a broad range of online and in-person help and assistance to users in the NASA Earth and space science community in order to ensure that the users can make the most effective use of the computational and information	Customer Initiated Assistance	Assistance Request			No Reuse	8

		resources made available by the NCCS. In-person services include consulting and training in computational science.						
5	Security Services - Identification & Authentication, Access Control, Intrusion Prevention, Intrusion Detection, Incident Response, Certification & Accreditation, FISMA Management & Reporting, Virus Protection & related system software components.	NCCS implements and manages a robust set of security services to protect NASA system and information resources. The NCCS security model supports a distributed science user base with varying access rights, allows for collaborative research projects, and provides for flexible data access arrangements.	Security Management	Access Control			No Reuse	5
6	Visualization Services - including Graphing, Imagery, Multimedia, Mapping and related system software components; includes facility costs and system operation.	The NCCS provides a broad range of visualization capabilities to allow NASA Earth and space scientists to exploit and understand the massive datasets produced by their increasingly complex models. Visualization capabilities are provided using clusters of servers optimized for this purpose, hosting sophisticated software tools. Combining NCCS funds with other GSFC funding sources, specialized output devices	Visualization	Imagery			No Reuse	2

		are provided including advanced interactive displays and hyperwalls.						
7	Network Services - includes HPC networking, network operation and related system software components; includes facility costs and system operation.	The NCCS supports a distributed population of science users. Extensive high-speed networking is provided to allow the users to access NCCS computational and storage resources. In addition, user projects are increasingly collaborative in nature. Thus the NCCS provides services to allow collaborative use of NCCS resources and services.	Data Management	Data Exchange			No Reuse	3
8	Project Management - includes Requirements Mgmt, Policy Mgmt, Configuration Mgmt, Change Mgmt, Quality Mgmt, Risk Mgmt, System Architecture Planning.	The NCCS provides and manages a complex infrastructure of high performance computing and storage resources applied to the needs of NASA's Earth and space scientists. This infrastructure constantly evolves to provide ever-increasing service levels. The NCCS executes full life-cycle planning and management of these resources to ensure that capabilities are tied to science needs via service and technology roadmaps	Management of Processes	Program / Project Management			No Reuse	11

		developed through system engineering and architecture analysis.						

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, SMC
2	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Controllers: StorageTek, Compaq, Panta Systems, Adaptec
3	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	UPS: Data Direct, APC
4	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices	Power Distribution: Liebert, United Power Distribution
5	Information Sharing	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; Discover: Linux Networx/IBM Compute Cluster
8	Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Desktops & Workstations: Apple, Compaq, Dell, Digital, Gateway, Micron, SGI, Sony, Sun, IBM, HP
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, SGI, Sun, Unisys
11	Imagery	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 Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Consoles: SGI, Sun

13	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Scanners: Visioneer
14	Assistance Request	Service Access and Delivery	Access Channels	Collaboration / Communications	Trouble Tickets: Footprints
15	Imagery	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Projectors: Sharp
16	Information Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	Printers: Xerox, Hewlett-Packard, Apple
17	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Disk Arrays/RAID: Data Direct, LSI Logic, Hewlett-Packard, Hitachi, SGI, Sun, StoreVault
18	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Disk Drives: Sun, SGI, DDN, LSI Logic
19	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Tape Libraries: Storagetek
20	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Tape Drive: Storagetek
21	Information Sharing	Service Access and Delivery	Access Channels	Web Browser	Open Source Lynx, Mozilla, w3m, wget, Firefox, Ice Weasel
22	Information Sharing	Service Access and Delivery	Access Channels	Web Browser	Apple Safari; Red Hat Firefox, Mozilla; Microsoft Internet Explorer
23	Information Sharing	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, Microsoft ActiveSync
24	Program / Project Management	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	Apple Mail; Microsoft Entourage; IBM Lotus Notes; Mozilla Thunderbird; Microsoft Outlook
26	Information Sharing	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, Cacti - Debian Linux
28	Information Sharing	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, dnsutils, 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	Support Platforms	Independent Platform	Debian Linux; Red Hat Linux; SGI IRIX, SUSE Linux; Altair PBSpro; Etnus

		and Infrastructure	Platforms	Platform	SUSE Linux; Altair PBSpro; Etnus totalview
33	Modeling	Service Platform and Infrastructure	Support Platforms	Independent Platform	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	Dependent Platform	Apple OS; Microsoft Windows XP
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 Warehouse	Service Platform and Infrastructure	Database / Storage	Database	Open Source mysql, postgresql; Red Hat db4, mysql, tora; Oracle
41	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Database	Apple Address Book, Migration Assistant; Microsoft Access, Database Utility, Database Daemon, Query; Filemaker; OpenBaseManager
42	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	SGI CXFS, DMF, TMF, TPSSM
43	Modeling	Component Framework	Business Logic	Independent Platform	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	Program / Project Management	Component Framework	Business Logic	Dependent Platform	Microsoft Office, Graph, Organization Chart, FrontPage, Money; Open Source OpenOffice, NeoOffice, Emacs; SGI MIPSpro
45	Data Warehouse	Component Framework	Business Logic	Dependent Platform	Apple ODBC, Pages, Preview, Keynote; Adobe Reader; Network Associates McAfee VirusScan, Virex
46	Imagery	Component Framework	User Presentation / Interface	Content Rendering	NCAR Graphics; ITT IDL
47	Access Control	Component Framework	Security	Supporting Security Services	Support Services; Security Plan; RSA SecurID, OpenBSD, Debian Linux, syslog.ng

48	Data Warehouse	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	Data Warehouse	Service Interface and Integration	Interoperability	Data Format / Classification	NCSA Hierarchical Data Format; UCAR Network Common Data Format
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 Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Tape Libraries: Storagetek
54	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage	Tape Drive: Exabyte, IOMega, Storagetek
55	Data Warehouse	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 leverages components/applications/experience across the Government that enhance the value of the NCCS beyond their immediate investments. NCCS participates in HPC Center Director working groups specifically to identify opportunities to leverage components/applications from other Government HPC sites. NCCS sharing includes the following: * Application Software. The international communities of Earth and space scientists share and re-use diverse components and applications, including both data and programs, across the Government and globally. NASA Earth and space scientists incorporate analysis and physics modules developed in other Government agencies into their codes, specifically including NOAA and NSF-funded NCAR. 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. * System Operation. The NCCS shares with the NASA Advanced Supercomputing Division (NAS) at NASA Ames. * System Architecture. The NCCS works with NASA Ames on 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?

2008-09-01

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 Â± 10%?

yes

2.a. If yes, was it the?

CV

2.b. If yes, explain the variance.

Schedule variance is within limits. Cost variance is primarily due to two items. 1. $764K under budget on 2006 competitive purchase of the Linux Networx cluster supercomputer. Competitive acquisition by the system integrator resulted in significantly greater discount from list price than was anticipated. Estimated costs in competitive acquisitions are generally conservative, as was the case here. 2. $981K under budget on 2006 competitive purchase of mass storage subsystems. As with cluster acquisition, estimated costs were conservative and did not anticipate discount offered by the successful bidder.

2.c. If yes, what corrective actions are being taken?

No corrective action is required. Schedule variance is within threshold. Cost variance is in a favorable direction (under budget) and was due to better than expected discounts on competitive subcontracts. Resources freed up by these purchases were applied to other required NCCS systems and services (latent demand, as explained in prior years' NCCS OMB 300s).

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

no