

**IBM U.S. Federal**



**Volume I – Technical Proposal  
SAP Application Hosting**

**November 19, 2012**

**Department of the Interior (DOI)**

**Foundation Cloud Hosting Services**

In Response to Request for Proposal No. D12PS00316

Submitted to: Department of the Interior, NBC, AQD  
381 Elden Street, 4<sup>th</sup> Floor  
Herndon, VA 20170  
Attn: Rob Stoltz, Phone 703-964-3624  
Or Nancy Moreno, Phone 703-964-3562

Submitted by: IBM U.S. Federal  
6710 Rockledge Drive  
Bethesda, MD 20817

---

**RESTRICTION ON DISCLOSURE AND USE OF DATA**

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used or disclosed—in whole or in part—for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of—or in connection with—the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's rights to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained on pages marked: "Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal."

The information specifically identified on all pages of this proposal constitutes trade secrets or confidential commercial and financial information that the offeror believes to be exempt from disclosure under the Freedom of Information Act. The offeror requests that this information not be disclosed to the public, except as may be required by law. The offeror also requests that this information not be used in whole or part by the Government for any purpose other than to evaluate the proposal, except that if a contract is awarded to the offeror as a result of or in connection with the submission of the proposal, the Government shall have the right to use the information to the extent provided in the contract.

---





## Table of Contents

<i>Section</i>	<i>Page</i>
<b>List of Acronyms</b> .....	<b>v</b>
<b>1 Introduction</b> .....	<b>1</b>
<b>2 High-Level Business Requirements</b> .....	<b>1</b>
<b>3 IBM’s Cloud Services (PWS 5.3.3)</b> .....	<b>1</b>
3.1 Cloud Value Proposition (PWS 5.3, 5.3.1–5.3.5).....	2
3.2 Understanding of the Existing FBMS Hosting Requirements.....	4
3.2.1 Why IBM Power Systems for SAP.....	5
3.2.2 SAP Certification (PWS 5.8).....	5
<b>4 Management Approach</b> .....	<b>6</b>
4.1 Project/Implementation Management.....	6
4.1.1 Planning.....	6
4.1.2 Logistics.....	6
4.1.3 Point of Contact.....	6
4.1.4 Documentation Assistance.....	6
4.2 Project Change Control Procedure.....	7
4.3 Risk and Issue Management with Escalation Procedure.....	7
<b>5 Roles and Responsibilities</b> .....	<b>8</b>
<b>6 Technical Approach</b> .....	<b>8</b>
6.1 DOI Solution Requirements (PWS 5.2).....	8
6.1.1 Solution Criteria.....	9
6.1.2 Solution Servers.....	10
6.1.2.1 The Power 770 Database Server.....	10
6.1.2.2 The Power 740 Express Server.....	12
6.1.2.3 SAP Sizing Methodology (PWS 6.3).....	13
6.1.3 The Team IBM Storage Solution (PWS 5.6, 6.1).....	13
6.1.4 The AIX Operating System.....	14
6.1.4.1 High Availability/Disaster Recovery (PWS 5.9, 6.4).....	15
6.2 Technical Tasks.....	15
6.2.1 Transition Planning.....	15
6.2.1.1 Cloud Strategy Workshop.....	15
6.3 SAP Application Migration Approach.....	17
6.3.1 Migration to AIX Planning.....	17
6.3.2 Migration.....	20
6.3.2.1 Verify Migration Pre-Requisites.....	21
6.3.2.2 Analyze the Source System.....	22
6.3.2.3 Define the Target System.....	23
6.3.2.4 Target Systems Setup – Build Target Systems for DEV, TST, TRN, PRDCOPY, PRD Environment.....	24
6.3.2.5 Migration Run DEV, TST, TRN, PRDCOPY – ECC, BW, XI, EP, BI and SolMan.....	25
6.3.2.6 Migration Run PRD – ECC, BW, XI, EP, BI and SolMan.....	26
6.3.2.7 Test Runs – ECC, BW, XI, EP, BI and SolMan.....	27
6.3.2.8 Deployment to Production.....	27



6.3.2.9	Post-Go-Live Support	28
6.4	SAP Application Hosting Approach (PWS 5.1)	28
6.4.1	Infrastructure-as-a-Service (PWS 5.4–5.6, 6.1–6.5)	29
6.4.1.1	Tasks	31
6.4.1.2	DOI Responsibilities/Dependencies	31
6.4.1.3	Deliverables	31
6.4.1.4	Completion Criteria	31
6.4.2	Automated Status Reporting (PWS 5.7, 6, 6.1–6.2)	31
6.4.2.1	Tasks	33
6.4.2.2	Dependencies	33
6.4.2.3	Deliverables	34
6.4.2.4	Completion Criteria	34
6.4.3	Incentives and Disincentives (PWS 5.10)	34
6.4.3.1	Task	35
6.4.3.2	Dependencies	35
6.4.3.3	Deliverables	35
6.4.3.4	Completion Criteria	35
6.4.4	Operations and Maintenance	35
6.4.4.1	Tasks	35
6.4.4.2	Dependencies	36
6.4.4.3	Deliverables	36
6.4.4.4	Completion Criteria	36
6.4.5	Security (PWS 7.3)	36
6.4.5.1	Services Associated with SOC	36
6.4.5.2	Security Incident Response (PWS 7.3)	36
6.4.5.3	Privacy (PWS 7.5)	37
6.4.5.4	Authority to Operate (ATO) and Assessment and Authorization (A&A) Approach (PWS 7.3)	38
6.4.5.5	Dependencies	38
6.4.5.6	Deliverables	38
6.4.5.7	Completion Criteria	39
6.4.6	Quality Assurance	39
6.4.6.1	Quality Assurance Approach	39
6.4.6.2	Dependencies	39
6.4.6.3	Deliverables	39
6.4.6.4	Completion Criteria	39
6.4.7	Service Desk	39
6.4.7.1	Support Approach	39
6.4.7.2	Dependencies	39
6.4.7.3	Deliverables	39
6.4.7.4	Completion Criteria	39
<b>7</b>	<b>Key Assumptions</b>	<b>40</b>
7.1	Migration	40
7.2	Hosting Services	41
<b>8</b>	<b>Project Schedule</b>	<b>41</b>



<b>9</b>	<b>Delivery Schedule and Acceptance Process</b> .....	<b>44</b>
9.1	Deliverable Acceptance Procedure.....	44
9.2	Completion Criteria .....	45
9.2.1	Migration and Hosting Completion Criteria.....	45
9.2.2	Project Completion Criteria.....	45
<b>10</b>	<b>Past Performance References</b> .....	<b>45</b>
10.1	IBM – DOI Financial and Business Management System (FBMS) Implementation .....	46
10.2	IBM – Navy ERP Professional Services Support (PSS1).....	48
10.3	IBM – Adobe SAP Migration Support .....	49
10.4	NetApp – American Greetings Corporation (AGC).....	51
10.5	NetApp – SAP, AG.....	52
10.6	SAP – U of K HANA.....	53
	<b>Appendix A: SAP Hosting for FBMS – Quality Assurance Plan (PWS 5.3.5, 7.5).....</b>	<b>A-1</b>



## List of Figures

Figure 3-1: Architectural Overview of Team IBM’s SCG .....	3
Figure 3-2: Power Systems Business Value at a Glance. ....	5
Figure 4-1: Risk Management Process .....	8
Figure 6-1: Team IBM DOI SAP Infrastructure Solutions.....	10
Figure 6-2: FY13 Database Servers.....	11
Figure 6-3: FY14 – FY18 Database Servers.....	12
Figure 6-4: NetApp Reference Architecture for SAP Environments .....	14
Figure 8-1: Project Schedule.....	42
Figure C-1: Quality Management Method.....	A-6

## List of Tables

Table 5-1: Delineation of Responsibilities .....	8
Table 6-1: Power 730 Server .....	12
Table 6-3: Estimated Call Volumes by Severity.....	30
Table 6-4: VM Storage Configurations .....	32
Table 6-5: Color Ratings for Service Levels. ....	35
Table 9-1: Deliverable Schedule.....	44



### List of Acronyms

Acronym	Definition
A&A	Assessment and Authorization
ABL	Albany Ballistics Laboratory
AM	Asset Management
ATO	Authority to Operate
BAPI	Business Application Programming Interface
BOR	Bureau of Reclamation
BPaaS	Business Process-as-a-Service
BW	Business Warehouse
CAR	Corrective Action Report
CBM	Component based Modeling
CBT	Computer-Based Training
CERT	Computer Emergency Readiness Team
CIO	Chief Information Officer
CIRC	Computer Incident Response Center
CCB	Change Control Board
CMMI	Capability Maturity Model Integration
CO	Controlling
COTR	Contracting Officer's Technical Representative
COTS	Commercial Off-the-Shelf
CPIR	Continuous Process Improvement and Risk Management
CPU	Central Processing Unit
CR	Change Request
CSR	Common Server Resource
DB	Database
DBMS	Database Management System
DEV	Development
DHCP	Dynamic Host Configuration Protocol
DHS	Department of Homeland Security
DNS	Domain Name System
DOI	Department of Interior
DOJ	Department of Justice
DR	Disaster Recovery
EIS	Enterprise Information Services
EPA	Environmental Protection Agency
EPR	Enterprise Resource Management
ESD	Enterprise Service Desk
FBMS	Financial and Business Management System
FCHS	Foundation Cloud Hosting Services



Acronym	Definition
FDC	Federal Data Center
FedRAMP	Federal Risk and Authorization Management Program
FFDC	First Failure Data Capture
FI	Financial Accounting
FM	Funds Management
FTR	Federal Travel Regulations
FY	Fiscal Year
GB	Gigabyte
GOCO	Government Owned Contractor Operated
HA	High Availability
HR	Human Resources
HUD	Housing and Urban Development
IA	Indian Affairs
IA	Information Assurance
IaaS	Infrastructure-as-a-Service
IDIQ	Indefinite Delivery Indefinite Quantity
IDOC	Intermediate Document
ILT	Instructor Led Training
IO	Input Output
IP	Internet Protocol
IR	Incident Response
ISIMC	Information Security and Identify Management Committee
ISSO	Information System Security Officer
ITIL	Information Technology Infrastructure Library
KT	Knowledge Transfer
LDAP	Lightweight Directory Access Protocol
LPM	Live Partition Mobility
MB	Megabyte
MM	Materials Management
MTTR	Mean Time to Recovery
NACI	National Agency Check with Inquiries
NAS	Network Attached Storage
NOC	Network Operation Center
NPS	National Park Service
NTP	Network Time Protocol
OEM	Oracle Enterprise Manager
OS	Operating System
OSS	Open Source Software
PaaS	Platform-as-a-Service

This page contains trade secrets or confidential commercial and financial information that the offeror believes to be exempt from disclosure under the Freedom of Information Act, and which is subject to the legend contained on the cover page of this proposal.





Acronym	Definition
PIA	Privacy Impact Assessment
PHI	Personal Health Information
PII	Personal Information
PII	Personally Identifiable Information
PMBOK	Project Management Body of Knowledge
PMO	Program Management Office
PMR	Project Management Review
POA&M	Plan of Actions and Milestones
PoC	Point-of-Contact
PRD	Production
PRDCOPY	Production Copy
PS	Project System
PWS	Performance Work Statement
QAF	Quality Assurance Framework
QAP	Quality Assurance Plan
QASP	Quality Assurance Surveillance Plan
QMT	Quality Management Team
RFP	Request for Proposal
RPO	Recovery Point Objectives
RTO	Recovery Time Objectives
RTP	Research Triangle Park
SaaS	Software-as-a-Service
SAN	Storage Area Network
SAP	Security Assessment Plan
SAR	Security Assessment Report
SBI	Sensitive Business Information
SBX	Sandbox
SCG	Smart Cloud for Government
SD	Sales and Distribution
SDG	Solutions Development Group
SEI	Software Engineering Institute
SI	System Integrator
SIEM	Security Information and Event Management
SLA	Service Level Agreement
SME	Subject Matter Expert
SOC	Security Operations Center
SP	Special Publication
SPI	Sensitive Personal Information
TIC	Trusted Internet Connection



Acronym	Definition
TRN	Training
TSM	Tivoli Storage Manager
TST	Test
VIOS	Virtual IO Server
VM	Virtual Machine
WM	Warehouse Management
WWPMM	Worldwide Project Management Method
XTTD	Cross-Platform Transportable Databases
XTTS	Cross-Platform Transportable Tablespaces



## 1 Introduction

In response to Request for Proposal (RFP) Attachment J-6, Performance Work Statement (PWS) for SAP Application Hosting, IBM presents this proposal to the Department of the Interior (DOI) to implement a cloud-based Infrastructure-as-a-Service (IaaS) hosting solution and associated transition support for the Financial and Business Management System (FBMS).

## 2 High-Level Business Requirements

The scope of this solution is the provision of an Infrastructure-as-a-Service offering for hosting FBMS that:

- Supports the system's needs in terms of processing power, memory, storage, and connectivity
- Operates within the enumerated constraints
- Meets or exceeds the acceptable quality levels and performance standards


The scope includes assessment of the current FBMS infrastructure and operations, transition planning, implementation management, and operations management/optimization of the provided infrastructure services.

## 3 IBM's Cloud Services (PWS 5.3.3)

Cloud Computing provides real tangible value in cost reduction and improved agility. IBM was an early leader in the Cloud Computing space and continues to invest heavily in technology advances and adoption of best practices.

Team IBM offers cloud computing thought leadership, resources and solutions, including FISMA Compliance and U.S. Citizen support in dedicated IBM Federal Data Centers (FDCs), which support the unique needs of the Federal Government. In 2010, IBM was chosen by the U.S. Air Force to collaboratively develop a Cyber Secured Cloud Architecture, which led to a 1,000-user Air Force pilot of a private, managed cloud, hosted in IBM's FDC. Team IBM offers an extensive range of cloud solutions tailored to the Federal Government. These cloud solutions address unique Federal requirements and each solution is tailored to Federal Government agency unique needs.

IBM is an industry pioneer in cloud computing and brings extensive knowledge and capabilities in managing IT infrastructure. IBM manages more than 400 data centers with 8 million square feet of raised floor supporting approximately 1,000 mainframes and 200,000 midrange servers. The three FDCs are located in Boulder, CO; Research Triangle Park (RTP), NC; and Rocket Center, WV. Both Boulder and RTP are Contractor Owned Contractor Operated (COCO) facilities, designed specifically to the demanding Federal Security Standards, including FISMA, as well as energy-efficient "green" data centers standards with Boulder LEEDS certified at silver and RTP, NC LEEDS certified at gold. The West Virginia modularly designed data center which allows for future expansion is a Government Owned Contractor Operated (GOCO) facility located on a U.S. Navy Base for enhanced physical security. (b) (4)



### Proof Points

- ✓ More than 8 million square feet of Data Center raised floor
- ✓ 200,000+ Servers Managed
- ✓ Support for 4.1M End Users
- ✓ 37M Help Desk Calls Annually
- ✓ 156,352 TB Storage Managed

**Benefit for DOI:** Low-risk tools, processes, and methods with proven track record of delivering cost savings, innovation, and enhanced decision-making.

(b) (4)

[Redacted text block]

The DOI environment is diverse and complex. Team IBM understands the dependencies between infrastructure and applications and can effectively and efficiently plan the migration path into a cloud environment. Team IBM has the people, experience, and tools necessary to assess your environment, map dependencies, and generate roadmaps for cloud migration groups.

### 3.1 Cloud Value Proposition (PWS 5.3, 5.3.1–5.3.5)

SAP AG has certified IBM of its capabilities to deliver and manage clients’ implementations of SAP® applications via a hosted delivery model and IBM’s Cloud Platforms.

This certification enables IBM to provide enterprises around the world with hosted and cloud-based support of the entire SAP solution portfolio, including business software applications for customer relationship management, enterprise resource planning, product life cycle management, supply chain management and corporate services.

IBM offers the Smart Cloud for Government (SCG), which is a secure, resource pooled, multi-tenant cloud for Federal agencies only (see **Figure 3-1**). IBM’s offering maintains the privacy and security needs that the DOI demands while gaining operational and cost efficiencies via a shared infrastructure, commercial off the shelf (COTS) cloud technology and functionality, and subscription pricing.

The SCG is located at IBM FDC in Boulder, CO and Raleigh, NC, which verifies that DOI data remain within the sole jurisdiction of the U.S. Government. The FDCs, which meet the Tier III data center classification, are 1695 miles apart and will serve as alternate sites for each other, providing the geographical separation that DOI requires.

The COTS-based architecture serves as the foundation for the SCG. The SCG architecture, which conforms to the NIST definition of cloud computing, NIST Special Publication 80-145, enables key cloud functionality such as:

- (b) (4)
- [Redacted text block]

#### Proof Points

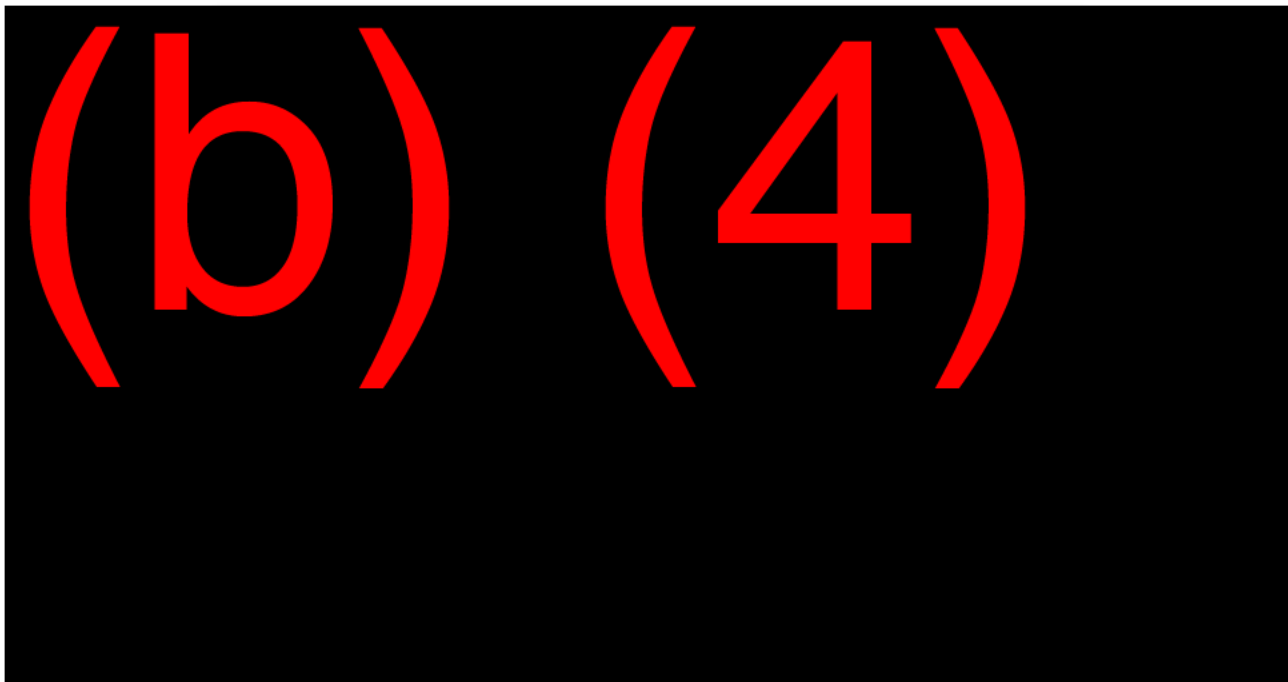
##### Cloud Services for DoD

IBM implemented and currently operates an Enterprise Information Services (EIS) in a PaaS environment for the Air Force at the Allegany Ballistics Laboratory (ABL) secure site located in Rocket Center, West Virginia. EIS consists of a hosting platform for FileNet and Microsoft SharePoint, which provides the collaborative end user interface and portal.

- (b) (4)
- 

IBM's SCG Roadmap includes these capabilities as early as 2Q13 to provide a Self-Service Portal that DOI will use to provision and manage cloud services. For Day One, IBM will provision the required virtual machines and storage as required. Team IBM understands that user access will be administered through DOI internal networks, thus making the Broadband Network Access portion of the NIST definition no applicable.

**Figure 3-1: Architectural Overview of Team IBM's SCG**  
*Tools, processes, and techniques to support the DOI's environment.*



Team IBM's cloud services provide opportunities for cost savings, on demand capacity, and rapid provisioning. Team IBM's SCG Offering allows for the creation of virtual computer services, including complete software stacks, storage, and virtual servers, on demand, without complex configurations, physical allocations, or service provider human interaction. Cloud computing will alleviate the DOI's burden of configuring new server landscapes for production, thereby speeding provisioning and minimizing risk. DOI personnel responsible for provisioning resources will access a service catalog and operational console to interact with the Service Management stack driving the infrastructure. Cloud services can unilaterally be provisioned, by

authorized users, immediately or requested to start at a later time. The cloud implementation occurs, transparent to the DOI users.

(b) (4)

### Key Benefits

- (b) (4)

### 3.2 Understanding of the Existing FBMS Hosting Requirements

(b) (4)

**Proof Points**

**Adobe SAP Migration**

Working with the IBM Migration Factory, Adobe consolidated the standalone servers, business-critical SAP systems, and Oracle databases:

- ✓ From many Sun Solaris servers utilized at 10-15% to just five IBM pSeries AIX servers utilized at 80%
- ✓ IBM helped migrate SAP applications and Oracle databases from Sun to pSeries AIX

**Benefits:** Adobe has estimated:

- ✓ Total project savings and cost will come to \$60M over five years
- ✓ OS and database license fees cut by 40%

By selecting the IBM Power solution, DOI FBMS will be able to realize the following benefits:

- **High Availability.** (b) (4)

**Proof Points**

**DOI FBMS**

Since 2006, IBM provides support for the DOI implementation of FBMS:

- ✓ Full range of implementation services
- ✓ 12+ SAP modules
- ✓ 65+ interfaces
- ✓ 10 bureaus across 2 locations

**Benefit to DOI:** Leveraging IBM's understanding of DOI mission, system interfaces and data, and FBMS roadmap to facilitate cloud assessment, migration, and hosting.



(b) (4)

- **High-Performance.** (b) (4)
- **Cost-Effective.** (b) (4)

### 3.2.1 Why IBM Power Systems for SAP

IBM Power Systems has an excellent track record in the SAP marketplace. There have been more than 14,800 SAP installations on Power Systems in more than 7,100 customers worldwide. Power Systems have seen a growth in SAP UNIX market share over the last 5 years, the only vendor to be in this enviable position (see **Figure 3-2** for business value).

**Figure 3-2: Power Systems Business Value at a Glance**

*Power Systems reduces total cost of ownership, reduces risk through solid product road maps, minimize unplanned outages and simplify operations.*

Goal	Issues	Power Systems Value
TCO	(b)	(4)
Risk	(b)	(4)
Unplanned Outage Avoidance	(b)	(4)
Planned Outage Avoidance	(b)	(4)
Operations Simplification	(b)	(4)

12-0216-040

### 3.2.2 SAP Certification (PWS 5.8)

SAP AG has certified IBM of its capabilities to deliver and manage clients' implementations of SAP® applications via a hosted delivery model and IBM's Cloud Platforms. This certification

enables IBM to provide enterprises around the world with hosted and cloud-based support of the entire SAP solution portfolio, including business software applications for customer relationship management, enterprise resource planning, product life cycle management, supply chain management and corporate services.

#### 4 Management Approach

##### 4.1 Project/Implementation Management

The Team IBM SAP experienced PM is the Point-of-Contact (PoC) for project-related requirements during transition and steady-state operations. Project management will follow IBM Worldwide Project Management Method (WWPMM) and IBM supplier management guidelines.

During transition, the project manager works with the customer to enable a smooth on-boarding process. The Team IBM Project Manager works with the customer to determine the most expeditious and low-risk approach to achieving the mutually agreed upon transition schedule. Traditional transition and steady-state PM responsibilities:

##### 4.1.1 Planning

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

##### 4.1.2 Logistics

- (b) (4) [Redacted]
- [Redacted]

##### 4.1.3 Point of Contact

- (b) (4) [Redacted]

##### 4.1.4 Documentation Assistance

- (b) (4) [Redacted]
- [Redacted]



(b) (4)

[Redacted text block]

#### 4.2 Project Change Control Procedure

Change management involves managing changes through strict adherence to the change control process. As part of the planning phase, (b) (4)

[Redacted text block]

As part of managing DOI scope, Team IBM:

- (b) (4)
- [Redacted list item]
- [Redacted list item]
- [Redacted list item]

#### 4.3 Risk and Issue Management with Escalation Procedure

Team IBM has a well-defined Issues and Risk Management approach but is agreeable to using either our process or a process currently followed by FBMS. This section documents the Team IBM process.

As depicted in **Figure 4-1**, Team IBM will leverage its proven approach to mitigate delivery risks. It is a continuous, proactive process that is used to identify, prioritize, and handle project risks. (b) (4)

[Redacted text block]

[Redacted text block]

[Redacted text block]

**Figure 4-1: Risk Management Process**

*Team IBM’s Risk Management Approach mitigates delivery risks.*



**5 Roles and Responsibilities**

The Performance Work Statement for SAP Hosting provides a delineation of responsibilities between DOI and the hosting service provider. The FBMS Program Management Office (PMO) manages and supports the business applications and related databases. Team IBM is responsible for delivering data center infrastructure, non-DOI network services, server, and storage management along with infrastructure services. **Table 5-1** illustrates the current delineation of responsibilities.

**Table 5-1: Delineation of Responsibilities**

*Team IBM’s understanding of the roles and responsibilities enables strict compliance.*

FBMS PMO	IBM
<ul style="list-style-type: none"> <li>• Business application management</li> <li>• SAP technical application (BASIS) management</li> <li>• Lightweight Directory Access Protocol (LDAP) services</li> <li>• Domain Name System (DNS) management</li> <li>• Departmental network services</li> <li>• Security compliance and Information Assurance (IA)</li> <li>• Database administration</li> <li>• Production management and job control (Control-M – shared responsibility)</li> </ul>	<ul style="list-style-type: none"> <li>• Core infrastructure services (DHCP, NTP, monitoring)</li> <li>• Server management and hardware administration (physical and virtual)</li> <li>• Storage management (NAS and SAN)</li> <li>• Non-DOI network services (routers, switches, firewalls, load balancing)</li> <li>• Facilities (power, cooling, floor space, etc.)</li> <li>• OS management and patching</li> <li>• DBMS environment management and patching</li> <li>• Physical access controls</li> </ul>

**6 Technical Approach**

**6.1 DOI Solution Requirements (PWS 5.2)**

DOI requires a solution that achieves the following:


- Complies with performance requirements, constraints, and acceptable service levels outlined in the SAP PWS
- Provides an innovative, cost-effective solution
- Complies with the NIST Cloud Computing definition

The Team IBM solution is designed to meet, and exceed, these goals. Due to DOI's large SAP environment, which is expected to more than double in size over the next few years, a resilient, high-performance, scalable, and flexible infrastructure is needed.

(b) (4)

### 6.1.1 Solution Criteria

(b) (4)


 **Proof Points**

**Demonstrated Success in Large-Scale SAP Migrations**

IBM's Data Migration team led the Navy in migrating data from legacy systems while minimizing impact to existing production users. At Naval Supply Systems Command (NAVSUP), the Data Migration team converted 338,000 master data records and over 6,000 transactional records, with no impact to the existing production users at the Naval Air Systems Command (NAVAIR).

As DOI is open to incorporating new industry technologies, like an In-Memory solution for EMIS, Team IBM is uniquely positioned to offer SAP In-Memory solutions today, with the leading infrastructure solution for deploying SAP In-Memory systems. Recently SAP published performance results for a 100TB SAP HANA system on Team IBM hardware, the only HANA system able to scale to that size.

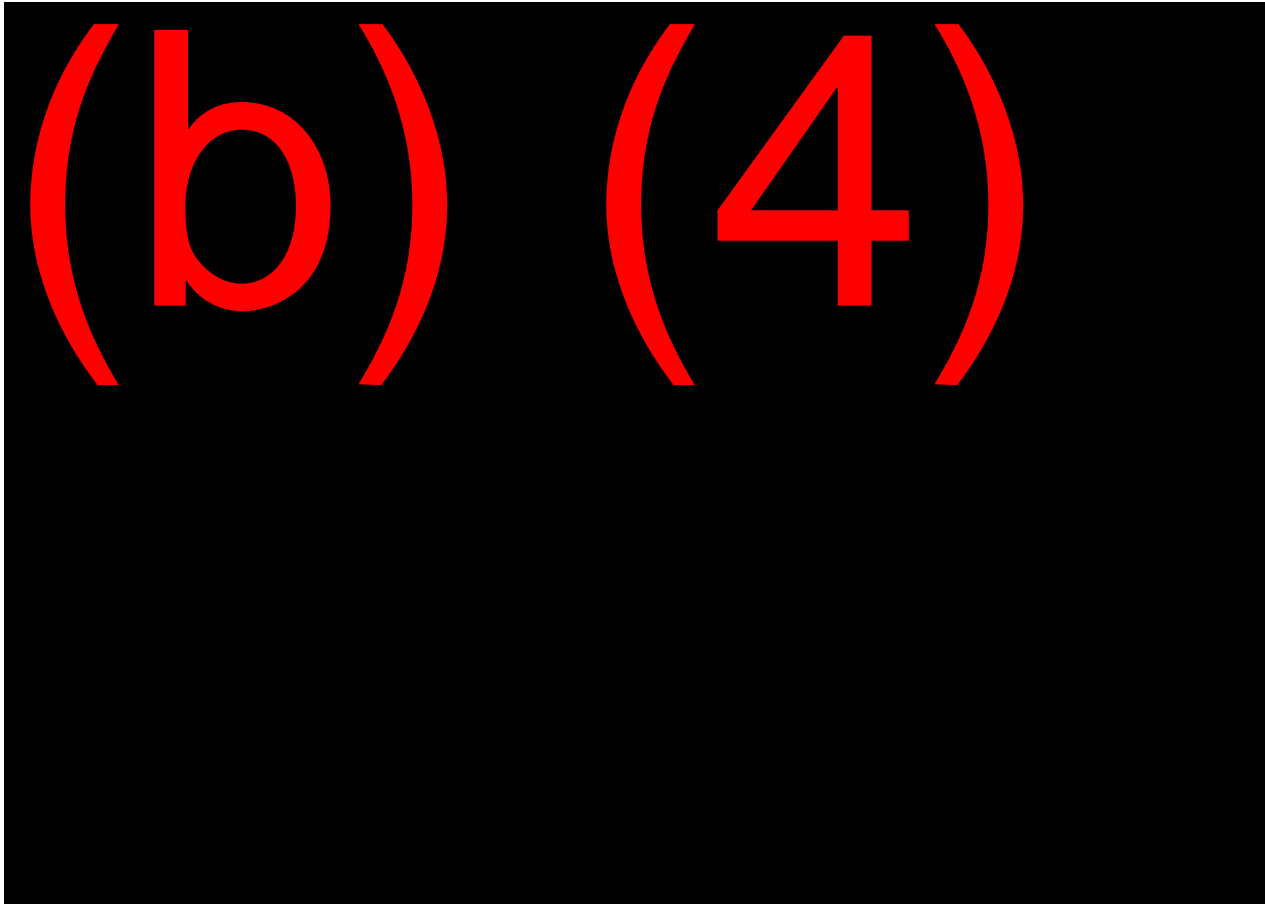
(b) (4)

 **Proof Points**

**Vince Kellen**  
**University of Kentucky CIO**

*"SAP HANA offers an effective real-time data-driven system, which is essential to giving immediate performance feedback and increased retention rate of students, increasing millions in revenue for the university every year."*

Figure 6-1 shows a high-level diagram of the proposed Team IBM infrastructure solution.

**Figure 6-1: Team IBM DOI SAP Infrastructure Solutions**

A description of the various solution components and their capabilities is provided below.

### **6.1.2 Solution Servers**

Team IBM has chosen the Power 770 for database servers and the Power 740 Express for application servers as well as for development and testing systems. Servers are virtualized and run multiple SAP virtual machines concurrently. These servers are some of IBM's most recent technology, capable of maintaining the Acceptable Quality Levels required in the Performance Work Statement.

#### **6.1.2.1 The Power 770 Database Server**

The Power 770 is a high-performance modular server that can be configured with up to 64 POWER7 cores and up to 4 terabytes of physical memory. The server can be configured with up to 184 PCIe I/O adapters available today. For the proposed DOI configuration the 3.8GHz Power 770 server model is used and each server has been configured with the most recent, high-performance I/O adapters. Each Power 770 server has forty 8Gb SAN ports, sixteen 10 GB Ethernet ports and eight 1GB Ethernet ports.

In FY13 there will be two Power 770 servers in a mutual cluster configuration using IBM PowerHA cluster technology. Starting with FY14-FY15, an additional Power 770 will be added to support the new SAP application modules to be implemented during that period. The servers will be configured as a 3-way cluster, so that SAP databases and central services are fully protected and redundant. PowerHA is similar in concept to Sun clusters.

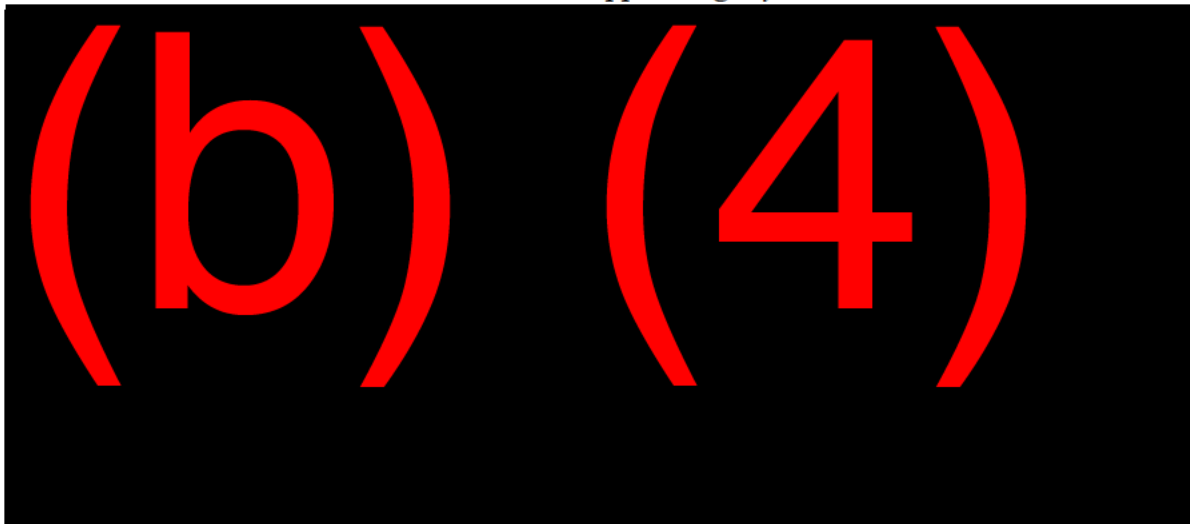
The Power 770 database servers are also equipped with Tivoli Storage Manager (TSM) backup software, TSM works in conjunction with NetApp SnapShot technology included in the proposed FAS 6280A storage platforms. NetApp FAS series platforms are the foundation of IBM's Smart Cloud for Government and a commonly used platform in many of NetApp-based SAP implementations. SnapShots provide near instantaneous backups (and restores) of the SAP environment and databases, and are the foundation of NetApp's FlexClone technology that streamlines SAP migration, development, QA and training. NetApp tools are also certified for SAP and integrated with the SAP backup process via SnapManager for SAP as well as SnapMirror for DR storage-based replication.

The fact that DOI uses Tivoli Storage Manager for FBMS Snapshot today greatly eases the transition to the Team IBM architecture. The RFP indicates that "DOI will retain the ability to perform the same capabilities for ProdCopy and backups via the next technical platform in the cloud." Team IBM provides the required capability with TSM and NetApp Snapshots as well as Snap Manager and Snap Mirror tools provided with the NetApp FAS6280A storage systems.

In FY13, the database server solution is proposed to be as depicted in **Figure 6-2**.

**Figure 6-2: FY13 Database Servers**

*Team IBM provides the Disaster Recover Solution with TSM and the FlashCopy functionality in Tivoli and the NetApp storage system.*



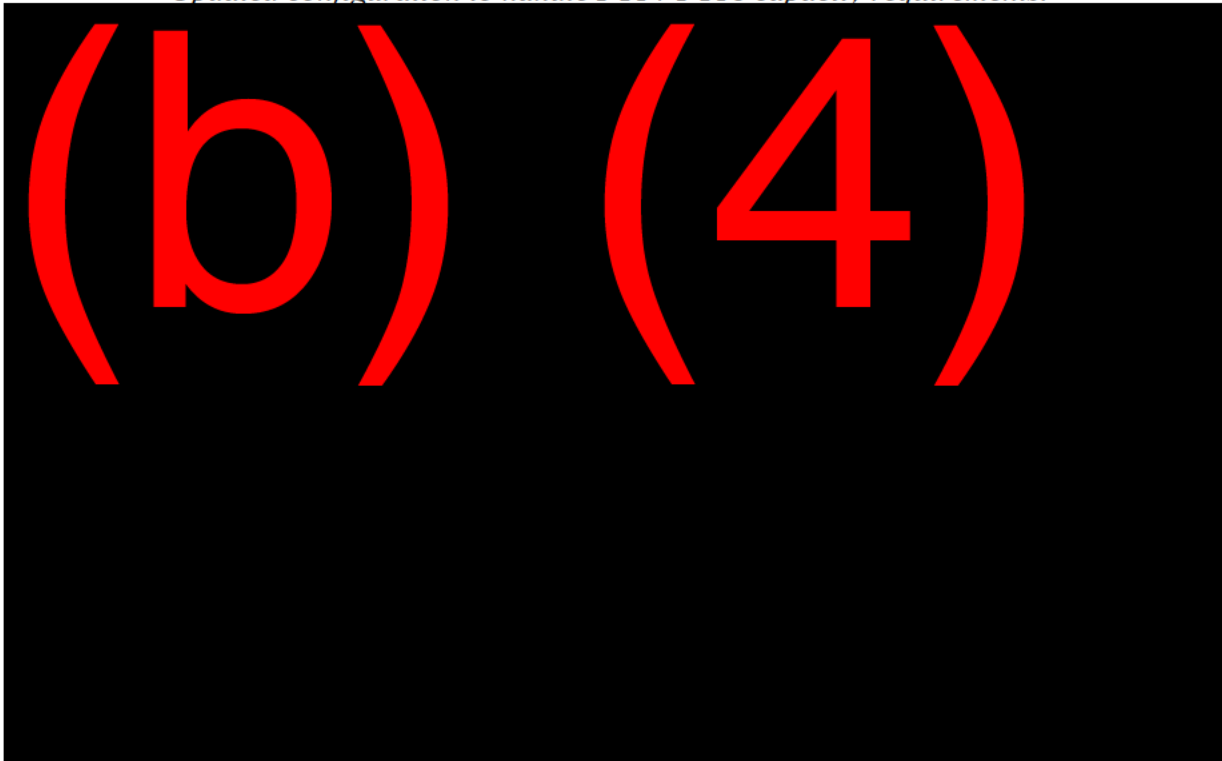
The RFP indicates that the DR system is about 50% of production server capacity and Team IBM has designed DR servers according to those specifications.



Starting in FY14-15, the database server solution will look as shown in **Figure 6-3**.

**Figure 6-3: FY14 – FY18 Database Servers**

*Updated configuration to handle FY14-FY18 capacity requirements.*



**6.1.2.2 The Power 740 Express Server**

IBM Power 740 Express servers are used for application servers as well as for test and development systems.

As configured for DOI each Power 740 is a 3.55 GHz, 16-core, 256GB memory server. Each server supports up to 512 GB of total physical memory, so more physical memory can be added if needed. Like the Power 770, the Power 740 also supports *Active Memory Expansion* for additional memory capacity. The Active Memory Expansion option has been included with proposed Power 740 servers.

(b) (4)

The Power 740 Express server is rated at 48,320 SAPS. Its SAPS capacity rating is based on the SAP-certified benchmark result for the Power 730 (**Table 6-1**), a server with the same processor speed and number of cores.

**Table 6-1: Power 730 Server**

*SAP-certified benchmark results for Power 730, which is comparable to Power 749 Express.*

Server Model	CPU Speed	Cores	Memory	SAPS	SAPS/Core	SAP Release	SAP Cert. #
Team IBM Power 730	3.55 GHz	16	128 GB	47,600	2,975	ECC v6.0 EP4	2011011



(b) (4)

[Redacted]

### 6.1.2.3 SAP Sizing Methodology (PWS 6.3)


For sizing the SAP workloads, Team IBM used Table 6 of *Attachment 6 Performance Work Statement for SAP Application Hosting* as specified in the RFP. Team IBM made assumptions about expected utilization levels in a PowerVM virtualized environment, based on IBM best practices and customer data from other virtualized SAP environments on Power Systems.

In addition, Team IBM considered the following operating constraints as specified in the RFP:

- (b) (4)
- [Redacted]

### 6.1.3 The Team IBM Storage Solution (PWS 5.6, 6.1)

The Team IBM SAP Hosting Service offer includes a high-performance storage solution, leveraging IBM's partnership with NetApp. NetApp provides the agile and highly available storage platforms used by the IBM SmartCloud for Government today. NetApp is also a leading provider of data management and storage platforms for SAP implementations. (b) (4)



#### Proof Points

**SAP AG and NetApp**

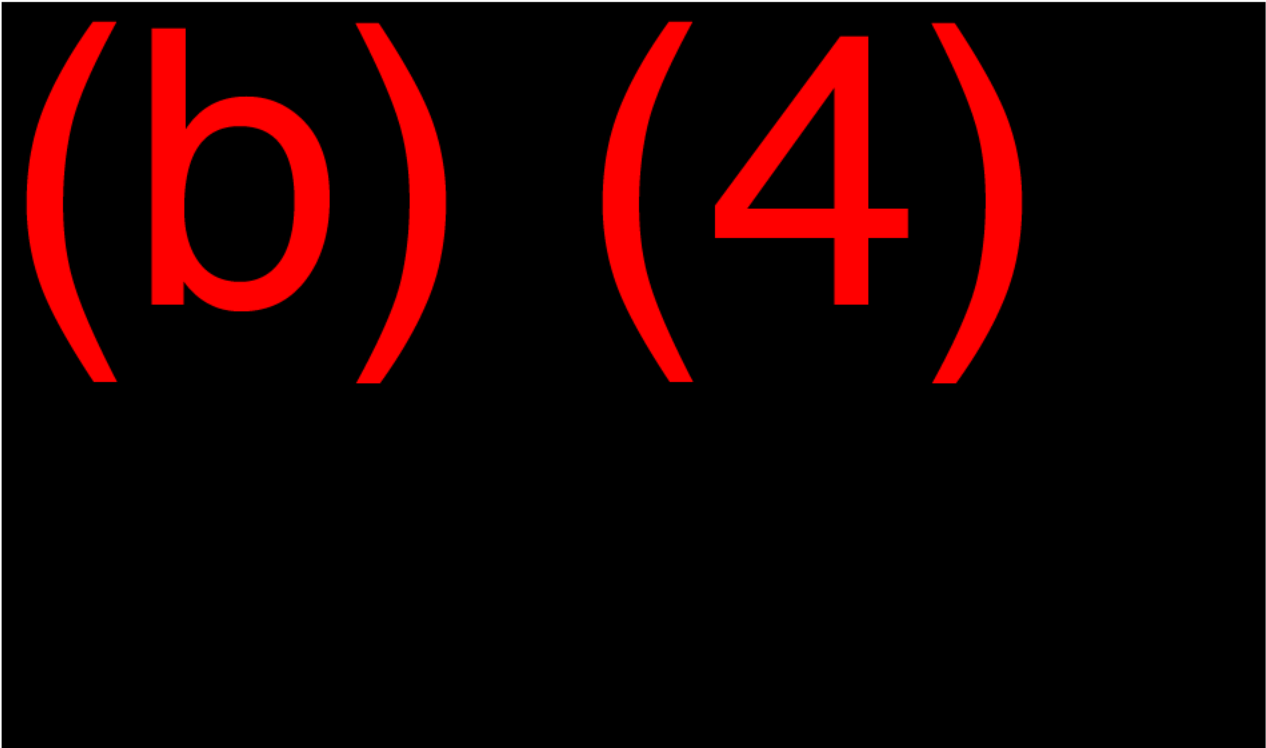
SAP has been a NetApp customer and partner for over 10 years and has invested triple digit millions of dollars over that timeframe.

- ✓ NetApp has a dedicated team covering SAP in Germany
- ✓ NetApp account team works closely with SAP subject matter experts from the NetApp Competence Center for SAP based in Waldorf, Germany

[Redacted]



**Figure 6-4: NetApp Reference Architecture for SAP Environments**



#### 6.1.4 The AIX Operating System

The use of the AIX operating system meets a key DOI preference: to continue to run SAP on a UNIX/Oracle platform. AIX is one of the operating system standards at DOI, and one of the operating systems required to be supported by the hosting provider.

AIX offers excellent availability and reliability features to help maintain SAP running and available to users. Some of these are (for AIX 6.1 and above):

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]



- (b) (4) [Redacted]

#### 6.1.4.1 High Availability/Disaster Recovery (PWS 5.9, 6.4)

In Oracle database environments, high availability at the production data center can be achieved with Active-Active (Oracle RAC) or Active-Passive solutions. Most SAP customers running on Power Systems with Oracle deploy an Active-Passive solution with IBM's PowerHA as the clustering solution. PowerHA is the equivalent of Sun clusters and works in a similar way. PowerHA is included in the proposed database servers and will be used for database as well as SAP Central Services clustering.

(b) (4) [Redacted]

[Redacted]

## 6.2 Technical Tasks

The following tasks document the approach to complete the migration of the SAP Hosting Solution. Each section will document the tasks to be performed, the key dependencies, completion criteria and deliverables.

### 6.2.1 Transition Planning

Team IBM will conduct a pair of workshops with key stakeholders from DOI to:

(b) (4) [Redacted]

[Redacted]

#### 6.2.1.1 Cloud Strategy Workshop

Team IBM will conduct a Cloud assessment workshop. These Services will address the following:

- (b) (4) [Redacted]
- [Redacted]

- (b) (4) [Redacted]

Team IBM will provide a schedule for coordinating the participation of DOI stakeholders along with specialized personnel.

#### 6.2.1.1.1 Tasks

The approach to developing a prioritized set of top cloud adoption opportunities consists of the following main activities:

#### Task 1: Plan Cloud Strategy Workshop Planning

- 1.1. (b) (4) [Redacted]

#### Task 2: Conduct Cloud Strategy Workshop

##### 2.1. Discuss Cloud Computing Point of View

- (b) (4) [Redacted]

##### 2.2. Investigate Cloud Workload Prioritization and Deployment Models

- (b) (4) [Redacted]

##### 2.3. Discuss Cloud Value Proposition and References

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]

##### 2.4. Describe Common Cloud Reference Architecture

- (b) (4) [Redacted]
- [Redacted]

##### 2.5. Identify Gaps in Current Capabilities Needed to Support Selected Workloads

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]

#### Task 3: Produce Workshop Report

3.1. Team IBM will provide a final report focused on the analysis of cloud opportunities and the potential impacts of the selected top opportunities. It will contain the following sections:

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) (4)  
[Redacted]

3.2. Brief the report (in person or remotely) to DOI leadership

#### 6.2.1.1.2 Dependencies

In order to have an effective Cloud Strategy Workshop, DOI will make available the appropriate project, technical and test management personnel to attend the workshop and review the Cloud Strategy Workshop Report.

#### 6.2.1.1.3 Deliverables

DOI Cloud Strategy Workshop Report.

#### 6.2.1.1.4 Completion Criteria

This task is considered complete when the DOI Cloud Strategy Workshop Report is delivered to DOI and Team IBM has briefed the results of the report to DOI.

### 6.3 SAP Application Migration Approach

#### 6.3.1 Migration to AIX Planning

Team IBM has implemented some of the largest SAP infrastructures in the world. Team IBM services personnel have deep experience implementing the high availability environment DOI FBMS is planning. Team IBM's solution assumes resources on the ground for the first two migrations. This will allow DOI to control the process while receiving necessary help. Based on Team IBM's experience in migrating more than 5,700 customers, this is a very effective approach.

(b) (4)  
[Redacted]

The major activities within this task are:

- a. SAP Migration Workshop
- b. SAP Applications Analysis
- c. Deployment Planning
- d. Acceptance Test(s)/Criteria Analysis
- e. Project Plan Revision
- f. Project Revisions

The activities specific to this phase are broken down into detailed tasks, responsibilities and deliverables in the subsections that follow.

#### 6.3.1.1.1 SAP Migration Workshop

(b) (4)  
[Redacted]

(b) (4)

[Redacted]

#### 6.3.1.1.1.1 Tasks

The following Tasks will be performed:

- (b) (4)
- [Redacted]

#### 6.3.1.1.1.2 DOI Responsibilities/Dependencies

Team IBM is dependent on DOI to:

- Complete Technical Overview Questionnaire
- Run Database Discovery Scripts

DOI is responsible for coordinating attendance of DOI Project, Technical, and Test Management personnel for the workshop.

#### 6.3.1.1.1.3 Deliverables

There are no deliverables.

#### 6.3.1.1.1.4 Completion Criteria

This task is complete when the Workshop has been completed.

#### 6.3.1.1.2 SAP Application Analysis

As part of this activity, Team IBM will examine the SAP Landscape and in-scope database information supplied and perform analysis, as required.

#### 6.3.1.1.2.1 Tasks

The following tasks will be performed:

- (b) (4)
- [Redacted]

- (b) (4)

#### 6.3.1.1.2.2 DOI Responsibilities/Dependencies

DOI Project, Technical, and Test Management personnel are readily available to respond to questions and review analysis.

#### 6.3.1.1.2.3 Deliverables

There are no deliverables.

#### 6.3.1.1.2.4 Completion Criteria

This task is complete when the analysis is complete and the resultant output has been reviewed with DOI FCHS.

#### 6.3.1.1.3 Deployment Planning

Team IBM will review options for deploying the system into production and will document the overall approach in the Deployment Plan.

##### 6.3.1.1.3.1 Tasks

Develop, refine and solidify the deployment plan.

##### 6.3.1.1.3.2 DOI Responsibilities/Dependencies

DOI Project, Technical, and Test Management personnel are readily available to respond to questions and review the Deployment Plan.

##### 6.3.1.1.3.3 Deliverables

- Production Deployment Plan that outlines the activities associated with the PRD system cutover and will consist of the following, as appropriate, pre-cutover activities, migration cutover activities, and post-migration activities

##### 6.3.1.1.3.4 Completion Criteria

This task is complete when the Production Deployment Plan is delivered and accepted by DOI.

#### 6.3.1.1.4 Acceptance Test(s)/Criteria Analysis

Team IBM will examine the Acceptance Test(s)/Criteria supplied during the SAP Migration Workshop in order to understand the criteria for accepting the completion of the migration.

##### 6.3.1.1.4.1 Tasks

- (b) (4)

█ [Redacted]

█ [Redacted]

##### 6.3.1.1.4.2 DOI Responsibilities/Dependencies

DOI Project, Technical, and Test Management personnel are readily available to respond to questions and review analysis output.

##### 6.3.1.1.4.3 Deliverables

There are no deliverables.

##### 6.3.1.1.4.4 Completion Criteria

This task is complete when the Acceptance Tests/Criteria have been reviewed and the approach is agreed with Team IBM and DOI.

### 6.3.1.1.5 Project Plan Revision

(b) (4)

[Redacted]

#### 6.3.1.1.5.1 Tasks

- (b) (4)
- [Redacted]

#### 6.3.1.1.5.2 DOI Responsibilities/Dependencies

DOI Project, Technical, and Test Management personnel are readily available to respond to questions and review the revised project plan and proposed changes.

#### 6.3.1.1.5.3 Deliverables

- Revised Project Plan
- Program Change Request, as required

#### 6.3.1.1.5.4 Completion Criteria

This task is complete when the Project Plan has been delivered and approved.

### 6.3.2 Migration

(b) (4)

[Redacted]

**Proof Points**

IBM and SAP have successfully delivered over 10,000 installations to more than 8,000 enterprises. Internal to IBM, nearly 30,000 users employ SAP applications.

[Redacted]



(b) (4)

[Redacted text block]

The major activities within this task are:

1. (b) (4)
- [Redacted list item 1]

The activities specific to this phase are broken down into detailed tasks, responsibilities, and deliverables in the subsections that follow.

### 6.3.2.1 Verify Migration Pre-Requisites

#### 6.3.2.1.1 Tasks

Perform the following preparation steps:

- (b) (4)
- [Redacted list item]

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

**6.3.2.1.2 DOI Responsibilities/Dependencies**

The following preparation steps will be performed by DOI in coordination with Team IBM:

- Request adaptation of the SAP license for the target system(s)
- Request installation package(s) for the target system(s)
- Set up remote access to the source and target system(s)
- Acquire the SAP OS/DB Migration Check services
- Acquire the SAP GoingLive Check services
- Use SAP Logon Workload Balancing to allow users to logically logon to a Logon Group rather than a specific server, thus only the SAP message server DNS name or IP address should be referenced by SAPgui

**6.3.2.1.3 Deliverables**

There are no deliverables.

**6.3.2.1.4 Completion Criteria**

The download of the SAP Migration Toolsets is completed.

**6.3.2.2 Analyze the Source System**

DOI is responsible for analyzing the following areas of the Solaris source system to use as references for the design of the AIX target system:

- Distribution of file systems/raw devices on disks; NFS file systems, links, etc.
- Database configuration (number of log files, size of tablespaces/dbspaces)
- Configuration of the SAP System, distribution of central instance and dialog instances
- CCMS configuration (operation modes, profiles, etc.)
- Interface to other applications/machines
- Backup strategy
- Batch jobs – which jobs are assigned to which host?
- Methods of data archiving
- Printer configuration
- RFC configuration
- DOI FCHS-specific adaptations for SAP (scripts, data transfer from/to the SAP System, etc.)
- Additionally installed SAP tools (sapcomm, ArchiveLink, SNA gateway, etc.)





#### 6.3.2.2.1 Task

This DOI task to analyze the Source System is primarily a DOI task. Team IBM will have resources available to assist as requested by DOI.

#### 6.3.2.2.2 DOI Responsibilities/Dependencies

See Section 6.3.2.2.1.

#### 6.3.2.2.3 Deliverables

There are no deliverables.

#### 6.3.2.2.4 Completion Criteria

This task is completed when DOI has completed the Source System analysis and the specified Source System information (listed above) is provided by DOI to Team IBM.

#### 6.3.2.3 Define the Target System

IBM will provide consultation and input to define the following areas of the AIX target system:

- (b) (4) [Redacted]

#### 6.3.2.3.1 Tasks

Defining the following areas of the AIX target system to be used for the build of the new environment(s):

- (b) (4) [Redacted]

#### 6.3.2.3.2 DOI Responsibilities/Dependencies

There are no dependencies.

#### 6.3.2.3.3 Deliverables

There are no deliverables.

#### 6.3.2.3.4 Completion Criteria

This task is completed when the Target System Architecture & Design has been finalized.





### 6.3.2.5 Migration Run DEV, TST, TRN, PRDCOPY – ECC, BW, XI, EP, BI and SolMan

The tasks in this section will be repeated if/as appropriate for each of the in-scope landscapes. The procedure is used to migrate each system to the target system. This is a task that is shared between Team IBM and DOI. Team IBM is responsible for the AIX system/configuration, and DOI is responsible for the application environment.

The following systems are planned for Migration:

- (b) (4) [Redacted]

#### 6.3.2.5.1 Tasks

- (b) (4) [Redacted]

#### 6.3.2.5.2 DOI Responsibilities/Dependencies

- Validate migration approach and functionality of the target system(s)

- Test Runs
  - 1st Test: Technical Migration
- The following tasks will be performed during each of the Test Run(s)
  - Test required transactions with respect to functionality and performance
  - Test CCMS (operation mode switch, batch jobs, database backup)
- Final Run for Migration
  - Backup source system(s)
  - Acceptance Test of functionality of the target system
  - Go/No Go-Live decision
  - Backup target system – offline backup of the database
  - Switch productive operation to target system(s) (SAP is UP on the AIX target system)

#### 6.3.2.5.3 Deliverables

There are no deliverables.

#### 6.3.2.5.4 Completion Criteria

This activity is considered complete when the PRDCOPY, Dev1/Dev2, QAS1/QAS2, and TRN systems have been migrated to the target environment.

#### 6.3.2.6 Migration Run PRD – ECC, BW, XI, EP, BI and SolMan

The tasks in this section are used to migrate Production to the target system. This is a task that is shared between Team IBM and DOI. Team IBM is responsible for the AIX system/configuration, and DOI is responsible for the application environment.

##### 6.3.2.6.1 Tasks

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

##### 6.3.2.6.2 DOI Responsibilities/Dependencies

Team IBM is dependent on DOI for the application environment configuration. Validate migration approach and functionality of the target system(s).

##### 6.3.2.6.3 Deliverables

There are no deliverables.

##### 6.3.2.6.4 Completion Criteria

This activity is considered complete when the PRD system has been migrated to the target environment.



### 6.3.2.7 Test Runs – ECC, BW, XI, EP, BI and SolMan

The tasks in this section will be repeated for each of the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Test Runs if/as appropriate.

#### 6.3.2.7.1 Tasks

- (b) (4)
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

#### 6.3.2.7.2 DOI Responsibilities/Dependencies

- Offline backup of the database
- Test required transactions with respect to functionality and performance
- Test CCMS (operation mode switch, batch jobs, database backup)
- Technical Testing (1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Test)
- Business and Integration Testing (2<sup>nd</sup> Test)
- Infrastructure Testing (3<sup>rd</sup> Test)

#### 6.3.2.7.3 Deliverables

There are no deliverables.

#### 6.3.2.7.4 Completion Criteria

Testing against the testing criteria is complete which confirms successful SAP Applications PRD migration test to AIX.

### 6.3.2.8 Deployment to Production

This task is the final deployment to production.

#### 6.3.2.8.1 Tasks

- (b) (4)
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

- (b) (4)

#### 6.3.2.8.2 DOI Responsibilities/Dependencies

- Update the new AIX environment at DNS level. Make DNS changes, as well as roll-out of new SAP message server setting if needed
- Acceptance Test of functionality of the target system
- Go/No Go-Live decision
- Offline backup of the database
- Switch productive operation to target system(s) (SAP is UP on the AIX target system)

#### 6.3.2.8.3 Deliverables

Migration Report that describes the migrated environment, technical details of the migration process, issues and resolutions and lessons learned and will consist of the following, as appropriate:

- List of migrated environments
- List of files/configurations of the environments
- A detailed technical migration process document
- A detailed list of Issues and resolutions during the migration process
- A detailed list of the lessons learned during the duration of the project

There are no deliverables.

#### 6.3.2.8.4 Completion Criteria

SAP Applications PRD environment(s) on the AIX target system(s) meet(s) Acceptance Tests/Criteria, and the Migration Report has been delivered to DOI.

#### 6.3.2.9 Post-Go-Live Support

(b) (4)

##### 6.3.2.9.1 Tasks

(b) (4)

##### 6.3.2.9.2 DOI Responsibilities/Dependencies

There are no dependencies.

##### 6.3.2.9.3 Deliverables

There are no deliverables.

##### 6.3.2.9.4 Completion Criteria

Post-Go-Live support has been provided for the specified period.

Confirms that SAP Applications PRD environment(s) meet(s) Acceptance Criteria on the AIX target system(s).

#### 6.4 SAP Application Hosting Approach (PWS 5.1)

(b) (4)



(b) (4)

#### 6.4.1 Infrastructure-as-a-Service (PWS 5.4–5.6, 6.1–6.5)

Team IBM has taken DOI’s requirements for IaaS including application configurations, performance and availability characteristics and has estimated the corresponding configurations required to support the implementation in Team IBM’s SCG.

(b) (4)

(b) (4)

Applied to each of the VM and storage configurations are the value-added services to account for:

- **VM Availability** – (b) (4)
- **Systems Administration Services** – (b) (4)
- **Service Desk** – (b) (4)



Solution, Team IBM has estimated the call volumes by severity and year identified in **Table 6-3**.

**Table 6-3: Estimated Call Volumes by Severity**

*For the SAP Hosting Solution, Team IBM has estimated the call volumes by severity and year.*

Severity	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Total
Service Desk Band 2, Severity 1 and 2	<b>(b) (4)</b>								
Service Desk Band 2, Severity 3 and 4									
Estimated Calls/Year									

- **Resource Provisioning – (b) (4)**  
[Redacted]
- **ESM Services – (b) (4)**  
[Redacted]
- **Security Engineering – (b) (4)**  
[Redacted]
- **FISMA Services – (b) (4)**  
[Redacted]
- **Test and Audit Support**
  - **(b) (4)**  
[Redacted]
  - [Redacted]
  - [Redacted]
  - [Redacted]



- (b) (4)

- **Security Operations Center (SOC) Services** – (b) (4)

[Redacted]

**Table 6-4** documents the VM/Storage configurations that Team IBM has planned for the SAP Hosting Solution.

#### 6.4.1.1 Tasks

(b) (4)

#### 6.4.1.2 DOI Responsibilities/Dependencies

There are no dependencies.

#### 6.4.1.3 Deliverables

Updated VM/Storage configurations (**Table 6-4**) and revised pricing for the SAP Hosting environment, if required.

#### 6.4.1.4 Completion Criteria

This task is considered complete when the VM/Storage configurations have been validated and a Program Change Request has been submitted and approved if required.

#### 6.4.2 Automated Status Reporting (PWS 5.7, 6, 6.1–6.2)

(b) (4)

Team IBM provides the following monitoring information:

**Table 6-4: VM/Storage Configurations**

*VM/Storage configurations that Team IBM has planned for the SAP Hosting Solution.*

			FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Total
<b>VMs</b>			(b) (4)								
0005AF-S-AIX	High Memory	Extra Small									
0005AG-S-AIX	High Memory	Small									
0005AH-S-AIX	High Memory	Medium									
0005AJ-S-AIX	High Memory	Large									
0005AF-E-AIX	High Memory	Extra Small									
0005AG-E-AIX	High Memory	Small									
0005AH-E-AIX	High Memory	Medium									
0005AJ-E-AIX	High Memory	Large									
0005AK-E-AIX	High Memory	Extra Large									
<b>Total VMs</b>											
0001AA-S	Additional Processing Core	Additional Core									
0002AA	Additional Processing Memory	1 GB									
<b>Storage</b>											
0004AA-AIX	Class A Storage	High Speed {SAN}									
0004AB-AIX	Class B Storage	Low Speed {SAN}									



- **Availability – (b) (4)**  
[Redacted]
  - **Reliability: MTTR – (b) (4)**  
[Redacted]
  - **Usage and Response Time – (b) (4)**  
[Redacted]
    - [Redacted]
    - [Redacted]
    - [Redacted]
    - [Redacted]
  - **Disaster Response – (b) (4)**  
[Redacted]
  - **Resource Provisioning – (b) (4)**  
[Redacted]
- [Redacted]

#### 6.4.2.1 Tasks

At the start of the task order, Team IBM will:

- (b) (4)  
[Redacted]

#### 6.4.2.2 Dependencies

There are no dependencies.

### 6.4.2.3 Deliverables

Monthly Performance and SLA Report, which documents the performance of the system in terms of Availability, Reliability, and Usage/Response Time.

### 6.4.2.4 Completion Criteria

This task is completed at the end of the Period of Performance.

### 6.4.3 Incentives and Disincentives (PWS 5.10)

(b) (4)

[Redacted content]

The following process outlines the four steps for calculating Team IBM’s invoice adjustment and applying it to an invoice:

1. (b) (4)
- [Redacted content]

(b) (4)

**Table 6-5: Color Ratings for Service Levels.**

Team IBM will apply penalties and penalty offsets (b) (4)

SLA Score	Definition	Payment Adjustment
(b) (4)	(b) (4)	(b) (4)

**6.4.3.1 Task**

Team IBM will monitor the SLAs and on a monthly basis, calculate the appropriate financial impacts based on service level performance, and identify both conditions and financial impact amounts on invoices for services to DOI.

**6.4.3.2 Dependencies**

There are no dependencies.

**6.4.3.3 Deliverables**

Monthly Incentive and Disincentive Report.

**6.4.3.4 Completion Criteria**

This task is completed at the end of the Period of Performance.

**6.4.4 Operations and Maintenance**

Team IBM provides the following Operations and Maintenance services as part of the VM and Storage configurations.

**6.4.4.1 Tasks**

**Management and Updates**

- (b) (4)

**Maintenance and Support**

- (b) (4)

#### 6.4.4.2 Dependencies

There are no dependencies.

#### 6.4.4.3 Deliverables

There are no deliverables.

#### 6.4.4.4 Completion Criteria

This task is completed at the end of the Period of Performance.

#### 6.4.5 Security (PWS 7.3)

(b) (4)

[Redacted]

#### 6.4.5.1 Services Associated with SOC

##### 6.4.5.1.1 Monitoring and Response

- (b) (4)
- [Redacted]

##### 6.4.5.1.2 Scanning

- (b) (4)
- [Redacted]

##### 6.4.5.1.3 Systems

- (b) (4)
- [Redacted]

#### 6.4.5.2 Security Incident Response (PWS 7.3)

[Redacted]



(b) (4)

[Redacted text block]

### 6.4.5.3 Privacy (PWS 7.5)

Team IBM has the highly trained people and resources in place to comply with the provisions of the Privacy Act of 1974, especially with regard to the handling and protection of Personally Identifiable Information (PII) and other sensitive data. Team IBM is committed to minimizing risks to clients' systems and information. This may include personal information (PI), sensitive personal information (SPI), sensitive business information (SBI), and/or other sensitive data. It is Team IBM's responsibility to work with DOI stakeholders or system owners to identify which information should be classified as PI, SPI, SBI or Personal Health Information (PHI) and define the controls required to safeguard that information.

Team IBM has developed a Data Security and Privacy (DS&P) program to support projects with

(b) (4)

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

(b) (4)

#### 6.4.5.4 Authority to Operate (ATO) and Assessment and Authorization (A&A) Approach (PWS 7.3)

Team IBM has extensive experience in Security A&A using NIST, DIACAP, CoBiT, and other standards for a wide variety of Government Agencies such as The Department of Health and Human Services, the National Science Foundation, U.S. Customs and Border Protection, and the Department of Defense. For example, Team IBM performed A&A of the DoD Unclassified but Sensitive Internet Protocol Router Network (NIPRNet). In accordance with requirements, Team IBM will provide DOI with a System Security Plan and other documentation, such as a Plan of Actions and Milestones (POA&M) necessary for security accreditation purposes. The FDC reviews and updates POA&Ms quarterly.

Team IBM cooperates with external audits. Recent successful FDC audits, evaluations, and authorizations include (b) (4)-based security assessments by Federal agencies, as well as A-123 and FISCAM audits. FDC successfully passed the evaluations at The Departments of Housing and Urban Development (HUD), Justice (DOJ), and the Environmental Protection Agency (EPA) each issued an ATO at the Moderate level. The EPA ATO was issued in January 2012 after review of the FDC infrastructure and SmartCloud for Government collaboration software. The DOJ 9/11 Victims Compensation Fund ATO was issued for the SmartCloud for Government solution in December 2011. HUD completed its reauthorization evaluation for renewal of the ATO of a financial system in August 2012.

Moreover, Team IBM has a distinctive understanding of FedRAMP security requirements. In late 2009, Team IBM initiated a Task Force of relevant technical, legal, and policy experts across Team IBM to respond to GSA feedback requests and maintain a dialogue with the Government as FedRAMP was being developed. Consultants from Team IBM's Public Sector Cybersecurity and Privacy Service Area have also served as trusted advisors to and representatives of the DOD and DHS Joint Authorization Board, directly contributing to the development of the FedRAMP controls. In that capacity, Team IBM also participated in FedRAMP stakeholder working groups, such as the Cloud Computing Security Working Group and the CIO Council's Information Security and Identity Management Committee (ISIMC).

Team IBM has completed submission of a request for FedRAMP evaluation. On June 8, 2012 the Federal Risk and Authorization Management Program (FedRAMP) Program Management Office (PMO) confirmed receipt of the Team IBM FedRAMP Application Request Form for the Team IBM SmartCloud for Government. The Team IBM SmartCloud for Government system's FedRAMP assessment package number is (b) (4). Team IBM is in the process of selecting a FedRAMP approved 3PAO vendor for the evaluation, which is anticipated to be scheduled before the end of 2012. Team IBM will provide DOI, in a timely manner, with a Security Assessment Plan (SAP) and the resulting Security Assessment Report (SAR).

#### 6.4.5.5 Dependencies

There are no dependencies.

#### 6.4.5.6 Deliverables

There are no deliverables.



#### 6.4.5.7 Completion Criteria

This task is completed at the end of the Period of Performance.

#### 6.4.6 Quality Assurance

##### 6.4.6.1 Quality Assurance Approach

Team IBM has submitted a draft version of the Quality Assurance Plan (QAP) in Appendix A. Within 60 days of Program Start, Team IBM will review the QAP with DOI and update as required in order to baseline the document. Reference: “Volume II – Technical Proposal (IDIQ), DOI, Foundation Cloud Hosting Services” for a description of the Quality Assurance Process.

##### 6.4.6.2 Dependencies

There are no dependencies.

##### 6.4.6.3 Deliverables

Quality Assurance Plan.

##### 6.4.6.4 Completion Criteria

This task is completed when the Quality Assurance Plan is delivered to DOI.

#### 6.4.7 Service Desk

##### 6.4.7.1 Support Approach

##### Incident and Problem Management – (b) (4)

[Redacted]

[Redacted]

##### 6.4.7.2 Dependencies

Team IBM is dependent on DOI’s Tier 1 Help Desks to receive calls from SAP Hosting System Users and to determine if there is a problem with the SAP Hosting System. If there is a problem that needs to be reported to Team IBM, the Tier 1 Help Desk will call the Tier 1.5 Help Desk who will record the ticket and notify the Operations staff based on the proposed service level agreements.

##### 6.4.7.3 Deliverables

Monthly Call Processing Report

##### 6.4.7.4 Completion Criteria

This task is completed at the end of the Period of Performance.

## 7 Key Assumptions

### 7.1 Migration

a. (b) (4)

[Redacted content]

f. (b) (4)

[Redacted content]



1. (b) (4) [Redacted]

[Redacted]

[Redacted]

## 7.2 Hosting Services

a. (b) (4) [Redacted]

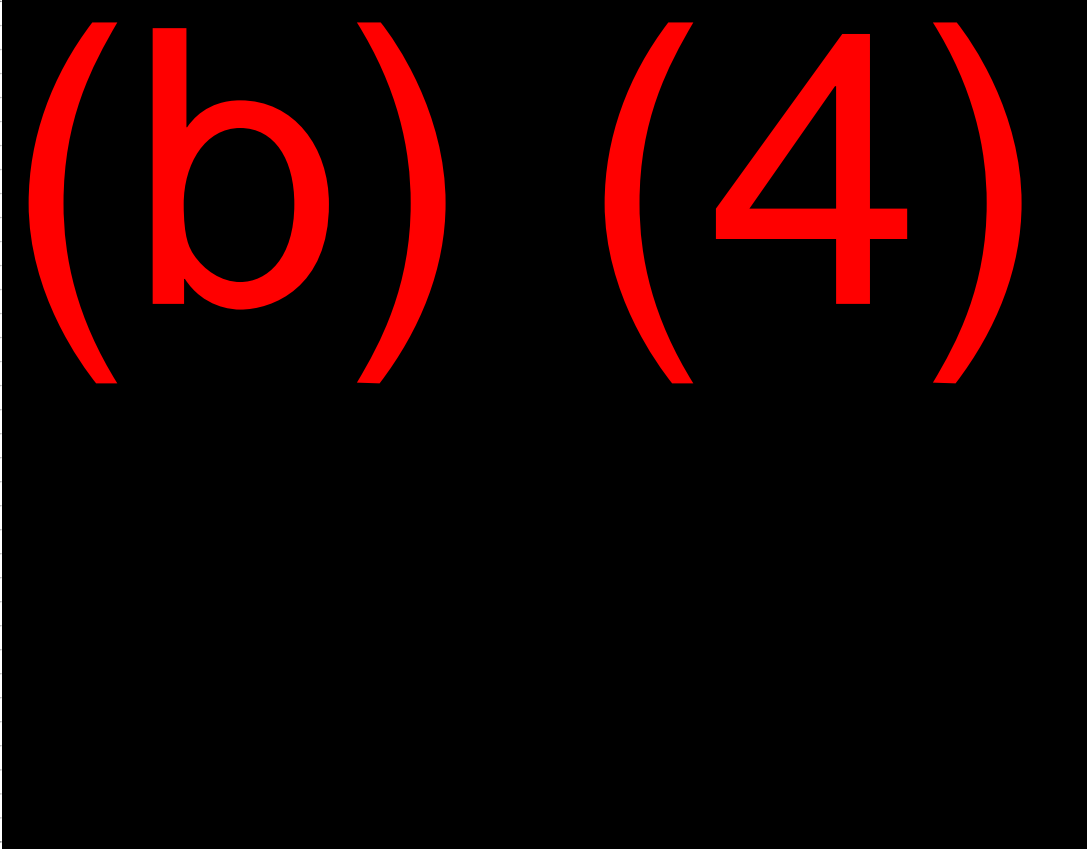
[Redacted]

## 8 Project Schedule

The draft project plan depicted in **Figure 8-1** provides a schedule of how the DOI migration will take place. This plan does not take into account DOI initiatives that may affect it. Upon award, Team IBM project management will work with DOI to update the plan to include DOI initiative dependencies and other tasks that may affect the transition dates to the IaaS environment.

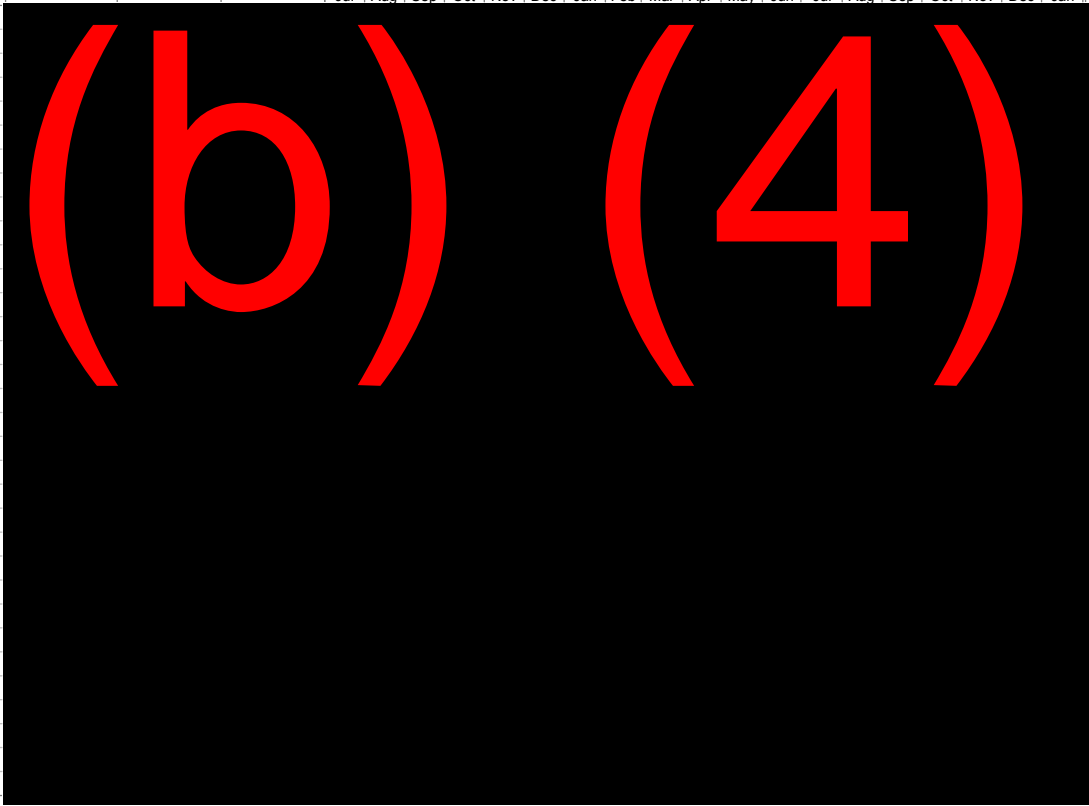
**Figure 8-1: Project Schedule**

ID	Task Name	Duration	Start	Finish	Qtr 1, 2013		Qtr 2, 2013			Qtr 3, 2013			Qtr 4, 2013			Qtr 1, 2014			Qtr 2, 2014		
					Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	<b>SAP Task Order</b>																				
2	Project Management																				
3	<b>Pilot Activities</b>																				
4	Cloud Readiness Assessment																				
5	M LESTONE IBM and DOI Complete Readiness Assessment																				
6	<b>Project Kick Off</b>																				
7	<b>Detailed Analysis (Migration Factory)</b>																				
8	Workshop																				
9	SAP Application Analysis																				
10	Acceptance Test Criteria Analysis																				
11	Project Plan Revision																				
12	Project Revisions																				
13	Review Meeting																				
14	MILESTONE BM and DOI Approve Detailed Analysis																				
15	<b>SAP Landscape Migration PILOT - SAP Application</b>																				
16	SAP Migration Preparation																				
17	M LESTONE: SAP Sandbox Environment RFU																				
18	Build Target Systems (PILOT)																				
19	<b>Migration Run (PILOT)</b>																				
20	<b>Test Run for Migration</b>																				
21	1st Test - Technical Migration - SAP Applications																				
22	<b>Final Run for Migration</b>																				
23	DOI Acceptance Test																				
24	M LESTONE: GO/NO Go Decision - to Continue with Full Mig																				
25	<b>Full Migration Activities</b>																				
26	M LESTONE: SAP Dev Environments RFU																				
27	<b>SAP Landscape Migration DEV - SAP Application</b>																				
28	SAP Migration Preparation																				
29	Build Target Systems (DEV)																				
30	<b>Migration Run (DEV)</b>																				
31	<b>Test Run for Migration</b>																				
32	1st Test - Technical Migration - SAP Applications																				
33	<b>Final Run for Migration</b>																				
34	DOI Acceptance Test																				
35	M LESTONE: SAP QAS Environments RFU																				





ID	Task Name	Duration	Start	Finish	Qtr 3, 2013			Qtr 4, 2013			Qtr 1, 2014			Qtr 2, 2014			Qtr 3, 2014			Qtr 4, 2014			Qtr 1,
					Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
36	<b>SAP Landscape Migration QAS - SAP Application</b>																						
37	Build Target Systems (QAS)																						
38	<b>Migration Run (QAS)</b>																						
39	<b>Test Run for Migration</b>																						
40	1st Test - Technical Migration - SAP Applications																						
41	<b>Final Run for Migration</b>																						
42	DOI Acceptance Test																						
43	MILESTONE: SAP Dev Environments RFU																						
44	<b>SAP Landscape Migration PRD - SAP Application</b>																						
45	Build Target Systems (PRD)																						
46	<b>Migration Run (PRD)</b>																						
47	<b>Test Run for Migration</b>																						
48	1st Test - Technical Migration - SAP Applications																						
49	2nd Test - Technical Migration - SAP Applications																						
50	3rd Test - Technical Migration - SAP Applications																						
51	<b>Final Run for Migration</b>																						
52	DOI Acceptance Test																						
53	<b>Transition to Production</b>																						
54	Deployment Planning																						
55	GO/NO Go Decision																						
56	Offline Backup of Database																						
57	Switch Production Operations to Target System																						
58	Milestone: Production Starts (Go-Live)																						
59	Post Go-Live Support																						
60	MILESTONE: SAP Training Environment RFU																						
61	<b>SAP Landscape Migration TRN - SAP Application</b>																						
62	Build Target Systems (TRN)																						
63	<b>Migration Run (TRN)</b>																						
64	<b>Test Run for Migration</b>																						
65	1st Test - Technical Migration - SAP Applications																						
66	<b>Final Run for Migration</b>																						
67	DOI Acceptance Test																						
68	Project Completion on Signoff																						



## 9 Delivery Schedule and Acceptance Process

**Table 9-1** illustrates the deliverables associated with the performance work statement for SAP application hosting.

**Table 9-1: Deliverable Schedule**

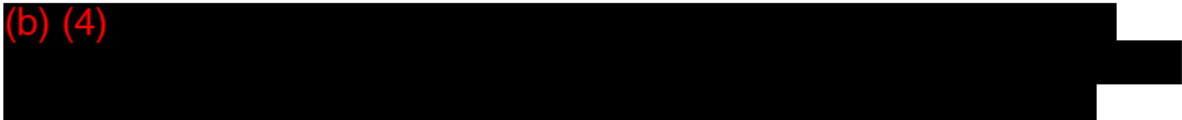
Deliverable or Milestone	Schedule
<b>Deliverable:</b> Production of the base period project plan with milestones (Project Plan)	(b) (4)
<b>Deliverable:</b> Cloud-readiness evaluation of the FBMS infrastructure and program (DOI Cloud Strategy Workshop Report)	
<b>Deliverable:</b> Migration Report	
<b>Deliverable:</b> Finalize the proposed Quality Assurance Plan with the PMO and secure approval (Quality Assurance Plan)	
<b>Deliverable:</b> Preparation of the cloud hosting transition plan in collaboration with the FBMS Program Management Office (Production Deployment Plan)	
<b>Deliverable:</b> Updated VM/Storage Configuration Table 6.4 and Pricing File	
<b>Milestone:</b> Pilot transition of an FBMS environment to the cloud hosting service and pilot testing	
<b>Milestone:</b> Management of the FBMS cloud transition and testing	
<b>Milestone:</b> Ongoing Infrastructure-as-a-Service operations management	
<b>Deliverable:</b> Monthly Progress Meeting (Monthly Performance and SLA Report, Monthly Service Desk Call Report)	
<b>Deliverable:</b> Weekly Status Reports	

### 9.1 Deliverable Acceptance Procedure

Each SAP technical delivery will be made in accordance within the established deliverable process guidelines. For purpose of delivery, deliverables will be delivered by close of business 5 p.m. local time at destination, Monday through Friday. Team IBM and FBMS PMO will work together and agree on the layout and content of the deliverable to make sure that a deliverable meets the expected outcome.

Team IBM will submit the base period project plan to the FBMS COTR before other work (other than the cloud-readiness evaluation) commences no later than 30 days after the award of this contract, unless otherwise directed by the FBMS COTR. When the base period project plan is approved, by the FBMS COTR, the agreed-upon deliverables will be accepted by DOI as per the process defined below:

- (b) (4)





(b) (4) [Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

## 9.2 Completion Criteria

### 9.2.1 Migration and Hosting Completion Criteria

For the SAP migration project, Team IBM and DOI will meet to review deliverables and provide sign-off on the Acceptance Criteria. Expected participants are project stakeholders, technical and test management personnel along with Team IBM and DOI project management. At the conclusion of the meeting, if Team IBM and DOI agree that the SAP Applications environment(s) meets the agreed upon Acceptance Criteria the project will be considered complete and project sign off documentation will be completed. This will signify the end of the migration and transition project.

### 9.2.2 Project Completion Criteria

Team IBM's obligations of this work under this work order will be met when one of the following have occurred: (b) (4)

[Redacted]

## 10 Past Performance References

IBM brings extensive knowledge, capabilities, and experience leading and managing complex IT programs. We provide secure cloud hosting environments, data center consolidation, and application migration services, with low risk transition. IBM successfully delivers hosting environments using industry leading software suites, tools, methodologies, lessons learned, best practices, and core industry experience. We manage over 400 data centers with 1,100 mainframes and 200,000 midrange servers and own 238 data centers, including FISMA-compliant, energy-efficient, "green" data centers and 10 call centers.



### 10.1 IBM – DOI Financial and Business Management System (FBMS) Implementation

<b>1. Complete Name of Government Agency, Commercial Firm, or Other Organization:</b> U.S. Department of Interior (DOI)	
<b>2. Complete Address:</b> 1849 C Street, NW, Washington DC 20240	
<b>3. Contract Number or other Reference:</b> 1406-0406-CT-60485	<b>4. Date of Contract:</b> 2/2006 <b>4b. Type of Contract:</b> Fixed Price
<b>5. Date Work was Begun:</b> 2/2006	<b>6. Date Work was Completed:</b> 2/2014
<b>7. Estimated Contract Price:</b> \$(b) (4)	<b>8. Final Amount Invoiced or Amount Invoiced to Date:</b> \$163M
<b>9a. Technical Point of Contact (name, title, address, telephone no. and e-mail address):</b> Stacey Diamond, COTR 13461 Sunrise Valley Drive Suite 140 Herndon, VA 20171 (703) 793-5552 Stacey_Diamond@fbms.doi.gov	<b>9b. Contracting or Purchasing Point of Contact (name, title, address, telephone no. and e-mail address):</b> Terrie L. Callahan, Contract Officer 381 Elden Street, Mail Stop 2500 Herndon, VA 20170-4817 (703) 964-3596 terrie.callahan@aqd.nbc.gov
<b>10. Location of Work (country, state or province, county, city):</b> Herndon, VA and Denver, CO <b>10b. Key Personnel:</b> N/A	
<b>11. Description of contract work:</b> <b>Scope of Work</b> – Team IBM provides complete support for the DOI implementation of FBMS, performing the full range of integration and implementation services for this complex project consisting of 12+ SAP modules, 65+ interfaces, two project locations, and ten bureaus. Scope includes system design, development, implementation, testing, integration, transition, migration, program management, application management business process redesign, organizational change management, training, knowledge transfer, and data conversion. We have been performing on this program since February 2006 when DOI replaced its system integrator (SI) and awarded Team IBM a contract to assist with the new solution, replacing 80 outdated systems with a fully integrated SAP ERP solution. Team IBM successfully transitioned FBMS from the previous SI after 2 years of work, one deployment of the eGrants (non-SAP) system, and the imminent deployment of another release. <b>SAP Implementation Support</b> – Team IBM worked with DOI and deployed the initial release (D2) of the SAP solution in less than 9 months after contract award. We have completed five successful deployments of the FBMS solution at the DOI. Team IBM manages new deployments to DOI bureaus. We are currently working with DOI on the final preparation phase of Deployment 7 which focuses of Indian Affairs (IA) and National Park Service (NPS). Additionally, we are in the blueprint phase for Deployment 8 focusing on the Bureau of Reclamation (BOR), which is the last bureau to be implemented in FBMS. Team IBM acquired the work February 28, 2006 and started on-site with DOI on March 1, 2006, with the SAP deployment on November 13, 2006. The transition did not hinder our ability to meet an aggressive implementation schedule. Team IBM successfully transitioned ongoing deployment operations and maintenance support of the FBMS production solution to the DOI, emphasizing knowledge transfer and a mechanism for ongoing communication and reach back to assist with resolution of operations issues as necessary. Key to the success of the FBMS implementation has been to harmonize the solution with standardized processes across the bureaus that compose the DOI, while preserving essential unique functionality. The FBMS design accommodates changes in Federal laws and regulations regarding financial and business management processes. We continually work with the DOI to develop effective mitigation processes and controls and perform monitoring of the active risks. While the National Business Center supports the hardware, network and databases for the FBMS solution, the Team IBM FBMS project Team also is responsible for the SAP and non-SAP applications (i.e., PRISM and Open Text) that make up the FBMS technical infrastructure environment. The FBMS and NBC Teams work closely together configuring, upgrading, and patching the underlying systems that support FBMS. We work with DOI and SAP to maintain the technology and applications to the current levels by upgrading or implementing enhancement packs aligned with major deployments to	





minimize impacts to production while keeping up with technology updates. These services were transitioned to the DOI after Deployment 5.

Team IBM led Integration and User Acceptance Testing, with participation from the deployed and deploying bureaus that consisted of the development of business scenarios, validation of results, and fixes to any scenarios that did not achieve the expected results. Team IBM was also responsible for supporting the security of the system prior to deployment. This included development of the certification and accreditation documentation and handling the initial user setup, as well as controlling user access in the development environments. Security services were transitioned to the DOI after Deployment 5.

The FBMS solution is integrated with external systems and other DOI systems including bureau-specific applications, travel, procurement, grants, and payroll. In Deployment 3, Team IBM integrated PRISM acquisition and Open Text application into the FBMS solution. Team IBM has developed solutions to handle several complex integration scenarios in FBMS. In each case, the objects are developed so that they are reusable and maintainable to ease the management of these interfaces. Team IBM has also used new technology such as Web Services, where applicable. FBMS uses Intermediate Documents (IDOCs) and Business Application Programming Interfaces (BAPIs) to access SAP data using XI/PI as the integration broker.

Team IBM manages the FBMS end user training activities that include curriculum development for computer based training (CBT), instructor led training (ILT), and knowledge transfer (KT) training. Team IBM also conducts pilot, ILT, and KT training. During the past five deployments, we have trained more than 5,200 end users across the deployed bureaus situated in multiple locations. In Deployment 7, the combined Team IBM/DOI Training Teams are anticipated to train 5,000+ end users at IA and NPS bureaus in multiple locations.

Our approach to implementing FBMS is based on AscendantSAP and aligned with Project Management Body of Knowledge (PMBOK) and ITIL. The FBMS project has achieved CMMI Level 3 through an independent appraisal. Team IBM consists of Team IBM employees, and a number of selected subcontractors. FBMS is a performance based contract that holds Team IBM accountable for the delivery of results with our Quality Assurance Surveillance Plan (QASP).

There have not been any performance problems or conflicts with the customer in our support of this project.

**11a) Producing high-quality reports and other deliverables; staying on schedule and within budget:** Since 2006, Team IBM has been working closely with the DOI to successfully implement five deployments. Since Deployment 5, Team IBM has successfully passed 22 consecutive unqualified milestone gate reviews.

Team IBM FBMS Team has received exceptional ratings in the service delivery categories in its Task Order 4 through 6 CPAR.

**11b) Quality of cooperation within your organization and quality of cooperation and performance between your organization and its customers:** Since 2008, the Team IBM and DOI FBMS Teams have vastly improved the overall quality of cooperation that has resulted in a one Team approach. Team IBM has proactively brought in subject matter specialist to address key client concerns such as, screen usability, training delivery, system performance, Personal Identifiable Information (PII) data handling, audit logging, and internal controls. The Team IBM Project Team has also provided staff from various organizations within Team IBM to deliver the FBMS solution such as Maximo integration and Rational customizations.

**11c) Approach to implementing performance measures and for improving system effectiveness over time:** Beginning in 2006, the FBMS Project Team has consistently identified lessons learned after each deployment and instituted corrective actions as part of the planning effort for the future deployments. This ongoing process improvement has greatly advanced the overall quality of our deployments as measured by the lower rework counts on project documentation and the trend in fewer defect counts found in integration testing.

In Deployment 6, the Team IBM and DOI FBMS Team have worked closely to implement an integrated Continuous Process Improvement and Risk Management (CPIR) process. This process has been a great success on the FBMS Project. Project risks, issues, corrective actions, improvement actions, and lessons learned are managed by this process. As a result, project Team members are more proactive in identifying risks, lessons learned and corrective actions. The project management Team has been able to better manage these activities in an integrated manner.



Team IBM FBMS Team has received exceptional ratings in the service delivery categories in the Task Order 4 through 6 CPAR.

**11d) Responsiveness to requests, both scheduled and ad hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:** The FBMS Project Team has been very consistent in responding to the client’s requests and providing the requested services, analysis and other tasks in a timely manner. In the majority of cases, these activities have been very well received by the client, and in some cases have received praise from others outside the client’s organization.

**12. Current Status of Contract:** Work continuing, on schedule.

**10.2 IBM – Navy ERP Professional Services Support (PSS1)**

<b>1. Complete name of Government Agency, Commercial Firm, or Other Organization:</b> U.S. Department of the Navy, ERP Program Management Office, Professional Support Services (PSS1)	
<b>2. Complete Address:</b> 2551 Riva Road, Annapolis, MD 21401	
<b>3. Contract Number or other Reference:</b> N00178-05-D-4364-NS01	<b>4. Date of Contract:</b> 4/2010 <b>4b. Type of Contract:</b> CPAF
<b>5. Date Work was Begun:</b> 4/2010	<b>6. Date Work was Completed:</b> 3/2013
<b>7. Estimated Contract Price:</b> \$(b) (4)	<b>8. Final Amount Invoiced or Amount Invoiced to Date:</b> Amount invoiced to date: \$130M
<b>9a. Technical Point of Contact (name, title, address, telephone no. and e-mail address):</b> Mr. Terry Carpenter, DPM for Production 2551 Riva Road Annapolis, MD 21401 (443) 321-5821 terry.carpenter2@navy.mil	<b>9b. Contracting or Purchasing Point of Contact (name, title, address, telephone no. and e-mail address):</b> Mr. David Bodner, Contracting Officer SPAWAR HQ, 4301 Pacific Highway San Diego, CA 92110 (703) 946-0123 David.Bodner@navy.mil
<b>10. Location of Work (country, state or province, county, city):</b> Annapolis, MD <b>10b. Key Personnel:</b> N/A	
<b>11. Description of contract work:</b> Team IBM is the prime contractor for the U.S. Navy’s Enterprise Resource Planning (ERP) ACAT I program. Navy ERP is one of the single largest and complex enterprise wide implementation of SAP in history and currently supports approximately 60% of the Navy; with the Fleet Forces Command and the Pacific Fleet Command being among the remaining major claimants converting to ERP in the future. Navy ERP is perhaps the single most ambitious enterprise business transformation project ever undertaken by the Navy and Team IBM has been the Navy’s Prime contractor from the beginning. Since June 2006 and for the duration of this contract, Team IBM and its subcontractors support all phases of the Navy ERP PSS 1 program, including development, deployment, training, and sustainment support services. In addition, Team IBM is the prime contractor for the Navy ERP Release 1.1 Single Supply Chain Solution. Through these efforts, Team IBM has been a direct contributor to the Navy’s success by assessing, analyzing, and transforming every component of the Navy’s enterprise business process. Team IBM provides requirements definition, documentation and traceability, business process design/re-design, application configuration, workflow reporting, data management, organizational change management, end user training, and compliance testing. Additional work performed includes strategic planning, organizational change management, enterprise communications, demand forecasting, program management, performance metrics formulation, measurement and assessment, budget/financial management, workforce management analysis, acquisition/contracting, and supply chain/logistics operations, which are required services in the Warfare Enterprise performance work statement. SAP modules being implemented at Navy ERP include: Financial Accounting (FI), Controlling (CO), Funds Management (FM), Sales and Distribution (SD), Materials Management (MM- Pur/MM-IM), Warehouse Management (WM), Project System (PS), Asset Management (AM), and Human Resources (HR), Business Warehouse (BW), and the SCM modules.	



<p><b>11a) Producing high-quality reports and other deliverables; staying on schedule and within budget:</b> Team IBM has provided accurate and timely ongoing reporting of the aspects of our support during the duration of this program. In recognition and documentation of Team IBM’s superb performance, the most recent Navy Award Fee Evaluation Board presented Team IBM with an award fee of 99.91% for its work on the PSS1 contract.                  Regarding reporting, the Award Fee Evaluation Board recently stated, “The PSS1 Team maintained timely and accurate financial reporting on a weekly, monthly, and quarterly basis and facilitated clear lines of communication with Government leads in base lining staffing with appropriate skill sets to the planned work.”</p>
<p><b>11b) Quality of cooperation within your organization and quality of cooperation and performance between your organization and its customers:</b> Team IBM supports the deployment of Navy ERP by conducting detailed assessments of the impact to the users and stakeholders as they transition to ERP. As new ERP skill requirements are determined and documented, Team IBM orchestrates training strategies and plans that key on the development/refinement of ERP training materials which are “localized” for each command to support their specific needs. Team IBM validates, updates, and populates a training environment with sample data and training scenarios that simulate the future Navy ERP operating environment. To anticipate and minimize barriers to change, Team IBM also conducts extensive organizational change management activities through our on-site support Team to support current and future deployments, and extensive, ongoing communications in advance, during, and after ERP deployments. Individuals with the workforce receive useful, easy to understand, and relevant hands on training that is designed to increase competence and confidence to operate effectively in the future Navy ERP environment.</p>
<p><b>11c) Approach to implementing performance measures and for improving system effectiveness over time:</b> Navy ERP relies on Team IBM to provide industry’s proven best practices to enable standardized business processes, while continuing to deliver quality performance, support, and deployment of new SAP functionality, at reduced program costs. As a central part of its ERP strategy, the Navy relies on Team IBM, as its industry prime contractor, to bring process experience and thought leadership to its mission critical program. Most importantly Team IBM has demonstrated innovations that achieve significant efficiencies and reductions in total sustainment cost that contribute directly to future Navy ERP readiness.</p>
<p><b>11d) Responsiveness to requests, both scheduled and ad hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:</b> Navy ERP was assisted by Team IBM to successfully transform once numerous, costly, and highly inaccurate legacy process and applications to a single standard streamlined Navy enterprise business methodology. These accomplishments directly contribute to improved business systems and processes, readiness, affordability, and responsiveness. Team IBM continues to help shape, develop, and refine the Navy’s ERP vision by continuously demonstrating how a commercial of the shelf product (SAP) could perform, and perform well, in a complex Navy enterprise environment. Team IBM works closely to support the accomplishments of fleet missions through the use of continuous process improvement, sound organizational alignment, and enhanced decision making on allocation of resources and risk mitigation to support current readiness and program effective execution. Team IBM develops and continues to refine its enterprise assessment tools for Navy Leadership and Program Managers to measure business performance and to determine the technical feasibility of employing Navy ERP in a deliberate and phased manner.</p>
<p><b>12. Current Status of Contract:</b> Work continuing, on schedule.</p>

### 10.3 IBM – Adobe SAP Migration Support

<b>1. Complete name of Government agency, commercial firm, or other organization:</b> Adobe Systems, Inc.	
<b>2. Complete address:</b> 345 Park Ave. San Jose, CA 95110-2704	
<b>3. Contract number or other reference:</b> N/A	<b>4. Date of contract:</b> 1/2011
	<b>4b. Type of contract:</b> Time and Material
<b>5. Date work was begun:</b> 01/2011	<b>6. Date work was completed:</b> 10/2011
<b>7. Estimated contract price:</b> Confidential	<b>8. Final amount invoiced or amount invoiced to date:</b> Confidential



<p><b>9a. Technical point of contact (name, title, address, telephone no. and email address):</b>          Paulette Scheffer          Senior Director of Core Infrastructure and Service Management          151 Almaden Blvd, San Jose, CA          (408) 536-3907          paulette@adobe.com</p>	<p><b>9b. Contracting or purchasing point of contact (name, title, address, telephone no. and email address):</b>          Paulette Scheffer          Senior Director of Core Infrastructure and Service Management          151 Almaden Blvd, San Jose, CA          (408) 536-3907          paulette@adobe.com</p>
<p><b>10. Location of work (country, state or province, county, city):</b> San Jose, CA  <b>10b: Key Personnel:</b> N/A</p>	
<p><b>11. Description of contract work:</b> Employing more than 9,000 people, Adobe Systems Incorporated (Adobe) provides tools and services that enable its customers to create groundbreaking digital content and deploy it across media and devices such as tablets and smart phones. Increasingly Adobe requires very fast response to new trends, which in turn generate demand for new business services that the IT department must satisfy as rapidly and cost-effectively as possible.</p> <p>Adobe runs its business and general management processes using SAP® ERP applications. Underlying the SAP software was a traditional server architecture, which over time had led to a proliferation of physical machines. With multiple instances of SAP applications, each one with production development and test servers, Adobe was running more than 120 machines. Adobe asked IBM to help it gain the agility to respond to the demands of business growth and its changing business model. As part of Adobe’s larger IT Transformation program, IBM assisted Adobe with its move from a traditional server environment to a fully virtualized environment, with private cloud capabilities providing Infrastructure-as-a-Service (IaaS) based on IBM pSeries servers and virtualization technology.</p> <p>Working with the IBM Migration Factory, Adobe consolidated the standalone servers and business-critical SAP systems and Oracle databases to just five IBM pSeries servers running the IBM AIX operating system. With the new servers installed, IBM then helped move the business-critical SAP applications and Oracle databases from the legacy Sun servers to the new IBM servers.</p> <p>As part of our transition support, IBM provided end-to-end migration services including assessment, design and planning, target environment, migration and go live, and post go-live system checks. A key element of IBM’s risk management was that we performed two mock cutovers, which enabled the team to work through every possible issue ahead of time before going into full production.</p> <p>IBM support of this project demonstrates our successful migration of a SAP system into an end-to-end virtualized cloud environment. In fact, IBM migrated SAP and Oracle from Sun Solaris-based platform to IBM pSeries running AIX, which is IBM’s UNIX offering. For the Day One Task Order, Team IBM is proposing a similar migration from DOI FBMS Sun Solaris to the pSeries with the AIX operating environment. The use of the AIX operating system meets a key DOI preference: to continue to run SAP on a UNIX/Oracle platform.</p> <p>Adobe estimated total project savings and cost avoidance in physical systems, license fees, maintenance costs, and energy from its IaaS Project will come to \$60 million over five years, and the IBM and SAP portion has greatly contributed to that number.</p>	
<p><b>11a) Producing high quality reports and other deliverables; Staying on schedule and within budget:</b> IBM managed the project using our World Wide Project Management Methodology (WWPMM) which is aligned with the Project Management Institute’s (PMI) Project Management Body of Knowledge® (PMBOK). We provided timely reports and other deliverables including project plan and documentation related to migration tools, metrics, process expertise, and other IBM standards. IBM met all schedule and budget requirements for the project.</p>	
<p><b>11b) Quality of cooperation within your organization and performance between your organization and its customers:</b> Multiple practice areas within IBM worked together to coordinate Adobe migration support including the IBM Systems Technology Group, Software Group, and the IBM Migration Factory, which is a specialized competency in the Application Management Services area of Global Business Services. “We were really impressed by how smoothly the migration went,” said Paulette Scheffer, Senior Director of Core Infrastructure and Service Management, Adobe. “From the very beginning, we invited IBM to sit down with us at the planning table, and we all worked as a single</p>	





team. It was that integration between our two organizations that got us to where we needed to be. The IBM Migration Factory did an outstanding job. Once live the entire environment was stabilized in less than five days.”

**11c) Approach to implementing performance measures and for improving system effectiveness:** IBM implemented an optimized infrastructure and simplified landscape, which has made the system easier and more cost-effective to manage. The servers that previously took weeks to procure and set up are now enabled in a matter of hours, greatly speeding the time to market for new offerings. The former servers were typically utilized between 10 to 15 percent, and although the total processing capacity was high, Adobe was unable to use it effectively. In the virtualized server environment, the total compute capacity can be more accurately sized to meet the average maximum requirements, with processor utilization in the high 80 percent range. Additionally, with fewer processors, Adobe operating system and database license fees have been cut dramatically, by approximately 40 percent. According to Paulette Scheffer, “We actually achieved the exact same performance on SAP using only half of the compute and memory resources of the legacy solution, and we were getting as much out of our landscape as we possibly could. For a lower cost, we were able to achieve the exact same performance. By investing the money we saved on additional capacity, we actually improved performance worldwide on SAP, which has been a big home run for us, as SAP performance had always been a big challenge in the past.”

**11d) Responsiveness to requests, both scheduled and ad-hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:** Paulette Scheffer said, “The IBM team hit the ball out of the park. In addition to addressing the technical challenges of the solution, they took the future direction of the business into account – that really set IBM apart from the pack. In fact, IBM’s vision was so impressive that it forms the whole basis for the strategy that we’re deploying today.”

**12. Current status of contract:** Work completed, no further action pending or underway.

#### 10.4 (b) (4) – American Greetings Corporation (AGC)

<b>1. Complete name of Government agency, commercial firm, or other organization:</b> American Greetings Corporation	
<b>2. Complete address:</b> One American Road, Cleveland, OH 44144-2398	
<b>3. Contract number or other reference:</b> N/A	<b>4. Date of contract:</b> December 2011 <b>4b. Type of contract:</b> T&M
<b>5. Date work was begun:</b> December 2011	<b>6. Date work was completed: (end date of contract):</b> Ongoing, multi-year deployment
<b>7. Estimated contract price:</b> \$(b) (4)	<b>8. Final amount invoiced or amount invoiced to date:</b> Existing contract will be extended as additional SAP modules are deployed.
<b>9a. Technical point of contact (name, title, address, telephone no. and email address):</b> Robert Hunt, Manager of Storage <a href="mailto:Robert.hunt@amgreetings.com">Robert.hunt@amgreetings.com</a>	<b>9b. Contracting or purchasing point of contact (name, title, address, telephone no. and email address):</b> Robert Hunt, Manager of Storage <a href="mailto:Robert.hunt@amgreetings.com">Robert.hunt@amgreetings.com</a>
<b>10. Location of work (country, state or province, county, city):</b> American Greetings corporation, Cleveland, OH, USA <b>10b: Key Personnel:</b> (b) (4) Personnel: <ul style="list-style-type: none"> <li>• (b) (4) SAP Storage Management Expert</li> <li>• (b) (4) DB2 Storage Management Expert</li> <li>• (b) (4) Storage SE</li> </ul>	
<b>11. Description of contract work:</b> Scope of Work: <ul style="list-style-type: none"> <li>• Configure SnapManager for DB2 to support SAP landscapes</li> <li>• Configure SAP landscapes to support existing CRM production environment</li> <li>• Move existing SAP CRM production environments from IBM storage to (b) (4) Inc.</li> <li>• Setup operational utilities, backups, etc., on (b) (4) Inc.</li> <li>• Configure SAP landscapes to support deployment of additional SAP applications</li> </ul>	



<p><b>11a) Producing high quality reports and other deliverables; Staying on schedule and within budget:</b> (b) (4) professional services management conducts weekly status calls with the customer to ensure timely delivery of quality deliverables. In addition, the sales team meets with the customer monthly to review any issues that need the attention of (b) (4) management.</p>
<p><b>11b) Quality of cooperation within your organization and performance between your organization and its customers:</b></p> <ul style="list-style-type: none"> <li>• (b) (4) relationship with customer is excellent. Customer is providing a press release for upcoming launch of (b) (4) 32XX product line and has presented at VMWare and other conferences on (b) (4) behalf</li> <li>• Relationship with value-added reseller (Datalink) is also excellent</li> </ul>
<p><b>11c) Approach to implementing performance measures and for improving system effectiveness over time:</b> Key Customer reasons for purchasing (b) (4)</p> <ul style="list-style-type: none"> <li>• FlexClones to accelerate SAP deployment schedules and to reduce the amount of storage needed for non-production environments</li> <li>• Ability to scale out in Clustered Data ONTAP non-disruptively is key element of this solution</li> </ul>
<p><b>11d) Responsiveness to requests, both scheduled and ad-hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:</b> Relationship is excellent with the customer; rarely have any issues that need to be raised to (b) (4) management.</p>
<p><b>12. Current status of contract (choose one):</b></p> <ul style="list-style-type: none"> <li>• Scope of work is a multi-year deployment of SAP</li> <li>• Work is ongoing and will continue for the duration of the deployment of SAP (at least 2 more years as we deploy more applications and move them to Clustered ONTAP)</li> </ul>

**10.5 (b) (4) – SAP, AG**

<p><b>1. Complete name of Government agency, commercial firm, or other organization:</b> SAP, AG</p>	
<p><b>2. Complete address:</b> Dietmar Hopp Allee 16, 69190 Walldorf, Germany</p>	
<p><b>3. Contract number or other reference:</b> SAP has been a (b) (4) customer and partner for over 10 years and has invested triple digit millions of dollars over that timeframe.</p>	<p><b>4. Date of contract:</b> Between 2003 and 2012, (b) (4) installed base at SAP has grown to over 32PB</p> <p><b>4b. Type of contract:</b> Most contracts were firm fixed price apart from a 4 year managed service offering with Fujitsu.</p>
<p><b>5. Date work was begun:</b> See above.</p>	<p><b>6. Date work was completed:</b> Ongoing relationship.</p>
<p><b>7. Estimated contract price:</b> See Section 3.</p>	<p><b>8. Final amount invoiced or amount invoiced to date:</b> See Section 3.</p>
<p><b>9a. Technical point of contact (name, title, address, telephone no. and email address):</b> Bernd Himmelsbach, VP Cloud Services <a href="mailto:Bernd.himmelsbach@sap.com">Bernd.himmelsbach@sap.com</a> +496227741467</p>	<p><b>9b. Contracting or purchasing point of contact (name, title, address, telephone no. and email address):</b> Armin Sahlmen, Senior Purchasing Agent <a href="mailto:Armin.sahlmen@sap.com">Armin.sahlmen@sap.com</a> +4962277-65139</p>
<p><b>10. Location of work (country, state or province, county, city):</b> (b) (4) is deployed at SAP in over 30 countries. The main hubs are Germany, USA east Coast and Singapore. Cloud services are hosted from Germany and various locations in the U.S.</p> <p><b>10b: Key Personnel:</b> N/A</p> <p>(b) (4) has a dedicated team covering SAP in Germany and has virtual resources covering SAP globally. The account team works closely with SAP subject matter experts from the (b) (4) competence center for SAP based in Walldorf, Germany.</p>	



<p><b>11. Description of contract work:</b> (b) (4) is deployed in many divisions, with differing architectures and differing applications. Major areas of deployment are SAP SW production, VMWARE private clouds and external SAP Software-as-a-Service cloud offerings.</p>
<p><b>11a) Producing high quality reports and other deliverables; Staying on schedule and within budget:</b> (b) (4) has been proven to be quick to implement.</p>
<p><b>11b) Quality of cooperation within your organization and performance between your organization and its customers:</b> (b) (4) are very closely integrated within SAP at sales, support and development levels.</p>
<p>11c) Approach to implementing performance measures and for improving system effectiveness over time: (b) (4) storage efficiencies have been deployed at SAP for roughly 4 years and has vastly improved our utilization. Performance features such as FlashCache has helped to achieve efficiencies without performance degradation.</p>
<p><b>11d) Responsiveness to requests, both scheduled and ad-hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:</b>                  The (b) (4) onsite team is very responsive to this type of request and are seen as part of the SAP team. Over the years the (b) (4) alliance team has co-developed several integration features fro SAP such as adaptive computing for which they received the SAP Pinnacle award. Currently SAP deploy HANA appliances which feature (b) (4) SAP's Virtualization landscape manager product was developed on (b) (4) and all initial beta customers used NetApp.</p>
<p><b>12. Current status of contract (choose one):</b>                  Work continuing, on schedule – ongoing relationship and partnership between NetApp and SAP.</p>

### 10.6 SAP – U of K HANA

<p><b>1. Complete name of Government agency, commercial firm, or other organization:</b>                  University of Kentucky, Enterprise Applications Group</p>	
<p><b>2. Complete address:</b> 630 South Broadway, Lexington, KY 40506-0564</p>	
<p><b>3. Contract number or other reference:</b>                  U of K has an open contract type with SAP.</p>	<p><b>4. Date of contract:</b> December 2011  <b>4b. Type of contract:</b> Time &amp; Materials</p>
<p><b>5. Date work was begun:</b> January 2012</p>	<p><b>6. Date work was completed: (end date of contract):</b> Not Disclosed</p>
<p><b>7. Estimated contract price:</b> Not Disclosed</p>	<p><b>8. Final amount invoiced or amount invoiced to date:</b> Not Disclosed</p>
<p><b>9a. Technical point of contact (name, title, address, telephone no. and email address):</b>                  J. David Hardison, DMD, MBA, Professor and Director, Enterprise Applications Group                  University of Kentucky                  630 S. Broadway                  Lexington, KY 40506-0564                  (859)323-8615                  hardison@pop.uky.edu</p>	<p><b>9b. Contracting or purchasing point of contact (name, title, address, telephone no. and email address):</b>                  Joyce Holmberg, Contracting Officer, University of Kentucky                  322 Peterson Service Building                  Lexington, KY 40506-0005                  (859) 257-9104                  jholmbe@email.uky.edu</p>
<p><b>10. Location of work (country, state or province, county, city):</b> Lexington, Kentucky  <b>10b: Key Personnel:</b> N/A</p>	
<p><b>11. Description of contract work:</b> The University of Kentucky, the first U.S. higher-educational institution to implement SAP HANA, sought to develop a solution that addressed business and technical challenges associated with monitoring and improving student retention, student satisfaction, and student graduation rates. Key business challenges included 1) enabling increased student retention and, in turn, an increased graduate rate, over a 10-year period; and 2) addressing the high costs associated with turnaround time for student classification to gauge student satisfaction and retention rate. In parallel, technical challenges included a lack of rapid data access and analysis capabilities and management of large volumes of data.</p>	



To develop and deploy a solution that addressed these challenges, the University partnered with SAP as their software and services partner and Dell as their hardware partner. SAP worked closely with the University in scoping and implementing the solution, while Dell, an SAP-certified hardware provider for SAP HANA, provided a HANA appliance solution. The DELL HANA appliance saved weeks of effort installing and configuring both hardware and software.

Immediate benefits were recognized from the implemented solution, including reporting at a rate that was 420 times faster than previous reporting capabilities (15 – 20 minutes in legacy system compared to 2-3 seconds in SAP HANA) and query load times that were 15 times faster than in legacy systems. Through introducing SAP HANA into its system landscape, the University expects to be able to retire legacy systems and, as a result, reduce IT infrastructure costs and increase IT FTE productivity. Further, through the data now managed in a single environment and rapid reporting and decision support capabilities, the University expects to recognize \$1.1M in additional revenue through each 1% of increased student retention.

Vince Kellen, University of Kentucky CIO, stated, “SAP HANA offers an effective real-time data driven system which is essential to giving immediate performance feedback and increased retention rate of students, increasing millions in revenue for the University every year.”

*Additional references to the University of Kentucky’s SAP HANA deployment:*

“Not Just Big Data—Fast Data” (Campus Technology, June 2012):

<http://campustechnology.com/articles/2012/06/25/not-just-big-data-fast-data.aspx>

“For Univ. of Kentucky, SAP’s HANA is ‘disruptive’” (Computer World, May 2012):

[http://www.computerworld.com/s/article/9227256/For Univ. of Kentucky SAP s HANA is disruptive](http://www.computerworld.com/s/article/9227256/For_University_of_Kentucky_SAP_s_HANA_is_disruptive)

“A Big Data Platform for Real-Time Business: How Customers Use SAP HANA” (SAPPHIRENOW [Video], May 2012)

<http://www.sapvirtualevents.com/sapphirenow/sessiondetails.aspx?sld=2289>

**11a) The organization’s history of successful completion of project:** Through rapid reporting and decision support capabilities, the University expects to recognize \$1.1M in additional revenue through each 1% of increased student retention. Quoted by the U of K CIO, “SAP HANA offers an effective real-time data driven system which is essential to giving immediate performance feedback and increased retention rate of students, increasing millions in revenue for the University every year.”

**Producing high quality reports and other deliverables and staying on schedule and within budget:** Immediate benefits were recognized from the implemented solution, including reporting at a rate that was 420 times faster than previous reporting capabilities.

**11b) Quality of cooperation within your organization and quality of cooperation and performance between your organization and its customers:** The University partnered with SAP as their software and services partner and Dell as their hardware partner. SAP worked closely with the University in scoping and implementing the solution, while Dell, a SAP-certified hardware provider for SAP HANA, provided a HANA appliance solution.

**11c) Quality of Service and improvement as represented by past performance data, approach to implementing performance measures and for improving system effectiveness:** The benefits included reporting at a rate that was 420 times faster than previous reporting capabilities (15 – 20 minutes in legacy system compared to 2 – 3 seconds in SAP HANA) and query load times that were 15 times faster than in legacy systems.

**11d) Responsiveness to requests, both scheduled and ad hoc, for services, data, analysis, and additional tasks in a timely and appropriate manner:** SAP worked closely with the University in scoping and implementing the solution.

**12. Current status of contract:** Work continuing.





## **Appendix A: SAP Hosting for FBMS – Quality Assurance Plan (PWS 5.3.5, 7.5)**

**Version: 1.0**  
**Date: 11/19/12**  
**Document Number:**

© Copyright 2007 by International Business Machines Corporation  
All rights reserved.



## Document History

### Document Location

Verify that this document is current. Printed documents and locally copied files may become obsolete due to changes to the master document.

The source of the document is located in [\[insert document location\]](#)

### Version History

Date of this version: 11/19/12	Date of Next revision: N/A
--------------------------------	----------------------------

Version Number	Date	Author	Summary of Changes	Changes Marked
1.0	11/12/19		Initial Version	<i>N</i>

### Approvals

This document requires the following approvals:

Name	Title



## Table of Contents

<b>A</b>	<b>Introduction.....</b>	<b>A-4</b>
	A.1 Identification.....	A-4
	A.2 Scope.....	A-4
	A.3 Purpose and Objective .....	A-4
	A.4 Change Control .....	A-5
	A.5 Validation of this Plan .....	A-5
<b>B</b>	<b>Related Documentation .....</b>	<b>A-5</b>
	B.1 Parent Documents .....	A-5
	B.2 Applicable Documents.....	A-5
	B.3 Reference Documents .....	A-5
<b>C</b>	<b>Roles and Responsibilities .....</b>	<b>A-5</b>
	C.1 Methodology .....	A-6
<b>D</b>	<b>Critical Success Factors.....</b>	<b>A-7</b>
<b>E</b>	<b>Measurement Development Process.....</b>	<b>A-7</b>
	E.1 Business Goals and Objectives .....	A-7
	E.1.1 SDG Organization.....	A-7
	E.1.2 SAP Hosting for FBMS Project Business Goals and Objectives .....	A-8
	E.2 Classify and Align measurement .....	A-8
	E.3 Describe and Document the Measurement .....	A-9
	E.3.1 Supports the System’s Needs in Terms of Processing Power, Memory, Storage, and Connectivity .....	A-9
	E.3.2 Operates Within the Enumerated Constraints.....	A-9
	E.3.3 Meets or Exceeds the Acceptable Quality Levels and Performance Standard .....	A-10
<b>F</b>	<b>Monitoring and Reporting Project Measurements.....</b>	<b>A-12</b>



## A Introduction

The Quality Assurance Plan (QAP) for SAP Hosting for FBMS contains measurement and analysis activities that are designed to provide objective results that can be used in communicating project progress, making informed decisions when managing the project activities, taking appropriate corrective actions when significant performance deviations are identified, and providing insight into project and process performance. The primary project activities that are supported by the SAP Hosting for FBMS measurement and analysis process are:

- (b) (4) [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

### A.1 Identification

This document is identified as the SAP Hosting for FBMS QAP. The production of this document is the responsibility of the Team IBM SAP Task Order Project Manager. The baseline version of this document is located in the Project Team Room.

### A.2 Scope

The measurement objectives, defined in the QAP, are designed to support the stated and established quality and process-performance objectives, in addition to delivery project management and organizational process management.

### A.3 Purpose and Objective

The purpose of the QAP is to formally define measurements that will reflect or support the SAP Hosting for FBMS performance, describe the process required for collecting and reporting these measurements, and describe the process to achieve the project’s established quality and process-performance objectives.



#### A.4 Change Control

This QAP document is baselined upon acceptance by the DOI SAP Hosting for FBMS Program Executive. All changes to this plan follow the Change Control Procedures established for the Program.

#### A.5 Validation of this Plan

This plan will be validated through the peer review process involving members of the SAP Hosting for FBMS leadership team. All issues and actions resulting from the inspection will be closed prior to this document being baselined and put under configuration control.

(b) (4)

### B Related Documentation

This section identifies the documents that are related to the contents of this document as indicated in the following paragraphs.

#### B.1 Parent Documents

The parent documents establish the criteria and technical basis for the existence of this document. The parent documents are:

- IBM Solutions Development Group (SDG) Policy
- SAP Hosting for FBMS Statement of Work
- SAP Hosting for FBMS Project Plan

#### B.2 Applicable Documents

Applicable documents are those documents whose contents are considered to form a part of this document. The specified parts of the applicable documents carry the same weight as if they were stated within the body of this document. The applicable documents are:

- None identified

#### B.3 Reference Documents

Reference documents are those documents that, although not a part of this document, serve to amplify or clarify its contents, or dictate work policy or procedures. The specific reference documents are:

- Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI) for Development (CMMI-DEV), Version 1.2, Staged Representation
- The Goal/Question/Metric Method: A Practical Guide for Quality Improvement of Software Development, Rini Van Solingen and Egon Berghout, McGraw-Hill, 1999

### C Roles and Responsibilities

Title	Description of Responsibilities
DOI SAP Hosting for FBMS Project Manager	Responsible for the day-to-day project activities and approval of any agreed to Change Requests. Responsible for reviewing the monthly Metric reports and concurrence on corrective actions.

Title	Description of Responsibilities
Team IBM SAP Hosting for FBMS Project Manager	Responsible for management of the day-to-day project activities and submission of any proposed Change Requests for approval by the DOI Project Manager Responsible for reporting status of the QAP metrics including corrective actions

### C.1 Methodology

Team IBM’s quality management method consists of four major steps, shown in **Figure C-1**. These steps are consistent with the ISO 9001 series of standards and guidelines on project quality management.

**Figure C-1: Quality Management Method**



Using the Goal/Question/Metric (GQM) approach to create the QAP facilitates realization of the first goal. The appropriate implementation of behaviors that satisfy the measurement objectives facilitates realization of the second goal.

**(1) Plan for Quality:** (b) (4)  
[Redacted text block]

**(2) Establish the QA Framework (QAF):** (b) (4)  
[Redacted text block]

**(3) Perform Quality Control Activities:** (b) (4)  
[Redacted text block]

**(4) Implement Corrective Actions:** (b) (4)  
[Redacted text block]



(b) (4)

We leverage many techniques to implement corrective actions. Among the techniques are:

- (b) (4)

Team IBM leverages lessons learned, personnel from similar projects, and past performance/experiences of our key personnel to determine not only how best to resolve challenges, but more importantly to decide how best to mitigate risk and maintain quality.

#### D Critical Success Factors

Critical success factors that were considered when developing the SAP Hosting for FBMS QAP and associated measurement assets are:

- (b) (4)

#### E Measurement Development Process

The following steps have been taken and will be used to define and refine the measurements used on the SAP Hosting for FBMS project.

##### E.1 Business Goals and Objectives

##### E.1.1 SDG Organization

The SDG Measurement Model identifies the business objective to be addressed by the Quantitative Project Management program. It is:

- (b) (4)

This objective is directly linked to the GBS and U.S. Public Sector business goals. Those goals are:



- No troubled projects
- Achievement of Service Level Agreements

### E.1.2 SAP Hosting for FBMS Project Business Goals and Objectives

The scope of the SAP Hosting for FBMS Project PWS is to provision an infrastructure type service offering for hosting FBMS that:

- (b) (4) [Redacted]

### E.2 Classify and Align Measurement

Team IBM has taken DOI’s requirements for IaaS including application configurations, performance and availability characteristics and has estimated the corresponding configurations required to support the implementation in IBM’s SCG. The implementation utilizes configurations as available in our Cloud Offering Services Order Guide.

Team IBM has taken into account the daily average CPU usage requirement (overall and for any FBMS application) to not exceed 70% utilization, daily average memory utilization (overall and for any platform used by FBMS) not to exceed 70%, daily average network utilization not to exceed 30% and the daily average database execution time of two seconds when determining the quantity and size of the virtual machines.

For each of the Acceptable Quality Levels, Team IBM provides the following monitoring information:

- (b) (4) [Redacted]



- (b) (4)

### E.3 Describe and Document the Measurement

#### E.3.1 Supports the System’s Needs in Terms of Processing Power, Memory, Storage, and Connectivity

Business Goal	(b) (4)
Relevant Question	
Metric	
Relevant Process/Subprocess	
Metrics to Quantitatively Manage the Process	
Inputs	
Collector	
Frequency of Collection	
Reporter	
Frequency of Reporting	
Reporting Mechanism	
Presentation Requirements	

#### E.3.2 Operates Within the Enumerated Constraints

Business Goal	(b) (4)
Relevant Question	
Metric	

Relevant Process/Subprocess	<b>(b) (4)</b>
Metrics to Quantitatively Manage the Process	
Inputs	
Collector	
Frequency of Collection	
Reporter	
Frequency of Reporting	
Reporting Mechanism	
Presentation Requirements	

**E.3.3 Meets or Exceeds the Acceptable Quality Levels and Performance Standard**

Business Goal	<b>(b) (4)</b>
Relevant Question	
Metric	

This page contains trade secrets or confidential commercial and financial information that the offeror believes to be exempt from disclosure under the Freedom of Information Act, and which is subject to the legend contained on the cover page of this proposal.

	(b) (4)
Relevant Process/Subprocess	
Metrics to Quantitatively Manage the Process	
Inputs	(b) (4)
Collector	
Frequency of Collection	
Reporter	
Frequency of Reporting	



Reporting Mechanism	(b) (4)
Presentation Requirements	

**F Monitoring and Reporting Project Measurements**

Process performance indicators provide actionable information that will be used by the SAP Hosting for FBMS Management Team. (b) (4)

[Redacted content]