



Concept of Operations Grants.gov System

V 2.0

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1. Scope and Approach for Developing Extended Capabilities 2007 Grants.gov

The Grants.gov Concept of Operations (CONOPS) document describes the desired characteristics of the Grants.gov system from the users' viewpoint. This document is prepared in support of the Grants.gov project to outline operational procedures for the extended capabilities Grants.gov system Version. This document also addresses Grants.gov requirements for operation and maintenance (O&M) of the system. This CONOPS briefly discusses the Grants.gov system, its components, and all associated systems that impact Grants.gov operation.

The scope includes extending the system's capabilities to handle increasing numbers of agencies and grants listed, increasing numbers of applicants, growing numbers of search requests, accommodating multiple browsers, and adapting the use of a software forms package (Adobe's Acrobat Reader) that is universally available at no cost to users and works on Windows, Mac, Linux, and UNIX operating systems as well as with all major Web browsers. The services included in this scope include systems engineering and integration, software development, software deployment, system hosting, as well as O&M for the Grants.gov system. Full details of the scope of this project are defined in the Performance Work Statement (Award Attachment B).

The Grants.gov Program Management Office (PMO) is responsible for all development activity, including program management, system integration, system verification, help desk operations, and outreach activities. Currently, the initiative is focused on servicing the grant community with one location to find and apply for all Federal grants. Other components of the grants lifecycle may be considered for future development.

1.1 Identification

The extended capabilities Grants.gov system includes all of the associated equipment, material, software, hardware, policy, technical documentation, service, and required personnel required for operations and support. This version of the CONOPS builds on earlier, initial versions.

Stakeholders of the Grants.gov system include Grants.gov PMO, Department of Health and Human Services (HHS) PMO, Agency PMO staff required to use Grants.gov, developers, and Organization and Individual Applicant representatives.

1.2 Document Overview

The CONOPS serves as the high level vehicle to communicate the quantitative and qualitative characteristics of the system to the users (agencies and applicants), developers, the PMO, and staff. There are no privacy or security considerations attached to the use or distribution of this document.

- Section 1 Approach for developing the extended capabilities 2007 Grants.gov CONOPS
- Section 2 List of referenced documentation that was used in this document
- Section 3 Technology Prospective
- Section 4 Current Grants.gov system
- Section 5 Operational Scenarios

- Section 6 Justification for and the nature of changes based on the most current documentation
- Section 7 Proposed extended Grants.gov system concept
- Section 8 Summaries of operational, organizational, and other impacts
- Section 9 Acronym list

1.2.1 Approach

This version of the CONOPS builds on the framework established with the initial version and enhances information previously presented.

1.2.2 IEEE Standard

The Grants.gov CONOPS was generated using guidance provided by the IEEE Std.1362-1998, IEEE Guide for Information Technology – System Definition – Concept of Operations.

1.3 Overview

On May 18, 2001, 26 Federal grant-making agencies presented a plan to Congress to simplify the application and reporting procedures used in their grant programs. The plan cuts across agencies, and was designed to reduce the differences that exist between programs of similar purpose. Since October 2003, Grants.gov has allowed grantees to find and apply for grant programs. Grants.gov allows agencies to use a common system to transact business for all Federal grants. The extended capabilities development of Grants.gov comprises an extension of current capability to include:

- Implementation of Adobe Forms for application submissions
- Adobe forms packages use the universally available document reader (Adobe Acrobat Reader) that is free to users, supports multiple browsers, and broadens platform compatibility
- Google Search Appliance replaces the Oracle search and extends capabilities for searching
- Implementation of service oriented processing capabilities

2. Referenced Documents

The following table represents a list of referenced documents in this Grants.gov CONOPS plan.

Table 1. Referenced Documents

Document Title	Source
Public Law (P.L.) 106-107, Federal Financial Assistance Management Improvement Act of 1999	Office of Management & Budget (OMB)
The President's Management Agenda	OMB
System Architecture Document	Grants.gov
System Requirements Document	Grants.gov

3. Technology Prospective

3.1 Scope

The Federal Financial Assistance Management Improvement Act of 1999, also known as Public Law 106-107 (P.L. 106-107), was enacted in November 1999. The purposes of the Act are to (1) improve the effectiveness and performance of Federal financial assistance programs, (2) simplify Federal financial assistance application and reporting requirements, (3) improve the delivery of services to the public, and (4) facilitate greater coordination among those responsible for delivering services.

Under joint leadership from the Office of Management and Budget (OMB) and the HHS, agencies are working together to make it easier for State, local, and Tribal governments; universities; and non-profit organizations to administer Federal grant programs. One method of addressing this responsibility is further development and reengineering of Grants.gov.

The President's Management Agenda initiative that identifies the need to "Expand Electronic Government" and requires government agencies to make government services available via electronic means and the Internet for both Government-to-Government (G2G) and Government-to-Citizen (G2C) programs is the basis for an extension of the core Grants.gov responsibility.

In keeping with these national initiatives, HHS and Grants.gov PMO have been actively engaged in implementing technology to create a key Information Technology (IT) system that standardizes the Find and Apply process for federal grants. OMB and the Lead Agency, HHS, initiated development of the system to accomplish these objectives.

4. System Overview

Grants.gov was successfully launched in 2003 and provides a one-stop electronic portal where potential grant recipients can find and apply for Federal grants. The system enables agencies and other grant-making organizations to post descriptions of grant opportunities and electronic grant application packages, and to retrieve (download) completed grant applications. Posting activity is handled entirely by the granting organizations.

Grants.gov also provides the capability for applicants to search grant opportunities, register to receive notices of new opportunities, download application packages and instructions, complete applications offline, and securely submit completed applications.

Grants.gov notifies applicants of receipt of completed grant packages and delivers the completed application to the appropriate agency. Grants.gov retains applications for a maximum of six months after they are retrieved by agencies before purging the applications from the system. Summary level information is all that is retained (submitter name, date, etc.) thereafter.

The system delivers these functions through both a Web-based graphical user interface and a Web-services-based system-to-system interface. Grants.gov includes a registration process that enables applying institutions to register specific members as authorized representatives to use the website. This one-time registration process also allows organizations to submit grant applications to all federal grant-making agencies that post applications on Grants.gov.

5. Operational Scenarios

5.1 Individual Applicant

As shown in Figure 1, Individual Applicant goes to the public area of Grants.gov and registers with the credential provider where the applicant also enters a valid funding opportunity number. The Individual Applicant then elects to register with Grants.gov as an individual by entering the credentials obtained from the credential provider, along with the first name, last name, e-mail

address, telephone number, and title. The system registers the user and automatically gives applicant the authority to submit secure applications. The completed application needs to be virus-free in order to load, and include a valid username, DUNS, and an opportunity number that has not expired. The Individual Applicant can then download the application package and complete it offline. When completed, the Applicant uploads the completed package that is then either verified and accepted or rejected with errors. If verified and accepted, the appropriate agency is notified and sent the application and the Applicant gets a system-generated notification of receipt. The application is assigned an Agency Tracking Number when received for processing within the appropriate grantor Agency. If rejected, the Applicant is also notified of rejection for errors and the application will remain on the system for up to 180 days at which time it will be purged.

The Individual Applicant can subscribe for automatic notification of modifications to the grant for which they have applied as well as to be notified of new grant opportunities in their interest area.

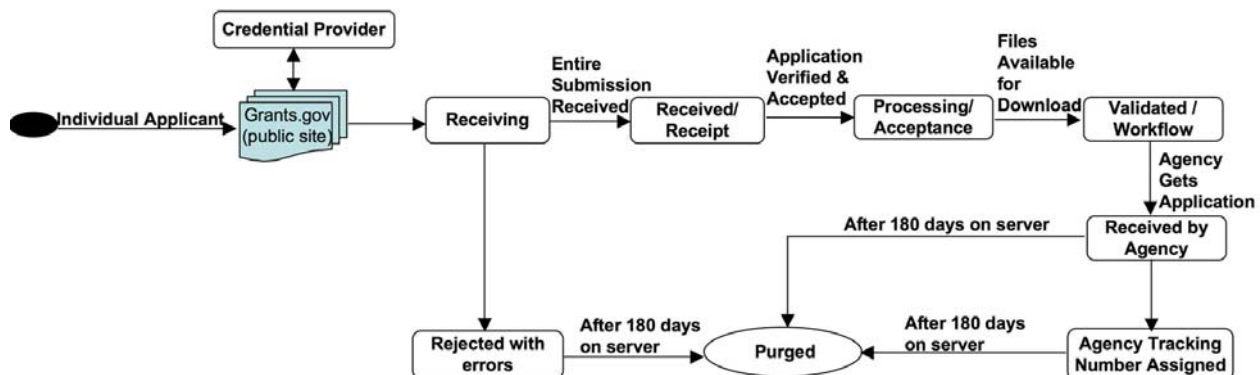


Figure 1: Individual Applicant Flow Diagram

5.2 Organization Applicant

Organization Applicant (Figure 2) goes to public Grant.gov site to register. The Applicant must be an authorized agent for his/her Organization. The Organization identifies authorized agents/members and has the ability to add new members as necessary. The Organization Applicant must have credentials from the credential provider to proceed to register at the secure Grants.gov site. The system registers the user and automatically gives applicant the authority to submit applications. The completed application needs to be virus-free in order to load, and include a valid username, DUNS, and an opportunity number that has not expired. The Organization Applicant can then download the application package and complete it offline. When completed, the Applicant uploads the completed package that is then either verified and accepted or rejected with errors. If verified and accepted, the appropriate agency is notified and sent the application and the Applicant gets a system-generated notification of receipt. The application is assigned an Agency Tracking Number when received for

processing within the appropriate grantor Agency. If rejected, the Applicant is also notified of rejection for errors and the application will remain on the system for up to 180 days at which time it will be purged.

The Organization Applicant can also subscribe for automatic notification of modifications to the grant for which they have applied as well as to be notified of new grant opportunities in their area(s) of interest.

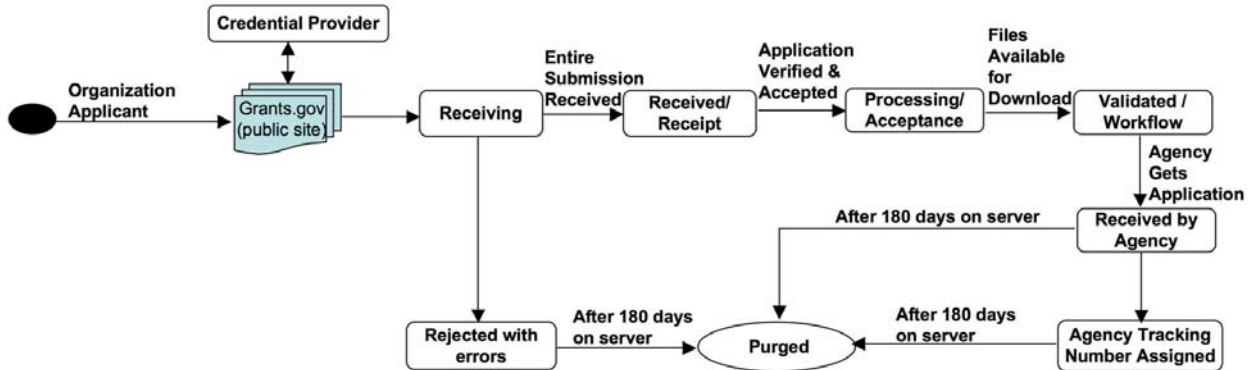


Figure 2: Organization Applicant Flow Diagram

5.3 Agency Employee Grant Creator

An Agency employee wishes to establish a new grant opportunity as shown in Figure 3. First, the employee will need appropriate system permissions to be a “grant creator.” The employee will use their agency’s template for creating the grant opportunity. The template will include required information fields such as the opportunity number, the opportunity title, the opportunity category, and a synopsis and/or application package.

Dependent upon the employee’s permissions, he/she may be able to Manage Synopsis and/or Manage Application package. If the employee does not have appropriate permissions, those functions will have to be completed by someone in the Agency who does have those permissions since the Manage Synopsis section and the Manage Application package section will only be enabled if the agency grant creator has the “Manage Synopsis” and/or “Manage Application package” role.

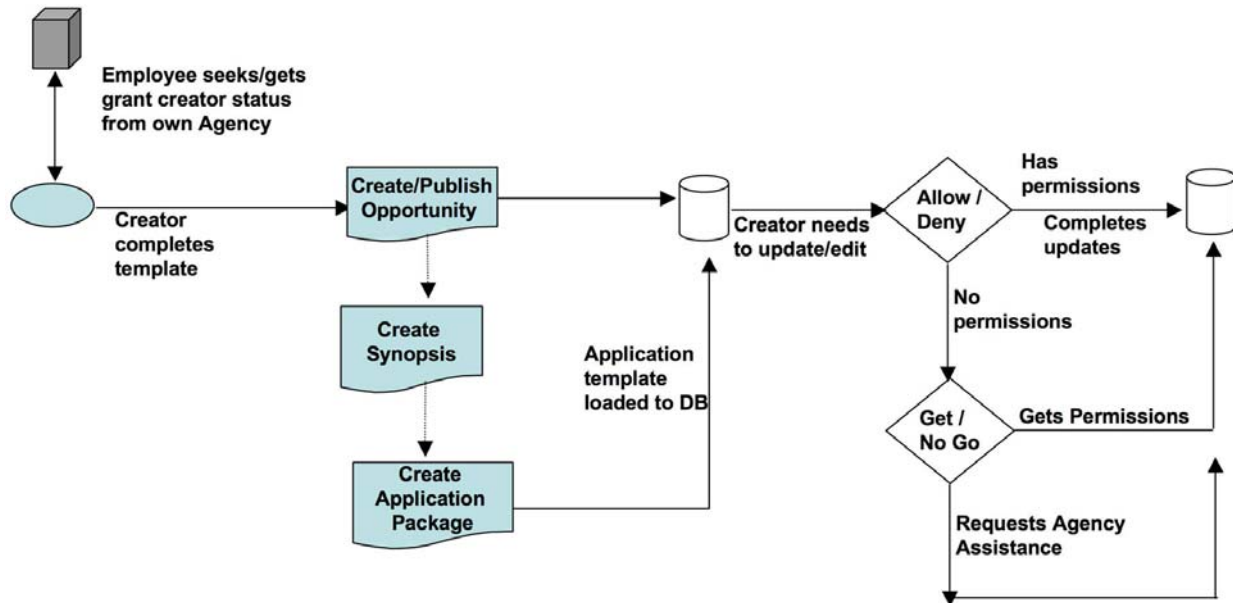


Figure 3: Agency Employ Grant Creator Flow Diagram

Once created, opportunities are only editable by approved members of the owning agency. The creator of the grant may or may not have editing privileges. An opportunity number must be unique within a given agency, but can be the same name as another agency's opportunity number. The opportunity number is not modifiable if an application package has already been associated with the opportunity. Multiple Catalog of Federal Domestic Assistance (CFDA) numbers can be entered using spaces to separate them. If an application package has already been associated with a CFDA number, then the CFDA number cannot be removed.

Each agency establishes its own permission levels when setting up employees in the database. Each agency's system administrators can edit permissions as required by the agency.

6. Change Justification & Nature of Changes

The following sections identify the planned Grants.gov approach to change and the nature of system changes that will call this plan into action.

6.1 Change Definition & Classification

Changes extend Grants.gov services to improve delivery of services to the public and continue to simplify application and reporting requirements for participating agencies. Design and Feature enhancements include switching from PureEdge forms to Adobe forms that use the free Adobe Acrobat Reader software compatible with multiple platforms and browsers. The addition of the Google Search Appliance adds the powerful capabilities of this ubiquitous search engine, faster search speed, hundreds of supported document types, and more relevant results while retaining the familiar look and feel of the current Oracle search.

These changes will require a host software change, a software release upgrade, configuration changes, support for additional protocol(s), data changes, and database changes among others.

6.2 Change Justification

In keeping with the President's Management Agenda initiative to expand electronic government, the HHS has been actively engaged in implementing technology to extend capabilities for both current and future grants programs.

- G2G Improvements
 - Grants.gov will make use of industry best practices in order to increase use of common business, system and functional processes between Grants.gov systems and external agency systems, data and processes.
- G2C
 - Grants.gov will increase the ability of the states to participate in the grants management process by providing access to Grants by the external users.
 - Grants.gov will increase scalability and extensibility to process increasing demand.

In addition to addressing the above, Grants.gov will provide for consistency in operations as systems are developed and integrated as follows:

Grants.gov will capitalize on the capabilities of the existing Support Platform and leverage its access to interfaces with E-Authentication (E-Auth), Central Contractor Registration (CCR), and credential providers.

- Grants.gov will provide support for 2006 grant opportunities until 10/1/07.
- Grants.gov will provide an open architecture that will allow for quick implementation of other grant applications in the future.

6.3 Change Planning & Process

Grants.gov Change Planning is an ongoing management activity that serves to plan, identify changing requirements, and acquire hardware, software and materials; identify budget, resources and timeline; create change documentation; and review technical aspects of the change process.

Grants.gov Change Planning documentation includes maps, detailed implementation procedures, testing procedures, backout and disaster recovery procedures—all with the level of planning directly proportional to the risk assessed.

6.3.1 Grants.gov Change goals are to:

1. Ensure that change is required and useful to the overall mission of Grants.gov.
2. Ensure that all affected stakeholders are identified and accounted for in the change plan / procedure / test and acceptance.
3. Ensure that all change is risk assessed, and that the assessment is known and accepted by all stakeholder parties.
4. Ensure all change resources are identified and in place for the change.
5. Ensure a clear expectation of performance and functionality has been set and met for the change.

6. Ensure the change conforms to all HHS standards for design, configuration, version, naming conventions, and management.
7. Ensure that there is a viable and tested backout procedure.
8. Ensure that there is a definite escalation path and resolution approach.
9. Define stakeholders, potential downtimes, and notification tree for emergency and notification purposes.

In accordance with the IEEE and NIST standards, Change Planning specifications are itemized in Table 2.

Table 2. IEEE & NIST Standards for Required Items In Change Requests

Change Request Required Item	Description
Name	Of Stakeholder requesting the system change.
Date Submitted	Date on which change review clock begins & date on which the request was submitted to the electronic change request system.
Target Date	Date on which the stakeholder would like the change implemented in the enterprise.
Change Control Number	Automatically generated number in the change control system that identifies the change request by unique number and ID.
Help Desk Tracking Number	Automatically generated help desk tracking number from which the change request originated, establishing that a need for the change is/was required. May be many Help Desk Tracking Numbers associated with one Change Control Number.
Change Risk Level	Identification of Risk Level for the Change Request after Risk Assessment is conducted.
Impact Level	Identification of Impact Level for the Change Request after an Impact Assessment of Related Stakeholders, User Groups and Interfacing Systems is conducted.
Target System Name	Name of the Target System in which the principal change will occur.
Target System Location	Physical Location of the Code for the Target System.
User Group Contacts	Identification of Specific User Groups affected by this Change Request and their Contact Numbers. May be many but specified number is not yet confined.
Lab Tested?	Identification if the Change Request was Prototyped & Lab Tested? Answer is YES or NO
Test Plan & Case	If YES is selected in Lab Tested, the test plan and test cases are attached to the Change Request system here.
Migration Plan	If the Change Request is approved, will it migrate to other sites? Answer is YES or NO.
Backout Plan	If the Change Request is completed, and the result is an error, the steps that will be taken to backout the change systematically, operationally, data, network, server, etc.
Preceding Change Requests	Identify those change requests that must precede this change in order for it to be successful.

Each change request should contain information identified in the left column of Table 2. The technical description of the change is an important aspect of the change request, and may include the following: current topology and configuration, physical rack layouts, hardware and hardware modules, software versions, software configuration, cabling requirements, logical maps with device connectivity or Virtual Local Area Network (VLAN) connectivity, port assignments and addressing, device naming and labeling, Domain Name System (DNS) update requirements, circuit identifiers and assignments, network management update requirements, out-of-band management requirements, solution security, and change procedures.

In addition, a change request needs to reference any standards within your organization that apply to the change. This helps to ensure that the change conforms to current architecture or engineering design guidelines or constraints. Standards can include the following: device and interface naming conventions, DNS update requirements, Internet Protocol (IP) addressing requirements, global standard configuration files, labeling conventions, interface description conventions, design guidelines, standard software versions, supported hardware and modules, network management update requirements, out-of-band management requirements, and security requirements.

The steps that will be completed toward comprehensive change management and configuration control include:

- Identification of configuration items
- Change control
- Status accounting
- Auditing
- Build management
- Process management

6.4 Change Execution

The 2007 Grants.gov extended system will be implemented for May 1st delivery. The delivery process, and changes to the current systems, will occur in a structured process – moving from Development to Production only when Integrated System Test (IST) and User Acceptance Testing (UAT) have been completed and the results pass Independent Verification and Validation (IV&V) review.

Issues arising out of newly implemented system functionality or components will be sent through the Internal Control Board (ICB).

Change Management Process

Prior to release, changes requested to the Grants.gov system will be received and entered in a change management system, under the Grants.gov Project. Table 3 depicts the required fields and defaulted value fields (inherently required) in order for a System Change Request (SCR) to be created.

Table 3. System Change Request Fields and Defaulted Value Fields

Field	Type	Values	Default Value	Definition
ID (identification)	Auto number	System Generated	System Generated; incremented by 1 over previous	System generated unique identifier for records within a tracker project – not unique between projects unless appended with project ID. Referred to as the SCR Number.
Item Fixed	String (132)	No Pre-Set Values	No Default Value	The name(s) of the file(s), or general description of those that were revised to fix the problem. This field is displayed in the release notes.
Owner	Choice (User)	System Generated	Current User	User ID of the Person currently responsible for acting on the SCR. Person responsible for the disposition/resolution of the SCR as it travels through the development

Field	Type	Values	Default Value	Definition
				lifecycle.
Resolution	Choice		Assigned	Indicates the current phase of the SCR workflow for this SCR.
Severity	Choice		Low	Assessment of the Impact for the SCR problem or proposed change to an operation or process.
State	Choice	Open Closed	Open	Indicates whether the SCR is open or closed. Generally, closed SCRs cannot be updated.
Submit Date	Date	No Pre-Set Values	Current Date	Date the record was submitted in a change management tracker.
Submitter	Choice (User)	System-Generated by Login	Current User	User ID of the person who submitted the record in a change management tracker (automatically selected) – created by the system.

7. Extended System Capabilities

The extended Grants.gov system builds on the successes of the current system by:

- Using Adobe Forms for more platform independence with the universally available, platform independent, Acrobat Reader that is free to users
- Building on familiar functionality and extensible features of Google's Search capability
- Using formats that enable multiple browsers to access and use Grants.gov
- Adding Mac, UNIX, Linux compatibility
- Achieving 508 Compliance

The expanded system will overcome current limitations:

- Grants.gov was designed to use PureEdge Forms that are not Mac/UNIX/Linux compatible. (A Mac compatible version of PureEdge is now available; however, Adobe Acrobat Reader has become universally accepted and is free to users.)
- Complex and problematic processing causes stuck submissions and slow processing during major closings.
- Limited infrastructure; needs an extensible infrastructure that can grow as more users and new features are added to Grants.gov.
- Limited search capability; needs an Enterprise caliber Search for the FIND and Apply process.

Motivation for Reengineered System:

There are many motivating factors for a reengineered system that can increase submission processing beyond the current system limitation of 2500 submissions. These factors include

- Growing acceptance of Grants.gov has increased demand for system to system support

- Requirement to increase processing capabilities to handle more than 10,000 applications per day
- Requirement for Mac/UNIX/Linux compatibility
- Ability to use a forms viewer tool that is easy to learn, use, and download (Acrobat Reader).
- Need for an extensible system that can grow as more agencies move to the Grants process.

7.1 System Functions

Figure 4 shows that the extended Grants.gov includes a significant reuse of current architecture (blue shapes in figure). New components include the Adobe Acrobat forms tool and Google Search capabilities using the Google Search Appliance (green shapes) that facilitate access by Mac, Unix, and Linux users as well as all major browsers. The yellow shapes denote the reengineering work encompassed in making Grants.Gov extensible and service-oriented architecture compliant.

The reengineering portion of the effort now underway will incorporate the Service Infrastructure substrate that allows the system as a whole to be rebalanced or reconfigured dynamically by changing the processing parameters of specific services. For more detailed information about the system architecture, please refer to the Grants.gov System Architecture document noted in the Reference Documentation.

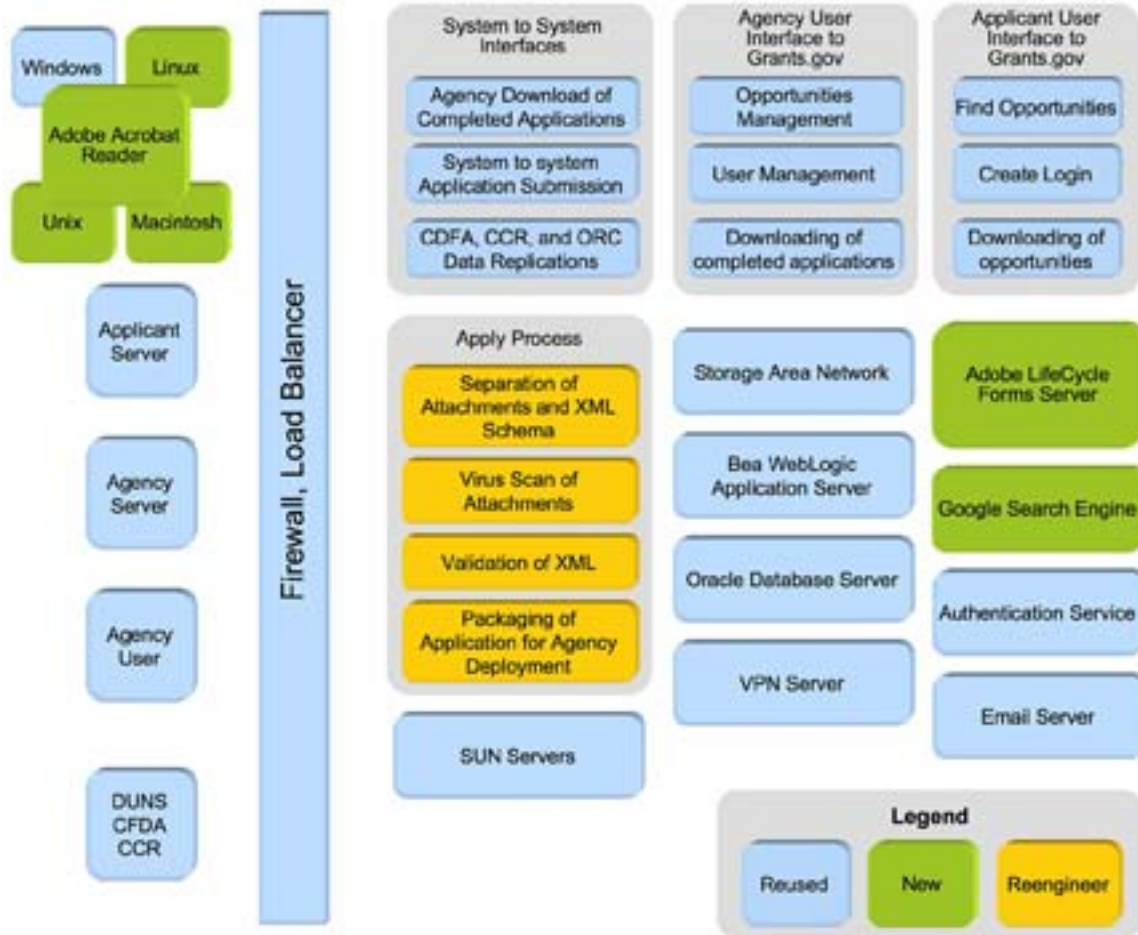


Figure 4: Overall Grants.gov Architecture

The types of users are defined in Table 2 where the users' interactions with the system also are shown at a high level. The **Agency User** will have different types of capabilities determined by the permissions set for that user. Those with the appropriate levels of permissions will be able to modify and delete documents as necessary. For a detailed discussion of Agency User Functions, please see the System Requirements document noted in Referenced Documents.

There are two types of **Applicant Users: Individuals and Organizations**. Organizations have the ability to establish identities for their staff members who may research, apply for, and/or track grants; they can add new members; and establish an automated notification system to be alerted by email when a grant of interest is modified or new grants in areas of interest are posted.

Individuals have most of the same capabilities as organizations. The exception is that individuals cannot add other individuals to their file.

There are also **Agency System to System Users** and **Applicant System to System Users**. The capabilities highlights are shown in Table 4 and greater detail is available in the document entitled System Requirements noted in the Referenced Documents.

Table 4. Types of Users & Capabilities

User Type	Sub-category of Users	Capabilities		
Agency		Create Grants	Create/Manage Synopsis	Create/ Manage Application Packages
		Establish Open/Close/Post dates	Define eligibility requirements	Set archive date
		Upload attachments	Add New Users	
Applicant	Individual	Register self using public site	Access secured site with registration complete	Search for appropriate funding opportunities
		Register for automated notification of new or modified opportunities	Download application(s)	Complete applications offline and then upload to site (up to 300MB)
	Organization	Register organization and grant-involved members using public site	Access secured site with registration complete	Search for appropriate funding opportunities
		Register for automated notification of new or modified opportunities	Download application(s)	Complete applications offline and then upload to site (up to 300MB)
Agency System to System		System will receive automated notification of submitted grants.	System will obtain list of applications pending download.	System will use automation to retrieve submitted grant applications.
		Perform User Authentication and Access Control	Process grant applications	Provide Submission Status Tracking
		Perform System Administration (Privilege Management, Profile Management)		
Applicant System to System		System will be able to submit applications	System will be able to obtain status of submitted application.	

7.1.1 Google Search

The Google Search Appliance shown in Figure 5 was selected to extend the capabilities of Grants.gov because it was designed for the needs of large enterprises, enables searching of attachments and applications as well as synopses, and can support up to three (3) million documents. Google’s search appliance provides monitoring facilities, including graphs on queries per second, an event log detailing basic system activity, and a device health report. The most relevant reports for Grants.gov outline the number of searches over time and the common keywords and queries. This appliance was also selected because Google is synonymous with fast, accurate, simple Web searching – a reputation that sets high usability expectations for customers.

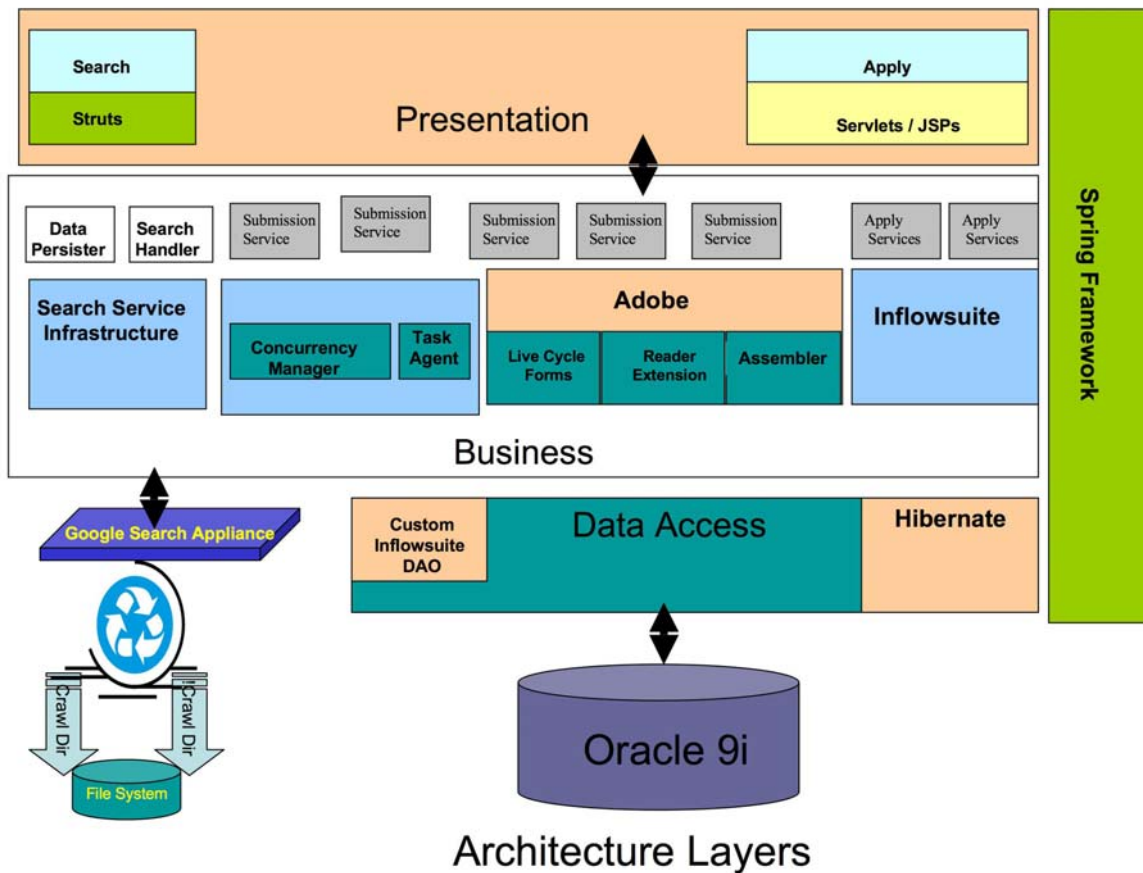


Figure 5: Simplified System Architecture

One of the key features of the extended Grants.gov system architecture is the utilization of Google to replace the existing Oracle “find” functionality. The Google Search Appliance offers a faster, more comprehensive solution for implementing search functionality. In addition to searching up to 3,000,000 documents, it will search throughout the grants database, going well beyond current search capability. This solution was selected so that users will have the same familiar Search User Interface they have now; their searches will be faster; and they will be able to do advanced searches of all Synopses and attachments, together with the potential to search any document in the database.

The Google Search Appliance has been configured to “crawl” the file system and index the contents. The contents in the File System will be arranged in directories called “collections” to enable more fine-tuned searches. Google’s search appliance will index up to 500,000 documents, index 220 file formats, and process up to 300 queries per minute. What this extensible architecture means to the user is faster, more robust searching capabilities.

The second part of integrating Google-based search into Grants.gov involves rendering the search results. Figure 6 shows the conceptual flow.

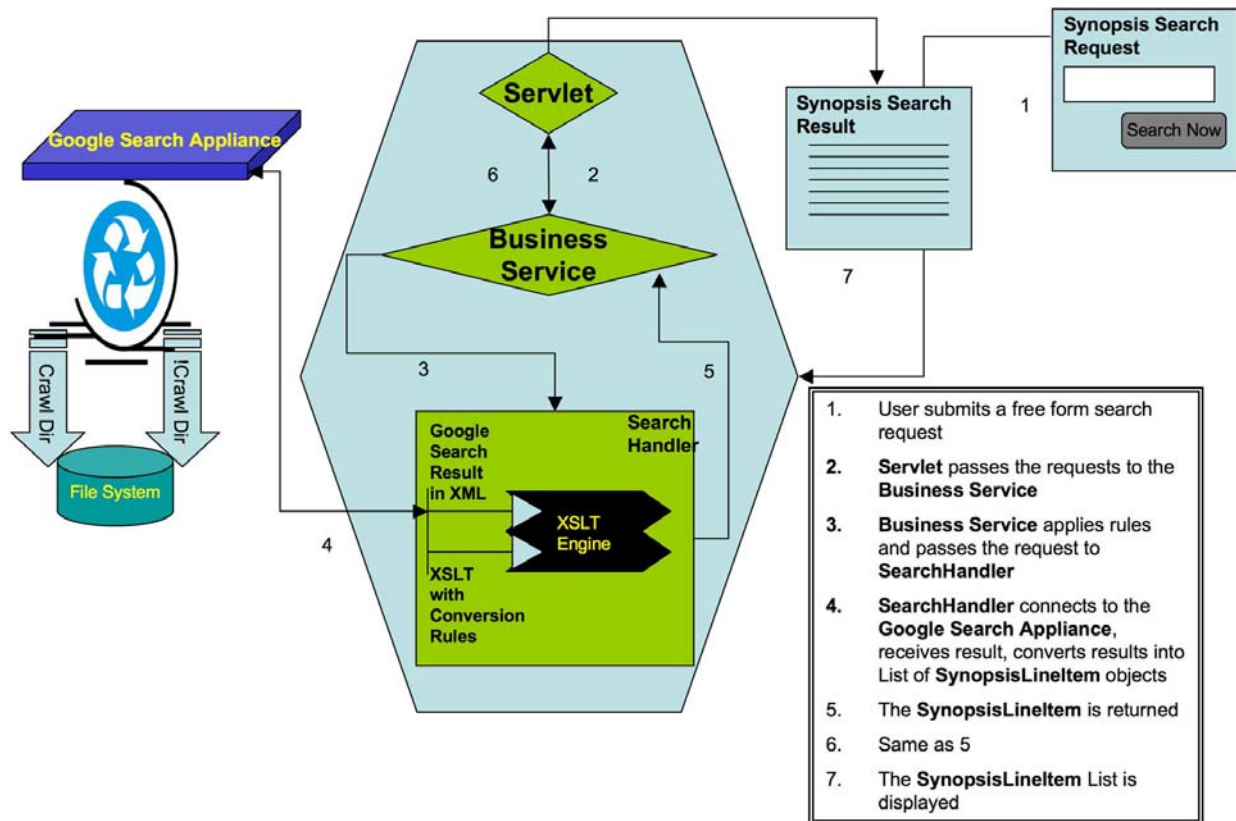


Figure 6: Rendering Synopsis

The existing Search code has been modified and a new Search Handler has been added to pass search requests to the Google Search Appliance that uses the same Search Result Collection as the current user Interface code to display the result of a search.

7.2 Service Infrastructure

In the current Grants.gov system, submitted applications are processed using a combination of Queues, Queue Listeners, and Queue Rules. The infrastructure limits extensibility of the overall system.

The Service Infrastructure shown in Figure 7 will replace the current Inflowsuite Queues and Queue listeners. Service Infrastructure allows the system, as a whole, to be rebalanced or reconfigured dynamically by changing the processing parameters of specific services. It offers the following capabilities:

- Ability to change application processing parameters without stopping or starting the container.
- Ability to change application processing without interrupting a transaction in progress.
- Location transparency – ability to deploy services to any container.

To achieve these goals, processing parameters are stored in the database and checked periodically. Container level processing parameters are stored in a system parameter table, checked at startup, and

checked when a transaction is completed. Application specific parameters are stored in the application control table and are checked for the next transaction to be processed.

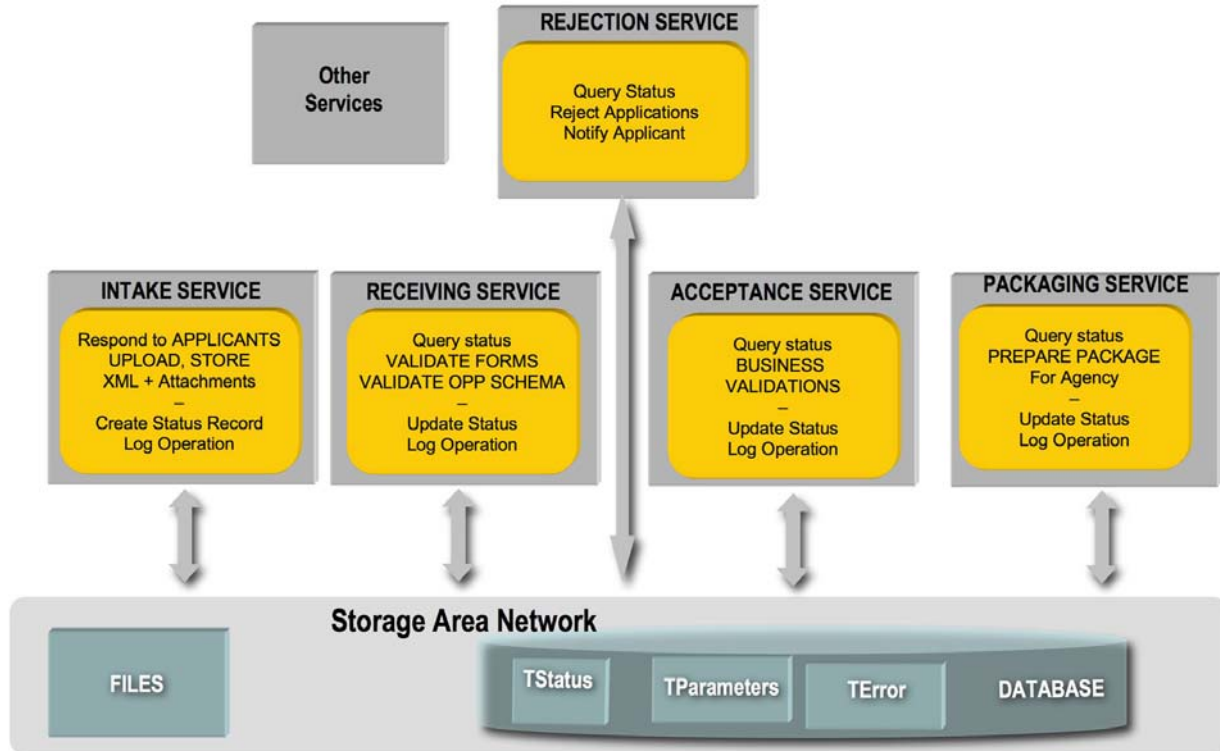


Figure 7: Service Infrastructure

We have carefully analyzed the current workflow and mapped it to a set of autonomous services. The different Services and their responsibilities are shown in Figure 4. Each Service maps to a significant step in the workflow of Submission Processing such as Intake, Receiving, Rejection, Acceptance, and Packaging. The Service Architecture uses a shared File System to store incoming applications. The Architecture uses the concepts of Service Identities and Service Parameters to implement individual services.

7.3 Adobe based Forms Processing

In the extended Grants.gov system, Adobe PDF forms technology will replace the existing PureEdge software. PDF Forms will replace the existing PureEdge forms. This will necessitate changes throughout the existing architecture and code base. The Schematic in Figure 8 shows an overview of the business process flow associated with Forms Processing.

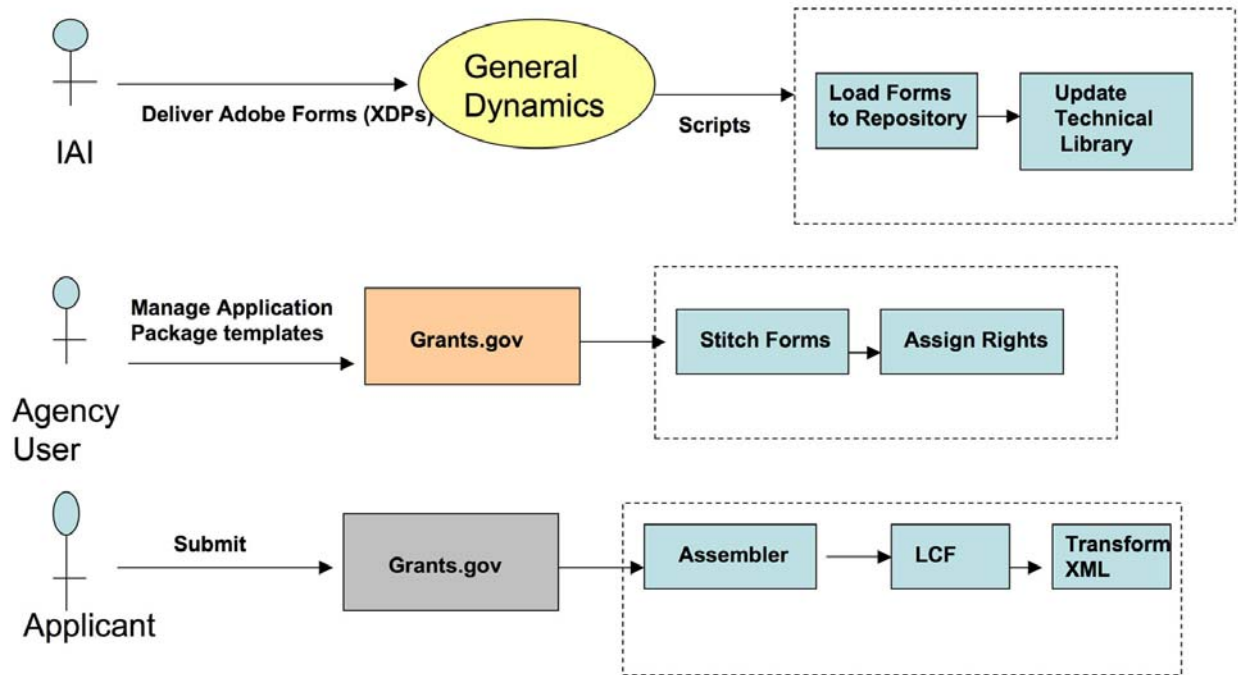


Figure 8: Forms Processing

7.4 Grants.gov System Operational Policies & Constraints

The extended Grants.gov system conforms to the system operational policies and constraints of the existing application since it simply extends existing capability. The operating assumption is that Grants.gov is operational 24 hours a day by 7 days a week (24/7). Once deployed, the system will operate and be constrained by the resource availability, policies, and decisions of the PMO.

7.4.1 User Classes & Other Involved Personnel

Table 5 further breaks down users into user class, defines the class description for each, and shows any associated user class.

Table 4. User Classes Description & Associated User Classes

User Class	Class Description	Associated User Class
Applicants/Grantees	Responsible for applying for grants and submitting/verifying grant applications.	Grantors
PMO	Responsible for administration of financial portions of the system for funding opportunities.	Not Applicable
AOR	Authorizes obligation of funds for the Federal government.	Signatory Official
Grant Applicant	Federally recognized entity that applies for assistance from the Federal government.	Grantors
Grant System Administrator	Modifies system parameters for any grant program or across grant programs.	Not Applicable

User Class	Class Description	Associated User Class
Grants Specialist	Monitors grants and assists grantees from a grants management perspective	Not Applicable
Program Officer	User accountable for the execution of the grant program.	Not Applicable

7.4.2 Support Environment

Tier One Support

Tier One support provides primary Helpdesk support for all of Grants.gov. This team works directly for the Tier Two Support team and performs all of the basic duties required to keep a Grants.gov site functional. The primary skill set requirements for a Tier One Support team member is a functional knowledge of PCs, Grants.gov, standard software, and the client side of grants.gov. Tier One Support staffs the Helpdesk phones, enters Helpdesk trouble tickets, and troubleshoots basic problems over the phone.

It is important to note that the Tier One support is O&M’s primary interface with the customer. While it is important to provide a stable system through Tiers Two and Three, it is equally important to maintain a high degree of user satisfaction through Tier One.

Personnel supporting Tier One must be competent, customer-oriented, and knowledgeable of their specific duties. Individual team members providing Tier One support need to be selected very carefully.

Tier Two Support

Tier Two support provides mid-level O&M support at primary Grants.gov sites. This team coordinates operations with the centralized administration team and provides for the needs of the customer. While the training and experience requirements for Tier Two support are not as stringent as Tier Three, these individuals do require a high level of practical Grants.gov system experience and training.

Tier Two provides more Helpdesk-oriented support and interacts directly with the Grants.gov end users. Tier Two support comes from within the PMO support team.

Tier Three, Level 1 Support

The Grants.gov O&M Tier Three, Level 1 will provide all Tier One and Tier Two teams with a centralized point of contact into the Tier Three support structure. Tier Three, Level 1 will receive Helpdesk Trouble tickets from the Tier One or Tier Two Support Team. Like the Tier One Helpdesk, the Tier Three, Level 1 Support will include initial escalation resolution activities. If the trouble ticket cannot be resolved in a satisfactory period of time, the ticket will be forwarded to the Tier Three, Level 2 Support team (i.e., developers).

7.4.3 Maintenance

O&M has the charter to ensure that the Grants.gov environment operates smoothly with as little downtime as possible. While the design of the system includes fault tolerant features like UPS, multiple CPU servers, and redundant power supplies, there is still a chance that the system or a system component may fail. These situations must be planned to mitigate extended downtime of the server.

Furthermore, all devices have a “useful” life cycle. If the device becomes antiquated or breaks, it must be replaced. O&M must monitor the Grants.gov environment, plan for stocking spare parts, and plan the ultimate replacement of equipment and/or systems. Monitoring the server environment will provide historical trend information to justify the expansion of the hard disk or memory systems, identify component failure trends, aid in the planning for long term funding of the system’s lifecycle, and allow Grants.gov O&M to plan the long-term funding of spare parts or the Grants.gov system replacement. All of these efforts combined make up the life cycle maintenance of the Grants.gov environment.

8. Summaries of Improvements to Operations, Organization, and Other Impacts

Table 5. Features and Benefits of Extended Capabilities Version of Grants.gov

Features	Benefits
Service-Oriented Architecture through reengineering	Retain current capabilities; enable dynamic processing; compliant with OMB mandate; extensible architecture; 508 Compliance
System to System Enhancements	More automation/greater satisfaction for Agencies and Applicants; fewer errors with less human input resulting in fewer Helpdesk calls.
Addition of Google Search Appliance	Extend search ability to include all documents in database; increase speed of search; enable up to 300 searches per minute
Switch from PureEdge forms to Adobe Acrobat forms	Provide universal access on multiple platforms, using all major browsers, using software that is free to users and already widely used and accepted. Reduced adaptation fears for users.
Retain significant portion of existing system	Cost savings and risk reduction

9. Acronym List

Table 6. Acronym List

Acronym	Definition
CCR	Central Contractor Registration
CFDA	Catalog of Federal Domestic Assistance
CONOPS	Concept of Operations
DNS	Domain Name System
DUNS	Data Universal Numbering System
E-Auth	E-Authentication
G2G	Government-to-Government
G2C	Government-to-Citizen
HHS	Department of Health & Human Services
ICB	Internal Control Board
ID	Identification
IP	Internet Protocol
IST	Integrated System Test
IT	Information Technology
IV&V	Independent Verification and Validation
OMB	Office of Management and Budget
P.L.	Public Law
PMO	Program Management Office
SCR	System Change Request
VLAN	Virtual Local Area Network
UAT	User Acceptance Testing
XML	eXtensible Markup Language