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The History of GPO Access

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For more than 140 years, the U.S. Government Printing Office (GPO) has been committed to disseminating information effectively, efficiently, and inexpensively. As information dissemination methods are evolving to a more digital environment and as the public's necessity for immediate access to official Federal information has grown, Public Law 103-40 was passed, which calls for the GPO to maintain an electronic directory of Federal electronic information, provide a system of online access to the *Congressional Record*, *the Federal Register*, and other appropriate publications, and operate an electronic storage facility for Federal electronic information.

The response of GPO was not just the mandated information, but also the creation of *GPO Access*. What began in 1994 with just three online applications is now a Web site that provides worldwide access to about 8,800 databases through 45 applications including the *Congressional Record*, the *United States Code*, the *Code of Federal Regulations*, *Congressional Bills*, and *Supreme Court Decisions*. It is the product of an agency-wide initiative and commitment to the widespread electronic dissemination of information that was carried out without additional funds from Congress. The site delivers most electronic documents the day of publication and permanently maintains public access to Government information products, making it a hallmark for Government efficiency.

The information provided on *GPO Access* is the official, published version, and the information retrieved can be used without restriction, unless specifically noted. *GPO Access's* core objectives include:

improving access to Federal Government information in electronic formats;

ensuring access to a broad spectrum of users with a wide variety of technical capabilities, both directly and

through the Federal Depository Library Program (FDLP);

establishing and operating an online interactive service that is capable of rapid expansion to meet the needs of Federal agency publishers and public users;

and ensuring permanent public access to publications and electronic products available through the service.

GPO Access provides free electronic access to official information from all three branches of the Federal Government. The site was carefully designed, developed, and implemented for easy access to and use of Federal information products online. All major applications on the site allow for full text search and retrieval of all documents in the databases.

Today, *GPO Access* is continuing to grow and expand both in information volume and user volume. In response to the needs of *GPO Access* users, new features to the Web interface are being added and other applications are being enhanced. Additionally, new technologies are being researched and employed to assist users in obtaining the most up-to-date and accurate information as quickly as possible.



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What started in 1861 as an agency dedicated to printing Government documents is now an agency on the move to a digital environment. While GPO will keep its historical commitment to quality printing, it will also focus its efforts on electronic preservation and worldwide electronic dissemination of publications and documents.

Right now, GPO is at the epicenter of change in the ways individuals use information to communicate, remain informed, research a topic, and preserve information. As part of its efforts to meet the demands of these changing requirements and continue to carry out its mission, GPO is currently working on several new undertakings. These undertakings are only part of the beginning steps of GPO's progress towards its new vision of delivering Federal Government information products and services from a flexible digital information system into the electronic environment. This future digital system will form the core of GPO's future operations. Three of the more recent undertakings include a Disaster Recovery site, use of RSS and blogs, and GPO's authentication initiative. These will be discussed in greater detail through the course of this article.

Current Initiatives

Disaster Recovery

In the wake of the September 11th attacks, the GPO is moving forward on the implementation of a Disaster Recovery (DR) plan. This will ensure that an off site backup system will continue to offer all of GPO's Web services to users in event of an unforeseen system failure or catastrophe. It will also maintain an archival copy of GPO data for redundant, off-site backup. A statement of work for DR hosting services was sent to several companies offering such services in September 2004, and a contract was awarded to Akamai Technologies, Inc.

Through Akamai, GPO's DR service makes use of a globally distributed and highly scalable content caching and de-

livery network that is comprised of approximately 14,000 servers deployed in some 1,100 networks across more than 65 countries. The Akamai system identifies and deploys the most efficient routes for data throughout the Internet, based on the individual user needs and application and content demands. By pushing GPO's data to the edge of the Internet through Akamai's distributed, secure network, we will ensure the reliability and stability of *GPO Access* services.

In early 2005 Akamai began implementing a DR solution for GPO static content and WAIS databases. Akamai has been working with Fast Search & Transfer (FAST) for the DR search component to replicate the look and feel of GPO's web sites while improving search accuracy. The static content delivery for the DR site was activated for gpo.gov and bookstore.gpo.gov in September 2005. The five most

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popular *GPO Access* applications (*Federal Register*, *Code of Federal Regulations*, *Congressional Record*, Congressional Bills, and Congressional Hearings) were developed as a Proof of Concept and delivered in June 2005. Once the workflow for automated content delivery to the DR storage location is completed, the DR service will be activated for these five applications. While implementing the fully redundant off-site DR solution, GPO also will assess the use of the Akamai and FAST solution as an interim replacement for WAIS until a new platform is developed.

GPO's DR planning will benefit libraries by ensuring that digital Federal information accessed over the Internet will remain available for permanent public access. Additionally, if the FAST solution is evaluated favorably, libraries will see improved search functions in the applications on *GPO Access*.

RSS and Blogs

As part of its efforts to move to a digital environment, GPO recently began to explore ways to disseminate news and information to the widest possible audience in a timely manner. One solution was the development of an RSS Feed (Rich Site Summary/Really Simple Syndication) for two of GPO's popular Web features. RSS, a small XML file that notifies users when a Web site has been updated, allows users to stay up-to-date on frequently changing content. Its structure includes a title, date, brief description, and a link to the full text of content. RSS can be used to automatically deliver lists, or feeds, of noteworthy content and descriptive information to users who subscribe.

In the past, the quickest way for users to obtain GPO information and updates was to subscribe to various GPO e-mail announcement services. While e-mail announcement services are useful tools, RSS allows for even faster dissemination of pertinent announcements and information to be circulated. Additionally, e-mail an-

nouncement services depend on the user to check their e-mail in order to receive the information. With RSS, as long as the users are subscribed to a reader and keep them active, the feeds will appear on the user's monitor as the content is updated.

GPO has also recently implemented the use of blogs. A blog is a Web site for which an individual or a group generates text, photographs, video, audio files, and/or links, typically on a daily or otherwise regular basis. GPO blog owners will typically post discussion topics, which can then be commented on by users and viewed by anyone. Postings on a blog are arranged in chronological order with the most recent additions featured most prominently.

GPO has been using blogs to foster communication among its user communities. They serve as a rapid method by which people located all over the world can communicate and collaborate on important issues. Information sharing has never been easier.

Additionally, a blog is easier and quicker to update than a static HTML page. Whether those who post are at an outside location or at GPO, they are able to do so in little time and reach countless numbers of people with up-to-date information. Another noteworthy feature of blogs is that they can be easily filtered to reflect various formats. For instance, in most cases, blogs can be sorted by date, author, etc.

These information dissemination tools will have an immense impact on the future. Previously, information-sharing potentially took days or even weeks in some cases, as it depended on the customer or user to seek out that information, through checking a Web page or e-mail or by attending a meeting or conference. By using these tools, customers can now not only obtain up-to-the-minute information, but can also actively participate in discussion in the timeliest manner possible. This will undoubtedly accelerate the rate at which



new initiatives and problem solutions are accomplished and foster a more collaborative and productive environment. These tools succeed in delivering new information directly to the customer.

Libraries will also be impacted greatly through the use of these tools. In libraries with limited time and staff, these RSS and blogs will make helping patrons much easier, as they will have access to the most recent and accurate information at their fingertips, instead of having to actively seek it out. Also, for those limited in budgetary resources, blogs have the potential to make it much easier for those who can't attend a meeting or conference to participate and offer input to relevant issues of the moment. These tools cultivate a more productive environment for GPO and the library community, as they afford countless individuals and stakeholders the opportunity to share ideas and opinions and work together with ease of access with one another.

Authentication

As movement toward a digital environment continues to grow rapidly, GPO has taken initiatives to address user concerns about the authenticity and integrity of electronic Government documents disseminated through GPO. The increasing use of electronic documents poses special challenges in verifying authenticity, because technology makes such documents easy to alter or copy, creating multiple versions that could be used in unauthorized ways. There is a need for information that is reliable because it is from a trusted source, as well as a need to certify that content is free of unauthorized modification or substitution of information.

Currently, GPO is implementing an authentication initiative that will provide the capability of certifying content as authentic and/or official at both the document and granular levels. The primary objective of GPO's authentication initiative is to assure users that the information made

available by GPO is official and authentic and that trust relationships exist between all participants in electronic transactions. GPO's authentication initiative will allow users to identify when, where, by whom, and what changes were made to the content and will be conveyed by users through the use of integrity marks. It will allow users to determine that the files are unchanged since GPO authenticated them, will help establish a clear chain of custody for electronic documents, and will provide security for and safeguard Federal Government publications that fall within scope of the National Collection of U.S. Government Publications.

GPO has implemented a Public Key Infrastructure (PKI) to ensure the authenticity of its electronically disseminated content. PKI provides the framework that allows GPO to deploy security services for trusted transactions based on encryption. It is a technology based mainly on asymmetric cryptography and asymmetric key pairs that encrypt and decrypt information. PKI operates in a security environment that supports the transmission, delivery, and receipt of digital communications over a non-secure communications channel.

GPO will use digital signature technology to verify the authenticity and integrity of electronic U.S. Government documents disseminated through GPO. Digital certificates will be used to apply digital signatures to documents in PDF format and will add a visible Seal of Authenticity.

Ensuring customers that the electronic information made available through GPO is official and authentic is of paramount importance for our future. Implementation of PKI and the associated digital signature process used in accordance with the policies and infrastructure of this system will enable GPO to assure customers that electronic files are unchanged since being authenticated by GPO.

The impact of GPO's authentication initiatives on libraries will be of great significance. Libraries will be able to assure



their users that they are using authentic versions of Government documents and that those documents and the information contained within has not been altered since they were disseminated by GPO. The Seal of Authenticity will provide libraries with a visible marker that indicates a Government document can be trusted and the information it contains is the authentic version disseminated through GPO.

Looking to the Future

As Government information continues to go digital, a strategic vision to transform GPO into a 21st century digital information factory has been initiated. The introduction of digital technology has changed the ways in which GPO products and services will be created and how they will look and function to meet the changing needs of the Federal Government and the public users. GPO's strategy is to create a Digital Information System and develop a new model for the FDLP that increases partner flexibility.

The DR site, RSS, blogs, and the authentication initiative are only a few operations that are underway at GPO. Future efforts will revolve around the GPO developed Digital Content System, or the Future Digital System (FDsys), that is being designed to organize, manage and output authenticated content for any use or purpose and to preserve the content independent of specific hardware or software so that it can be migrated forward and preserved for the benefit of future generations.

FDsys will ingest, preserve, and provide access to the information produced by the U.S. Government, including information produced by all three branches of Government, and to the material currently in the custody of GPO and Federal depository libraries. The proposed system is envisioned as a comprehensive, systematic, and dynamic means for preserving any kind of content independently of specific hardware and/or software. When

it becomes operational, FDsys will enable GPO customers to obtain hard copy publications and to electronically access and retrieve the content they want, and it will enable GPO to deliver that content in different formats. The system should automate many of the content life cycle processes and make it easier to deliver the content in the formats best suited to the needs of GPO customers.

Future Government information will be either born digital or will be transformed into a digital structure for manipulation, storage and delivery to end users. GPO envisions an FDLP that will follow documents into the digital age. The FDLP will determine the content of GPO's new digital content system, set the standards for Federal documents, authenticate documents, catalog and manage the content, and determine the standards for preservation of the content for the future. The FDLP will also set the standards for digitizing retrospective tangible documents and digitizing services and provide quality assurance for the content.

While GPO's mission will remain essentially the same in the future, new technologies are transforming the manner in which Government information is being delivered to users. FDsys will allow GPO to deliver Federal information products and services from a flexible digital platform. Through the FDLP, GPO will continue to provide nationwide community facilities for the perpetual, free and ready public access to the printed and electronic documents and other information products of the Federal Government. 

