Summary

As Web sites have grown in size, complexity, and prominence, Web site management, content management, cost, and accessibility have become growing concerns for government agencies. Despite the Web's promise for ease of use and access, creativity, and efficiency, agency managers and leaders are finding that their Web sites are increasingly presenting problems of inflexibility, inconsistency, bottlenecks, and new costs. Consequently, agencies are losing the ability to be responsive and flexible in providing new content or structure. And the costs of maintaining these Web sites have become prohibitive. Webmasters and system administrators have come to realize that the technologies and strategies used to build most Web sites are designed to produce individual Web pages. They do not provide a structure to easily maintain entire Web sites, keep them responsive to changing needs, or manage the workflow involved in Web content production and maintenance; nor do they facilitate the sharing and reuse of Web site content.

What is XML?

XML is generally understood to be a technology that supports effective data exchange between applications. However, XML has another value that is much less exploited or understood – it offers a viable long-term solution to many of the shortcomings of HTML because it structures and describes Web content in a meaningful way. As a technical strategy for managing Web sites, XML and associated organizational strategies offer:

- **Management benefits:** Improved workflow management from content creation to publication and maintenance, allowing various types of work to be assigned to the people best suited for them. These strategies put control of and responsibility for Web content back in the hands of the business or program units, and the technical work in the hands of technical experts.
- **Productivity benefits:** Dramatically reduced time, effort, and costs associated with Web site management. In addition, XML creates opportunities for easier information sharing due to standardized data formats. (In CTG's own implementation, Web site management costs dropped more than 75% and were matched by other productivity benefits.)
- **Consistency of content:** XML accommodates enhanced version control of documents due to single source XML files. As a result, it guarantees consistency of content across multiple pages and multiple delivery formats (HTML, PDF, Doc) and devices (computer monitors, PDA's, cellphones).
- **Accessibility enhancements:** XML enables consistent implementation of complementary Web standards, such as accessibility, through its standardized delivery capabilities.

Despite these clear advantages, agencies confront many obstacles to the adoption and implementation of XML-based Web site management. These include the need for technical training and infrastructure readiness, but more importantly, the need for solid business case justifications, understanding the impact of organizational change, leadership buy-in, and a firm understanding of where to begin.

Publications & Results

Practical Guides (1)

Using XML for Web Site Management: Getting Started Guide
Tue, 26 Sep 2006

Despite the clear advantages of XML, government confronts many obstacles to the adoption and implementation of XML-based Web site management. By using the guide, government agencies can gain new insights into how they can benefit from XML and develop strategies to address the technical and organizational issues to get started.

As government Web sites grow in size and complexity, it is important for agencies to develop sounder approaches to Web site management and publication processes. Poor public image, prohibitive maintenance costs, lack of consistency, and limited capacity to provide multiple formats are just some of the problems that many government Web sites are already facing or will face in the near future. The future of e-government will depend in part on the ability of governments to manage their Web sites in a more effective and efficient way to deliver value to citizens.

The Getting Started with XML guide is based on CTG's own experience converting its Web site to XML, along with the experiences of five New York State agencies who participated in CTG's XML Testbed. The research gathered from the Testbed contributed to a greater awareness of how XML can be used for Web site management in government settings.

Online Resources (1)

The XML Toolkit
Mon, 17 Apr 2006

The XML Toolkit is a Web site product of CTG's Web Site Management Using XML: A Testbed Project, which served to assist New York State agencies in examining the benefits as well as the challenges of Web site management using the emerging technology of XML. It contains a library of XML resources and is intended to grow over time and benefit from the contributions of the online community.

Reports and Working Papers (2)

Using XML for Web Site Management: Lessons Learned Report
Fri, 18 Jan 2008

This report is based on the lessons learned from CTG's XML Testbed. The success of the Testbed rested on the enthusiastic participation of five New York State (NYS) agencies who committed to extensive hours of workshops, training, and prototype development. CTG extends its thanks to the NYS Department of Civil Service, NYS Division of Housing and Community Renewal, NYS Higher Education Services Corporation, NYS Office for the Prevention of Domestic Violence, and the NYS Office of Cultural Education, State Education Department. The Testbed was undertaken in partnership with the Governor's Office of Employee Relations (GOER), the Office of the Chief Information Officer (OCIO), and the Office for Technology (OFT).

Using XML for Web Site Management: An Executive Briefing on streamlining workflow, reducing costs, and enhancing organizational value
Fri, 1 Jun 2007

Many of the new directions and developments on the Web have a basis in XML, which is becoming a critical technology for all types of information services. The features of XML emphasized in this Executive Briefing—open standard, reusability, technologically neutral—make it an ideal strategy for preparing for the future, while achieving efficiencies today.

Press Releases & News Stories

Press Releases

CTG Honored with Best of Web Award from NYS Forum
Mon, 11 Sep 2006

UAlbany's Center for Technology in Government Unveils Online XML Toolkit for Government Agencies
Mon, 17 Apr 2006

Five New York State Agencies Present Results from UAlbany's Center for Technology in Government's XML Testbed
Wed, 25 Jan 2006

Testbed Project at UAlbany's Center for Technology in Government Examines Using XML for Web Site Management
Wed, 05 Oct 2005

News Stories

Faster, Cheaper, Better 2.0

Public CIO

November 6, 2007

XML in Government: Promise and Politics

Information Week

March 20, 2006

New York XML testbed breaks new ground

Washington Technology

January 30, 2006

CTG's XML Testbed Project, Part 3

Open Forum

January 2006

CTG's XML Testbed Project, Part 2

Open Forum

November 2005

CTG's XML Testbed Project, Interview with Derek Werthmuller

Open Forum

October 2005

N.Y. looks to expand use of XML

Federal Computer Week

January 30, 2006

Web News and CTG Newsletters

Faster, Cheaper, Better 2.0

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XML in Government: Promise and Politics

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Open Forum

October 2005

N.Y. looks to expand use of XML

Federal Computer Week

January 30, 2006

Partners

Government Partners
- New York State Office of the Chief Information Officer (OCIO)
- New York Department of Civil Service
- New York State Higher Education Services Corporation
- New York State Office of Cultural Education, State Education Department

- New York State Office for the Prevention of Domestic Violence
- New York State Governor's Office of Employee Relations (GOER)
- New York State Office for Technology (OFT)
- New York State Division of Housing & Community Renewal

Corporate Partners

- Hewlett-Packard
- Iceni Technology Ltd.
- Logictran
- MicroKnowledge
- Sun Microsystems
- SyncRO Soft Ltd.(<oXygen/> XML Editor)

Funding Sources

The project was funded in part by the Governor's Office of Employee Relations.

Original Scope of Work

In cooperation with the Governor's Office of Employee Relations, Office of the Chief Information Officer, and the Office for Technology, the Center for Technology in Government offered New York state and local government agencies an opportunity to participate in a Web site management Testbed. The Testbed was designed to assist government agencies in examining the benefits as well as the challenges of Web site management using XML.

The Testbed was not a technical how-to program about putting XML into operation, but a structured 18-month investigation to study best practices, work toward agency-defined practical goals, and build organizational capacity for better use of the Web.

Five NYS agencies were selected to participate in the Testbed:

- NYS Department of Civil Service
- NYS Division of Housing and Community Renewal
- NYS Higher Education Services Corporation
- NYS Office for the Prevention of Domestic Violence
- NYS Office of Cultural Education, State Education Department

During the first six months, the five agencies participated in hands-on workshops, organizational analysis, and development activities. The result of this phase for each agency was a working XML-based Web site prototype and a business case analysis for the organizational and policy changes that would be needed to fully develop and implement a new Web site management approach within their agency.

In addition, this phase involved the collection of data through multiple research methods such as semi-structured interviews, surveys, and analysis of relevant documents.

This phase culminated in the presentation of the lessons learned by the five agencies as to their working XML-based Web site prototypes and their business cases for expanding their individual efforts within their agency.

During the next six months, drawing on the Testbed activities and the agency results, CTG produced a set of practical guidelines and case studies that drew on the experiences of Testbed participants to provide guidance for others trying to improve the management, performance, and value of their Web sites. In addition, CTG created a sharable library of XML technical resources, called **The XMLToolkit** (www.thexmltoolkit.org).

Project Activities

The Testbed started with a two-hour information session held on June 2, 2005 to provide those interested in submitting a proposal the opportunity to hear about the Testbed from the CTG project team. The presentation provided a project overview along with a discussion of what the specific proposal guidelines should be. Agencies then had three weeks to submit proposals. Five proposals were selected and the corresponding agencies were

notified on July 6, 2005.

The Testbed involved a series of presentations, training sessions, workshops, and discussions to support the development of agency-specific prototypes:

- On July 14, 2005 the selected five agencies attended a kick-off meeting to meet and discuss their individual projects.
- The agency teams then participated in six one-day workshops and three training sessions held over the next six months. Each workshop and training session was devoted to specific topics and tasks leading to the development of a business case and a successful XML-based Web site prototype. The makeup of the teams and nature of their individual prototypes have determined specific workshop and training topics. The following is a brief listing of the training and workshop topics:

    - Making Smart IT Choices, CTG's IT business case methodology that provides an analytical approach as well as best practices for making IT investments
    - **Introduction to XML/XSL**
    - **Advanced XML/XSL**
    - **Managing a Web Development Project**
    - **Content Management and Work Flow Management**
    - **Web Mapping and Story Boarding**
    - **Effective Web Site Design**
    - **NYS Accessibility Policy**
    - **Information Architecture**
    - **Cascading Style Sheets**
    - **Return on Investment and Cost Performance Analysis**

- A public event was held on January 25, 2006 where the participants showcased their prototypes and shared lessons learned.
- At the end of the 18-month life cycle of the Testbed, CTG published and distributed practical guidelines and case studies based on the Testbed results, along with a sharable library of XML technical resources.

Deliverables

The Testbed has two categories of deliverables:

- The first group of deliverables come directly from the Testbed agencies and include:

    - **Prototype XML Web site implementation** by each participating agency. This is a coherent working subset of XML-based Web pages from the agency Web sites.
    - **Individual business cases** prepared by each agency for adopting and implementing XML based on their prototype project experience.
    - **Initial online library of XML technical resources** . This includes such items as data structures and style sheets for accessing and presenting content. This library contains tips and coding samples developed during the Testbed that are judged to be useful as a public resource for others who choose to adopt XML approaches.

- The second group of deliverables was produced as a result of research and evaluation of the Testbed activities and is available on this Web site. These deliverables include products that have relevance to the broader community beyond the Testbed agencies.

    - **Using XML for Web Site Management: Lessons Learned Report.** This report is a recommended practices report for anyone interested in improving Web site management, performance, and value. This report was produced by CTG based on observation and analysis of the Testbed activities and includes lessons learned by the Testbed participants.
    - **Using XML for Web Site Management: Getting Started Guide** A step by step guide helping government managers who wish to start exploring the use of XML for their own Web site management.
    - **Using XML for Web Site Management: An Executive Briefing on streamlining workflow, reducing costs, and enhancing organizational value.** One of the greatest challenges the Testbed participants

faced was explaining the benefits of XML to their non-technical management teams. This guide helps bridge that gap.

Related Web Sites

Managing Content from Creation to Delivery with XML: Case Studies
http://www.idealliance.org/papers/xml02/dx_xml02/papers/ 04-03-03/04-03-03.html

Single-source information management with XML can represent a powerful solution to the challenges of creating, managing, and publishing content. While the transition from disconnected workflows based around unstructured authoring can be daunting, requiring changes to workflows across an entire enterprise, the rewards of a successful single-source implementation can be well worth the effort. Benefits can include more efficient content creation, easier access to information, and increased automation of publishing processes.

Introduction to Structured Content Management with XML
http://www.cmswatch.com/Features/TopicWatch/ FeaturedTopic/?feature_id=112

Organizations of all sizes are beginning to realize how content and its reuse across the enterprise can improve productivity -- and the bottom line. . . .At the heart of managing content for re-use, however lies the job of exposing the underlying structure of that information. This article is meant to serve as an introductory primer on how to define and use information structure when managing content.

An XML Primer by Larry Mongin
http://www.bloomington.in.us/~mongin/xml-tutorial/index.htm

Dated material (last revised in 2000), but still helpful for basic information on XML.

xml.com
http://www.xml.com/

A very comprehensive, authoritative, up-to-date source for all things XML (O'Reilly).

The Apache XML Project
http://xml.apache.org/#xmlsecurity/

Open source XML site with wide ranging information on developing standards.

webreference.com
http://webreference.com/xml/reference/standards.html/

Good quick reference for various XML standards and acronyms.

XML Standards and Vocabularies
http://www.service-architecture.com/xml/articles/

Good reference site for various industry-specific XML vocabularies.

XML Files
http://www.xmlfiles.com/xml/

Helpful, simple tutorials on XML topics; good place to learn XML.

World Wide Web Consortium

http://www.w3.org/

The primary source for all things web related.

XML FAQ
http://xml.silmaril.ie/

Another helpful site for answering basic XML questions.

OASIS
http://www.oasis-open.org/home/index.php

Standards body for DocBook and other XML-related activies; very technical but important.

XML Org
http://www.xml.org/

Covers industry-specific content on XML standards, hosted by OASIS.

XML Gov
http://www.xml.gov/

Covers XML use in government.

XML - The Site
http://www.softwareag.com/xml/about/glossary.htm

General reference site on XML; extensive glossary, article, expert opinions.

XML Hack
http://www.xmlhack.com/

Good news site for XML developers.

DevX
http://www.devx.com/xml

Another good site for XML application developers.

XML Files
http://www.xmlfiles.com/

Good articles for XML developers.

IBM's XML Web Pages
http://www-130.ibm.com/developerworks/xml/

Loads of information on XML, helpful to newbies up to experienced programmers.

DocBook
http://www.docbook.org/

Official site for DocBook, including full documentation.

Microsoft's XML Web Pages

http://msdn.microsoft.com/xml/default.aspx

Information on XML in the world of Microsoft.

Jakob Nielsen's Website
http://www.useit.com/

Jakob Nielsen is an author and known expert and resource on user interfaces, especially Web design strategy and Web usability

Related Information

Resources

NYS PROJECT MANAGEMENT GUIDEBOOK RELEASE 2

"The New York State Project Management Guidebook was developed to document a common methodology for managing projects in New York State government organizations and to provide guidance and advice to Project Managers throughout the life of a project. RELEASE 2 includes an enhanced Project Management Life Cycle as well as a System Development Life Cycle, the newest addition to Section III of the Guidebook. A list of enhancements and additions to the Guidebook can be found in Release Notes 2."

"http://www.oft.state.ny.us/pmmp/guidebook2/index.htm

New York State Project Management SDLC Templates Release 2

"The following Templates are provided in Word 97-2002 format for use by Project Managers. These templates may be copied or downloaded for your use or customization. Please refer to the Lifecyle chapters of the Guidebook for instructions on the use of each template."

"http://www.oft.state.ny.us/pmmp/guidebook2/ SDLCtemplates/index.htm

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