

Chapter 3.22

AJAX in Development of Web-Based Architecture for Implementation of E-Governance

Dilip Kumar Sharma

G.L.A. Institute of Technology and Management, India

Gopalji Varshneya

G.L.A. Institute of Technology and Management, India

Ashwani Kumar Upadhyay

M. N. National Institute of Technology, Allahabad, India

ABSTRACT

This article analyzes the diffusion of a Web technology named AJAX in facilitating e-government architecture and enhancing its potential by enablement of modern Web features as democracy and collaboration. Flexibility needed for free flow of interactive collaboration, compatibility, and robustness is treated as vital in the chapter. Major enterprises that have created landmarks in terms of participation of individuals and enterprises, along with contemporary Web technologies, are also analyzed to consolidate priority of technologies befitting robust and sustainable Web architecture. Emphasis is on the point that

a proper collaboration among private, public, and government entities can only be achieved by proper information dissemination and acceptance of competent Web technologies, AJAX being one of them. Features of AJAX such as sectional processing ability, speed, bridging, portability, and compatibility are viewed with criticality for practical establishment.

INTRODUCTION

E-government means the use of information and communication technology to support the entire functioning of government. The most important aspect of proficient e-government includes im-

proved efficiency, convenience, and better accessibility of services to public and government entities. Proficient e-government covers activities for organizing, managing, and controlling resources such as people, local government bodies, business organizations, and departments of state (like the legislature, judiciary, and government), through social, political, administrative, and economic arrangements that ensure sustainable development of entire country. The Canadian government's e-strategy is based upon a "user perspective" approach that determines the online offering and how information is organized and delivered to citizens (Canada, 2004). From a technological standpoint, the implementation of e-government implies e-enablement, interoperability, and semantic Web issues. So to provide information about government policies, programs, schemes, and products to targeted people with a user friendly citizen interface in local languages, multiple channels of communication, security of transactions, participating policy making processes, transparency in government activity, and open styles of functioning (Gupta, 2005), AJAX-based Web technology can be the best way. Designing such an application requires the consideration of elements such as ease of navigation, aesthetics, content, accessibility, and features such as personalization, customization, customer self-care, and data about communities. All these elements in combination will directly influence users' experience with the site, and ultimately their satisfaction and adoption.

Efficient realization of e-governments through the Web from a citizen's perspective is asserted by perceived usefulness along with the ease of its use (Mylene 2005). To achieve this, the government needs reliable Web technologies that are efficient, speedy, and support a transparent framework with disseminating information to the public and to other agencies that perform activities related to government administration. On the software level it is far more complex to manage all these aspects, and the technology named AJAX has noticeable

features to quench this ever widening circle of responsibilities. E-administration, e-citizenship, e-servicing in an perfectly benefited e-state can only be achieved by developing futuristic framework of e-government with flexibility, absorption, and speed as few vital issues. AJAX has all of these software techniques and thus invites a liberal attitude with a need for initiating further research for implementation and fulfilling the requirement of efficiency in the huge and functionally complex nature of any governmental setup.

For the e-government set up there are two major challenges on an infrastructure level that are related to client server interaction. The first problem is related to the time parameter. The intention is to reduce the time consumed in processing the unique client request and providing the user with the liberty to do something else while the former request is being processed. The second parameter is about developing sophisticated framework for data passage. Discrete requests can be processed on an extensive scale at the same time and most of them will need both retrieval and postage. AJAX, which is being prominently deployed in most of today's successful service-oriented Web networks all over the world, is suggested for best results.

AJAX name is an acronym for asynchronous javascript and XML (extensible markup language) (Quin). The name was coined by Jesse James Garrett in February, 2005, from the adaptive path Web site (Garrett, 2005). It is a combination of existing technologies such as DHTML, CSS, JavaScript, DOM (Stenback, 2004), XML, XSLT, and XMLHttpRequest (Paulson, 2005). At present most dynamic Web interfaces are powered by JavaScript and wherever the need is expanding the booster of AJAX has become mandatory. The core component of AJAX is XML Http Request, which enables updating components of a Web page by sending and receiving information without page reloads.

AJAX can create an asynchronous request to the Web server by using the XMLHttpRequest object, which is initiated by JavaScript, and it

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/ajax-development-web-based-architecture/9798

Related Content

Innovation in Democratic E-Governance: Benefitting from Web 2.0 Applications in the Public Sector

Ari-Veikko Anttiroiko (2010). *International Journal of Electronic Government Research* (pp. 18-36).

www.irma-international.org/article/innovation-democratic-governance/42145

Tax Proposal Service of the Finnish Tax Authority

R. Suomi (2007). *Encyclopedia of Digital Government* (pp. 1505-1510).

www.irma-international.org/chapter/tax-proposal-service-finnish-tax/11704

Generational Differences in Information Technology Use and Political Involvement

Mack C. Shelley, Lisa E. Thrane and Stuart W. Shulman (2006). *International Journal of Electronic Government Research* (pp. 36-53).

www.irma-international.org/article/generational-differences-information-technology-use/2011

E-Barangay: A Framework for a Web-Based System for Local Communities and Its Usability

Rex Perez Bringula, Mark Anthony D. Vale, Jenard A. Napolis, Franklin Pillos Oliva and Daniel Joseph T. De La Serna (2022). *International Journal of Electronic Government Research* (pp. 1-13).

www.irma-international.org/article/e-barangay/288071

Thailand Citizen Centric e-Government Service: Maturity and Challenges

Jirapon Tubtimhin (2012). *Digital Democracy: Concepts, Methodologies, Tools, and Applications* (pp. 739-765).

www.irma-international.org/chapter/thailand-citizen-centric-government-service/67634