

The Rise of Dynamic Content from an AJAX Perspective

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The Rise of Dynamic Content from an AJAX Perspective

Abstract

Web developers have long since struggled with the static nature of HTML. The accessibility and power of web development has been held in check by its inability to employ a user-friendly interface. This has been changed with the growth of dynamic content, specifically the discovery of AJAX.

Statement of the Problem

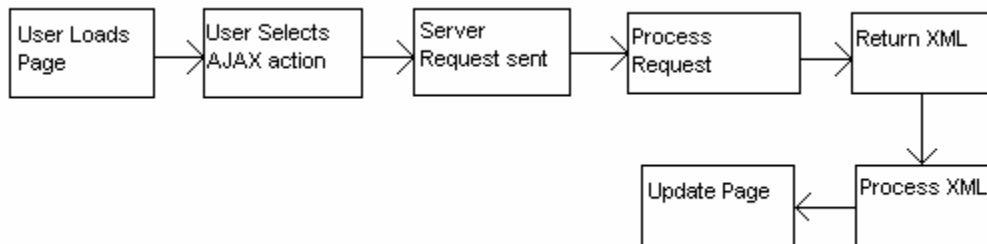
The use of HTML for web pages has long since caused pages to become static, cluttered and created the need for large amounts of redirecting. A web page can not be updated after it has been displayed, since HTML alone does not support on-the-fly updating. Changes to information within a form could not be saved to the server without the user navigating away from the form. Similarly, filters had to be set up in such a way that the user would enter the filter information and then repost to the same page which would change its display accordingly. To prevent information overload and needless data entry, the need for several different pages for essentially the same task arose. For instance, when signing up for an e-commerce site there would most likely be two forms, one for if the user was entering a credit card and another if the user was entering a different form of payment.

Proposed Solution

These problems are solved by the addition of AJAX. This paper will give a brief overview of the technology of AJAX and then show how AJAX can be applied to three different situations that lead to a more dynamic website.

AJAX Overview

AJAX stands for Asynchronous JavaScript and XML. AJAX uses the scripting language JavaScript to send a request to the server to do more processing similar to the request for first loading a web page. The server sends the response back to the JavaScript of the page encapsulated in extensible markup language. The JavaScript then will update the page. For a visual representation of the AJAX architecture see the process flow diagram below.



Filtering

When dealing with large lists of data, it is beneficial, from an end user standpoint, to provide a filter. Without AJAX, this filter would be a small form on top of a long list. This form would then cause it to submit to itself in order to apply the filter criteria given by the user. A web page with raw JavaScript would be able to do the filtering without the resubmit, but it would be inefficient in large scale filters. AJAX can also do the filtering without the resubmit, and it retains its efficiency even in large scale filters.

User Interface

Using AJAX it is possible to dramatically improve the User Interfaces for your websites. In the e-commerce example from earlier, it would be easy to surround the two payment types in a div tag and use raw JavaScript to switch to the one the user had selected. This works very quickly, but requires more HTML to be displayed in the load causing a longer load time. With AJAX you could generate the HTML for whichever payment type was selected and insert that into an empty placeholder div. AJAX would be slightly slower, but most of that would be made up for in the decreased load time.

Dynamically Saving

It is beneficial to save some data dynamically. This prevents from loss of data due to an intermittent internet connection, unexpected power loss, or some user errors. JavaScript alone does not enable dynamic saving. AJAX, however, does allow for dynamic saving. A good example for a use of this is if there is a complicated form similar to those found in content management systems. There could be an AJAX call set to call every several seconds and save the current state of the form into a database creating a backup similar to Microsoft Word's auto save feature.

Comparison

By now the advantages of using AJAX should be fairly clear. AJAX allows you to have dynamic filters, improved user interfaces and dynamic saving. Using raw HTML allows none of these. Using JavaScript allows basic filters and user interfaces improvements to be made, but they are restricted by time and size. The web request caused by AJAX gives it more power and flexibility at the cost of slightly increased overhead for the server. Another disadvantage to AJAX is its youth. Few web developers are well versed in this new technology. The raw JavaScript is better suited for rapid and simple changes of the display, whereas AJAX is better suited to large scale changes.

Conclusion

While basic web pages are still functional, AJAX enabled web pages are vastly superior in terms of functionality. Web development companies should be making the move to AJAX enabled code in order to provide their clients with the most easy-to-use interfaces, up to date information, and redirect free web sites. With the power of AJAX at an imaginative web development company's finger tips, the potential is limitless.

About AllofE

AllofE (www.allofe.com) is a technology firm specializing in Enterprise Web products and custom applications across a number of vertical markets and industry segments that include Education, HealthCare, Financial, Transportation, Corporate, Construction & Engineering, Sports & Athletics, Printing & Publishing and Telecommunications.

AllofE's broad industry expertise extends to functional areas such as:

- Content Management
- Academic Platform
- Asset Tracking and Management
- Auction Management
- Scheduling and Resource Management
- Online Training and Certification Systems
- e-Procurement and e-Commerce
- Customer Relationship Management
- Job Costing and Tracking
- Project Management

In the academic sector, AllofE specializes in the areas of Web Content Management, Curriculum Management, Online Assessments/Testing, HR Applicant Tracking, Academic Calendars/Scheduling and Staff Development.

AllofE invests very heavily in R&D to keep pace with the latest trends in web technology and constantly trying to find the most efficient, cost-effective and high quality enterprise-wide solutions. Current research areas include:

- Rich Web Applications including effective UI design and AJAX
- Data Mining and Analysis
- Cross Platform Applications
- Search algorithms and crawling, optimization strategies
- Data Mining and Warehousing
- Security at Functional and Object Level for Web based Applications
- Backend Systems Integration design for interoperability and scalability
- Component based Application Server architecture

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