

Ajax Technology

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Abstract— Ajax is a new model for web applications to provide more responsive and faster user interfaces resembling more closely that of applications. Typical usage areas are user input validation without page submission, integrating small elements from several servers on a single page, and simulating push-services. Especially the latter are promising for enhancing groupware applications and for realizing them directly in browsers without plug-ins or additional software.

The Ajax programming model introduces new security issues, which could be especially dangerous as they were not fully accounted for in previous threat models or considered as of less importance. This paper investigates the security implications of Ajax and discusses possible solutions with a special focus on the context of groupware. It explains security issues which are inherent to the Ajax programming model or are exacerbated through it, and which especially affect cooperative application.

Index Terms—ajax, server, security.

I. INTRODUCTION

AJAX stands for Asynchronous JavaScript and XML. Ajax technology was introduced first by Microsoft back in 1999 and had been known as DHTML/JavaScript web application with remote calls. AJAX is not a new programming language, but a new technique for creating better, faster, and more interactive web applications.

With AJAX, a JavaScript can communicate directly with the server, with the XML, Http, Request object. With this object, a JavaScript can trade data with a web server, without reloading the page.

AJAX uses asynchronous data transfer (HTTP requests) between the browser and the web server, allowing web pages to request small bits of information from the server instead of whole pages.

Ajax technology consists of five parts.

1. HTML (Hyper Text Markup Language)
2. JavaScript
3. DHTML (Dynamic Hyper Text Markup Language)
4. DOM (Document Object Model)
5. XML (Extensible Markup Language)

With the help of cooperation and collaboration of these technologies, they can optimize the conventional enterprise information system by using an asynchronous way. Meanwhile, a quickly responded and smoother user interface was provided. Enterprise information system with Ajax can be operated in a more efficient way, which means even use the current hardware, it can provide more load capacity, be more stable and

serve more clients in parallel. In this paper: we present two kinds of information system models, one using conventional B/S architecture and the other use Ajax-enhanced B/S architecture.

II. TECHNOLOGIES USED IN AJAX

The term AJAX has come to represent a broad group of web technologies that can be used to implement a web application that communicates with a server in the background, without interfering with the current state of the page. To implement AJAX the following technologies are required:

- XHTML (Extensible Hyper Text Markup Language) and CSS (Cascading Style Sheet) for presentation
- The Document Object Model for dynamic display of and interaction with data.
- XML (Extensible Markup Language) and XSLT (Extensible Stylish Language Transformation) for the interchange, and manipulation and display, of data, respectively.
- The XMLHttpRequest (Extensible Markup Language Hyper Text Transfer Protocol) object for asynchronous communication

III. SPECIALITY IN AJAX

An Ajax application eliminates the start-stop-start-stop nature of interaction on the Web by introducing an intermediary an Ajax engine between the user and the server. It seems like adding a layer to the application would make it less responsive, but the opposite is true.

Instead of loading a web page, at the start of the session, the browser loads an Ajax engine written in JavaScript and usually tucked away in a hidden frame. This engine is responsible for both rendering the interface the user sees and communicating with the server on the users' behalf. The Ajax engine allows the users interaction with the application to happen asynchronously independent of communication with the server. So the user is never staring at a blank browser window and an hourglass icon, waiting around for the server to do something.

Every user action that normally would generate an HTTP request takes the form of a JavaScript call to the Ajax engine instead. Any response to a user action that doesn't require a trip back to the server such as simple data validation, editing data in memory, and even some navigation the engine handles on its own. If the engine needs something from the server in order to respond if it's submitting data for processing, loading additional

interface code, or retrieving new data the engine makes those requests asynchronously, usually using XML, without stalling a user's interaction with the application.

IV. AJAX USERS

Google is making a huge investment in developing the Ajax approach. All of the major products Google has introduced over the last year Orkut, Gmail, the latest beta version of Google Groups, Google Suggest, and Google Maps are Ajax applications.

- Browsers Supporting Ajax
- Google Chrome
- Apple Safari
- Microsoft Internet Explorer 5.0 and above
- Mozilla/Mozilla Firefox 1.0 and above
- Netscape 7.1 and above
- Konqueror
- Opera 7.6 and above

Advantages of AJAX:

- Using traditional methods, that content would have to be reloaded on every request. However, using AJAX, a web application can request only the content that needs to be updated, thus drastically reducing bandwidth usage and load time.
- The use of asynchronous requests allows the client's Web browser UI to be more interactive and to respond quickly to inputs, and sections of pages can also be reloaded individually. Users may perceive the application to be faster or more responsive, even if the application has not changed on the server side.

- The use of AJAX can reduce connections to the server since scripts and style sheets only have to be requested once.
- The state can be maintained throughout a Web site. JavaScript variables will persist because the main container page need not be reloaded.

Disadvantages of Ajax:

- AJAX interfaces are substantially harder to develop properly than static pages.
- Pages dynamically created using successive AJAX requests do not automatically register themselves with the browser's history engine, so clicking the browser's back button may not return the user to an earlier state of the, but may instead return them to the last full page visited before it.
- Dynamic web page updates also make it difficult for a user to bookmark a particular state of the application. Solutions to this problem exist, many of which use the URL fragment identifier to keep track of, and allow users to return to, the application in a given state.

V. CONCLUSION

The AJAX technique makes Internet applications smaller, faster and more user-friendly. AJAX is a technology, which breaks the paradigm of page reload and saves a lot of bandwidth. It can send and retrieve the data without reloading the web page, meaning, that gone are the days where for each data retrieval, we needed to reload the complete web page.

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