

Overview of AJAX Support in the Nokia Web Browser

Version 1.0; October 20, 2006

Browser

NOKIA

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Change history

October 20, 2006	Version 1.0	Initial document release

1 Introduction

This note is targeted at Web site content developers and owners. The purpose of the document is to start a discussion about how to ensure that mobile users gain the same benefits from AJAX technology as those who are browsing from their desktop PCs. Nokia aims to collect and publish a set of best practices and guidelines for general AJAX development that targets mobile Internet access via the new Nokia Web Browser.

2 Does mobile browsing really matter?

Today there are already more mobile devices capable of browsing the Internet than there are desktop devices. In many countries, mobile access to the Web may be the only access people can afford or that has a supported infrastructure. In developed countries, the Web has become an integral part of the culture, and only lack of usability prevents greater mobile usage. While the cost, in many cases, is prohibitive, pent-up demand is there. It seems only a matter of time before these obstacles are overcome, so it is important for content developers to prepare their sites for mobile access.

With the introduction of the Nokia Web Browser, it is now possible to access “full” Web pages from an S60 mobile device. The Nokia Web Browser supports AJAX technology, but differences such as screen size and access speed can diminish the mobile end-user experience if these issues are not carefully considered when creating Web content. A lack of attention to mobile user requirements can render Web pages unusable and drive otherwise loyal customers to seek alternatives. On the other hand, carefully targeting the capabilities of the Nokia Web Browser should make information easier to find and user interaction much simpler, as well as result in a more engaging design. Creating content with these factors in mind will drive up site traffic and create new market opportunities for developers.

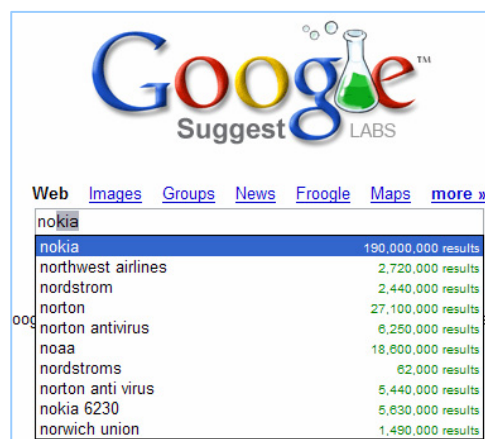
3 Background on Asynchronous JavaScript™ Technology and XML (AJAX)

AJAX technology is rapid gaining popularity because of its potential for enhancing the end-user experience. In fact, AJAX is not really a new technology; rather, it represents a different use of a number of existing technologies. There are two main parts to AJAX: visualization and data gathering (see <http://en.wikipedia.org/wiki/AJAX> for details). As mentioned above, the Nokia Web Browser handles AJAX technology, but the results may well differ from those experienced with a desktop browser.

4 Potential of AJAX in mobile Internet access

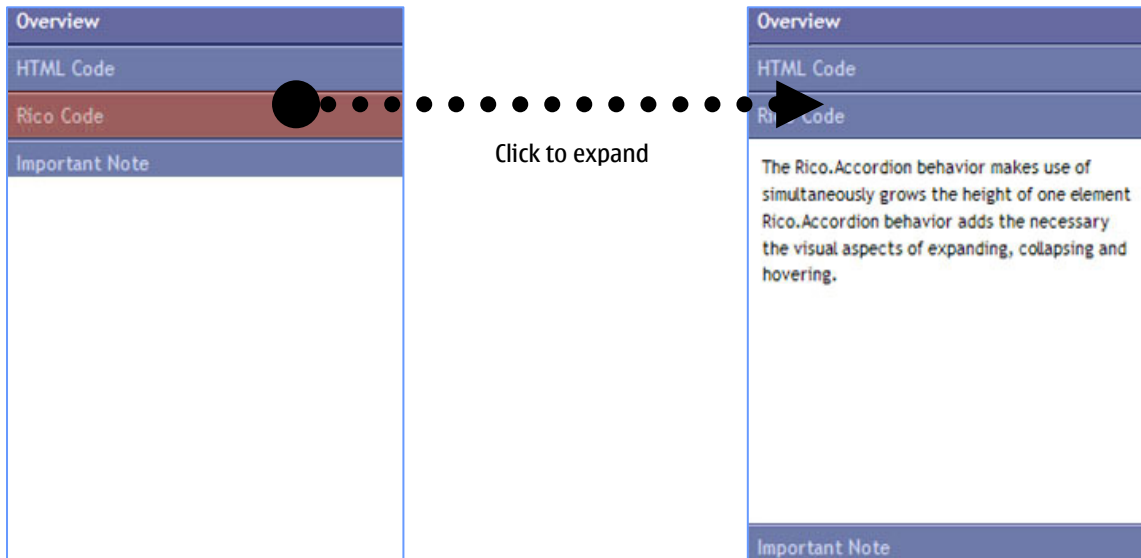
The use of AJAX has the potential to substantially extend the range and quality of services that are currently on offer to the mobile user.

The use of XMLHttpRequest to gather “raw” data instead of a full page can significantly reduce the amount of data loaded, which can be more cost efficient for users (who may pay their carrier based on the amount of data transferred) and, more importantly, can reduce the time spent waiting for a page update.



Traditionally, difficulty using a mobile device's keypad to type in text has made user input to browser pages very slow. Sites created using AJAX offer the possibility to auto-fill input fields based on predictive text or previous user entries.

Given the limited screen area of a mobile device, features like expandable menus can greatly improve navigation on a Web site. Additionally, if only top-level menu items are presented, page design can be enhanced and complex menu structures can be presented more easily.

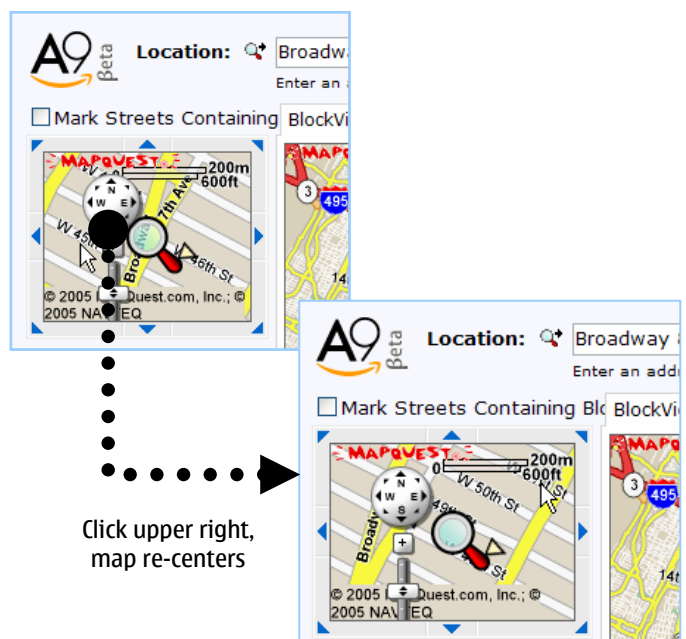


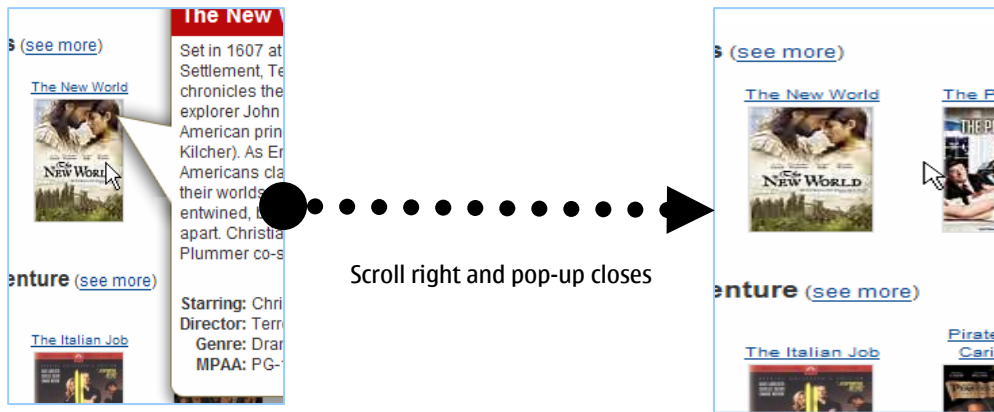
5 Challenges encountered

Both the use of AJAX in Web sites and the Nokia Web Browser are relatively new to market, and there is a challenge to ensure that the mobile user gains from the technology on offer. However, there are certain technical or platform issues that will present difficulties.

Many AJAX patterns are impossible to use without a mouse or touchscreen, for example:

- The click/drag method used in A9 maps.
 - AJAX effect does work, but too slowly (much data transfer, processing power needed).
 - Application map area is too small or squeezed. Mobile screen size needs to be considered.
- Drag-and-drop, using an AJAX-based shopping basket.
- “Hover here” for pop-up details. Pop-up might be off-screen in mobile browser with no means to navigate to it.





6 Summary

Many Web sites and Web development tools don't consider mobile constraints. Some problems include the following:

- Rigid layout, poor fit on small screen, navigation links not close to top left corner;
- Pages that are too large and slow over cellular data network;
- Requirements for too much memory, processing power.

The mobile browser environment is highly fragmented. This situation has resulted in a lack of focus on mobile content issues and insufficient industry knowledge of which AJAX patterns work well on this platform. Among the current challenges:

- Tools vendors haven't yet addressed mobile browsing in their tools;
- Content developers are not considering mobile browsing a target segment (yet);
- Only very limited advice is available for content developers (Nokia is addressing this problem).

7 What's next?

The implementation of AJAX online resources is in its infancy, thus there is a limited knowledge base from which to work. It is important, therefore, to raise the profile of these issues within the developer community and to try to ensure that mobile users enjoy the potential benefits offered by AJAX.

Nokia has recently initiated a program focusing on support for content developers who also want to serve mobile users. This program has begun to publish material on www.forum.nokia.com/browser. Readers are encouraged to regularly visit the site to browse new material and/or partake in the discussion boards focusing on mobile browsing.

8 Evaluate this resource

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