

Chapter 136

Web Site Mobilization Techniques

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ABSTRACT

Mobile-friendly websites are designed to render well on all digital devices, including smartphones, desktop computers, laptop computers, and tablets. Creating a user-friendly experience on mobile devices requires specific web design techniques. These techniques are designed to accommodate the small screens and other physical limitations of mobile devices. This chapter describes the three primary techniques for creating mobile-friendly web sites: responsive, separate URL, and server adaptive. It explains how each technique is implemented, the advantages and disadvantages of each, and their relative popularity. It also describes an emerging mobile technique called accelerated mobile pages.

INTRODUCTION

The introduction of the first Apple iPhone in January 2007 started a historic shift in web browsing from desktop and laptop computers to smartphones and other mobile digital devices. By 2014 two of the largest global shopping sites, Amazon.com and Target.com, reported that the majority of their traffic originated from mobile devices (Sterling, 2015). During the first quarter of 2015 34% of global e-commerce transactions were conducted via mobile devices (“State of Mobile Commerce,” 2015). The number of smartphone users worldwide is forecast to grow from 2.08 billion in 2016 to 2.5 billion by 2019. Over 36% of the world’s population is projected to use a smartphone by 2018 (Statista, 2016). As the number of smartphone uses grows it is becoming increasingly important that web sites provide a good user experience on mobile devices.

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BACKGROUND

Mobile devices have several physical limitations that require the use of special web design techniques to produce a mobile-friendly user interface. These physical limitations include small screens, virtual keyboards, slow download speeds, and high network latency. To accommodate these physical limitations mobile-friendly web sites often display less information than desktop sites, have larger tap targets such as buttons and form fields, use smaller images, and offer fewer navigation options. Sites that are developed primarily for desktop and laptop computers often require mobile users to zoom in and scroll horizontally, providing a poor user experience. Mobile-friendly web sites are designed to render well on all devices, not just mobile devices.

MOBILIZATION TECHNIQUES

Currently there are three popular techniques for developing mobile-friendly web sites: responsive, dynamic serving, and redirect to separate URL. These techniques are referred to by a variety of names so to avoid confusion this article will adopt the nomenclature utilized in Google's Mobile Developer Guide ("Mobile SEO Overview," 2016). All three techniques detect the size of the user's screen and modify the page content and layout to accommodate the device. The techniques differ in how they detect screen size and the mechanisms by which they modify page content.

Responsive Web Design

The responsive design technique delivers the same content (HTML, CSS, JavaScript, images, etc.) to all devices and "responds" to screen size by modifying the layout. For instance, a page design that utilizes a three column layout on a desktop computer may be displayed as one long vertical column on a mobile device. Tabbed navigation on a desktop computer may be displayed as a hamburger menu on a mobile device, and large images may be reduced in size for mobile devices.

Responsive is a relatively new technique. The phrase "response web design" was originally defined by Ethan Marcotte in 2007 (Els, 2015). Marcotte states that web pages should be designed with the flexibility to respond and adapt to the capabilities of various devices. At the time Marcotte proposed this approach CSS did not have the ability to detect screen size but the approach could be implemented using JavaScript. This capability was included in the final recommendations for CSS3 and adopted in 2012 by the World Wide Web Consortium (Hargreaves, 2015). It then took a few years for web browser software to implement new standards and for web site developers to employ the new capabilities in web sites.

CSS media queries have the ability to detect screen size, thus allowing developers to create different layouts for different size screens. For example the following media query located in a site's css file would allow a developer to define styles for devices with screen widths between 320px and 400px.

```
@media screen and (min-device-width: 320px) and (max-width: 400px) {  
    /* styles for small screens go here */  
}
```

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