Chapter 8
Challenges of Multi Device Support with Portals

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ABSTRACT

Although Portals can aggregate and integrate applications "at the glass" on desktop PCs and laptop browsers, more users expect to access Portals on their mobile devices. The challenges to support multiple devices are difficult. Standard HTML web pages cannot be delivered to most mobile devices, which have different capabilities like screen sizes, image formats, and input methods. With thousands of devices and the frequent introduction of new devices, how can a Portal support the many types of mobile devices connecting to the Portal's many applications? In this paper, the authors discuss the issues and solutions to this many-to-many relationship. IBM Mobile Portal Accelerator provides multiple device support from a Portal by using a version of XHTML called XDIME as the content markup and a multi-channel component coupled with a device repository to provide the proper device specific view. As a result, the page that is sent to the device is appropriate for that specific device and its capabilities, where no horizontal scrolling is required, all information fits on the screen, forms work, and all images are rendered properly, creating a positive user experience.
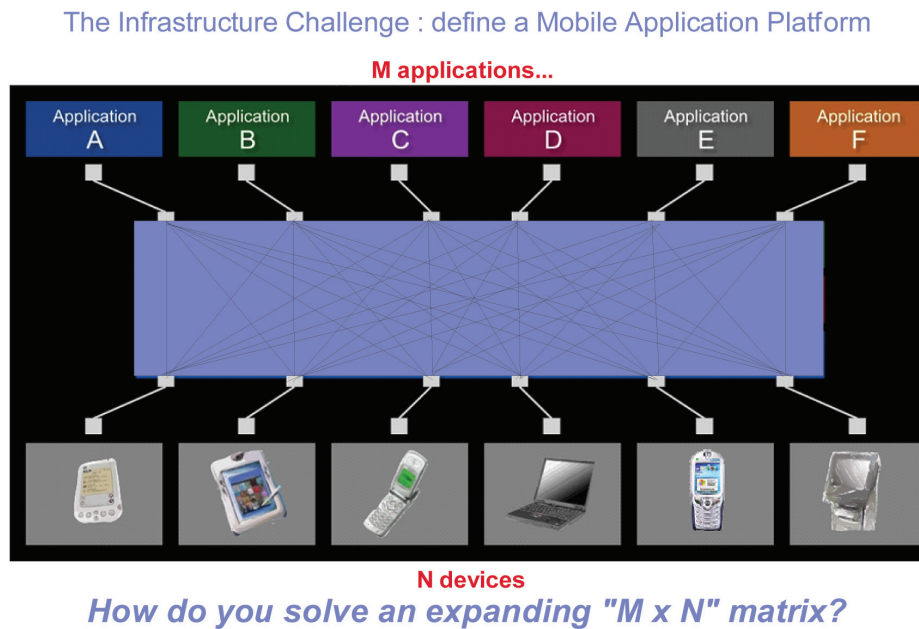
INTRODUCTION

Portals have been around for some time now, delivering content to standard browsers. A good definition of a Portal is; "A web portal is an entry point to a set of resources that an enterprise wants to make available to the portal's users." (Tran, 2002).

The components of a portal include an aggregator. The aggregator is combining the content, for instance pages and portlets together to fulfill a user's request. The challenge for content authors even in supporting HTML markup is to get a com-

Figure 1. The many devices and applications in Portal (Landrum, 2009)

The Infrastructure Challenge : define a Mobile Application Platform

How do you solve an expanding "M x N" matrix?

mon solution for each popular browser. Portals will want to support the top market browsers and any that their clients need. Desktop browsers (different js/css/dom, todo:elaborate a bit on IE/FF/Safari/other browser challenges).

The task is daunting when we introduce thousands of devices with several protocols, different markup, different support for css and javascript (Figure 1). Additionally, the device may or may not use color, therefore a content author will want to fallback to a black and white image when necessary.

When building a quality user interface for a mobile device, the obvious challenge is presenting the right UI artifacts in a smaller window. A developer must understand the use case and stick to the essentials. Unlike a desktop screen where some pages have superfluous areas that can be filled, a mobile device does not have that option. Window space is at a premium.

A designer should use the best practice guidelines. A designer will want to "where appropriate, use device capabilities to provide a better user experience on more capable devices." (W3C,

n.d.). The use of color images or color with fonts is common place but what will the fallback be on a basic device? Coding a fallback technique done well will help with maintenance but may not eliminate updates to the code.

It might be suggested by some that a smaller user interface might help performance because there is less content to request, but it is important to note that lesser doesn't necessarily mean improved performance. What the application requests from Portal is the key. The designer must know the expense of the request to the backend that Portal is aggregating for any request, but it is more important to a wireless device crossing it's telecommunications provider network. Supporting mobile device clients requires performance testing of the Portal and appropriate sizing of the server infrastructure. Delays in the backend will magnify the delay at the device due to the nature of the network topology.

The standards for device identification and support are JSR 188 (Java Community Process, n.d.) and W3C Device Description Repository Simple API (W3C, n.d.). Portals using the stan-

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