

Growing Mobile

The expansion of the mobile Web...

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The mobile web is growing in many ways. This paper will examine some of the main directions of growth, and the implications this has both for mobile browsing and for the web as a whole.

The mobile Web encompasses an environment with several distinct inputs. Crucial among these have been Web technology, which began on desktop devices; mobile devices, which for the purposes of this paper includes handheld computers and mobile telephone handsets, rather than laptop devices; transmission networks, originally developed primarily for either telephony or data transmission but now carrying both and have greatly expanded in reach and carrying capacity.

There have been other important players along the way. The Open Mobile Alliance, formerly the WAP forum is one of the better-known groups internationally, but efforts such as RIM's Blackberry, or NTT DoCoMo's iMode browsing have also been important in the development of mobile Web access, beginning as essentially local services but growing and gathering experience in the global use of the mobile Web. Laptop computing has likewise developed in almost the same timespan as the Web (and more so in the popularisation of the Internet itself, of which the Web is of course just one of the obvious manifestations).

We are now seeing a convergence of these disparate threads bringing mobile data services and the Web together. One of the crucial drivers has been an increase in the power available for mobile browsers. Earlier generations of "smart" phones were barely capable of rendering pages written under very tight constraints - a specialised markup language (WML), a very small memory and processing capacity which generally only worked with specialised services.

The current generation of "smart" phones offers a great deal more. While physically the devices are no bigger, they have much more power. Colour screens, improved battery life, much more memory and processing power means that even what feels like a telephone has the capacity to run real applications, from email clients and media players to fully capable modern browsers. High-end phones often match or outstrip the older desktop computers that are still in use around the world to access the internet.

At the same time, the emergence of gateway services enables more content to be adapted to mobile browsers. Very device-specific adaptation of content, or systems like Opera mini that allow most web content to be rendered on what is no longer considered a "smart" phone are providing access to more services for more people.

As more of the web has become available to more people, designers have realised that the market for mobile services is growing rapidly. Well-designed websites can now cater directly for millions of mobile users without requiring a completely separate development process, bringing them within the reach of ordinary Web designers. Instead of a high-cost ecosystem that was only practical for high-value providers, a local newspaper, dog show, or pub can expect to cater for their local, mobile clients as well as an airline, government-sponsored national theatre or major sporting venue might.

This growth in the size of the mobile Web creates a positive feedback loop, where developers see more interest from mobile user, who themselves see more of the things they are personally interested in

available in a usable form, with each side reinforcing the other's appreciation of what is on offer. Just as we have seen with the growth of both the Web at large and the use of mobile telephones and PDAs, a quiet revolution is occurring, with people coming to value access to information anywhere, anytime, through devices that a few short years ago were really just toys for executives and technophiles.

This popularisation and growing acceptance has come at an important time for the Web. After the "first browser war", which ended with many people just designing to serve one product, we are seeing a new shift in market penetration. If the first browser war was for total dominance, the second is fought on a slightly different battlefield. This time, it is a given that there is a splintering in the browser market - and part of this is directly caused by mobile browsers, which expand the range of available platforms and form factors to the point where questions such as "what screen size does everyone have?" are simply no longer relevant.

Instead, Webmasters are fighting to have standards that they can use and rely on, which are designed to work across the whole environment they work in. The Web is maturing, finding a way to meet the needs of a world that is much bigger than the one in which the first browser war was played out. With civic participation, education, entertainment, science and business all dependent on it, splitting the web in two in order to win a bigger share is no longer a viable option.

The Web has matured, and such formerly fringe concerns as ensuring access for people with disabilities, making internationalisation and localisation are practical, working with complex services chained together to give value, and the democratisation of the Web are now merely normal requirements of today's reality. This means that coping with the special circumstances implied by mobile browsing is no longer considered a special art for a particular niche. Indeed, many of those "special circumstances" are already found in one or other of these former "fringe concerns", so the amount of learning required of someone with "reasonable skills" has considerably diminished.

Acting against all these drivers for growth are a couple of limitations of mobile browsing. The first, that it is difficult to find content that can be used by mobile devices is being steadily removed as explained above. But it is still true that today a large amount of Web content will only work on the very best mobile browsers, and some will not work at all. This is a temporary problem, that will diminish over time.

More serious in holding back growth is the fact that mobile browsing is typically not very comfortable. Mobile devices are small, and limited in their capacity for visual content display in particular. To some extent this can be alleviated by innovative device design. There are also broader horizons opening for the mobile web - multimodal browsing appears to offer a better set of alternatives than those generally used at the moment.

These dampeners on growth prospects can also be offset by taking advantage of the special capabilities of the mobile Web. Particularly time-sensitive information such as sports results or whether a train is arriving, particularly mobile-friendly features such as location-based information, or those designed to take advantage of the infrastructure for micropayments that is already built into mobile phones can all be used to help make content more useful to users. However, this relies on developing content that is relevant in the first place - something that gets easier as the market itself expands.

Finally, as we have seen services such as SMS move across from mobile phones to fixed-line networks, so we can expect to see techniques developed and appreciated in the mobile web become more generally available. Location-based service, a buzzword in the mobile content industry, is nothing more than providing information relevant to a particular place. For many consumers, sitting at their desk or laptop

in bed far away from New York City or Central Tanzania is no reason not to want to know where they could eat, sleep, or see some of the local wildlife. Other examples will come forward as the technology spreads, as unpredicted as the phenomenal growth of SMS was.

This growth in the mobile Web, alongside continuing growth in the "traditional" Web, leads to an increasing need for simple ways to produce content that works everywhere. This in turn leads to pressure for standardisation. As we have seen with the Web, this pressure can take years to rise and more years to have an impact. But that impact is beginning to be felt now, leading to such developments as convergence on HTML, SVG, and similar standards between mobile devices and the web as a whole.

The development of Best Practices, Guides for authors, and information for users, will need to take account of the fact that the mobile data world is increasingly being drawn into the larger Web, and while it is set to become an influential part of that, it must adapt to this new environment as well as the Web adapts to mobile data. Success is more likely to come from meeting the needs of users, not just the needs of specific devices.

This, then, is the path that W3C's work needs to follow. Its initial focus on the common middle ground makes sense. Slowly, it should look at how to bring both the traditional Web and the mobile Web toward each other, rather than trying to follow the path of making one or the other pre-eminent. This will require, in the near future, a concentration not just on content, as the first focus has been placed, but also on the tools that are used.

Content is largely created through authoring tools, from simple page-development wizards or blogging sites to complex and powerful custom-built information management tools. It needs to be rendered on browsers, and needs to be processed by other user agents. In order to provide a reliable platform for authors and users, there needs to be a known level of interoperability, and methods for making use of it which are available not just to high-value content where it is feasible to provide large-scale and powerful adaptation, but also for the bloggers, small Web design companies and small organisations and companies whose content forms the "long tail" that makes up a large part of the content users actually search for.

Thus far, in particular, the Mobile Web Best practices group has avoided having to deal with requirements on tools, yet they are forced to at least set a baseline for devices they expect to be able to support. Work on browser interoperability is analagous to the pressure on browsers from groups such as the Web Standards Project, and can be seen in the rise of work in the WHAT-WG and other groups, whose approach is starting to be (re)adopted in W3C work. We see this as an encouraging trend towards increasing interoperability of the entire Web, and believe it must start actively including the mobile Web.

Work on authoring tools is more difficult. Like content, the market is dominated by a few large players, and a great many smaller ones. Providing guidance for developers of tools relies on first clarifying what the content they generate should be. Only then will we be ready for the really important stages of developing methodologies that can be used to make this easy to achieve in the variety of interfaces that exist, so the possibility can be offered to authors across the entire Web.

One interesting aspect of this will be authoring from mobile devices. While they are not commonly used for writing large amounts of text, their portability makes them extremely suited to a certain set of applications. "Moblogging" - using internet-connected cameras, typically on a mobile telephone, has become popular, and we can expect to see both specialised devices enabling this and more common handsets offering this as one part of the possibilities for authoring on the move. This area is relatively

undeveloped at the moment, but will become an interesting part of the future, especially in areas where mobile Web access is actually more readily available than traditional desktop devices.