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## The future is HTML5

### **The development of web-based applications is currently experiencing a paradigm shift, writes Pdraig Corcoran and Peter Mooney**

The web browser has rapidly evolved from a renderer of simple HTML, which is the language used to represent web pages, into an environment capable of delivering rich interactive internet applications. In recent years, web-mapping applications, such as Google Maps, have gained global success.

People are using these mapping services to perform a myriad of tasks: from exploring a region's geography, to route planning, to real estate evaluation. Despite this ubiquity, web-mapping applications remain significantly behind similar desktop application in terms of both user interface and functionality. Desktop mapping applications allow users to ask geographic questions of the map (such as 'what medic facilities are within ten miles of my current location?').

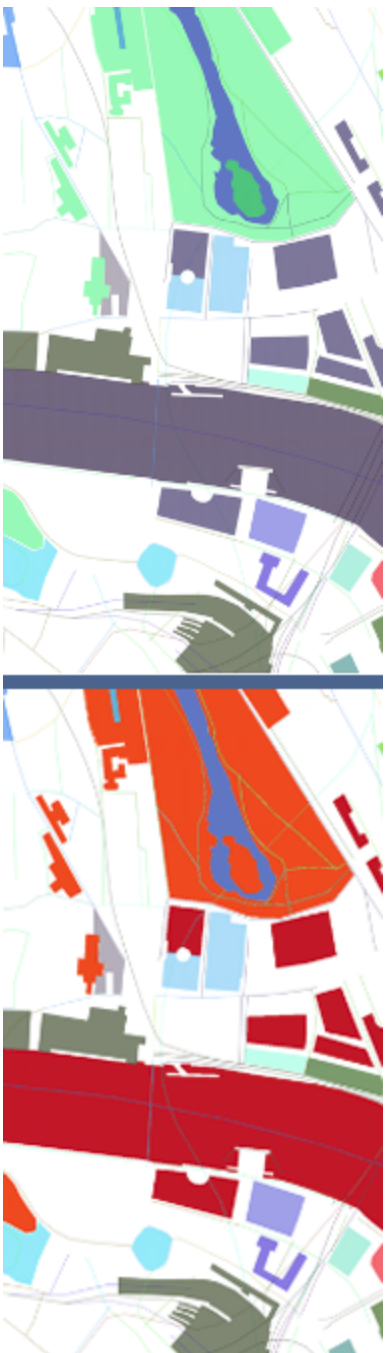
Users can also adapt the map to their specific requirements by reducing unimportant information or changing the visualisation style.

However in most web-mapping applications, such functionality is often not available. The primary cause of these discrepancies can be attributed to two limitations of the current version of HTML. These are (1) the lack of rendering/visualisation support for geographic data a (2) the inability to effectively transmit such data over the Internet.

To overcome these problems most web-mapping applications, such as Google maps, pre-render the geographic map data to produce corresponding pixel or image-based representations. These image representations are then transmitted to the user. Since users do not have access to the geographic representation of the map, they cannot ask geographic questions of it. The user is also severely limited in the options for personalisation of the map appearance or content.

The next version of HTML, called HTML5, will introduce a number of new features providing potential solutions to overcome these limitations. HTML5 will offer two solutions for the visualisation of geographic data. These are known as Canvas and inline-SVG (scaleable vector graphics) features. HTML5 will also provide an efficient method for transmitting geographic data to users in the form of the WebSocket feature.

Researchers in the Department of Computer Science at the National University of Ireland Maynooth (NUIIM) are currently developing web applications which incorporate the advantages of HTML5. The novelty in this research is that geographic data is transmitted to the user in its original, or raw, form. This allows users to ask geographic questions of the map. These applications allow users to adapt the map visualisation to their requirements and personal tastes.



The images above illustrate one way in which a user can adapt a map. The image on the left shows the original map, while the image on the right shows the map when a user has adapted the visualisation. Providing users with HTML5 driven web-application technology is an exciting prospect and it is anticipated that the work in this area, being carried out at NUI Maynooth, could yield future opportunities for commercialisation.

HTML5 represents an effective platform for the development of web-mapping applications. However, developers should proceed with caution. HTML5 is still in its development phase and many of its features are not widely supported by web-browsers. It is estimated that i

will be 2013, at the earliest, when HTML5 achieves a sufficient level of browser support to be considered reliable enough for more widespread deployment.

Some browser security concerns regarding HTML5 must also be considered before deployment.

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