



A base line on Internet maps

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If you need to put a map onto your Internet site, chances are it will be a base map on which you can display simple point or area data. Users browsing your site need a frame of reference for your data, and a base map often fills the bill. For most Internet users, it should be similar to the paper maps they already know and navigate by.

As with choosing any data, you need to consider everything from the type - raster or vector - to how much you need and what it will cost. Some vendors won't let you use their standard data on the Internet. Ordnance Survey's NetMap, for example, is the only OS dataset you can legally use on the Internet. While cost of data for Internet use varies, you are looking at over double the price of a single user licence, because the potential reach of the product is far beyond that of a normal desktop or server-based GIS.

Vector data is often used for base mapping, and its strength lies in its flexibility. Scale independence is possible by switching layers and features on and off at certain scales. Large scales can show building outlines within a town; small scales can show the town as a single dot. The same data can be used for all scales and can be coloured and customised to taste.

The major problem with vector data is its appearance. A high level of data preparation is needed so users can easily understand the data, and so the data doesn't look like a loosely tied bunch of coloured sticks. Even then, such things as appropriate text placement, which for raster data is all done by the supplier, cannot be achieved using standard Internet mapping packages and simple spatial plug-ins. However, more complicated server-side tools for text placement and feature rendering are available. These can give you the flexibility of vector data with raster-like presentation quality.

Raster data is basically the digital format of everyday paper maps. The roads, towns, rivers and forests are all coloured appropriately and contained in a single layer. There is no need for data preparation, positioning of text or colouring and styling of lines. In effect, it is the "plug-and-play" of spatial data.

The main problem is that raster is scale dependent. Although you can pan around happily at the data's own scale, extensive zooming in or out degrades the image quality. You cannot show only selected features at certain zoom levels as you can with vector - what you see is what you get. Scales of mapping at 1:200,000 may allow you to zoom in to 1:100,000 or out to 1:300,000, but beyond that you will need new datasets. Finances permitting, you might want to buy raster data at a smaller scale for rural areas and a larger scale for urban areas, although this might result in a nasty cut-off at the rural/urban boundary.

Raster's greatest strength can also be its greatest weakness. In comparison to the 'simple' lines, areas and points of vector data, raster data tends to be highly coloured, with few areas of one single colour. Some datasets of towns, in particular, are so confusing that they obscure the features you're trying to show. If visitors to your site cannot make out the features they want to see, they may not come back. The simple solution is to grayscale your base map, which will enhance the spatial features you are displaying on it.

Choosing your base mapping will be a trade-off between the flexibility of vector data and the quality of representation, and ease of understanding and implementation, of raster mapping. As with many things in life, the outcome may be as much a decision of economics as of ergonomics.

