

Open Source Web Mapping Puts Communities in Control

Low cost and ease of use make Open Source Web mapping technology a natural for community organizations

By Graham Young

In the 2000 movie *Pay It Forward*, an 11-year-old boy is challenged by his teacher to make the world a better place. The boy comes up with an idea: if someone does a good deed for you, you must do good deeds for three other people, and so on and so forth. The idea of paying forward a good deed (rather than paying it “back” as is more the norm) is by no means exclusive to Hollywood’s scriptwriters. In fact, this same altruistic philosophy underpins a new community-based approach to creating and sharing Web mapping applications. It’s all part of the burgeoning world of Open Source Web mapping led by software developer DM Solutions of Ottawa, Ontario.

The Open Source premise is simple: make the Web mapping software available to everyone for free. But if you enhance the software—by adding a special 3-D map-display capability, for instance—then this enhancement then becomes available to everyone else at *no charge*. So, by enhancing the software that others created, you serve not only your own needs but also those of potentially dozens or even hundreds of other users. And chances are that others down the road will improve the software in ways that benefit your organization. In those situations, paying it forward comes full circle, if you will.

“Every time someone puts a dollar into making this Open Source software better, everybody benefits,” says David McIlhagga, President of DM Solutions. “That’s exciting because an enhancement is paid for once, and then it’s freely accessible to all stakeholders. And from there, as particular needs come up and people fund them, the technology advances further.”

Centre for Sustainable Watersheds harnesses open-source solution

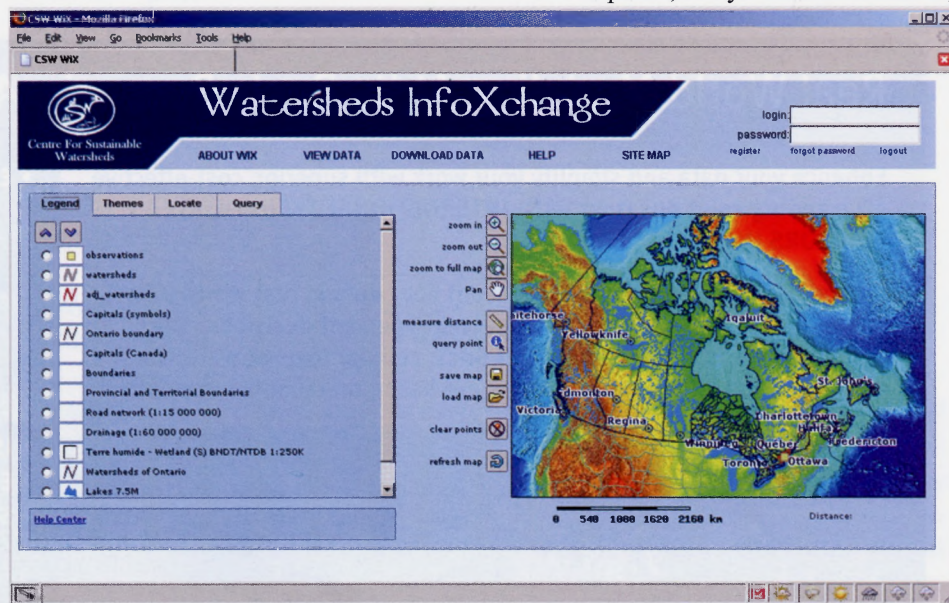
Community groups are buying into this collaborative spirit. For instance, the Centre for Sustainable Watersheds on Rideau Lake in Portland, Ontario is taking advantage of Open Source Web mapping technology to help them better understand issues involving water quality, shoreline erosion, boating traffic, invasive species, habitat, and biodiversity.

The Centre is using this technology to develop the Watersheds InfoXchange (WIX), an application that will let people from the community enter and manage data about water

Resources Canada, the Ontario government, and various other community groups. Consequently, all stakeholders stand to gain more insight into how to solve problems affecting watersheds.

And because the solution is being developed exclusively with Open Source technology, other environmental groups across Canada and the world will be able to use the same solution at no charge. The potential result is a distributed network of worldwide communities capturing, managing, and sharing data cost-effectively and cooperatively.

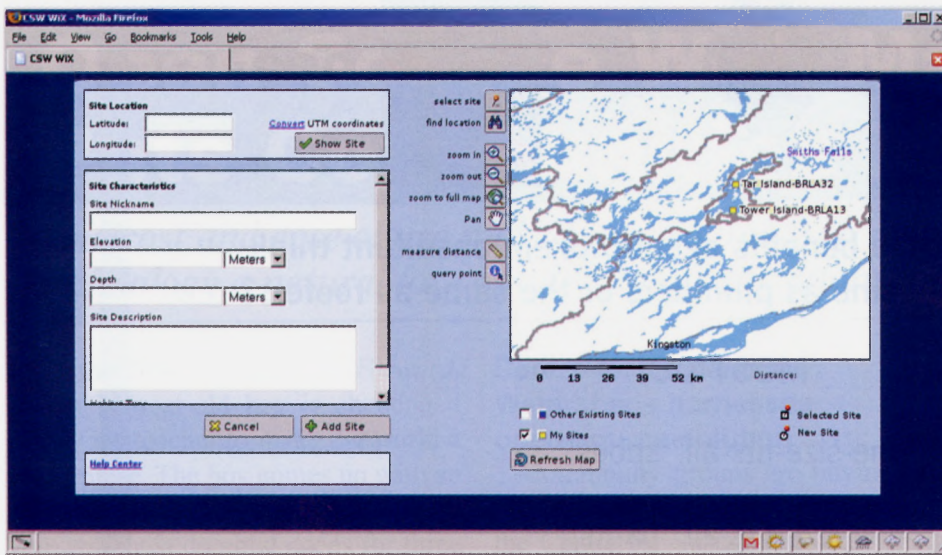
“Working with Open Source technology brings a different mentality to the workplace,” says Sarah Rosolen,



quality and other environmental indicators. Working with the Centre to develop WIX, DM Solutions is making sure that the application meets Open Geospatial Consortium standards. These standards will allow the Centre to maintain its own community-generated database and integrate it with data from Environment Canada, Natural

Executive Director with the Centre for Sustainable Watersheds. “We’re developing something that other people can use for free, and we know that we’ll likely benefit down the line from other groups building on the technology as well. It’s a real opportunity for sharing.”

Before designing WIX, the Centre



consulted with some 80 people representing a host of different government departments, community groups, and municipalities. Why did Ms. Rosolen and her crew seek input from such a wide breadth of stakeholders? Simply, the more organizations that use WIX, the greater the chance they will pay to improve its underlying open-source technology, improvements that may well benefit WIX.

Ms. Rosolen also sees plenty of opportunity for other interest groups to capitalize on WIX's capabilities. "Basically anyone that we talk to about this technology becomes excited because it offers so much potential," says Ms. Rosolen. "For example, the tourism and agriculture industries could both benefit from the same type of data collection and management system that WIX offers. And if they subsequently develop an application, we may be able to use it; so promoting the technology to a broader audience makes sense. We all benefit in the end."

Resort to Work serves community with open-source technology

Resort to Work is a small company that serves the business needs of telecommuters, cottagers, the self-employed, and others working in Quebec's Gatineau Hills just north of Ottawa. The firm offers a variety of Internet-based solutions such as website development, content manage-

ment, virtual reality tourism, and Open Source Geographic Information System (GIS) mapping, all designed to help local businesses and groups sustain the Gatineau Hills community.

Keeping costs down is vital to such a small shop, and that's why Resort to Work approached DM Solutions to assist on a project for La Pêche GIS Society, a community organization dedicated to GIS mapping in the Gatineau Hills. This project, the Wakefield GIS Pilot, uses Open Source technology to map recreational trails, rivers and watersheds, and heritage buildings. Under the project, the town of Wakefield, Quebec, will use Global Positioning System technology and GIS tools to boost tourism; help Internet service provider Cooperative Source Internet design and deploy a high-speed, wireless community network; protect the environment; and make informed development decisions.

"DM Solutions provides us with an affordable and extensible platform that allows us to engage our constituency in community GIS mapping," says David Nobbs, co-owner of Resort to Work. "In short, Open Source technology offers community groups like ours access to extremely sophisticated Internet tools at a low cost."

DM Solutions trained four Resort to Work employees for a day on MapLab, a suite of Web-based, Open Source tools that simplifies deploying

MapServer web-mapping applications. Leveraging this training, Resort to Work employees now create Web mapping applications on their own.

"With very minimal involvement on our part, Resort to Work has been able to get off the ground," says Mr. McIlhagga. "You don't necessarily need a lot of consulting support to take advantage of this free Open Source software."

The open-source business case

When Mr. McIlhagga tells people that DM Solutions gives away its Open Source Web mapping software, they inevitably ask, "How do you make any money?" His answer: "We may give away our software, but we don't give away our expertise."

DM Solution's revenues fall into three categories. One is training. People need to learn how to use the software, so DM Solutions relies on its expertise to teach them. Consequently, training is a rapidly growing part of the company's business.

And so is customizing applications, the second revenue category. In other words, DM Solutions has already built the engine—the Open Source mapping technology—and customers come to the company to install that engine in different vehicles. So, DM Solutions designs and builds red cars and blue vans and cars with roofs and cars without and so on.

"By harnessing the technology to fit a customer's desired application and presentation, we give their Web mapping solutions a professional look and feel," says Mr. McIlhagga. "Customers may not have the time or the expertise to do this work themselves, so they hire us to handle it."

And the third revenue category is software enhancements, which generates a relatively small portion of DM Solutions' overall revenues.

DM Solutions' position at the helm of the Open Source Web mapping industry offers the company's customers special advantages. "Because we sell no software licenses, we deal with customers much differ-

ently than a traditional license-based software vendor would," says Mr. McIlhagga. "We focus on getting communities to use Open Source technology to solve their problems. Whether they install software on one computer or 1000 doesn't matter to us. All that matters is that the solution works."

And if the solution works for one organization, chances are it will work for another, one that may enhance the software later for the betterment of all—an ending that Hollywood's scriptwriters would no doubt applaud.

For more information on Open Source Web mapping or DM Solutions, go to www.dmsolutions.ca.



S I D E B A R

Open Source solutions turn traditional adversaries into partners

Most software vendors make money by selling as many software licenses as they can. And although this volume-based sales mentality suits vendors, it can hurt software users.

Users have to pay for each license, and that expense can quickly add up. Then users have to spend time and energy negotiating license agreements, and the licenses can carry restrictions. Who can use the software? Do users get the complete package? Or can they use only a part of it? Also, off-the-shelf software may address only certain needs, and, if users pay to customize the software, the next organization that needs the same customization must pay for it again.

An Open Source software model, however, avoids these pitfalls by making the software avail-

able for free. Suddenly, the relationship between user and supplier changes enormously. No longer do they argue over license fees or usage restrictions or software shortcomings. Instead, they work together to develop needed solutions.

Vastly different motivations drive the two types of software suppliers. A traditional vendor measures success by license sales; an Open Source vendor by whether the solution meets client needs. Open Source suppliers strive to meet users' goals—not a license-fee sales target—and that distinction often results in a less expensive and more effective solution.

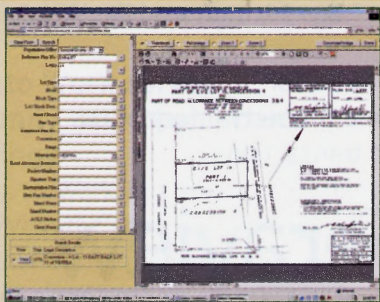
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