

# FROM FIELD SURVEYS TO THE WORLD WIDE WEB – Open Source Maps the Route

By Linda Berger

Surveyed information of our world has been essential for many years and the demand continues to increase as its applicability continues to expand. Whether the issue at hand is to make critical decisions regarding urban growth, determine legal boundaries for an insurance claim or to conduct environmental assessments, Surveyors have provided the essential information from which to begin. The wide variety of information acquired through the various surveying specialties, whether cadastral, geodetic, hydrographic or photogrammetric eventually converge to be processed, analyzed and stored through some form of geographic information management system. The data or other spatially relevant information is eventually used to create geographical output in the form of maps and other documents. Traditionally the process was time consuming and often involved many people. The resulting output was limited to the query of information sought at the time a survey took place or was even outdated. The emergence of new technologies over the past decade has changed this process dramatically, providing diversified options for the medium or format that the final product will assume. These technologies are paving the way for uncomplicated integration of diverse data from varied sources, for multiple uses in different environments. Web mapping technologies are at the heart of these changes, driving greater access, interoperability and escalating the value of surveyed information to new heights.

While the emerging technologies have brought about these dramatic changes, we are still only scratching the surface of their potential. The benefits are varied and are accumulating both for internal and external public uses. For example, in the U.S. real estate sector, the use of parcel information is becoming a crucial means of showcasing homes for sale. This information also enables the visualization of spatial real estate trends in terms of pricing, socio-economic, and other factors that influence real estate decisions. The roots of this information of course are embedded firmly in the surveyed data, but this data finds its ultimate use and value when applied to web mapping applications accessible to anyone using a computer or handheld device. In short, Web mapping technologies have become the critical vehicle linking the information origi-

nally collected by surveyors to the end user: a user who can now see this information in the context of his or her particular need, be it real estate, utility planning, environmental or finding directions.

The benefits of using Web mapping as a delivery mechanism within the surveying community begins with the ability to expand business through value added services. Typically the Surveyor works in the field collecting the data; is responsible for its accuracy; and delivers the data to the client, usually on a disk. At this point obligations have been fulfilled and the Surveyor/Client relationship becomes a distant one. If there were a way for the Surveyor to leverage the base data already collected, the opportunity to expand business relationships with clients would be palpable. The offer of a Web mapping site could tie valued clients more closely to the Surveyor's services. The benefits to the Surveyor's business can be substantial. Using Web mapping as a delivery mechanism enables the Surveyor to provide additional services above simply supplying data. New commercial potential exists in the ability to accumulate data from multiple projects, merge the data into applicable formats and create new products marketable to new clients. The result is a maturing business with the potential for significant increases in commercial products and income. Previously, however, the expense and process of creating a Web mapping site would be a complicated one involving the purchase of expensive software, maintenance of a hosting facility and the availability of program staff to deliver data via the web – in many cases prohibitive on most practical levels. This situation has changed drastically with the advances in acceptance and development of Web mapping technologies.

At the forefront of the rapid growth in development and adoption of Web mapping technologies, open source has been leading the way. The emergence and availability of open source map servers, the first being University of Minnesota Mapserver in the mid 1990s, started a trickle in what would become a wave of acceptance of open source



Web mapping technologies. The appearance of open source Web mapping brought about huge changes to a relatively small industry and user base. One such change was the sudden increased ability for a more diverse user base to access geographic information using the World Wide Web through open source technologies available to anyone, anywhere, anytime. The decentralization of data and applications paved the way for new possibilities and challenges and sparked a push for interoperability. User acceptance and feedback impacted the Web mapping business environment in general and fuelled the need for a fresh approach and new business model. Hence the emergence of a handful of innovative new companies focused on interoperability and Web-based mapping.

Leading the way with an enlightened vision Dave McIlhagga, President and CEO of DM Solutions Group (DMSG) based in Ottawa, Ontario, pledged his enduring commitment to the open source movement. Using open source web mapping technology, MapServer, at the core of its business model, DMSG embarked upon a business venture which would become a significant contributing factor in the growth and acceptance of the technologies Canada wide. DMSG contributed source code and developed supporting technologies, which stimulated growth and acceptance, and exceeded industry expectations. This in turn led to commercial success in a formerly non-commercial realm and generated successes to the industry overall. To this end DMSG's avant-garde approach would be the catalyst for significant achievements and milestones in the Canadian geospatial industry by and large.

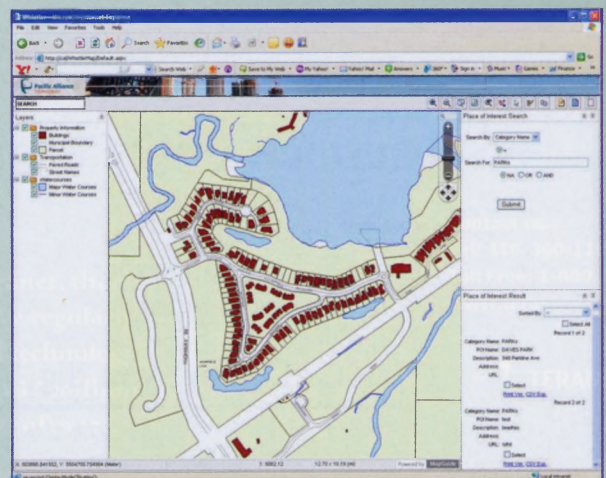
In eight short years, DMSG has become the primary source of corporate support for MapServer technology worldwide. In 2006, MapGuide, a Web mapping product previously only available through proprietary licensing, transitioned to open source. This decision by Autodesk, a traditional source of CAD and GIS software for manipulating and managing surveyed information, was a bold and exciting move for the industry. DMSG enthusiastically supported the move and in under a year DMSG has become one of the primary contributors to this new open source project.

What began with a MapServer user base of several hundred in 1998 grew slowly but steadily to an estimated 5000 by the year 2003. The past three years, however, have seen the open source Web mapping user community increase significantly to an estimated user base of 100,000, a spectacular growth to be sure; due largely to the interest and acceptance in Canadian federal, provincial and municipal governments and associated consultant groups. A major turning point in attitudes toward the open source Web mapping industry in Canada overall came with the Atlas of Canada's forward-thinking decision to migrate its Web-

based atlas to the open source MapServer platform being developed and supported by DMSG. See <http://atlas.nrcan.gc.ca/site/english/index.html>. Driven in part by a desire for features, which at the time were unavailable in the marketplace, the move to open source would ensure the Atlas of Canada would no longer be limited by traditional commercial Geomatics software. At the same time this collaboration would impact the direction of the technology and expand on its deliverables and consequently its uses. The uniqueness of this relationship would allow business needs to drive the development of the technology: a default characteristic of the open source business model.

Yet while open source Web mapping technologies keep maturing to meet the growing needs of its users, up until 2006 one crucial need was not being met. The missing piece of the puzzle and possible impediment was in the support for the technology. A transition including the offering of a commercially available support infrastructure for open source Web mapping therefore seemed appropriate. Consequently DMSG Premiere was launched in fall 2006. Drawing on the company's specialized skills, DMSG Premiere would ensure that in addition to support for technology issues, subscribers would benefit from the company's best practices for building high quality Web mapping applications. A multi-level services structure enables business partners to embed the most appropriate plan into their own value-added support offering while keeping it simple for their customers. Visit <http://www.dmsolutions.ca/premiere/index.html> for more information.

Dave McIlhagga, President & CEO of DMSG explained, "By providing a service that focuses on helping people build better Web Mapping applications in addition to standard software support, we can provide maximum value to our customers from the open source software development process. We'll be satisfying not only the commercial support



Resort Municipality of Whistler uses iVAULT technology for publishing survey data.

requirement of production environments, but also the resources for professionals to maximize their ability to deliver world class Web Mapping solutions.”

Pacific Alliance Technologies in Vancouver B.C. offers iVAULT, a Rapid Application Development Toolkit for MapGuide Open supported by DMSG Premiere. “With iVAULT, one of our CLS clients is developing web-mapping sites for their clients without the need for software developers – but with their current staff. Supported by DMSG Premiere, the CLS client is comfortable that their implementations are supported and will be continuously updated to meet the demands of new operating systems and source data.” said Chris Webber, President of Pacific Alliance Technologies.

To learn more visit: <http://www.pat.ca/mapguide.htm>.

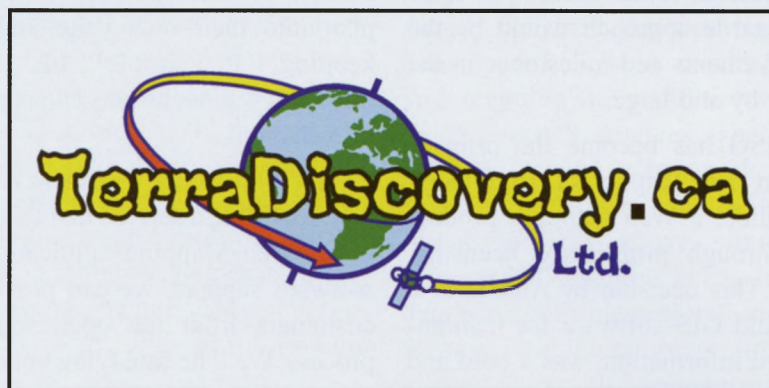
“DMSG Premiere provides an important option for those needing commercial support services for their open source Web mapping applications,” commented Tyler Mitchell, one of the leading advocates for users in the open source Web mapping community and author of the popular O’Reilly book – Web Mapping Illustrated. “My initial testing of the service found it easy to use and I’m impressed with the approach they have taken. This will be a valuable resource

for anyone needing mission critical service support or the occasional piece of professional advice.”

With open source Web mapping becoming progressively more mainstream, the need to advance the commercialization of these technologies has become apparent. Consistent, predictable, commercial support is instrumental for the adoption of open source technologies in most IT departments and certainly in any mission critical environments. As fear and reluctance are diminished and processes for maximizing open source value become clear, the ability for organizations to adopt open source is changing. As potential users adapt and move toward acceptance of open source, the industry itself needs to adapt as well. DMSG will be doing its part to mature and expand on its ability to support open source technologies and while these services are now heavily in demand around the world, Canada will surely continue to lead the way in its embrace and adoption of these critical geospatial technologies.



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