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## Geospatial Technologies In Your World

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### THE INTERVIEW

#### Five Questions for . . . Paul Ramsey

Paul Ramsey is the president of Refractions Research, a company he founded in 1997. He serves as a director, leads the development team, and serves as systems architect. He's also well-versed in open source geospatial technology and open geospatial standards.

#### 1. How do you explain the concept of open source to potential users?

Open source software is software that is distributed along with its source code. Software is generally distributed as machine code, as a black box that accepts certain inputs and generates outputs from them. Open source opens up the box. Open source is like a restaurant that not only serves up a tasty meal, but gives you the recipes to take home and try yourself, maybe even improve and change.

Whole treatises have been written on the general concept of open source, probably the best is Eric Raymond's *The Cathedral and the Bazaar* which explores how open source can be used as a tool of technical community building, and how technical communities of interest can in turn feed back and radically improve source code through collaboration.

Open source enables collaboration between groups and individuals that would ordinarily have no point of contact. The UMN Mapserver, a Web mapping server (Figure 1), includes contributions funded by the government of Canada, by NASA, and by the government of Brazil. It also includes code donated by academic programmers, and independent software developers. All these developers have different goals, and are building radically different systems, but the open source framework of Mapserver provides them with a forum within which to collaborate.

By becoming part of an open source community, a new user not only gets access to a very useful piece of software, but a substantial peer group, who can share experiences, and pool development effort to achieve common goals.

#### 2. What's the role of open source software in the geospatial market today? How's it doing?

As with open source in the larger technology marketplace, it is generally invisible to the established customers and practitioners. This is not surprising, because organizations with established technology environments and ways of doing things do not have a compelling reason to look beyond their current environments and suppliers.

It is around the edges of the market that open source projects are

making real inroads: with users new to geospatial, who have no preconceived notions about tools and technologies; and with established organizations exploring relatively new application categories, like OpenGIS Web services, where proprietary companies have left some holes in their product lines. These new users are taking up open source because it is freely available, has no evaluation licenses to sign, and works.

As time goes on, and organizations reach the end-of-life of their existing software and look at their next generation software requirements, open source should be considered a viable alternative, alongside other products. We are already seeing this in the larger marketplace—decision makers no longer look askance at the open source Linux and Apache projects. In the geospatial realm, mature open source products like Mapserver and PostGIS [an open source product that spatially enables open source PostgreSQL] (Figure 2) are ready to be evaluated on their technical merits alongside their proprietary equivalents—decision makers just need to feel validated in doing so, and that takes time.

**3. One of the concerns about open source software in the geospatial community (and others, I imagine) is how the companies that support it make a living. It's the time honored question: how do you make money from something that's free?**

My company is an ESRI business partner, and one of the ways we make money is by providing consulting and development using the ESRI product line. The freeness or non-freeness of a product is of little interest to a consulting company. What is of interest is: does the business equation of using this software make sense for my client, and will my client pay me to implement a solution using this software? So, the general answer is, you cannot make money from something that is free, but you can make money using something that is free.

However, your question was more pointed — you want to know why a company like Refrations Research specifically puts money and effort into products that cannot directly return us any revenue. We do open source development not to acquire revenue, but to acquire clients, who will in turn provide us with revenue: either clients who want to use PostGIS or another open source product, and need our advice specifically about those products, or clients who are simply impressed with what PostGIS represents about our technical ability, and want to use us for other geospatial consulting. Our work on open source is a calling card which says —there are spatial database experts over here, come ask them for help!—

**4. Your company, Refrations Research, is behind the open source PostGIS. Do you think its place in the —backend server— side of things (Figure 3) makes it more likely to be successful than desktop GIS efforts like GRASS? Are we likely to have a widely used open source desktop GIS anytime soon?**

Open source projects that address the backend and client/server geospatial computing problems have certainly grown faster over the past few years than older projects like GRASS that provide a monolithic desktop GIS. I think this has a great deal to do with open market gaps, but it is also indicative of the effort and complexity involved in writing a complex desktop application like GIS software.

GRASS was technically competitive with other GIS products at the

time of its inception (that was really the point of GRASS, to do everything that proprietary products could do and more) but that was many years before it was open sourced. By the time it was open sourced, much of the GRASS user community had moved on to other platforms, so GRASS has been rebuilding a community from scratch, and it has to be a community willing to put up with the limitations of a platform that is getting close to 20-years-old.

Refractions Research is working right now on an open source desktop GIS framework, that can efficiently use the new OpenGIS Web services infrastructures, and also integrate database servers and legacy file formats. The project is called uDig (User-friendly Desktop Internet GIS) and will have a 1.0 release in March 2005. uDig is partially funded by the Canadian GeoInnovations program.

That said, I do not think there will be a **widely used** open source desktop GIS any time soon. It is possible that uDig will become widely used among people who have never had access to a GIS before, but the general GIS community has already committed time and effort to learning certain tools, and it will take years for a change over to some new ubiquitous tool to occur. Whether the change over is to an open source suite, or to something proprietary but completely unexpected, remains to be seen.

**5. IBM is leading traditional commercial software vendors in turning over bits of its source to the open source community. What does that choice mean for commercial software players? For the open source community?**

IBM is quietly becoming a very aggressive open source company. The company seems to have recognized that the future of proprietary software is at the highest level of innovation only, and that all other categories are destined to eventually be standardized and commoditized. So, the only people making money will be the extremely innovative (and IBM continues to pour billions into research and development) and the systems integrators (and IBM Global Services continues to lead the pack as a consulting organization).

For proprietary players, it means that one of their own is turning on them, and actively seeking to commoditize areas of software that might otherwise have had a slightly longer run as proprietary domains. The IBM donation of speech recognition code into the open source domain is one aspect of this, as is the company's ongoing development of the Eclipse open source software development environment.

For the open source community, IBM's recognition is a validation of sorts, and it helps in talking to some decision makers, but it does not change the day to day order of business. [For us that means] read the mailing lists, help the users, think about suggestions, implement the best, squash the bugs, talk with your peers about the subject you love, and always make things better.

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