

Going Global

ASPs and Third-World Labor

Jonathan W. Lowe

Except for mouse-clicks and occasional murmurs of conversation, this roomful of computer terminals is serenely quiet. Here, operators turn scanned contours and roads into digitized vectors, three shifts a day, round the clock. If you had to guess, where in the world would you say this room is? Hint — within a block, women in saris are selling carpets, jewelry, and handmade paper, while men in flip-flops offer bamboo flutes, Ghurka knives, and statues of Buddha. Did you say Kathmandu, Nepal? Good guess! But is this clean, modern data-conversion operation a third-world GIS sweatshop? Maybe not.



Across the world, a spatial decision maker sits down at her desktop computer and clicks on a map icon. A Web browser opens, and the page it displays looks more like a GIS desktop application than a regular Web page. There's the map she created yesterday of customers and their demography. The change since her last login seems to be a new line of function buttons resulting from an overnight version change to the newest release of the application. If you had to guess, where in the world would you say the hardware, software, network, data, and overall administration for this Web-based GIS application are? Since this example describes an ASP infrastructure, the only certainty is that none of the components of the GIS application (except the decision maker) are in the office. They are probably near a major Internet hub at some urban center. If the application works, though, maybe it doesn't matter where the infrastructure resides. Maybe.

The locations of digitizing work and physical computing infrastructure are decentralizing in response to the Internet. For large corporations in particular, both tools and workers are becoming more widely distributed. Architects of future geospatial business processes are already attempting to increase efficiency with ASP infrastructures or third-world labor markets. In these solutions, the decision makers stay at headquarters, but the laborers and computing infrastructure are geographically (and culturally) very distant and distributed. In theory, gains in efficiency enabled by local politics, economics, and technology, make the distribution of tasks advantageous. But let's lay out the inner

workings of ASPs and third-world labor markets so you can decide for yourself whether geospatial businesses can benefit from these emerging opportunities.

Small tip, big iceberg

Has your accountant ever tried to explain tax law to you? As a precondition of retaining his services, I made my accountant promise that he would never pain me with any such explanations. Pity the poor ASP marketers because their daunting job is to explain the details of ASP infrastructure to potential clients whose ulti-

mate desire is to avoid having to understand the details of ASP infrastructure!

ASPs sell systems that grant many disparate users Web-based access to a complex IT infrastructure and numerous software programs, but conceal this complexity with a simple and intuitive front end for their customers. An ASP is like a remote IT department that upgrades applications, protects data, and maintains connectivity between users.

The simple idea of an ASP is that you can do your work anywhere that you can access the Internet with a Web browser. All the programs once installed on your own PC, all the data you manipulated with those programs, and all the infrastructure supporting the sharing of work between colleagues and their computers — these no longer reside on your local PC or even on your company's central server. Instead, everything has moved elsewhere — to a variety of places, really. And all of

This column covers the role of emerging technologies in the exchange of spatial information.

Glossary

ASP: Application service provider

IT: Information technology



Net Results columnist **Jonathan W. Lowe** is the owner of Local Knowledge Consulting (Berkeley, California), where he designs and implements spatial Web sites. Lowe can be contacted at info@giswebsite.com.

Your virtual IT hit man, the ASP, takes care of the messy jobs now, including up-grades, backups, security, and technical support.

those places are secure, all are connected to fast lines, and all are accessible by you and your colleagues via the Internet. It ain't cheap, but in the long term, an ASP's assistance may be cheaper than maintaining a home-grown system. ASPs are hoping you'll draw this very conclusion and sign a contract for their services today.

Taking care of business. When you do get curious about the ASP model, you'll meet that sad marketer I mentioned earlier, and he'll explain the following. ASP's are seldom single entities. Instead, they form partnerships with experts in hardware, software, network, and application technologies and combine them into a single turnkey system of apparent simplicity to their customers. A large ASP such as Corio (www.corio.com), for instance, partners with networking experts like Cisco Systems (www.cisco.com), hardware experts such as Compaq (www.compaq.com), Dell (www.dell.com), Hewlett-Packard (www.hp.com), and Sun Microsystems (www.sun.com); and software experts such as Microsoft (www.microsoft.com), Peoplesoft (www.peoplesoft.com), SAP (www.sap.com) and others, depending on the customer's needs. All that Corio's customers have to do is connect to Corio's data centers and start working (and paying). Then, in theory, the traditional IT headaches surrounding maintenance of hardware, software, networks, security, applications, and so on, all disappear beneath the protective mantle of the ASP's crack team of ever-current experts. When problems arise, Corio handles them by snapping the whip over its partners while you, the customer, sleep peacefully through the night. The ASP also checks to make sure the partners are keeping their applications up-to-date with the latest releases and versions of each software package. Again, the headaches of upgrades are hidden from the end users, whose day may begin with the discovery of a delight-

ful new row of function buttons and a crisp clean new look to that up-graded Excel worksheet, all without the once-familiar bloodshed, curses, and physical assaults on IT staff. Your virtual IT hit man, the ASP, takes care of the messy jobs now, including up-grades, backups, security, and technical support.

Financially, an organization of 50 or more people is likely to save money with an ASP model. Building and maintaining a home-grown IT system to serve more than 50 people costs close to \$200,000 (according to *PC Magazine*, April 2001) whereas an ASP solution with the same functionality costs between \$3,000 and \$5,000 per month, roughly one quarter the first year cost alone. (Some ASPs are aiming at small businesses, too, offering such specialized services as accounting packages at rates as low as \$5 per month.)

An ocean of icebergs

As you might expect, there are quite a few ASPs hoping you'll pay them to boss around those high-tech partners. As you also may anticipate, an ASP marketer's big job is to dissolve your fears about transferring everything you value from your safe and defensible office into the unknown ether of ASP-land. Two important questions arise: Is the entire system secure? And will the network ever go down?

Security. There's no sense in moving all the gold out of Fort Knox to a less secure fortress. A good ASP will have several tiers of security (physical, digital, and procedural) and will be able to explain their system without overuse of jargon. For instance, the physical storage locations of the ASP's databases and backup tapes should have real-time monitoring with intrusion-detection and alerts. The databases and applications themselves should also have their own security system — different logins grant different permissions to different users. And, using technology like the Virtual Private

Network, the ASP should protect the privacy of the Internet connection between customers and data centers.

Availability. Most ASPs claim 24/7 availability and performance of the entire infrastructure and all of their customers' applications. They promise that the critical line of access to the system, the network, will be up 99.9 percent of the time. Justifying such claims requires a complex setup of redundant access points and multi-layer firewalls, universal power supply, diesel backup power, seismic engineering in some regions, fire-protection measures, off-site backup, and tested plans for rapid disaster recovery. Learning about the details of such an intricate infrastructure reminds most customers about why they considered an ASP in the first place — to avoid the details. But like finding a good accountant to avoid the details of tax law, ask a few questions first in finding the best ASP for you.

Titanic options

To further differentiate themselves and draw specialized customers, some ASPs are offering more than the usual data warehousing and business applications. A few are courting spatial customers. For instance, Infrascop (www.infrascop.com), is an ASP that also "extends currently deployed point solution GISs with enterprise class functionality." Timothy Pletcher, Infrascop's co-founder and CEO, hopes that his ASP will revolutionize "the speed of access, retrieval, quality and accuracy of data available for the planning, engineering, building, renovation, and maintenance of the world's most complex infrastructures such as roads, bridges, airports, utilities, pipelines, and commercial and industrial structures." Given the ASP model of universal browser access via fast Internet lines, Infrascop's interest in the vertical markets of transportation, logistics, facilities management, petrochemical, and buried utilities may pay off as these industries shift

toward field access of spatial data on handheld devices. Field crews will be able to use both their spatial data and the analytic applications on a wireless device connected to the ASP's data center.

Another GIS-oriented ASP is Spatial NetWorks, Inc. (www.spatialnetworks.com), "a growing spatial information technology company focused on providing comprehensive solutions to the telecommunications industry," according to their Web site. Spatial NetWorks' potential customers can use this ASP when designing a new wireless network, planning the latest fiber route, preparing for damage prevention, or maintaining physical infrastructure. As with all ASPs, the message to potential customers is that using an ASP lets you focus on core business issues rather than being distracted by IT infrastructure.

Offering to serve spatial applications is one way to attract spatial customers, but how can you use spatial information to attract (formerly) non-spatial customers? Sagent Technology, Inc. (www.sagent.com) has established several strategic partnerships and alliances in hopes of attracting new customers who can benefit from spatial analysis, but may not realize it. Using the expertise of ESRI (www.esri.com) for GIS analysis, Geographic Data Technology (www.geographic.com) for road data, and Claritas (www.claritas.com) for geodemographic data, Sagent Technology offers its customers not only the typical ASP benefits, but the ability to "upload your files for cleansing, change of address updating, plus demographic and spatial enhancement," according to their Web site. In a nutshell, customers can correct their own client listings using GIS tools such as address standardization and geocoding, streamlined for immediate use and without needing specialized GIS knowledge. Then, using the geocoded values, Sagent's application (which it calls Geographic Determination Library) appends demographic and administrative information to the corrected address, based on the cen-

Like the ASP experience, . . . dealing with the third world requires a leap of faith.

sus, postal, or other demographic polygon each address falls within.

Realizing that geocoding is an inexact process of interpolation, Sagent has developed an advanced method of analysis called "generating a confidence region" in which geocoded points are buffered along the interpolated road segments of their origin. The buffers are then overlain with the nearby demographic polygons. If a buffered address is not completely contained by a single demographic polygon, the address's confidence level drops. Advanced systems like these show not only the due diligence of Sagent Technologies in qualifying their spatial offering, but the degree to which nontechnical audiences are gaining access to advanced GIS processing techniques, often without even realizing what's happening behind the browser interface.

Offshore data

Embracing the ASP model means relinquishing direct control over the hardware, software, and even precious data that used to be in-house. And it's possible to distribute a spatial business even farther by outsourcing the spatial data-conversion work to an inexpensive third-world labor market. Then, only the executive decisions happen at corporate headquarters.

My first acquaintance with the spatial third world labor market came shortly after I registered the Internet domain www.giswebsite.com. Probably searching the Web for domains containing "GIS," several Indian data-conversion companies sent e-mail advertising their services. For instance, a company called Rana Informatics, Inc. (www.ranagroup.com) sent the following message:

"It is my pleasure to introduce ourselves as a leading IT COMPANY based at Chandigarh, India, providing Software Development/CAD Conversion/GIS and Digitising services to Offshore clients especially those providing Facilities Management. It is our

forte to make/Digitise Engineering and Architectural Drawings and maps and make them available in very easy to use customised drawing retrieval systems so that they can be used by maintenance crews. We can also deploy our expertise, so as to make Maps, Drawings and Building plans in 2D/3D, available over the Internet"

Based on their services description alone, Rana Informatics could be based anywhere, until you negotiate a rate. Compared with first-world prices, a digitization effort in India or Nepal is inevitably less expensive. Third-world spatial services are cheap because of the difference in the standard of living between first- and third-world nations. The average annual income in Nepal, for instance, is equivalent to \$220 per person.

Like the ASP experience, however, dealing with the third world requires a leap of faith. Stereotypes, xenophobia, and simple fear of the unknown raise reasonable doubts for managers. To what exotic destination will your company's valuable data be traveling? Will it ever return? If a problem develops during data production, how can it be properly resolved if the responsible parties are on the other side of the world and operate within the legal system of a completely different culture? Are the services so cheap because the quality is substandard? Will delivery be timely? As with ASPs, though, the cost-benefits, combined with due-diligence research, may outweigh those fears.

Not in Kansas Anymore

On a recent visit to Kathmandu, Nepal, I had the pleasure of meeting Mr. Binod S. Pal, Managing Director of Geospatial Systems Pvt. Ltd. (www.geospatial-systems.com), a 200-employee, round-the-clock geospatial scanning and digitizing operation currently serving Japanese clients who need large paper-map collections converted into digital vector data. Pal invited me to meet him at

Geospatial Systems' office and sent a private taxi to my hotel. As the taxi driver wove the car through the crowds of people, bicycles, buses, and livestock toward our mysterious destination, my anticipation was a mixture of excitement and apprehension. What would this mysterious Nepali GIS company be like?

Any notion I may have held about exploitation of workers disappeared on arrival. The tour of the facility revealed a clean, quiet, modern office, indistinguishable from any U.S. company's workplace. Based on Pal's descriptions (in perfect, fluent English), the unique difference between Nepali and U.S. data conversion efforts is both political and cultural. For instance, during periods of political instability, the Nepali government may close all the roads. Workers who normally drive to work simply can't get to the office, sometimes for several days. This influences Geospatial Systems' current hiring practices — they prefer people who can walk to work.

Cultural attitudes toward work and life are different in Nepal than in most Western cultures. Nepali people work unbelievably hard, but when the project is over and there is some money to spare, they may decide just to stop working for a while. After all, there's more to life than work! Though a healthier model than our workaholic Western culture's, such unpredictability of workforce attendance presents a challenge to Nepali senior managers trying to meet the deadlines of their clients. Geospatial Systems' solution has been to enlarge their initial staff of 60 workers to more than 200. This was not accomplished easily — it takes a month to train a new person to use the software tools. People who show interest in learning more are rewarded with responsibility and additional training, a practice that has allowed several middle managers to rise through the ranks. Over time, Pal's management strategies have proven successful; to date, his team has always delivered on time and within budget — and the delivery mechanism is, of course, the Internet.

Will ASPs float?

For all of their potential benefits, ASPs and third world labor markets haven't become the standard yet. An April survey in *PC Magazine* notes that more than half of respondents were unable even to explain what an ASP does. Once awareness meets reality, will more businesses begin to take advantage

of distributed services? Literally hundreds of new ASPs hope so. Maybe those targeting the geospatial market also hope that spatial professionals really do believe in marketing phrases like "Geography Matters" and will realize that it's potentially cheaper to do most of their tedious work and IT maintenance anywhere but locally. 🌐