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G2B: bringing geography to business, e-procurement comes to mapping

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Abstract

Commercial pressures are to reduce overheads, outsource services (including procurement) and deliver shareholder returns. Existing procurement mechanisms may work against these pressures while e-procurement, providing pay as you use and area specific solutions, can help achieve wider business objectives.

In this context the author looks at the emergence of solutions that help bring geography to business. These are the tools that already enable the information, or more accurately, data, strategies that business requires to perform more cost-effectively. They are also the tools that allow the geographic element attaching to stakeholders and users to be more fully explored, for organisations to deliver better services to stakeholders (be they customers or other markets) and shareholders and, through enabling more transparency, collaboration and improved communication, for a price, help shape a better quality of life.

1 Introduction

As GIS becomes increasingly central to the analytical and decision-making processes of business, so GIS finds itself in a paradoxical situation. As a desktop tool that fits seamlessly into our business processes, end users expectations of GIS are accelerating and the tools are becoming ubiquitous. At the same time it is in the underlying "systems" that enable this extension of geographically related analysis where much of the transformation actually occurs.

The rise of interoperability, the close attention of IT industry giants, the emergence of OGC as serious opinion formers and convergence in related technologies (most notably in telecommunications related activity) indicate arrival while at the same time perhaps signalling demise, as mystique gives way to mainstream. Many cry "not before time" and turn once again to the task of extracting meaningful information from their underlying data sources and truly serving their stakeholders rather than dealing with the complexity of the tools themselves. Not that these have altogether vanished!

As the Application Service Provider (ASP[1]) model gains increasing credibility in the wider software industry, and with outsourcing a key player in the business efficiency world, how soon can GI be expected to follow suit. Some software vendors seem hesitant about embarking down this path owing to re-engineering costs while others already have modular software suites in the market place moving towards an inter-operable, open, web-enabled or web-based toolkit type solution (or service). It is almost inevitable that the ASP model will take hold in GI tools and that we will build and use "plug and play" applications based on a variety of interoperable components, potentially from different suppliers according to our specific needs.

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[1] **Application Service Provider (ASP) -** An ASP deploys, hosts and manages access to a packaged application to multiple parties from a centrally managed facility. The applications are delivered over networks on a subscription basis. This delivery model speeds implementation, minimizes the expenses and risks incurred across the application life cycle, and overcomes the chronic shortage of qualified technical personnel available in-house.

Users will eventually fall inline with an (ASP) business model that is initially challenging (for vendors, users and developers) but will ultimately be cost-effective and profitable.

2 Geographic Data – Distribution and Access

So, if that caters for the applications, what about the essential ingredient, the data. Despite continuing confusion in some quarters there is a difference between data and information and it is one that most who are responsible for collecting and storing it understand. So who collects it and who stores it, and who uses it?

Pure Internet or web GIS seems a misnomer. The best examples of web-enabled GI applications where a wide range of disparate data sets are brought together in an individual application are all Extranets, with secure, often confidential institutional databases being used in conjunction with geographic data of a more prosaic or less sensitive nature. If organisations spend 80% of the time collecting the data they need and wish to hold that data in a secure environment, they can choose their own servers, their ISP or a third party data warehousing solution.

To some institutions this is heresy; there is nothing more important than their hard won data – it is an asset to be protected at all costs from commercially inspired attack, malicious hacking and so on. Well, actually your ISP or a data warehousing service is more likely than most to keep your data secure and to provide other services such as protected backup, maintenance etc. This is happening across industry already, is seamless and akin to an Extranet.

Having found a secure home for the high value data assets, developed an application that calls these on an as required basis, what about the spatial context in which they sit and in which often any analysis is best communicated? Geographic data (GD): digital certainly, mapping perhaps not!

GI or GD can be many things to many different people in the GI industry. The following examples taken at random illustrate that to the end users it is information and the fact that, almost unwittingly to the user, it has a geographic sensibility suited to their needs is to them a given:

- In-car navigation

- A location based service (LBS) application (in any sector)

- Insurance premium calculation

- Grounds maintenance

- Asset management

- A web-enabled listings service

- Conveyancing

- Hiking and holidays

- Geo-fencing in the telematics industry

- Mountain rescue

- Urban planning

- Location-dependent real-time services (information, permission based advertising) to 2.5G/3G devices

- Resource exploration

These services all rely on geographic data. The output may be a maintenance schedule, a quotation, a series of distances and junctions and so on but most of the time the end user will be supplied with a map type deliverable (to screen or to print) as well or perhaps even instead of anything else. From where does that map come and what makes it truly easy to use?

In most outputs users are offered map type products overlaid with their requested information be it property boundary, route, search area, hyperlink symbol etc. This is not a platform to argue the merits of the different map server engines and technologies; however, research suggests that vectors, rendered or otherwise, are not familiar to many users and within a screen or printout either not necessary or, to all but the most wired businesses, not "accessible" (in the broadest sense). So, most services end up serving raster or pseudo raster data (i.e. that generated from an underlying vector database but served as an image) to users!

Those who use Land-line data will be familiar with its use more as a backdrop than as an intelligent structure for building applications. While DNF is a whole new vision and methodology, it is anticipated that products will soon emerge from this building block infrastructure that are fit for purpose for the 70%+ of users who currently use Land-line in this way.

3 Acquisition - is there another way?

Which begs the question why pay for it! Why not pay for what you really want, for products that are fit for your purpose! Which brings me back to the ASP model, although of course in the data world it is called CSP or Content Service Provision[2]. Why hold the data at all, why pay for it indefinitely? Let someone else do it and order it up on as needed basis as with proprietary data. Think of the benefits:

- Reduced costs of data purchase (area of interest only purchased)

- Cheaper and easier to search for, compare, get quotation for and receive or be given access to geographic data

- No need to process data prior to use (georeferenced, applications-ready)

- Facility to control distribution of and access to purchased data

- Facility to rent data

- Can purchase more data with the same existing budget

- Online transaction monitoring reduces risk of duplicate purchase

- Elimination of distribution costs means no hardcopy storage, duplication and administration so reducing overheads (staffing, resources, consumables)

- Meets outsourcing demands from management

- Conforms to technology shift (fat server, thin client) thereby lowering user investment costs

- Secure location minimises royalty charges from unlicensed use

- The reassurance of traditional reseller status and the support that infers

- Formats allow data quality to be retained within and accessed via non-geographic documents and applications such as Office facilitating communication and dissemination

This outsourced service provision model is well-suited to the frustrations and requirements of data users. To them, existing procurement methods are marred by:

- Map sheets and map tiles ("users seek to escape from one of the most irksome restrictions of conventional mapping")

- Duplicate purchase within offices and departments

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[2] **Content Service Provider (CSP)** - An individual, business or organization that owns or distributes intellectual property and provides that information or analysis via a revenue-based model to businesses, web sites, handheld wireless devices, PDAs or WAP-enabled phones.

- Limited choice of map data from (easily) accessible suppliers

- Constraints imposed by Service Level Agreements

- Delays in delivery

- Problems of sharing data

- Payments made for mapping surplus to requirements

- Problems with conversion of acquired mapping to application ready mapping

- Updating and maintenance costs

- Copyright infringement and royalty payments issues

- Administration time and costs

For them, CSP services have emerged equipped to resolve all these issues through provision of fast and secure one-stop digital map shop type services for professional geographic data users.

Web-addressable data sets allow all users to access the same data and for organisations to far more easily enable their disparate users. For local authorities, schools and tourist or citizen kiosks can be served; for central agencies, rapid outreach is a step closer; and, for cost-conscious businesses costs can be managed to leverage shareholder value.

4 So that applies to data custodians and suppliers as well?

To data suppliers where core business foci are data creation and brand, investment in other areas is both diversionary and risky. To them adoption of a proven approach to data distribution through a proven ASP model is a low-risk, quick to market solution that integrates with sales strategies, protects the brand, creates a new channel to market and enables new clients in new markets to access and use the supplier's products.

Users can be confident that national mapping agencies are well aware of and wide awake to these developments and the opportunities they afford for them to reach new markets with new products in new ways.

5 Conclusion

These services may not resolve immediately the need for some users to hold vast volumes of data themselves but to many users and stakeholders for whom immediacy, precision, currency, efficiency and fitness for purpose are the cornerstones of the geographic database outputs they use, it is the way forward.

Further into our virtual future the rise of object tools, XML, XSL and related tools will mean that when we request information with our device of choice, that request will be processed by an object type application. This will in turn call other component applications and appropriate data from a variety of sources across both our Extranet and the Internet to deliver the service we requested, bill us for the privilege and divvy up that revenue to the host of providers that made it happen! Which is of course where the spatial team comes in – they will help integrate GIS tools and GD into protocols, methodologies and architectures from the IT mainstream to design and build this vision – GIS, and GD, will become invisible albeit ubiquitous tools.

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