



Volume 26 No 01
The Electronic Version

2003
ISSN 0742-468X Since 1978

Welcome to

The Harlow Report - GIS

Welcome to the 1st issue of 2003! We hope your year is starting as great as ours.

As we begin the year, we start a three-part series of excerpts from the Executive Summary of the newly released GIS and Mobile Computing Solutions market study for North American electric utilities conducted by InfoNetrix. In our discussion about Web Services we give you a short background on the subject and an example of Web Services for GIS. This is the hot topic of the day in the IT world.

- **GMCS Market Study Excerpts Pt 1** In this comprehensive research study, seven signs of market evolution are discussed. We give you a look at the first three in this issue.
- **Web Services and GIS** As we said, this is the hot topic that you must begin to understand.
- **Working with ArcView Image Analysis** Learn how to learn about ArcView Image Analysis.
- **Churchill's Two Leadership Secrets** We'd tell you more about his other leadership secrets, but ... they are secrets. Shhh!

As always, we provide you with the latest links to new topics, products, services and oddball ideas that either pertain to GIS, or seem like fun. You know that is located in **GIS Net Surfing**. If you just want the latest in GIS news, then click on over to **News to Use**.

As we start the New Year, we thank you for your support, and trust that you and your loved ones will enjoy a prosperous year.

Chris Harlow



GMCS Market Study Excerpts

Part 1 (of 3)

Editor's Note: In the last issue I provided you with a brief overview of the definitive study of GIS & Mobile Computing Solutions (GMCS) for the North American Electric Utility Marketplace. The study was conducted by InfoNetrix (www.InfoNetrix.com), a market research and consulting firm with offices in New Orleans and Sacramento. Beginning in this issue I will provide excerpts from the Executive Summary of report. This is part one of a three-part series. In this issue we cover the first three signs, with the remainder covered in the next two issues.

Although the GMCS market will experience a wide range of pervasive changes during the 2002-2006 forecast period as the result of many factors on several different levels, some factors will have a more significant impact on how the GMCS market evolves than others. The study refers to these factors as The Seven Signs of Market Evolution.

The Seven Signs of GMCS market evolution are listed below with a brief synopsis of each to be presented in serial form over the next few issues. (More comprehensive analyses, as well as pertinent details about how each of these will impact the GMCS market are provided in Section 3: Principal Market Drivers, Issues & Trends.) The signs are:

1. Regulatory Policy & Governance
2. Economics & Investment
3. Technology, Integration & Standardization
4. Data Integrity & System Security
5. Web & Wireless Solutions
6. Enterprise Applications
7. Customer Satisfaction & Service

Regulatory Policy & Governance

Initiatives put forth by the U.S. Federal Energy Regulatory Commission during the past 3–5 years designed to deregulate and restructure the electric utility industry have had a more profound and continuing impact on the GMCS market than any other single factor. These initiatives have caused electric utilities throughout the U.S. and Canada to enter into an entirely new — and patently unfamiliar — phase of business operation that is still evolving and that will continue to change for at least the next several years. PUC and FERC regulations do not seem to influence GIS and Mobile Computing decisions by end-users, but the uncertainty has clearly had a dampening effect on decision-making. During this protracted transition from a tightly regulated, monopolistic market to an open, competitive market, a

continuing — though diminishing — level of uncertainty and confusion is anticipated as market reforms evolve.

Economics & Investment

Utility mergers and acquisitions are implicitly a catalyst of change and continue to cause a rethinking of GIS solutions. In some cases, even when both parties to a merger use the same GIS platform, whether or not the combined utility will be best served by the legacy systems is often challenged, creating opportunities for systems integrators and conversion companies alike.

The GMCS market is also experiencing fundamental changes precipitated by supplier mergers and acquisitions. More specifically, within the past few years, three mergers brought non-traditional GMCS companies into the market: GE Power Systems purchased Smallworld; KEMA Consulting acquired GeoIT (a GIS professional services company); and SchlumbergerSema acquired Convergent Group < another GIS professional services company. Overall, these changes are mainly good news for the utilities because they bring a more robust set of I/T and engineering skills to what were previously somewhat narrowly focused projects.

Technology, Integration & Standardization

The accelerating pace of technology is having — and will continue to have — an especially significant impact on the GMCS marketplace throughout the forecast period. Continued erosion of average selling prices and the proliferation of ever-larger volumes of products and systems involving similar or even identical base functions and features are among the most evident impacts of rapidly advancing technology on both the AM/FM/GIS and Mobile Computing fronts. For example, users increasingly expect systems to be compatible with Microsoft Windows operating systems at both the desktop and server levels and expect their core GIS software to be Web-enabled. Standards are also beginning to play a central role in the migration of AM/FM/GIS platforms.

In the mobile computing area, there is less expectation of standardization. At present, there are multiple wireless standards at various stages in the marketplace with the form factors for mobile devices also changing rapidly. From a developer standpoint, the introduction of Microsoft Windows/CE facilitated a faster migration of GIS-enabled technology for handheld devices than a standard would have likely produced in the same time frame. However, that is not to say that standards are not needed. On balance, it can be said that that standardization expectations for Mobile Computing are relatively modest at this point and clearly take a back seat to rapid application development, which continues to be the most dominant driver in that sector.

Electric utilities are also beginning to reclassify I/T expenditures as investments rather than expenses. The supplier experience, however, suggests that while return-on-investment (ROI) is often mentioned as a key criterion for justification and procurement, it is not clear that ROI is ever actually measured after the fact. “Utilities don’t have the staff to even evaluate or try many of the new concepts that could save time and money and boost efficiency,” said one industry observer. This means that even solutions based on proven technology with an attractive ROI may never even be looked at by the very utilities that need those solutions most due to staff shortages and work overloads. GMCS suppliers understand that new solutions must have an affect on productivity and are beginning to focus on applications such as outage management and work order management to improve field force productivity.

At the system/application level, enterprise application integration (EAI) is also making its way into utilities along with other global business organizations, as senior managers struggle to assimilate the growing diversity of data gathering systems with information delivery and application needs. This end-goal of applications enterprise interoperability is intended to improve decision-making through access to more — and better, more timely — data. This is particularly true for mobile computing where field workers can improve their own productivity, as well as back office productivity, by capturing data in field.

Find out more

To learn more about the GMCS Market Forecast, and how you can obtain the complete study, visit InfoNetrix (www.InfoNetrix.com)



Web Services and GIS

Just when you thought you had the web figured out, along comes another standard that promises to be the next killer app. The latest and greatest is the idea of something called Web Services.

The concept of Web services is relatively simply to understand. Business use information technology because it helps them function more efficiently. As the technology matured businesses began to exchange information electronically. With the advent of the Web, this idea of electronic information sharing became obvious, even as the requirements became more onerous. This need for information exchange brings in another need to make this information selectively visible and its visibility to be changed on the fly.

Imagine a world with telephones but no directory services, or television without channel and programming listings. The information would be there, but getting to it would be a nightmare. Now consider the world of information technology.

At first it was rather simple: each company had its own computer for its own use. Over time mergers and acquisitions and sheer growth made it necessary to share information among the central and remote locations. True the Internet did help this cross-communications, but often at the cost of security and exhaustive research to find the right data.

As developers continue to use the World Wide for business to business communication, a standards and interfaces are needed. The programmatic interfaces made available are referred to as Web Services. Web Services is based on the already existing and well-known HTTP protocol, and uses XML as the base language. This makes it a very developer-friendly service system. This is contrasted to other attempts at solving the B2B market such as RMI, COM, CORBA, EDI, and ebXML. However, most of these involve a whole learning curve. New technologies and languages have to be learned to implement these services.

A simple view of Web Services as it pertains to business is that it provides a means of communication between two remote systems, connected through the network of the Web Services. When a merger or acquisition takes place, vast sums of money are often spent to integrate the different computer systems. But, with Web Services technology companies don't have to invest large sums of money developing software to bring the systems of the different companies together. By extending the business applications as Web Services, the information systems of different companies can be linked. Using simple SOAP (Simple Object Access Protocol) messages over the normal HTTP Web protocol then can access these business systems. For example, a utility requires transformers to be supplied when the material in stock reaches the threshold levels. These levels can be constantly monitored by the business system of a trusted supplier, and promptly replenished, without having to wait for a supervisor to notice it and generate a work order. The key is that the supplier's system and the utility's system are not the same, nor were they originally developed to do this task. Note also that the systems are "trusted" — a security concept meaning that both systems are secure and are authenticated to one another.

Web Services, as it is developing becomes more that another yellow pages directory, more than a standard, and more than a web page. If I had some data that I wanted to share with you, or to sell to you, I would create a Web Services compliant metadata and locate in the root directory of my web server. When you were in need of such data, you would seek this type of data, but would only need to look in the root directory of web services for the specific page that described the data. You would then see the data that was available, how to use it, etc., all on your web browser. Once you acquired the data, Web Services technology would then take over again to bind the data sets so you could share the information.

That is a very short introduction to Web Services. For all the gory details, visit www.webservices.org, the site of WebServices Org.

Web Services and GIS

Recently, Tom Harrington of Applied Geographics (www.appgeo.com) told us about a recent project his company completed that used Web Services for GIS.

The Boston, Massachusetts company completed the development of a Web-services based online mapping capability for the Town of Plymouth, Massachusetts. The AGI application is a good example of applying Web Services to GIS: real-time data integration from a variety of sources in different locations. Three servers combine to present the information accessed by the Plymouth application — Tax Assessors data served by Patriot Properties, Orthophotography served by MassGIS, and Parcel, Zoning, Census, and Precinct GIS Data Layers served by AGI. The application is one of the first in the Commonwealth to utilize MassGIS' new Web services that enable GIS data layers and orthophotography to be served directly from MassGIS to Internet applications.

“This Web-based application represents a milestone in AGI’s work to provide state-of-the-art Web GIS services that are tailored to the specific needs and situation of each municipality”, said Michael Terner, Executive Vice President of AGI, “Rather than creating a parallel mapping system, we provided a mapping solution that fits seamlessly with the Town’s existing investment in online property information retrieval. In addition, we are proud to be one of the first firms to put MassGIS Web services to work for the benefit of our municipal clients.”

Conclusion

Web Services is a technology to watch. End-users and developers are pushing it, always a good sign. There is still a long way to go, particularly in the area of security. Even with trusted relationships, it is hard to justify allowing a third party computer system behind your firewall. This is a problem that will be solved.

Some industry experts that I have spoken with suggest that until the security issue is solved Web Services will be used by companies internally to access data across the enterprise. This will give the developers time to improve the technology and close some of the security holes. Then in the next five years, we may begin to see Web Services as ubiquitous as the Web itself.



Working with ArcView Image Analysis

The web changed the way we do business in so many ways it is hard to keep track. If it is even remotely associated with information, images, music, or purchasing we expect it to be online. Software companies found the net to be their friend as well. Everything from having an electronic magazine to free downloads makes their marketing efforts a bit easier. But what if you could train people to use your products without actually having to get them to travel to your location? That is another area in which the web shines.

ESRI learned how to take advantage of the Web just about the time the rest of the world knew what a dot com was. Take their Virtual Campus. The company claims “with more than 169,000 members and dozens of courses to choose from, ESRI Virtual Campus is a recognized leader in online GIS training.”

ArcView Image Analysis

So just how do you get users to learn about your products without the expense of a training seminar? You hold the course online. Take the recently released ArcView Image Analysis. Before you could get the shrink wrap off the software box (or did you download it?), ESRI announced *Working with ArcView Image Analysis*. The course gives ArcView software users the opportunity to expand their abilities using the ArcView Image Analysis extension.

According to ESRI’s Nikki Snowwhite, “This six-module course (the first module is free) provides an overview of image and remote sensing science concepts and introduces the six basic functional areas of ArcView Image Analysis software. Participants learn how to enhance images using a variety of tools, align features on an image with features on a map, classify image pixels, find areas with similar characteristics, and identify areas that have changed over time. In addition, participants learn to extract features from an image, create a mosaic of multiple images, and analyze the health or type of vegetation in an image by creating a ‘greenness map.’ The final learning module includes a project that applies these concepts to a real-world situation.”

To enroll in the course or for a complete course description, visit ESRI Virtual Campus at <http://campus.esri.com> or call 1 800 447 9778 in the United States. For further information outside the United States, please contact your local distributor; see www.esri.com/international for a current distributor list.



Churchill's Two Leadership Secrets

by
Syd Stewart

Editor's Note: Syd Stewart is the author of "How to Build a Great Business Using Nature's Strategy." He has been an owner and manager for over 30 years. Visit his site to find out how you can 'Build a Great Business' using Nature's robust strategy <http://www.smilingowner.com> or send email to: syd@smilingowner.com In this article, Syd shares two of Winston Churchill's secrets of leadership.

Churchill became Prime Minister of the UK in 1940 and for five years directed the UK war effort with great perseverance and courage. He was deemed an outstanding and great leader. So what were his leadership secrets? Here they are:

1. Churchill gave extremely clear written detailed instructions on what he wanted to happen. He left no room for his expectations not to be met.
2. Churchill kept himself well informed with first hand information. He always wanted to visit the troops near the front line. He wanted to watch the air-raids on London.

Is someone always letting you or your business down?

When your business staff let you down, have you given them exact clear instructions of who, what, where and when?

I am interested in how Nature's ways and strategies can be applied to creating a great business. So how does Nature relate to Churchill's leadership?

Nature controls its gene reproduction with extremely few faults - one fault or mutation in a billion reproductions. The controlling DNA instruction or code, a sequence or permutation of only four building block chemicals, is clear, simple, and unambiguous.

In leadership, you need a way of controlling or preventing faults or omissions. You need to give clear instructions or commands or prepare clear procedures for your staff to follow.

Also, in Nature you need to be sensitive to the environment and be able to adapt to remain the fittest. Remember, Darwin's survival of the fittest. Yes, you could say Churchill was constantly sensing the environment first-hand and adapting his actions.

Summary

Have any problems developed because you really did not know what was going on in your business and it's environment? If so, follow Churchill's lead and get out there and find out first hand what is going on.

Churchill's Two Leadership Secrets Copyright © Syd Stewart 2002



GIS Net Surfing

GIS for Civil War Battlefield Preservation

<http://www.civilwar.gatech.edu/>

This Web site addresses the application of geographic information systems (GIS) technology to the preservation of Civil War battlefields.

GPS Tutorial

<http://www.umich.edu/~vgl/>

An excellent tutorial on GPS, provided by Trimble.

GeoTools

<http://www.geotools.org/>

Looking for a free GIS Web app? GeoTools is a free Java based mapping toolkit that allows maps to be viewed web browsers, interactively.

Cattle Grazing and GIS

<http://www.brrc.unr.edu/papers/graze/graze.html>

Believe it or not, there are serious scientists using GIS to track the cattle as they graze across the wide-open-spaces. At this site you will get to read a dissertation on the subject. It is entitled: "Modeling the Potential Spatial Distribution of Beef Cattle Grazing Using a Geographic Information System" by Timothy G. Wade, Bradley W. Schultz, James D. Wickham and David F. Bradford

Michigan Electronic Library

<http://mel.lib.mi.us/reference/REF-geomaps.html>

Michigan resource library, with great references for other GIS and map sites.

multiMap.com

<http://uk2.multimap.com/>

Great source of maps and aerial photos of Britain



News to Use

ArcWeb USA

<http://www.esri.com/arcwebservices>.

ESRI announced the availability of ArcWeb USA. ArcWeb USA is ESRI's first offering of ArcWeb Services packages. These packages are suites of self-contained modular components and applications that can be published and accessed over the Web. They are designed to give developers the ability to include GIS content and capabilities in their applications without having to host the data or develop the necessary tools themselves.

ArcWeb USA allows users to

- Access dynamic maps of U.S. streets, topography, demographics, and more.
- Perform geocoding (address matching) on a nationwide scale.
- Generate routes and driving directions between multiple locations.
- Provide place finder capabilities.
- Generate census demographic maps and reports.
- Upload and maintain user-defined points of interest.

Applied Geographics

<http://www.appgeo.com>

Applied Geographics, Inc. (AGI) announced that Morgen Bullock joined the firm as a GIS Analyst for the municipal sector in the Boston office. Prior to joining AGI, Ms Bullock interned at the Adirondack Park Agency in Raybrook, New York, performing GIS interpretation of land cover/land use maps and updating maps, shapefiles and attribute data for the staff. She attended Colgate University with a double concentration in Mathematics and Geography. While at Colgate, Ms. Bullock served as a GIS Research Assistant. "Morgen is a welcome addition to the Municipal Team at AGI," said Joan Gardner president of AGI. "She will compliment our efforts to expand services, and provide timely updates to existing municipal projects."

AAG

<http://www.aag.org>

Dr. Douglas B. Richardson is the new Executive Director of the Association of American Geographers, effective January 1, 2003. Richardson, formerly President and founder of GeoResearch, Inc. has been serving as Director of Research and Strategic Initiatives at the AAG since July 2001. He succeeds retiring Executive Director Ronald F. Abler. Richardson holds a Bachelor's degree from the University of Michigan and a Ph.D. (1980) in geography from Michigan State University.

Estimotion

<http://www.estimotion.com/>

Estimotion Ltd., a leading Israeli-based provider of traffic forecasting technology selected ESRI's location-based GIS technology to deliver highly accurate, real-time traffic information to mobile workforce and urban commuters worldwide. Systematics Technologies, ESRI's distributor in Israel, provided the software and support to Estimotion. Estimotion's technology perpetually updates current and predicted traffic situation pictures using location data from mobile networks and other sources. The resulting time-dependent traffic information is valuable for intelligent transportation system implementations. Estimotion's applications will use ESRI's ArcView 8.x technology to perform complex spatial analysis, generate output data, and produce traffic situation views based on incoming observations and updated traffic behavior patterns. ESRI's ArcSDE will manage the spatial data. Estimotion's routing technology was developed with ArcObjects.

ImageLinks

<http://www.imagelinks.com/>

ImageLinks implemented an advanced new atmospheric correction algorithm based on the 6S radiative transfer code. This correction will be adopted as one of the standard digital image processing techniques ImageLinks applies to aerial and satellite imagery. According to the company, atmospheric correction improves image clarity by compensating for distortions caused by gaseous absorption and molecular and aerosol scattering along the Sun-target-sensor path.

MapObjects 2.2

<http://www.esri.com>

MapObjects 2.2 -Windows Edition just released! MapObjects - Windows Edition is ESRI's collection of embeddable mapping and GIS components that can be used to add dynamic mapping and GIS capabilities to existing Windows applications or build custom mapping and GIS solutions. "With the release of MapObjects 2.2, ESRI is reaffirming its commitment to providing developers with robust tools for building GIS applications," says Victoria Kouyoumjian, ESRI's MapObjects product manager.

Humboldt University in Berlin

<http://www.hu-berlin.de/>

The Demography Department of the Institute for Social Sciences, Humboldt University in Berlin, the first European GeoMedia® Research Grant recipient, chose to use GeoMedia technology to develop a data management system that will enable the people of Berlin access to a rich knowledge base of socio-demographic information through the Web. Intergraph Mapping and GIS Solutions awarded the university \$5,000 (U.S.) and a \$50,000 software donation as part of an innovative education program to encourage applied geospatial research. The Demography Department is undertaking the research project to address the need for a comprehensive, easily accessible data management system to link the city's disparate data to multiple users in an interactive environment.



***If you change your
Email address,
tell us!***

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