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Welcome to The Harlow Report - GIS

Welcome to the 10th issue of 2003! In this issue we review two important GIS books. Then we take a look at the future of wireless. For laughs we listed some very funny pseudo scientific terms you can toss out at the next gathering of your local GIS nerds.

Featured Articles

- **Getting to Know ArcObjects.** If you want to understand ArcGIS, then you should start by understanding ArcObjects. This book is a good way to start.
- **Internet GIS** Even UBL understands the importance of the Web. When it comes to GIS, every supplier I know says that being able to Web enable GIS applications is a must. But, putting GIS on the Web requires a deeper understanding of the Web and of GIS. Read this review, then read the book.
- **The Future of Wireless Security and 802.11i** If you understand that GIS is becoming a required technology for business and government, then you understand that next to the Internet, wireless and mobile GIS technologies are ready to explode. One of the factors holding this industry back is security. Roy Troxel, an expert on the subject fills in the details about the future of wireless security,

More to Know

- **Out of the Box** Our collection of news events that may indirectly effect your GIS project. Events are categorized by State and Local Government, Technology and Utilities.
- **News to Use.** Short takes on the latest GIS news with links to more information

Just 4 Laffs

- **Pseudo Scientific Constants** What those scientific terms really mean.

As always, we thank you for your support, and trust that you and your loved ones remain safe, healthy and prosperous.

Chris Harlow

Getting to Know ArcObjects

a book review

A decade or so ago I gave a speech about "The Future of GIS" –delivered with the certainty of a person who really knew the future. Naturally, I was doing little more than extrapolating, conjecturing, surmising and guessing. I ended the speech by telling the audience that if their present GIS supplier was not moving toward object-oriented programming, it was time to look for a new supplier.

Later that evening, someone whispered in my ear that I may be right, but he did not think that ESRI was going in that direction. Ordinarily, this would not have been a big deal, except that the presentation was made to an ESRI users group. After a quick tap dance, I simply blurted out "Well, they will – just wait." Paranoia quickly set in, and I began to wonder if I would ever be invited to another ESRI function.

Like most futurists, I pride myself on my ability to remember only the predictions that come true. As this new century began, we saw the dawning of an ESRI–based object–oriented GIS solution called ArcObjects™. Maybe it is time to drop The Harlow Report, move to the Cayman Islands and start FutureGIS.com

The objective of ArcObjects

ESRI describes it as "a collection of software components with GIS functionality and programmable interfaces. ArcObjects technology is based on the COM protocol. Customization is performed using the built–in VBA scripting capabilities or a COM–compliant programming language such as Visual Basic, Visual C++, or Delphi."

In turn, ArcGIS is built on this technology. A licensed copy of ArcInfo, ArcEditor, or ArcView is required to use ArcObjects

Memo to the guy who whispered in my ear: See, I told you so!

How do you learn about ArcObjects?

As with any new software, there are a variety of ways to learn how to use it. There is no single correct way – not everyone learns in the same manner.

For those of you who like to dive in and take a look, you can download an evaluation copy from http://www.esri.com/software/devsolutions/arcobjects/evaluate.html

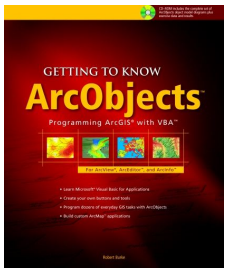
Or, you could take a class, read the documentation, or ask the guy next to you. I like to use a combination of techniques, and am especially partial to a well–written book on the subject. When it comes to ArcObjects, Robert Burke has done a great job in …

Getting to Know ArcObjects

"Getting to Know ArcObjects" by Robert Burke is a just released publication from ESRI Press. It lists for $59.95 with 436 pages and a supplemental CD. The CD contains a complete set of ArcObjects object model diagrams plus excursive data and results. You can get the book from ESRI (http:www.esri.com)for $59.95 or, through Amazon.com for $41.97
http://associatesshop.filzhut.de/shop/product.php?ID=5b0b7371250e65140433dcfb3aca86e5&Mode=books&ASIN=158948018X

Burke does a magnificent job of walking you through the labyrinth of object modeling. This book could be called a "Visual Approach to learning ArcObjects," because of the liberal use of graphics and screen shots used throughout the book.

A peek inside



Burke makes no presumptions about your understanding of object programming. He starts out with a brief, but adequate description of what it is you are about to learn. But Burke also understands two things about GIS developers:

1. If you want to learn a lot about objects, you will take a course (you don't so go to step two)
2. You really want to dive into ArcObjects.

Just five pages into this book, Burke starts Chapter 2 "Building a Custom Application." That's right, roll up your sleeves and start using the technology. You can get the theory later. Better still, leave the theor to the guys in the ivory towers. You have an application to write.

From there on in you will be given clear instructions on how to manipulate objects to your needs. Burke cleverly merges the visual effect of learning on the web with the vivid impressions of the printed word. You read, you see, you program. What a way to learn!

Recommendation

I haven't gone through every example in the book. Being an ArcObjects developer is not my dream. But I have gone through enough of the book's instructions to know that it is an excellent tutorial.

You will not be an ArcObjects expert just by reading this book. But you will understand the technology to get a jump-start on the rest of us. The drawback of any book is that it is a bit hard to ask questions and get feedback. On the other hand, unlike a live course, you can go back to the book for clarification any time you want.

I would encourage Mr. Burke and ESRI to develop a web site for this book. At the site the inevitable errata could be published – especially in coding. Readers could ask questions in a forum and an FAQ section. The site could also have a living value of ideas and solutions from readers.

If you are at all interested in ArcObjects, I suggest you start by downloading the demo copy and reading **"Getting to Know ArcObjects"** by Robert Burke.

Internet GIS

a book review

You don't have to be a Super Tech to know that the Internet is driving the IT industry. This includes GIS – web enabled applications are no longer a nice to have feature. They are required. So how are you going to take your GIS applications to the web?

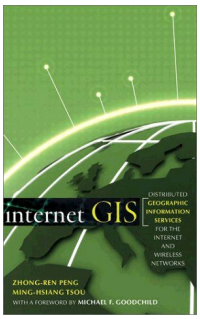
GIS on the Internet is somewhat of a departure for GIS technicians. In the past, the GIS development team was often isolated from the IT team. But when it comes to the Internet, there are too many disciplines that must be coordinated for an isolationist policy. On the other hand, the internal Web development team will find that GIS on the Internet is quite a bit more complex than the average HTML page.

To begin to understand the process, you might want to check out a newly released book by Zhong-Ren Peng and Ming-Hsiang Tsou, entitled "Internet GIS: Distributed Geographic Information Services for the Internet and Wireless Networks" It is available from Amazon.com. Prices range from $70.00 to $90.00

About the authors

GIS on its own is a complicated subject. But when you want to serve it to the world, the complexity just increase. Peng and Tsou do an excellent job of breaking down the components of the Internet, and of GIS. The authors know their stuff from the ground up. Zhong-Ren Peng, Ph.D. is the director of the Center for Advanced Spatial Information Research (CASIR) and an associate professor of Urban Planning at the University of Wisconsin-Milwaukee. Preferring a more moderate climate, Ming-Hsiang Tsou, Ph.D., works in San Diego as an assistant professor in the Geography Department at San Diego State University.

Learning about Internet GSI



"Internet GIS" is published by Wiley (www.wiley.com), a respected publisher of IT books, including an excellent selection of GIS books. In this book, the emerging new technologies for GIS are examined.

The authors start from the ground up. They begin by asking a simple question: "Why do we need distributed GIS?" The answer is provided in a clearly word chapter with diagrams and examples. Jolting me back to my military days when the instructor would stomp his foot when making a point that would be on an exam, the authors highlight the key concepts. This is carried out throughout the book, making it a great reference tool.

The authors mix theory, documentation, graphics and practical applications to provide a clear understanding of the concepts. Make no mistake, this book is not just about GIS, but about GIS and the inner secrets of serving your map on the Web.

Too often, academicians shun the real world. Not so with Peng and Tsou. They provide 33 case studies, extensive product reviews and each chapter comes with additional web resources and references.

You could just call up your local GIS supplier and ask for a briefing on Web enabled GIS. Chances are excellent that you will be treated to a particularly biased view of the subject. On the other hand, you could go

to Chapter Eight of Internet GIS and read an excellent description of ArcIMS from ESRI, Intergraph's Geo-Media WebMap Pro, MapXtreme from MapInfo, and MapGuide from Autodesk

Recommendation

GIS is complicated enough. Serving it up on the Web presents as many opportunities as it does problems. Thinking that you are a GIS expert with a can do attitude is all you need to set up a GIS web site is not the right approach

To understand the Web and GIS, start by getting your hands on a copy of **"Internet and GIS"** by Peng and Tsou. Use it to build your understanding of the challenges that lay ahead, the resources you will need, and to get a head start on your competition.

The Future
of
Wireless Security and 802.11i

by
Roy Troxel
Editor, The Web Server Time

Editor's Note: Roy Troxel is the editor of The Web Server Times (www.webservertimes.com) . He keeps Webmasters informed of the latest IT developments and how they effect your job,your managers and your clients. This is the third in a series of articles, as noted by the author. Although we have not brought you the first two, this article provides the critical information you should consider in planning your secure wireless network.

This is my third and final article on wireless security and it addresses the upcoming 802.11i protocol,considered to be the latest word in wireless security. The ratification of this protocol in Spring, 2004 will become the deciding factor for banks and other financial institutions to join the wireless world.

802.11i will include all the elements of WPA, but with stronger encryption.

Among other improvements, 802.11i will include a system for creating fresh keys at the start of each session. It also will provide a way of checking packets to make sure they are part of a current session and not repeated by hackers to fool network users, Walker said. To manage keys, it will use a RADIUS (Remote Access Dial-In User Service)server to authenticate users and the IEEE 802.1x standard.

The authentication process begins when the end user attempts to connect to the WLAN. The authenticator server receives the request and creates a virtual port with the user's device. The authenticator then acts as a proxy for the end user passing authentication information to and from the authentication server on its behalf. The authenticator limits traffic to authentication data to the server. (Note there are TWO servers, a proxy and an authentication server, involved here.)

In a nutshell, the authentication process goes like this:

1. The user (with laptop, PDA or cell phone) sends a message to his business network.
2. The message is encapsulated with the EAP protocol which passes through a proxy server to the network's authentication server. The authentication server sees the EAP header as an "ID card" and then compares it with the other ID numbers in its database.
3. If the end user was accepted, the authenticator (proxy) changes the virtual port with the end user to an authorized state allowing full network access to that end user.
4. When the user logs off, the client virtual port on the server is changed back to the unauthorized state.

EAP: The Extensible Authentication Protocol

The 802.1x authentication process outlined above depends on the Extensible Authentication Protocol or EAP.

The problem is that there are currently five different commercial versions of EAP, including a proprietary version from Cisco. In order for 802.1x to work, both client and server must be running the same version of

EAP!Cisco's version, Light EAP (or LEAP)can be compromised by dictionary attacks, and several hospitals that have been using Cisco wireless connectivity. (A denial of service attack on a hospital server could be considered negligent homicide if it caused the death of a patient who was on a life-support system.)

Another version, Protected EAP (PEAP) has been developed by Cisco, Microsoft and RSA. It uses certifications in a manner similar to SSL and is included in the Windows XP service pack.

For more details on EAP, consult the Computerworld site:

1. http://www.computerworld.com/securitytopics/security/story/0,10801,86 189,00.html
2. http://www.computerworld.com/mobiletopics/mobile/story/0,10801,79995, 00.html

Conclusion

Maximum wireless security, then, is a combination of several techniques: strong authentication and a strong encryption mechanism, coupled with data integrity.The 802.11i standard will supposedly be ratified by Spring, 2004, but some changes might happen before then. If and when you hear of them, please post to this forum, and we'll discuss them.

In the meantime, wireless is still insecure, financial institutions still haven't accepted it, and if you stand in your local mall you can eavesdrop on numerous cell phone conversations, just by using your ears.

Out of the Box

Editor's note: In "Out of the Box" we bring you news snippets that are not necessarily related specifically to GIS. These are items that come across my screen that help me understand our industry, by understanding the world around us. For the complete article just click "Details Here." Think of it as thinking **Out of the Box**

In State and Local Government …

• Smarter maps for a better Arlington. With a click of a mouse, city employees can use new map technology to fight crime, avoid duplicating street construction and save employees' time..
Details Here: http://www.dfw.com/mld/dfw/news/7342011.htm

• Virtual research center in Tryon could spawn new companies in region
Details Here: http://www.tryondailybulletin.com/news/news.asp?ArticleID=13129

• Struggling researchers and entrepreneurs might well appreciate the startup problems being experienced by the state's new Technology Tri-Corridor initiative.
Details Here: http://www.mlive.com/business/aanews/index.ssf?/base/business-2/1071400474143180.xml

In Technology …

• PowerPoint Makes You Dumb. In August, the Columbia Accident Investigation Board at NASA released Volume 1 of its report on why the space shuttle crashed. As expected, the ship's foam insulation was the main cause of the disaster. But the board also fingered another unusual culprit: PowerPoint, Microsoft's well-known "slideware" program. Details Here: http://www.pe.gatech.edu. Select "geographic information systems" from the drop down menu. For additional information, call: (404) 385–3501.

• Tektronix' Network Monitoring System Gains Another First for Mobile Operators Striving to Maximize GSM Revenues. Bob Agnes, Vice President, Monitoring & Protocol Test, Tektronix said "Tektronix' new NET–X RST enables technicians to quickly understand where their largest sources of revenue – in–roamers – are located and what activities they're performing, enabling the operator to prioritize maintenance tasks and protect an important revenue stream." Details Here: http://www.nytimes.com/2003/12/14/magazine/14POWER.html?ex=1071982800&en=799ad449b398c2d7&ei=5062&partner=GOOGLE"

• No More Microsoft Support For You. Why is Microsoft killing off so many of its programs? Redmond says Sun forced its hand, but its reach will extend into your wallet. It will be two days before Christmas, and all through the world, not a creature will be stirring except Microsoft employees taking many programs off the Microsoft sales racks. Details Here : http://www.eweek.com/article2/0,4149,1412298,00.asp

• HP, PlanetGov get IRS contract. The Internal Revenue Service has chosen a provider to supply server and network storage technology for a server consolidation project. Hewlett-Packard Co. and its reseller partner, PlanetGov Inc., won the blanket purchase agreement worth as much as $50 million. Details Here: http://www.fcw.com/fcw/articles/2003/1208/web-hp-12-11-03.asp/

In Utilities …

• Southern Co., others halt SeTrans RTO plan. A group of Southeast utilities, including Atlanta-based Southern Co. (NYSE: SO), have halted their plan to create a regional power grid, according to a filing with the Securities and Exchange Commission..

Details Here.: http://atlanta.bizjournals.com/atlanta/stories/2003/12/01/daily27.html

• If Congress cannot overhaul U.S. energy policy early in 2004, the Federal Energy Regulatory Commission will consider setting its own power grid reliability standards Details Here: http://www.chron.com/cs/CDA/ssistory.mpl/business/2262818

News to Use

Applied Geographics, Inc. awarded a GSA Federal Supply Schedule

http:// www.appgeo.com

Applied Geographics, Inc. (AGI) has been awarded a General Services Administration (GSA) Federal Supply Schedule for general purpose commercial information technology (IT) software and services. Under this schedule, AGI's consulting services can be purchased directly by federal government agencies. AGI was the first company of the 2004 federal government fiscal year to be awarded a GSA Schedule 70.

ASPRS Issues Resolution

http://www.asprs.org

By a majority vote of the American Society for Photogrammetry and Remote Sensing (ASPRS) Board of Directors, the Society has issued a resolution calling for immediate support and funding for the continuation of the nation's Landsat Program. Due to a technical failure in the Enhanced Thematic Mapper Plus (ETM+) instrument on board the Landsat 7 spacecraft in May 2003, collection of useful moderate resolution, multispectral remote sensing data has been jeopardized.

Broadbeam Corporation Offers 10,000 of its Mobile Development Environments (MDE) Free

http://www.Broadbeam.com/

Broadbeam Corporation is offering 10,000 of its intuitive Mobile Development Environments (MDE) free . Providing for the rapid design and development of mobile applications in the enterprise, the offering will be available via www.broadbeam.com on a first come, first served basis. The MDE is part of Broadbeam's mobile framework, Mobile Solutions System (MSS)™. The MDE offers a visual development environment that can be used to create mobile optimized applications from the data source simply by dragging and dropping objects and automatically generating code for client and server.

Telecom Fiji Selects Intergraph Technology

http://www.telecomfiji.com.fj/

Telecom Fiji Ltd. signed a contract with Intergraph to upgrade its existing Intergraph FRAMME-based AM/FM/GIS application to the company's next-generation G/Comms as the enabling geofacilities management core of its Enterprise Network Resource Management system. Telecom Fiji is Fiji's largest telephony access provider and serves an expanding population of more than 100,000 Public Switched Telephone Network customers to date.

MDA Awarded a $4.1 million (CDN) Contract

http:// www.mda.ca

MacDonald, Dettwiler and Associates Ltd. (MDA)won a $4.1 million (CDN) contract to modernize the processing of land information requests for the Borough of Telford & Wrekin,(www.telford.gov.uk) a local authority in Shropshire, England. MDA's Information Systems Group will provide a turnkey system and manage the conversion process. LAMP is part of the National Land Information System (NLIS – www.nlis.org.uk) in the United Kingdom..

Azteca Systems Inc. Released Cityworks InBox

http://www.azteca.com

Cityworks InBox is a browser based solution for accessing work orders and services requests in Cityworks, a GIS based asset and maintenance management solution. Cityworks InBox provides users full access to service request, work order and task information using the same GIS enabled database and common utility functions as Cityworks. An intuitive user interface allows for significant screen size making Cityworks InBox ideal for use on field laptops and tablet PCs. Customizable, InBox can be made to match client specific forms and organizational look and feel. query and display functions at the presentation, Web, and server tiers.

PSEUDO SCIENTIFIC CONSTANTS

Editor's Note: When Mike Marullo* isn't sweating over surveys of GIS, SCADA or other automation markets, he occasionally sends some odd items along to me; this is one of the best he's dug up lately. (*To learn more about what Mike does at his day job, go to www.infoNetrix.com)

1. Ratio of an igloo's circumference to its diameter = Eskimo Pi
2. 2000 pounds of Chinese soup = Won ton
3. 1 millionth of a mouthwash = 1 microscope
4. Time between slipping on a peel and smacking the pavement = 1 bananosecond
5. Weight an evangelist carries with God = 1 billigram
6. Time it takes to sail 220 yards at 1 nautical mile per hour = Knotfurlong
7. 365.25 days of drinking low calorie beer because it's less filling = 1 lite year
8. 16.5 feet in the Twilight Zone = 1 Rod Serling
9. Half of a large intestine = 1 semicolon
10. 1,000,000 aches = 1 megahurtz
11. Basic unit of laryngitis = 1 hoarsepower
12. Shortest distance between two jokes = A straight line
13. 453.6 graham crackers = 1 pound cake
14. 1 million microphones = 1 megaphone
15. 1 million bicycles = 2 megacycles
16. 365.25 days = 1 unicycle
17. 2000 mockingbirds = two kilomockingbirds
18. 10 cards = 1 decacards
19. 1 kilogram of falling figs = 1 Fig Newton
20. 1000 grams of wet socks = 1 literhosen
21. 1 millionth of a fish = 1 microfiche
22. 1 trillion pins = 1 terrapin
23. 10 rations = 1 decaration
24. 100 rations = 1 C-ration
25. 2 monograms = 1 diagram
26. 8 nickels = 2 paradigms
27. 2.4 statute miles of intravenous surgical tubing at Yale University Hospital = 1 I.V. League

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Looking for a domain name, email address or an inexpensive web hosting services?
Go to http://www.aaadomain.net where domain names are $8.75 or less!