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VOL. 2006 NO.1

EDITORIAL

Welcome to another issue of Caribbean Geographic Information Systems technology, CariGIS, the newsletter of the Association of Caribbean Electric Utilities (**CARILEC**), produced under the auspices of the CARILEC GIS Task Force. Since the last issue the composition of the committee of the Task Force has been re-structured as follows:

President: Mr. Shawn Charles, GRENLEC, Grenada
Vice President: Mr. Michael Wynter, APUA Antigua
Secretary: Dr. Philip Corbin, BLPC, Barbados
CARILEC GIS Website Webmaster: Mr. John Rickards (VINLEC), St. Vincent

Re the website, please note that there is now a new message board available to CARILEC at the GIS section of the CARILEC website (<http://www.carilec.com/gis/gis/>); it is hoped that this message board will be a source of positive interaction, promoting dialogue re GIS issues of mutual interest, and a tool for learning and networking.

Apart from our new GIS message board, the reader is also encouraged to check out the growing number of papers on GIS in the GIS section of the CARILEC website, which have been presented at regional Conferences by various members of the Task Force.

The Task Force is also moving from meeting quarterly to meeting 3 times a year; with meetings this year (2006) scheduled for Jamaica (February), Dominica (May) and St. Vincent (November).

This issue of CariGIS contains an article on Distributing GIS Information to the

Organisation, a write-up on our new GIS message board, and a report on the third URISA Caribbean GIS Conference recently held in the Bahamas.

I wish to take this opportunity to thank my fellow Task Force Colleagues, as well as Mr. Terry Inniss, Computer Mapping Programmer, BLPC, and the producer of this newsletter, for their invaluable assistance in pushing GIS regionally within CARILEC. Let us continue to work together to promote the use of GIS technology in the region.

That's the **GIS**t of things for now.

Dr. Philip Corbin
Computer Engineering Analyst,
The Barbados Light & Power Co. Ltd.
Secretary, GIS Task Force

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Distributing GIS Information to the Organization

By Doug Culbert, GIS Web Applications Specialist

With the recent adoption and development of GIS by some CARILEC member utilities and the continued support of existing GIS by other utilities, recent discussions between local GIS professionals and supporting consultants have focused around the most effective means of distributing GIS information throughout a utility's organization. As technology advances and the number of developers increases, the options continue to expand. However, as an independent utility, you have to ask yourself – What is the most effective means of distributing GIS within our own organization?

There are a large number of factors to consider when making this decision:

Personnel:

What is the expected demand for GIS information short, medium, and long term?

Does the organization have their own software programmers? (that understand GIS software, as well as adapting it to user's needs). Does the organization have a supporting consultant that may be able to aid personnel with implementing a distributed software solution?

How many users will access this information? What is the predicted training/support costs if you choose application A over application B (is the cost of customization going to be less than the cost of support if you go with a customized solution)?

Hardware:

If users access the server remotely – what is the band-width?

Do you have a centralized server environment, or distributed servers for outlying offices?

What is the current server load (will you need to upgrade your hardware)?

Do you have a web-server currently running (intranet)?

Software:

What software solution are you currently using for GIS data maintenance/creation?

What is your current GIS file format or formats that can be exported?

Do you currently have or have plans for other integrated applications (work management, outage management, ...)?

What is the total cost of ownership of an application (initial purchase, development/setup, maintenance, ...)?

What is the required functionality short, medium, and long term?

Perhaps the next few paragraphs can shed some light on the subject and make your decisions a little easier:

Essentially there are two main methods of distributing GIS information – desktop applications, and web-based GIS servers:

Desktop applications work similar to other desktop applications; they are installed locally and access information from a shared directory on the server or data stored on the local machine. Most of these applications tend to support the ESRI shapefile format as well as their own vendor's format. These applications tend to satisfy most users needs; they provide basic querying, map navigation, map printing/plotting, and symbol editing functionality. However, the downside to these tools is the limited ability to customize the applications to satisfy particular needs. The application is installed on the desktop and thus, will need to be upgraded on each machine when new versions are released. Hardware will need to meet the specifications of the software (in some cases hardware will need upgraded). Although, the functionality is limited – there is a learning curve that needs to be overcome. Users will need to learn how to write their own SQL strings for querying, and learn the basics of map navigation with desktop mapping software – if they are not already familiar with AutoCAD or other graphics programs. The support for query writing will require ongoing support from GIS or IT staff.

Web-based GIS servers run software on the server and distribute data over the internet or intranet. The user will only require a web-browser (such as Internet Explorer,

Netscape, or FireFox). This method usually requires fairly extensive application development. Web-GIS servers provide limited functionality out-of-the-box, but have an open application development environment for developers to customize the solution to accommodate their users' particular needs. Utilities deciding to invest in web-GIS should be willing to account for the amount of development time required – unless they purchase a customized solution from a vendor. The total cost of ownership of these software solutions can become quite high if you don't plan carefully. These solutions are available commercially as well as free open-source downloads. The main difference between the open source tools and the commercially available products is the level of programming required, as well as the technical support. With commercial products, there is some functionality available out-of-the-box, and the technical support is available (provided your maintenance is paid). With open source tools, there is usually more programming involved, and the informal support is limited to the online forums developed by other users.

Recent releases to the open source community by Autodesk has sparked more interest in the open-source options when it comes to web-GIS software.

Before deciding on a solution, I would recommend taking the time to outline your current personnel, hardware, and software resources. As an organization, determine the demand for information and required functionality short, medium, and long term. The answers to these questions will assist you with determining the applications to choose. Maybe you are a small organization that will benefit from existing desktop applications, or a large organization that should develop a customized web-based GIS solution. Or maybe a combination of the two – start with a desktop application to get GIS information into users' hands while you are developing your web-based GIS. Whatever your decision – you are not alone – call around, discuss the options with other neighboring utilities, or your supporting consultants; leverage the knowledge and experience that other professionals may have to contribute.

Here are some applications to consider: (these lists are by no means complete)

Desktop Apps:

ArcReader by ESRI:
<http://www.esri.com/software/arcgis/arcreader/index.html>

This application requires an extension for ArcGIS (ArcPublisher). The extension generates a *.pmf file; this file is a 'pointer' file that indicates the data sources. ArcReader supports ArcView shapefiles and ESRI personal geodatabase file formats. This application provides read only functionality.

ArcExplorer by ESRI:
<http://www.esri.com/software/arcexplorer/index.html>

This application is a data reader. It provides basic querying, map navigation, and map printing/plotting. The symbology is limited and only supports ESRI shapefiles. It is a good starting application for users who wish to access GIS data but will not be editing or maintaining information.

GeoMedia Viewer by Intergraph:
<http://www.intergraph.com/gviewer/>

This application is a data reader. It provides basic querying, map navigation, and map printing/plotting. This application comes with an extensive symbol library and can read custom symbol libraries developed by GeoMedia or GeoMedia Professional. It supports GeoMedia warehouses (Access database), and ArcView shapefiles. This is an excellent application for users who wish to access GIS data but will not be editing or maintaining information.

Freeware: – (some have simple editing, usually support ArcView shapefiles)

MapWindow <http://www.mapwindow.com/GIS>

Viewer <http://elib.cs.berkeley.edu/gis/index.html>

Tatuk GIS Viewer

<http://www.tatukgis.com/products/viewer/viewer.aspx>

Web-GIS:

ArcIMS by ESRI:
<http://www.esri.com/software/arcgis/arcims/index.html>

ArcIMS is ESRI's internet map server. Out-of-the-box it provides basic functionality to get the user started. The documentation and user community is extensive, providing first time users with the support required to get started. ESRI's website has 'site starter' downloads that can give developers a base to begin their development from. This application does have an initial purchase

price and on-going maintenance fees. Yearly maintenance fees pay for technical support.

GeoMedia WebMap: <http://www.intergraph.com/gmwm/>
GeoMedia WebMap is Intergraph's internet map server. Intergraph also provides a publisher extension that can publish documents from the desktop GeoMedia or GeoMedia Professional to GeoMedia WebMap without having to write any code. This application does have an initial purchase price and on-going maintenance fees. Yearly maintenance fees pay for technical support.

AutoDesk MapGuide Enterprise: <http://usa.autodesk.com/adsk/servlet/index?id=6546938&siteID=123112>
MapGuide Enterprise is Autodesk's internet map server. Autodesk also provides MapGuide Studio to publish and author websites - minimizing the amount of code programmers need to develop. Autodesk also provides 'site starter' examples to show

first time developers how to develop certain functionality within the application. This application does have an initial purchase price and on-going maintenance fees. Yearly maintenance fees pay for technical support.

AutoDesk MapGuide OpenSource: <https://mapguide.osgeo.org/>
MapGuide Open Source is Autodesk's internet map server. Autodesk also provides MapGuide Studio to publish and author websites - minimizing the amount of code programmers need to develop. Autodesk also provides 'site starter' examples to show first time developers how to develop certain functionality within the application. This application is a free download. Support is limited to other users in the open source community.

Open Source Web-GIS: <https://www.osgeo.org/>
Link to other open source web-based GIS solutions

The CARILEC GIS Online Message Board

By Terry Inniss, Computer Mapping Programmer, Barbados Light & Power Co.Ltd

At a Strategic planning session, the CARILEC GIS Taskforce agreed to setup an Online Message board for use by members or anyone wishing to share mainly GIS information. Hence, the CARILEC GIS Online Message Board was setup in February 2006 and incorporated into GIS Section of the CARILEC's website. This message board can be found at <http://www.carilec.com/gis> or directly at <http://forum.onecenter.com/carilec/>.

Since its inception it has not been used as conceived by the Task Force. There are a few posts on the site - a welcome address by the former Task Force chairman Dr. Philip Corbin, a question about pole numbering from someone outside the CARILEC member utilities and two vendors wanting to sell electrical equipment. The pole numbering post was the most replied to question as

members and industry pundits try to give a solution to a problem which seems to plague most utilities.

As previously mentioned this forum is being under utilized by members and it is hoped that more dialogue will be entertained between utilities in or out of the region on the topic of Geographic Information Systems (GIS). We can all help each other by posting solutions to many issues facing the industry, tidbits on areas of GIS that can be of use to other utilities.

The message board is free from onecenter.com and is administered by yours truly of the Barbados Light & Power Co.Ltd. Let's continue to share as we seek to bring the region closer together through our love for GIS.

Report on URISA's Third Caribbean GIS Conference

By Dr. Philip Corbin, Computer Engineering Analyst, Barbados Light & Power Co.Ltd

The 3rd Caribbean GIS Conference hosted by the Urban and Regional Information Systems Association (URISA), which is becoming a biannual event, took place in the Bahamas 29 October – 2 November 2006 at the beautiful Atlantis Hotel, Paradise Island. There were around 250 attendees from over 20 countries. The two previous URISA Caribbean GIS Conferences were the inaugural one in Jamaica (Sept 9-12, 2001) and a second one in Barbados (Sept 13-17, 2004). The current Conference theme was “Shattering Barriers... Building Bridges” and its objectives were:

To inform a broad cross-section of Caribbean users about GIS technology and applications

To share experiences regarding GIS implementation and management issues

To establish new relationships with the vendor/consultant community

To provide workshops and sessions that are application driven, and are relevant to the Caribbean community of GIS users

To foster a Caribbean GIS network

To assess the state of readiness of national and regional Spatial Data Infrastructures



Wendy Francis, Executive Director, URISA, hard at work.

Kudos are due principally to Wendy Francis (wfrancis@urisa.org), Executive Director, URISA, and Pat Francis (pfrancis@urisa.org), URISA's Meetings Coordinator, for spearheading the organization of a well-planned and executed Conference. They

were ably assisted by the Conference Program Committee, a capable cadre of 20 GIS professionals from the USA and 5 Caribbean countries (namely the Bahamas, Barbados, Guyana, Jamaica, Trinidad & Tobago), including yours truly. The Committee Chairperson was Ms. Carolann Albury, Director of the Bahamas National GIS (BNGIS) Centre in the office of the Prime Minister.



Pat Francis, URISA's Meetings Coordinator, holding a copy of the local newspaper showing its article on the speech at the Conference's Opening Ceremony by Bahamas PM Perry Christie.

There were three concurrent 8 hour Pre-Conference Workshops on Monday the 30th October, on GIS Program Management, Asset Management, and Spatial Data Infrastructure (SDI); the last mentioned was the best attended, chaired by Jamaican GIS Consultants Valrie Grant-Harry and Garfield Knight, where yours truly was present. There was excellent interaction amongst the participants. One recommendation coming out of the Workshop was the need for a National GIS Committee in countries where the key Government departments which should be contributing towards the SDI are under different ministries. Much progress towards a national GIS with SDI from several contributing agencies has been made in the Cayman Islands and in Jamaica in particular.

The opening ceremony of main Conference, Tuesday morning 31 October 2006, featured a keynote address by the Right Honourable

Prime Minister Perry Gladstone Christie of the Bahamas. A strong supporter of GIS, he gave an excellent speech without notes, subsequently highlighted by the local Newspaper, the Nassau Guardian, in an article accessible online at: <http://www.thenassauguardian.com/national/local/293331314236345.php>

Along with several vendor exhibits, there were 79 educational sessions over the 3 days of the main Conference, including a talk by yours truly on "The Possibilities, Potential, and Power of a Web-Based GIS", which related the positive experiences gained by the Barbados Light & Power Company in this area, and also warned re some of the potential pitfalls in using this new technology.

A highlight of the Conference was the Thursday keynote address by Jim Geringer, former Governor of Wyoming, USA, who gave a highly informative overview of the role and trends of GIS in policy making, and how policy-makers should be introduced to GIS as an important tool to solve practical problems they are facing.

The Conference finished with a plenary session on the way forwards towards a regional SDI, followed by a closing ceremony embellished by a noisy and colourful calypso-style band (see photos). The Conference participants were in general very pleased with its overall standard, and are looking forward to the 2008 Conference. All Caribbean GIS professionals should make a special effort to attend these well-organised and informative URISA Conferences.



Calypso-style Closing Ceremony - the lady to the right in the photos is Jamaican GIS Consultant Valrie Grant-Harry, currently stationed in the Bahamas to assist in the work of the Bahamas National Geographic Information Systems Centre (BNGIS)