

THE RELEASE OF ARCGIS 10: ACHIEVING “CLOUD-BASED” GIS TECHNOLOGY

A Message from Larry E. Newman, P.E., LEED-AP

Every year, ESRI hosts a conference for their business partners—the companies that develop add-ons to the ESRI core technology and the companies that provide services to ESRI’s customers. At this conference ESRI shares with their partners their vision of where they are going with GIS technology, and how this might affect both the partner community and the ESRI user base.

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At this year’s conference, held in March in Palm Springs, California, Jack Dangermond, ESRI’s founder, provided information regarding the pending release of what ESRI is calling ArcGIS 10. It is scheduled for release in June, 2010, prior to the upcoming International User Conference, to be held in San Diego, on July 12-16.

This newsletter will highlight some of the exciting new features that were demonstrated at the partner conference. Jack’s impression is that the pending release has the potential to dramatically increase the use of GIS technology generally by “orders of magnitude,” as it fundamentally simplifies the user interaction and offers the opportunity to access GIS functionality via a web-based interface without having to deploy ESRI technology or GIS data on the user’s workstation or their internal servers.

Speed of interaction and ease of use were recurring themes throughout the conference. “Functionality that even Jack can use” was a phrase that was often used by ESRI staff—which was an in-jest way of emphasizing that individuals without specific training in the use of ESRI technology will be able to take advantage of the new version and be able to use GIS technology. Think Google Maps or MapQuest type of interaction here.

ArcGIS 10 has been in development for several years. ESRI is reporting that they have spent in excess of \$500 million in the development process. That type of investment would be expected to yield significant results, and it has. The dramatic speed of refreshing image-based data as the user zooms or pans across a landscape while accessing data via the internet is but one example of what the user can expect of this new version.

Fundamentally, ESRI is releasing a “cloud-based” version of true GIS technology. Those of us who have been in the computer industry for more than 30 years might appreciate recalling that, in the 1970’s, it was common to utilize “dumb” terminals connected to a “mainframe” computer somewhere remote from the user in a “time sharing” environment. We would pay for the use of the remote computer based on the number of compute cycles and the amount of memory and disk utilized. Then came the microcomputer revolution starting in the early 1970’s but really taking off with the introduction of the “personal computer” in 1982, networks of personal computers in 1985, the introduction of the Windows operating system in the early 1990’s, and the emergence of the internet in the mid-

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EXECUTIVE ORDERS: UPDATE

Since our last newsletter, a new executive order has been issued that is related to facilities management.

On October 5, 2009, President Obama issued Executive Order 13514, “Federal Leadership in Environmental, Energy and Economic Performance”. EO13514 expands on the energy reduction and environmental performance requirements of EO 13423, and requires a 50% reduction in non-hazardous solid waste as well as consideration of the GreenHouse Gas emissions (GHG) of facilities in addition to raw energy use.

Previous relevant orders and legislation included:

- Executive Order 13423, “Strengthening Federal Environmental, Energy and Transportation Management”
- Executive Order 13327: “Federal Real Property Management”
- The Energy Policy Act of 2005–EPACT2005
- The Energy Independence and Security Act of 2007–EISA

Spatial’s ESRI-based MMS technology assists in monitoring and reporting in conformance with the requirements of these EO and statutory regulations for federal as well as local government organizations that have adopted the federal guidelines. Please contact SSA for information on how these tools can help you manage and report compliance with current regulations.

products

ESRI ArcGIS 10 Highlights

In the SPOTLIGHT

In the clouds

ArcGIS 10 has been developed as a “cloud ready” application. Cloud computing falls into 2 categories, Software as a Service (SAS) and remotely hosted/administered applications. Some examples of SAS are Google mail, and Salesforce.com. In both cases, the service provider has a fully configured system that users just start accessing via a standard browser over the internet. Remotely hosted/administered cloud computing is based on a concept called server virtualization in which a user can request access to a virtual computer with certain performance, memory and storage capabilities (more like the time-sharing concept mentioned elsewhere). Once you have been provided access to a virtual server, you then install, configure and use your application. You are charged a monthly fee for use of these resources as well as a charge for the network bandwidth you utilize. In both SAS and remotely hosted/administered applications, the end user and his organization are not responsible for maintaining the computer network or backing up the data that is being utilized—that function is the responsibility of others. Moreover, the only technology that is required locally is a standard browser-based platform and access to the web.

Cloud computing offers a low cost of entry as compared to purchase, installation, and configuration of your own server hardware. For this reason, it is very attractive to use for testing and development activities. Cloud computing also helps reduce the security risks to corporate/internal networks by putting content into the cloud which is then accessible from the Internet without providing access to your internal network.

An additional advantage of cloud computing is the ability to quickly adjust resources as demand/traffic changes over time. An organization that has seasonal traffic peaks, such as retail sales during

the holiday season can expand capacity as needed using cloud resources. Once the surge has passed, capacity can be reduced.

Cloud computing isn't necessarily a no-brainer. Considering the longer range, it may be more expensive than internally owned/operated systems, particularly if the processing loads/requirements are relatively level over time. Often, non-cloud implementations have more capacity than usually needed to accommodate occasional peak loads or anticipated future expansion. In many cases, a hybrid approach of using in-house servers for base load and cloud expansion for peak load can be an effective solution.

ESRI's new ArcGIS 10 is offered as a “cloud ready” GIS solution.

Volunteer GIS

An emerging pattern in GIS is the use of “crowd sourced” or Volunteered Geographic Information (VGI). This approach incorporates the desire for people to share their personal experiences and observations with others, a concept that is driving blogging and tweeting. By adding a geographical context, these observations can become more powerful. Uses of VGI include pothole reporting to a town DPW, bird sightings to a conservation group, or opinion/feedback regarding a planning activity.

VGI is facilitated by the use of Server based GIS technology exposed to the Internet. As with any other way of seeking input or gathering information, it is critical that those implementing this approach have a clear plan to utilize the information collected and an ability to follow up on requests in a timely fashion.

Community topographic base map evolves

ESRI has developed a new program to allow users that have high quality planimetric/topographic data to submit their data to ESRI to post into a new nationwide base map freely available via ArcGIS Online. Through the use of a geodatabase template, users

can prepare their data in a form that will support a standardized cartographic representation that has been highly refined. The community-submitted data is mashed up with existing topographic materials such as USGS Quads to form a continuous map which will evolve over time.

ArcGIS Explorer Online

ESRI is developing an entirely browser-based viewer named ArcGIS Explorer Online. This new application has capabilities similar to the download/installed ArcGIS Software, including creation of presentations. Users can create their own maps using ArcGIS Explorer Online, consuming numerous Internet based map services in the process. These maps can then be shared on-line. The shared maps can either be available to specific user groups or to anyone who is interested. Once published, the maps can be discovered by potential users on the web via keyword searches.

ArcGIS 10's implications for custom desktop applications

As previously announced by ESRI, VB6-based applications will no longer be supported in ArcGIS 10. Users with such applications should consider migration to a supported foundation. The choices for replacing the functionality of such applications range from the use of new/existing functions now built into ArcGIS, Model Builder process models to automate

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repeated multi-step processes, python scripts or fully implemented VB.NET compiled applications.

The choice of which approach to take is dependent on the number of supported users, type of functionality and ability to

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support on-going application development/modifications over time.

In addition to the outright removal of VBA, the VBA technology is also being phased out. At version 10.0, VBA support will not be available by default. Users can perform a supplemental installation to add VBA capabilities and then must obtain a free authorization code from ESRI. ArcGIS 10.0 will be the last version of ESRI's core technology that will support VBA; therefore, users should not begin any new development efforts in this environment and existing users should begin migration plans.

A new customization approach is being introduced for ArcGIS 10 desktop. Developers can create "Add-ins" which can be deployed to user's systems without the need for the user to have administrative rights to install the enhancement on their computer. Within a networked environment, ArcGIS 10 desktop systems will be able to utilize a centralized/common add-in library, allowing easier deployment and upgrades across a large user base.

ArcGIS license checkout has arrived

At version 10, ArcGIS desktop concurrent use licenses can be checked out for field use. Using this new capability, a user can check out a license onto their laptop. During the checkout process, they identify how long they want the license to be active on the laptop. If the user completes their work early, they can check the license back in early. While the license is checked out, it is no longer available for use on the central network. If the user does not check the license back in early, it will automatically

stop working on the laptop when it expires and the central license will again become available.

ArcGIS for the iPhone

ArcGIS Server 10 will include a new SDK to support development of mobile applications for the iPhone. Through this new SDK, users can view and update GIS data in the field as part of a mobile workforce. The iPhone application is delivered by way of the Appstore which is a trusted distributor for iPhone applications.

ArcGIS 10 Desktop editing gets easier

ArcGIS 10 makes editing easier by allowing the user to choose their editing tools from the table of contents to indicate which data layer they wish to work on. During the editing process, editing modifier tools such as snapping and precision drawing will follow the user's cursor and become available as needed to keep the editor focused and reduce the need to search for functionality.

ArcGIS 10 becomes time aware

ESRI has extended time aware visualization to its entire product lineup. Time visualization in the past had been limited to users of 3D Analyst and Tracking Analyst. Now, this capability is available in the base desktop level of ArcGIS 10 as well as ArcGIS Server. Through temporal analysis of events such as accident reports, temperature readings,

or other observations, new temporal/spatial relationships can be discovered by users, allowing them to make more effective decisions.

Coming soon, ArcGIS in 3D!

ArcGIS 10 extends ESRI's development of 3D map features and visualization. A new set of robust editing tools enable users to easily create new features through 3D snapping to edges and surfaces of other 3D features. With these new tools, editing in 3D is as easy as editing in 2D.

ArcGIS on campus

ESRI has developed a map template and companion geodatabase schema to present a cartographically pleasing map of a campus environment. By leveraging this template you can avoid hours of painstaking work in selecting feature symbology and running test plots. Simply load your data in the geodatabase and you are on your way.

Need more info?

These and more features of ESRI's ArcGIS 10 release were presented to the ESRI partner channel during the recent Palm Springs conference. We look forward to this latest release of ESRI's technology and invite your inquiries regarding how Spatial Systems staff can assist your organization in both deploying the new technology and taking advantage of its new capabilities. [SSA](#)

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1990's. Since about 1997, most of us have become accustomed to communicating utilizing wireless technology and the internet, whether via email or web pages.

Now our personal computers might be PDA's, netbooks, laptops, or desktop machines connected to the "cloud"—the world wide web of communications, servers, and processors—that have in effect replaced the "mainframe" of old. Representing both opportunities and challenges, ESRI's new offering takes advantage of this growing tidal wave of technology and information to provide users with unmatched capabilities to analyze and visualize spatially-relevant data.



Spatial's challenge is to assist you in taking advantage of these technologies for the benefit of your organization while helping you not become swamped or carried away by the wave.

This issue attempts to provide some insights to the technology that will hopefully prepare you for the surge. [SSA](#)

SSA, INC.

COMPLETE GIS AND FMIS IMPLEMENTATION AND SUPPORT SERVICES

GIS & FMIS

GIS

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Needs/Cost Benefit Analysis

Excited, curious or confused about the potential for GIS in your organization? Spatial Systems has been implementing these technologies for years. Allow us to evaluate your needs, project the potential for savings or increased revenues, and otherwise explain the potential for GIS in your business.

GIS Systems/On-Site Consulting

Maybe you need a little help bringing it all together. No one ever said GIS could be integrated overnight. Let us come on-site, provide implementation management and QA/QC to help you implement this time and money saving technology.

Web-Based Hosting

Perhaps you don't really want the hassle of building and maintaining a GIS internally. Consider allowing Spatial Systems to host your GIS data or its services and make GIS functionality available to you and/or your clients over the Internet.

Wide-Format Scanning

Make it digital! Convert maps, blueprints, and imagery into a new theme/layer for your GIS. Unlimited length specifications with widths accepted up to 50" B/W, full-color, with various resolutions and output formats available.

Analysis

If you simply want to be able to take advantage of the ability of GIS technology to help meet the needs of your organization without the bother and cost of acquiring GIS software and learning to use it, Spatial Systems offers the services of our experienced staff to perform analysis and produce suitable reports and cartography for you.

Vectorization

Take all of your hardcopy or image files and turn them into topologically structured GIS compatible layers, with attribute links to your database.

Integration

Combine the new datasets with your existing data or models to fully integrate GIS technology with your legacy data systems.

FMIS

FACILITIES MANAGEMENT INFORMATION SYSTEMS

System Design

We specialize in the use of legacy systems and data in the implementation of our SpatialMMS product line. Allow us to sit down with you to understand your need for FMIS technology and to recommend the most effective approach to implementation.

Data Development

Whether you have no as-builts or a sophisticated Building Information Model (BIM), or anything in between, Spatial Systems is prepared to use what is currently available in the establishment of a consistent and accurate dataset that is customized for your facility. When necessary, our field staff will gather relevant information onsite to meet the requirements of your desired functionality.

Monitoring Tools

Spatial Systems will arrange, when necessary, for the installation of energy, water and indoor environmental sensors to capture relevant data for your facility. If your facility already has a monitoring or other control system, Spatial Systems will integrate our SpatialMMS tools to use the output from those systems to the extent permitted by your other vendors.

Dashboard Customization

SpatialMMS utilizes a fully customizable dashboard for your interface with the system. By understanding your specific requirements, we will deliver a web-based solution that meets your requirements.

Hosting

If preferred, Spatial Systems will host your FMIS data and interface on our in-house servers. There is no need to purchase hardware or software to take advantage of this technology, and access to your facility data can be made available to anyone you designate who has access to the internet.

Alerts

If any of the monitoring technology detects that the readings from a sensor fall outside of parameters that you establish, SpatialMMS can generate an alert in the form of an email, a mail message, or establishment of a new work order in your existing work order management system.

Reports

Reports from SpatialMMS can be generated on demand or on a regularly scheduled basis to confirm for you that the building systems are operating properly and to report the periodic results of automated analysis of the collected data.

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