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ArcGIS Server for Collaboration from the Enterprise to the Field

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Emerging technologies such as ArcGIS Server, ubiquitous Internet and "the cloud" allow for real-time sharing of geospatial data among a wide variety of users. This presentation will showcase how these technologies are put to work in the real world for pipeline and transmission line projects where the timely access and updating of data is critical to success.

Users include land agents and survey crews in the field, GIS and CAD Technicians in the main office and various clients who enjoy real-time access to project status information through web-based interfaces. The ability to allow GIS technical users to access and use the data from ArcGIS and ArcView while allowing non-technical users to also view the information in a browser is the main strength of this application.

A wide variety of uses for the same information has evolved among project team members working on pipeline right-of-way acquisition and construction projects. Map products include everything from traditional map viewing and cartographic production to real-time data entry from the field and emergency response applications.

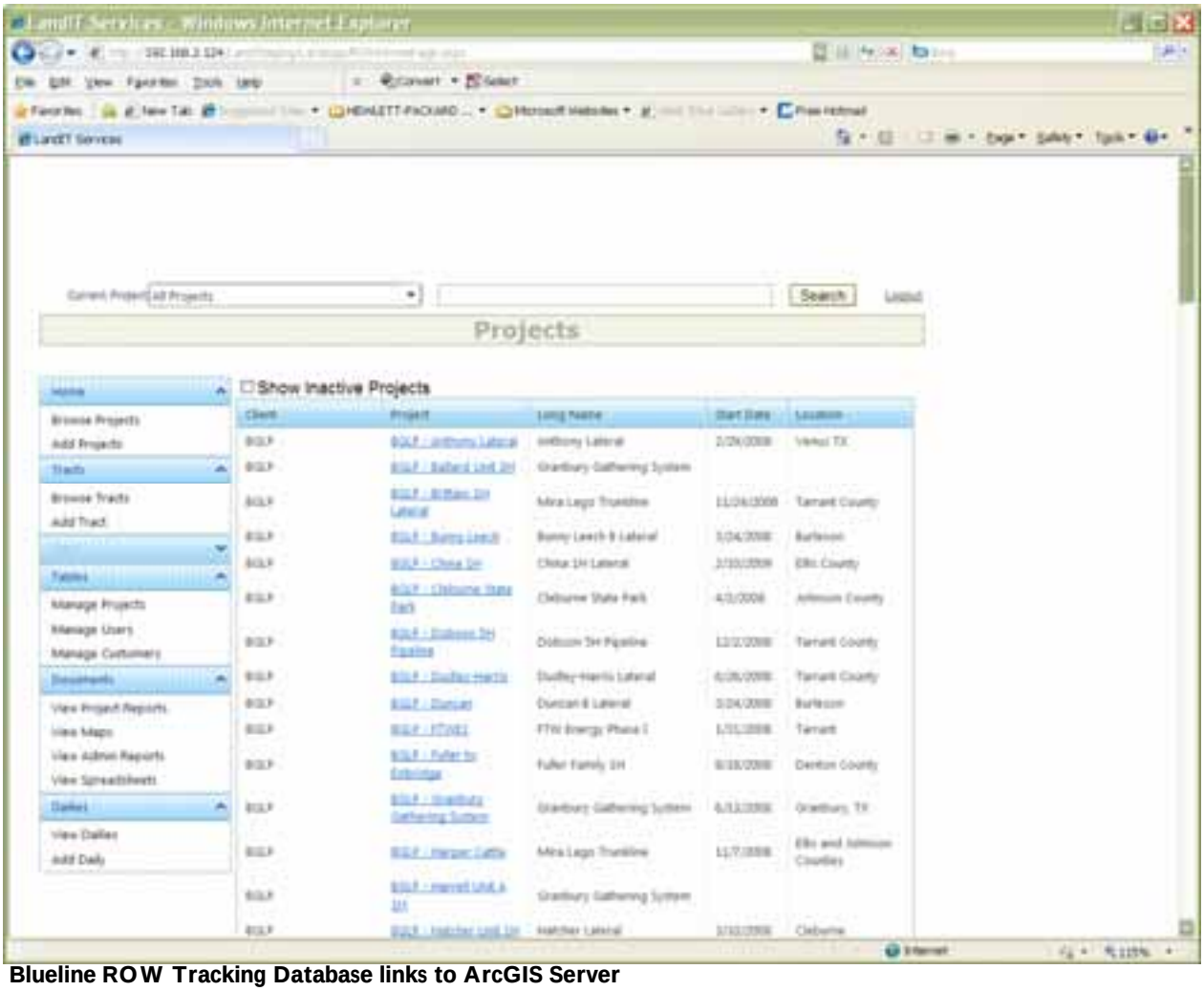
Blueline Geo has created a one-stop shop for ROW planning and acquisition services. One of the things that makes this unique is the fact that it serves a particular segment of the pipeline industry has not been particularly well served by the existing client GIS departments. While many pipeline companies have GIS in-house, the land agents and survey crews have not necessarily had access to GIS information in real-time. Since their work is done in a rapidly-evolving environment, real-time access is the key.

Some of the functions that are required during the ROW process include route planning, easement negotiations and acquisition, permitting, surveying and mapping. In addition to the traditional least-cost-path routing, land negotiations and potential condemnations can influence the route. By identifying all the typical constraints to routing, better decisions can be made by land agents in the field.

Environmental and construction permitting requires route maps which show all the various constraints and other geospatial information about the site.

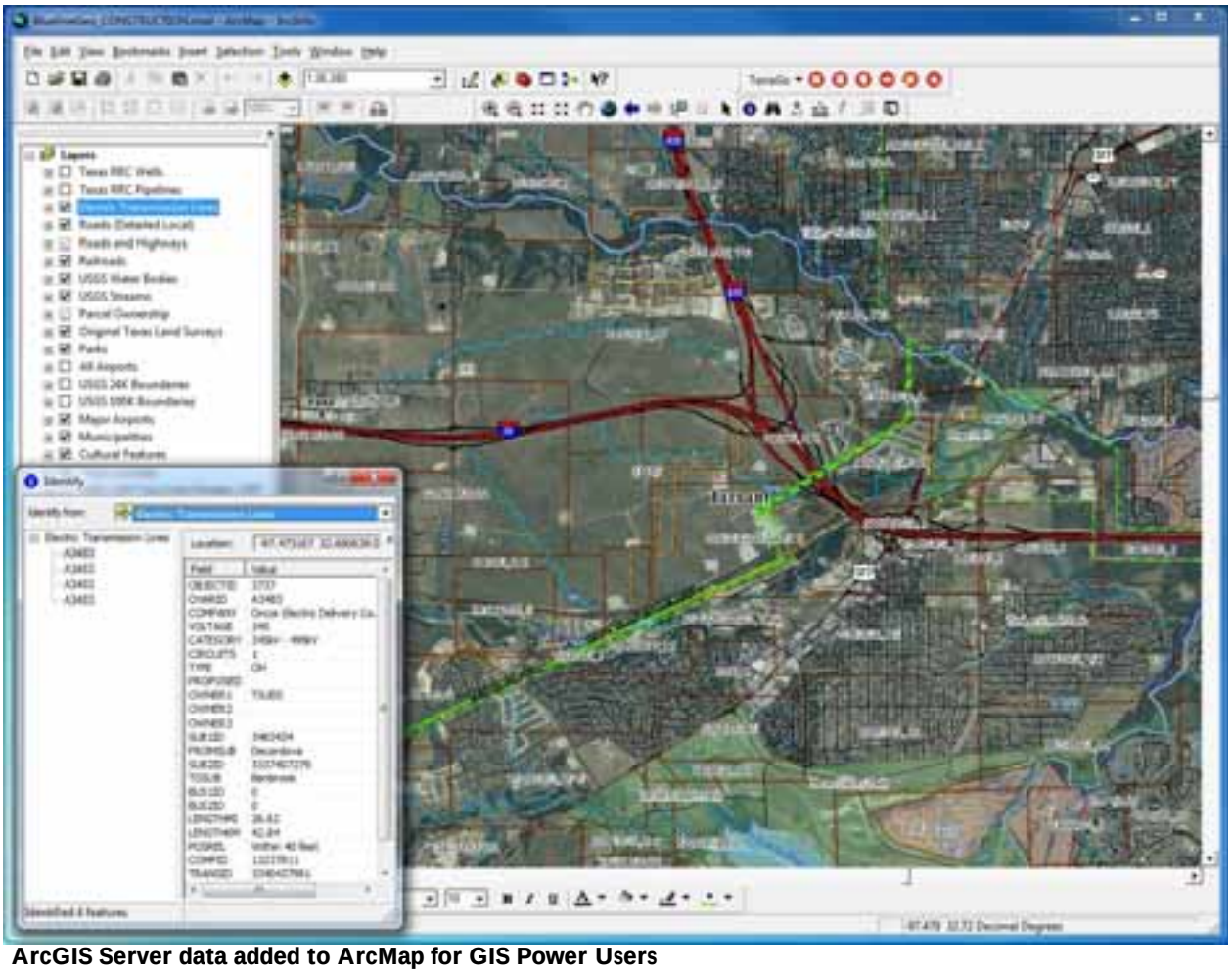
Survey crews need field maps and right-of-entry status maps, which can change on a daily basis. CAD operators in the office produce plats and alignment sheets that can be accessed as documents from the ArcGISServer.

A project status database is kept up-to-date by the land agents and administrative assistants in the office. Clients can access this web-based database and can also view a map of the area of interest. By having this type of real-time access, clients can view project status and costs in real-time.



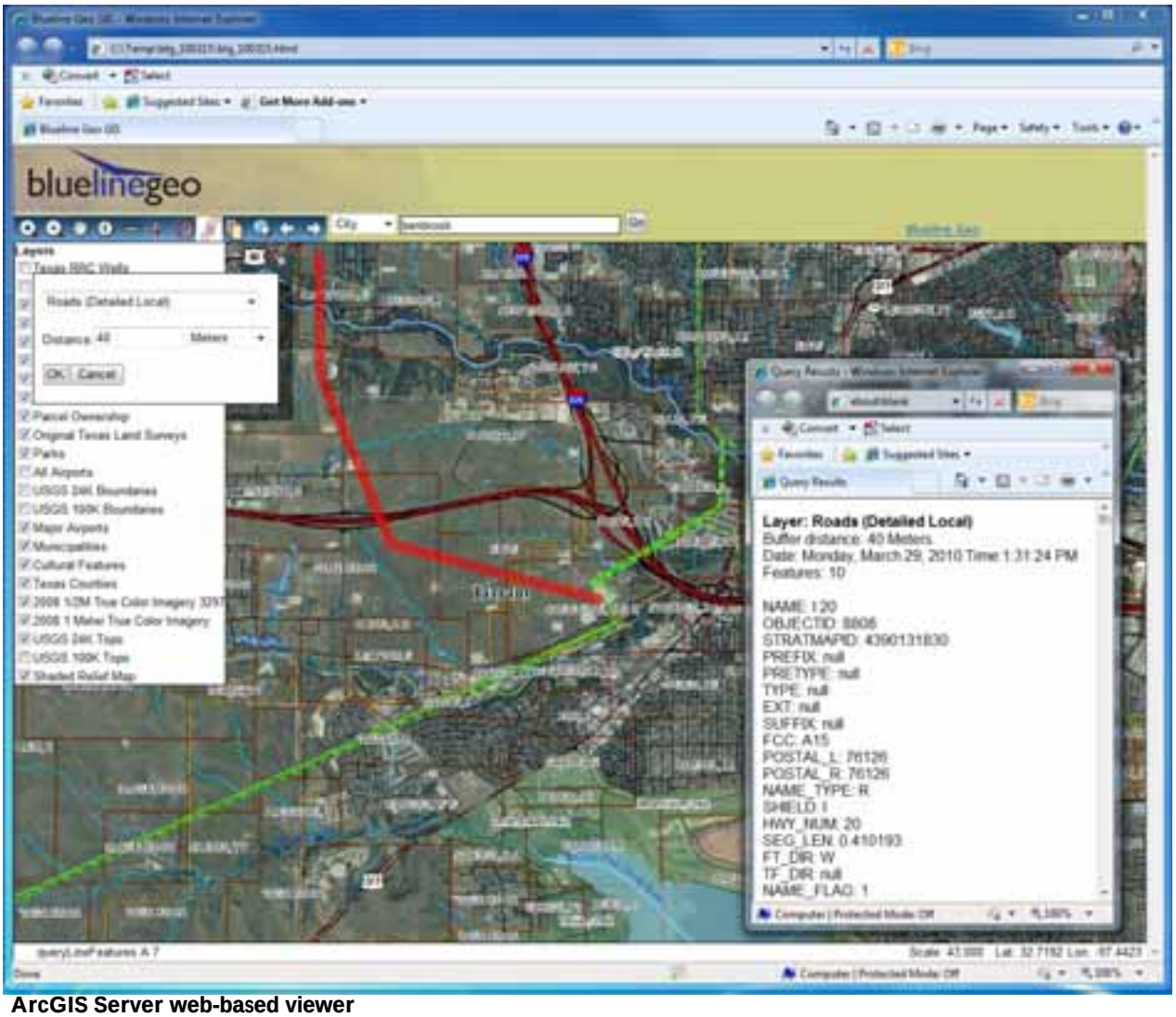
Blueline ROW Tracking Database links to ArcGIS Server

Since all of this ROW planning and acquisition information is spatial by nature, hosting the information within ArcGIS Server presents the information in several map-based visualization environments. For GIS Power Users, the service can be consumed by ArcMap. Users can add the base map and operational layers to their existing ArcGIS data.



ArcGIS Server data added to ArcMap for GIS Power Users

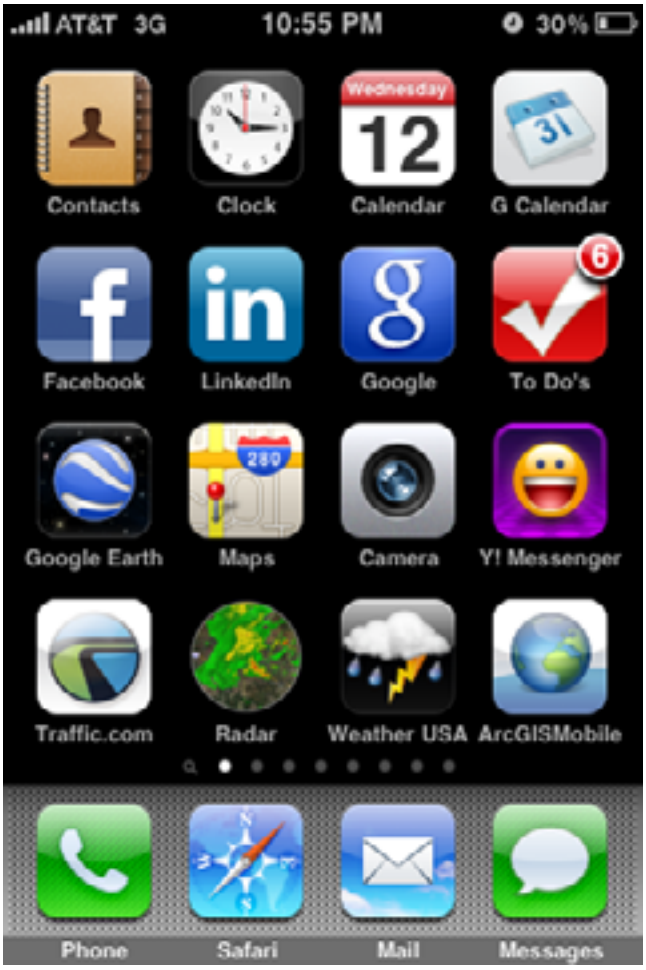
For users of Google Earth or ArcGIS Explorer Online, the data services can be visualized with those web-based tools. For non-sophisticated users, a web-based viewer is offered, allowing users to view, pan, query, measure and do simple analysis from their web browser.



ArcGIS Server web-based viewer

Data resolution is very important. Not just spatial resolution, but also data currency. In the ROW business, data changes on a daily basis, so having the most up-to-date information is critical to good decision-making. ArcGIS Server delivers the latest information within a variety of forms for all levels of user.

The new ArcGIS Mobile technology is being tested now on Trimble GPS devices, Apple iPhones and iPads and laptops running Windows 7. The ability to post database changes from the field using 3G phone networks and Inmarsat satellite links is truly revolutionary. Data can be viewed and edited from literally anywhere. The changes are all viewed in real-time.



ArcGIS Mobile App on iPhone

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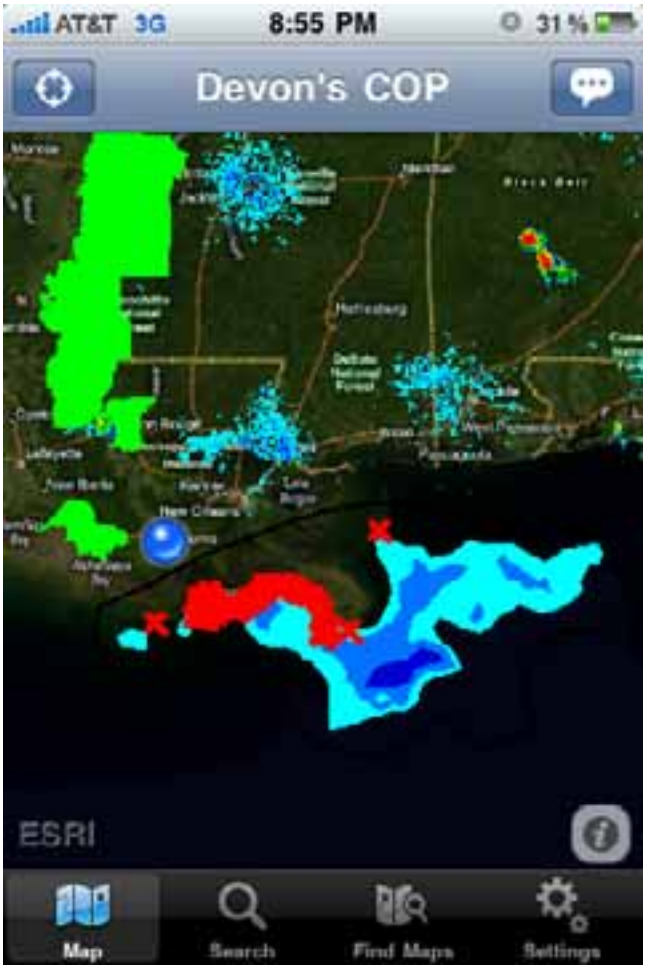

ArcGIS Mobile App on iPhone

Inmarsat portable satellite-based Wi-Fi hot spot

In conclusion, the key requirements of:

- Viewing of data with a short shelf-life in real-time
- Access to documents and records
- Access to database information (from SQL)
- Access to Visual Intelligence in the field
- Client access

…are all met by the combination of ArcGIS Server and ArcGIS Mobile technology. While ArcGIS technology itself is not new, it is new to this particular segment of the pipeline ROW acquisition business. The use of web-based geospatial servers results in increased efficiency by all team members and the client, allows for metrics on costs to be viewed in real-time and the maps are a natural way of visualizing complex databases.

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