



Editorial

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SPAR 2009 and the Carlson User Conference

The *American Surveyor* has covered a whole lot of territory since our last issue! As part of a second road trip, I attended both SPAR 2009 conference in Denver and the 2nd Annual Carlson User Conference in Lexington, Kentucky, with a quick trip out to Logan, Utah in between (more on that leg of the journey below). Both conferences were worthwhile, and proved that in spite of the current economy, people are still interested in diversifying and using the down time to train.

SPAR 2009 attracted more than 600 people from 25 countries, representing more than 300 organizations. Several exhibitors I spoke with said the crowd this year consisted of fewer “tire-kickers” and more committed individuals who had already made the decision to jump into scanning. In his opening remarks, conference organizer **Tom Greaves** stated SPAR 2009’s mission—the capturing, storing, indexing, manipulating and displaying of information—and added, “Scanning is not just about economics, it’s also about safety and security.” Greaves said the industry experienced a 10-15 percent growth in 2008, mostly in the first half.

To illustrate the growth of scanning for safety and security, a fascinating session by **Daniel Livecchi** of the Secret Service clearly illustrated that the agencies responsible for this in our country have run with the technology for such things as sophisticated line-of-sight analysis (to gauge sniper threats) and simulation of events (such as motorcades). A video game has been created that will allow all interested parties to interact with a highly-accurate digital model. While the session was not classified, we were privileged to see how far they’ve taken modeling technology: software called StarView has been created which brings all the data together, and suffice it to say that we should be glad these folks are on top of this.

One of the keynotes was made by **Hans Hess**, the former CEO of **Leica Geosystems**. Hess is well-acquainted with the industry, having presided over the purchase by Leica of the former Cyra Technologies. Criticized at the time for the purchase price, Hess’ decision proved to be correct as Leica HDS has remained the dominant player in the industry. Hess described a future in which aerial lidar data is fused with terrestrial point clouds, with high density data only being gathered where needed. He added that the addition of digital photography makes the results easier to understand. Particularly interesting to me were his comments about the next wave: multi-spectral info from scanning. This will enable the scan data to reveal *what* the pulse hit, not just 3D info about the point. Hess mentioned the use of scanning for change detection and sees a big future in architecture and construction for progress monitoring. He also made a push for **CyArk**—the organization created by former Cyra owner **Ben Kacyra** for heritage preservation and monitoring. Hess sees great promise from CyArk for education and eventually, virtual tourism. Hess admitted that challenges remain in processing data, but expressed confidence that more computing power will solve that, and that the holy grail of scanning—automated feature extraction—is not that far off.

The biggest buzz at the show was mobile mapping. We’ve covered this in the magazine, and I see it as a high-growth area. New at the show was the \$100K Dynascan mobile mapper from **MDL**. This all-in-one, pre-calibrated unit can be quickly mounted and, according to MDL, the scanner will achieve accuracies of ± 5 cm. It uses a NovAtel GNSS board and claims horizontal accuracies of: SBAS, 0.6m; OmniSTAR, 0.1m; and RTK, 1cm. According to the company, the unit is finding wide use in harbor surveys where bathymetric data is supplemented by above-water scans.

Several exhibitors touted their modeling software, including **Zipline** from **Pinpoint3D** and **EdgeWise** from **ClearEdge**. Zipline takes a large point cloud—difficult to import into a design program—and reduces the data size by a factor of 30 to 100 times depending on the complexity of the data. As part of the process, accuracy is sharpened and noise is removed. EdgeWise works by searching a point cloud for planar surfaces and then grouping them by color for visual inspection. Once grouped, 3D CAD models can be automatically extracted. ClearEdge CEO **Kevin Williams** told the audience a year's worth of coding has resulted in two seconds of processing time once the button is pushed. With the push into Building Information Models (BIM), these tools will find wide application. As Hess said, models are an area that needs work, but I was very impressed with how far we've come since I introduced scanning to the U.S. survey market by interviewing Ben Kacyra back in 1999. Then, for every hour in the field, it took 40 hours in the office. Now, the ratio is down to 3:1, and soon, will be even less.

Carlson User Conference

The number of companies represented at this year's meeting was nearly the same as the first annual event held in 2008. The biggest group in attendance was the mining industry, an area in which Carlson claims to have a large market share. The second largest group was construction, followed by surveying.

President **Bruce Carlson** kicked off the conference by saying that **Carlson Software** has a product for all phases of the design-build workflow. Carlson Software is a cofounder and client of Open Positioning Architecture. OPA empowers solutions and the freedom to choose, and this interoperability is one of Carlson's key assets. Carlson continues to strengthen and expand its market position with strategic partnerships. New partnerships announced at the UC were ESRI, NavCom, Magellan Professional and MOBA Systems. Carlson is already partnering or compatible with JAVAD GNSS, Leica, Magellan, Sokkia, Pentax, Topcon, Trimble, Autodesk and Bentley, and Bruce extended an invitation for mutual and open cooperation with all manufacturers in the positioning industry.

Dave Palumbo, PE, from **Dewberry** gave one of the keynote addresses. Dewberry is a national firm and the largest in the Washington, D.C. area. After an

exhaustive two-year competitive study, Dewberry selected Carlson Software as its primary platform. According to Carlson, this is proof that customer-driven, OPA-compliant software is working. Palumbo said the company had discovered that, company-wide, they were doing the same things with different software. I liked the way Palumbo described project managers as "change managers." Dewberry's primary platform switch resulted in centralized licensing, the elimination of disconnected and redundant software, new sources of revenue, staff retention, and will be more rewarding for professionals.

Another keynote was presented by **Brent Jones**, the industry manager for survey, cadastre, and engineering for **ESRI**. To kick off his remarks, instead of asking the audience to turn off their cell phones, he encouraged them, in this economy, to take any and all calls. As I have written before, the continued attraction of ESRI to surveying is not financial, but rather strategic. Bruce had mentioned that Carlson will make its entire product line compatible with ESRI software, and ESRI is well-positioned to provide leadership in asset management, work delivery, operational planning, mobility, and operational awareness.

Jones reminded the audience that geo-referencing is the key and that assumed coordinates are going away because, with large projects, earth curvature renders them useless (or, as Jones said, no more 5,000, 10,000!). He mentioned that, unlike current municipal re-mapping every few years, large scale mapping projects will be incrementally improved over time. We learned that Nokia licenses patents that will allow a phone to deliver sub-foot GPS accuracy, and that real-time, centralized processing will radically transform the positioning industry. Jones finished by saying that opportunities exist for surveyors in facilities management (campuses, for example) and in parcel management: property lines that run through houses continue to be a problem when tax maps are overlaid onto accurate geo-referenced maps.

Jones later told me that one of the most exciting aspects of ESRI's new relationship with Carlson is that the integration with Carlson will allow ESRI products to work with RTK data. He said this will remove stovepipes that exist between, for example, departments within a municipality that don't share data, but also manufacturers who continue to push proprietary solutions.

Obviously, RTK data will improve the current 1-5 meter accuracies so prevalent in GIS positions. Jones also announced that Carlson IntelliCAD users will be eligible for a free license of ArcView Desktop.

Another keynote, presented by **Juniper Systems CEO Rob Campbell**, gave an interesting history of Juniper and its relationship with Carlson for Carlson's Surveyor and Surveyor+ handheld devices. Campbell's talk drew a harvesting analogy, and the need to prepare, implement and reap the benefits of technology. He showed an outrageous video (you can see it on the Carlson website) in which Juniper employees demonstrated the toughness of the magnesium Surveyor by throwing it off the roof of the Juniper building and also using it to hold up a truck. Campbell pointed out that such treatment *would* invalidate the warranty, but it spoke volumes. (As mentioned earlier, between the SPAR and the Carlson events, I made a side-trip west to visit Juniper and the company will be the subject of one of our in-depth company profiles later on this year.)

The sessions I attended pertained to machine control, and in particular, data prep and model building. As I have written, this is a growth area for surveyors as we move more and more into machine control. I rounded out my sessions with one that presented some eye-opening worldwide statistics: in 2005, sales of survey equipment were around \$1.1 billion. In 2007, \$1.5 billion. Projections for 2013 are \$4.3 billion. In 2005, machine control sales were around \$1.8 billion. In 2007, \$2.4 billion. By 2013, \$11 billion. Interestingly, penetration into these markets in 2007 was around 30 percent for surveying gear, while it was only 8 percent for machine control. What does that tell you? (*Note: We have posted videos of both Bruce's and Brent's talks on amerisurv.com. Click on the Video tab and then the Miscellaneous link.*)

Another Keynote

And now I must switch hats for just a moment to put on my "Granddad" smile and congratulate



our son Allen and his wife Jennifer on the arrival of their second child, Alexander Patrick Cheves in March! 