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Feast of Fresh Product and New Opportunity

SPAR 2004

>> By Bruce Jenkins

SPAR 2004 was a feast of fresh product and new opportunity in laser scanning. Whether you're in civil engineering, industrial manufacturing, process or power, this conference convinced us that customers have never had a better selection of technology, and now is a great time to be in the business of capturing and managing existing-conditions data. The concentration of new product at SPAR 2004 showed how laser scanning developers have put the pedal to the metal, driving their teams to make better tools. What the conference crystallized for us is that in the face of growing demand, investment in new technology development proceeds at a feverish pace.

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Above chart is created from actual satellite orbit data for a point in northern California on a randomly selected day in mid-2003.

It seems to us that the industry has reached a tipping point—in many instances, the risk of not deploying laser scanning is now seen to outweigh the risk of applying a new technology and unfamiliar work processes.

On the software side, the industry is racing to deliver real-time fly-through of large data sets and serve up ever-larger point clouds, all in the customer's choice of CAD system. For hardware manufacturers, the contest is on many fronts—speed, portability, ruggedness, range, flexibility, price. And all this barely scratches the surface of what's still needed.

Software and Hardware Advances

BitWyse Solutions, Inc. launched a raft of new product to make working with point clouds easier and more efficient. Most dramatic was the news that LASERGen will be integrated with SmartPlant Review through an alliance with **Intergraph**. Also new was SceneManager Registration & Review, which lets users create photorealistic, intensity-mapped images of point-cloud

data without having to go into a 3D environment; a free project viewer that customers can distribute with scan data deliverables; and new functionality in LASERGen Interference Manager for creating a 3D review model from a hybrid of CAD and scan data.

Z+F unveiled what looks to be a powerful tool for managing very large point clouds. Its new LFM Server software exploits computing advances such as 64-bit architecture, affordable high-end graphics and commodity disk storage to allow simultaneous viewing of up to 256 scans with no loss of scan resolution. According to Z+F, project size is limited only by the user's hard drive.

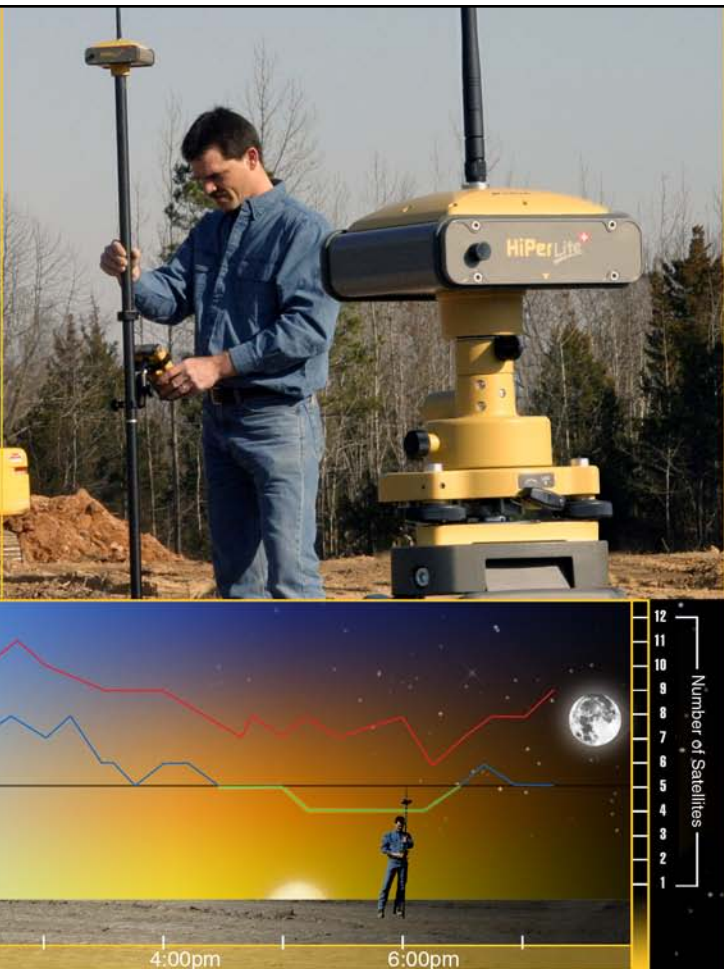
Visi Image, Inc. showcased its new lightweight, highly portable 3Dguru scanner. We understand some lucky people who visited the company's Houston headquarters saw new technologies that promise to make future models even more portable and rugged.

iQvolution AG rolled out a new modular-architecture laser scanner called iQsun 880. The scanner is divided into four modules: base module, distance sensor, mirror axis, and internal PC. All

are interchangeable, so customers can select the optimum distance sensor for each of their specific applications, and upgrade by plugging in new modules instead of having to buy a whole new scanner. According to Thomas Satterley, iQvolution vice president of North American operations, "The acceptance of the modular concept was overwhelming at the SPAR 2004 conference."

Riegl USA, Inc. debuted stop-and-go scanning in its LMS Z-Series scanners—"a much more efficient means of acquiring data in the field for large-area topography and large civil projects," president Ted Knaak told us. "It accelerates setup time. Instead of leveling, backsighting and setting up points, you just set up reflectors once, then move around the scene—stop, scan, go, repeat—without having to reset control points for each scan. It's starting to blur the line between airborne and terrestrial lidar—now you can do large-area topographic scans from the ground, on a truck."

Quantapoint, Inc. gave attendees sound advice on choosing a service provider. Meanwhile, word got out about some intriguing new technologies



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now in development. "We will, over the course of the third quarter, be introducing a variety of service enhancements including upgraded cameras, PRISM software, and services," CEO Eric Hoffman told us. "We are constantly polling customers to see what they require to perform their work, and we are responding to their needs with new tools that will increase data collection and design efficiencies."

Hi-Cad Ltd. and its **HICAD America** subsidiary positioned their laser scanning capabilities within their full suite of dimensional control offerings. The company took care to note that laser scanning is not a panacea but one of several tools for existing-conditions capture and management. After the event, managing director Dave Penman told us, "The most pleasing aspect for Hi-Cad was the interest in our other products and processes which complement laser scanning—we really were able to get the total concept message across."

Optech Incorporated featured ILRIS-3D, its tripod-mounted, eye-safe lidar system with range from 3m to beyond 1km, in the context of the company's many terrestrial, airborne, space-based and bathymetric lidar products. Optech also presented technologies and methods for integrating data from multiple sensor platforms.

MDL (Measurement Devices Ltd.) showcased three new products: LaserAce Scanner, a combined reflectorless total station and scanner with 700m range, newly re-modeled and refined for 2004; Cavity Auto-scanning Laser System (C-ALS Mk2), a 50mm diameter, borehole-deployable, 3D laser scanning system, re-engineered to 50mm diameter and 1m length; and Waterborne Dynamic Laser Scanning System, a vessel- or vehicle-mountable system capable of continuous slow/high-speed scans at speeds up to 15m per second. Paul Fynn, Survey and

Mining Products Manager with MDL, told us, "A characterization of the business potential we found at SPAR 2004 was a confirmation that the measurement/modeling problem itself is rarely unique, just the location, degree of difficulty and availability of the right 'tool for the job,' at the right price."

CAD Alliances

The perennial challenge of integrating point clouds with design systems took giant steps toward being solved at the conference, as alliances bloomed between leading CAD vendors and point-cloud software developers.

Intergraph Process, Power & Marine announced that the next release of its SmartPlant Review, due out in the fourth quarter, will be integrated with **Leica Geosystems HDS** point-cloud data. The company also disclosed it would work with **BitWyse** to integrate LASERGen, and said it was in discussions with **Trimble** about integrating **MENSI's** 3Dipsos technology.


(Yesterday we got an update from Keith Denton, executive manager of business development with Intergraph PPM: "We are concluding our integration work with Leica, and our efforts with BitWyse for integration with SmartPlant Review commenced one week ago. We are progressing quite nicely and expect to have a demonstrable prototype within the next few weeks.")

At the same time, **AVEVA** and **Trimble/MENSI** went public with an alliance to integrate Trimble/MENSI's point-cloud management software with AVEVA's plant design software, and showed attendees a prototype. The partnership is one instantiation of AVEVA's strategy to "provide open access to packaged laser point cloud data in PDMS, irrespective of the laser-scanning technology used in the plant survey," according to John Sanins, head of VANTAGE Plant Design. Also unveiled was a collab-

oration with **Leica Geosystems HDS, Inc.** to let Cyclone data be used directly with PDMS. Product from both efforts is expected to ship near the end of 2004, according to AVEVA. Now the company confirms it began talks with **BitWyse** at SPAR 2004 on a similar agreement, which it says could be finalized as early as this month.

Trimble, for its part, came out with a new PDC (PointCloud Data Center) concept. Tristan Grimbert, division vice president of 3D scanning technologies with Trimble, tells us, "The PDC concept is about using, simultaneously and seamlessly, a specialized point cloud software and a CAD package. Taking full advantage of both." The first result is the AVEVA relationship; we expect more will follow.

Near conference time, **Intergraph** and **Optech** partnered to combine Intergraph's Z/I Imaging Digital Mapping Camera and Optech's Airborne Laser Terrain Mapper (ALTM) to speed delivery of photogrammetric products.

Leica Geosystems HDS announced CloudWorx 3.0, the newest release of its software for working with point-cloud data within compatible CAD applications, and Bentley CloudWorx 3.0, a MicroStation-integrated version distributed exclusively by **Bentley Systems, Incorporated**. Leica HDS reports CloudWorx 3.0, like Cyclone 5.1, supports the very large data sets characteristic of its HDS 4500 phase-based scanner. 

For reaction from SPAR 2004's sponsors, visit www.sparllc.com/view-040608-1.html.

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