

Meridian Systems User Conference Wrap-Up

Construction Technology Innovation in the Post-Recession World

Meridian Systems Product lines:

Proliance: A web-based Capital Program Management solution that supports project owners in managing a wide range of activities; used by real estate developers, commercial building owners, government agencies and others managing a portfolio of infrastructure projects

Prolog: A comprehensive construction project management solution. It provides a complete system of record for capturing and managing project information, from the field to the back office. It is used by AEC firms to provide control and transparency in the delivery of projects.

Over the course of three days in October 2011, customers, partners and employees of Meridian Systems converged in Huntington Beach, California for the 14th annual Meridian Systems User Conference. General Manager Geene Alhady kicked off the opening keynote with a “technology innovation” theme that would be carried throughout the program, one that will percolate throughout the coming year as Meridian seeks to deliver integrated business value to the construction industry. As the world emerges from global recession, this industry faces new business realities. The industry is going global and Meridian is fast following its clients into new parts of the world, recognizing the demand for integrated project delivery. It also recognizes the unique needs of all stakeholders, and has reorganized around the specific needs of both businesses that own and manage capital programs and assets (Owners) as well as those that build them (architects, engineers and contractors) to offer a complete solution philosophy.

Given all the complexities and interdependencies of this industry, the last thing companies building, managing and maintaining infrastructure and large capital projects need is to collect, manage and integrate a fragmented solution. Meridian will leverage its own product lines, Prolog and Proliance, along with solutions from its parent company, Trimble Navigation, as well as those from sister divisions in the Trimble family to offer a holistic solution. Perhaps the most important of these sister products is Building Information Modeling (BIM) from recently acquired Tekla Systems.

THE VALUE OF MERIDIAN AND TRIMBLE

Of course, customers attending the User Conference know Meridian Systems well. While attendance has been a bit down over the past few years, further indication of the profound impact the global recession has had on the construction industry, those customers in attendance were incredibly engaged – no boondoggle attendees this year. But all readers may not be as familiar with Meridian.

Originally founded in 1993, Meridian Systems started out offering project and portfolio management software (Prolog) primarily for architectural, engineering and construction (AEC) firms. As the company evolved beyond the planning and design and the build phases of construction, it reached into the post-construction phase during which owners manage and maintain those facilities. In doing so, Meridian went beyond project and portfolio management to manage the entire lifecycle of large infrastructure building projects. It coined the term PBO², which stands for Plan-Build-Operate for Project-Based

Organizations and added full Infrastructure Life-Cycle Management (ILM) to its portfolio of products (Proliance).

Together these two products help project-based companies manage the business at an enterprise level. In 2006 Meridian became a Trimble company. Trimble Navigation is perhaps best known for global positioning solutions (GPS). Like Meridian, it serves the engineering and construction industries. Recognizing the equity of the brand it acquired, Trimble allowed Meridian Systems to maintain its name and for the past five years it operated quite independently. While that was beneficial in building both brands, it also left some synergy on the table. That is now changing.

While Meridian delivers value at the business and enterprise level, Trimble solutions benefit the field, where the work actually gets done, collecting data directly from the workforce on at the job site. Trimble uses GPS, lasers, optical, and inertial technologies, as well as wireless communications and application specific software to provide solutions that make field and mobile workers in businesses and government significantly more productive. Solutions are focused on applications requiring positioning or location, including surveying, construction, agriculture, fleet and asset management, public safety and mapping. Some joint customers are seeing the potential synergy and steering them towards more collaboration between the two. Now Meridian is expanding its product reach in order to directly leverage the data collected at the workforce level across the enterprise.



Gene Alhady, Meridian Systems General Manager, on "Construction Technology Innovation in the Post-Recession World"

Fast-Track Construction

Fast-track construction uses a scheduling approach for project delivery in which design and build phases overlap, allowing construction to begin earlier and proceed at a faster pace; the sequencing of activities enables some portions of the project to begin before the design is completed on other portions of the project.

MERIDIAN MILESTONES

Gene Alhady opened by highlighting some notable milestones in history correlating to Meridian milestones. In 1994 we were exiting a recession that had slowed building and caused property values to plummet. As that recovery began, **fast track construction** was going mainstream, changing the very nature of the design/build process. As owners and builders were beginning to demand better project management, communication and collaboration, PROLOG was developed.

Then came 2003 and the dot com bubble burst. The Internet had become main stream and collaboration was maturing via the World Wide Web. Meridian responded with PROLIANCE focused on the owners' needs, allowing them to collaborate better.

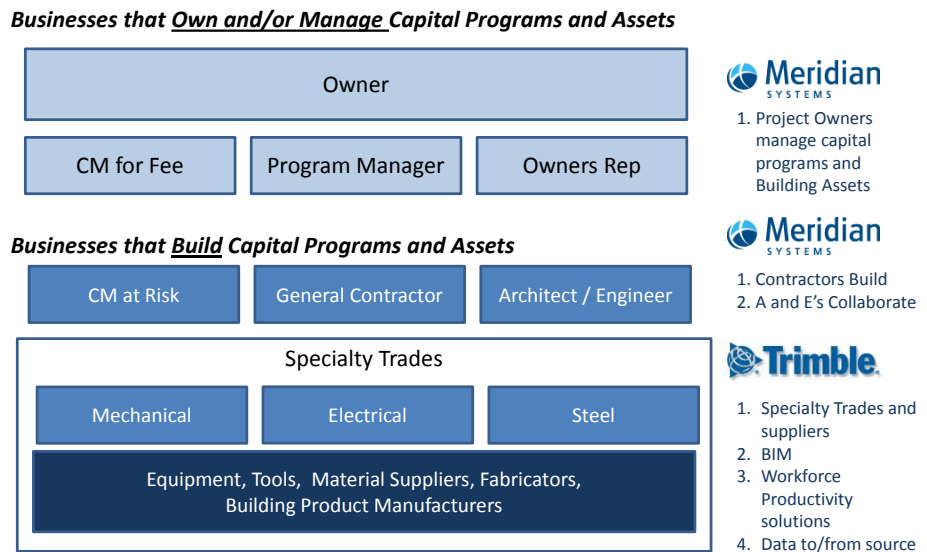
Beginning with the recession of 2008, the complexion of projects changed dramatically, shifting from single large projects to multiple, yet often inter-dependent projects. Today we are once again struggling to exit a recession but this exit is different from others: the industry is expanding globally. Integrated project delivery is becoming main stream and new tools in the Trimble family, such as Building Information Modeling (BIM), enable virtual building to reduce risk and increase efficiency.

SERVING TWO SEPARATE AND DISTINCT MARKETS

A key component of Mr. Alhady’s speech was the announcement of a market-driven organization strategy, which recognizes the needs of different stakeholders are unique and one size does not fit all. While in the past Meridian Systems was organized around its two different product lines, Prolog and Proliance, the latest reorganization makes a subtle shift to organize around markets. This is “subtle” because the products themselves target these two separate and distinct markets: organizations that own and/or manage assets and those that build these assets (Figure 1).

Meridian has created two separate Business Units, each with their own P&L, each focusing on real customer needs, filling gaps in products based on those needs, finding innovative ways of delivering value. Switching from a product focus to a market focus avoids confusion over which constituents are being served.

Figure 1: Distinct Groups of Stakeholders



Source: Meridian Systems



Jon Finland

These two Business Units are both headed by former Meridian Systems customers, now employees: Jon Finland and Rick Gehringer.

Jon Finland is a structural engineer by training. He previously used Prolog in project management for Beck, and has 10+ years of experience working with Meridian Customers. Jon is the head of the AEC business unit, which includes general contractors, specialty subs, A/E and construction managers (CM) at risk. These constituents are responsible for the construction and constructability of programs and from planning through hand over. Contractually they are responsible for risk of scope, schedule and/or budget.



Rick Gehringer

Rick Gehringer, former CIO for The Westfield Group, heads up the “Owner” Business Unit. The Westfield Group is a fully-integrated shopping center owner, developer, architect, general contractor (GC), leasing and operations company and an early adopter of Proliance. While at the Westfield Group, Rick was responsible for worldwide IT operations. Meridian defines the “Owners” to include public owners, private owners, owners’ representatives and “CM’s for fee.” These stakeholders own and/or manage large capital programs and project portfolios. They participate in the Plan, Build, Operate cycle from development activities through to facilities management.

There is indeed some overlap in features and requirements for Owners and AEC, but often the perspectives are different. For example, the owner’s objectives for estimating center around feasibility and capital planning while AECs focus is on being competitive and profitable. In some instances, sharing technology between the groups makes sense. The two teams do indeed work collaboratively, but do not constrain each other. “Workflow is a good example,” said Jon Fingland. “While Proliance has strong workflow capabilities, the needs for AEC are different.” Using a football analogy, Rick Gehringer adds, “Being able to leverage Proliance technology means Jon starts development on the 50 yard line, instead of back in the end zone.”

There is also value in the two teams collaborating to better know and serve their individual markets. For example, there is added value to Owners in Meridian Systems knowing and serving AEC. Owners benefit from the added insight and perspective in design reviews, change management and document collaboration. Conversely, AEC derives value from Owners in terms of being better able to know their customers’ customer, understanding Owners’ coding requirements and what is needed for an effective hand-over. Knowing where the different stakeholders have similar or different needs is one way the two groups can effectively address individual needs, yet fully leverage each other’s technology for process integration, data synchronization and better reporting.

KLORMAN CONSTRUCTION: INNOVATION THROUGH TECHNOLOGY

Next up, Meridian featured a customer case study that exemplified its technology innovation theme with Klorman Construction, and its 15 year history with Prolog. Not only does Klorman use Prolog, but also BIM and Trimble devices.



Building Information Modeling (BIM)

BIM creates a three-dimensional (3D) model, which encompasses building geometry, spatial relationships, geographic information, and quantities and properties of various components. All these different elements are created as BIM objects. Relationships between objects are defined as parameters, so that if an object changes, those related to it also change. As a result, a virtual environment is created in order to better understand and manage the physical environment.

"BIM is a living, breathing, evolving prototype. It is a little world that you keep pouring information into."

William Klorman,
President and CEO,
Klorman Construction

Celebrating over 30 years in business, Klorman Construction was founded in 1980, when President and CEO, Bill Klorman was just 18 years old. Bill knew he wanted to be in construction since he was 5 years old as he watched contractors building track homes up the street. When he founded the company, he also knew that he wanted to do commercial construction. Of course he faced the challenge of being young and having no money to invest, but that didn't stop him. He also happened to start up at a time when computers were just coming out for personal use. His first investment was a DOS-based IBM computer. Today he runs one of the largest construction companies in California, including a structural concrete division, using Prolog integrated with BIM.



It was 1996 when Bill first acquired Meridian's Prolog Manager. "I was impressed with it as a platform that understood a contractor's needs. All the others at the time were written for the A and E not C. Just terminology alone made it different. Also centralized workflow and an integrated database made it suited for self-performing contractors. Meridian's competition ran on mainframes, partially integrated and unaffordable. But implementing Prolog confirmed my belief that technology was an accelerator. Centralized project management solutions reduce costs and increase operational efficiency."

Today Klorman Construction has taken further steps to embrace technology and includes a Virtual Construction Department that takes BIM to a higher level using a model-based approach they refer to as "5D." They turn 2D drawings into 3D models, and add two more dimensions: schedule and cost. Through Virtual Construction, they are able produce a real-time 5D video presentation, enabling review and analysis for better understanding at every stage in the design and construction process, from planning to installation.

"Some think BIM is just pretty pictures, but the benefits from integration are enormous. If a picture is worth a thousand words, then BIM is worth a million," according to Bill, who has been personally responsible for over 300 projects and is certified at the Fellow level by the American Concrete Institute (ACI). "We have been able to save \$350,000 just by resolving issues and identifying things that simply could not be built. BIM is a living, breathing, evolving prototype. It is a little world that you keep pouring information into. BIM is not only intelligent, it is also fundamental to what you do. It's the little things that make all the difference in the world and save you money. If you can resolve issues in the plan/design stage it is much cheaper than resolving them in the

In-depth technology track sessions

In addition to the highlighted keynote sessions, Meridian sponsored concurrent tracks sessions featuring customer and product expert presentations on:

- ✓ Prolog
- ✓ Proliance
- ✓ Product Demos
- ✓ Technical Updates and Techniques

Additional customers that presented on a variety of topics included:

- ✓ AECOM and Pinnacle Construction
- ✓ Turner Construction Company
- ✓ Stanford University Medical Center
- ✓ CBRE
- ✓ Clayco
- ✓ Walt Disney Imagineering

field. With new cloud options, pretty soon every Mom and Pop contractor will be able to use it. ”

TAKING CONSTRUCTION TECHNOLOGY TO THE CLOUD

In spite of all the hype around “cloud computing” today, confusion abounds. Jeff Harrison, Prolog Product Manager, took the stage to demystify the cloud. After sharing several different murky definitions of “cloud,” Jeff hit upon one that may be less technically accurate but is definitely more understandable to just about everyone, including Jeff’s mom. Quite simply, he defined the cloud to be “software you don’t have to install on your computer.”

Meridian Systems has been involved in cloud computing since 2000 when it introduced ProjectTalk in an ASP (Application Service Provider) environment. In 2003 Proliance On Demand evolved to provide managed hosting options. Indeed this option has been popular in a “self-host” environment where Meridian customers manage projects and infrastructures for multiple clients.

But the big announcement back in August, thus the main-stage attention at the User Conference, was the Prolog Sky service. And quite simply, Prolog Sky is a service that delivers Prolog on the Internet. To get a bit more specific, it is a multi-tenant Software as a Service (SaaS) solution which can also be provided as a managed service hosted by Meridian or by Meridian customers that manage multiple clients and projects with Prolog.

Meridian’s cloud-based solutions offer the same functionality as Prolog on-premise, but with additional potential advantages:

- Flexible IT strategies including SaaS or Managed Host options
- Reliable and secure access to application functionality and project data
- Fast implementation with minimal upfront IT investment
- Significant long-term reductions in IT overhead
- Adaptable licensing to easily scale usage based on business need

GOING GLOBAL: EXPANSION IN THE MIDDLE EAST

While there are many cost advantages to cloud deployments, another advantage is access from remote sites. As the construction industry has expanded globally, Meridian has followed its customers to new parts of the world – new to Meridian at least and also new to technology. Nowhere is this more evident than in the Middle East, where some of the largest capital infrastructure projects in the world are underway. These are global projects, unable to rely only on local resources and therefore they pull in people, materials, contractors and subcontractors from around the world. And some

of these projects are more massive than any we have seen, at least in modern history.

In response, Meridian Systems has expanded its presence in the Middle East, with a new regional director and dedicated resources in Dubai. There are many barriers of entry to doing business in this region, but Meridian has an advantage. They are able to leverage Trimble's presence and the experience of their new regional director, Peter Hedlund. Peter came to Trimble in March 2011 from one of its partners and is working on establishing and growing the Meridian software solution set in the Middle East.

According to Peter, Dubai and Bahrain, built primarily around the financial services industry, were deeply affected by the global financial crisis and the recession that followed. Yet other parts of the region were teeming with work building roads and infrastructures. Saudi Arabia is committed to heavy infrastructure spending, which is creating strong demand for the kind of solutions that Meridian Systems offers.

Just some of the projects in the region:

- The [Saadiyat Island Cultural District](#) in Abu Dhabi: Covering a land mass of 2.43 million square meters, the master plan is to build an entire district including a national museum, a performing arts center and Abu Dhabi versions of the Louvre and the Guggenheim. Massive in scale and scope, "Saadiyat Cultural District will be a center for global culture, drawing local, regional and international visitors with unique exhibitions, permanent collections, productions and performances. Its iconic institutions will be housed in buildings constituting a statement of the finest architecture at the beginning of the 21st century."
- The Knowledge Economic City in Saudi Arabia, with an estimated construction value of \$8 billion, is expected to take between 10 to 12 years to complete
- The new National Railway Network in the United Arab Emirates will provide freight and passenger service, stretching across the Emirates, covering a network of approximately 745 miles. The new railway network will connect the United Arab Emirates to Saudi Arabia. The first of three stages of the project is projected to be complete in 2014.

As a result of this type of opportunity, Meridian Systems is seeing a significant increase in business in this region by leveraging the support of Trimble, already present in the region, and is better positioned to support some of its marquis customers and its own growth.

MEANWHILE BACK AT THE LAB

While the vast majority of the conference focused on the here and now, it wrapped up with a view towards the future. Rick Gehringer and Jon Fingland

took the stage once more to answer the question, “How will Meridian deliver more value to both AEC firms and Project Owners?” After a cautionary note stating their presentation contained conceptual ideas in preliminary research phases and that no commitments for future release timelines would be shared, they donned their lab coats (both figuratively and physically) to present some opportunities and approaches.

First off, they defined “The Lab” as “a virtual place where domain, product and skillset ingredients found under one roof can be combined to create innovative solutions for our customers.” The Trimble vision includes combining domain, product and skillsets from all their divisions to create synergies and encourage creativity. So picture the Meridian lab stocked with ingredients from not only Jon’s and Rick’s teams but from other Trimble companies and partnerships, which include: Meridian, Tekla, Trimble Connected Community, Trimble Heavy Highway, Applanix, and Trimble Building Construction, to name a few. This portfolio of companies provides a broad capabilities set of construction functionality such as project controls, business intelligence, spatial imaging, scanning devices, content management, BIM, RFID, and field data collection.

The solutions mentioned above are just a small sample of what the Trimble portfolio of companies can offer. Yet from these ingredients, imaging the opportunities such as: Combining BIM + Business Intelligence + Project Controls to create a visual dashboard

- Combining BIM + Scanning Devices + Project Controls to automate data capture to validate work complete
- Combining BIM + Content Management + Project Controls to automate data capture to provide intuitive access to files and project data through visual navigation
- Combining Field Data Collection + Project Controls + Scanning Devices to automate data collection of labor, equipment, material and progress to provide performance measurement
- Combining BIM + Asset Management + Project Controls + Content Management to produce consumable and useable handover information for digital closeout
- Combining Content Management + BIM + Cloud to bring BIM to the masses

IN SUMMARY

A wide variety of functionality is required to manage throughout the PBO environment, from planning and design, to build and development, to manage, maintain, renovate, remodel, rebrand and repair. The opening segue bears repeating: Given all the complexities and interdependencies, the last thing companies building, managing and maintaining infrastructure and large capital

projects need is to collect, manage and integrate a fragmented solution. Meridian Systems, together with the vast resources of parent company Trimble, is uniquely positioned to be able to offer such a complete and holistic solution.

As the construction industry continues to expand globally and the complexion of construction projects evolves, collaboration and coordination become critical. As fast-track projects and integrated project delivery become more pervasive, the need to work in a virtual environment also becomes critical. The ability to create living, breathing models and anticipate and avoid problems during the design stage must become a staple of the construction industry and the ability to deliver technology through the cloud will make it more affordable to both owners and AEC firms, both large and small. Meridian is doing its part to raise the bar in terms of tools required to survive and thrive in this industry.

By leveraging the data collected where the work is done, providing a virtual environment that can model the real world and tools that provide a system of record and guided decision-making throughout the Plan – Build – Operate lifecycle, Meridian Systems, with a little help from Trimble, is evolving into a complete solution.

About the author: Cindy Jutras is a widely recognized expert in analyzing the impact of enterprise applications on business performance. Utilizing over 35 years of corporate experience and specific expertise in manufacturing, supply chain, customer service and business performance management, Cindy has spent the past 6 years benchmarking the performance of software solutions in the context of the business benefits of technology. In 2011 Cindy founded Mint Jutras LLC (www.mintjutras.com), specializing in analyzing and communicating the business value enterprise applications bring to the enterprise.