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SPECIAL REPORT: So You Want to Be a Systems Integrator?

by Al Colombo

In recent years, systems integration has become the buzz of the security industry. Everywhere you turn, people are talking about the many benefits a fully integrated operating platform offers. These are benefits that end users want because, in the final analysis, an integrated group of subsystems will collectively outperform individual, standalone subsystems.

“Systems integration is the ability to use technology to perform desired tasks using a single point of control no matter where the information resides [in a facility],” says Bryan Harris, technology department manager for Scheeser, Buckley, Mayfield Inc., an engineering firm located in Uniontown, Ohio.

Often, this involves the interface of legacy systems and other equipment using today’s network technology. The result is a more reliable and diverse security system. “Systems integration is essentially a marriage of security-related technologies developed in the 19th, 20th and now the 21st centuries,” says Charles Eisenhardt, COO for PEI of Long Island, N.Y.

Security experts, like Joe Freeman, CEO for J.P. Freeman Co. Inc. of Newtown, Conn., believe the demand for systems integration will only increase in the years to come.

“It is not likely that the trend toward integrators will stop since networks and integrated systems are the driving force in the access/video industry,” says Freeman, writer of *SSI*’s “By the Numbers.” “And as they continue growing, the slack has to be made up elsewhere, and this appears to be dealers who are not growing in share of sales and whose technical training will continue to obsolesce over time unless they become integrators.”

Of course, security companies work to hire the most efficient and knowledgeable technical staff they can to do the work that needs to be done. These men and women may know the ins and outs of each security discipline, but this is not enough to assure success in a technologically integrated 21st century.

Capitalizing on the demand for integrated systems entails a higher level of technical knowledge and skill for technicians when it comes to using information technology (IT) in conjunction with the core traditional security technologies. In addition, appraising an end user’s needs and systems integration requirements from a bid standpoint requires a higher level of expertise than a typical security company. Critical issues include the accuracy of the bid workup and the realization of intended profits.

How to Move From Traditional Security to Systems Integrator

Before traditional security companies can enter the systems integration market and hope to compete, their salespeople and key technicians must be able to perform their respective jobs with the right skill and knowledge. This knowledge must span the full range of systems integration — including network technology — otherwise their effort would likely be short-lived and expensive.

There are several ways traditional dealers can approach this. In brief, they can hire the right people to do the job — people who have experience in systems integration and network technology. They can also educate their existing salespeople and security technicians so they can enter the marketplace and do a good job.

“Most companies are unable to establish their own training program, so they send their technicians to their vendors who offer training. Sometimes, there’s a charge and sometimes there’s not,” says Mike Gaines, senior project manager for Stanley Security Solutions of Indianapolis.

Educating existing employees is a given. However, the time required to get up to speed using this method alone would be somewhat long and tedious, not to mention that having the right knowledge is only half of the equation for success.

The other half involves the development of the right skill sets, which means field training as well. Thus, management might consider a combination of hiring a number of key people experienced in all aspects of systems integration while educating existing employees at the same time. A formal education in the respective disciplines and hands-on experience with guidance by knowledgeable, skilled people could make all the difference.

“I would assemble a team of experienced people. One member would have to have a strong background in computer networking. The other would have to be a knowledgeable salesman in the systems integration area,” says David Baker, project manager for Security Corp. of Columbus, Ohio. “I’m talking about a salesman who, once he gets his foot in the door, he is able to keep it there because he knows what he’s talking about.”

Such an experienced salesman would have to be able to effectively read bid packages and interpret what the designers/engineers want. Above all, such a person would have to know enough to discern whether the bid package would actually work as designed.

According to Baker, bid packages that he often sees make little sense in how the engineer assembled it. Most of the time the devices specified will not work without a good deal of effort on the installing company’s part. It’s the systems integrator’s job to see that the right equipment makes it on the bid and subsequently onto the job site.

“The biggest mistake engineers make is to go to various security equipment manufacturers’ Web sites and pull their specifications down. They end up specifying access by one manufacturer, cameras by another, intrusion by still another,” says Baker. “What happens then is we get into additional parts and pieces — as well as programming issues — in order to integrate the lot, which would not be necessary if they would stick with one manufacturer.”

In other words, when an engineer specifies cameras, access control and other subsystems designed and manufactured by a single company, these devices will usually work together under the control of a centralized C&C. Instead, many engineers end up specifying a hodgepodge of wares made by a number of manufacturers, some of which do not design to an established open standard.

“The key word here is integration. Some companies say they have integration when all they have is a computer screen with individual icons from which the operator can invoke a number of applications,” states Gaines. “True integration involves using a single database — one system. For example, an integrated security system that centers on CCTV allows the operator to access recorded images right from the same database where user information is stored. Using this definition, information is shared instead of the operator using separate systems to access it.”

Saying, ‘Howdy, Pard’ner!’ Opens Door to Opportunities

Security firms can also enter the systems integration market by developing special partnerships with other companies who know the systems integration business and are willing to become part of a comprehensive team.

Such partnerships enable security firms to enter the systems integration marketplace in a relatively short period of time. This is also an ideal way to test the systems integration waters to make sure that it’s something the firm can handle or really wants to do.

For example, when an existing client decides to upgrade their traditional security system to include a number of other subsystems, and they expect to tie them together using their facility LAN, the security firm might consider asking another company for help. Through this process, skill and knowledge will be imparted to the inexperienced security technicians as they work elbow to elbow with other firms.

Even when a firm is quite capable in the area of systems integration, partnering will always be part of their business. This is because no one company can know or do it all. Even when you consider the need to interface security and life-safety subsystems with other trades, partnerships are often the only way that the job can successfully be done.

“Although I’m directly employed by Scheeser, Buckley, Mayfield Inc., which is a design and engineering firm, I also work with Insight Technology Solutions, based in Canton, Ohio. Insight is a collection of independent companies who have agreed to work together. We have a loose working relationship and there is no single owner,” says Harris. “A number of years ago, we formed this interim company so we can work on projects from inception to finalization.”

As Experienced Integrators Know, Successful Bids Are No Accident Before the systems integrator can boast of success, it must locate project opportunities or leads (*see sidebar on page 54 of June issue*) and then put together a successful bid. This requires a good deal of work and knowledge on the part of the sales engineer. The bid process itself is extremely time-consuming when it comes to large jobs. The process often begins with the sales engineer signing a bid list at the local builders exchange (BX) or other plans examination room. A phone call to the architect is also usually enough to get the ball rolling.

What this does is place the sales engineer on a master list with regards to a particular job. This assures the architect, or someone associated with the project, will notify him or her when a change has taken place in the bid package. Such changes are referred to as addendums. In many cases, the sales engineer must sign a statement contained in the final quote that states he or she has received all the addendums.

Putting together an accurate bid on a job of this magnitude is no small matter. Unlike the relatively small jobs that security companies usually quote, the sales engineer must virtually account for every nut and bolt used. By doing this, the bid software will automatically assign a labor unit.

Assigning the right number of labor units to a job when bidding is crucial to generating an accurate and truly representative cost analysis. Unless the integrator knows the exact amount of time that a job can take, how on earth can he or she successfully cost it out?

This is especially important because labor is such a significant part of all projects. Where the integrator’s price is to become part of another firm’s official bid in response to a bid package, the sales engineer will usually generate a quotation using the firm’s usual bid forms. Where the job is being bid directly to the architectural, engineering or actual owner of the project, there’s another process that must be used.

“Sometimes on bid process jobs for an access control/security system, the integrator will actually provide a quote to an EC [electrical contractor], who, in turn, will bid it to the GC [general contractor]. If the EC gets the job, they will then subcontract some of the work to us,” explains Gaines. “It really depends on the contract. A lot of the time, the EC will install the wiring and mount all the devices, and we will do the final connections, commissioning and end-user training.”

Two additional aspects of the job that must be considered when putting together a bid are related to the commissioning of an installation. The first is checkout and training. So often, both are omitted from a job’s costing analysis. Because this can represent many days of work on a large systems integration project, a good hunk of money would be left unclaimed by the systems integrator. Thus, the sales engineer should be absolutely sure enough labor has been assigned to both tasks to assure profitability at the end of the job.

In most cases, when the job requires the integrator to provide a bid direct to the GC — and once a full and accurate cost analysis has been generated and double-checked by another set of eyes — the sales engineer will provide these facts and figures to the front office. Someone else will then double-check the quantity extensions, math and other elements before submitting a bid on paper.

The bid itself will usually be generated at this juncture, as in most cases this quotation must be submitted to the proper party using a provided bid form contained within the bid package.

Meeting Bid Requirements and Negotiating Bond Capacity Issues

There are other conditions that usually must be met when attempting to comply with a bid package. Some of them include a bid bond, performance bond, retainage, proper contractor's liability insurances, and workers compensation.

A bid bond, for example, assures the architect and owner of the project that if the successful bidder gets cold feet and ducks out after being awarded the job that they will sacrifice the amount of the bond.

"When a firm sends out a bid package, they will request a bid bond. This means that if I'm the successful bidder and I refuse to enter into that contract, my bond money will be forfeited. It could amount of 5 percent or 10 percent," says Gaines. "If I were to turn in a bid without a bid bond attached, or a certified check for the required sum of money, they would likely reject it. They have the right to do that."

At issue when working in this venue is an integration firm's bond limits. Bonding companies often assign bond limits to each firm they work with. Salespersons must choose the jobs they bid wisely so as not to upset their firm's bonding limits. In most cases, a top bonding limit is assigned by the bonding company for all projects during a 12-month period. Thus, the integrator must carefully track its bonding capacity in conjunction with how much of that capacity remains for the remainder of the year. Another aspect of large integration projects is the performance bond.

"A performance bond guarantees that you will perform the signed contract. If you don't, that money is then given to the owner who hires another firm to finish it. That can sometimes be 100 percent of the contract amount," says Gaines.

Eisenhardt says a performance bond is more important than a bid bond. A performance bond can cost you hundreds, even thousands of dollars. This money is attached to the job and must be considered when bidding the job.

In this situation, cash flow is extremely important, says Eisenhardt, as the cost of a performance bond can be 10 percent to 25 percent of the bid. The integrator will have to carry that amount and its usual payroll for up to 60 days before it can usually enter a request for payment.

"If you go out of business in the meantime, the surety company will call the under-bidder and say, 'Here is what's left on the table,' and that company may agree to do it for that amount," says Eisenhardt.

Retainage is also an extremely important aspect of a large systems integration project, as it will inevitably tie up a given percentage of money for a given time. Another important aspect of any bid package is the required insurances. You will be required to carry a given amount of contactors liability and workers compensation insurance. Both are usually addressed somewhere in the bid package and the sales engineer must know what these requirements are before submitting the cost analysis to the front office for review.

For all of the reasons above, the systems integrator that enters into a large contract for what could potentially become a long, drawn-out project must make absolutely sure that it has an adequate cash flow to handle it.

There are other factors that must be considered as well, such as the geographic location of the job. For example, when hiring union workers, albeit on staff or otherwise, some portion of employee travel time may have to be included in the final bid. Manpower is also another consideration, unless you are a union shop and can hire additional workers at a moment's notice.

When government funds a project, special hiring requirements may also apply. Such requirements will usually fall under several possible headings, such as *Disadvantaged Business*, *Minority-Owned Business* and *Woman-Owned Business Enterprises*. In most cases, a certain percentage is assigned where it comes to materials and subcontract work.

Proper Management of People Is Key to Successful Projects
Getting and bidding a job is only the beginning of what is sure to become a major organizational effort on the part of the systems integration firm when that project is awarded to it.

The first step to success on any large project is to assemble an effective project team. Each individual should be carefully selected according to his or her professional contribution to the project to ensure its overall success.

After the sales engineer, the next qualified person on the team should be the project manager (PM). It is the PM's responsibility to see to it there is profitability at the end of the job, which is essentially done with a good deal of hands-on effort. It is this person's job to see the right personnel are assigned to the installation work and various other facets of the project. It is the PM's role to make sure materials are on the job site when needed and the project is run in an organized, well thought-out manner.

It is also important to establish a point of accountability at every level so work is done properly. Accountability also makes it possible for each team member to quickly identify where the buck stops at any given point along the path to completion.

A job foreman must also be assigned to the project. The PM has other projects that he or she must manage, which means this individual cannot be on the job site all the time. It is the job foreman's task to make sure the installation runs smoothly and efficiently.

Proper and effective management of manpower must also be carefully considered and realistic schedules drawn up according to practical need. Typically, it will be mid-job when most of the workers will be assigned to the job site, with only a relative few upfront at the beginning and at the end of the project.

The reason is twofold. First, when a new project commences, only a handful of workers are needed at that time because most of their work is planning and organizing. As the job ramps up, so will the number of workers that the PM assigns to the project.

Then, toward the end of the job — because the brunt of the work should have been performed toward the middle of the project — it should only take a few workers to button it up, which includes final connections, programming and training. The other reason why the PM must assure that most of the work is performed mid-job relates to lost man-hours at the end of the project.

Often, the various trades will find themselves undermanned for the number of projects they have in process. Thus, many will end up scrambling at the last minute to meet the GC's construction schedule. This forces them to assign far too many men at the job at one time.

It's a well-known fact that when too many men are working shoulder to shoulder on the same job site, productivity suffers. For this reason, the wise PM will see that the balance of the work is already completed by the end of the project to avert the fatal path of other subs that end up scrambling to complete work that should have been done midway through the project.

Chain of Command Is Integral to Efficiency and Profitability
A systems integrator and all those who work for it must fully understand the chain of command on a large job of this nature. The question is, who takes orders from whom? This is important for several reasons. If the integrator makes a change at the request of someone who appears to be in charge, will it in actuality be paid for that change?

For example, if the owner of the project asks the integrator to install an additional camera and his or her request does not go through the GC — whom you have a contract with — it's more than likely your firm may not be paid. The proper procedure in this instance is to take the owner's request back to the GC and ask for a change order.

Change order forms, which are usually available from most stationary suppliers, must define the additional work and be signed by the GC before additional work can be done. To do additional work without it is taking a huge risk that may end up costing you money.

The formula to a successful project is both complicated and demanding. The information and tips in this story should serve as a starting point only.