

# *technical*<sup>®</sup>

Supporting Enterprise Networks and Operating Environments

# SUPPORT

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## **Secrets for Buying Your Next Big Project from an IT Solution Provider**

**By Rolf Versluis**



## Message from the President

I enjoy *Technical Support* Magazine a lot and look forward to it each month. You DID notice we are now a monthly magazine again, right? Thanks for your continued support which makes this possible.

When it comes to our magazine it's like Forest Gump and that box of chocolates. "You never know what you are going to get," and this month is no exception. Curl up with this month's edition for a wide variety of great content, written in large part by NaSPA members just like you! (If you have not considered writing for us, what's holding you back?)

Welcome back **Bill Elder!** Well, Bill has not exactly been gone. He has been a trusted NaSPA Board advisor for many years. What's different this month is we were fortunate enough to coerce him into writing for NaSPA again. His article is awesome, entitled **Doing the Math on IT Complexity, Part 1 of 3**. Have a look at Bill's thoughtful insights, including an interview with Roger Sessions, author of seven books including *Simple Architectures for Complex Enterprises*.

Sharon and I are back in this edition again, with an article about... you guessed it; Disaster Recovery. This time it's an article about how to sell the boss on funding for a disaster recovery plan. The tips in the article however can be applied to any big capital expense. It has been lifted in part (not really, we have their permission) from one of my most valued publishers, Auerbach Publishing. Sharon and I have published a number of books through Auerbach and they have been a longtime NaSPA supporter. Check out their selection of books on the "back cover" of this and every Technical Support Magazine and don't forget your NaSPA discount.

And while we are on the subject of funding, check out the article entitled **Secrets for Buying Your Next Big Project** by Rolf Versluis, CTO and Founder of Adcap Network Systems.

Finally, while we are on the subject of money, have you **considered introducing your employer to NaSPA?** We are always looking for corporate sponsors. The next time your company is looking for a good advertising source, or has a press release related to an IT product or service, or wants to advertise for an IT job or professional position, why not consider NaSPA? Most of our corporate sponsors come from word of mouth so referrals from members like you are everything to us. Please forward this magazine to your Human Resources, Public Relations or advertising departments. In fact, do it right now – it's part of the reason we are an e-publication. You will help your organization save a lot of money and help YOUR organization (NaSPA) continue to provide you the best possible content, discounts, services, job placement and career enhancement. Can we count on you? Many thanks!

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# Getting Your Disaster Recovery Plan Funded - with an *Awesome* Business Impact Analysis: Part 2 of 3, How Does One Estimate and Communicate the Probability of Disaster?

By Leo A. Wrobel and Sharon M. Wrobel

Last month we began this three part series with tips on how to “sell” management on endorsing and funding a Disaster Recovery Plan. This month we continue on the same track with other techniques for securing approval and funding.

Disaster recovery planning is not always a slam-dunk because people differ from one another in their perception of what constitutes a risk. Consider the following example:

In 1991, I was asked by an Israeli company to come to Tel Aviv Israel to teach a seminar about Disaster Recovery Planning based on one of my books. (My first reaction was that the Israelis should be teaching ME but the prospect of going to the Holy Land was intriguing) I arrived three months after the first Gulf War, only days after they stopped passing out gas masks to all persons at Ben Gurion Airport. I was greeted that day by a number of highly educated and technically savvy Israeli nationals who had sponsored my trip over. These people believed that the recent war would be the ticket to a *most* profitable seminar. After all, what could be more compelling to the Israeli financial community than having just been through a war? Disaster recovery for the *office* would only partially cover it. Weeks before, these folks had just been taping off rooms in their *homes* against poison gas attacks. They actually watched the Scud missiles falling on their city. I was there to witness the aftermath. Suffice it to say that seeing a crater where

an apartment building used to be is a most compelling advertisement for contingency planning. So how did it go? Personally, I had the time of my life and made many lifelong friendships. As far as the seminar, the sponsors told me that when they telemarketed the seminar, the most common response they got was “*oh, that will never happen to me!*” Wow, what does THAT tell you about perception of risk?

**The most common response to the probability of disaster is, “that will never happen to me!”**

What I have described above is not limited to Israel. Consider that here in the U.S. even after devastating disasters, (Katrina, Rita, Virginia Tech, etc) trying to “sell” Disaster Recovery Planning is as challenging as ever. Granted, from time to time

there are opportunities to advance the cause due to an event such as September 11 or Oklahoma City headlining the news. Yet, even these catastrophes are fleeting. Companies quickly get back to business as usual after these events, forgetting what happened or what they were going to do about it. For example, right after Katrina and Rita, management was receptive to the idea of Disaster Recovery plans. It was fairly easy to get a meeting “upstairs” to discuss the topic. As the months passed management’s interest began to wane. This is typical of human nature and it is illustrative of why it is important to execute when the concept of business resumption planning is still a focus of attention.

In summary, I realized a long time ago that if I was going to survive in this business that I really needed

to refine my pitch to management and technologists. Having made my point, the remainder of this article is devoted to refining *your* pitch and communicating the need.

What Makes Management Endorse a Disaster Recovery Plan?

At its most basic level, management needs to only know *four things* in order to decide whether or not to fund your plan:

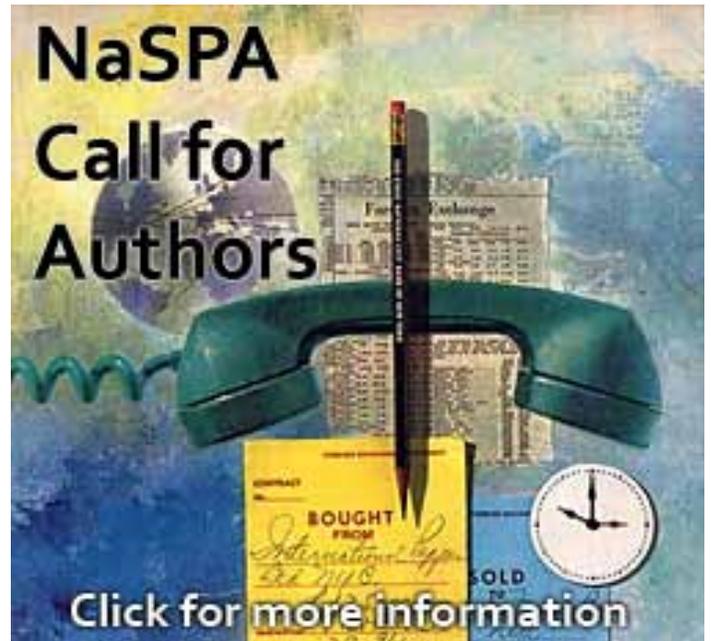
1. What Can Happen (Fire, Flood, Hurricane, Sabotage, etc)
2. What is the Probability It Will Happen? (Expressed best in percent % probability of the event in a given year)
3. What Does It COST When It Happens? (In terms of lost sales, market share, employee productivity and customer confidence)
4. What Does Preventing It Cost? (A high level overview of the proposed protective system, procedure, or function)

There is a possible number 5 you can also use:

5. Legal and Regulatory Concerns. (Such as Legal Liability, government requirements, Sarbanes-Oxley, etc)

Let's take these questions one at a time.

**What Can Happen?** It is relatively easy to search the web for horrible things that can happen to companies just like yours. It's amazing what is out there. On a routine Google search I learned such trivia as, "*What is the State with the most number of disaster declarations since 1953?*" Answer: Texas. (MY gosh! I live in Dallas!) The one with the least? Connecticut. Seriously, what you use depends on the kind of organization you work for. The concerns of a bank or brokerage company are going to be very different from those of a poison control hotline or 911 center. Generally the routine canvass of fires, flood, disgruntled employees, sabotage, vandalism, tornadoes, hurricanes, broken pipes, lightening, power surges and terrorism on a slide or two will get management's attention. That management agrees to a meeting with you at all says that they have already internalized the fact that disasters are serious and that reasonable people try to take precautions. Therefore, even though the disasters you cite will be all the reasons why business resumption



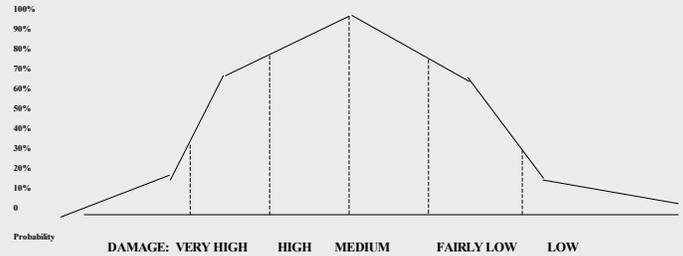
**Management is more likely to listen to you if you back up your probability percentages with a reliable source.**

planning is important, there is no reason to spend an inordinate amount of time on this portion of the management presentation.

**What is the Probability It Will Happen?** Here is where a lot of people fall down in their bid to management. Let's say that you jolt management with the Step 1 "What can happen?" slide, and you are really rolling. Management asks, "Hey Bob, I agree about that fire issue, but where did you get that 5% probability figure?" You reply, "Well, it seemed like a good figure to me." The meeting just ended. What seemed to be a good figure to you is not necessarily a good figure to management. Like I said earlier, people's perception of risk differs. A much better answer would have been this: "I checked with the National Fire Prevention Association (NFPA) and with our insurance carrier. They said that a company like ours stands a 5% probability in a given year of having a catastrophic fire, absent the protective systems I am recommending." That answer will get you much further with management.

I would also suggest taking a shot at conducting a FMEA. That's not FEMA (Federal Emergency Management Agency) but a FMEA, which stands for **F**ailure **M**ode **E**ffects Analysis. What a FMEA does is take probabilities of specific events, weight them, and then present them in a format that management can understand. Consider the following four exhibits as an example:

### Step 1 – Consider What Can Happen and Approximate Its Probability



1. What kinds of events can you imagine fit into each category above?
2. High Probability, High Damage = Probably already corrected, like UPS.
3. Low Probability, Low Damage = Who Cares if it happens?
4. Where would you spend your effort? Probably in the middle of the curve = MEDIUM Probability, PREVENTABLE Disasters.

### Step 2 - Assign a SEVERITY Number Based on the Event RATING

When a component fails, severity is classified in a ten point system.

Description	Rating
If one user is affected	1
If a workgroup is affected	2
If an entire bay is affected	4
If a single floor is affected	6
If an entire building is affected	8
If the entire backbone is affected	10

### Step 3 - Assign a FREQUENCY Number

The frequency of an event is a concern, regardless of the severity, if it occurs often enough.

IF the frequency was:

Occurrence Level or Frequency	Rating
Every day	10
Weekly intervals	8
Monthly intervals	6
Quarterly intervals	4
Every 12 months or longer	2

If the occurrences continually happen on a daily basis, then the critical rating is the highest. Occasional interruptions are rated lower.

#### Step 4 – Factor In Difficulty of Detection and Repair

Detection works in the reverse of the occurrences, whereby the easier it is to detect the problem and begin to corrective measures, the lower the critical rating. The longer it takes then the higher the rating.

IF the problem:

Description/ Detection	Rating
Is easy and resolution can be achieved within 1 hour	2
Greater than one hour but less than four hours	4
Greater than four hours but less than eight hours	6
Greater than eight but less than twenty-four hours	8
Greater than twenty-four hours	10

#### ... And Viola! You Actually Get Figures Management Can Understand.... And Believe!

The final product is an assessment or Risk Priority Number (RPN). This is a mathematical computation of:

$$S \times O \times D = RPN$$

$$10 \times 10 \times 10 = 1000$$

The higher the RPN, the higher the risk associated with a specific component and the higher the value that would be placed on solving the problem. A 720 would be worse than a 450 for example. This gives management, and you, a critical frame of reference. For example, if a support system was comprised of several critical components that each had very high RPNs, one would have to show where the system could be improved to support the service levels that are expected.

#### Remember the KISS (Keep It Simple Stupid) Principal When Presenting to the Boss

Whenever you are communicating with management, keep the following in mind as your litmus test for an effective presentation: During your presentation, constantly ask yourself whether your non-technical wife, husband, father, mother or grandmother would understand the message your slides carry. If they could, then your presentation is ready for management. Don't laugh! This kind of approach in presenting to executives can be used in a wide variety of companies, and for purposes that go beyond disaster recovery. If you can "sell" management on a disaster recovery project, you can sell them on other things you need. The key is learning how to communicate in *their* terms. They are not going to learn yours, and if you wait year after year for them to understand you, all you will get is frustration, not money or support.

#### Pulling the Concept Together

Next month we will complete this presentation with more slides and examples that answer the last two questions management must have answered before they endorse and fund your plan:

3. What does it COST when it happens?
4. What does it COST to mitigate the problem?

There are some compelling tools you can use to illustrate both of these issues, even to non- technical executives which can and will get your plan funded. We will be back with more techniques and examples next month in the conclusion of this series. Until that time good luck and happy planning.

Leo A. Wrobel has over 30 years of experience with a host of firms engaged in banking, manufacturing, telecommunications services and government. An active author and technical futurist, he has published ten books and over 1200 trade articles on a wide variety of technical subjects. Leo served ten years as an elected Mayor and City Councilman (but says he is "better now"). A sought-after speaker, he has lectured throughout the United States and overseas and has appeared on several television news programs. Leo is presently CEO of Dallas-based TelLAWCom Labs Inc, and b4Ci. Inc. See <http://www.b4Ci.com> call (214) 888-1300 or email [leo@b4ci.com](mailto:leo@b4ci.com).



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# 14 Things Your Employees Are Dying to Hear from You: Phrases to Help You Revive Wilting Employee Engagement This Spring

Here, I share 14 phrases that will help you connect with your employees so that you can boost their morale and motivation this spring.

By Todd Patkin

What were your last 10 or 15 employee conversations like? Chances are, they included phrases like, “I need you to finish that projection by the end of the day,” or, “I’m putting you on the Brown account,” or, “How much longer do you think it’ll take to finish that PowerPoint the client requested?” After all, you can’t run a business without addressing these types of issues. And chances are, unless they were delivered in a, shall we say, *forceful* tone of voice, your employees don’t mind hearing pertinent instructions and questions. So why does their morale seem to be, well, wilting?

The problem might not be what you’re saying, but what you’re *not* saying. The good news is, with a few well-chosen words, you can nurture employee relationships and help their engagement blossom this spring.

In the midst of the everyday chaos of running a business, leaders often don’t think about what they could or should say to motivate their employees. Often, leaders assume that their employees know how they feel—about each person’s individual performance and about the company’s health in general. Usually, though, that’s not the case.

I speak from experience. For nearly two decades, I was instrumental in leading my family’s auto parts business, Autopart International, to new heights until it was finally bought by Advance Auto Parts in 2005. One of my most reliable growth strategies was proactively nurturing my employees’ attitudes about their jobs by engaging them in conversation. Now, I translate that experience into consulting with organizations to help them build corporate morale and promote greater productivity.

They’d never bring it up themselves, but there are certain phrases your employees *really* want to hear from

you. Some have to do with affirmation; others center on encouragement, reassurance, respect, gratitude, or trust. When you verbalize these things—which takes only a few seconds of your time!—you will notice a big change in your employees’ motivation, commitment, and productivity.

If you start incorporating these phrases into your at-work vocabulary, your employees’ engagement will “blossom” this spring:

**“I need your help.”** The age of rule-with-an-iron-fist, top-down leadership is fading fast. More and more, organizations in all industries are realizing that there’s an almost-magical power in the synergy of teams. Here’s how that applies to you: Your employees all have unique skill sets, experiences, and ideas—so tap into them!

Yes, your employees will be looking to you to steer your company in the right direction, but I promise, they know you’re human, and they *don’t* expect you to have all the answers. So the next time you’re facing a difficult decision or brainstorming options, ask your team for help. Rather than losing respect for you as a leader, they’ll appreciate that you treated them as valued partners—and they’ll feel more invested in your company’s future because they had more of a hand in creating it.

**“How is your family?”** The truth is, people don’t care how much you know (or how good you are at your job) until they know how much you care. Your employees will be more loyal and more motivated if they feel valued as individuals, not just as job descriptions. So get to know each team member on an individual basis and incorporate that knowledge into your regular interactions. For instance, if you know that John in Accounting has a daughter who’s applying to college, ask him

which schools she's considering. Or if Susanna in HR just came back from vacation, ask to see a few pictures.

Showing genuine interest and caring is the greatest motivator I know. When you dare to "get personal," your employees' desire to please you will skyrocket. That's why, when I was leading my family's company, I took advantage of every opportunity I could think of to let my people know I was thinking about *them*. I recommended books I thought they might enjoy. I sent motivational quotes to employees who might appreciate them. I attended all weddings, funerals, bar mitzvahs, and graduations I was invited to. And you know what? Not only did I fuel my employees' engagement...I also formed a lot of meaningful relationships that continue to this day.

**"What do you need from me?"** Often, employees are anxious about asking the boss for what they need, whether it's updated office equipment, more time to complete a project, advice, etc. They may fear a harsh response, want to avoid looking needy, or simply feel that it's "not their place" to ask for more than you've already provided. By explicitly asking what you can give them, you extend permission for your people to make those requests—and they'll certainly appreciate it.

Be sure to treat any requests you receive seriously. If you can't give an employee what she asks for, explain why and work with her to find another solution. Either way, this question, and the conversations it sparks, can give you valuable insight regarding how to improve your company's operations, facilities, and culture. It can also show you how to best develop and support individual team members.

**"I noticed what you did."** Every day, your employees do a lot of "little" things that keep your company running smoothly and customers coming back: Refilling the copier with paper when it's empty. Smiling at customers after each transaction. Double-checking reports for errors before sending them on. And so forth. Unfortunately, in many organizations, these everyday actions are taken for granted, which (understandably) has a negative effect on employee morale.

Your employees want to know that you notice and value the mundane parts of their jobs, not just the big wins and achievements. That's why I recommend making it your mission to "catch" as many of your employees as possible in a good act. Then, point out exactly what it is about their behavior that you appreciate. Phrases like, "Sal, I've noticed that you always take such care to keep the file room neat. Thank you!" take

about five seconds to say, but they can pay long-lasting dividends for your company in terms of morale and motivation.

**"Thank you."** Yes, your employees may crave recognition for doing the mundane parts of their jobs, but that doesn't mean that they won't also appreciate a heartfelt "thank you" for bigger accomplishments. Whether it's "Thanks for staying late last night," "Thanks for being so patient with Mrs. Smith—I know she can be a difficult customer," "Thank you for making our first-quarter marketing campaign a success," or something else, your people will treasure your appreciation more than you realize.

People love to hear positive feedback about themselves, and in most cases, they'll be willing to work a lot harder to keep the compliments and thanks coming. Praise, especially when it comes from an authority figure, is incredibly fulfilling. (And sadly, it's also rare.) On that note, make sure that you praise and acknowledge your people in a positive way more often than you criticize them. That's because negative feedback tends to stick in most people's memories longer, so you need to counterbalance it.

**"Hey, everyone—listen to what Riley accomplished!"** *Everybody* loves to be recognized and complimented in front of their peers. So don't stop with a "mere" compliment when an employee experiences a win—tell the rest of the team, too! Whether correctly or incorrectly, many employees feel that their leaders point out only their mistakes in front of the group, so make it your daily mission to prove that perception wrong.

When I was at Autopart International and I saw that one of my people did something noteworthy, I made sure that everyone else knew about it by emailing the story to the entire chain. I could literally see the glow on the highlighted employee's face for weeks, and I also noticed that many of the other team members began to work even harder in order to earn a write-up themselves. Other successful recognition strategies included writing thank-you notes to my employees and publishing a company-wide monthly newsletter highlighting our "stars." Sometimes, I would even call my employees' homes to brag on them to their families!

**"What would you like to do here?"** Sure, you originally hired each of your employees to do specific jobs. But over time, your company has grown and changed—and so have your people. That's why it's a good idea to check in with each one of them periodically to ask what they'd like to be doing. You might be surprised to learn,

for instance, that your administrative assistant would like to be included in the next marketing campaign design team. You might be even more (pleasantly!) surprised to find that her social media engagement ideas yield impressive results.

Annual performance reviews might be a good time to discuss this topic with your employees. No, you won't always be able to accommodate every employee's preferences. But whenever possible, keep job descriptions within your company fluid and allow your people to have a say in matching their skills to the company's needs. This is one of the best ways I know to build loyalty and encourage your employees to really take ownership of their jobs. After all, they'll have had a hand in designing them!

**"I have bad news."** You certainly don't mind sharing good news with your employees, but bad news is a different story. Your instinct might be to play down negative developments, or even keep them to yourself entirely. Nobody wants to be the person who says, "We're going to have to eliminate some positions over the next six months," or, "Unfortunately, our company can't afford to provide raises or bonuses this year."

Nevertheless, your employees deserve to hear the truth from you as soon as possible. They aren't stupid and will be able to tell when something is "up" even if you don't acknowledge it. By refusing to share bad news, you'll only increase paranoia and anxiousness—neither of which are good for engagement or productivity. But when you treat your people like responsible adults by being honest and open, they will appreciate your transparency...and often, you'll find that they're willing to voluntarily double their efforts to help you turn the tide.

**"What do you think?"** Maybe you've never put much emphasis on the thoughts and opinions of your employees. After all, you pay them a fair wage to come to work each day and perform specific tasks. As a leader, it's *your* job to decide what those tasks should be and how they should be carried out, right? Well, yes—strictly speaking. But this unilateral approach to leading your team sends the impression that you're superior (even if that's not your intent) and also contributes to disengagement.

Employees who are *told* what to do feel like numbers or cogs in a machine. Often, their performance will be grudging and uninspired. To unlock buy-in and achievement, make your employees feel like valued partners by asking them for their opinions, ideas, and preferences. Again, they'll be much more invested in



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your organization's success because they had an active part in creating it. And guess what? Your employees probably won't care as much as you think they will if their suggestions don't become reality. Mostly, they just want to know that their voice was heard by the people in charge.

**“Here's how our company works and where we stand.”** In many companies, employees in Sales don't know much about what's happening in Accounting. Likewise, the folks in Accounting aren't really familiar with how things in the warehouse work...and so on and so forth. Generally, this state of affairs doesn't cause *too* many problems. But helping your employees make connections regarding how your company works from top to bottom will streamline internal processes, reduce misunderstandings, and promote team spirit.

Again, this is all about transparency and treating employees like partners. When you make a point of showing everyone how your business “works” and how their specific job descriptions fit into the overall “machinery,” you'll find that us-versus-them thinking tends to decline, and that profit-minded solutions begin to proliferate.

At Autopart International, one of the best management decisions I ever made was showing my employees “the numbers” on a regular basis. I made sure that everyone understood the relationship between their performance and the bottom line—and thus their own pay. Several employees told me that my transparency prompted them to think more carefully about how their own everyday choices and efforts affected the bigger picture.

**“That's okay. We all make mistakes. Let's talk about how to fix this.”** In business, mistakes are going to happen. And in many instances, the impact they have on your company revolves around how you as a leader handle them. Sure, lambasting an employee who has dropped the ball may make you feel better in the short term, but it'll negatively impact that employee's self-confidence, relationship with you, and feelings for your company for much longer.

Don't get me wrong: You shouldn't take mistakes, especially those involving negligence, incompetence, or dishonesty, lightly. But when your employees have made an honest mistake, try to be as understanding with them as you would be with your own family



members. Take a deep breath and remind yourself that the employee feels very bad already, and that yelling or lecturing won't change the past. Instead, focus on figuring out what went wrong and how to keep it from happening again. Did the employee (or the company as a whole) learn something? Should a process or procedure be tweaked going forward to reduce the chances of something similar reoccurring?

Also, never forget that mistakes are an essential part of growth. The innovation and creativity it takes to grow a business *will* be accompanied by setbacks and slip-ups. You don't want to create an environment where people don't take potentially productive risks because they're afraid you'll get mad if they screw up.

**“You deserve a reward.”** Simple things like gratitude, respect, and autonomy make people far more happy than, say, big salaries and corner offices. However, he isn't denying that more tangible rewards like bonuses, vacation time, prime parking spaces, benefits, and more have their place in raising employee engagement. The truth is, you'll be hard-pressed to find an employee who *doesn't* appreciate these things.

When resources allow, look for ways to reward your employees for their hard work. Remember, nobody wants to work for a Scrooge! At Autopart International, I thanked employees with everything from sports tickets to door prize drawings to lavish company parties to vacations on Martha's Vineyard. I found that when I treated my employees like kings and queens, they worked extra-hard to be the recipients of these perks... and they were much more resistant to moving when offers to work for “the other guys” occasionally came their way.

**“I know you can do it.”** Of course you should try to hire employees who are confident and self-directed. But even the most self-assured individuals appreciate an explicit vote of confidence from their leaders!

Constantly challenge your people and push them to improve while reassuring them that you believe in them. Everyone, no matter how capable or experienced they are, appreciates encouragement. At Autopart International, I found that tying verbal votes of confidence to something more concrete—specifically, employees' pay—was one of the best ways to motivate them.

Specifically, I told my employees that I believed in their ability to help our company grow—so much so that I wanted to introduce the concept of performance-based pay with no cap. I found that when a leader is willing to bet large amounts of money on employees'

potential achievements, those employees will work harder for you—and for themselves!—than you ever thought possible. With this strategy, everyone wins.

**“This task is in your hands—I'm stepping back.”** Most micromanaging leaders don't set out to annoy or smother their employees. The problem is, they care—a lot!—and want to make sure everything is done just so and that no balls are dropped or opportunities missed. The problem is, excessive hovering can give employees the impression that you don't trust them or have faith in them—a belief that actively undermines engagement.

Once you've delegated a task, step back and let your employees do what you've asked of them. Yes, I know that can be easier said than done. If you have to, lock yourself in your office or go for a walk around the building to keep yourself from hovering! It may also help to remind yourself that you hired each of your employees for a reason, that you have faith in their potential, and that if they *do* need help, they know where to find you.

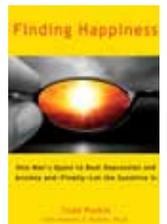
Remember, business is *always* personal. Specifically, it's about reaching and motivating each of your employees on a personal level so that they care about contributing to your organization's ultimate success. This spring, which phrases will you be adding to your at-work vocabulary?

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**Todd Patkin**, author of [\*Finding Happiness: One Man's Quest to Beat Depression and Anxiety and—Finally—Let the Sunshine In, Twelve Weeks to Finding Happiness: Boot Camp for Building Happier People\*](#), and [\*Destination: Happiness: The Travel Guide That Gets You from Here to There, Emotionally and Spiritually\*](#) (coming 2014), grew up in Needham, Massachusetts. After graduating from Tufts University, he joined the family business and spent the next eighteen years helping to grow it to new heights. After it was purchased by Advance Auto Parts in 2005, he was free to focus on his main passions: philanthropy and giving back to the community, spending time with family and friends, and helping more people learn how to be happy. Todd lives with his wonderful wife, Yadira, and their amazing son, Josh.



**About the Books:** [\*Finding Happiness: One Man's Quest to Beat Depression and Anxiety and—Finally—Let the Sunshine In\*](#) (StepWise Press, 2011, ISBN: 978-0-9658261-9-8, \$19.95) is available at bookstores nationwide, from major online booksellers, and at [www.findinghappinessthebook.com](http://www.findinghappinessthebook.com).



[\*Twelve Weeks to Finding Happiness: Boot Camp for Building Happier People\*](#) (New Focus Press, 2012, ISBN: 978-0-9885092-0-7, \$13.99) is available from [Amazon.com](http://Amazon.com).

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# Doing the Math on IT Complexity: Part 1 of 3

By Bill Elder

"Everyone complains about the weather but nobody does anything about it." Charles D. Warner In IT, everybody talks about complexity but there seems to be nothing we can do about it. Many say that systems will always be complex and that it is a fact of life. If we examine more closely, there even is much disagreement on how to measure complexity or even what complexity is.

## The Complexity Reduction Industry

Many say that we are being overwhelmed by too much systems complexity. The website is a case in point. The fact is that whenever a large IT system is in play, many things can and do go wrong and the finger pointing begins and never seems to end. There is an emerging cottage industry of authors publishing books that offer a recipe for complexity reduction. For example, Alan Siegal and Irene Etkorn recently published, *Simple - Conquering the Crisis of Complexity*. The authors say simplicity is a competitive advantage for any business. From their point of view, complexity is reaching crisis proportions and affecting the service we deliver to customers. As companies grow, many offer more services and products than they can manage. The book takes a look at major organizations such as the IRS, Google, and Trader Joe's. Keeping things simple is a critical mindset according to these authors. Everybody agrees that government is in need of simplification. Cass Sustein recently published, *Simpler: The Future of Government*. The author was a recent head of the White House Office of Information and Regulation, a little known body that guides the regulatory landscape of the Federal government. Sustein says that government can simply and effectively provide services to their constituents by doing a sweeping inventory of federal regulations, by identifying which ones were no longer needed, and then replace those with more transparent and efficient regulations. Simplified

**According to some authors, complexity is reaching crisis proportions and affecting the service we deliver to customers.**

regulations translate into simpler systems that deliver better services.

Some in IT will say that we are waging a war against complexity. Authors Stephen Wilson and expresses this sentiment in *Waging War on Complexity Costs: Reshape Your Cost Structure, Free up Cash Flows and Boost Productivity by Attacking Process, Product and Organizational Complexity*. The theme is about asking the right questions before making significant changes.

Another Cottage Industry stemming from IT Complexity

As IT systems become more complicated the risk of IT related lawsuits increases. The litigation can become more complex than the original project. IT Project Litigation shows no sign of decreasing any time soon.

The Warren Reid Consulting Group specializes in IT Project Failure litigation. Their website offers a wealth of information about the IT litigation industry. Some of the great articles found on this website. You see very quickly that this industry has its own terminology and no shortage of work.

Behind some of the growth in the litigation industry are what might be called the 3 L's of the IT industry: Legislation, Liability, and Litigation. First, there is increasing Regulatory Legislation passed by federal and local governments. Then organizations have Liability to comply with these regulations. Finally, there is the ever present risk of Litigation when there is non-compliance. We can safely say that the 3 L's (Legislation, Liability, and Litigation) will keep a lot of people employed and frazzle many CIOs.

## Other IT Complexity Culprits

Another term you come across in IT complexity is the "Devil's Triangle." This term was coined by in

an article “Exploring the Devil's Triangle” published on ZDNet.com. In his words Kringsman describe this term as “basic set of dysfunctional relationships that push many projects toward failure.” The relationships described are between software vendors, system integrators, and the software system users. The article describes the conflicts of interest that can arise with the vendors and integrators. Increasingly complex systems and software can be pushed even though that might not be in the customers’ best interest. Customers can play a part in making life hard for the vendors and integrators with little system documentation and vague requirements. When you have a triangle of vendors, integrators, and customers, the possibilities of blame are endless.

The over complexity of IT systems may someday lead to a significant banking crisis similar to the one we saw back in 2008. Too extreme maybe? Not according to Feng Li who wrote the intriguing article “UK Banks risk financial meltdown if the IT crisis remains unresolved.” On Cyber Monday of 2013, more than a million customers could not access their bank accounts for over three hours. In 2012, customers of the Royal Bank of Scotland could not access their accounts for days. The culprit behind these disasters is the complexity of IT systems. The complexity can be traced back in many cases to many years of continuous integration of new technology with decades old legacy systems. In addition, many of these banks have gone mergers and acquisitions which to even more layered combinations of COTS systems, legacy systems, and home grown applications. The perfect playground for Murphy’s Law. Feng recommends a national standards based approach to streamlining how banks manage their IT investments.

The UK is not the only country feeling the pain of IT complexity. Recently a former American government official has called for new legislation to change how the Federal government manages and purchases its IT services/products. “IT management Reform: Is it time for new legislation” by Richard Spires.

Spires says some major program management changes are needed in IT legislation to help bring order back to the Federal IT world. Below are some of his main points:

- Legislation should include provisions that enable an agency’s CIO to have complete control over its IT infrastructure
- CIOs should be in full control of what Spires calls “Standard Collaborative Systems” which include

administrative support systems (HR, Finance, Mission Support, etc.). Having more control over these systems could help eliminating duplicative systems.

- CIOs need to have the authority to enforce/ensure an agency’s best program management practices.

## **Q & A with Roger Sessions**

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Roger is a recognized authority on what is known as Complexity Analytics. Complexity analytics is a systematic way of best practices in measuring the complexity of an IT system or project. In this article, we ask Roger some major questions about the current problem of managing complexity in today’s IT market place.

**Q: Some will say that complexity is an inevitable fact of life in IT. Why do we need to concern ourselves with this topic?**

A: Some complexity is certainly inevitable. But most of the complexity we see in large IT systems is avoidable. It is the result of bad design decisions. This unnecessary complexity then causes numerous problems. It drives up costs. It causes schedule slippages. And in many cases, it causes complete project meltdown.

**Q: In your experience, what are some common themes you see when it comes to mismanaging the complexity of an IT project?**

A: The biggest problem is that most IT professionals understand little about complexity. It is not a topic taught in CS curriculums. While architects are taught to pay lip service to simplicity, in reality, they have few tools to work with. Most architect couldn’t even define what is meant by complexity and even if they did would have no idea how to go about measuring it. You can’t get rid of something that you can’t measure. Without the ability to measure, you can’t even tell if you are making the problem better or worse.

**Q: Complexity can not only be a problem with a specific IT project but also with managing a data center. Could you elaborate on that for us?**

A: Our data centers have become horribly complex. They are tied in indecipherable ways to a maze of services that live above them. It is almost impossible to tell who modified a piece of data and why and it is unpredictable what will happen if a particular collection of data becomes unavailable.

**Q: Why has it been challenging to find ways to measure and manage IT complexity?**

A: Part of the problem is that there is an inherent conflict of interest with the large consulting organizations. Their profitability depends on keeping systems as com-

plex as possible. Their customer relationships depend on their ability to convince customers that complexity is a fact of life, and only a group with the skills of name-your-favorite-consulting-organization can possibly manage such complex projects.

Once we understand how to measure and reduce IT complexity, much of the rationale for large consulting organizations goes away. Now much of the work can be done by smaller, cheaper firms that directly feed the local economy.

So a decision has been made that complexity is unmanageable and from then on, we make all decisions based on that assumption.

But complexity is an attribute, just like heat. And like heat, we can measure it. And once we can measure it, we can make intelligent decisions, such as will a particular project add or remove complexity from our overall systems.

### Parting Thoughts:

We hoped you have enjoyed part I of this series. In Part II, we are going to examine some prior methods for measuring and managing IT complexity. We will discuss what works and what does not work with each

method. In Part III, we will examine a new method that helps to reduce IT complexity by using key mathematical principals. Perhaps we can do the math on IT complexity.

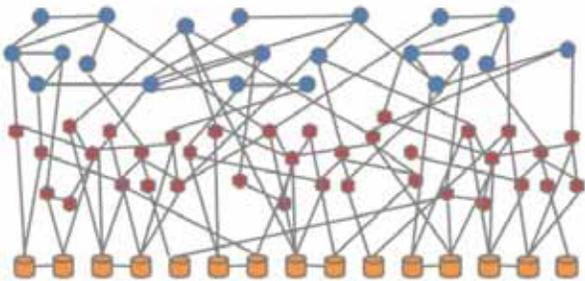
Roger Sessions is the CTO of ObjectWatch. He has written seven books including *Simple Architectures for Complex Enterprises* and many articles. He is a past founding member of the Board of Directors of the International Association of Software Architects, Editor-in-Chief of *Perspectives of the International Association of Software Architects*, and a Microsoft™ recognized MVP in Enterprise Architecture. He has given talks in more than 30 countries, 70 cities and 100 conferences on the topic of Enterprise Architecture.



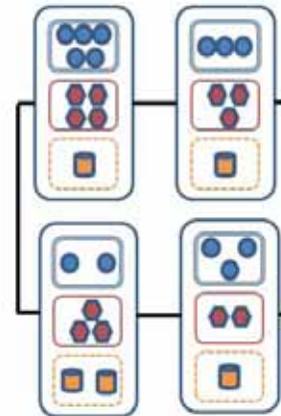
Bill Elder is a consultant who is employed by Knight Point Systems ([www.knightpoint.com](http://www.knightpoint.com)), a federal IT contracting firm based in Reston, VA. Bill is a certified software tester and a past member of NaSPA's Board of Directors. He is originally from Pennsylvania where he got his Public Policy degree from Penn State University. Bill now lives in the Northern Virginia suburbs of Washington, DC.



## Complexity is the Enemy



## Snowmen are the Answer



The Snowman Practice from Roger Sessions

[www.objectwatch.com](http://www.objectwatch.com)

# Secrets for Buying Your Next Big Project from an IT Solution Provider

By Rolf Versluis, CTO and founder of [Adcap Network Systems](#)

So you have a significant IT project coming up next that will make a big difference to your company's operations, so what can you do to make sure everything goes smoothly?

Having been on the IT solutions provider side of the business for many years, I have seen countless organizations go through many different project implementations. So here are my recommendations for ensuring a flawless implementation.

## **Talk With Potential Solutions Providers First**

Start talking to solutions providers before you even create your budget. It's very disappointing to find out that the improvements you wish to have done aren't economically feasible and you have to delay until you receive a budget increase. IT solutions providers are happy to talk with customers well in advance of the project start date to help put together a budget and high-level proposal for the project. With this document in hand, you should have a good idea of the cost and project timeline that you can then take to your superiors for approval.

Increasing your budget is certainly tough right now, as IT budgets are very tight. IT solutions providers, however, are used to identifying existing budget allocations that can be redirected to your project. After all, they have worked with hundreds of customers in similar situations, and can get very creative. It's much easier to get approval for a project if you can find a way to fund a portion of it through hard or soft dollar cost savings.

## **Listen To Your Options**

Before going down the path of engaging a solutions provider to help you work up a budgetary number, consider how to get a commitment to good service at a good price. This is where the manufacturer and solutions provider relationship comes in. My recommenda-

tion is to not fixate on one manufacturer too early. If you do, you'll lose much of your bargaining leverage.

Most IT solutions providers focus their time, energy, and effort on implementing products from only a few manufacturers. By doing this, they tend to be very good at designing, installing, and supporting those vendor's systems. They work closely with the vendor's salespeople and engineers, know how to get the best pricing, and know who to call if something starts to go sideways.

Resellers who work with many different manufacturers usually position themselves as best-of-breed providers who evaluate many different vendors and put together a complete system using a mix of the optimal different available products. This can work, but in many cases that one solution provider is the only organization that is experienced in that specific combination of products. Furthermore, their lack of focus tends



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**Engage the competitive energies  
of the different manufacturers  
against each other.**

to limit their ability to put together a complete system at the best price with full manufacturer support.

As you line up your two to three different potential providers, evaluate different provider/manufacturer solutions combinations. This way you're able to engage the competitive energies of the different manufacturers against each other. Solutions provider's profit margins are pretty thin compared to the original equipment manufacturers (OEM's), so one of the ways you can get the best pricing is to get the OEM's competing against each other through what they see as their proxies, the solution providers.

### **Get to work**

Once you have picked your IT solutions provider and vendor candidates, what next? Put them to work! Describe your situation, what you are looking to do and ask them for their best recommendations and justifications for three different scenarios:

1. Minimum system that would work at the best price
2. Well-endowed system with all the bells and whistles
3. Optimal system they would recommend to a company run by a good friend

By doing this, you're able to take advantage of all the education, training and experience the solutions provider account managers and design engineers have built up over the years.

But what about consultants? Shouldn't you engage one of them? You could, but be aware of what consultants are good at and what they're not. They do a great job staying on top of industry trends, seeing what different organizations are doing and producing well-written deliverables. What consultants don't do is design, install, and support and troubleshoot these systems on a daily basis. As a side note, that's also the case for the engineers at OEM's! The best source for a system design that will work and stand the test of time is from your local IT solution provider.

Local? Yes, local, if possible. The vast majority of IT solutions providers are localized to a state or region. Very few are of national size, and the ones that are that big, work with the largest of enterprises.

### **Evaluate Your Options**

What you want from an IT solutions provider is results. Results are delivered by people who take pride in their work and who are part of a team that values success and their local reputation. So in your evaluation, look for a few different things:

1. They employ full-time engineers locally who are experienced and certified in the OEM's systems that you're looking to deploy.
2. Have reference customers who are about the same size and for whom they have done similar work. Technology changes rapidly, so you might not get an exact match, but make sure you get the names of the people they have worked with in the past, and call them to find out if they are happy and why.
3. Provides a complete solution within their area of technology expertise. This includes:
  - a. Assessment of current system and recommendation for improvement
  - b. Account manager who brings together the key people for you
  - c. Design engineers with operational experience who will provide a good design and a solid scope of work
  - d. Purchasing team who will source the products from authorized channels, will get them ordered correctly, and will get them delivered at the right time
  - e. Project management team who'll hold a kick-off, coordinate the disparate elements required for the project, and work to get the project completed properly
  - f. Knowledgeable and experienced deployment engineers
  - g. Can provide ongoing support of the system once it's up and running

Ensure they're good at partnering with other providers who may be necessary for a complete solution. IT solutions providers tend to focus on being good at a few different areas, and as systems become more complex these areas may become even narrower.

If an IT solution provider tells you they are good at everything, dig a little deeper and find out who would actually be doing the work. Ask for the names of the engineers. You want to find out what the provider is

really good at, and what not their core competency is. Just as in everything else, details and the names of people are always important. And if they need to partner to put together a complete solution, be open to that and talk with the partners they bring in.

### **Ask Questions and Make Your Decision**

In the evaluation of those proposals, have the design engineers go through and explain the pros and cons of their different designs. Tell them who their competitors are and ask why they think the system they designed for you is best. Ask if you're going to have to upgrade this system in a few years. Ask them if the system has any single points of failure.

Since price should always be part of the design, ask them where they would cut if the budget was reduced by 20 percent. Then ask where they would add if, theoretically, you could find additional budget.

Ask about support. As part of the proposal, have them price out three and five year support for the system separately. And not just the manufacturer's support, but also support from someone who knows their system inside and out. If you wanted to take a three-week vacation and not worry about what's going on at the office, could they offer the level of support to make that happen?

Find out about different ways to pay for the system. Some manufacturers are awash in cash and have a financing arm that'll offer all sorts of free money just for buying their products. Have your finance people talk to their finance people to get it figured out properly.

### **Implement Your New System**

As the new system is deployed, it's almost guaranteed there'll be problems. Usually no one knows the exact state of the systems currently in place. During the upgrade process, you'll find out things that were unknown and will have to make adjustments. Accept it as part of the process and work with your provider to fix things and move on.

With the project just about done, there are a few last hurdles to complete. Before the solutions provider's deployment and project management team check out, make sure:

1. You get a full operational demonstration of the system. You want to ensure everything works and they don't have to come back to fix anything right away
2. The list of uncompleted items is mutually agreed upon in writing and a timeframe and person is identified for the completion.
3. You have a copy of the as-built documentation with license information, tables, diagrams, serial numbers, usernames, and passwords.
4. Manufacturer support is activated and verified for everything that is installed.

That's the high-level overview of working with IT solutions providers when you have a new project to do. Follow this guide and you should have a successful implementation. Good luck!

Rolf Versluis is the founder and the CTO of Adcap Network Systems. Rolf is an Electrical Engineer with 22 years' experience in systems operations, design, deployment, and support. A USNA grad and former US Navy nuclear submarine officer, Rolf previously worked in the semiconductor industry as well as for Cisco Systems. He leads the technical practice at Adcap and is responsible for creating the architectures that Adcap engineers design, deploy and support.



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# How Apple Skirted Around Security Issue and Avoided P.R. Nightmare: *What the Security Breach Can Teach Us*

By Karl Volkman, the Chief Technology Officer of SRV Network, Inc.

2014 hasn't just been a year of bitterly cold weather and impressive amounts of snow and ice. It has also been a year marked by security breaches and considerable loss of consumer privacy and safety. Popular big-box retailer Target made headlines across the world when hackers breached their customers' bank account information. Up to 110 million shoppers might have been affected. 2 million JP Morgan Chase customers received new credit and debit cards in the wake of the breach.

However, that was only the beginning. High-end retailer Neiman Marcus soon confessed a similar breach, and millions of customers are worried that shopping with plastic is no longer safe in today's high tech-world of hackers and phishers.

Continuing that disturbing trend, Apple was recently forced to release a software update due to serious security risk that could impact users of the iPhone, iPad and/or iPod Touch. The software update was for its iOS 7 mobile operating system and includes a fix for SSL (secure socket layer) connection verification.

The security issue is extremely exploitable and users were urged to update their devices as soon as possible on a secure, trusted network. Failing to do so could result in a security breach that could leave your personal information easy exposed to hackers.

Although this is an issue which could have become very severe very quickly, the fallout following Apple's announcement was actually relatively calm. Unlike when Target announced their breach, Apple users didn't seem to make much of a fuss over the potential dangers related to their personal information. Instead, most people merely calmly updated their phone operating system and continued on with their day.

## What can account for this difference?

Transparency played a large role. Apple is very adept at handling public relations issues, and when faced with the security breach nightmare, they handled it as quickly and honestly as possible. Users were told to update their systems immediately and they were told why and how. People understood the risks as well as how to manage it. This differs from the credit card breaches with Target and Neiman Marcus in which many people were confused and anxious about what they should do next. For example, many people weren't sure if they should update their bank cards or if it was enough to merely change their PINs. They weren't clear if only Target Red Card users were at risk of if anyone who paid with a credit card could be exposed to the dangers of phishers. The information was only further muddled by incorrect reporting and social media and the result was that people felt angry and tricked by Target. With the Apple security breach, people felt empowered and as though they were able to handle the situation accurately since they were given the information they needed right away.

It could also be that people simply are more trustworthy of Apple's products. People put a great deal of stock in Apple and seem to feel as though they are almost invulnerable when using high-quality products such as the iPhone or the iPad. Of course, the reality is that in today's high tech world, no device is invincible. Any computing device that is on the Internet is susceptible of being attacked.

So how can users keep their information safe? First, it is crucial to be vigilant with updates and safe computing practices. Don't be negligent about updating your system. Doing so takes only a few minutes and it can save you a great deal of heartache down the road.

Second, make sure to keep your devices locked. Entering in a passcode might seem time-consuming, but it's just a few seconds out of your day and it can help to ensure that your personal information will stay that much more protected.

Last, never assume that you are 100% safe from a security breach, even if you are using a top-of-the-line device like an Apple product. As made clear by recent developments, online hackers are only becoming more adept and more talented, and data breaches will only continue to surface with each passing month. It will behoove everyone to practice caution and make smart choices when it comes to their virtual behavior as well as their real-life behavior.

Karl Volkman, the Chief Technology Officer of SRV Network, Inc. in Chicago, Illinois, is an IT Professional with over 30 years of experience. Prior to his position at SRV Network, Karl was the Director of Technology for the New Lenox School District 122 in Illinois, the Chief Information Officer of the Habitat Company in Chicago, and the Manager of Networks & Communications for John Nuveen and Company. Karl's certifications include HP, Microsoft, Cisco, Adtran, Objectworld, and Cymphonix. His capabilities include IT Management, Planning and Technician, Telecomm Technician, Programmer, DBA, and Technology Instruction.



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# APM Nirvana

By Ross Cochran

## What is APM?

APM is Application Performance Management. It is the term used today to annotate all the aspects of tracking, tracing, and troubleshooting end-users response times. Nobody can seem to agree on exactly how to define APM; but one thing is clear – Everyone has their own definition. Everyone from vendors, research firms, and end-users; all have their own definition of APM. This paper will define APM in the simplest of terms. I will not use any vendor specific product names. I will start from the origins of APM and cover through today's take on APM nirvana.

## In the Beginning...

In the beginning, there was one computer; pick your flavor – PDP, Univac, IBM, Cray, Cyber..... Remote end-users accessed these systems from simple plain old telephone (POT) lines. To upgrade from 150 bits per second to 300 bits per second was a big deal. With such slow lines of communications, end-user response time issues were usually not because of the central computer system.

In the old days (I can say old because I was the VTAM System Programmer from 1977 through 1995), response time and IT availability was many times measured by an end-user via a stop watch (I did not believe it until I saw it). Eventually end-users with the dumb terminals (3270) gave way to smarter desk-top devices that emulated a 3270 dumb terminal (e.g. IRMA cards), and allowed the end-users to capture “real” end user response times. Then when the MVS data center manager reported 99.999% availability, the end-users had their view of availability to share with the data center (BTW – It was *not* 99.999%). I recall the days when the data center was reporting 99.999% for *each* component of response time, such as CICS had 99.999% uptime, MVS had 99.999% uptime..... You get the

picture; each team was reporting availability from their narrowly defined component of technology. But, when reporting response time and availability from the end-users viewpoint, it was everything but 99.999%. Each month when the data center would thump their chest, by publishing their 99.999% numbers, the end-users would fire back with their “cost of inequality” report challenging the APM numbers from the data center. The point was the end-users saw something far from 99.999% when they added up all the outages and response time issues *from their viewpoint* (verses the data center's viewpoint). I guess these are some of the roots of the discord that has existed for years between the mainframe data center and the distributed world?

However, as connection speeds in remote locations begin to rival local area network speeds, the customer's method of connecting to the central system has become less of an issue. In parallel to the increasing speeds in communication systems, many distributed systems (UNIX, Linux, Windows...) began to appear between the end-user and central computer system. The issues of APM just got much bigger; is the end user response time issue in the network, distributed system(s), or central computer system?

## The Stage is Set.

The stage is set; we have super-fast (compared to 40 years ago) networks, distributed systems (web servers, app servers, middleware...), and the still present central computer system. You are now primed for massive finger pointing between all segments of your IT department. Most people will want to get ahead of the finger pointing and start collecting end user response times *before* the end-user calls. So you first start collecting end-user response times (as seen from the end-users browser). You also start collecting response times *between* the distributed systems and the central computer system. Many people call this collecting

the “hop-to-hop” response times. Make sure you collect response time history too (because you know the guy in accounting is going to complain about response time from a month ago). So you think you are ready to address any APM issue an end-user can throw at you. Yah right!

All your end-users have their own interpretation of *bad* response time. When a *bad* response time issue arises, will both you and the end-user be able to exactly replicate the mouse clicks that are causing the response time issue? If not, now what? How do you get a consistent and repeatable way to generate response time? You got it; use synthetically generated transactions. Deploy droids (not the cell phone type) in the field running consistent transactions and repeatable scripts. Be sure to collect and store their response times. These droid response times will remove all the emotion (well at least some of it) and subjectivity associated with live end-users. Plus, with droids not needing bio breaks and vacations, you will now have response times collected 24 x 7.

### **Time to go Deep**

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OK, you think your APM strategy is 100% bullet proof now. You are collecting and storing end-user response times. You are collecting and storing the hop-to-hop response times of your end-users. You are collecting and storing synthetic response times 24 x 7. But what happens when your APM monitoring does indeed report a response time problem? You see it in your reports; the response times (both real and synthetic) from the ABC application server are bad. Do you just call-up the ABC application server owner and tell them to fix *their* problem. Yah right!

You now need a way to “go-deep” into the ABC application server and make that deep-dive diagnostics part of your normal APM management rhythm. The answer is to add an application server go-deep approach that will seek out when a servlet, java server page, java message service... is misbehaving causing end-user response time problems.

Things are Slow on the Central Computer System

OK, you know you have this APM thing mastered. You are collecting and storing end-user response times. You are collecting and storing the hop-to-hop response times of your end-users. You are collecting and storing synthetic response times 24 X 7. You can go deep into an application server and can tell the components of application server response time. But you get the

**When a *bad* response time issue arises, will both you and the end-user be able to exactly replicate the mouse clicks that are causing the response time issue?**

dreaded end-user call, saying their transaction on the central computer system has abended (that’s abnormally ended for all you non-MVS’ers). What do you do now? Your response time reports do show response time from the central computer system were truly slow. But, that is the heritage central computer system, and that system is never slow, until today! Just like you added a go-deep problem determination approach to the distributed ABC application server, you need to add a go-deep problem determination approach for the heritage central computer system. This will give your insight into which transaction(s) are timing out causing response time issues. Life starts getting good here, because you now have objective central computer system response time data. You politely serve up a big steaming bowl of response time data to the DB team.

### **APM Nirvana**

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Finally you have achieved APM nirvana; you determine your end-users response time *before* they call you; you can quickly isolate issues to the hop of technology causing the response time issue, you can dig deep into the technology layer for probable cause analysis.

There you have it – APM from the beginning to the APM nirvana of today. Now you can take a break..... Yah right!

Enjoy!

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Ross Cochran is a Principal Software Consultant with BMC Software, and has worked in IS since 1977. Mr. Cochran holds a Bachelors and Masters degree in Computer Science, and knows his way around mainframe and distributed systems.



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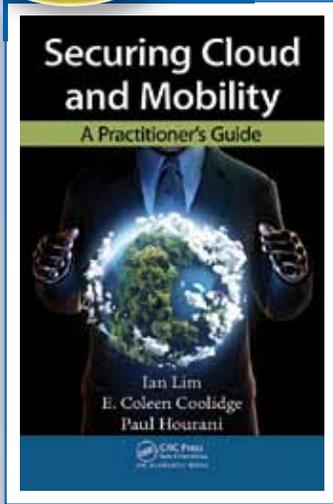
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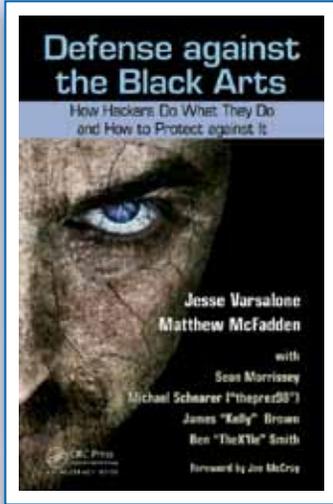
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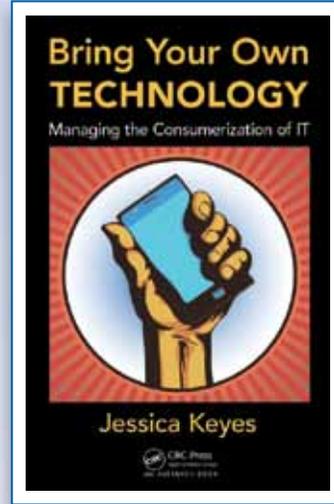
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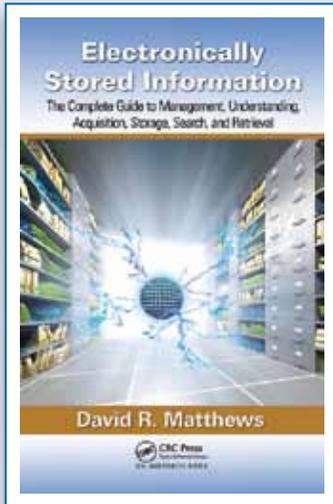
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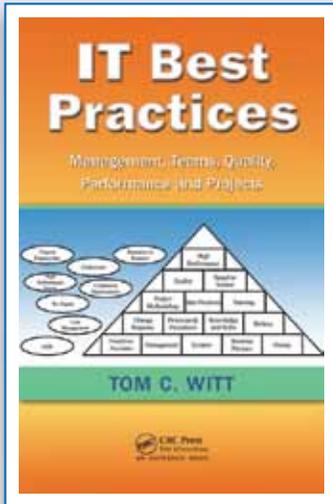
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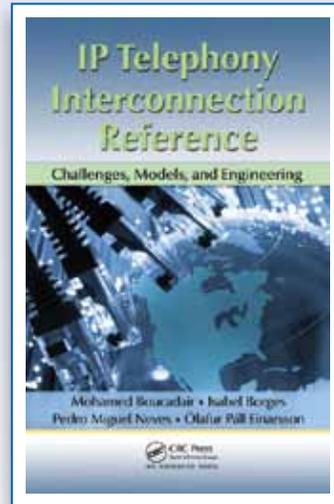
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