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Making the Switch from Fiber Optics in Favor of Faster, High-Capacity Wireless

By David Rizzo

Message from the President



Greetings NaSPA members,

Perhaps we don't say it often enough, but we are so excited to be here at NaSPA, to offer our loyal members new opportunities in the job market, and to help advance the information technology careers of thousands. As part of NaSPA's ongoing effort, from time to time we try to offer opportunities for members to get published. Many of you have taken us up on this offer by contributing articles to our award-winning magazine. Well, here is another opportunity.

Sharon and I have just been contracted by the esteemed international publisher Rothstein Publishing to write our 13th book, entitled "*When Complex Systems Fail*." It's going to be the most fun book we have written yet. <https://rothsteinpublishing.com>

By their nature, I.T. Systems are "Complex Systems." It's therefore a no-brainer that NaSPA members know a lot about I.T. system failures, causes, and results. Even so, in case you haven't looked lately, NaSPA's membership is more eclectic than ever. There are electric power engineers and technicians, equipment vendors, telecommunications professionals, and a host of other non-IT professionals who are NaSPA members. They deal with Complex Systems of all types, not just I.T. We would like to tap this vast pool of expertise as well in our book. So we are starting with a blank canvas and the subjects are wide open, provided they keep to the underlying theme of what happens When Complex Systems Fail.

If you are interested in contributing anything from a diagram of a complex system to a full chapter in this book, please contact Sharon or myself directly. We have helped a great many people over the years in getting a start in publishing and it's gratifying when we can do so. Just as importantly though, Sharon and I don't know everything. We depend on input from friends, business associates, association members, mentors, and fellow authors to stay current and provide a meaningful experience to our many readers. If you can provide such input on Complex System failures and want to participate with us on this new Rothstein book, let us know! Email us at president@naspa.com or editor@naspa.com.

In the meantime, enjoy this month's issue, which in many ways is the product of NaSPA members. It runs the gamut from weather related issues to redefining success to wireless technology as well as a couple of other topics that we hope that you will enjoy. Thanks for making NaSPA a rewarding experience for all of us and keep those articles coming!

Leo A. Wrobel, President
Sharon M. Wrobel, Editor

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The Crooked Yardstick | *Redefining Success*

By Gerry Sandusky

Take inventory of your successes. What comes to mind? The title of your position in your company? How much money you make? The value of your home? An award you won? If you had to measure your success, would you place yourself in the top ten percent? Top five percent? Did your company or your team meet this quarter's sales goals? Regardless of which success percentile you stand in, does the nagging sensation that something isn't quite right tug at you? You're not alone.

A recent Harris poll shows a downward trend in happiness in America. Only thirty-five percent of Americans say they're happy—two percent fewer than five years ago. A Gallup poll taken last year shows only thirteen percent of employees in the world feel engaged and invested in their jobs.

Abraham Lincoln had a keen insight into happiness. He said, *"I reckon most people are about as happy as they make up their minds to be."* The same can be said of success.

Ruth McClain, a talented seamstress who grew up an orphan in Philadelphia, used to lose track of time standing at the metal racks in fabric stores that held wooden yardsticks. To the casual observer they all looked the same. Not to Ruth McClain. She examined them, observing a curve in one, a bow in another, a nick in another.

Asked about her fixation with the yardsticks she explained once, "If you measure garments with a crooked yardstick, the garment will look right when you finish making it. It will come out the right size, but the person who wears it will feel like something isn't quite right. They won't know what it is, but they'll feel it. When you measure with a crooked yardstick the finished product never feels quite right."

Goals and benchmarks others set for us create a similar effect as measuring garments with a crooked yardstick, because even if you hit the benchmarks something still won't feel quite right. Eventually, like running into the wind, that feeling will fatigue you, overwhelm you—burn you out.

Sales goals, income levels, and possessions never fully satisfy us when someone else sets them as a standard of success. Who said you had to become a multi-millionaire, or that your company had to grow by seven percent a year? That the unemployment rate had to go down? If it wasn't you, then stop using those data points as measurements! They're crooked yardsticks. Sure, they reflect something, but they may not reflect what matters to you.

Here are four questions that will help straighten out your yardstick:

1. Who are you?

Not just your name or your logo but your essence. What are the essential things you want people to remember about you or your organization long after you're gone? What do you stand for? What really matters? What makes you feel special and fulfilled?

2. Where are you, and how long have you been there?

That's your present and your past. Know it and honor it. Make peace with it. Now stop letting it limit you. It's just your starting point for the future. To get accurate directions you need to know a starting point and an ending point. Your starting point doesn't define you.

3. Where are you going?

A lot of people and organizations can't answer this. Stop until you can. If you don't know where you want to go how will you know if you're on course or off course? You won't. Instead, you'll fall for the trap of using goals and measurements set by other people to define your success.

Imagine outcomes that feel true, authentic, that feel like wearing a perfect fitting jacket while you walk through the woods on a chilly, fall afternoon. There's no one else around to see you in that jacket. Just you. Does it feel tailored for your body, warm, just enough to keep you comfortable with your hands tucked into the pockets but not too much to bog you down? Someone made that jacket using a straight yardstick! That's what success feels like. It can look like a thousand different things. That's your choice. But make sure your vision of it feels right.

4. How will you get there?

Probably the same way Ruth McClain did: measuring everything with a straight yardstick. You will remain the product of a crooked yardstick until you have the courage to define success on your terms and measure it only by your terms. No matter how good everything looks, it won't feel quite right, and achieving more won't change that.

Answer those questions honestly at an individual level and you will quiet the noise caused by exterior expectations or crooked yardsticks. Answer them at a company or organization level and you will unleash purpose and commitment beyond anything you have experienced before because these answers come from a place deeper than the bottom line.

Ruth McClain had fewer than five hundred dollars in her checking account when she died at the young age of fifty-eight, but she died happy and she died fulfilled. She died knowing she had given the world something the world didn't give her: the gift of a mother. She raised a good family, loved her husband and five children. She died knowing the shirts and blouses, the dress and the drapes she made brought beauty and joy to the lives of others. And she died knowing her life, like those garments, was measured using a yardstick she carefully selected.

By many measurements—income, assets, fame, power—Ruth McClain's life may not look like much of a success, but by her measurement it was as true as a perfect yardstick; a yardstick I keep to this day to remind me of her—my mom—a genuinely happy, successful person.

Choose your yardstick carefully. Your success and happiness depend on it.

About the Author

*Gerry Sandusky is the play-by-play voice of the Baltimore Ravens, and a speaker, corporate trainer and author of The New York Times bestseller, *Forgotten Sundays*. He is the recipient of two regional Edward R. Murrow and Emmy Awards for his accomplishments in broadcast journalism. Gerry's energetic and insightful presentations will impart the value of effective leadership techniques and communication on your audience. For more information on Gerry, please visit www.GerrySandusky.com.*

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Integrated Python and .NET Using IronPython

By Jesse Smith

This Sample Chapter is provided courtesy of NaSPA Supporter Pearson Publishing ([Informit](#)).

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Jesse Smith shows you how to combine the two languages to serve the same .NET application. You get the best of both worlds: Python and .NET work together to provide reusable code functionality without your having to rewrite the code base for a single environment.

By using the IronPython runtime library, you can run Python scripts from your .NET application. This article shows you how to get and display feedback to the user from your Python script from within a .NET application.

If you have ever had a use-case in which you need to run a Python script from a .NET application, a good way to integrate the two is to use IronPython. I had such a use-case. An organization I was working for needed to extend a pre-existing toolset that was already available through a .NET mapping application. The goal was to extend this existing toolset using code already written in Python for another set of tools not yet part of the application. After doing some research, I decided to use IronPython-and the process worked out well.

This article is based on that experience, and I will re-create the same scenario, which can be applied to your own situation.

The primary challenge for the desired solution was to get output back from the Python script that would run within the .NET application environment and display this output to the user using a .NET application dialog. To my surprise, it was easier than anticipated, and you will also learn how to do the same. The whole process is relatively easy and outlined in the following sections.

Embedding Python Scripts in .NET Applications

In this example, I show you how to embed a Python script within a Windows Desktop application. The objective is to add a new tool button to an existing application dialog.

After that tool button is clicked, the application should bring up a dialog that displays the running output of a Python script to be embedded as part of that dialog's form code.

To give the example more context, the application is a desktop-mapping application that allows users to create their own maps. The new tool enables users to parse and standardize their address points on the map.

Standardizing an address simply means making sure the address has a street name, prefix or suffix, house or building number, and pre-direction or post-direction. Each address segment must follow the U.S. Post Office guide to postal addressing standards.

Assume that an existing Python script already does this; it will be the one doing the parsing in this example. The Python script will output or flash the address that is being parsed to the user on the screen using the current dialog that was triggered to appear by selecting the address parsing tool. (I do not want to get into too much detail, but only illustrate the process here.)

The code is not important, but knowing how to embed and direct the script's output to a dialog as part of the application to the screen is important. The process goes like this:

- The user launches the mapping application and opens a custom map.
- The user selects the new address standardizer tool from an existing toolset appearing at the top of the screen.
- The address standardize dialog appears with a Start button to launch the address-standardizing process.
- A text box on the form shows the address currently being parsed. These boxes go by quickly, and the addresses appear to be flashing to the user, indicating that the process is active and parsing.
- A message indicating that the process has finished is shown to the user, using the same text box as in step 4.

Identifying Source Code and Project

The first thing to do is identify where the script should go in the application's source code. In this example/scenario, it will be in a new dialog that is added to the project that contains the toolset. This new dialog will be triggered by an existing process that handles the toolbar clicks.

After the project containing the source code has been identified, the IronPython libraries need to be referenced by the project.

If you use Visual Studio as the source code editor, the easiest way is to use the Nuget Package Manager to add the IronPython libraries to the project. You can do this by simply searching for "IronPython", and the runtime will appear for selection within the package manager.

You can also download the IronPython runtime from Codeplex at <https://ironpython.codeplex.com/>. After downloading, simply add a reference to the IronPython lib folder located at C:\Program Files (x86)\IronPython <version>/Lib. You will also need to add a reference to the Microsoft.Scripting.Core.dll to your project.

Embedding the Script

The next step is to actually embed the script. You start by using the scripting engine to set up a Python scripting engine instance. You can also set up any special paths your script will need before adding the script:

```
ScriptEngine pyEngine = Python.CreateEngine();
pyEngine.Runtime.IO.RedirectToConsole();
var paths = pyEngine.GetSearchPaths();
paths.Add(@"C:\Python27\Lib");
paths.Add(@"C:\Python27\Lib\site-packages");
pyEngine.SetSearchPaths(paths);
```

Line 2 tells the .NET framework that the Python Engine runtime will redirect its output to the console. However, this is not redirecting the new dialog for the tool we added to the application. (The code to do this appears below.)

But first, we need to add the actual script using a simple string variable. You have to change any quotes in your script to work within a double-quoted string.

An easy way to do this is simply replacing any double quotes in your script with single quotes. The syntax for embedding your script is as follows:

```
string thescript =
    @"
    (actual script text appears here)
    ";
```

You may have to play with the formatting a bit, but the indentation should be the same. After the script string resolves to a valid string, it is time to add in the redirect output code that displays the script's output to the new tool's dialog window:

```
Console.SetOut(TextWriter.Synchronized(new
TextBoxWriter(statusText));
    pyEngine.Execute(thescript);
    this.AllDone(FINISHED);
}
catch (Exception ex)
{
    this.AllDone(ex.InnerException.StackTrace);
}
}
public void AllDone(string message)
{
```

```
buttonStart.Enabled = true;
this.statusLabel.Text = message;
}
```

In the code above, we set up a new `TextWriter` that takes in a new type called `TextBoxWriter`, which allows us to write the script's output back to a text box. The code for the `TextBoxWriter` type is the following:

```
public class TextBoxWriter : TextWriter
{
    private TextBox _textBox;
    public TextBoxWriter(TextBox textbox)
    {
        _textBox = textbox;
    }
    public override void Write(char value)
    {
        base.Write(value);
        // When character data is written, append it to
        the text box.
        _textBox.AppendText(value.ToString());
    }
    public override System.Text.Encoding Encoding
    {
        get { return System.Text.Encoding.UTF8; }
    }
}
```

The `statusText` property being passed into the `TextBoxWriter` type is our display text box that appears on the dialog displaying the output of the script. Every print statement in our Python script gets redirected to this text box.

Conclusion

In this article, you learned how to integrate a Python script within a .NET application and redirect the Python's scripts' output to a .NET dialog form. The seamless integration is transparent to the user because they have no clue that Python is actually doing the back-end work.

There are many scenarios in which integrating the two languages is very helpful. I shared one such scenario that provided a solution to my situation. You can follow the same steps to apply to most scenarios in a similar manner.

I recommend setting up your own simple example and even pulling the Python code directly into the .NET application using the Python's script file, which you can certainly do as well. Although you do not have to embed the script directly into the .NET source code, it was the most convenient for me.

About the Author

Jesse Smith is a software engineer for the state of ND Information Technology Department. His programming experience includes developing enterprise applications and web services with .NET, J2EE, Ruby on Rails and Adobe Flex. He also runs his own business at www.ifusionsoft.com.



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Exercise Your Crisis Decision-Making Skills

By Lucien Canton

On July 19, 1989 United Flight 232 crash landed at the airport in Sioux City, Iowa killing 111 of the 296 people on board. Many of those who survived owe their lives to a coordinated interagency response by the county. The outcome might have been much different. The Sioux City airport was not rated to handle the large jumbo jets such as Flight 232's DC 10 aircraft. However, the county's emergency services manager, Gary Brown, understood the strategic implications of the many flight paths that crisscrossed Sioux City airspace and anticipated that there might one day be a need to respond to an emergency involving large aircraft. Against much opposition, he exercised local responders and hospitals in dealing with mass casualties. This strategic thinking meant that county agencies and hospitals were ready to respond on that fateful summer's day.

In any crisis situation, there are three levels of activity taking place. The most obvious is that at the tactical level where people are actually dealing with the immediate effects of the crisis. The operational level provides support to the individuals engaged in the tactical response. These are the people that comprise your incident management team who attempt to get ahead of the crisis and anticipate the short-term needs of the tactical responders. Finally, there is a strategic level, which normally consists of senior executives whose emphasis should be on the long-term impact of the crisis.

Unfortunately, this strategic level is often neglected. One reason is that it is easier to solve problems than to make decisions. The problems created by a crisis are fairly tangible and the solutions are often obvious. It is easy for senior executives to be drawn into the relatively easy work of solving these tactical and operational level problems than it is to take a step back from the crisis and try to see the big picture.

But there may be an even more subtle reason for failing to think strategically: organizations tend to build exercises around operational issues rather than strategic ones. It is a cardinal rule of emergency planning that no plan can be considered complete until it has been tested through exercise. Consequently, our exercises focus on solving

operational problems using the organization's emergency plan. This is completely appropriate but it does not truly prepare senior executives for crisis. Instead, these types of exercises focus the attention of senior executives on short-term issues that could, in most cases, be delegated to the crisis management team.

Consider the following example:

A major fire has occurred at your principal manufacturing facility, severely limiting your ability to produce your key product. People working at the tactical level are busy clearing away debris and assessing the damage while the operational staff is considering options for regaining the capacity to produce product. In the typical exercise, senior executives are usually drawn into this operational level by being asked questions such as

- What should we tell our customers?
- Should we authorize overtime?
- Should we pay people who can't work?
- Should we ask a competitor for help?

If we think about questions of this type, it soon becomes noticeable that many of them can be answered by asking for recommendations from the crisis management team or through existing company policies. In other words, they really do not require serious decision-making on the part of senior executives. In fact, they can lead to a mistrust of the ability of the crisis management team to deal with these issues. They also may fail to engage senior executives in the exercise.

To truly increase the ability of senior executives to make decisions in a crisis it is necessary to ask questions that truly challenge them. Using the same example, consider asking questions such as the following:

- **What is the true risk to the company that is posed by this crisis?** In the example, the problem is not the loss of production capacity; the true crisis is what that loss of capacity represents. The true risk might be reputational; by failing to fulfill contracts the company develops a reputation as unreliable. The risk may be financial; failure to provide product on schedule could result in severe financial penalties. The reason for asking this question is to get senior executives thinking beyond the immediate and obvious event to identify the true crisis.

- **What decisions will I need to make?** With an understanding of the true crisis, it is now possible to

identify strategic decisions that may need to be made. For example, does this crisis offer an opportunity to modernize

production processes? Will the organization's customer base or labor pool be affected and require changes to company strategies?

- **What information will I need to make decisions?** Understanding risk and the decisions that need to be taken generates a need for information. That information may be related to the organization or may require analysis of the operational environment and the local community. In some cases, the crisis management team can be used to collect this type of information.

- **How will I implement these decisions?** There is an old saying that, "the devil is in the details". Decisions that do not include some thought to implementation are doomed to failure. This is because thinking about implementation sometimes forces a re-examination of the decision. This is particularly true when resources are limited or information is not readily available. Thus, an important part of the decision-making process is to test decisions by making sure there are sufficient resources to implement them.

Operational exercises are absolutely essential to good emergency planning and the participation of senior executives is critical. However, it is important to include senior executives not just as observers or by giving them work but by offering them opportunities to improve their crisis decision-making skills. A carefully crafted exercise will both engage them and help them understand their true role in crisis response.

About the Author

*Lucien G. Canton, CEM is a consultant specializing in preparing managers to lead better in crisis by understanding the human factors often overlooked in crisis planning. A popular speaker and lecturer, he is the author of the best-selling **Emergency Management: Concepts and Strategies for Effective Programs**. For more information, please visit www.luciencanton.com, or email Info@luciencanton.com.*

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Position Title Weblogic Administrator
Location(s) Atlanta, Georgia, United States

Beyond of Atlanta, 30346 reqs a Weblogic Administrator for a hybrid role entailing Application Support, System Admin, App Config, Web Services, Config & deploying apps in J2EE on Complex multi-system platforms. Adv admin skills on WebLogic Server (8.1/9.2/10) for multiple applications in clustered envir. Extensive expertise in working with web servers Apache/SunOne(iPlanet), Sun Solaris 8/9/10 and/or other UNIX based operating systems, 3rd party integration tools & SUN/HP/Proliant/C-class blade hardware is a must. Other skill set includes: familiarity with Cisco CSS, CSM, or similar load balancing technology and concepts; CA/Wily Introscope, Sun Clustering; Jumpstart; Kickstart; Web Proxy; NetIQ; Sun LDAP. Development and Networking knowledge is a great plus. Outstanding communication skills & ability to work in a fast-paced 24x7 envir. Must have BS in computer engineering/rtd field. 3 yrs of exp=1 yr of college edu. Combination of edu and exp acceptable. Beyond will provide a salary of \$53789/yr. Apply via resume and cover letter only to HR Beyond 4780 Ashford Dunwoody Rd, Ste A 412 Atlanta GA 30338

Job Name Demand Planning Manager
Position Title Demand Planning Manager
Location(s) California, United States

Demand Planning Manager – Cisco Systems, Inc.
Manage, lead and monitor overall business unit forecasting processes to achieve business and company forecasting objectives. Act as Project Manager or Subject Matter Expert on projects related to short and long term solutions to operational challenges in Supply Chain at Cisco. Interface with cross-functional groups on planning-related activities. Manage, improve and present planning metrics to cross-functional teams. Lead teams to evaluate and prepare the supply chain to meet product- and market-specific requirements. Apply advanced theoretical knowledge to perform job duties. Employer minimum requirement: Master’s Degree in Business Administration, Supply Chain Management, or related field + 4 years of experience in job offered or as an Intern (Demand Management and Planning), Supplier Readiness Analyst, Supply Chain Analyst or related occ. Skills required: Oracle Demantra; SAP Business Objects; Consensus forecasting; Statistical forecasting; and Sales and operations planning. Jobsite: San Jose, CA. Work Hours: M to F, 9am to 6pm, 40 hrs/wk. \$130,333.00 per yr. Submit resumes to: Recruitment and Employment Office, Cisco Systems, Inc., Attn: Job Ref #: CIS82389, P.O. Box 56625, Atlanta, GA

Job Name Business Systems Analyst
Position Title Business Systems Analyst
Location(s) Manchester, Missouri, United States

Business Systems Analyst Research, design, strategize and guide application architecture and systems development for Business Intelligence and CRM using OBIEE, Informatica, DAC, BI Publisher, OBIA (Finance, HR, Procurement & Spend, Service and Project Analytics), Siebel Campaign Management, Smart Scripts, Siebel VB, eScript, Siebel Tools, EIM, Server Administration, Workflow Manager, Assignment Manager..Travel in unanticipated locations throughout US required. BS in Technology + 5 yrs progressive exp. iTalent Inc (aka Abhra Inc) Manchester, MO. E mail resumes to: resumes@italentinc.com

Job Name Systems Analyst
Position Title Systems Analyst
Location(s) Malvern, Pennsylvania, United States

Systems Analyst, Malvern, PA & other client locations: Perform technical & functional analysis, support, analyze, design, configuration, testing, documentation, & implementation using ARIS, SAP Solution Manager, HPQC , Visio, SAP ECC/R/3, SAP modules MM, PP, ABAP/4, Java, Share Point, Oracle, , Unix, MS in CS, MIS, CIS, Eng (any), or related with one year experience. Salary DOE. Travel required for other clients within the U.S. Email to jobs@lninfosys.com or mail to LN Infosys, 81 Lancaster Avenue, Suite 214-B, Malvern, PA 19355.

Job Name Software Engineering Manager, Content Integration Engineering
Position Title Software Engineering Manager, Content Integration Engineering
Location(s) Norwalk, Connecticut, United States

Software Engineering Manager, Content Integration Engineering, FactSet Research Systems, Inc., Norwalk, CT: Manage team of software engineers w/in Content Integration Engineering. Min. Reqs: MA, or higher, or for. equiv. in CS or rel. tech. field & 2 years software engineering industry exper. Exper. must include: working w/ C++; writing code using data structures, including Hash Tables, Linked Lists, Maps & Trees; & working w/ database technologies, i.e. MySQL, Oracle or Microsoft SQL Server. Must have exper: integrating third party data technologies; developing proprietary database engines w/different query languages & APIs to access data; integrating third party technologies, such as MySQL & Memcached, w/existing interfaces; & maintaining code bases through debugging & fixing client issues. Must have knowledge of using, designing & developing Web services using Apache platform & a proven understanding of search server technologies (elasticsearch/sphinx) to support search & lookup operations. Qualified applicants should mail resumes to Melissa Manna, HR, FactSet Research Systems, Inc. 601 Merritt 7, Norwalk, CT 06851 with reference to Job Code: FSSWEM20.

Job Name Software Engineering Manager, Company and Markets Analysis
Position Title Software Engineering Manager, Company and Markets Analysis
Location(s) Norwalk, Connecticut, United States

Software Engineering Manager, Company and Markets Analysis, FactSet Research Systems, Inc., Norwalk, CT: Manage team of software engins. w/ in Company & Markets Analysis. Min. Reqs: BA, or higher, or for. equiv.,

in CS or rel. tech. field & 2 yrs software engine. industry exper. working w/ Windows, Linux, VMS, C, C++, C#, Javascript, Visual Studio & MySQL. Must have exper. w/ Object Oriented Programming, Multi-threaded Programming, Job scheduling & synchronization & working autonomously in all phases of software development life cycle. Qualified applicants should mail resumes to Melissa Manna, HR, FactSet Research Systems, Inc. 601 Merritt 7, Norwalk, CT 06851 with reference to Job Code: FSSWEM19.

Job Name Quality Control Engineer
Position Title Quality Control Engineer
Location(s) Montgomery, Alabama, United States

Regitar USA Inc. seeks a Quality Control Engineer in Montgomery, AL whose job duties include: Provide electrical engineering support & quality control for design, manufacturing, distribution of automotive electronics utilizing engineering design tool & computer software. Conduct engineering evaluation & qualification of new product & equipment & conduct test for proper operation. Develop & maintain product test plan. Prepare problem report. Perform problem investigation on product defect. Oversee assembling & production of specific automotive electrical component. Prepare quality control documentation, specification & drawing. Develop engineering plan & QA procedure & prepare technical & user documentation. Work Schedule: 8am-5pm, Mon-Fri. Salary: \$79,269/year. Require: Master in Electrical Engineering. Mail resume to: Recruitment and Employment Office, REGITAR USA INC, Attn: Job Ref #: REG47789, P.O. Box 56625, Atlanta, GA 30343.

Job Name Software Delivery Engineer
Position Title Software Delivery Engineer
Location(s) Durham, North Carolina, United States

Zaloni, Inc. seeks Software Delivery Engineer in Durham, NC. Provide direction and service delivery advice on Enterprise applications, user experience, architecture, and interactive feature development including Business Intelligence/Big Data. Prepare proposals and understand the Statement of Work (SOW) for service delivery and product deployment projects. Able to telecommute from home residence. National travel required 2% of time. Submit application online at www.zaloni.com

Job Name Programmer Analyst
Position Title Programmer Analyst
Location(s) Massachusetts, United States

Programmer Analysts. Five Openings. Randstad Technologies, LP. Headquarters: Woburn, MA. Analyze, dev & build front end w/ Oracle 10g, Oracle Forms 10g, PL/SQL & Test plans. Dev strategies for production implementation. Create test data using SQL, SQLPLUS & Toad. 40 hrs/wk. Monday-Friday, 9 a.m. to 5 p.m., \$105,560/yr. Must have Masters in Comp Sci, Comp Engin, or rel field (will accept BS+5 yrs exp in lieu of MS) & 1 yr exp (or 1 yr exp in rel occup). Applicants w/ any suitable combination of education, training, or experience are acceptable. Must have 1 yr exp working w/ Oracle 10g, Forms, PL/SQL, SQLPLUS & TOAD. Work will be performed in various unanticipated locations. Must be willing to travel/relocate to anywhere in US on short notice for extended periods. Submit resumes to: Recruitment and Employment Office, Randstad Technologies, LP, Attn: Job Ref #: RAN98200, P.O. Box 56625, Atlanta, GA 30343.

Job Name Computer Professionals
Position Title Computer Professionals
Location(s) Plainsboro, New Jersey, United States

Computer Professionals, Plainsboro, NJ & Other Client Locations (multiple openings): Involve in all phases of SDLC, analyze, design, develop, implement, configure, customize, & maintain applications & systems. Salary

DOE. MS (BS + 5yrs Exp) in CS, MIS, CIS, Eng (any), or related W/1 yr exp in any one of the skill set: 1. QC/ALM, QTP, Rational Test Manager, Clear Quest, Clear Case, Win Runner, Test Director, Java J2EE, Oracle 8i, SQL Server, DB2, Web Server, Tomcat, Dream Weaver, FrontPage, Weblogic J2Sdkee, JRun, Mainframes, AMCP, SDLC, and EDM & ref PS-11-2010-1018. 2. SQL Server, Access, SSIS, SSAS, SSRS, Windows 2003 and 2008 Server, SQL Profiler, Veritas, Tivoli, SAN, SQL Lite, TINA, Red Gate, T-SQL, VB.NET, Apache, HTTP Server, DTS Packages, BCP, and ETL & ref GK-11-2014-1020. 3. C#, VB.Net, ADO.Net, ASP.Net, XML, XPath, Java Servlets, C, C++, SQL Server, SQL Query Analyzer, MySQL, Triggers, Views, CSS, VS.Net, VSS, FrontPage, Infopath, Crystal Reports, IIS, Windows 2000/NT/XP, and Unix & ref VS-11-2014-1022. Travel required for other client locations within the U.S. Mail resumes Smart IMS, 103 Morgan Ln, Plainsboro, NJ 08536 or email resumes@smartims.com.

Job Name Data Warehouse Administrators
Position Title Data Warehouse Administrators
Location(s) Jacksonville, Florida, United States

DATA WAREHOUSE ADMINISTRATORS req'd to oversee data infrastructure dvlpmnt, coding transformations in DB2/SAP/Teradata/Oracle/UNIX enviros through knowledge of data warehouse techniques and ETL methodologies incl. SQL, PL/SQL, Ab Initio, Datastage, UNIX scripts, SQL Asst./TOAD, Autosys. Create & present Ab Initio graphs, work w/ software developers to migrate & load code/data. Monitor, maintain, optimize perf. & scheduling of ETL processes. Req'd: MS degree in CS/IT, Engin, Sci, Math or related field + 1 year of exp in job, OR alternatively, a Bach. degree in one of the same fields + 5 yrs of progressively responsible exp. In job. Mail Resumes to SGS Technologie LLC, ATTN: DWAJOBS, 6817 Southpoint Parkway, Suite 2104, Jacksonville FL 32216

Job Name Software Developer
Position Title Software Developer
Location(s) Irving, Texas, United States

Design software applications and customer portal layouts. Integrate Salesforce CRM systems with JDEwards. Provide testing and implementation. MSCS. 1 year exp. in Salesforce CRM and Case Management. Acceptable job titles: Software Engineer, Programmer Analyst, Technical Lead. Job Loc: Irving, TX. Hrs: 8am-5pm, Mon-Fri. Employer: Intellisoft Technologies, Inc. Salary: \$81,500/year. Send resume to Recruitment and Employment Office, Intellisoft Technologies, Inc. Attn: Job Ref #: INT91275, P.O. Box 56625, Atlanta, GA 30343

Job Name Clinical Software Developers
Position Title Clinical Software Developers
Location(s) Bridgewater, New Jersey, United States

Clinical Software Developers (multiple positions) req'd to design, dvlp, test, implem. & supp. software programs for clinical data analysis and applications using adv. lvl. knowledge of: SDLC, SAS, CDISC standards, XML, SQL, DBMS dsgn & Analytical Models. Wrk closely w/Statisticians & Data Managers to gather req's. Req'd: MS in Info Tech., Comp.Sci. or Comp. Engg. + 0 yrs experience, or alternatively, a BS in IT/CS/CE + 5 yrs of progressively responsible exp. in job. Mail resumes to Percept Pharma Services, Inc. Attn: SDJOBS, 1031 US Hwy 22 W, Ste. 304, Bridgewater, NJ 08807.

Job Name A954290
Position Title DIRECT DIGITAL CONTROL SPECIALIST (HVAC)
Location(s) Champaign, Illinois, United States

DIRECT DIGITAL CONTROL SPECIALIST (HVAC)
 Systems and Controls /Utilities and Energy Services Facilities & Services
 University of Illinois at Urbana-Champaign

Facilities and Services at the University of Illinois Urbana-Champaign is accepting applications for two Direct Digital Control (DDC) Specialists. This position will be part of the system and controls group in Utilities and Energy Services. This group is responsible for maintaining reliable and effective DDC systems for UIUC campus.

The DDC Specialist will help maintain, program, monitor, and troubleshoot DDC systems as well as provide reliable information to assist engineers and field technicians. The selected candidate should have basic knowledge of HTML programming and support for implementing web interface for the HVAC systems. Expertise in maintaining computer servers and networks is desirable.

Major Duties and Responsibilities:

1. Program, monitor, and maintain the campus DDC systems. Interrogate systems concerning operational status of connected building equipment in response to requests from craft persons or alarm conditions.
2. Determine priorities while issuing work orders to ensure maximum systems performance.
3. Maintain logs of building systems and monitored applications. Maintain and updates all files associated with alarm handling and critical alarm paging.
4. Program systems in conformance to Facility Planning Daily Summary Sheet and requests from crafts or staff personnel provide special control and scheduling for building equipment. Implement these changes either "on the fly" or through programming, depending on whether they are of a temporary or permanent nature.
5. Provide emergency control of connected equipment in times of critical need in response to major system failures or weather extremes.
6. Review design documents (program manuals and drawings) for new construction to verify adequate installation instructions.
7. Provide HTML programming and support implementing a web interface. Assist Engineering, Utilities group or departments in access to view this historical data-using web interface.
8. Work with part timestudent help in the development of color coded floorplans. Some limited Autocad skills would be beneficial.
9. Maintain and provide data trending, reporting, and backup services.
10. Responsible for exporting of trend data to other campus systems for billing of utilities and energy dashboards.
11. Provide technical expertise and advice to field technicians, engineers, inspectors, and project coordinators, and pursue solution to problems.

Job Name **A949380**
Position Title **Assistant Operations Manager,**
 Interactive Arts & Media
Location(s) **Chicago, Illinois, United States**

Assistant Operations Manager, Interactive Arts & Media
Columbia College Chicago
Columbia College Chicago is an urban institution of approximately 10,000 undergraduate and graduate students emphasizing arts, media, and communications in a liberal arts setting.

Position Summary: Job Posting ID: 900140

The Interactive Arts & Media Department (IAM) is seeking applications for a full-time, Assistant Operations Manager to provide direct management, oversight and technical support for the maintenance, implementation, and continuous operational needs, initiatives, and activities within the Interactive Arts & Media Department.

Duties & Responsibilities:

Perform maintenance of IAM Department infrastructure by providing ongoing Technical Support for all departmental computer workstations, servers, networks, and other equipment; Assist faculty, staff and students with technical issues in the classroom.

Perform management/supervision of IAM Technical Staff (Full and Part-time). Lead team of technical support staff and student workers to help support curricular goals of Department; Train staff to manage specific services and support. Conduct annual staff evaluations.

Manage and deploy IAM workstations; Manage IAM workstation base line; Create and maintain hardware and software baseline across all platforms in the department.

Administer and maintain SMB File, Web Hosting IIS and Apache, FTP, IIS 7/7.5, ASP.Net/PHP, MySQL/Microsoft SQL Server Print Management services for student/faculty accounts.

Oversee Design/Implement Local Network Resources including; Manage IAM Department Servers, Network Access SMB/FTP/SFTP, Network Security Firewall/Proxy, Print Services, File Servers/Media Asset Servers, Backup Services, Web Servers, Web services, Domain servers, file/print servers.

Install and maintain current software/patches on servers Server Backup and SAN/RAID maintenance; Monitor Server Logs (firewall, web, mail, events, etc.).

Maintain department Web Site and Web Services via CSS, HTML, ASP, NET and C#. Assist with department web presence in social media, hosted services, and mobile platforms.

Assess department hardware/software needs.

Assist with planning, prototyping and testing new software for use in the IAM department.

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Just a Part of Doing Business

By Dan Quick

A huge portion of success in business really boils down to mitigating risk. Risk management is an important factor when considering everything from staffing positions to choosing the right enterprise software for your company. In fact, even where you establish your brick and mortar presence or headquarters is a gamble in many ways. But the one thing that is certain is that the more your business can account for and anticipate life's many obstacles, the more likely it is to succeed.

One enormous factor that is typically the most difficult to predict, however, is the weather. No corner of the country, and especially if your operations extend internationally, is safe from the fickle changes in the weather that can be destructive and, at times, even fatal. Many of these magnificent displays of weather's raw power hit especially hard in the winter months.

Even the most certain of situations with Mother Nature still come down to just a matter of chance. If that weren't the case, then we wouldn't regularly see rain when only 20%-30% of a chance of rain exists, nor would we have the occasional sunny day during monsoon season. A matter not to be left to chance, however, is how destructive a force of nature can be once it is certain we are in the path of a real winter storm.

Recent Noteworthy Winter Storms

It seems that there are more examples of hugely destructive storms each year that are destructive to businesses. In addition to their cyclical patterns, extreme weather events continue setting new high water marks for damage caused. Still very near to those on the East Coast, and something from which the region has not entirely recovered from, is Super Storm Sandy.


This particular weather system was originally expected to be only slightly more severe than a typical nor'easter, or a seasonal storm that typically batters the New England coastline in the winter months. There are still fingers being pointed to this day at the various powers that be for that oversight. Sandy wrecked havoc on the Eastern Seaboard for several arduous days, and in her wake she left a mind-

blowing 7.9 million homes and businesses powerless. Many of these power outages lasted upwards of a week.

Each day that operations like those from Sandy are down, an average company of 500 employees, according to the research firm, Basex, Inc., equates to a loss of \$90,000 in potential business. This statistic makes each and every one of these days a potential arrow into the Achilles Heel of any business. These losses were compounded further still because in addition to the complete loss of power for millions, even when basic services were restored, very few businesses were even capable of opening immediately thereafter.

Repairing the physical damages to the region extended well beyond the restoration of power. This prolonged lapse in business operations caused irreparable damage to countless businesses that were shut down during the storm, crippling many beyond repair by the lengthy cessation of business following the storm. Sandy's damage to New York and New Jersey alone was calculated at \$69.6 billion though she is estimated to be, in aggregate, the second most costly storm in US history (behind only Hurricane Katrina) and was responsible for 186 deaths from the Caribbean to the Northeast. These figures alone do not capture the total losses, though, because communities along the coastline, such as Atlantic City, are still experiencing the costs of the almost categorical loss of small and medium business due to the storm.

More recently, though without the same aggregate costs, was the sudden rainstorm that hit the west coast, centered mostly on the San Francisco Bay Area. In contrast to the under preparation that preceded Sandy, this much needed rainfall was perhaps expected to hit the affected area far more drastically than it actually did. Jokingly referred to by Bay Area residents as, "Rainpocalypse" and "Stormageddon," this two-day shower storm was no laughing matter for dozens of businesses in the area. As a result of the numerous closures and, "rain days," doled-out during the storm, dozens of companies missed out on millions of dollars of business. Exemplary of this sudden loss of revenue were the local service and transportation companies that hold contracts with schools and government agencies in the area. The San Francisco Unified School District alone estimated that \$2 million that would have gone towards paying for various caterers, custodians, and tutors was left unpaid. When put into perspective, it is glaringly evident how even brief disruptions in operations can result in enormous losses for a local economy.



There exist a litany of other, similar events ranging from the Polar Vortex in 2013, which brought subzero temperatures to a majority of the country, grinding much of life to a standstill. Also, the so called, "Snowmageddon," in 2010 sent the Mid-Atlantic states into a state of emergency as upwards of four feet of snow completely ambushed areas unaccustomed to such a blanketing. Add to these the hundreds of tornadoes, ice storms, and power outages that occur in every state through the colder six months of the year, and the numbers begin to reach virtually incalculable proportions. Routinely, there appear to be more and more examples of extreme weather affecting business in places and at times that have historically been untouched by such occurrences.

Growing Period of Volatility?

There are, of course, still a variety of viewpoints on the topic of climate change; both if it even exists and, if so, if it is the direct result of mankind's impact on the earth. It is not this author's desire, however, to politicize the real issue of weather's potentially lethal effects on business by entering into that debate. Instead, what should be focused on is what is widely accepted in the global scientific community, and that is that there exists an increasingly sporadic and unseasonal pattern developing in the world's weather.

As an indication of a growing alignment on the topic of climate change, however, there has been a slew of recent support of the theory of human caused climate change and its affects on the planet's weather. The United Nations' Intergovernmental Panel on Climate Change recently published its fifth report on the topic and in surprising endorsement of the study and its results, FOX News reported that, "The Intergovernmental Panel on Climate Change has answered the most important question on global warming — whether humans are causing it — with 95 percent certainty: Yes."

This change of position from the global news corporation sees them become an unanticipated supporter of the concept is remarkable. More noteworthy, however, is that this conversion only serves to further reinforce the point that the world is currently witnessing a transition away from its previously routine, predictable weather patterns. Therefore, it is within the range of reason to suggest that more costly weather events could threaten industries of all sorts with an increasing and frightening frequency.

What is Next for Business?

The fact that there exists a very real and unpredictable threat to business from extreme weather compounded by the intrinsic link between increased weather variation and climate change creates an impetus for companies

of all sizes. How can a successful business best hedge itself against the immutable and unstoppable risk of unpredictable weather?

Many savvy companies have already answered this question by creating and implementing a comprehensive Business Continuity Plan (BCP). A BCP is a strategy of contingencies that cover the total operations of an organization that cover it in the event of a disaster. Beyond the predictable topics of chains of command, emergency evacuation routes, and hazardous environment protocols, the most effective BCP's focus on both protecting the people in a business and continuing operations as much as possible until normalcy can be restored. A critical part of that is maintaining open lines of communication with business' customers, as well as intra-organizationally. The best way to do that is with an automatic business failover for a company phone system, such as PBX Parachute.

A professional, off-sight mirrored phone system can be critical in that it is programmable to automatically initiate once the main system goes down, or can be triggered by an administrator. Regardless of how it deploys, active telephone failovers can be equipped with emergency toll-free hotlines to employees making sure that your team can get the information it needs to get safe and stay that way in an emergency. Once your personnel are all safe and accounted for, the real value of the failover system is realized in that it lets you keep conducting business during any downtime.

By replicating your existing phone system virtually, a hosted failover system can route your numbers and extensions to anywhere you designate. This means that while you're addressing the concerns revolving around getting your office back up and running, your employees can keep conducting business as usual from their home phones or their mobile numbers as you see fit.

People have tried in vain to accurately predict and effectively block nature's activities for centuries. Levies overflow, dams burst, and weathermen only need the loosest of vagaries to report on. Business will never be able to control how the weather behaves, but it can control how it prepares for it. Including a telephone backup system as a lifeline in a comprehensive BCP is the best way to accomplish that.

For information on BCP's and telephone failover systems, visit VirtualPBX.com or contact the author at – Dan.Quick@VirtualPBX.com

NEWS RELEASE

WHY IS AN INTEGRATED NETWORK HEALTH SOLUTION CRITICAL?

Troubleshooting Data-Center Performance Issues
After-the-Fact is NOT Competitive –

Integration of Advanced, Proactive Measures is Essential

MOUNTAIN VIEW, CA – December 17, 2014 – Networks have become a strategic business asset that glues together the data, the applications, and the users. With networks and data centers at the heart of critical activities, end-users expect consistent, high-quality applications delivery at all times. It is no longer sufficient to troubleshoot performance problems after they have impacted business activities negatively. Integrated network health solutions must expose imminent issues proactively, before they degrade to become costly problems.

“In the same way that healthcare professionals consider proactive measures to be an economic and therapeutic enabler of good health, network professionals want to identify issues as early as possible -- not after-the-fact, when their impact is costly,” said Dr. Rony Kay, founder and CEO of cPacket Networks. “For example, though treating a heart-attack is possible, it is better to identify early indicators of deteriorating conditions and mitigate them.” Like health professionals, network professionals need situational awareness and granular performance indicators to identify telltale signs of deteriorating conditions and address them before they negatively impact the end-users.

Historically, network monitoring tools were designed to troubleshoot performance problems after-the-fact --- relying on information that is neither granular nor real-time. This forces network professionals to conduct forensic investigations after the damage is done, instead of proactively identifying imminent issues and taking corrective actions to mitigate them.

This after-the-fact approach doesn't scale to the current operational needs for efficiency, reliability, and consistency. Modern applications-delivery environments require a unified solution, which has been architected from ground up to provide Integrated Network Health by combining proactive and reactive measures. The integrated framework should include: real-time Key-Performance-Indicators, proactive alerts about spikes and abnormal applications behaviors, interactive search of any traffic pattern across the entire environment, triggered interception of suspected traffic, and high-speed traffic recording for forensic investigations. It should be coupled with algorithms for advanced analytics, visualization, and drill-down search.

cPacket's focus is delivering solutions for Integrated Network Health. The company developed a unique hardware-software architecture, which combines distributed real-time network intelligence and enables forensic investigations in a unified framework. Network managers can leverage timely and relevant information to identify imminent issues before they degrade to become costly disruptions. For example, cPacket's solution can base-line critical metrics of latency, jitter, and application response times; alert about abnormal behaviors

like microbursts and spikes; and launch distributed real-time pattern-search for any traffic profiles or error conditions across the entire network environment.

“cPacket has integrated proactive and reactive elements of network health in a unified framework,” said Kay. “This combination enables our customers, from service providers to financial institutions, government organizations and enterprise, to benefit from higher operational efficiency, better traffic engineering and performance optimizations, and shorter time-to-resolution of problems which impact critical business activities.”

About cPacket

cPacket is the recognized leader in Pervasive Network Intelligence. The company delivers solutions that radically simplify network traffic monitoring and performance optimization. Its products rely on innovative hardware-software architecture with distributed smart ports, which are based on a unique Algorithmic Chip. The company's customers include the world largest data centers, service providers, financial institutions, and government organizations. cPacket is located in Mountain View, CA, with a field force and partners throughout Europe and Asia Pacific. For more information, visit www.cpacket.com.

All trademarks and registered trademarks are those of their respective companies.

Additional background information is available at www.roeder-johnson.com.

NEWS RELEASE

Elitecore Service Management Platform enables a leading ISP in Africa to roll out nationwide Wi-Fi Services

(AfricaCom, Capetown, Nov 13th, 2014)

Elitecore Technologies, the global provider of Wi-Fi Service Management Platform (SMP) announces its win for a leading Wireless Internet Service Provider in Libya, setting up a strong footprint in African Wireless market. The ISP chose Elitecore SMP to provide secured and cost effective Wi-Fi offerings with seamless connectivity for rapid launch of new services with faster go to market across all the ISP deployed hotspots at residences, corporate, retail hotspots like cafes, restaurants, hotels, resorts, universities, government and private sectors.

The comprehensive and robust Wi-Fi Platform with end-to-end offerings of Elite Access Controller to Billing of Wi-Fi Services enabled the ISP to effectively cater to a multi-segment subscriber's portfolio. The SMP fulfilled the ISP's requirement to seamlessly authenticate the user with their login credentials, display customized location specific captive portal web pages with branding facilities, portal for resellers to generate vouchers, customer portal for end users to manage their accounts as well as mechanism to securely and automatically connect to Wi-Fi network.

Spokesperson, ISP – Libya commented, “Elitecore Service Management Platform (SMP) integrated with Elite Access Controller enabled us to successfully roll out nationwide Wi-Fi services and launch innovative business models with customized

Wi-Fi packages for individuals, businesses and government institutions leveraging our existing Wi-Fi hotspots. Elitecore's proven experience in Wi-Fi deployments with its flexible, scalable and cost efficient offerings had a distinct advantage for us over the competition. We appreciate the timely delivery and excellent support from Elitecore team."

Says Akshat Joshi, VP, Wi-Fi Product Management, Elitecore Technologies, "With the ISP's existing investments in deploying Wi-Fi hotspots, Elitecore SMP helped to leverage the overheads and enabled them with solution at competitive pricing to offer high speed Wi-Fi mobility services and deliver enhanced user experience with multiple business case offerings. The platform capabilities helped ISP to offer differential prepaid packages for residences and corporate with varied time & volume based plans, prepaid vouchers across varied hotspots at cafes, hotels, hospitals, universities, malls for Wi-Fi access.

Along with IP Pool management and centralized DHCP for IP allocation the platform also facilitated the ISP with real time session management with respect to quota, provided plan based bandwidth allocation and offered support for web based URL and application filtering plans. The flexibility and modular nature of the platform enabled the implementation in the minimal time frame as well as it opens the monetizing arena for ISPs to partner with Telcos and Cable MSOs through sharing the ISP laid Wi-Fi infrastructure.

For more information: [Download Case Study](#)

About Elitecore:

Elitecore Technologies, a Carlyle-investee IT product company is a leading provider of Wi-Fi Service Management Platform (SMP) with large number of Carrier Wi-Fi deployments helping the Service Providers leverage their heterogeneous networks services to improve spectral efficiency, enhance service offerings, earn profitability and deliver high quality user experience. The pre-integrated and modular platform has Enhanced Mobile App, ANDSF, Advertisement Server and Monetization Framework that enable operators to tap new revenue opportunities by Intelligent offloading, LTE – Wi-Fi interworking, location based offerings and launch innovative use cases across different business verticals viz. Public spaces, Enterprises, Residences, Hospitality, Municipalities, Stadiums, Universities, Malls etc. thus ensuring faster time-to-market and better TCO.

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IN CONTEXT SOLUTIONS PLANS SATELLITE OFFICE IN MILWAUKEE

Virtual Research Startup to Open Product Development Office

InContext Solutions, a growing research and virtual simulations start-up out of Chicago, is expanding into the Milwaukee market in 2015. The satellite office is the company's fifth location since its inception in 2009 (current locations include Chicago, Minneapolis, London, and New York) and is expected to employ as many as 10 by the end of the second quarter next year.

The newest office in Milwaukee will be home to a team of product development specialists who will continue to push boundaries in the virtual simulations space by creating retail and shopper solutions for some of the most important brands of our time.

According to Chief Technology Officer of InContext Solutions Tracey Wiedmeyer, Milwaukee was a perfect choice for the team's newest product development office, which is just one piece in a focused expansion and development plan.

"Milwaukee is on the verge of a tech start-up boom," says Wiedmeyer. "The city has an incredible network of universities and developers with the talent we need. We're excited to be creating a home base there and to continue doing what people once thought was impossible."

InContext Solutions develops online simulations, much like video games, that allow retailers to create and manipulate 3D simulations of retail environments. Consumers can then "visit" the retailers via virtual simulation allowing companies to monitor their activity and purchasing behavior. These nuances translate into data and insight that help retailers make confident business decisions.

The company's marquee platform, [ShopperMX](#), is a SaaS (software-as-a-service) offering that allows manufacturers and retailers to collaborate over the web within a 3D virtual store simulation. The first-of-its-kind technology takes 3D visualization to the next level with endless capabilities for testing store, aisle and category layouts, product packaging, in-store marketing or even shopper flow within a store to determine which concept is the most effective for generating demand.

Already in partnership with top consumer packaged goods companies, quick-serve chain restaurants, grocery retailers, and drug and value chain retailers, InContext Solutions is positioned to continue growing, especially after it raised \$12 million of series D funding in August 2014.

"Each new office is an opportunity to broaden our portfolio and better serve our clients," says Wiedmeyer. "And we look forward to our newest team in Milwaukee adding value to our operations and continuing to push the envelope."

To learn more about InContext Solutions' expansion into the Milwaukee market or to speak with Chief Technology Officer Tracey Wiedmeyer, please contact me directly.

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Making the Switch from Fiber Optics in Favor of Faster, High-Capacity Wireless

By **David Rizzo**

Dual band wireless technology outperforms fiber-optic communication links with single-antenna capability for reduced footprint and greater security.

In answer to every communications officer, CTO and network administrator's wish for "more"—more bandwidth for additional capacity, faster speeds, greater security, smaller footprint, and cost-efficacy—wireless data link technology is now eclipsing fiber as the go-to solution to meet these demands.

No longer bound by the constraints of hard-wired fiber optic links, businesses can free up space previously used to route fragile fiberglass strands along with all the hardware necessary to convert electronic streams to light pulses and then back to electronic again.

With high capacity and high speeds, wireless data communication links can leap across chasms in space to connect line-of-sight buildings at distances of several kilometers using highly directional, pencil-thin beams that prevent interference and strengthen security.

Ever evolving wireless technology

For years, wireless communications have enjoyed modest success over that of fiber-optics and coaxial cable, thanks to their untethered ability to span distances without the need for digging trenches and laying fiber or copper wire. But wireless has been traditionally limited in its capacity to transport gigabit quantities of data due to bandwidth limitations set by the FCC.

That all changed, however, with the opening of the 71-76 and 81-86 GHz band—referred to as the "E-Band" range of millimeter wave (MMW) frequencies.

Relatively unknown in the commercial world, the MMW spectrum has been utilized for military communications for decades. Unlike frequencies found lower in the electromagnetic spectrum, the E-Band offers tremendous,

uninterrupted bandwidth to enable wireless data transmission at speeds and capacities on par with the best fiber optic communication systems. Practical data rates in the E-Band band can meet and exceed 40 Gbps.

No longer limited by ground-bound fiber—which requires the underground trenching of streets and sidewalks to establish a physical connection across city blocks—businesses can now channel vast quantities of communication data between buildings and/or campuses.

At the same time, transmission speeds via wireless prove faster than cable because of less latency. Even high quality fiber optic cable experiences significant latency issues in some applications that require precise synchronization.

Expanding upon the improved functionality of wireless is the recent development of dual-capacity MMW wireless in a single polarization that only requires one antenna.

This technology, pioneered by HXI, simultaneously carries two, independent, full duplex "GigE" signals for a total throughput of 2.5 Gbps. Two dual capacity models, the HLS8454 and the HLS8654, are the latest in HXI's Gigalink LightSpeed radio product line. The company's earlier GigaLink Speed radios were among the first MMW radios in the 60 GHz and 70 GHz band to achieve FCC certification for unlicensed and light licensed commercial applications.

"This technology creates a value proposition by providing two high speed, high bandwidth lines for the price of one, since putting two communication links on a single antenna gives you twice the capacity with half the hardware," says Wayne Pleasant, an independent RF consultant and former Chairman of the Wireless Communication Industry Association (WCIA) committee charged with helping the FCC establish guidelines.

"If you have multiple customers or users in a building you can sell, or dedicate, one radio link channel to one customer and the other channel to a different customer or user, without crossover," continues Pleasant.

Previous systems required the use of two antennas to attain full duplex capability.



Expanding upon the improved functionality of wireless is the recent development of dual-capacity MMW wireless in a single polarization that only requires one antenna.

To compensate, some systems multiplex the outgoing and incoming signal on top of each other, but that process exacts a big penalty in terms of latency, losing many nanoseconds which add up quickly. The use of a single antenna, with a single polarization, eliminates the need for multiplexing. Latency is negligible at less than 2 nanoseconds. At the same time, using a single antenna adds to the already-increased security that MMW wireless affords.



With high capacity and high speeds, wireless data communication links can leap across chasms in space to connect line-of-sight buildings at distances of several kilometers using highly directional, pencil-thin beams that prevent interference and strengthen security.

“Channelizing two signals together on one frequency poses a greater security risk,” explains Pleasant. “But by using two independent frequencies that single polarization technology allows, each line is kept totally separate from the other. It’s the highest security you can have for independent GigE transport.”

As if MMW radios and antennas weren’t already very small—measured in inches rather than feet—the use of a single polarization antenna further reduces the footprint of the system. This addresses the concern over potential “visual pollution” caused when mounting a large quantity of antennas to the side of a building.

Given just a single out-the-door unit consisting of both the transmitter/receiver and a single antenna on each end, dual-capacity MMW wireless saves duplication costs. When compared to the expense of laying fiber across the ground, wireless becomes extremely cost effective.

Early adopters reap speed and capacity benefits

Now that the E-Band spectrum has opened to the commercial world, many businesses are taking advantage of wireless communications instead of fiber.

—Financial markets

Financial markets have always been high-speed, high-return activities. The ability to execute a transaction before your competitors determines who gets the profit from a deal. With billions of dollars on the line, markets and traders have

invested heavily in technologies to help them rapidly access and analyze data and conclude a sale.

No where else is speed more important than in the world of high frequency trading (HFT). Unlike other types of stock strategies that try to profit from large changes in the prices of a stock over a period of time, HFT involves analyzing massive amounts of information and locating even minute opportunities for profit that may have otherwise been overlooked. By executing thousands or millions such transactions daily, billions of dollars in profit can be made. The HFT is usually not interested in holding onto a stock for more than a few seconds and will start each day without any holdings.

To generate these huge profits requires the right infrastructure. While fiber optic cables operate at about 2/3s the speed of light in a vacuum, even that is not necessarily fast enough when you are looking at shaving microseconds from a transaction. Additionally, each and every relay device along the route adds its own latency to the journey. A decade ago, those extra milliseconds and microseconds wouldn’t have mattered, but they make a huge difference where HFT is concerned.

In their quest for secure, high bandwidth, low latency connections, HFT firms are increasingly turning to millimeter microwave transmission systems to connect their data centers to the exchanges.

—The entertainment industry

Wireless technology is also finding wide acceptance among motion picture, television, sports, and electronic news gathering (ENG) organizations for the placement of digital video cameras in remote locations up to 500 meters or more from the receiver without wires or fiber cluttering the shot or needing a grip to manage the cables.

The industry has traditionally struggled for some time to identify connections that can keep up with the rapidly increasing bandwidth required for high definition filming. The escalating demand is being driven not only by higher resolution devices, but also with the upsurge in popularity of 3D/HD motion pictures and television monitors.

Because 3D is shot essentially utilizing two cameras that film slightly offset images that are synchronized to create the dimensional effect, two independent HD streams must be transmitted simultaneously. This immediately doubles the data transmission requirement and presents the challenge of doing so through a delivery system that has no latency issues.

Because recording digital 3D/HD over fiber optic cable poses significant latency issues that can affect the synchronization of the two digital streams of data, complex and expensive multiplexers are required, which lead to racks of equipment on-site and results in a completely non-portable solution.

Dual band wireless, on the other hand, facilitates 3D programming. The dual channel model can transport independent, uncompressed video signals from two HD

cameras or alternately, 3D/HD, with both input signals transported in perfect synchronization at 2.970 GB/S (combined). This is all without the need for compression or forward error correction, avoiding the associated latency that could cause ghosting.

—Communications

The advent of LTE networks created a new backhaul connectivity problem. The question became how to connect the growing number of smaller base stations to the core. This dilemma is exacerbated by concerns over frequency congestion and interference in dense cell deployments where four or more picocells would be mounted on light poles in a single parking lot or on a rooftop, for example.

The most obvious solution for high speed transmission of data-intensive content would be to establish a physical connection using fiber optic cabling. However, the cost and challenge of implementing fiber to each micro or picocell site is prohibitive, particularly in urban areas where streets and sidewalks cannot easily be trenched. But with typical link distances for picocell backhaul estimated to a few hundred meters between sites, and microcells less than two kilometers, this represents the ideal distances for implementing the highly directional characteristic of MMW systems.

“Narrow beam antennas allow systems in these bands to be engineered in close proximity to one another without causing interference. With dual-band, single polarization antennas, the net result is higher use of the spectrum with less visual pollution.

The technological advancements made in dual-band MMW wireless radios promise to catapult it over land-bound fiber as the communications medium of choice for many other applications and industries in the coming years.

About the Author

Torrance, California-based author David Rizzo has penned three trade books, 200 technical articles and 500 newspaper columns. Rizzo covers a wide range of topics, specializing in technology, medicine and transportation.



For more information, contact HXI by phone (978) 772-7774 or on the web at www.hxi.com/D_Radios.asp. They are located at 12 Lancaster County Road, Harvard MA 01451.

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"Houston, we have a problem."

- Astronaut Jim Lovell, Apollo 13, April 13, 1970

Does this phrase sound familiar? It should, and not just because you saw the movie. Any disaster begins almost exactly the same way. You don't know what happened. You don't know how bad it is. You don't know what has been affected. You don't know what to tell the media. What you DO know is that until you have some hard information, you are recovering blind. How would YOU communicate with your responders after a disaster?

We have all seen the movies where the General picks up the "Red Phone" and is in instant control of a situation. Today, commercial organizations and government demand "military-grade" command and control. They find it with us.

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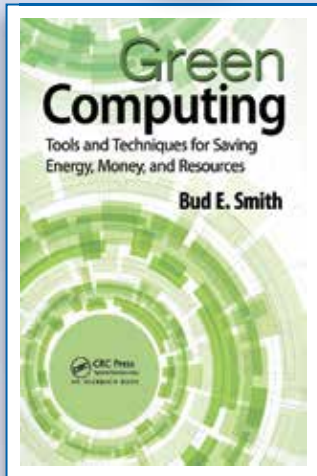
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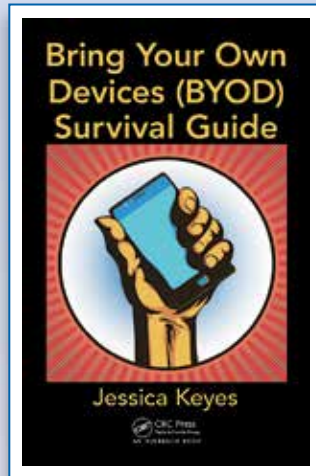
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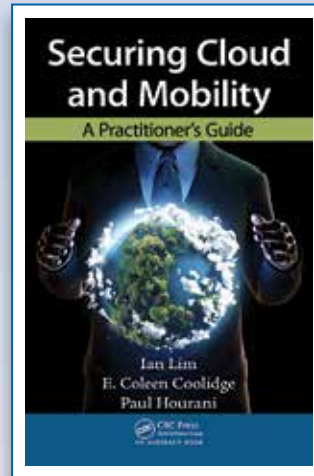
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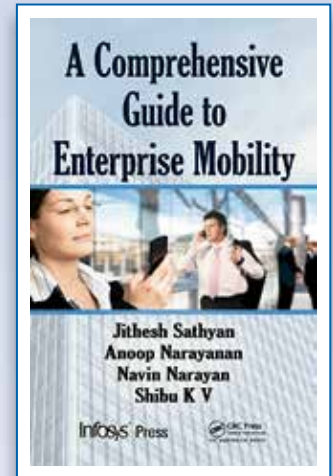
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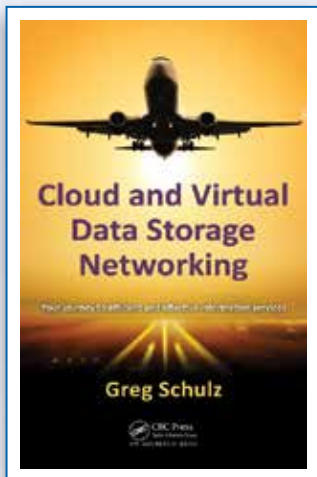
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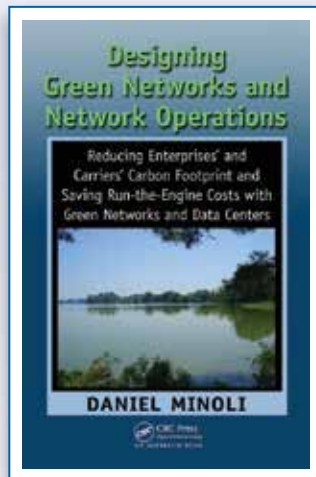
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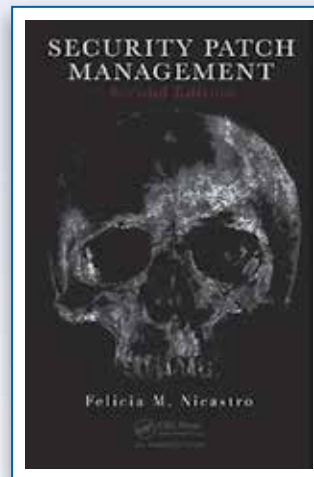
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