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The Changing Role of IT

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Business Tech: A Seat at the Table – Part 1 IT's role in the workplace is changing. It has gone from a cabal of high priests in clean rooms, to a punchline in sitcoms. That wild swing of the pendulum is finally settling down, leaving us in the middle, the place where we are employees, just like the other employees. **BY CHARLES BAROUCH**

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From the Inside

need authors for articles and content providers. Are you interested?

I ask this of the community at least once a year, and it is that time of year again. Each time, I have been rewarded with new and interesting articles. Most of these authors are techies like you, not professional writers. The best articles are the ones provided by the end users in the marketplace.

I understand that writing can seem daunting, and you wonder where to find the time to do it. Well, we are here to help.

The most common problems that authors have are:

- Don't know what to write about
- I'm not a writer
- Company restrictions on proprietary code
- Everybody already knows how to do this

Don't know what to write about

I can understand this one. I have to come up with a topic for the "From the Inside" every issue. It seems like this is the biggest problem, but in reality it is the easiest to address.

The answer: Ask. Just drop me an e-mail or pick up the phone and call.

I have a whole list of topics that I would like to see developed into articles. Additionally, I want to hear about the solutions you have developed for your business. Real world cases make excellent articles.

If you would like to see a specific article in the Spectrum Magazine, please feel free to

contact me and let me know. I can add it to my growing list of articles, webinars, and conference topics.

I'm not a writer

Here's a secret: Truth be told, neither am I. My spelling is horrible... my grammar makes my wife pull her hair out... and on about every article I write, my editor has to send me an e-mail to clarify at least one paragraph because he's not quite sure what I'm trying to say.

My suggestion is, don't try to be a writer. Be yourself. Write the article as if you are talking to someone or making notes on how to do something. We can take that rough draft and make it a finished product. Often, an honest tone is more important than perfect grammar.

The article doesn't have to be a Word document either. It can be typed out in the body of an email. Take twenty minutes out of an hour for lunch, and use your smart phone to send us a draft.

So, if you are worried about your writing, spelling or grammar... Please don't worry. Let us polish your articles. Trust me...the International Spectrum editor and the rest of the staff are very good at doing this.

Company Restrictions on Proprietary Code

This can be a major hang-up for a lot of people, but you don't have to provide your company's code in the article. All you need to do is provide the problem you were solving and an outline of the solution.



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JANUARY/FEBRUARY 2019

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President

CHARLES BAROUCH
Editor

TRACEY RECTOR
Layout



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International Spectrum is eager to print your submissions of up-to-the-minute news and feature stories complementary to the MultiValue marketplace. Black and white or color photographs and diagrams are welcome. Although there is no guarantee a submitted article will be published, every article will be considered. Please send your press releases, articles, and queries to: editor@intl-spectrum.com. *International Spectrum* retains all reprint rights.

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Many times the article is about a concept, or a suggested way of doing something, and you can strip the coding examples down to a few lines of code to show examples, without giving away anything your company owns.

One of the authors here at International Spectrum has this same problem. He worked with his management, and worked out how to write the article to cover the topic without using any company secrets. Most of the code he supplied was information provided on public domain websites, and a line or two of code showing how to access or use the code.

No company process or code was given way.

Everyone knows how to do this Already

Newsflash: Wrong! Wrong! Wrong!

There are topics, problems, and solutions that we think are obvious, but are not. We all come from different experiences and through different industries. Things that I learned early might be a puzzle to a more senior person who came up in another industry.

I do a lot of listening during our annual International Spectrum Conference, which will be on April 8th-10th, 2019. What I hear proves that one programmer's "easy" is another programmer's nightmare.

Here is an example: I asked someone "Can you write an article on How do you print your MultiValue data to a PDF document?". Response: "Well everyone knows how to do that." Did you know how to do it before it was printed here in the Spectrum Magazine?

I don't know about you, but I've

found that many people want to do this, and know it can be done, but have no clue where to start. Many of our articles start this way.

Just because it seems like common knowledge to you, it doesn't mean that there aren't people that don't know how to do it. And those people may well know something about the problem that has you tied in knots.

So, please, I need authors and content providers. I want to hear how you solved your business or technical problems.

Email me: nathan@intl-spectrum.com.

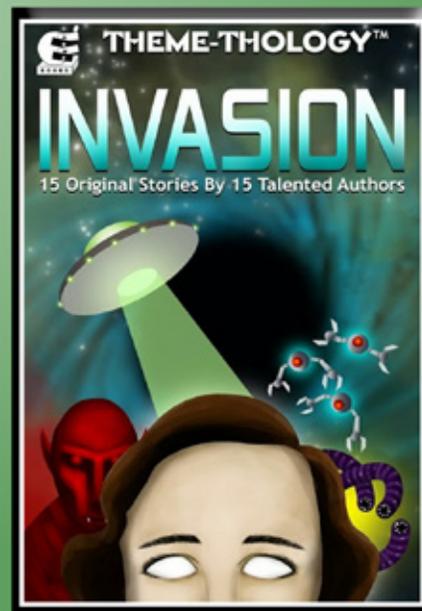


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A Seat at the Table

Part 1

BY CHARLES BAROUCH

Good News! Things are getting better for IT people in the business world.

Back in the '90s, I used the term “the stench of IT” to describe the way other departments seemed to treat anything connected to business tech, especially their own staff. While there are still pockets of this, things are getting better.

Companies are seeing us in a new light. It's an exciting time to be in IT.

Bad News! We Aren't Ready for the Good News.

While some of us are, many of us aren't prepared for this more enlightened time. That can cause us to miss opportunities. Whether we find ourselves invited to more planning meetings or, perhaps, get a real seat at the table like a full partner, we need to know how to contribute at that level.

This isn't about how smart you are. This is about something else.

Hong Kong Gaffe

It was 1999 and I was in Hong Kong on business. We go to a fancy restaurant and I am comfortable. I've been using chopsticks since I was little.

...market forces, compliance requirements, and general expectations all driving them to technology questions...

This is my second trip, so I know my table manners are acceptable.

An individual bowl of rice is placed beside each of us. I lift my bowl, add food to it from the communal dishes, and look up to see the shocked expressions on my table mates faces. Apparently, eating as I was is a “home” behavior. It is suitable for friends eating in public or for family eating in private.

In short, I didn't do anything wrong **IF** I'd simply done it somewhere else. What we do in the IT department, with pushing back in our roly chairs so we can shout to our co-workers, may not be boardroom behavior. So, knowing which manners to bring to each situation matters.

None of my Business

Odds are, I don't know your specific company. Please take anything I say in this series with the understanding that “your mileage may vary.” Wherever you are, there's a high chance that you have some “home” habits that need to be suppressed on occasion.

This is part of why we've been disincluded in the past. What's comfortable to us can come off as bluster or arrogance outside of our circles. This isn't to say that the Director of Marketing isn't a Monty Python fan. He or she already knows not to say “Ni” in a meeting with the clients. Your COO might be more into Star Wars (or model trains or what-have-you) than you are, but they know which rooms that plays in and which rooms it doesn't.

Why Now?

Most companies are over the shock of finding out that they are really tech companies. Courier companies survive by providing analytics to their customers and by data mining their deliveries. Garment companies are pivoting on model stock and JIT

manufacture. HR companies are awash in specialized reporting. Pick an industry and you'll see market forces, compliance requirements, and general expectations all driving them to technology questions that require our sort of answers.

We aren't getting the seat because we've earned it. Hopefully, we've been putting in the work all along. We are getting the seat because they need what we know earlier in the process. You might not realize it, but that's how every seat in that room has been earned. Sales is called in when Management sees the need for them to be there. Our omission in the past was upsetting to us but it was less personal than it might have seemed.

We can also thank the stock market. When companies like Apple, Alphabet (Google), and Microsoft duke it out

for the top spots in the market, being seen as tech-forward has become appealing. When many of your fellow employees carry a computer in their pocket, and one in their backpack, and has two more at home, your interest in technology puts you in the mainstream.

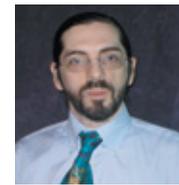
What Now?

Remember that the other folks in that room have been invited for long enough that they may forget what it is like to be the new kid. They've been getting their invites regularly. They know the dress code, and when it will vary. They know the key phrases that open wallets for funding. They know the words which bring scowls.

Every shop has its own variations. I've worked in places where I had to be in a two piece suit with a tie made by my company every day I showed up. I've

been in places where funny t-shirts are expected. It has nothing to do with the size of your salary. Often it has little to do with the industry you are working in.

In the upcoming issues, we'll talk about how to talk in meetings, present in meetings, manage your e-mail persona, and more things that will help us succeed when we get our invitation to the big table. **IS**

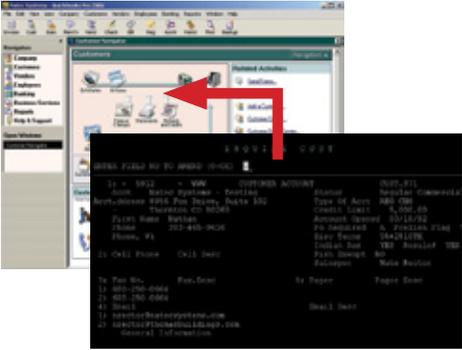


CHARLES BAROUCH is the CTO of HDWP, Inc. and the Publisher at HDWPbooks. You can read his writing in

International Spectrum, Theme-Thology, Novo Pulp, Pax Solaria, PerhelionSF, and the Interrogative series, which begins with Tiago and the Masterless.

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Migrating

NorthWind Database

to a MultiValue Database

Part II

BY NATHAN RECTOR

The battle between SQL data models and MultiValue data models has raged for years. That won't end any time soon. However, as NoSQL-style databases are starting to become routinely accepted by CEO and CIO for enterprise level data stores, the MultiValue model is being looked at very closely again. We look good in the spotlight. But, we could look even better.

Since MultiValue databases were specifically designed to give you flexibility in how the data is stored, it isn't always clear in a given situation, which choices might be the best. Non-optimal choices will work but the right decisions when architecting the data will generally reduce the amount of code and complexity of your application software. It will also have a positive impact on speed.

Many developers will use the same structure they have used for the last

Going from a columnar database to SQL, or SQL to MultiValue, can make your new job feel, in many ways, like a first job.

thirty years. Sometimes that is 1NF (First Normal Form) which is considered the traditional data model. Other times, developers will choose the NF2 (Non-First Normal Form) option which is also inherent in the Multi-Valued model. More often than not, the two models will be mixed. While a carefully developed mix is ideal, far too often there is no clear rhyme or reason. Our technology choices, even in the architectural level, are based on what we've experienced, on what we've seen in production. Generally, that's not what is optimal.

This inconsistency can cause developers coming from other environment to resist using the MultiValue data model because it is not clear when and why it should be used. When working on this Northwinds migration product, I stumbled across this issue in my own mind. And that's our challenge as an industry. We need to examine our choices and maximize the value of our assets.

Battling the Existing Databases

When you are employed as a developer in any enterprise for the first time, achieving an understanding of how the existing business rules and database work together can be difficult. It is the same when you move to a new data model for the first time. Going from a columnar database to SQL, or SQL to MultiValue, can make your new job feel, in many ways, like a first job.

If the database is poorly organized, it is easy for that developer to think that

their only example — 100% of their experience with MultiValue — is the right way. We build a future by leaving better examples to be discovered.

This limited experience evolves into a standard that is followed when enhancing the existing systems. It becomes the “That’s the way we’ve always done it.” Sometimes a developer gets a project that allows them to define the data structure to use, but if all they’ve seen is layouts based on decades-old software practices, they will likely continue creating badly designed tables. The infernal feedback loop of “Hey, it works” will make it harder to convince them of the advantages of doing things differently.

For those new to the MultiValue model and software, this can be confusing and frustrating due to the lack of understanding of the “why” behind so many of the decisions they encounter.

For those new-to-MV people reading this, from my experience, let me offer you a likely answer: Many times the choices were made based on the resource available to the computer at the time. You must always remember when looking at existing MultiValue software that it was possibly developed during a time when hard drives cost \$200 to \$500 per 10MB of storage, and sometimes more. RAM and CPU cost even more, so the focus was on how to conserve resources. Looking at modern hardware, it is clear that the speed/storage/readability trade-offs have changed. As the hardware landscape has been re-invented, the rules of software design need to change. Inertia, our habit of doing things by habit instead of by design, keeps us from moving things forward.

As a result, most MultiValue software applications are designed to maximize

the IO because it was assumed that low on hardware resources would be the bottleneck. The practice of writing software for low resource hardware is still well established with experienced MultiValue developers. So you can easily encounter brand new code and tables that still reflect this line of thought.

Battling the Traditional Model - 1NF (First Normal Form) and the Spreadsheet Data Storage

The traditional model that is taught to new developers for storing data is First Normal Form (1NF). The main reason for this is that 1NF looks and acts very much like a spreadsheet, CSV, or fixed length data file. It is easy to grasp in the abstract.

These storage models *are* very efficient when all you need to do is process files sequentially. This allows a resource-limited machines to process large amounts of data very quickly. The largest disadvantage to this storage model is that you always have to start at the top of the table and work your way to the bottom to find what you are looking for. The more data you put into the table the longer it takes. Of course, most database systems, MV or not, have developed work-arounds, genuine optimizations, and horrific kludges address this issue. It still isn’t as efficient as soing it right.

Not only are you processing a large chunk of the table to find your data, you may be incurring multiple IO requests for every record you are looking — and rejecting — until you find the ones you want.

The typical solution to solve this is to use indexes which allow a developer to cut down on the number of IO request because the indexes provide an offset pointer to the exact location in

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the table the record the application is looking for.

While indexes still incur IO when the application is looking for information in the index, they cut down on the total number of IO hits for large tables. It is, when you think about it counter intuitive.

Reading the first record in a table using an index is a minimum two-read operation: read the index to find the item and then read the actual record. Worse, if the index reference is many rows deep inside the index table, you might incur hundreds of index reads to get that one record from the primary table. However, the further down in the primary table the data is, the more reads an index saves you. Additionally, when you look for multiple records with a common value, an index creates a massive savings.

The other solution used to solve the core IO issue with 1NF storage is to throw RAM at the problem. Now what happens is the index is loaded completely into memory so that it can be accessed faster, which cuts down on disk IO (which is the slowest type of IO). If your disks are SSD (non-mechanical) then the speed differential may be less impressive because SSD is already faster than traditional disk.

Both of these solutions, RAM and indexing, are only stop-gap solutions in the long run. The TCO (Total Cost of Ownership) of “throw more hardware at it” can become cost prohibitive. While RAM is cheap and disk is cheap compared to years back, enough of either adds up to significant money.

Creating a system that can handle 1TB of RAM so you can place everything from disk into RAM for the best performance would be costly. Using

2019 PC-level pricing for 16x64GB SDRAM to equate to 1TB of RAM, it would cost around \$6,400 for just the RAM. This doesn't even take into account the cost of other hardware like a motherboard that could support 1TB of RAM, or the software that could address that amount of RAM efficiently.

Battling the Traditional Model - 1NF (First Normal Form) and data relationships.

The hardware is the biggest limitation for using traditional data stores like SQL which force you use 1NF, but there is another big gotcha with the Traditional data model.

The rules of 1NF are:

- Table should have no duplicates – No duplicate columns or duplicate records (rows)

- There must be no significance in the order of either columns or records (rows)
- In every record (row), each column must have a single value.

Following these rules mean that storing related information has to be done in more than one table. These rules make lots of sense in simple, well defined, and never changing data structures provided in academic and training classes. In most business environment you will quickly find its limitations.

It is also conceptually hard. When we started with abstract data concepts, the “one value occupies one spot” model was easy to grasp. When you look at real world data you begin to see that this model fits poorly in nearly every case.

The classic example of this limitation is the customer phone number [Figure

<i>CustomerID</i>	<i>CustomerName</i>	<i>CustomerAddress</i>
1234	AMC Plumbing	123 Acme Way
9876	AMC Software	9876 Acme Way

<i>CustomerID</i>	<i>Contact Type</i>	<i>PhoneNo</i>
1234	Main	303-999-4578
1234	Ordering	412-888-4457
1234	Customer Service	412-888-4458
9876	Main	605-444-5572

Fig. 1

1]. If you need to associate more than one phone number with a customer record, then following the first and third rule of 1NF, you are required to create a separate table to store phone numbers outside of the primary Customer Table.

You would use the following SQL statement to retrieve the customer record plus the 3 phone numbers:

```
SELECT Cusomter.CustomerID,
Customer.CustomerName,
CustomerPhone.PhoneNo,
CustPhone.ContactType FROM
Customer WHERE Customer.
CustomerID = "1234" INNER
JOIN CustomerPhone ON
Customer.CustomerID =
CustomerPhone.CustomerID
```

In order to get all three phone numbers for record 1234, you have a minimum of four IO request: one for the

main customer record, and one more for each of the phone numbers. This doesn't take into account any additional IO needed to find the main customer record, or each of the phone numbers. And don't forget the IO for indexing.

If you look at the second rule for 1NF, it says "There must be no significance in the order of either columns or rows". That means that each of the phone numbers may or may not be stored one right after the other as shown in Figure 1. The customer phone table may have a thousand phone numbers in it, and phone numbers 1, 2, and 3 might be stored sequentially next to each other or five hundred records -- five hundred IO requests — apart.

The Power of Traditional Model - 1NF (First Normal Form) and data relationships.

While 1NF has a weakness when working with multiple values of the same type in a record, it allows for the handling of complex data relationships.

The Northwinds Order and OrderDetail tables are primary examples of this [Figure 2]. Since an order can consist of Order data, like customer and where the order is being shipped to, and detail data, more than one products and associated quantities, the developer is forced to separate the order into two separate tables: Order and OrderDetail.

Since most Orders consist of more than a single product, the information about the order's products is stored in the OrderDetail table and multiple rows. All other information is stored in the Order Table.

This separation of data allows an application to change the product price

and quantity on any one row of an order without having to know anything more than the OrderID and ProductID. This also allows an order to contain two or ten thousand products per order, depending on the needs of the business.

This type of data relationship structure would seem pretty obvious when you take into account the unknown number of product each Order could have.

Another advantage of the OrderDetail table storing each order product as separate records is the ability to enhance the business system to support partial shipments. A developer can easily enhance the OrderDetail table to include a ShipDate for each product. This would allow the application to keep track of what has been shipped on a row by row basis without have to create additional Order records.

The MultiValue Model – Enhancements to 1NF (First Normal Form)

Since SQL styles data stores force you to use 1NF, software developers typically just live with its model, and assume there is no better way to do it. A person with only one outfit know what to wear every day.

MultiValue data stores have the opposite problem. As I touched on in the "Battling the Existing Databases" section, our databases do not enforce a specific data structure on the software developer. We have options.

The following rules should be followed when using the MultiValue model:

- Tables should have no duplicates in columns (fields) or records (rows).
- Records always have a unique primary key

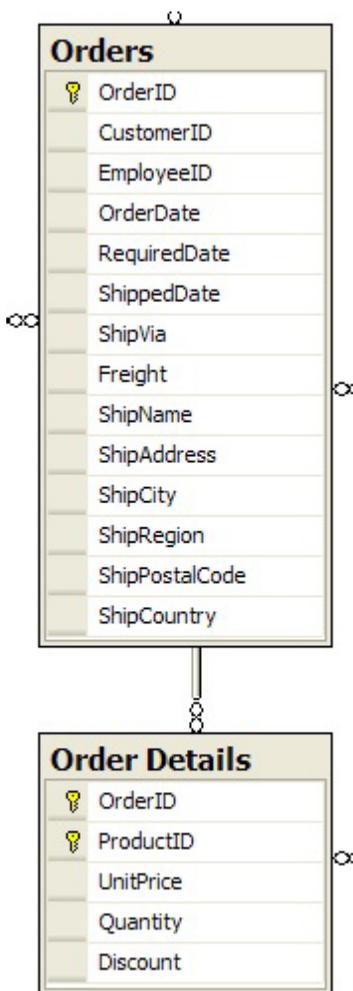


Fig. 2

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- A record (row) may have columns (fields) with more than one value of the same type of data.
- A record (field) may have an internal relationship between more than one column in the same record.
- Separate tables should be used when there are more than 4-7 columns with internal relationship to each other, or more than 50 values stored in columns with an internal relationship to each other.

If you compare these rules to the 1NF rules, you find they are fundamentally the same. There are more rules to follow in the MultiValue data model mainly because 1NF does not have the flexibility when working with storing relationships within each record. The takeaway: You don't need more rules

when your choices have been taken away from you.

These rules allows you to take advantage of both the storing of simple relationships like customer phone numbers, as well as complex relationships like that between the Order and OrderDetail tables.

Eliminating duplications in the database is important, which is one of the main purposes of 1NF. But software applications that interact with data needs to do it as efficiently as possible, order to keep business software responsive to the users working with it. **IS**



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FROM THE PRESS ROOM



Evoked Adds Data Visualization to its Business App Development Platform

BlueFinity's Evoke Rapid App Development Platform has recently announced a series of popular enhancements which include Chatbots, signature panel and multiple developer support. The latest announcement by BlueFinity is the introduction of a range of new graphs and charts that can now quickly and easily be included as an integral part of apps developed using Evoke.

The inclusion of graphics in any application is a very effective way visualizing important information quickly and clearly. This is of even greater significance when using apps where the display is to be on a smaller screen (iPhone, Tablet etc.). Screen real estate is limited so the deployment of graphics to understand the data presented, can be a far more effective method than the displaying of reports.

Evoke is a cost-effective, rapid app development platform that provides the complete environment for existing staff to design, develop and deploy business apps across multiple devices (IOS, Android and Windows phones and tablets, plus Windows,

Apple and Linux desktops). Evoke offers a low code or no code route which can evolve in to fully customizable apps as required. It allows users to create web, hybrid and even native apps (as it generates in to Visual Studio and Xamarin projects), and to fully integrate and synchronize with existing back-end systems and SQL and MultiValue databases.

As with all aspects of Evoke, graphs are made available across all platforms and device types. Features of Evoke such as automated resizing, according to the screen size, adaptations to design the screen for optimum screen layout and WYSIWYG design capabilities to further customize the layouts for each screen to optimize the UI are all made available when incorporating graphs and charts in to your app. Evoke Graphs and Charts are made available as an integral part of the Evoke design and development platform. This means that you can include graphs as a part of the app design without the need to separately incorporate third party software and toolsets. Evoke provides you with all you need to quickly and easily set-up and configure your graphs and charts and will support multiple types including Area, Bar, Donut, Line, Percent Area, Percent Bar, Pie, Waterfall etc.

Through Evoke you can define your data, its structure and location. Evoke supports the inclusion of data

from multiple files in multiple databases for use within a single app. You can configure the data fields (columns/attributes) associated with the data, as well as any required calculation and manipulation of the information. Once you have selected the type of chart or graph you want to use, you can also specify how that data will be grouped for the purposes of presenting on the chart/graph. You can also refine exactly how you want the chart to appear including type, headers, sub-headers, axis labels, scale and graduation values.

This data visualization feature is the latest in a series of additional functionality releases made by BlueFinity for Evokes fast expanding global client base. ■



Kerridge Commercial Systems acquires EDP

Kerridge Commercial Systems (KCS) is pleased to announce the acquisition of EDP. EDP supplies sales analytics & CRM and ERP software, such as Vecta and Quantum, to merchants and other distributors. The K8 ERP solution, developed by KCS, is widely used in similar markets, where the company

has over 40 years of experience and is a recognized thought leader in trading and management technology. Clearly the acquisition is a good fit for both businesses.

During the past eight years KCS has grown rapidly, both organically and through the acquisition of a number of businesses, to extend its geographical reach, add product capability and extend into adjacent vertical markets. The company now serves over 10,000 customers across Europe, South Africa and the United States.

By integrating the EDP business with KCS, all customers will be offered a more extensive product suite. KCS will also offer the Vecta CRM/BI product to its wider global customer base as a stand-alone product, as well as integrating it as a module within some of the KCS products. KCS will continue to service and support customers using EDP's Quantum, Merchant, Charisma, Esprit and The Business Programme products. Over time, KCS will offer alternative products (such as its core K8 ERP system) to EDP customers, as potential longer-term solutions.

Commenting on the acquisition, Ian Bendelow, Chief Executive Officer of KCS said, "The acquisition of EDP is a great opportunity to accelerate our strategy. It brings us greater presence in the UK and an increased platform for growth in our traditional markets. EDP is a high quality

FROM THE PRESS ROOM

business with customer offerings that are highly complementary to KCS. We welcome EDP employees to the group and look forward to working with them.”

Sir Michael Heller, Non-Executive Chairman of EDP said, “The EDP and KCS businesses have been good competitors for many years, addressing the needs of customers in the same vertical markets. Accordingly the EDP directors believe that KCS’ activities provide a strong fit with those of EDP and that KCS is an appropriate partner to continue the development of the EDP business. The additional resources that KCS will bring will mean that it is well positioned and resourced to support EDP and the future growth of the EDP business.” ■



Zumasys Acquires OpenQM

Zumasys announced today its acquisition of OpenQM, a high-performance, self-tuning MultiValue database, from UK-based Ladybridge Systems.

As the exclusive global distributor of OpenQM since 2015, Zumasys more than doubled worldwide sales of OpenQM for three consecutive years by adding 24x7 telephone support, profes-

sional services and an automated conversion process which makes it easy for customers to migrate their existing applications to OpenQM.

OpenQM provides a simple, agile, low-cost option for customers who are looking to get started quickly and accelerate their development cycles. Since the first release of the OpenQM product in 1993 as an in-house embedded database, its creator, Martin Phillips, has continually honed and refined the product to include a variety of modern features that help customers cut development times and enables the utilization of big data, virtualization and cloud-based systems.

“We have transitioned thousands of users to OpenQM and we could not be more impressed with the technology,” said Paul Giobbi, President of Zumasys. “Martin’s ability to listen carefully to customer input and quickly add advanced features to OpenQM is impressive and a refreshing option for our market.”

With a superior feature set at a fraction of the price—up to 75% less than competitive products—OpenQM appeals to both end-users and Independent Software Vendors (ISV) alike.

“Our customers are thrilled with the results they are seeing from OpenQM,” said Ben Cramer, President of DSI Solutions, the leading Independent Software Vendor (ISV) for the heavy truck and commercial vehicle industry based in

Arlington, Texas. “We love the speed and responsiveness of both the product and its ownership. We are able to deploy new customers quickly and efficiently with increased uptimes and performance.”

OpenQM provides customers a powerful, scalable MultiValue database solution that’s compatible with existing applications and other major MultiValue products.

“It is the right moment for Zumasys to take on ownership of OpenQM,” said Martin Phillips. “We are excited by the opportunities that this brings for an increased development team to add further new features to this well-established product. Continuity will be ensured as I will continue to work on OpenQM as a Zumasys employee.”

The latest release of OpenQM is available for download at <https://www.openqm-zumasys.com/downloads/> ■



Norse Systems introduces a Green Screen modernization Tool

Norse Systems announced the release of ScreenDriver. ScreenDriver is the result of over 35 years of integrated business application development experience. It is a

comprehensive application environment for users, their support staff and application developers. It addresses all the capabilities your business needs to become highly effective at producing and supporting scalable, functionally rich, secure, easily administered, flexible, attractive, well documented, easy to use, reliable and efficient business software.

It is the ideal tool for use in modernizing legacy applications. It allows for the graceful incremental migration from legacy interfaces to modern code, with increased functionality and GUI interfaces, without disturbing legacy applications, data structures or even the Accounts you are used to.

“There are several reasons why we felt we needed to create a development environment, including our desire to avoid the need to support client code on the workstation and server code on the host in order to provide a graphic user interface. Screen Driver code all lives on the host, but is capable of driving a graphic user interface (windows interface) on the workstation. Screen Driver allows each user to choose between a graphic user interface or character based interface for faster data entry, using the same code from the host. (this capability is unique to Screen Driver and a significant benefit for some users.)” ■

The Language of MultiValue

BY DICK THIOT

Multivaluedoes mainstream work but, historically, the MultiValue database has been isolated from mainstream technologies. Many in the MultiValue market found it humorous and some even thought of it as a proud moment when the MultiValue market was called "the best kept secret in business."

As participants in the MultiValue market we are interested in seeing this technology continue to thrive, so we need to find ways to end our isolation and become mainstream. This is not a new concept. Many have recognized this for a long time. However, there is still much to do.

The language of MultiValue, or in other words, the language that we use to describe MultiValue technologies (databases, applications, features, etc.) is mired in terms that help keep MultiValue isolated. It is time we all learn to use the language of mainstream database technologies and incorporate that into our day-to-day way of describing our technology. We hold it in such high regards, we need to make it easy for others to see why.

It isn't uncommon in our market today to hear discussions of NoSQL.

The language that we use to describe MultiValue technologies is mired in terms that help keep MultiValue isolated.

There are many opinions on whether a MultiValue database is a NoSQL database. However, I suggest adopting the position that MultiValue databases are NoSQL. It is one way to help establish these databases are already in the new definition of mainstream. We can incorporate NoSQL terms like key-value pair and document database to connect MultiValue market to the NoSQL movement.

In addition to using terms like key-value pair and document database to describe the MultiValue technology, I also suggest that we learn terms that are used by SQL databases like table, row and column and understand how these relate to MultiValue terms like file, record and attribute. Attribute is one of those terms that has a different meaning outside of MultiValue and when we use that term in our conversation with non-MultiValue people, we are often misunderstood.

As an initial step, better understanding the terms used in other database technologies, is important. We need to do more. It probably isn't enough today to only know MultiValue. We live in a multi-technology world where interfacing with and understanding diverse technologies is essential. We have to make an effort, as people in this industry, to connect our relevant and valuable technology to other tech by our word choices and by our knowledge. MultiValue is certainly a viable option for traditional line-of-business applications. **IS**

DICK THIOT, President/Owner of Maverick Systems, is a technology guru specializing in software development and application design. He supports these skills with a broad knowledge of systems, networks and security. His application development experience centers around database-oriented business applications including accounting systems and information management using MultiValue and SQL Server databases. He has created and continues to specialize in software for automobile dealers and the financial institutions that support them.

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How to Justify Your Attendance At International Spectrum 2019

Justifying your conference attendance to management can be challenging for some IT staff. Much discussion is focused on the legitimacy of attending conference and trade show programs. The reality is that conferences are among the most cost effective methods of obtaining education and information, and in establishing a network.

Why attend conference and trade show events?

Conference sessions allow you to:

- Learn first hand from industry experts that have successfully implemented technology solutions
- Keep up to date on new and emerging technologies
- Take the opportunity to create a professional network
- Create talking points to communicate more effectively with vendors
- Get immediate answers and solutions to issues within your organization
- Discover new products that can decrease expense and increase revenue

Trade Show / Exhibition Events allow you to:

- See the latest in technology
- Hear new product announcements
- Visit all of your vendors in one location
- Get answers directly from vendors on the exhibition floor
- Do some comparison shopping
- Seek solutions and find new technologies
- Talk directly to your MultiValue database provider to get answers to questions
- Talk with others who are using or considering a product or service you are researching

Who attends this conference?

Executives, Chief Information Officer (CIO) and Executive and Senior Level Management, Owners, Consultants, Influencers, Technical Staff, Implementers, Sales, Operations and Production, Industry Leaders, and Vendors.

Why should you attend?

To justify the cost you need to understand the purpose of your attendance.

Make a list of the things you would like to accomplish:

- Is there a current issue at your company for which you are looking for a solution?
- Are there any developing technologies you feel would benefit your company?
- Are there issues you would like to talk to your vendors about?
- Can you find one idea that will increase revenue and/or decrease costs?
- Is your company looking at implementing new technology?
- Would you benefit from expanding your personal and professional network?
- Does your company need to invest in your business system to gain or maintain their competitive edge?

Presenting to Your Management

The first and foremost communication should be your company's standard request form or a formal memo directed to your manager requesting attendance and why. Be sure to include the ROI and cost savings for attending (see be-

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low for some examples.) A sample of a memo requesting attendance can be found at www.intl-spectrum.com/s1006. Schedule a follow-up meeting with your boss to discuss the request.

In your memo and follow-up meeting focus on how attending the conference is relevant to your company and/or your team's goals and future projects. Here are some talking points to help you make a case for attending:

- International Spectrum has been hosting this conference for over 37 years and it is regarded by the industry as "the premier MultiValue Educational event."
- I am going to look for a solution for "this" problem.
- I believe "this new technology" could benefit the company and I would like to learn more about it.
- I plan on meeting with "x" vendors to discuss these issues.
- I am going to talk with several companies about "x" technology we are looking at.

Ask how to make it happen and get the ball rolling:

- Do I get corporate travel involved?

- Do I need to have dollars in the budget right now? Is there money in another departmental budget that is unused?
- What are some of the things that I should look for while attending?
- Is there a branch office in the area that I can visit?
- If you are serious about purchasing "x" software can a vendor schedule an on-site visit to demo or meet with current users?

It is only natural for an administrator to ask, "How can we justify spending money to participate in a conference when we are facing budget reductions?" The answer lies in the value of the conference's content and the focused interaction it provides. Sometimes learning one new piece of information or gaining better understanding about only one process can justify the entire cost of attending International Spectrum. And making one professional contact can be worth much more.

As companies decrease training budgets, they still require IT to do more with less. As companies increasingly turn to technology to compensate for a lack of employees, the needs for up-to-date solutions and products become more important and cheaper to imple-

ment. Since International Spectrum brings all the tools providers under one roof, you save time and money on research by seeing everything in one place.

The cost of attending this conference is often less than the cost of attending classes at other training sites or online. By offering workshops, peer-to-peer discussions, and varied IT and Enterprise presentations, International Spectrum 2019 offers you the knowledge of multiple trainers, professionals, and companies that are focused on the use of different techniques, methodologies, and products designed to increase your productivity and ability to meet the challenges your company or organization faces.

The Conference Costs:

Registration by February 27th 1095.00

Hotel

\$200.00 Per Night x 4 nights (plus taxes)

Meals

\$80.00 per day x 4 days

Travel:

\$450.00 Round trip

Total (approximate):

\$2665.00

Your Return on Investment

To help you create your ROI statement, I've compiled a few items and assigned values to them. Use these as a starting point, and feel free to modify the information as you see fit.

Research time:

*37 Hours x \$80.00 per hour = \$2960
Per product or tool*

How much time would you spend research all the available products, which companies have them, how they work, their costs, and see demos? For exam-

ple, if you were researching reporting tools, how much time would it take to find all the available products, and setup times to see demos. You could spend a good day to day and a half just looking for the available products and scheduling demos.

The demo itself might take two hours. If you assume you will also lose 30 minutes before the demo getting prepared and then another 30 minutes after the demo writing up your notes about the demo and your impressions, that is three hours per product.

You also have the research on implementation which could take three or four days per product just to understand how you would integrate the new product into your existing systems.

Now this is just for one product or tool. If you are planning to look at all

the different tools and their competitors, then multiply this by the number of vendors available.

Consulting Time:

12 Hours x \$100-120.00 per hour = \$1200.00

Many of International Spectrums speakers are industry experts and work as professional consultants. They are presenting at the conferences to help you understand new technologies and how best to implement them without costing your company tons of money. If you schedule time with speakers after sessions, you can get more in-depth answers to your questions.

You can easily spend three hours a day with one or more of the speakers. With a normal consultant's fee at over \$100 an hour, you can recoup most, if not all, of your conference expenses.

Training and/or Continuing Education Hours:

24 Hours x \$80.00 = \$1920

With four days running five tracks of educational sessions and workshops, you could spend a minimum of 24 hours or more in industry training, not to mention product-specific training.

Many of the sessions at International Spectrum Conference cost well over \$500 apiece as webinars. With the advantage of face to face time with the speakers and presenters, you are getting the benefit of onsite training, which can normally cost over \$1200 a day.

Intangibles:

Don't invest in Software, lose business:

You have likely already seen this with your existing system, or will see it soon. If you don't invest in your existing enterprise systems, you will start los-

ing business. Or you will start hearing rumblings of "you have got to move off this old technology", when there is nothing wrong with your advanced complex business system except that those using the system—both management and staff—want different user interfaces, nicer reporting options, and web connectivity.

You have to invest in training and software exploration now, so that in the future, even just two to three years from now, you know what your options are. Look closely at what has happened to Wall Street in the last few months. There are many companies that didn't move fast enough to keep up with the changes. They are no longer in business. If your company doesn't keep up, then it will cost them more in the long run or they will start to lose business and money just because they chose to stay in the same place.

Professional Networking:

30 hours

Professional networking is one those items that is hard to quantify. User groups and online forums have taken over some of this, but sometimes you can be more productive just meeting and talking to people in person. You may find someone in your vertical market place that has the same problem, or has already solved the problem you have, that you would not find anywhere else.

Attendees for the International Spectrum Conference come from many different vertical marketplaces: housing, retail, banking, manufacturing, distribution, trucking, and the list goes on and on.

Some attendees find they learn a great deal from talking to one another because they are talking to someone that



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has already solved the problem versus someone who will help you solve the problem. If you have to place a value on this, then I would look at it as consulting time.

Make the Most of Your Conference Attendance

When discussing your attendance with your manager, be sure to share how you will make the most of your conference attendance. Here are a few things you can do to get the most out of the conference:

Before the Conference:

- Match a list of session topics to specific challenges your business faces.
- Compare the cost of an outside or on-site consultant versus the conference fee.

- Develop a complete cost justification using the information provided in “Why Attend” page on the International Spectrum web site.

During the Conference

- Network with MultiValue professionals and users to understand how to solve specific business challenges.
- Attend training sessions and workshops.
- Request one-on-one consulting with the speakers, product experts, executives and account managers to discuss your needs.

After the Conference

- Create action reports with detailed content, form execution teams, take the necessary action and follow up.

See the trip report template on the International Spectrum web site.

- Train others and give a presentation to co-workers on what you learned.
- Implement at least one performance change you’ve learned.
- Document savings associated with what you learned for next year.

Conclusion

The International Spectrum 2019 Conference is one of the best places to get MultiValue education and product information. Just by reviewing the dollars spent versus the dollars saved, how can you pass it up? **IS**

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