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Contemporary Controls Interviews Mike Justice, President of Grid Connect

By Perry Sink Marshall

Mike Justice was never in Vietnam or Desert Storm, but he has been a veteran of many wars: The war of the PC vs. the PLC, the Fieldbus Wars, the battle of growing Synergetic Micro Systems from startup to acquisition, and most recently the founding of a new company, **Grid Connect**.

We caught up with Mike and asked him about the forces that shaped his life, the adventures he has had as a technologist and entrepreneur, and what technologies are coming around the next bend.

Q: When did you realize that technology was what you wanted to do for a living? What influences sparked the interest for you?

MJ: I was always an engineer. My father was an engineer, and we always took things apart and put them back together again. I got interested in computers in high school. Dr. Murphy ran the IBM mini computer and had FORTRAN classes for juniors and seniors. I took all the classes and became his assistant. Dr. Murphy was my spark into computer technology.

Those were the days of punch cards. I had to pick a major for college so I picked Computer Engineering at the University of Illinois. This was a major where I could play with electronics and software. It turned out that I liked the software better after working on the IMP16 microprocessor from National. We learned Assembler and Pascal in college. C was not heard of yet except at Bell Labs.

Q: Where along the way did you realize you wanted to be an entrepreneur?

MJ: My first job was an engineer at the Amoco Research Center building pilot plant computers for test plants. We used Intel single board computers and development tools and software. I did all the programming, testing and installation and it worked!

Intel must have thought I could do some good for them, after seeing what I did at Amoco. They offered me a job as application engineer. As an application engineer working with all different kinds of customers, you see all the different things that can be done and then you say 'I could do that' or 'Why didn't I think of that?'

During my five years at Intel, I became a wannabe entrepreneur. Then one day I left Intel. I started a consulting company where we designed products for other companies.

Q: Tell me about some of your early experiences as an engineer that caused you to go into business for yourself?

MJ: I remember some of the designs that our customers at Intel did and made a lot of money doing stupid products. One of them was a microprocessor-based game for state fairs. The game had a live chicken in it, and the person playing it was playing tic-tac-toe with the chicken. The chicken would peck on the button, and the computer would play the game. Somehow the chicken never lost. The people were just amazed.

Actually, I volunteered to be laid off at Intel. I received three months salary so I started my new venture. The personnel lady didn't understand why I was happy to be laid off, but the bottom line was I received three months salary, and I was going to quit anyway.

Q: What was the most interesting thing you did at Intel? And is that where you met Howard Smith (partner at Synergetic)?

MJ: Yes, I met Howard at Intel. He was the FAE (Field Application Engineer) for Milwaukee. The most interesting thing about a company like Intel in the 80's was that they were flying high. They would spend money on very high quality training for all employees, and then send 800 FAE's to Phoenix for a week of intense training on products. This investment paid off big for them as the Intel sales force crushed the Motorola and NEC design wins.

So I would say the training and the aggressive style of sales was the most interesting thing at Intel.

Q: Can you talk about the PC control product? How odd it was at the time, the reactions you received and how you view the software business that eventually followed that?

MJ: With the invention of the PC, we decided to port the software to the PC and also use the PC software as

a demo for the SBC. Pioneering is painful. The customers all thought that PLCs were specialized hardware in an iron box with a bunch of relays inside.

Really, the PLCs of those days were an Intel 8085 or Z80 microprocessor running some assembler code, but the Allen-Bradley of the world had the market controlled, and new ideas were not accepted easily by the highly conservative controls market.

Wizdom Systems purchased Engineering Tools, and I became a VP of Engineering with a 25% ownership in the company. I spent five years of my life developing, selling, and marketing the 86-Ladder products. We were the first to develop a PLC co-processor board for the PC, and small PLC controllers that used OPTO22 I/O modules to interface with the real world. After five years of working hard, an engineer said to me, "Why would I risk my job by choosing your product when I can choose Allen-Bradley?" He was right!

So I went from Wizdom to Synergetic, to develop products and do consulting. About 10 years later, Wizdom Systems was sold to Intellution for $15 million, but I received nothing.

Q: How did you make Synergetic work the first few months? Tell me how you started the consulting company? What actually happened? The baloney sandwiches, the Ramen soup...

MJ: In the consulting world, people will pay you for things that they don't want to do. In our case, it was communication protocols or computers talking to computers. It is a bit of black magic, but if you know it, all those protocols look alike after awhile.

So we worked with the Intel guys to get leads. We would talk to ten customers and maybe get one or two jobs.

I think at that time we were charging $40 to $50 per hour. The first year or two was great. We would bill about 30 to 40 hours per week, no problem.

Q: And how did it evolve?

MJ: Consulting is like selling your body: You're only as good as your last trick. So we needed to find a way to evolve from selling our bodies to selling products. The nice thing about products is they create repeat sales. They work when you don't.

So we generated some ideas and started designing products and selling them to our consulting customers. For example, if a customer did not want to pay us to design a product, we would do it for free if they would sell it for us. It worked.

Q: At what point did your vision start to expand from 'buying yourself a job' to something more ambitious—like products, sales, marketing, financing, all that stuff?

MJ: When the fieldbus market opened up with Smart Distributed System (SDS), DeviceNet and Profibus, we saw a market that we knew had a lot of opportunities for consulting and products. We looked around for products and found Hilscher, a German company that was already designing the type of products we would have designed for ourselves.

We created a partnership and starting selling and marketing both Hilscher and Synergetic products in North America. We hired Phil Marshall and then Perry Sink Marshall (no relationship) to do sales for us. We eventually worked our way out of the consulting business and into the pure product business. It took about five years to do it, but eventually we would say 'no' to custom consulting work.

Q: Tell us about getting Synergetic revved up—what are a few of the biggest things that were different from what you anticipated?

MJ: I learned a lot about the importance of sales channel and momentum: find what works; improve it; and keep it flowing.

Q: At what point did it become clear that Synergetic was 'working?'

MJ: We were doing $2-$3MM in sales and people were coming to us for solutions. The fieldbus marketplace was entering the main stream, and Synergetic was seen as a leader in the marketplace. Our training programs and news articles made us appear much bigger than we were.

Q: Synergetic played an important part in making PC-Based Control happen in the United States. What do you think about PC-Based Control in the 21st century?

MJ: Open but closed. The automotive companies forced the controls companies to open up and provide standard network interfaces—DeviceNet and Profibus. These networks have won the fieldbus wars. Networks like Interbus and SDS are dead.

DeviceNet and Profibus provide real-time control and open, standardized interfaces, so 3rd party companies can build equipment and connect to the network. The big companies like Rockwell still try to control the market by using special features and by having their customers use ControlNet, which is open by definition, but closed because hardly anyone uses it.

The future for normal speed control networks is 100 Mbps Ethernet. If you need control in a 10-25 ms time frame, then Ethernet will do the job. If it has to be faster, use DeviceNet or Profibus. Ethernet has great features like web server, remote access, switches, fiber optics and all the benefits of the PC world. But Ethernet is not everything. I think the biggest issue is that it costs more and the cabling is not multidrop like DeviceNet and Profibus. So when it costs less and can be multidropped, it will be the winner.

Q: Tell us about the seeds that started ideas about Synergetic's multi-network chip? Why you thought it would work? Why it was destined to be necessary?

MJ: We were selling OEM option cards for DeviceNet, Profibus, CANopen, RS-485 and Ethernet and a couple of others. Our hook was that we offered the same Application Program Interface (API) for all networks, so that you could access all networks with the same software and drivers. That saved developers a lot of time and money.

Those products were successful, but sometimes the option card was as expensive as the product itself. But there was still a barrier to widespread adoption of the technology. We knew that in order to get the large OEMs, we needed a component solution. At first we were exploring hybrids, and putting all the chips into a single hybrid. The hybrid was smaller, but the major issue was that OEMs wanted lower cost.

Aditya Tyagi was an intern we hired in late 1998 during Christmas break to investigate chip solutions. He was an EE from the University of Illinois who had an interest in ASIC technology.

He found an emerging market of purchasing IP cores and creating your own custom ASIC using building blocks and combining them with your own Intellectual Property. He also did some basic pricing and discussions with ASIC manufacturers and found it was cheaper to build one ASIC chip with different packaging options. Lower cost, with one design that included all the main fieldbuses.

The last problem was to include the Profibus protocol in the chip. There were two sources in the world for Profibus: Siemens and ProfiChip. After some exploration and talking to customers, they all wanted Siemens technology. Siemens liked the idea of having a second source that was based in the USA and licensed the technology to us. This was a major win! No one else has this technology outside of Siemens. Siemens helped us with the conversion and testing of the Profibus piece of the chip.

You know the famous saying, 'Be careful what you ask for, because you might get it?' We asked, and we got it!

Q: You were trying to raise venture capital during the dot com era while being in Chicago when the action was on the west coast. What was that like?

MJ: We tried to raise capital during the 90's when the DOT COMs were raising millions of dollars. We had a real business that was making money with real customers. We had a great product in the works that people were asking for—and I can't count how many investors we showed our business plan to. No one would fund us. Go figure!

I think if we had been based in California (chip land) we may have been funded. We raised $1.5 million in cash through private placement (friends, family, doctors, lawyers) and completed the chip, testing and initial marketing program.

Q: What were the final stages of testing the chip like?

MJ: Chip testing is a crucial stage of an ASIC development. If you don't test it, it will not work, and hundreds of thousands of dollars go down the tubes when you make the first prototypes.

So you must test, test, test, and then test some more. If you don't do the testing then you can plan on doing another revision of the chip which takes 4 to 6 months. Chips are not like PCB boards. The fabrication process requires you to test, layout, mask, sample, and produce. So testing is critical. In our case, it was many months of painstaking effort and simulations.

Q: Tell us the story of Lantronix finding out about the chip and investigating Synergetic.

MJ: At the time Lantronix was buying companies and their engineering department was telling them that their chip would be ready next month. If they knew anything about chips, they would have known that a month is nothing in the life of a chip development.

So I met with the CEO and CFO at a restaurant in Chicago to discuss our chip in January 2001.

We received samples of our chip in April and had them running software in two days. The CTO of Lantronix showed up in May and had a complete device server running in one day on our chip.

At that point, we knew we would get an offer.

Q: What was it like, the weeks and months leading up to the acquisition?

MJ: With the various partners involved, everyone had an opinion, but someone had to take control of the acquisition and with advice from one of my board members, he and I took control of the negotiations. We met the CFO in an American Airlines club and struck a deal in a matter of two hours.

Q: What did you learn during the last year of Synergetic that stands out as especially important?

MJ: Some employees were opposed to the changes. With respect to the sale of the company, everyone had their own opinion. The bottom line, though, is that Synergetic would have not survived the recession, given the money we owed, and the time that it takes for a customer to get the chip designed into their product and into production.

Q: 9/11 happened, the industrial economy changed overnight, your company was sold a month later, and suddenly everything was different. Tell us about the last quarter of 2001, what was it like for you?

MJ: Actually, Lantronix had given us a non-cancelable order for $3 million. Had we not been acquired, we could have lived a while on the profit from that order. But until I received the checks and stock certificates in October 2001, I did not believe we were going to close.

They came through with the purchase, and it was completed on October 18th.

Q: In early 2002 Lantronix ran into some problems and you received the second half of what you call your 'street MBA.' Tell us about the auditors and the challenge of constantly changing management?

MJ: I first started at Lantronix as a VP of ASIC development and our job was to finish the second chip, which we did. An opportunity came up for me to be the Executive VP/GM of the embedded division, so I took it. Things were going well for the first few months, but then the Board of Directors fired the

CFO, then they replaced the CEO. The new team was coming in and the old team was not doing it right, whatever 'right' was on any particular day. Politics, politics, and more politics.

Q: So early this year you parted ways with Lantronix—the 'divestiture.' Is there a predictable pattern about how that sort of thing goes?

MJ: We all thought that 12 to 18 months was the length of time you survive after an acquisition, and 18 months was right on the money. I left in April.

Q: You departed and started Grid Connect (www.gridconnect.com). What are the core ideas behind Grid Connect and what things were you inspired to do differently after being at Lantronix? What is Grid Connect and what are you doing now?

MJ: Grid Connect has many of the same products that Synergetic had, and our goal is to provide excellent service to our customers—quick deliveries, technical support, and fast response to problems. We are focusing on OEM hardware and software components, so OEMs can build solutions from our offerings.

I have observed first hand that many companies don't know how to do the basics: Sell and deliver. If we can provide a good product and great service, good customers will come and stay.

Q: Last question: Here we are in a post-dot com era. The economy has not done so well but is starting to come back. Technology has had a rough time during the last couple of years, but is continuing to march forward. What's in the future? What will we see in the next year or two that will affect connectivity and networking?

MJ: In the world of connectivity, I'd say Ethernet, Ethernet and 802.11g, the 54 Mbps extension of wireless Ethernet. These are the expanding areas. If you don't have Ethernet in your product, you had better get it PDQ.

Everyone wants remote access, firmware updates, remote configuration, and integration with higher level systems. The wireless world is converting to 802.11g from 802.11b, and this technology will give us the performance we need for wireless connectivity in commercial applications.

The days of stock options and 100% stock increases without profits are over. Owners must focus on profits and value to the customers. Employees need to focus on providing value in their jobs and help their companies be successful.

I think the fad of taking private companies public has come and gone too. Private companies are much more flexible and can accomplish more with less.

Plus, they don't have the problems of reporting and dealing with investors. I think we'll see more companies staying private and building great products, services, and businesses. ■

"My Street MBA"

Lessons Learned Building, Selling and Divesting a Hi-Tech Company

- Selling your company is fine, as long as YOU don't get stuck with restricted stock and watch it go from five dollars to 50 cents. Insist on cash.
- Good employees are worth finding and keeping. Get rid of the mediocre and bad ones quickly. They affect everyone.
- Your Sales Channel is everything. Even bad companies with bad products can sell if they have a great sales channel. Just imagine what can happen if you have a great company, great products, and a great sales channel.
- Nothing replaces hard work, but a little luck helps. Who you know and who they know is important, too.
- When management changes—if your part of the old management, you're out.
- Your reputation is everything; in business and in life. Don't damage it for anyone.
- Tell the TRUTH. It's easier to remember what you said.

Mike Justice
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