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Narrator: Bill Baxter
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Interviewed By: Jessah Foulk
Place: Museum of History and Industry

JESSAH FOULK: Today is August 5, 2002. This is Jessah Foulk, and I am interviewing Bill Baxter at the Museum of History and Industry.

Now, can I ask you again to tell me your name, your title, and where you're currently working?

BILL BAXTER: I am William Baxter. I am the chairman, president and CEO of BSQUARE Corporation. We were founded in October 1994.

JF: OK. Starting back at the beginning, could you tell me where you were born, and a little bit about your interests as a kid?

BB: I was born in Oklahoma City in 1963. My father had been in the Air Force and then transferred to the Federal Aviation Administration. We moved a fair amount in my childhood because of that. In order for my father to get promotions, we'd have to move from a city. When I was five, we moved to New Jersey.

My father was fond of these radical shifts in culture when he moved us around, so when I was around ten or eleven, we moved to New Mexico. And it caused me to develop good problem-solving skills, I think, as a result of moving into such different areas.

My interests were kind of twofold. One was anything to do with building stuff, working with my hands, making tree forts or whatever, science fair projects, all that kind of stuff. The other interest was electronics. Since my father was in the Federal Aviation Administration, he was into electronics, so amateur radio was a big hobby of ours as a family.

JF: Could you tell me about your education growing up?

BB: Well, I wasn't a particularly studious individual throughout all of school. I like to say I had two majors in high school. One was metal shop, which I was

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very good at. And the other was cross-examination debate. I was on the forensics team.

And it's kind of a weird mixture of skills to bring together. And it wasn't until my senior year that my debate partner and I placed in a state debate tournament, and that got us a tuition scholarship to the University of Wyoming.

So coming out of high school, I was either going to go into a vocational school and be a welder, or I was going to go to the University of Wyoming. And I owe a lot to my big brother – from the Big Brother and Big Sisters of America – Rob Shively, who was an attorney. He convinced that I would be better off perhaps going to the University of Wyoming and pursuing some type of academic career as opposed to something blue collar that would render me dead at the age of forty-five.

But then when I got into college – again, I got a scholarship for debate so we traveled a fair amount. Debated all across the nation. It was a great experience for me. In fact, I owe a lot of who I am to being in the forensics program at the University of Wyoming and at my high school in Casper, Wyoming, which is where I spent most of my years.

And the debate program that I was involved with at the University of Wyoming really kind of encouraged me to get into law or into political science and really none of those interested me at all. I tried to get excited about it but I couldn't. But I found myself gravitating towards computers. And I found that the same skills of communication and debate, structured argumentation, were very good for computer programming, and that's when I got interested in computer science.

Subsequent to that, I got a bachelor's degree in computer science and then a master's degree in computer science.

JF: Both from the University of Wyoming?

BB: Both from the University of Wyoming, yes.

JF: Back to high school for a minute. Did you have any type of technological education in high school?

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BB: Not at all. You know, I was a very happy person to just graduate from high school. I think the most technologically advanced thing I did in high school was probably using the calculator in DECA, to learn how to balance my checkbook.

[Laughter]

JF: Now, once you finished with college, what were your goals as far as a career?

BB: I got really focused in college about what I wanted to do. So throughout my later years as an undergraduate and then as a graduate student, I got into the research side of supercomputing. And that's really what led to the formation of BSQUARE, ultimately – ironically – because even though what we at BSQUARE work with is all these small gadgets, in supercomputing, you envision a room full of computers and stuff.

But I got very focused in college about using advanced techniques for compiling programs to make them run faster on supercomputers. And as a result of that, my thesis advisor and myself were able to publish our results in the most prestigious annual publication for research in our field. And I was able to leverage that to get a research assistantship out of Denver, Colorado, which was my first foray into really working in the computer field outside of the university.

JF: What company was this?

BB: That company was Topologics. Topologics was founded on the premise of providing large networks of very small processors and then you tie those processors together in any particular configurations you want, in order to solve particular types of problems.

And so you could network these computers together into topologies, hence the name Topologics. And you could use a graphical tool to define what that topology is, whether it's a ring of computers and information is passed from one node to the next in the computer, or a cube, or much more complicated computing structures that would solve different types of mathematical structures more efficiently than a single-processor computing system would solve.

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So my research was used to develop compilation techniques that would allow you to take a regular program and then spread it across a particular topology of computers.

JF: And you went there right after college?

BB: Yeah, as soon as I got out of school. I actually had applied for a job with the Supercomputing Research Center, which happens to be an arm of the National Security Agency. And the top secret security clearance process that was required to get that job kept dragging on and on and on. And I don't come from a very good economic background, if you know what I mean. I lived with my mom in a trailer park in Casper, and when I got out of college, I needed work.

And they kept dragging their feet, dragging their feet. And I wanted to go work for them because you'd work for the NSA and you'd get to solve lots of interesting, exciting problems, but I also had this other desire to get a paycheck and eat. So I ultimately turned down the Supercomputing Research Center and took this job out of college with Topologics.

JF: What year was that?

BB: That was in 1988, in the winter of 1988.

JF: How long were you with Topologics?

BB: That was a great job. As soon as I got to Topologics – This company had gone public just a few months before I went there, on the NASDAQ exchange, and as soon as I got there, it became clear to me that they had financial problems and they weren't [going to make it]. It was only probably within six months that they were suggesting that they might not be able to meet payroll.

And at that time, my wife – who wasn't my wife, but we were living together in Denver at the time – and I were trying to decide what we were going to do with our lives, you know. Everyone comes to these crossroads. And I remember we were sitting on the end of our bed just kind of talking about, "Well, what are we going to do?" She has a degree in international studies with international economics emphasis, so she was kind of being dragged off towards New York City or something like that, and I was being sort of pulled

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in the Silicon Valley direction. And we were having this sort of frank, matter-of-fact discussion about, "Well, you know, we can go our own ways, but let's be realistic about it. If you go to New York and I go to California, we're done. It probably won't last as a long-distance relationship." And we made a decision then to get married.

That must have been June or July of [19]89. We made the decision, and then basically we looked at our calendars to see when it would be convenient to get married, and what we came up with was that I had some vacation coming in September finally, from my new job at Topologics, which didn't look it might exist at that time.

So she went home to be with her family back in Minnesota to prepare for the wedding, and I continued to work and look for a job. And at that point in time, I had gotten a number of job offers, but the one that was most interesting to me was with a company called Intergraph Corporation in Palo Alto, California. They were interested in my thesis research, and interested in how I could apply that practically to their problems designing advanced microprocessors for work stations.

So literally, we got married on September 3 of [19]89, we went on our honeymoon for a week, we went home and packed for a week, we moved to California for a week, and I started my new job three weeks after we got married. In Silicon Valley. That was my jaunt in Silicon Valley.

JF: So, it was Intergraph Corporation?

BB: Yes.

JF: What exactly were you doing there?

BB: Well, at Intergraph Corporation – Intergraph Corporation was one of the sort of old, vertically-integrated, work-station companies. They made everything of their own. They built their own buildings for their employees. They built train tracks to move equipment around their campus to build their buildings. They bought the hotels in the neighborhood to host people who were coming to visit the corporation.

And, very much in particular, what I did was they had a microprocessor architecture called the Clipper microprocessor that served as the heart of their

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work stations that they bought from Fairchild Semiconductor – actually from National Semiconductor – after National had bought it from Fairchild. And if you remember, Fairchild were the people who invented the transistor. They decided to get out of the microprocessor business, they were in financial trouble. National bought the Clipper, and then Intergraph bought the Clipper from National because National already had the 32032 microprocessor.

So now, Intergraph has this microprocessor and they find themselves in dead competition with Sun Microsystems and with Silicon Graphics, which subsequently spun off the MIPS microprocessor business into a separate company.

And at Intergraph, my job was to manage a new compiler effort. They had a very old, antiquated set of compilers that weren't generating very good code. They wanted to get more performance out of those compilers, plus use new techniques that were very much like the techniques I had developed for supercomputing, to apply that to microprocessors.

It's interesting, if you look at today's 32-bit and 64-bit microprocessors, architecturally there are a lot of similarities to some of the advanced supercomputers that existed twenty years ago. So the compilation techniques that I had developed were very much applicable to their new microprocessor architecture. So my job was to bring up these new compilers.

JF: How long were you there?

BB: Let's see ... I joined in [19]89, and then I left Intergraph in roughly June 1993. Late in my tenure at Intergraph, one of the things that really became apparent was that with Microsoft developing Windows NT and putting that on different microprocessors, they were going to commoditize the operating system piece that a lot of these old-line work station companies had been developing.

A lot of these old work station companies were built on UNIX. And Microsoft was porting Windows NT, or offering semiconductor manufacturers to port Windows NT, to a wide variety of RISC microprocessors in addition to the Intel line of microprocessors that traditionally that Windows had run on.

And at Intergraph, we were assigned the task of porting Windows NT to the Clipper. That's when I had my first experience with Microsoft. And that really

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served as the formation of BSQUARE Corporation, that experience and then subsequent experience at DEC, where we took Windows NT, which was really written, and all the applications around it, was really written for Intel microprocessors. And the developers at Microsoft had made tons of assumptions in their code that this operating system and its applications were going to run on Intel microprocessors.

And those underlying assumptions basically undermined the portability of the operating system to RISC microprocessors. So every semiconductor manufacturer that was porting Windows NT was faced with essentially the same set of struggles, fixing all these assumptions underlying the source code about how to manipulate data and stuff, fixing those so that they'd run on a RISC Microprocessor. And creating code generators out of Microsoft's compilers, Microsoft's C and C++. Porting their de-buggers, their Visual Studio. All those tools need to be adapted for non-X86, non-Intel environments to these RISC microprocessors.

In about six months, we ported Windows NT, got it up and running on the Clipper 400 microprocessor. And by the end of that period, what I actually recognized wasn't that Microsoft was basically commoditizing the underlying operating system that these RISC work station vendors were offering, they were actually commoditizing the work station itself.

So that meant the Clipper was in jeopardy of survival, because why would you want to run Windows NT on a Clipper? It might be faster, even 50 percent faster. But it cost a lot more because it was a smaller market, when you could go out and buy a Pentium work station that costs a lot less, and all the applications run on Pentium. They don't run on Clipper, you have to port them all to Clipper and subsequently to the DEC Alpha.

So I came to this realization that there weren't going to be many winners in that area. And certainly, at that time, I didn't think Intergraph was going to be a winner. So at that point in time, my wife and I – I worked six months like a dog. We ported Windows NT. We took it to COMDEX, the big trade show. We demonstrated it. Microsoft was impressed. Everyone was impressed with what we had done in such a short period of time, but it was clear that it was a dead end. It was never going to go anywhere, and I needed to do something else.

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So my wife and I again sat down and had one of those discussions about what we wanted to do, what were we up to. And we made a decision that we wanted to make a lifestyle move. We didn't want to make a job move. But we needed a job, don't get me wrong.

At that time, my wife was working as a coordinator at a temp placement agency, temporary employee placement agency, and I was working at Intergraph. And we were living in Silicon Valley and Silicon Valley was exceptionally expensive. And we were living in a rental house in Palo Alto and we could barely keep up with our bills.

I was making a lot of money by most people's standards, but unfortunately, because the cost of living was so high, we just felt like we'd never catch up, that we'd never get ahead of the curve. We'd never be able to buy our own house and have a dog, and have do all the things that normal couples in America tend to do.

So we decided that we were going to pick a number of regions that we could live in. And really, the only two that we could come up with at the time, other than staying there, which wasn't really that acceptable, we could move back to the Rockies – and we loved the Rockies, we loved the mountains. Or, really on a flyer, since we'd never been up here, we decided that Puget Sound would be a great place, because we liked to hike and we liked water, we liked boating and all that other stuff.

So we began to interview in those regions. And I had a couple of good job offers up here when I moved up here, and one was at Digital Equipment Corporation, DEC West, as they call it, or as some of us who come out of it call it, "DEC University," because basically DEC trains people to do something and then they go out and then they either go to Microsoft [or they create their own companies]. – [David] Cutler, the one who created Windows NT, came out of DEC West, and the vast majority of the team that created Windows NT also came out of DEC West. And a lot of people who came out of DEC West basically went off to create their own companies, or formed large groups in other companies to do similarly exciting things.

So we took it. And that was, I guess, June of [19]93, June-July of [19]93.

JF: OK. So you came up to DEC West and what were you doing there?

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BB: Exactly what I was doing at Intergraph. They were porting Windows NT to the DEC Alpha microprocessor. It was clear to me at the time DEC Alpha was far more advanced technologically than the Clipper line processors were, and if there were going to be any winners in this RISC arena, that DEC would be one of them.

My job at DEC was to create a new set of compilers, and write the optimizing part of the compiler, the part of the compiler that takes the program, as written by the programmer, and transforms it into a way that it runs most efficiently on the resulting microprocessor. So that was my job. And those compilers were not only to support Windows NT operating system, but also to support DEC's UNIX operating system called ULTRIX.

The day I got there, the guy who was the brains behind the team quit. And all in my career, I had always tried to avoid going into management. What happened at Intergraph was that I went from an individual contributor role into a management role and I was managing a very far-flung team, from Palo Alto to Huntsville, Alabama, where the corporation was headquartered. And I found myself being pulled out of an individual contributor role, which was most satisfying to me.

And when I left Intergraph, my move to DEC was also to move back to an individual contributor role. But with the implosion of DEC West after I arrived, it became clear to me that I was probably heading back to a team leader type of role, and indeed, that's what happened.

And ultimately, DEC killed the compilers we were working on and put us all on Visual Studio for the DEC Alpha Windows NT port. For a very tough period there, we took Visual Studio, which was designed to target Intel processors, not DEC Alpha processors, and to modify that in such a way that it allowed you to generate code, it allowed you to de-bug, it allowed you access the application programming interfaces for Windows NT, but on a DEC Alpha microprocessor platform.

During that period, I came to understand what ultimately became BSQUARE. Because at Intergraph, I built a team, a very large team, I built up all this intellectual equity, all this know-how, around how you take Microsoft operating systems and adapt them to non-Intel processors. Then when I got to DEC – guess what? – I did the exactly same thing. I built up this team that knew how to take this Microsoft code and adapt it for a non-Intel processor.

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And what I also came to understand was Microsoft was building up infrastructure internally that forced them to have to support all these different semiconductor vendors.

And so there was all this redundancy going on across the industry. A lot of semiconductor manufacturers doing exactly the same thing, fixing Microsoft source code so that it ran on a RISC microprocessor. Nothing we were doing was really unique to our own microprocessors, just that it wasn't an X86 microprocessor.

So we began to look around the fringes of Microsoft for how we might consolidate that intellectual equity and apply it to other opportunities. And in October of [19]94, we had our big break, because we got wind of a new product out of Microsoft research, where they were creating a new operating system called Mimosa, the multimedia operating system architecture. And Mimosa was intended to power, among other things, Bill Gates' vision of wallet PCs.

Wallet PC was going to be this fantastic device that replaced your wallet, carried your credit cards, your electronic cash, your pictures of your kids, allowed you to do transactions, allowed you to schedule airline tickets. Everything you could think of, you could do with Wallet PC.

And so we began discussions with Microsoft about how we, BSQUARE, or how Bill Baxter, could apply the skills we had developed, understanding that all the things were designed for X86 typically, and how we understand the RISC microprocessors the best. And it was the RISC microprocessors that they were targeting with Wallet PC because at that point in time, there was really no good Intel architecture that ran in a very low-power environment - battery-operated, lasts-for-months-type of battery-operated environments - whereas the RISC microprocessors had much better power consumption properties than the X86 microprocessors.

So their first customer was going to be Hitachi, their first microprocessor vendor. So Hitachi really wanted to port Mimosa, and create Visual C and Visual C++ for their microprocessor line, which was the Hitachi Super H, or at that time, the Super H3 microprocessor. Very popular in Japan. Its predecessor served as the Sega game console microprocessor. In fact,

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they're still in the Sega Dreamcast. There are Super H microprocessors in that.

So we began discussions with Microsoft and Hitachi about how myself and a couple of my partners – This is when my partners came in. Al Dosser and Peter Gregory were on my team at DEC West, where we were porting Visual C and C++ to Windows NT on the DEC Alpha processor. And we discussed with them what we might be able to do, and they agreed, hey, this is actually a good business model, because Microsoft doesn't have the capabilities internally. They could build it, of course, but they thought of it as de-focusing. Hitachi didn't have the resources internally to do it, and nobody actually close enough to Microsoft to understand who you needed to call to figure out what you needed to do to get the job done.

And in October 1994, we quit our jobs, Peter, Al and myself quit our jobs. On October 19, we flew down to Silicon Valley, which is where Hitachi's American subsidiary was headquartered, and we basically entered into an agreement with them to port Mimosa, and to create compiler tools to the Super H3 microprocessor.

Now, the Mimosa operating system subsequently got killed. Only two months after we'd all quit our day jobs and we went off on this fantastic journey, Microsoft killed it in January of [19]95 and started a new project under a new gentleman named Thomas Fenwick.

Thomas Fenwick is one of those guys at Microsoft that I think they put in the corner in some closet, and I they throw him at the hardest problems they have in the company. A genius of the *n*th order, an absolutely brilliant guy. And he came in and his job was to create something new.

And the new thing that they were going to create was code-named Pegasus. And it wasn't Wallet PC, because everyone realized that Wallet PC was well ahead of its time. But there was a move toward hand-held computing at the time, albeit an immature movement at the time, but a movement towards hand-held computing.

But Pegasus set out to create what was called the "hand-held PC," and this was a miniature laptop-like device, a "clamshell" we call it. You fold it open, it's got a little keyboard on it, it's got a little bitty display, and you can look at

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spreadsheets, you can look at email and surf the Web, albeit not very efficiently. But you could manage your calendar and all sorts of things.

And so Thomas came in and he looked at Mimosa and he said, basically, "This is crap. I don't like it. Let's throw this away." He didn't tell anybody though, and so for two months, he set out to write a new operating system and he called it NK, because I think that it was called New Kernel. So he decided that he was going to build a "new kernel" that was not based on Mimosa.

And in February – In the meantime, Microsoft and Hitachi were still saying, "Just keep creating the compilers for the SH3, everything's OK, don't worry."

Meanwhile, we're sequestered in offices, you know, in Bellevue, totally top secret. In our part of the facility, not even Hitachi could get into. Neither Microsoft nor Hitachi could get into the part of the facility that BSQUARE could into, because there was intellectual property that neither party wanted the other party to be contaminated by.

And so we kept working on the new compilers and we delivered our first set of C compilers in February, at which time Thomas told us that he had written this New Kernel, and that the compilers were working just fine, and he had built it and it was running on the SH3 reference board, and all was well, so we continued to cruise down that path.

And New Kernel, or NK, subsequently became what people know as Windows CE today. Windows CE is the operating system underlying the Pocket PC, the hand-held PC, a number of set-top box initiatives, the Sega Dreamcast, and the list really goes on and on.

JF: I really would appreciate it if you could explain some of this terminology. One of the things you were mentioning was the RISC microprocessor?

BB: Yeah, the RISC microprocessor is a "reduced instruction set computer." And that is as opposed to "complex instruction set computer," or CISC microprocessor. An X86 is a CISC microprocessor. And the difference between a CISC and a RISC microprocessor is that a CISC microprocessor will have a very complex instruction that will do a whole bunch of things. It might load some data from memory, add up elements of data, and then store the data back out in memory, all in one instruction.

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With a RISC microprocessor, you would have separate instructions for all that. You would have a load instruction that would load data from memory. Maybe load two data elements from memory. Then you would have another instruction that would add those two elements together, and the result would be left in a location where another instruction would store that out to another memory location. So that would be a RISC.

In a CISC instruction set, you'd have one instruction that would load two operands, add them together, and store them back out to memory. In the RISC environment, you'd have two load instructions, an add instruction and a store instruction.

Now, you have to ask yourself, why would you do that? It sounds much less efficient to have four instructions to do what one instruction did. But the fact of the matter is that compilers – in technology, compilers are the things that take languages like C and C++ and Java and that convert it to something that can be used by the underlying architecture – can do a really good job of making sure that those instructions are ordered in such a way that those four instructions run more efficiently typically than the one instruction would run because of all the implications of having one instruction that loads from memory, add and then store out to memory.

So that's what I mean by RISC.

JF: OK. And just so I understand, MIPS?

BB: MIPS is a company – Well, MIPS is a project that came out of Stanford. I believe it was John Hennessey and another guy, Patterson, that developed the MIPS architecture.

MIPS is a RISC microprocessor and they essentially took it to a company called Silicon Graphics. You probably know Silicon Graphics from Jim Clark. Jim Clark is the founder of Silicon Graphics, and then later he founded Netscape, which arguably created the boom of the Web. I guess he's the first serial, three-time billionaire technology guy.

But anyway, he took the MIPS RISC processor into Silicon Graphics, and they created work stations based on these RISC processors. They subsequently spun that out into its own company called MIPS Technology.

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JF: OK. And the DEC Alpha.

BB: DEC Alpha. The Alpha is another RISC microprocessor. It is Digital Equipment's 64-bit microprocessor. Microsoft was very excited about the 64-bit micro because Intel was a long ways from having a 64-bit CISC processor at the time, based on Pentium. So DEC came along with this 64-bit RISC, which meant you could run these massive databases, terabytes of data, and not run out of computational space.

JF: Do you know offhand what Intel has now?

BB: They have a 64-bit processor architecture now, too.

JF: OK. Back to what you were talking about, this new company. It was originally just you and two other partners?

BB: That's right. Peter Gregory and Al Dosser came out of – Peter was a consultant for DEC and Al was an employee of DEC, like I was. And we founded the company. We had intended to bring in other people as we needed to.

We bootstrapped the company from zero financing. We didn't go get venture capital or anything. So what we agreed to do was we'd work without pay, you know, we each had some money put away. The nice thing about Liz and my desire to move out here – that goal of getting a house and a dog – within three months, we had a house and a dog over by Lake Sammamish, and then we were able to start saving money. So it was kind of interesting. We were able to work for free for a while to be able to bootstrap the company.

And the way we bootstrapped it was we charged Hitachi – We were creating software for Hitachi's microprocessor. They paid us, but then all the intellectual property essentially was owned by Microsoft. So a very interesting triadic set of relationships there.

So we had intended to just bootstrap it and be profitable from day one, and stay profitable for through the whole history of the company. And we brought in a couple of new employees shortly after that. A guy named Jason Wentzel, who is now Jason Nottingham. And another guy named John Hatch, who

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also was at DEC when we were there. Jason was at Microsoft as a contractor. And us five, we really served as the core team.

In addition to that, Intergraph, interestingly, threw a couple of people into the project. Intergraph got involved with the project because Hitachi didn't want to rely on this little company, BSQUARE, to create all this, because they didn't know if we'd exist tomorrow, if you will.

So my former colleague at Intergraph Corporation agreed to step in and be a prime contractor to Hitachi and we subcontracted to Intergraph. So Intergraph threw in a couple of employees into the project as well, a guy named Mike Duda and another guy named Glen Herschowitz. Glen subsequently went to Real Networks and developed the server technology for Real Networks.

And we were the core team. I guess that would be seven people that I mentioned were the core team of what became the original initiative behind BSQUARE. We were called BSQUARE Consulting, Inc. at the time. And we operated under that name for quite some time, until it became clear to us that we were going to do more than consulting, that we were going to develop products and such.

JF: How did you come up with the name BSQUARE?

BB: Well, my wife and I, back in California – because we were basically working poor, we were able to make ends meet but that was about it – we decided – I decided to put together a little bit of a consulting initiative called Baxter Baxter Consulting. And it was me and my wife, and we would do some computer consulting, and the only real customer we had at the time was Topologic, my former employer, because under my tenure there, I submitted a National Science Foundation research grant, and it was approved after I left. And in order for them to fulfill the NSF grant, they needed me to do that, and so I worked for them on a consulting basis to them to finish up that research.

Then it went dormant for a while. At the time, I played around with the name, because Baxter Baxter Consulting, you know, it's good for a consulting company because consulting companies are almost always about the individuals that are in them. So there was that founder association but, you

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know, it was a mouthful, so we started playing around, and we started playing around with things with "B square."

And we liked the name mainly because – And I guess I got the [trade]mark back in April or May of [19]93, where I actually formed a company in Bellevue, Washington called BSQUARE Consulting, Inc. We liked the name not purely because it was Baxter Baxter, or had anything to do with Baxter, but because of the ethical imperative to "be square," to be straightforward, honest and sincere. And that's really what we mean at BSQUARE when we say it. That we do business in a very ethical, honest, open, upfront, sincere fashion.

JF: Now, I'd like to know more about the original business plan. Was it your intention to keep this relationship with Microsoft? What was your intention?

BB: Well, you know, as with all good things, it was a simple idea. The idea was sort of a three-page, two-page business plan, if you will. And I always use the rocket ship analogy for BSQUARE. A rocket ship has multiple booster rockets on it, and each serves a purpose at some time.

So the first rocket at BSQUARE was this tools consulting with Microsoft, which has been tailing off in the last few years because we've created all the compilers and de-buggers and linkers and integrated development environments you would need. And we're very proud of that, but it's like building a bridge. Now all you have to do is paint the thing every once in a while for many years to come and it's going to be fine.

And so the first booster rocket was building those tools. The second rocket was going to be, hey, we're in the know on all these devices that are coming out, from Hewlett-Packard and Casio and Compaq Phillips, and so what we'll do is we'll leverage that knowledge, understanding the tools better than anybody else did, literally, even better than Microsoft, because we created them. And leverage that to create applications for this new onslaught of devices that was due to come on to the market.

So, as I had indicated, hand-held PC version 1.0 – or Pegasus, was the code name – was the original target for our application. So we struggled with, you know, now we got the first rocket firing good, so how do we move on to the next rocket? And it was really Peter Gregory and Jason Wentzel, now Nottingham, who came up with the idea.

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What they did was they said, OK, what sells in the PC space? What software is doing well? And what they came up with was WinFAX Pro. WinFAX Pro sells a ton. Everybody buys WinFAX Pro. And so we decided – they decided, actually, they kind of did this off in a stealth project at BSQUARE – that they would start doing a little bit of research into FAXing and how we might do FAXing on the Windows CE, or Pegasus at the time.

Ultimately brought me into the fold, and we realized that there were numerous problems with FAXing from one of these devices. The real-time nature of FAXing and these devices weren't really that fast. They were pretty fast, I mean, faster than the desktop work stations were in the past, but not fast enough to FAX documents in a reliable fashion. Some of the APIs – Application Programming Interfaces – that you'd normally use to do FAXing didn't exist in Windows CE and Pegasus.

So we had to do a lot of things to make it work, but we decided we could do it.

Al Dosser headed up the team that I was heading up and I moved on to head up the B-FAX team. Not very creative, but we "B" branded all of our application products. And we began to create this new product called B-FAX.

What we did, though, is we leveraged this relationship we had with the semiconductor manufacturers to gain access to the OEMs, and that's something that no other independent software vendor could do. We could go to Hitachi and say, "Here, we have this B-FAX. Look at this. This is great. This is going to make the hand-held PC much more appealing because now you can FAX documents with it." And they agreed that yes, this is really exciting.

So they gave us a traditional Japanese letter of introduction to Casio, who we were working with side-by-side to help create the new hand-held PCs. And from that letter of introduction, we were able to form a meeting, down in Silicon Valley again. So we flew down to Silicon Valley and we had our hand-held PC, pre-version 1.0, barely working. And we were going to do a B-FAX, a live B-FAX demo. And the really sad thing about it was that B-FAX didn't work very well at that time, because the hand-held PC didn't work very well at that time either.

And we really needed to know what FAX number we were FAXing to, you know, which shouldn't be the case when you're FAXing, you ought to FAX

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any document to any FAX machine. So we're going through the demo and we're showing off the UI of B-FAX to Casio, and they're very impressed, they're very happy with it. We're able to preview FAX documents and stuff like that, and then they say, OK, let's FAX a document. And that's when the beads of sweat started forming on our foreheads.

We're like, OK, without thinking much about it, we hooked it up to the phone line and we said, "FAX the document," and the phone rang and we all sat there and there was this long, awkward pause. We didn't have good enough feedback from the program to tell us if it had worked or not.

And we were just sitting there, and it's me and Jason Nottingham, and we're sitting there and it's "*Ohmygosh* this is awful, there's been too much of a delay, maybe it's crashed." But then it completed, it finally said, "I'm done," and we're like, OK, that's good, that's the first step. But anything can happen on the FAX receiving end of this whole thing.

So the guy comes out of the room and he walks down the hall, and we're sitting in the conference room and again, long, awkward pause and we were like, "*God* it didn't work." And the next thing we hear is this guy and he's running up the hallway and he goes, "I got the FAX! I got the FAX!" And he's waving it in the air, and we're like "*Ohmygod* I can't believe we did it!"
[Laughter]

And from that point forward, we got our first deal with Casio. And once we knocked off Casio, we got HP. We put B-FAX on every hand-held PC ever made. We were the kings of applications for hand-held PCs.

That's the bad news, because hand-held PCs didn't really sell very well at all. I think they sell maybe 100,000 units a year. But, you know, we're getting a buck a unit or two bucks a unit for every one that they sell. We needed them to sell in the millions of units a year in order for BSQUARE to build a business out of B-FAXing.

But nonetheless, we generated, over a period for that application, we generated a lot of revenue, and we put it on every hand-held PC ever manufactured. And that became the beginnings of our applications business.

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JF: Wow. OK, well, you talked about then you went to Casio and Hitachi and HP and Phillips. What are some of the other companies that you've been working with, or is that pretty much the list?

BB: Oh, no. In the first place, the tools business went from Hitachi – and this is where the original idea for BSQUARE came from – it went from building compilers and tools for Hitachi, to building them for NEC, for Phillips, for Motorola, IBM, ARM. Subsequently did it for Intel because Intel bought DEC semiconductor products, so they bought DEC Alpha. Really they bought the StrongARM architecture, which is the technology you see in the Pocket PCs. So most of the – all of the Pocket PCs you see today are based on ARM architecture, StrongARM being the predominant one, which is Intel.

So we consolidated the intellectual equity, the processes, the underlying development technology that is used to create the tools, because there's tools that create the tools, believe it or not. And we were able to consolidate all that in one company called BSQUARE.

You have massive semiconductor companies on one side and you have massive Microsoft on the other side, and you have little BSQUARE in the middle serving as a conduit, if you will, for intellectual property that enables us to adapt Microsoft technology to all these different microprocessors. So any microprocessor vendor that has developed processors for Windows CE, has worked with BSQUARE.

And then we took that two-phase business plan, that second rocket booster, and we had to refine it, because B-FAX and all the "B" products that we came up with – I mean, every year we'd come up with a new B product, we'd to go COMDEX, we'd get "Best of COMDEX," and it's great but, you know, there just wasn't enough volume to sustain it.

So we refined that second rocket booster into more of a comprehensive OEM support role, where not only were we providing applications, but as these OEMs took these microprocessors now and need to create devices like hand-held PC – but it wasn't just hand-held PCs we were doing. We were doing industrial devices, industrial hand-helds, human-machine interface panels, that sort of stuff. And we needed to be able to support the OEMs through the entire life cycle.

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So they needed to port the operating system to their new device, they needed to build custom applications for that device, that sort of stuff. And to me, that evolved our role from just creating end user applications like B-FAX to and B-Useful and B-Mobile and that sort of stuff, to creating applications to support the OEMs throughout the life cycle creation of their device.

So as a result of that, we worked with every OEM on the planet, I think, who built anything out of Windows CE. So you've got Casio and Panasonic and IBM and – there's hardly a name I can't think of that we haven't worked with to create some kind of device.

In addition to that, increasingly – and this is really what undermined BSQUARE ultimately – increasingly the Internet became a big thing. I mean, back in [19]94, people were surfing the Web and they were doing e-mail, but nothing like they are today. Mainly it was just in corporate technology companies where you had good e-mail and stuff. Outside of corporate in technology companies, people were still FAXing around a lot of documents, you know. So when we came up with the original idea of B-FAX, it seemed like it was going to be a bigger hit than it was, because ultimately e-mail undermined a lot of what FAXing was doing.

And in addition to that, as a result of the advent of the Internet during those times, increasingly the people wanted to connect those devices to the Internet. They wanted to connect their hand-held PCs and their pocket PCs. Not because it provided a particularly rich browsing environment, because it didn't. But because it gave them communication they were never used to, because anywhere you could get an Internet connection, you could do your e-mail.

And so you've got this little hand-held device, you've got it on your belt, and wherever you could go, you could get your e-mail. So, as a result of that, now service environment providers are looking devices. People who provide cable TV, for example, right? They're connecting things to the Internet now. The set-top box guys are connecting things to the Internet. Now, more recently, even the wireless carriers are connecting devices to the network.

So, as a result of that, we began to work with cable operators primarily, AT&T and Charter, to create devices that connect to their cable systems that also connect to the Internet. So not only did we work with the manufacturers of the devices, and the manufacturers of the microprocessors, but we began to

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work with the guys who were deploying the devices onto networks in a connected environment.

JF: Can you tell me again, what does OEM stand for?

BB: An OEM is an “original equipment manufacturer.” An OEM is an IBM, a Compaq-HP, that kind of thing.

JF: OK. You weren’t still subcontracting at this time, were you? Was BSQUARE an independent company?

BB: No, we weren’t. We switched over from a subcontracting model probably in late [19]95 or may early [19]96, to working directly with Hitachi. That was one of the things we wanted to do as a company to establish ourselves. But at the same time, we were entering into agreements with effectually competitors of Hitachi, like NEC and Phillips and all those other RISC microprocessor vendors.

So we began to enter into those agreements independent of Intergraph. The only deal we did through Intergraph was the Hitachi deal.

JF: Now, can you tell me then – you’ve mentioned several different products you’ve been working with. How did your business plan evolve in the last several years?

BB: Well, if you look at the revenues in [19]95-96, it was 100 percent tools development revenue. Mostly from semiconductor manufacturers like NEC and Hitachi and Phillips and the likes. But also, we were starting to do some direct work for Microsoft, so Microsoft would contact us directly to develop new tools for them that weren’t microprocessor-specific stuff.

So the microprocessor-specific stuff, we would do on the semiconductors’ dime, and the non-microprocessor-specific stuff, we would do on Microsoft’s dime. And that was 100 percent of our revenue.

In [19]97, that began to change, because we were starting to generate revenues from OEMs and end users who would buy our shrink-wrapped applications. And so you see the gradual transition, where the percentage of revenues from Microsoft and semiconductor manufacturers has declined, and the percentage of revenues from OEMs has increased significantly.

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To give you some ideas of how that played out, in 1999 when we went public- Actually it was October. I remember this very clearly because October 19, 1999 we went public, which was exactly five years to the day after the day we were founded. It was on the anniversary of the founding of the corporation. So that's when our ticker symbol went live.

We were 80 percent Microsoft and semiconductor manufacturers and 20 percent OEMs at that time. So from the end of [19]95-96, we went from 100 percent to 80 percent and in our most recent quarter, for example, we were roughly 50 percent of the business. Going back to when we went public, 96 percent of our business was consulting, labor, work-for-hire, as opposed to product. Product was only 4 percent of our revenue. But in our most recent quarter, about half of our revenue was from product as opposed to consulting and the other half consulting, the semiconductor manufacturers, Microsoft and the OEMs. And I think the number is about 65 percent of our revenues coming from the OEMs as opposed to 35 percent coming from Microsoft and the semiconductor manufacturers.

So that part of the business has become less important because the microprocessors are there, the tools are there. Now people are focusing on the devices and applications and integrating those into network environments, so that's why you see that in this business.

JF: Now, you said you wanted to be in this company on your own, not taking any outside money. Were you successful in doing that?

BB: Well, yes and no. We were a Chapter Sub-S corporation in Washington State, which means that the partners in that Sub-S corporation, which were Peter, Al and myself, would essentially incur personal tax liability proportionate to the revenues of the corporation. And we would do that – it would be personal income taxes that we would incur as a result of that. And the company was very profitable, so what we would do, in order to offset that tax liability, is we would do cash distributions to Peter, Al and Bill, but that wasn't an efficient way to distribute cash from the corporation for tax reasons.

So in [19]97, the end of [19]96, I went to Peter and Al and said, you know, we've got a really good thing going. We were the kings of apps for these new categories of devices. Everyone believed that Microsoft would be a player in

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this environment. Everybody believed that BSQUARE was going to be the Symantec, if you will, of software for these new hand-held devices.

And as result of that, we began to look for venture capitalists that would take a profitable company – a very profitable company, with a great business plan – fund that company, but also allow the founders to achieve some liquidity, to take money out of the company.

So I went to the Web and I searched the Web and I came up with two VCs, Summit Partners being a Silicon Valley-based one, and TA Associates, which was a Boston-based one. And their profile was exactly that. They were “mezzanine venture capitalists,” mezzanine meaning you’re at that last stage before you went public, or you get bought by another company. That’s sort of the mentality.

So they get involved late in the game, when you’re profitable. They like to provide founders with some liquidity so that they’re not worried about their personal finances, that sort of thing.

So I went and visited both of them. I said, “Here’s the company, we’d like you to invest, here’s how we want to use the proceeds. Half of it or more is going to go to the founders and the other half is going to be used to fund the company to do R&D. We don’t want to go from being profitable to being unable to meet payroll, but at the same time, we want to run it as close to the red line that we can so we can build new products to penetrate the market.”

And they got into a bidding war. TA ultimately won out, and they invested at the beginning of [19]97 into BSQUARE and that’s when we took our first outside funding.

JF: You were seeing that you were profitable. Were you profitable all through the first four years of the company?

BB: Yes. We were profitable all through last year. We had unprofitable quarters last year, but even last year we were profitable. Unfortunately, we are no longer profitable because of the trying economic times for everybody.

JF: I think we’re going to take a break now.

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JF: All right, we were just talking about the business plans you've had at BSQUARE. You've mentioned a little about the products you've created and the services you offer. Could you go into a little more detail about why these services are so important and some more of the products that you make?

BB: It's really important to understand the supply chain on how a device gets to the shelf at, say, CompUSA to understand why BSQUARE exists.

You've got a device at CompUSA, let's say a pocket PC or a hand-held PC. It literally has more computing power in it today than a desktop PC had ten years ago, and really, in some ways, more computing power than that supercomputer had twenty-five years ago. So there's a lot of advanced technology that goes into the development of these things. Just because they're sitting on the shelf at a consumer electronics store shouldn't surprise you that it takes a lot of work to make one of those things happen.

It's composed of a lot of different elements. It's composed of a microprocessor, and we've talked about RISC and CISC microprocessors. The services we provide to the semiconductor manufacturers enable them to have the Windows CE operating system run on their microprocessor. That's what BSQUARE does, and we're really the only one in the industry that does it.

Beyond the microprocessor itself, there's all sorts of things around it. There's a display, there's a keyboard, there's speakers, there's a microphone that needs to work. Collectively we call those peripherals, "around" a microprocessor. And so in addition to just that adaptation of the operating system to that particular microprocessor that's in the device, you have to have software called device drivers that enable you to display or to use the keyboard or to enable any of the other peripherals on the device.

So there's a whole set of technologies that BSQUARE has developed around that. Tools to develop the software for peripherals. We also provide services to the manufacturers that want to develop a new peripheral, so we can support their peripherals, and we can offer them services to develop that peripheral. Collectively, we call that an "adaptation of the operating system."

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So you'd take the operating system of the particular microprocessor, you adapt it to this device with all these peripherals, and that's really the cornerstone of our business. Taking the Windows CE operating system, and Windows NT-embedded and XP-embedded as well, and adapting it to a new device, whatever that device might be.

Then the next piece is really the application piece. Now you have a device, and it's got an operating system and it's got Windows and it's got a keyboard and all this. Now you need applications. So we have a large body of these applications that we can draw upon in BSQUARE that we can draw on, and we can customize them on behalf of the manufacturer. So when the device goes into the market, not only does it have an operating system, but it has a suite of applications that can run alongside the operating system that provide the end user functionality.

The end user doesn't care if there's an operating system, or peripherals, or a microprocessor. All they care about is the applications that run on it. So we offer a wide range of those applications.

Now, as our business transitions, increasingly what is needed is the ability to manage those devices within a network in which they operate. I talked before about set-top boxes and how they need to be integrated into the cable system, and so they need some way to manage those boxes as they are sitting in your home, to be able to diagnose whether they're working, to be able to update them with new fixes to the operating system and to the peripheral software I talked about.

But also increasingly in the wireless environment, you have these new high-speed wireless data networks going in. We call them 2.5G and 3.0G networks, 2.5G being in sort of the 50 kilobits per second of data rate, which compares to your dial-up Internet speed at home. But now you do it wirelessly from a hand-held device. And 3.0G gets you into the 200 to 300 kilobits per second, which is now rivaling what people are getting with digital subscriber lines or cable modem access in their home. So you're getting this wirelessly, walking around with your little hand-held device.

So the wireless carriers, the ones deploying these advanced wireless services, need to be able to manage the devices that are coming into their network, they need to be able to update the operating systems that's on them, they need to be able to provision them so that they are able to access the

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network properly, that kind of stuff. So we have a product offering that addresses those carriers' needs to be able to manage devices within their network.

JF: I'd like to know what you personally do. What are your daily responsibilities?

BB: Well, I think first and foremost, my job is to set the overall strategic direction for the corporation. To define some goals for the corporation. To set – a lot of people call it the vision of the corporation – to establish that.

And then I think secondarily, and really even more important than that, to hire really great people, and to offer them the environment in which they can begin to fill that out and make that work.

So I think predominantly those are my two biggest responsibilities at the corporation.

Day-to-day, though, I sign a lot of papers. I attend a lot of reviews, to review the status of things, to get a feel for whether or not they are going in the direction that I had originally envisioned, and if not, why. It might be that I need to adjust what I believe is happening in the industry. Or I need to offer what I've learned by going out into the industry and meet with CEOs of other companies and bring that back to my team to help guide them to new decisions that will make us more successful.

So that's sort of the internal focus.

I oversee the finances of the corporation but I don't run the finances of the corporation. I have a chief financial officer who does that. He works diligently to assure the financials are in order, and I oversee what's going on there, and how we allocate those resources to the corporation.

There's another external factor to BSQUARE. We are a public company on the NASDAQ exchange. And that involves a lot of speaking engagements. Typically that's at investor conferences, or one-on-one meetings with investors. So there's a whole investor relations aspect of my job, where I am the best spokesperson for the corporation for investors, to help them understand why we make the investments that we make and how we're going to be successful as a corporation.

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JF: Now, the other two partners who started the company with you, are they still active in BSQUARE?

BB: No, they're not. Peter Gregory left the corporation before we went public and Al Dosser left the company about a year, year-and-a-half ago.

We evolved into completely different directions. When I started this company, I sort of saw myself as the CEO. And it was sort of my idea, and I pulled these guys into it and said, you know – probably about two years later, I said, you know, "I think this is going to get big. You'd better define your role within this corporation because once it gets really big, it will be harder for me to shoehorn you into a specific role."

I couldn't have gotten to be the CEO in this company after it was about four years old. I had never been a CEO before. So they shouldn't have the belief that they could go from individual contributor to some executive role likewise, without evolving into it.

They never really did, and that's not any sort of criticism. It's just not what they wanted in life. Al was very much a technical contributor and he really wanted to stay in that role. He was fond of saying that anything he was good at, he didn't want to do, but anything he wasn't good at, I wasn't going to let him do.

And there's a hint of truth to that. At some point, the stakes got too high to rely on on-the-job training. There was no room for on-the-job training at BSQUARE today. So we just evolved in different directions and they moved on.

JF: OK. About how many hours a day do you work?

BB: It depends. It comes in spurts. I have the luxury of being able to manage my day around my schedule, and sometimes when there's nothing in my schedule, I can go do whatever I want.

On the other hand, as an executive, once a quarter, we have our quarterly earnings release, and we have a quarterly board meeting to review the corporation with the board. And up to that and through that, I'll work seventy-eight hours a week sometimes.

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And then there's the aspect of my job where it's hard to say if I'm ever *not* on the job. The beauty of my job is that a lot of what I can do, I can do from e-mail. My house is fully networked, and from any room in the house, I can be on my e-mail and within seconds, I can be answering e-mails to people, literally from any room in my house. So I'll often intend to sit down for ten or fifteen minutes, and that turns into two hours, three hours, and so it's really hard to say how much time I work.

But needless to say, it is a big, time-consuming element of my life, and that wasn't clear until we had our first child about eight months ago, when now we have this being in our lives who needs a lot of attention and isn't going to wait until I have it. She's going to grow up whether I have it or not. So it's become very clear I have competing needs for my time.

JF: Along those lines, I'd like to talk about different personal challenges that you've faced in building this company.

BB: Well, you know, I'd never been a CEO before, so first of all, you have to overcome the obvious sense of potential inadequacy associated with it. But I think that's been really easy for me to deal with.

It is a hard job, and there's a lot of things I don't know. I think for as much as I don't know about business, you could probably fill up an entire four-year college course. But luckily that's why I hire great people around me, and they help with things that I don't know how to do. So I think that's been a big personal challenge for me.

If you look at the pressures that go on with being the CEO, when it was three people it was OK. When it was twenty people, it wasn't that big of a deal. Because at that time, I'd managed teams that were that big. When we got into the fifties, well, you know, it was getting a little weirder. When we got into a hundred, it got weirder yet.

When we peaked out at 520 or whatever, it was clearly a situation where there was a lot of personal pressure because not only do I have 520 employees, but you factor in another two direct dependents on average for all of those, then you're responsible for 1500 people. And then you factor in you've got all these suppliers and stuff that are dependent on you.

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It gets really big before you know it, and that's a lot of pressure. And I've tried to balance that. I like to shut my brain down when I can and not think about business when I can in order to deal with that kind of pressure.

But if you look at what's going on in the current business climate. I recently learned, like all of you, that all CEOs are crooks, which came as some surprise to me, as you can imagine. And that the media more than anybody else is making the job of being CEO no longer any fun. It used to be a really cool job.

So you've got to deal with that kind of pressure, external political pressure and economic pressure that goes along with the job. Because, you know, there are bad CEOs and there are bad people everywhere. Some of the politicians that they just kicked out of Congress are bad people. But, you know, CEOs [as a group] are being now uniquely being targeted for the brunt of the stock market decline instead of individuals. So that's the level of pressure I have to deal with.

And I think the other really deeply personal pressure or challenges that come along with the job are – uh – For example, I'm at an investor conference on September third of this year. Well, that's my anniversary so, you know, you've got to deal with that. It's the unavoidable duty of mine as the CEO that I attend the investor conference at the same time as I have an anniversary with my wife, who's already planned a trip to Salish Lodge and dinner and all the other stuff. So there's those things that you have to balance out.

And I try not to let those happen as much, but every once in a while, you get into situations where they happen and you can't do anything about it, and you just have to have a strong relationship.

That's why we waited so long to have kids. We've been married thirteen years and we just had our first child. We wanted to have a strong personal relationship before we inserted a child into an already-complicated mix.

My wife maintained her career until just a few years ago. She worked at Microsoft and then she subsequently came to work for me, so you can imagine the pressures that that created. But now, she's been out of a job for a few years, and that's allowed us to return to some normalcy in our relationship.

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JF: Now, can you tell me how many employees do you have right now?

BB: I can't, actually. It's somewhere in the 350 range, but it will decline further from there, unless there's some spark in the economy. We've already announced cutbacks that get us to about 280 that we'll be implementing in the next couple of months.

But the economy has taken its toll on our company. Again, it goes to that supply chain. You have a situation where, in the heyday of the Internet boom, people bought inventory speculatively. An inventory to us is the finished product that we help the customer create, a device or something.

So once they had all this pent-up inventory, and they stopped purchasing new inventory as the economy collapsed in 2001, so did R&D budgets [collapse] to develop new inventory, new devices that would lead to new inventory. So that whole situation of the economy has rippled all the way up through companies like BSQUARE.

And now we need the inventories to sell through, consumer spending to return robustly, and then BSQUARE starts to see an up-tick. And that's unfortunately been the situation in our industry, not for just BSQUARE, but for everybody in the industry.

JF: Do you have any employees overseas?

BB: Yes, we do. We have employees in two countries. We have employees in Japan. We have approximately twenty employees in Japan. And we have approximately four or five employees in Taiwan, in Taipei.

JF: Now, can you tell me about the business environment in which you and your employees work? Is there anything that makes you guys special?

BB: Well, if I had to say anything about BSQUARE is that we're founded on an ethic of respect. So we have a very respectful work environment. It's a fun work environment as a result. People are treated nicely, fairly.

So if you ask employees who worked at BSQUARE, even employees we've had to let go because of the economic downturn, they're very saddened because it has been a very positive working environment.

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In addition to that, we predicated the company on providing individuals with a very comfortable working environment, physically comfortable. So from the very beginning, we provided our employees with individual offices, with very high-tech ergonomic furniture, 21-inch monitors for doing their work. The theory behind that is you can keep more windows open and get more work done. So it's a very comfortable, physically comfortable work environment, which also leads to higher morale.

Historically at BSQUARE, we've had about 8 to 10 percent total attrition, whether that's voluntary or involuntary attrition, which was remarkable. Even during the heyday of the dot-com boom, and we're not a dot-com, we weren't losing employees left and right to the dot-coms. We were holding our own.

Unfortunately, with the cutbacks and everything, we've had significant forced attrition. But I think it's a testimonial to the positive work environment we've created at BSQUARE.

JF: Can you think of any benefits or drawbacks of having an IT company in the Seattle area?

BB: Oh, I mean, the drawbacks are too numerous to count. Again, you have to bear in mind that we, probably like every other person who's founded a company in this region, did it for personal reasons, not because of any state reason, you know, some state or regional advantage.

The initiative system in Washington State is out of hand. You'll get two popular initiatives on the same ballot, one cutting taxes and one increasing teacher pay. It just boggles the mind. Of course they're going to get adopted. Yeah, I'm going to have more money in my pocket and teachers are going to get more money, too. You've got to figure out where that's coming from because it's just not going to work out.

And you have people like [Tim] Eyman micromanaging the government's business. And maybe there's a good reason for that. Maybe the government has lost respect of the citizens. But I don't really think that. I think it's because if you hold an ice cream pop in front of a baby, they're going to grab at it, they're going to put it in their mouth. And that's what Eyman initiatives are all about.

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And that's what's undermined the infrastructure of the state. It's horrible to run a business in this region because of that for a number of reasons. The traffic situation is out of hand. We need more efficient commuting, not just more roads. More roads would be one way of solving it, but some other solutions like rapid transit would be nice.

Parking is out of hand. I heard one CEO comment that one of the hardest things about doing business in Bellevue is parking there.

You look at the educational system. We have a woefully under-funded educational system in Washington State. I think if it weren't for the resources of the University of Washington and their ability to get federal research grant dollars, that it would be even worse than it is now.

A large number of the entrepreneurs and the technologists that fuel some of the new companies around here come out of the University of Washington, as well as WSU and Western Washington University. But again, we under-fund those woefully.

So you ask me about the state, yeah, the state is doing everything possible to run businesses out of here on a rail. But the business owners who founded these companies say, "This is where I wanted to be, for lifestyle reasons." But if you look at that, the lifestyle reasons that caused us to all move up here, the quality of life, has degraded since we moved up here in 1993 and, you know, it got to a point that we were feeling similarly threatened in terms of our lifestyle as we were when we were in Palo Alto, California.

So I can't last forever. People will only go with that emotion so far, and companies will begin to move. And you've already seen that trend in companies moving more and more of their stuff out of the state.

You'll see BSQUARE moving some of our development out of the state. We have development in California now. We'll be moving some development to Taiwan, where the cost of labor is so much less. And you'll probably see us moving some labor elsewhere because this is just not a good environment to build that infrastructure.

JF: First of all, just to clarify, you're talking about Tim Eyman and his initiatives?

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BB: Yeah.

JF: Has BSQUARE done anything in terms of reducing some of these pressures, in terms of car-pooling or diff commuting options?

BB: Yeah, we sponsor car-pooling options. We allow people as much as possible to telecommute. But even if you look at that, and the politicians' desire to institute new ergonomic standards for businesses, it's mind-boggling. If the new ergonomic standards pass, I'll have to put an ergonomic desk and chair in everyone's home who wants to telecommute. And it's not efficient for me to do. I can't police someone working at home. I don't even know if they're going to be working at that ergonomic desk and chair that we put into their home.

So the new ergonomics laws as they relate to technology companies, especially at BSQUARE where we've already put in ergonomic keyboards and adjustable keyboards and mouse trays and chairs that can adjust seventeen ways till Sunday. It seems ludicrous to me that they would pass yet another unfriendly business initiative like the ergonomics one.

And so we try to sponsor that. We try to make that available to employees. So anyway, certainly if you want to stay late at work, we encourage that. We provide all this free soda. We provide some free snacks, free soups, so if you want to stay late at work, that's OK with us. There's a little café in our office complex, so if you want to travel outside the normal commute times, that's OK with us, you know, come in at ten, leave at seven, I don't care.

JF: Can you tell me if you've had any other challenges going from a small start-up company into the company with several hundred employees?

BB: Well, I think my former CFO, Brian Turner, he was the CFO when we took the company public and he came from a company down in Oregon, had a great mind for numbers. And he joined the corporation and he joined before we went public. And the first meeting that I sat with him in, we were having lunch, he said, "You know that three-partner thing? That's going to dissolve within the next year or so. It just doesn't work. I've never seen a company with three equal partners go public and survive it. Someone ends up being on top, and the other two end up leaving"

Well, almost as if he was the Oracle of Delphi, that happened.

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He also started doing things to me – it was disturbing but it was reality – he would start giving me statistics about my employee population. The number of people who were going to be diagnosed with cancer. The number of people who had drug and alcohol problems, you know, percentage-wise.

And when you started to get into several hundred people, you started realizing that those aren't abstract problems anymore. Those are very real workplace problems that we were going to face at one time or another. And indeed, yes, we experienced them.

So I think one of the biggest problems is just the law of averages that we faced at BSQUARE. The law of averages is that problems that don't rear their heads when you're a three-four-five-person company always rear their heads when you're a 300-400-500-person company.

And it's tough to deal with emotionally because I know all those people. I mean, as much as I can, I try to know everyone in the company. So when something like that happens, we're not talking about an employee number, we're talking about someone who I know has two kids and a wife and that sort of thing.

So I think that's been a challenge for me.

I think beyond that, we face a lot of challenges. You know, we're a public company. We're trying to keep our stock high, you know, that's tough in a market where everyone distrusts corporate America. Just a lot of challenges.

JF: You told me already about how BSQUARE had a relationship with Microsoft from the beginning. Can you talk to more about how that may have changed, or what is your relationship is with them today?

BB: Yeah. The relationship with Microsoft has evolved dramatically in a number of different directions. When we entered into the business with Microsoft, we were given rights by Microsoft to do certain things. To port their software ... But we didn't have any rights to sell it or distribute it or anything like that. And the work product we produced was owned by them, or jointly by them and the company that we were working with, to develop that software. And then we'd enter into an agreement with that other company, like Hitachi, to do that work.

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Then over that period, we signed up more and more manufacturers, like NEC and Phillips and Motorola, and at some point, it got really kind of interesting because we were moving faster than Microsoft knew we were moving. We had more microprocessors supported than they knew we had supported at that point in time. So when we released the set of compilers for the Phillips microprocessors, they were surprised by it. They said, "Really? You've got compilers due now? We thought you'd have them some time out in the future."

And as a result of that, they decided to create a master agreement. And under that master agreement, we wouldn't be in direct relationships with Hitachi and NEC and Phillips and all those companies. We'd be in direct relationship with Microsoft, and then Phillips and all those companies would be in direct relationship with Microsoft, so then they'd pay Microsoft to pay us to do the work we did.

That didn't work either because then they became the bottleneck for getting anything done. So then we went back to a program where we worked directly with semiconductor manufacturers.

During that same period of time, we entered into relationships with Microsoft to do other things for them. So we had agreements with them and we had agreements with semiconductor manufacturers. And what that really culminated in was two agreements.

One agreement is the master of services agreement between BSQUARE and Microsoft, which basically describes the terms and conditions under which BSQUARE delivers services to Microsoft.

The second agreement is a "porting partner" agreement, if you will, that allows BSQUARE to take Microsoft's operating system assets and tool assets, and, for an authorized semiconductor manufacturer, port the operating system and the tools to that microprocessor. And then Microsoft has to approve all those semiconductor vendors.

So those are the two pieces of the business that survive today, and that's how the business runs.

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We do less outsourcing to Microsoft than we used to. We do less outsourcing from the semiconductor manufacturers than we used to, but we're doing more for the OEMs, so that's been the growth part of the business, the OEM part of the business.

JF: Who are BSQUARE's competitors?

BB: BSQUARE's competitors are principally our customers. Our customers can opt to take Microsoft technology and create a new device from it, go it alone, if you will, or hire someone else to do it, but there are very few of those companies that exist. So they can do it themselves or they can come over to BSQUARE, where we have a broad portfolio of software that we can use to get their product to market, whereas they'd start from scratch to do the same thing.

Beyond the customers, there are a wide variety of competitors, but none that really competes with the comprehensive offering of BSQUARE. So there's really no company that you could put your thumb on and say, "This is just like BSQUARE and they're in head-to-head competition."

Some of those competitors have gone out of business during this economic downturn, so we've picked up some of their business in the last quarter. For example, Anasoft, ANA Technologies went out of business, so we picked up their business.

But then we have a competitor, Venturecom, on the East Coast. It's struggling, not doing very well. We have another competitor, Intrinsic Corporation, that is up in Vancouver, BC, that I'd say, of all the competitors, is the most successful at competing with us, but they're not all that big. And then regionally, you have a few regional players, small shops that try to do what we do, but again, not with the footprint we have.

JF: What ways do you see these new technologies being implemented in traditionally non-IT environments?

BB: Well, it's interesting. Every pocket PC has some BSQUARE software in it. We either did it at the semiconductor or Microsoft level, or we incorporated other technology at the OEM level into that pocket PC.

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So we're not an IT company in the truest respect. When people think of IT companies, they think of people who implement Oracle databases and SQL databases and customer relationship management systems and enterprise resource planning systems. That's what people think of an IT company.

BSQUARE is more of a technology infrastructure company, if anything. We provide the technology and services to help create new devices and to manage those devices when they get into their environment. It's those devices then that are the IT tools. A pocket PC is a tool in an IT environment.

So there's a great deal of satisfaction that I have from knowing just the reach that the pocket PC in and of itself has had on the industry. I was in a drive-in restaurant and all the girls were carrying pocket PCs to do their order entry on. And so to know that BSQUARE had a hand in making that happen is very fulfilling to me.

So you do start to see these hand-held devices going into a wide array of environments. When you look at a rental car situation, when you're returning a rental car, more than likely BSQUARE had a hand in those types of devices that they're entering their stuff and printing out your receipt.

So you're seeing devices, not just PCs, making their way into our lives. And I think ultimately the satisfaction – and that was borne out in a release we had last week of the Motorola Enhanced TV Viewer.

Motorola, as you probably know, is the company that makes those set-top boxes you get with your cable service. They have more than 75 percent of the market share in the boxes that come along with your cable service. We helped them develop a new device that you set in your lap as you're watching TV, and you can look at the TV program guide and you can change channels, but also what you can do with that is you can look at TV-centric Web content. So rather than surfing on your TV, which is going to make everybody in the room with you mad, because they don't want to surf when you do, you're surfing on this wireless device that's sitting on your lap that connects through that set-top box to the Internet.

And those types of applications, in the future, I think, you'll start to see pervade the household. Things like wireless Ethernet have become so popular, making it so much easier to deploy not just the PC in your house – Specifically, the PC in your house is sitting where your Internet connection is,

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whether it's dial-up or cable modem or DSL. And that's where you get Internet. You don't get it anywhere else.

Whereas with wireless Ethernet, or "wi-fi," as they call it, 80211B, you can have a wireless device anywhere in the house and access that same Internet access that you had sitting at that PC. So what you'll see in the next five to ten years is that PCs will become outnumbered in the home by four- or five-to-one by other connected devices.

And BSQUARE will play a big role in that, like the Motorola Enhanced TV Viewer is an example of that.

JF: Is there anything else you'd like to tell about what BSQUARE is and what it does before we move on?

BB: No, I think we really covered it.

JF: I'd like then to talk about some of the different organizations that you're involved in. The first one is formerly known as the Washington Software Alliance, now just the WSA. Can you tell me what this is and how you're involved with it?

BB: Yeah. The WSA, formerly the Washington Software Alliance, I was the chairman over the last two years. And I spearheaded the initiative to get rid of the name Washington Software Alliance. So I'm one of the people to blame for the name change.

It was an organization to provide support for software companies in the region, for their employees, technical communities to discuss technical issues; HR communities to discuss human resource issues. As it evolved over the years, it began to provide more and more services, and that's when I became aware of it.

When we founded BSQUARE, [as] we ultimately began to bring on permanent employees as opposed to contractors, we needed to provide healthcare benefits, dental benefits. We turned to the WSA because they offered young companies like BSQUARE a structured program for implementing benefits programs, in a way that you got the benefit of the entire WSA membership, not just your own company.

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As you probably understand, the cost to you as an employer is proportionate to the number of employees you have as well as numerous other factors that go into the cost. And by leveraging the large subscribership to the WSA's healthcare program, BSQUARE was able to provide a very competitive benefit plan, which allowed us to compete during this boom time in Washington State.

So that's what got me interested in them. Kathy Wilcox, the president, encouraged me to become a member of that board. And what I understood it to be was only the tip of the iceberg of what the WSA contributes to.

They contribute to our educational system enhancements. They contribute to political lobbying on behalf of the industry. And again, they contribute to the technical forums. They contribute to the morale of the industry through things like the achievement awards that celebrate the successes of the industry.

But it was more than just software, because at this time, you also had the dot-com boom. And you couldn't really say these were software companies. Yes, they used software to do things but maybe no different from using a word processor if you're a writer. You're not a software person just because you use Microsoft WORD.

And so we broadened the perspective of the WSA to encompass those, because they have the same set of challenges. And there were issues like IT departments within big companies – they wanted to become part of the WSA because they were facing the same sort of software development issues. But these are IT departments in large insurance companies, and an insurance company is not a software company.

So we changed the name to reflect that there really isn't just that aspect of it. It's really connecting Washington's technology leaders in whatever way that takes. And clearly there's a computing technology aspect to it that the WSA contributes to.

JF: What are some of the other organizations or boards that you're involved with?

BB: Well, I'm on the board of advisors for Western Washington [University's] computer sciences department. I'm very fond of the Western Washington computer science department, because of the nature of the curriculum,

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because of the faculty, because a large number of recruits to BSQUARE come from Western Washington [University].

JF: From Bellingham?

BB: From Bellingham. They actually have a very high-quality program. And so I support that through the board of advisement.

I'm on the board of directors of the Technology Alliance, the TA. And that board is really principally associated with enhancing the educational systems around technology – they have a number of initiatives there – as well as fostering entrepreneurial growth within the region. So you have things like the “Alliance of Angels,” which is angel investors organized to support technology companies in the region.

I'm probably forgetting things but I don't keep too much track of such things.

I'm on the board of directors of XTen Wireless. Most people know them from the little pop-up ads that come up when you're browsing the Internet, the little cameras. There probably isn't a month that goes by that I don't get an angry e-mail saying, “You're on the board, why don't you do something about those darn pop-up ads?” And the only way I can respond to them is, “We are doing something about it. We're getting more of them because they're incredibly effective.”

The sell-through rate of those pop-up ads is incredible. And I know it's annoying, and there is a way to turn them off, so we always turn them on to the link that tells them how to turn them off, and you can go on with your merry life.

But the interesting thing about the Internet – people are starting to understand it, and it's starting to bear out now – the Internet is not free. The Internet costs somebody a lot of money. And if there isn't a way to monetize that investment, you're going to see enormous bankruptcies occurring.

Well, guess what? You're seeing enormous bankruptcies occurring. WorldCom is the symptom of the fact that there is an enormous ability to deliver the Internet and people not wanting to pay for it. But there's not hardly a corner of the universe that it hasn't affected. But still, it's difficult to monetize, so companies like XTen that have figured out a way to monetize

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the Internet, well, more power to them. And if people want to get around it, there's ways to do it.

I think that's it.

BB: Have you contributed to the University of Washington?

JF: Yes, I have. Again, I feel that our state critically under-funds our state educational system. I believe one of the key tenets of this region's success, besides Microsoft frankly, has been the availability of highly talented resources from the University of Washington, via their research and their undergraduate programs. And the state does little or nothing to make that happen, and so it has fallen on individuals like myself and Paul Allen, who contributed to the new building campaign for the Paul Allen computer science and engineering department.

JF: Now, I'd like to talk to you about your views on the diversity of the industry, both in the types of jobs, just the diversity of all the different jobs that are available in the industry, and also the physical makeup of the people in the industry.

BB: Well, it's an incredibly diverse industry, especially if you insert the Internet element to it all. One of the things that became clear in the 1998-1999-2000 timeframe was that people who were good at developing good Web servers or good software were not good at developing good Web sites. And that people who were good at writing were not good at developing good Web sites, but there was an interdisciplinary nature of Web development that transcended computer science, IT, English and graphics arts. As a result of that, you see programs emerging that address that.

As an example, at Western Washington University, we got a grant, a matching fund grant, from Washington State. Again, industry had to provide a lot of the money, but the state did provide some of the money, to establish one of those interdisciplinary programs that would train you in all the different arts you needed in order to become a really good Web developer. So that, in its convergence, really points out the diversity of the industry because you're bringing together so many diverse skills into a single discipline.

But if you look at the technology industry in Washington State, you have people building hardware, you know, the machines. So you have electronics

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people. You've got people developing really low-level software that you'll never see in any solution. It's there, it's just never seen or heard. We call those firmware developers.

Then you've got operating systems and tools people that develop these language tools and stuff that help people develop programs for computers. You've got application developers that are developing things that you understand a computer is for, the application, the Microsoft Office part of the world.

Then you've got IT side of it, integrating all this stuff into an environment, whether that's an industrial or a corporate environment. And that requires a fair amount of understanding of the different protocols and standards or how these things interact.

Then you've got a very large supporting cast behind all this. Marketing is very differentiated. You've got corporate communications people who put a public face on your company. You've got product planning people in marketing that go out and figure out what a product should be and why, and who's going to buy it and how many they're going to buy.

You've got product management people who are taking that product plan and turning it into reality and taking out into the market and doing the go-to-market activities you need, like advertising and like analyst tours and all the stuff that makes successful products.

You've got the salespeople who have varying of skill in technology, as well as in arts of closing the deal and creating solutions.

Legal departments. I think one of the biggest booms in our times is the legal industry. When times are good, lawyers make a lot of money, and when times are bad, lawyers make a lot of money. And BSQUARE has a very sizable legal department, to protect our interests, the interests of our intellectual property, and to protect the interests of our partners, because we partner with many large companies like Microsoft, so you've got to protect them. And within there, you've got general counsels and attorneys and paralegals and legal secretaries. So that's a big area.

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You've got finance. Finance is huge. You need a big supporting cast in finance, so there you need controllers and account receivable and accounts payable, and analysts and CFOs.

Then beyond that, you've got your own internal IT department and they have their own challenges. And within there, they have very specific disciplines. Some people know how to do the exchange servers, some people know how to do databases, some people know how to do the customer relationship management systems and the enterprise resource planning systems. So you've got all that specialization in your company.

It's an incredibly diverse industry. Lots of opportunity for creativity, and to be the person you want to be.

JF: OK. Now along those lines, what advice would you offer to someone who is considering a career in IT in the next five to ten years, in terms of education or experience?

BB: Well, I'm very much a fan of general education. I think you need to have a very good general education background. That means learn a lot of different things. Don't pigeonhole yourself into one thing right up front, because who knows what's going to happen in the next ten years?

Just like we're sitting here with the Internet being the big thing. Ten years ago, the Internet was this very cryptic, arcane thing that we used inside technology companies, just a little bit, to transfer e-mail mostly, and to share files. Now today, it's this huge wealth creation mechanism for a large number of industries.

So if you had become expert in something that became obviated by the Internet ten years ago, you'd be trying to figure out how to be in the Internet today. But at the same time, if you had a good, well-rounded set of skills – math and English, and I am a very big fan of public speaking skills, learning how to be articulate, writing skills, things like that – you will be able to adapt to these new environments. So don't become too specialized too soon, because who knows if that specialty will exist when it comes time for you to apply it. Make sure you have a very well-rounded education.

In addition to that, I'm a very firm advocate of forensics in school. I believe that public speaking is probably the most important thing I did in my

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upbringing. And, you know, I'm not a computer person anymore, you know, but I'm a CEO. And I didn't get that because I was a computer person necessarily. I think I can attribute a lot of that to competing nationwide in cross-examination debate.

And I think even if you don't know what you're going to do, go into higher education. People laugh at people who get history majors, you know, what are you going to do with that? Well, they're some of the smartest people I know, and I've got history majors that do computer stuff now, so they were able to adapt.

But even if you don't know what you're going to do, do something. Because an employer given two otherwise equally skilled or unskilled employees is going to look at the discipline that it required to get the level of education they attained, and they're going to choose the one with more discipline.

JF: Now, thinking about the ways that technology has changed the way employees do their work – and you've already talked about telecommuting and the different options that are available – what would you like to see happening in the future?

BB: Teleportation. [Laughter]

You know, software development and product creation is a uniquely social endeavor. It's very hard for ten people to sit in ten different buildings in ten different locations and be able to achieve the level of success that ten people can sit in a very tight knit area doing the same thing. It's very social.

A lot of things – If you think about computer programming, you're writing. You're expressing yourself. You're expressing arguments. Sometimes those arguments aren't absolutely clear when you're just looking at the source code of that program. Sometimes you need to argue with someone face-to-face, to justify why that program is written the way it is and why it solves the problem that they were setting out to solve.

So in some cases, while I think it's nice for people to have the flexibility to telecommute and stuff, it is not necessarily the most productive way to create products. So when you ask me what I'd like to see, I'd like to see the infrastructure for commuting become much less painful for people so that they could feel fulfilled in coming in to their job, day in and day out. And going

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home, not thinking that the highway is going to be backed up all the way past [I]-405 because there's a Mariners game some night.

Beyond that, I think if the state would just make the investment to make that happen, I think jobs would be less stressful, people would come to work more relaxed and they'd get the job done. The reason you have Web sites that show the traffic on the highway is because people are stressed out about the traffic on the highways. At the end of day, they're not focused on my problems, the company's problems, they're focused on their problems, how they're going to get home at night. That seems to me ludicrous to have to worry about those things.

JF: OK. Now, where do you see yourself in the future, in the next five to ten years?

BB: I have no idea. And if you'd asked me that five to ten years ago, I'd have given you the same answer. If you'd asked me when I founded this company if BSQUARE would be a public company with this many employees, I would have said no.

If you'd asked me what I'd like to see, it would have been a very idealistic sort of thing, you know, I just wanted to see everyone carrying a device with our technology. That's all I ever wanted to see. I wanted to know that when I said – not BSQUARE's name, because if you say the name BSQUARE outside this region, or even within this region, they're not going to know who we are. But if you say we did the software for the pocket PC, well then people know what you're talking about. That, to me, is fulfillment.

So when I look five to ten years out, I look at the new things we're doing. And I see the corporation becoming more involved in how these wireless devices that you're going to be carrying someday, and everybody's going to be carrying someday, will be managed and deployed and I think that's an important thing for me.

But on the other hand, I've got my personal life. I've got a daughter now and I worry about is she going to get into the right preschool, or is she going to get into the right kindergarten? And I'm an advocate of public schools, so I wonder, are the public schools going to be in a good enough state by that point that I can feel confident putting her into those schools and having her make the best of it?

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If I do my job right, the shareholders will keep me as CEO of BSQUARE and the company will be doing things that we only dream of today.

JF: Is there anything else that you think I ought to have asked you about that you want to talk about now?

BB: No, I don't think so.

JF: OK, well thank you very much for your time.

BB: Thank you.

END OF VIDEOTAPE

END OF INTERVIEW OF BILL BAXTER ON AUGUST 5, 2002