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**Brent Ozar puts SQL in the Cloud!**  
**January 27, 2010**



[Music]

**Brandon Wenn:** From [runasradio.com](http://runasradio.com), you're listening to RunAs Radio, the Internet audio talk show for IT professionals with Richard Campbell and Greg Hughes. This is Brandon Wenn, announcing show #145, with guest Brent Ozar, recorded Monday, January 11, 2010. RunAs Radio is produced each week by PWOP Productions, providing professional media and podcasting services online at [pwop.com](http://pwop.com). You can follow the boys on Twitter at [twitter.com/runasradio](https://twitter.com/runasradio).

**Richard Campbell:** Thank you, Brandon. This is Richard Campbell. You're listening to RunAs Radio and with me as always, my co-host, Greg Hughes.

**Greg Hughes:** Hey everyone. Richard, how are you today?

**Richard Campbell:** I'm well, sir. You know, no rest for the wicked. Lots of shows, lots of great things going on.

**Greg Hughes:** Yeah, there are all kinds of interesting things to talk about.

**Richard Campbell:** Absolutely. So we should just dive right in because I think this is going to be one of those shows that doesn't give up easily.

**Greg Hughes:** Yeah. I think that's a good idea.

**Richard Campbell:** All right. Our guest today is Brent Ozar. Brent is the SQL Server Expert with Quest Software, and a Microsoft SQL Server MVP. Brent has a decade of broad IT experience, including management of multi-terabyte data warehouses, storage area networks and virtualization. In his current role, Brent specializes in performance tuning, disaster recovery and automating SQL Server management. Previously, Brent spent two years at Southern Wine & Spirits, a Miami-based wine and spirits distributor. There's some fun for you. He has experience conducting training sessions, has written several technical articles, and blogs prolifically at [www.BrentOzar.com](http://www.BrentOzar.com). He is a regular speaker at PASS events, editor-in-chief of [SQLServerPedia.com](http://SQLServerPedia.com) and co-author of the book, "Professional SQL Server 2008 Internals and Troubleshooting." Welcome, Brent.

**Greg Hughes:** Hey, Brent.

**Brent Ozar:** Hey, how is it going, guys? After that long intro we're probably out of time.

**Richard Campbell:** Yeah, okay. Thanks very much for coming on RunAs Radio. See you next week. Oh, that wasn't too bad. It sounds like you've

done some cool stuff. Southern Wine and Spirits sounds like an interesting company to work for.

**Brent Ozar:** You know, that was a really lot of fun. I went in there as really their fulltime production, their first fulltime production DBA ever. They had something like 10,000 employees worldwide and, you know, you walk into an environment that never had a DBA before, it was a lot of fun to go in there and make some big performance differences and then be able to take over the SAN Administration as well. SAN Administration is one of those classic black boxes that people just see and they go "I don't know what's going inside there, but I doubt it's any good."

**Greg Hughes:** If you can get someone to let you inside and they get to see all the coolness.

**Brent Ozar:** Yes, yes and if you're on the outside, nobody is ever going to let you into there so it was a lot of fun to get into that world.

**Richard Campbell:** Yeah, heavily protected stuff. But of course these days things are getting weird. People are giving their databases to other people and letting them run them which, you know, the DBA in me just cringes every time that conversation comes around.

**Brent Ozar:** You know, isn't it funny how us DBAs used to be in a real position of power and when somebody wanted to deploy an app or when somebody wanted to choose their hardware and specify their RAID arrays, whatever it was, they had to come to the DBA and the DBA would give them a thumbs up or thumbs down or say "No, we can't put your data on RAID 5," or "No, you can't write a CLR in the database." It's such an interesting time that that power really seems to be shifting, that the DBA isn't the number one guy anymore and I think the Cloud developments that we're seeing, especially with the new Azure stuff that has come out in full commercial licensing of February 1, that's really starting to open some DBA's eyes on who's really driving this bus and who's really in the backseat these days.

**Richard Campbell:** You know, I've also talked to organizations. I've done a lot of performance tuning work and the like as well where they literally had gone around their IT department. They had farmed the workout to an ISP or something to that effect just because they found it frustrating to work internally and expensive.

**Brent Ozar:** Got it.

**Richard Campbell:** You know, the accounting model that folks are using these days are building back their IT services to individual business units and the guys are looking at the numbering going, "You know what? I can get this for cheaper."



**Brent Ozar:** You got it. I can't emphasize enough how much I see that. We started getting so good in IT at billing people back and doing chargebacks. I was with one global financial firm and we had our available rates and our available managers and they said, "You know what? How about if we compete with you? How about if we go out to such and such company and we can do it cheaper?"

**Greg Hughes:** Yeah.

**Brent Ozar:** And now with the advent of SQL Azure and a lot of Cloud-based solutions that are out there, people really all of a sudden have this competition and the developers are driving this. The developers are saying "Hey, you know what? I have a choice. I can either go to my DBA and beg for a database and he's not going to give me any kind of access, or I can just go talk to the network guys to open up a port on the firewalls so I can go and talk out to the Microsoft servers and I can start developing right now with the credit card, you know, 10 bucks a month, 100 bucks a month and off I go and it's easier to ask forgiveness than it is to ask permission."

**Greg Hughes:** We've done a couple of shows in the past on sort of the evolution of the DBA and sort of the -- in a way isn't the whole role of the DBA has really changed overtime, but it's been kind of a black box too. I can tell you, I'll just say from personal experience that having to hire DBAs or work with DBAs in the past, there has been some that are great and there's been a lot that I just really didn't want to spend anytime around.

**Brent Ozar:** Yes.

**Greg Hughes:** Is the DBA a member of the team now, or is that phase over and are we really looking to the Cloud or when the world is looking for services to be provided more? What do you think is going to happen?

**Brent Ozar:** Yeah. You know, Buck Woody has an excellent blog post about that, that really the DBA needs to change their role to be a data steward and no matter where the database is at it's really the DBAs role to get in there and help make life easier for the developers. As folks move to Azure, some of the things to do, it's used to being able to get like Query execution plans or even just know who else is running a Query, you know, they can't get with Azure's built-in tools and it's up to the DBA to start working with these developers and saying "All right, let me look at your queries, let me look at how your data is structured."

**Greg Hughes:** Yeah.

**Brent Ozar:** "Let me help you figure out how to do it faster, you know, and my knowledge of

how I work with tables, how I work with queries is going to become even more important to you overtime if I can really add that value." But if I can't add value as a DBA, man, nobody is going to come and talk to me. So now we really need to turn into somebody who's serving our customers, our developers instead of being some kind of gatekeeper where we're going to just lock things down and tell them no.

**Richard Campbell:** Yeah.

**Greg Hughes:** So it could be the kind of situation where the new technology almost forces the hand if you will.

**Brent Ozar:** Absolutely and I tell DBAs that if they're smart go learn Azure now so that you can at least offer it as a tool in your toolkit because sooner or later when it's really going to pick up is when the project managers start hearing about it from some of these developers who are playing around with it and the developers are going to say to the product managers, "Hey, you know, I can have this database up and running in 15 minutes for \$100 a month." If you get a company credit card out, he'll just go and make the magic happen and it really is up to the DBA to be able to field questions about it and say, "Yes, I've worked with that. Here are some of the pros and cons. Here are some of the things you may not be aware of that you might want to consider before you throw your next enterprise app on there."

**Richard Campbell:** And it's not just SQL Azure. I mean, from my perspective maybe as a developer, SQL Azure makes me a little nervous because it's not exactly a SQL Server. I do have to learn new things to work with it.

**Brent Ozar:** Yes, yes. If it was fully SQL compatible, I think you can see a whole lot more people throwing applications onto it faster but we looked at it briefly at Stack Overflow and the guys started asking "Hey, could we use this as a backup database? In case our main database server dies, could we just do say log shipping or database mirroring over to Azure and then failover to it?" Well, not only do the Azure not support those kinds of technologies but the basic queries that we were running at Stack Overflow, Azure didn't support that either, things like full text or CLR. So because you have to limit yourself to a subset of SQL Server, I think it really works best on brand new ground up from scratch projects...

**Richard Campbell:** Right.

**Brent Ozar:** Where if we build our apps for Azure, then we can kind of limit our apps and then if we decide we want to use it with full-blown SQL Server later on, it's relatively easy to make that switch, whereas, it's really kind of painful to switch back from full-blown SQL Server to Azure.



**Richard Campbell:** SQL Azure is the subset. I guess the alternative approach to this then is to just throwing up a virtual machine in the Cloud ala Amazon EC2.

**Brent Ozar:** Yes.

**Greg Hughes:** I was laughing when you say throwing up a virtual machine. Ice, ice...

**Brent Ozar:** Yes. Regurgitating, yeah and that's an interesting option. If you really go full-blown in the EC2, it gives you some interesting options or any like a Teramark Virtual SQL Server provider. Once you start log-shipping your databases to the Cloud like I like to do data disaster recovery with Amazon S3, which is really a file server that sits in the Cloud and you can pay by the meg and of traffic in and out and it's pretty cost effective. Now, so they found out my datacenter catches fire or there's an earthquake, massive power outage, whatever, I've got a recent copy of my database up in the Cloud and I can throw up, so to speak, a SQL Server up in Amazon EC2 and start restoring those databases relatively quickly. That's a flexible way to do it. You probably don't want to pay for SQL Server in the Cloud fulltime in EC2. It gets a little expensive. It can be anywhere from around 800 bucks a month to rapidly approaching 3,000 to 4,000 bucks a month and it really doesn't have any of the high availability or disaster recovery stuff that Azure has built in. You kind of have to roll your own there too and you're going to end up needing a fulltime DBA if you choose to go in the Cloud. But this brings up an interesting point too. DBAs now have the ability to say the SQL Server cost exactly this much per hour. Whether you're running on Azure, whether you're running on EC2 Teramark, whatever it is, I can say that a given database server with a certain amount of power and storage is just going to cost me say \$15 an hour. Now, if I can optimize queries or if I can optimize storage to cut that cost down, I can show a really clear ROI to the DBA, and I've had clients come to me and say "Hey, I'm looking at a bill next month for Amazon EC2 of \$7,000 to \$8,000 for my SQL Servers. What can you do to help me drive that bill down? Suddenly now DBAs are actually able to put a price tag on what we're doing and say "Hey, look, I just save you \$4,000 a month. Now let's talk about what I'm worth to you."

**Richard Campbell:** Right. Yeah, it's interesting to finally get hard numbers around this. It's almost like the Cloud offerings have created a marketplace so at least we know what the real values are.

**Brent Ozar:** Yes, yes. I really believe that it's going to have to get more robust because right now when we look at these bills for how much comes back, whether it's SQL Azure or whether it's EC2, it's kind of mystery as to what that money is going

towards. You know, is there a certain Query that if I fix it it would make my life so much easier. Those tools aren't out there right now and that's where I think DBAs can really come in handy. If we start building things like that to say this particular application and this Query, if you tune this it's going to save you \$400 this month. That's fantastic.

**Richard Campbell:** Yeah, interesting point. You literally could put a price tag on your optimization efforts.

**Brent Ozar:** Oh yeah. I mean, we've always been able to say I drop this hourly job that used to take six hours overnight to import our data warehouse data and say we'll optimize it and get it down to one hour, but who really cares. If you already own the server, that doesn't really make much of a difference.

**Richard Campbell:** Right. Yeah and the other side of that would be optimization say on queries for websites to improve the site performance by 20% and that correlates to a revenue increase.

**Brent Ozar:** Yes, yes. So boy, I wonder if both revenues are expensive. You know, suddenly now DBAs can put real price tags on things and that's something that if we utilize it right can be a really big sale, real big selling point for us as DBAs.

**Richard Campbell:** It's a little early to tell right now but what's your gut on it is possible to run your infrastructure less expensively than the Cloud at certain scales.

**Brent Ozar:** Yeah. I think at a point where you're working with multiple departments, if you say you're in a company and it's just big enough that you got different departments, you probably want to go ahead and have your infrastructure done internally and you probably want to have a shared staff to do it. So for example, if you're a small company and you've got one developer and maybe one network guy and they all work together on the same two or three applications that do your website sales or handle incoming applications, that's a relatively small pool of infrastructure and it probably doesn't pay for you to go build out a cluster for you to go get a SAN for you to build all these reliability and scalability into your infrastructure.

**Richard Campbell:** Right.

**Brent Ozar:** At that point, you're better off having somebody else manage that for you. But as soon as you scale too, you've got two teams that are both using whether it's SQL Server infrastructure or whatever infrastructure you choose to use, at that point you'd probably want to consider bringing it in-house. I had that same discussion when I talk to project managers. So if I have a big enterprise and



one particular group is going after a new application that they're going to build with SQL Server, I'll say "Okay, do you have anybody else in the company who's sharing the same technology stack?" if you're not, if you're looking at building the stuff from the ground up, then maybe a Cloud make sense for you until you can get this kind of reliability skills and scalability skills in-house.

**Greg Hughes:** It almost sounds like you're saying that Azure or Cloud Computing is maybe geared best towards the small, or small to mid size business.

**Brent Ozar:** Yeah. I'm probably out alone on this but I think I'm -- well, of course I'm out alone on a lot of opinions, I'm kind of used to that but I think that one of the ways that really make sense, for example let's say that you're an enterprise software company, let's say BlackBerry Enterprise Server, nothing runs on SQL Server but you really don't want anybody playing around with that database. You don't want anybody touching it. You don't want anybody dealing with the management of it but you can't commit your clients to let you host their SQL Servers. In that particular case, it might make sense to offer hosted solutions on Azure, let Microsoft maintain the things like the infrastructure that you may not be that good at.

**Greg Hughes:** Sure.

**Brent Ozar:** You may not be able to build out the redundant internet connections, generator power in SQL Server and all that, but you can pull that off if you end up letting Microsoft host your SQL Server stuff for you. Also, if you set security right, you can build it so that your clients can't go in and break your schema. You know, I worked for ReQuest Software and in a perfect world nobody would ever touch our repositories. We build these products that use SQL Server repository for performance management configurations security, whatever, and you just know that we've got those clients out there who will go out and change the way the schema works in order to build their own reports, in order to extend it, but then when something breaks we're the ones who have to deal with support and that can get a little painful.

**Greg Hughes:** Sure. That's where you can have some real severe supportability problems, can't you?

**Brent Ozar:** Yeah, absolutely, absolutely.

**Richard Campbell:** You know, I think there's a certain strata here where the Cloud make sense and maybe going back in-house make sense too and you sort of hinted at this thresholds, Brent. Obviously when things are small, the cluster is small and the Cloud relatively speaking and the startup cost of

running a real SQL Server are trivial, buying this machine the licenses for SQL Server which seems to be only getting more expensive, you know, that's a big chunk that you can offset a long time with the Cloud. But I think one of these magic thresholds seems to be the reliability threshold. What I now need the high availability, I'm looking at the thing like a cluster in that kind of infrastructure and that's a big price tag, that's a quarter million dollars worth of gear and a substantial chunk of skills, suddenly that's a year's worth of service up to the Cloud.

**Brent Ozar:** Yeah, yes and if you know that you can contain your data sizes, that's where it also starts to get a little... because right now with Azure the databases are limited to either one gig or 10-gig.

**Richard Campbell:** Right.

**Brent Ozar:** And if you control the application and you tightly control how much you're putting into that database, you can do okay. You can contain a lot of databases under 10 gigs, and let's say that you got rockstar developers who really know their stuff and they decided to build their own Sharding mechanism which is the ability to put data inside different databases and your application knows where they live at any given time. Let's say that we're doing a sale, we decided to put a different country in each different database and I know when I want the sales from France I go query the France database, when I want sales from Italy I query the Italy database but it gets a little trickier again when one particular country like say the US or Mexico has sales greater than 10 gigs worth of data, then we have to go out and shard inside that country again and that's something that only really good developers are good at building that in a way that scales really well and if you decide to go the Cloud route, all you really just did was you traded infrastructure cost for developer cost.

**Richard Campbell:** Right.

**Greg Hughes:** Right.

**Brent Ozar:** You need better developers in order to handle Azure's weaknesses right now, whereas, if you decide to throw everything in a single database you can live by with much cheaper programmers but then you have to go approach those quarter million dollar investments in SQL Server.

**Richard Campbell:** Yeah, there are no easy choices here. If this is simple, everybody would be doing it, right.

**Brent Ozar:** Yeah. I think it's like virtualization was 5, 10 years ago. Virtualization back then was this really niche case where very few people saw the ROI in it and it was kind of black magic, there were lots of things you have to work around. It didn't quite work right out of the box. You had to hold your



breath and put your left foot out the window when you did certain things. Now, any middle level manager can just throw the CD and get either Hyper-V or VMwares up and running off and going. People are talking about virtualizing an entire datacenter because it just got so reliable and people bundled in so many features. Now we have this level of expectation where we're using a virtualization product that, oh, it's going to do all these things for us, it's going to have these fancy graphs to show us what our CPU use is, what the most process intensive server is and why. We don't have that stuff in the Cloud yet but I bet as we get more and more down the road and the Cloud offers more and more potential, offers more of what SQL Server native commands offer, things like full text, things like backup, gateways narrowing log shipping, as we get more of those features in I think people are going to get more comfortable with it especially if can blow pass that 10-gig limit and I think it's going to have long term the same adaption curve that virtualization have. I think there's going to be a point and there's going to always be a holdout. There's always going to be the guys who say I have healthcare data, I have financial data. I was speaking in Germany and DBAs there were just like now we can't go to the Cloud until our representatives, our government decides to change the laws about privacy and that really shuts technology conversations down right there.

**Richard Campbell:** Yeah, it's just over.

**Greg Hughes:** Yeah, I deal with that on a daily basis so I can relate to that.

**Brent Ozar:** You know, I know my security better than anybody else and nobody could possibly keep data secure as I do. Then of course you go in there and do an audit and you go, well, you realize you've got blank passwords, you've got people who haven't changed their passwords in six months, you've got these big gaping holes in your infrastructure and you're encryption keys are steward here on your web server so it's all a bouncing act, and until everybody gets more comfortable with what security really exist out in the Cloud that's just going to take some time.

**Greg Hughes:** That's a topic in and of itself. Stepping back a couple of minutes here back to virtualization, one of the changes that took place in the virtualization world in addition I think to the ones you've mentioned is that the cost of doing virtualization and even just for the virtualization infrastructure itself really came down in price, do you think that will happen in the Cloud Computing world?

**Brent Ozar:** Yeah, as long as we get competition which is one of the big nervous things right now, I don't think there's really enough competition for it to be healthy yet. I really liked Amazon's RDS which is their basically MySQL in the

Cloud. You can pay a fee and you get the full-blown power of MySQL in the Cloud, all of it, all the commands that they support you get full-blown in the Cloud. Now, if we had that in the Cloud with Microsoft SQL Server where I could whipped out my credit card and say here's all of the power of SQL Server and it's going to cost me this much a month, or I can get it nearly free but just have much less capabilities then I think it would adapt a lot faster. I don't know that SQL Server is going to get a whole lot cheaper than the Cloud than it is right now and this is just my conjecturing, I don't have any kind of inside information there. But 10 bucks a month for SQL Server even at just one gig or 100 bucks a month for 10 gigs, that's really attractive to people who don't have their own infrastructure.

**Richard Campbell:** Sure.

**Brent Ozar:** I mean that's -- you're down to what? You know, I pay almost that for my internet bill. I pay more than that for my cell phone bills for me and my secret freaking other. So that's a pretty attractive price for product managers.

**Richard Campbell:** You know the one thing that you just don't see is anything along the lines of TPC-C numbers around SQL Azure or any of these Cloud-base databases.

**Brent Ozar:** Yeah and the instance you try it, I did this performance benchmarks in Amazon EC2 because I just wasn't getting the SQL Server performance I expected.

**Richard Campbell:** Right.

**Brent Ozar:** I was really disappointed and so I posted my findings on the EC2 forums and asked for help and sure enough I got back several answers saying, well, you have to do this first. You have to erase the entire hard drive and then you have to go ahead and once it's all over, you've written files across all of it, well, then you need to use elastic block stores and there were all these other weird things you had to do. And you know what? It's really no different than when we go out and we buy a new server from HP, Dell, IBM, whatever. If you try and just throw Windows on there and throw SQL Server and try and run a TPC-C you're results are going to suck. You have to make all these preparations in advance, you have to set up your disk in a certain way, you have to use partition alignment if you're using Windows 2003. All these things you have to do, and really I think if you're going to go after serious performance in Azure or in Amazon EC2, RDS, whatever it is, you're going to have to tweak a whole lot of knobs. In the example of Azure you're going to have to spread load across a whole lot of servers and you're going to have to know which servers they're living on because if you go and create five databases,



that doesn't necessarily mean they're on five different servers.

**Richard Campbell:** Right.

**Brent Ozar:** And the more that you put into that, the more you pursue those benchmarks, how really related is that to your real world work because if you write your application the bottleneck is probably in your Sharding code.

**Richard Campbell:** Right.

**Brent Ozar:** Then you ping out where the data lives because you also got to put some robust logging in there because what happens when just one of your 10 databases goes offline temporarily, you better be able to handle that.

**Richard Campbell:** Well, and from an IT perspective the Sharding code is the worse kind of code.

**Brent Ozar:** Oh yeah.

**Richard Campbell:** It's not production related code per se, it's not actually business rules or anything and you know sooner or later this will be replaced.

**Brent Ozar:** Yeah, yeah and it's so tightly tied into your application logic because your Sharding by something business related.

**Richard Campbell:** Right.

**Brent Ozar:** You know, sale. What happens when you try to change that? Heck, Microsoft SQL Server 2005 introduced partitioning. I was so excited for that because it's really like Sharding inside of the database server. It's great. It has a lot of advantages, but I don't see that many people using it for a lot of reasons. But one of the reason is when you decide to change that, how you've sharded your data, how you partitioned it, man, you better take a long drink and be ready for a long outage because you're going to have to move your data around and nobody can be touching it while you do it and that's, you know, for a whole idea with going to the Cloud, it's high availability performance, lots of uptime and we talk about now when we change our Sharding we're going to have to move everything around, ooh, that's ugly.

**Richard Campbell:** Well, and the perception to the customer these days is I don't have to worry about performance anymore. The Cloud will take care of that. You just pay more and it will go faster.

**Brent Ozar:** Yes, yeah and I think some of that is -- because the whole Gartner Hype Cycle thing about how adaption changes, I think that we're at that point where people see all this hype, that the Cloud is

going to fix everything and you just pay more when you want more, but people don't understand because there's just a few technical limitations right now, your Sharding being the big one, it doesn't matter how much you pay, it's going to come down to how much skills you have in order to make the thing work right and sooner or later those skills either have to exist at our level, the independent developers out there, or it has to exist at Microsoft's level. Microsoft has to build in Sharding so that we don't have to keep reinventing the wheel and if they do that then people can just get out their credit cards and go wild and crazy with the speed.

**Richard Campbell:** Yeah, I think we're still going back to Gartner's terms. We're still waiting for that to hit the bottom of that trough of disillusionment.

**Brent Ozar:** Yes. It's funny I don't know anybody who has used Azure who is disillusioned yet. You know, the people who have gone in and then used it because they've been so educated, developers have said "Oh, I'm not going to go use that because of blank. I'm not going to go use it because I have to do Sharding or there's a 10-gig limit.

**Richard Campbell:** Right.

**Brent Ozar:** But the people who have used it knowing what the limits are and who had solutions that worked inside those limits have been pretty happy. So I'm curious to see what the curve looks like. I don't know if we're going to hit that curve issue or if that's going to be next year.

**Richard Campbell:** Well, and it's really as long as you're sticking with Greenfield apps you already don't have that huge commitment that would drop you to your knees right off the bat. By the same token, I don't think we're seeing massive Azure success stories. The twitters of Azure haven't shown up yet and that's where you're going to see that real pain, when someone actually pushes out the Cloud to its limits and bangs into that.

**Brent Ozar:** Yeah. The magic word, you said their twitter, that was so eloquent there because Twitter didn't know what the adoption curve was going to be.

**Richard Campbell:** Yeah.

**Brent Ozar:** Of course their staff thinking that, oh, we're going to set fire inside of a known technologies which is going to be able to use MySQL off the rack and everything is going to work great, and I bet right now there are developers out there building applications on Azure thinking they're just fine inside the 10-gig limits.

**Greg Hughes:** Yeah.



**Brent Ozar:** Or they're just fine with these many processor cycles per month and all it takes is a few back queries or one link from dig or one link from slash., they're at those crazy and they go oh my God, I can't write a check fast enough to get my way out of the trouble that I'm in.

**Richard Campbell:** And more relatively they don't want my check. There's nothing to buy here to save me.

**Brent Ozar:** Yes, yeah. I saw that with Twitter. I mean what was it they got? Twenty million dollars in market cap and for months they were still going down per day.

**Richard Campbell:** Yeah. Like just because they money doesn't mean there's actually a simple solution to the problem.

**Brent Ozar:** Yeah, yeah. That's so sad, but the key to that is knowing what the limits are before you go in and develop and working with other developers who are playing around with it. You know, you're not reinventing the wheel here. There are a lot of us who play with it and who has seen the pros and cons and it's easy to go out and get help, find other people who can talk to you about it who know the limits.

**Richard Campbell:** Well, I think this is where the Cloud guys are the most vulnerable because the largest number of people you're going to encounter are the folks who are going to say I know how to do that on SQL Server to run your own infrastructure.

**Brent Ozar:** Yeah.

**Richard Campbell:** You've got 20 million dollars, dude, you can bill yourself a heck for the infrastructure for this in a big hurry. That is a much more known solution than where you're trying to go with the Cloud.

**Brent Ozar:** Yeah and some of that is probably due too to Microsoft BizSpark program or WebSpark program but now you came and get free licensing for your web business for the first three years.

**Richard Campbell:** Yeah.

**Brent Ozar:** So you're going to roll the dice. Why not use SQL Server, and if you're really going to expect success why not just build a little SQL Server and be done with it and walk away from it, but that's a tough call for a lot of small businesses.

**Richard Campbell:** Yeah. I've got to think that at some point here, and of course this is just happening now, we're recording now in January and Azure is

really going to go live next month, you would think that Microsoft will incorporate Azure as part of the BizSpark offering at some point.

**Brent Ozar:** Yeah. Wouldn't that be interesting too to say...

**Greg Hughes:** Yeah, that would be very cool.

**Brent Ozar:** You know, you can have an unlimited amount of queries and storage for your web app knowing that what's the best case scenario, you get wild, went popular and after three years I'm going to start charging you the bill for it.

**Richard Campbell:** Yeah. These again are good problems to have to get to a point where -- you've done this work as well, Brent, the fun part about performance tuning is you're generally dealing with people who have good problems. You know, if nobody was using this app, it would work great.

**Brent Ozar:** Yes. Worked on my machine.

**Richard Campbell:** Yeah, congratulations. You know, you have this good problem of so many people wanting to use your app that it's failing from its own success.

**Brent Ozar:** Yeah, yeah and usually the people at that point also have enough money because the customers are coming in, kicking down the doors or investors are kicking down the door saying how can we make this work.

**Richard Campbell:** Yeah.

**Brent Ozar:** You geeks go ahead, get into a room and figure out the right answer.

**Richard Campbell:** Yeah, make it work for us and everything will be fine.

**Brent Ozar:** Yeah, here's your coffee and pizza. Get to them.

**Richard Campbell:** Brent, we're about out of time here. Any final words, places people should be looking to learn more about SQL and the Cloud?

**Brent Ozar:** Yeah, absolutely. We blog a lot about it on my site, [brentozar.com](http://brentozar.com), and we also have 40 syndicated bloggers over at [sqlserverpedia.com](http://sqlserverpedia.com). We've got a lot of guys doing interesting stuff with the Cloud using it with SQL Server Integration Services, for example, to push data into there, sync data back and forth between their own servers and Azure just for disaster recovery to use or for tools to let people do public querying. We had posted my entire twitter cache up into an Azure database so people could play around with SQL Server Management Studio. [Sqlserverpedia.com](http://Sqlserverpedia.com) is a



great place to go to find out new things that are happening right now with Azure and stay posted with a lot of new developments as they come out.

**Greg Hughes:** Cool.

**Richard Campbell:** Excellent. Brent, thanks so much for coming on the show.

**Greg Hughes:** Thanks, Brent.

**Brent Ozar:** Thanks, guys. I really appreciate it. It's great to talk to you.

**Richard Campbell:** And we'll talk to you next week on RunAs Radio.