

Ep. 56 Modern Databases, Feds, Flexibility

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Page |
1

00:38

Welcome to the federal tech podcast. My name is John Gilroy and I will be your moderator. The title for today's episode is modern databases, Feds and flexibility. What a great topic. This is really important for most of our listeners. Our guest is Brent Leach, he's the area vice president public sector for a company called Mongo DB. Brent, how are you?

00:58

Just fine. Thanks for having me, John.

01:00

You're not compulsive and sick and head like I am because I have this long radio background, I have to spell out the company let people know how to find it. So it's M as in Mary, M O N, G O, D is and dog B is in boy.com, Mongo db.com. So the mystery is what the heck's Bongo? What's this all mean? Any of Mongo DB? Is this gonna mix and match phrases? Or what does it mean?

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Mongo itself, it comes from humongous is the origination of that term is because it's making a humongous impact on how our software is developed.

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goodgoodgood humongous. So when I think of databases, I can remember years and go back when you were in grade school, something called FileMaker Pro. And then Microsoft got in the market. And they're like 5000, databases is the bread database to John database, the Ben database, every database. And then if you kind of, you know, Oracle came up to the top if you came to the top, and then there was another kind of distribution of something. So maybe you can give us a from your learned background, maybe a thumbnail sketch of databases and where MongoDB fits in this whole hierarchy.

02:03

Sure, absolutely. So most of most of our listeners here recognize Oracle and the relational databases, such as SQL and maybe even Sybase if, if they're my age or older. They remember those as the most impactful database especially come up through the 80s 90s. And the reason that relational databases were built, the way that they were in still are is the storage was really at a premium, it was really expensive to have storage. So you had to really maximize the your use of that storage, right, you want to make your your organization as



efficient as possible. So what they do is they take apart all of the data that's being put into your database, and they store it in a more efficient manner. Think if you had a parking garage, how many more cars you could fit on the parking garage. If you disassembled every car, as soon as it came in, put all the hubcaps on one side, put all the steering wheels in another area, you can really pack it full of a lot more vehicles than you could if you just pulled the car in right and kept it as its own object. That makes sense. Yep, those are the relational databases. As time has progressed, we found that storage is way less expensive, comparatively than it used to be. And it's easier to store things as an entire object. That's where the document database database model came. And that's it's a lot faster for ingest, as well as the read. If you read the entire object, you don't have to go look on multiple tables and things. I hope that answered the question.

03:28

Yeah, I think people have a general idea of what a relational database is. And it's sometimes it gets kind of kind of more difficult to understand the your type of database. I guess the the way to define it is in a negative it's not a SQL database is that no SQL is that one category for it. It's

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no SQL doesn't mean not SQL, it means not only SQL, Oh, right. So what the way that we store our data, if you think of relational, it looks like an Excel spreadsheet, maybe on steroids, you've got lots of rows, columns, tables, we look more like a Word document. We do have indexing to allow quick searching, but the objects are kept together. So that means that if you're you're you're it's not necessarily schemaless, it does have a schema. But it's a lot more flexible of a schema than a rigid relational database. You don't have to have all of your data types defined before your project starts. You don't have to have all of your tables and everything figured out because that's not how software development is done any longer. It's much more of an iterative process. And then suddenly you realize you need to collect or store a different type of data or more than you expected, and you need to make changes that's hard to do in a relational database system. Whereas in a no SQL database system with a flexible schema, you can make changes on the fly.

04:46

Just to share how old fashioned I am my wife and I used to go to San Francisco and drive around town and visit places go down to Salinas and Monterey and across the bridge a lot of fun and I always saw those Oracle buildings. Wow, these are shear the pacific time Is the money I mean, and so that's my image of a database company. But then I hear a company like yours, it's very flexible. It's very loose. It's it's developer friendly, rather than, you know, the some, some dictators. So it just seems like it's a, it's a database or a system that's more adaptable to our world of sensors, and the ocean sensors on railroad tracks, sensors and satellites, sensors on your phone. I mean, it's just, there's the center whole structure to the world we live in now is there.

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Now to be clear, those those buildings are still there. Yeah, big Oracle signs are still in those buildings. And Oracle definitely is the largest player in the in the market. But what what we are finding is there is a greater need for this flexible schema, because we are to your point, instrumenting, everything. Your refrigerator is now instrumented and is collecting data. When any device you have looked at your cell phone, when when these relational databases were developed, 50 years ago, there was no cell phone was even even across anybody's



mind. It wasn't even in its infancy. It was before that. So when you think about the applicability for the traditional legacy databases, in the way that we store data, and how we use data now, it's incredibly different with these applications that are being put on from the cell phone, for example, with how much information is coming in from the all the various different instrumentations. And they want to make use of this data in a quick, efficient manager manner. There's, there's no other way to do it. Other than a flexible schema database. It's really just insurmountable. Otherwise,

06:38

my wife tells me that I see black and white and I don't see gray and subtleties and variations and everything else. And so I'm gonna black and white this. So from the perspective of a federal information technology professionals trying to figure out what tool to use, is it's only one or the other, it has to be in shops got to be all or was gonna be all one way or is there a blender? Or is this a matter of really looking at what the objectives are and seeing what the best tool is? Where's Mongo fit in this whole tool evaluation process.

07:06

So I would argue that we're probably the best all purpose database out there. For most AP, most applications. And I don't just mean software applications, I mean, the applicability of databases, there's a lot of legacy things that are out there that are never going to come off of the of the relational system, they are very static, they are very, very defined on the data on the data that is coming in and out. And those systems are already set up, I would argue that those are poor choices to try to migrate away from because the the system's working, it's as efficient as it's going to be. And we're not changing that system very, very much. Think of some of your older legacy software applications that have been around for decades, any new development, I would very, very much recommend not going relational. It just for the simple fact of the flexibility, you don't know what's going to change our world changes at a just a spectacular rate now as compared to even 10 or 20 years ago. And having that flexibility is in my opinion, the far more valuable than having a structured, formal data storage technology.

08:14

All right, back in the day, I was taking all these silly tests, you go to the special building and take these tests, get a piece of paper, take another test and learn this phrase SQL injection. Whoa, they're attacking a database. Whoa, that's pretty clever. So what about security and MongoDB? Good, bad, sad, glad was it fit in full security landscape?

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It's really pretty spectacular here at Mongo, we do. Even in the planning stages of our releases, we do 1000s of tests. We have automated testing that happens every week on our production systems, as well as our systems development as well as the things we're that we're just planning on developing. We not only have the automated systems, but we actually expose it out to the community, we have an open source roots. And we like that the public has a chance to report bugs. And and we respond very, very quickly. Something that is near and dear to our CISOs part, our chief information security officer is s bombs and software bill of materials. It couldn't be more clear. In 2020 SolarWinds had a had, there was a there was a crack in the security. And everybody saw the saw the the press that went across about SolarWinds which was extraordinarily



unfortunate. But then the following year, there was another one I think it was love for j if I remember correctly, had another one. So our software bill of materials, the S bonds are incredibly important to us. We want to make sure that we understand exactly what every component is that's going into our security posture. And and all of that. I mean 90% of software developed now is using some form of a publicly accessible library. It's the difference now is their eyeballs on it after those two violations? President Biden signed, signed An act to make sure that everyone understood how important as bombs are. Everybody understood the components that go in to their software, when you take a look at, you know, think, think back 20 years, if you went into McDonald's, you knew that you were probably getting a lot of fat and salt. But you didn't know how much well now they have to show that what the nutrition label is, so that you know what you're getting the F bombs or the the it equivalent of that. Got to know what you're what you're getting when you're deploying the software. And frankly, a lot of the organizations didn't know what they were getting when they were building their software. MongoDB takes us incredibly seriously. Like I said, our Cisco she's, she's incredibly smart. And she's she was an early adopter of making sure that the S bombs were very clear so that everyone knew how secure Mongo really is.

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Right? We're doing this in zoom, and I have some silly backgrounds, you've got the Washington DC background there. And it dawned on me, you know, before we started recording, you folks have any event coming up in the middle of July 2023. Maybe you can tell the audience what it's all about and what they can learn and, and maybe they can, when it's a sweltering 100 degrees make their way downtown. Absolutely.

11:06

We're having a we're having what we call a dot local. It's kind of a mini MongoDB. World. I don't know if your audience is familiar with MongoDB. world, it's our it's our premier event up in New York City where we are we are based I know it's a little strange to have a a technology company, but in particularly database company headquartered in New York City, but we are, we have this massively large annual conference from all over the world. But not everyone can make it to New York City, especially during the pandemic. And in the times that we're in, we're doing a mini MongoDB world, which is we call it dot local in DC in July 18, I believe. And there's going to be a lot of tracks to attend that specifically focused on public sector. But there's also going to be some commercial enterprise talk tracks as well. Personally, I find that we are at our best when we kind of expand our expand our field of view, and look to see what enterprise is doing. And try to integrate some of the best practices there into our public sector, agency strategy. And I think that there's going to be a lot of great content for for both sides of that fence.

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I was at an event every week for the last couple of weeks. It's so much better now friends up on stage there. And he kind of you know, sachet over there, you grab and go, Hey, buddy, my friends got this problem. It just is so much better than you know doing on Zoom or do with email, even a telephone because then you can look at Brenton if he raised his eyebrows go, Whoa, I got a problem. Or if he goes mad and go, No, I don't have a problem. So I think I think these events are so important because some of the people listening this may not be able to email you with a problem. And they always have a friend with a problem, don't they? Brett? Yeah, I got



this friend named Ben. Tell he's an idiot. So that's why I like the events. That's so great. I love doing live broadcasts from the events like I've been known for many years, it's really good.

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And we've done a couple of these dot locals across the country and for various different markets and they're incredibly successful. They're a little more consumable. You know, if you go to a really large show, we really liked the the Amazon show that's downtown, the public sector for AWS, we obviously love our mom's gonna be world, but they're really large shows. And there's, I personally feel that you go very, very wide, but not as deep as you'd like, here, we're really talking about data. And we're talking Oh, data, specifically for the area that we were in.

Page |
5

13:25

Yeah, it's really good. Now I'm gonna go back to your zoom screen and look in the back and I got my old telescope. And I'm looking at the US Capitol, there's a big sign of the US Capitol behind you. And it says, Let me see it says, say, cybersecurity. Cyber Security everywhere in this town. You know, I'm surprised at the Washington on the other side. Yeah, it doesn't go vertical cybersecurity.

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If you look on the other side of the Washington monument there, there's a big green MongoDB leaf.

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That's all. Yeah, so when it comes to cybersecurity in this town, the next you know, the next thing on your mouth is FedRAMP. And I'm sure at the event you have in the summer, someone's gonna walk up to you or maybe who another person go, Oh, you gotta get back. I can't talk to you as a FedRAMP. So where do you stand on the FedRAMP, black and white Oh, meter here. So we

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have, we have a couple of different flavors of our technology. We have our community version, which is, frankly, in every corner of almost every organization on the planet somewhere doing something, it's free, and it's it's pretty low level, the core of the database is still there, but there's not a lot of automation and things that you need when you have an enterprise enterprise effort going on. So the second version that we have is our enterprise advanced and that's our on prem version that is run in your data center where we don't we don't have anything to do with it. Now that one that's got some great compliance to its I think it's still the only NoSQL database with a DISA Stig, there's a bunch of certifications that it's got for compliance. Then we developed a Eat technology called Atlas, which is a database that we manage. And it's morally you pay it like your electric bill, right? You use more of it, you pay more, use less, you pay less. There's a free tier for Atlas. But it is a MongoDB managed database for our clients. Well, that wasn't able to pass FedRAMP due to the way that it was architected, Not that it's any less secure, and it just was different. So we created a sister technology called Atlas for government. It is, again database as a service. It works absolutely beautifully weave with it is tested just like and developed by the same folks that did Atlas which is rapidly becoming our flagship flagship product here. The great news is that that was for government is FedRAMP. Moderate as of last month, which standing news for us?



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That's big deal. Yeah. Ben had that all the place at that trade show? Like it will be maybe you should put it in the nation's downtown we

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really should we've been shouting from the rooftops you're on so much of us able to show because shout so loudly. It is absolutely a massive needle mover not just for us, but for our clients, being able to relieve themselves of the duty of having to manage their own data databases is a massive cost. No, can they can just shed off and and just handle Mongo and pay pennies on the dollar versus what it's costing them to manage their own. Well, true

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confession here. Brian, I come from a blue collar background, very humble background. And back when I was young man used to say that work is the curse of the drinking class. Biotech can flip that around. Now that I'm an old geezer here. I want to say that compliance is the curse of the technology class. And this time, I mean, if you ever want to, you know, put a damper on a party that hey, I'm Brett, let's talk about compliance. You Me personally, it'll even tell you something. You know, hey, that's a tip for you this Christmas. You want to clear out your house? Hey, let's talk compliance. Yeah, I got him on here. Honey, we got the bed now.

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I couldn't agree more coming from a coming from a similar background. I'm a Pittsburgh guy, dad was a steel worker. So I know exactly what you're talking about there. But compliance is is very, very important to us. I mean, even Atlas for government, it was built with with high in mind, not just FedRAMP Moderate. Now we are not FedRAMP High yet, but it was built with high in mind. And it aligns with, you know, the Criminal Justice Information Services, the sieges, as I mentioned, a stake for EA we're very compliance and security minded. It is the only thing that makes us for sure an option for our clients. As soon as we have a if we hopefully we never do have a violation have a heavy, heavy security breach heavy, that just erodes our availability to our clients, our clients would have to drop us if we didn't take serious security and compliance as seriously as we do. But I have to agree with you. If you bring up compliance, those doors better be locked. Yeah,

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well, let's talk about Pittsburgh, big guy, there's a little train that derailed there. And as we're learning, there's sensors all over those tracks. You know, I think there's sensors in many places, we talked about this earlier. And so what advantage, what is a differentiator that MongoDB can bring when you're dealing with with all kinds of different types of sensors, everything from you know, railroad tracks and the sky moving stationary. So what advantages Mongo give for maybe a listener here who's who's thinking of doing something new or something creative?

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Sure, absolutely. The the way that we're instrumenting things, it's not just things that are static, we're fit we're finding, the more and more things are being instrumented that move the IoT, and having to work on 5g networks that really check kind of change the game on the demand for being able to move and store and examine and use data effectively. Right. So I'm sure that there were a ton of sensors on those tracks. And I'm sure there are tons of sensors. There are tons of sensors on the airplane. There are tons of sensors on I mean, even our even our highway systems, think about all of your easy passes and things like that everything is getting instrumented, if you have a swat a smart stadium full of fans there. That's a massive amount of data, 5g enabled billboards, massive amounts of data fleet management and massive amounts of data. And even your workforce is I don't know if you got a package delivery lately but that's all wirelessly connected to the mothership and they they instrument everything, even the even the Amazon delivery trucks, they've installed your instrument and when the seatbelt is buckled, right, absolutely everything. Then you start looking into facial recognition software and and it just it just spirals. So when you have something like those tracks being implemented, ideally, we should be able to avert some disaster by making sure that things are instrumented properly and red flags are thrown in a very expeditious manner back to back to the appropriate application so that so the warnings can be addressed by A lot of those systems aren't built yet, I know that everyone has a great idea on how to use this data more effectively. And you're not gonna be able to use this data effectively, unless you have a system that can that can handle that volume of data, the speed in which it needs to be ingested, as well as read. And then the applications need to be able to move very quickly and developed extraordinarily fast. Because everything is changing so quickly.

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You know, I was doing research on your company this morning. And is it is it open source? I'm not sure. I don't know if I came on that.

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Yeah, so our community version is open source. No, we Oh, I see. We can we own the IP, but it is open source. Everybody thinks that Mongo is free it is the community version is free, as self managed, and there is a free tier of that database on demand. However, we do charge for the enterprise features, if you want to make sure that you are compliant, that you do have the more advanced security settings, things like that we do charge for that we are a we do have to stay in business, we have to pay all these incredibly smart engineers to be able to develop the software. So you have to, sadly, we do have to charge for such an incredible technology.

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Well, it's not sad, it's the community itself. Because I have found out that many times, if I'm, if I want to take advantage of free software, I'm not going to have Brenton, you're the one answering the phone at 24 hours a day. And so I can take advantage of a community and then get out. And then if I want to move up, I can move up. I've done that with with I can see three different packages now. And I've gone down from a couple packages to but I'll go into a technology that's free and will be hard to use it gets the questions get out and they go oh, no, and then move up. Or I can just move down or maintain an order. My needs may change. And I think I think the whole idea behind a community is that you can find out well, what's going on with Rohan over here? Oh, well, he did he moved up. What about Mary? Well, Mary stayed the same. What about you know,



she's Ella? Well, she's ill downgraded cushy, three different jobs or something. So I think I think that community thing is a nice way. Because back in the day, you call up and get support, and it'd be great support. But it's just not there's not worth of this modeling. No one wants to people want to get in and get their feet wet. I think I think I think that's, I think if you work for the government now, and you want to play around with this database a little bit, learn the community, and then try to find more than that, if you want to go the next level up would be this event on I think, the 18th of July downtown, and you go to Mongo db.com. And then you can sit in the back of the room and find someone on a panel, it's where I do find someone walk up to Hey, you said one on one is for me, I want to work on that. And, and oh, no, I just made one. And then all of a sudden, that leads to a discussion and someone else jumps in. And it's um, I think it's a whole lot better than, you know, taking you luck on a Google search.

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And without a doubt, the community is actually pretty spectacular. There's been a lot of there's been recommendations from the committee, obviously bug fixes that come in from the community that has only made our technology better. Sybase used to be a massively impactful database in the 90s. But I don't think that it's I don't think it would be considered top tier. As far as innovation goes, these days, if you look out on LinkedIn, on people with MongoDB skills versus somebody with Sybase skills, you're gonna find a very different population of users. MongoDB was actually part of the curriculum. I think, in India, it's part of standard curriculum for students, if you're going in it route MongoDB, as part of the curriculum there, there's a reason for it, it's fairly easy to learn. It is incredibly useful. It's fast, you can get things up and running quickly. And then if you need to make changes, it's really with developers. In fact, I think it's we're on our fifth year in a row of the Stack Overflow survey of us being the most wanted to database by developers globally, which is, which is something we're incredibly proud of being wanted by developers is, is the first step have been making an impact of these organizations. And then I think if somebody shows up to that event in in July, with just a little bit of knowledge of MongoDB, it'll it'll massively compile to a massive amount of knowledge that they that they leave with probably a lot more questions, but it's not a matter

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of No, no, no, I was much better they Wanted by the FBI to that hotel. Okay, Crystal Ball time. There's no big crystal ball behind your picture there. But crystal ball time. Where do you see this whole situation of databases evolving next four or five years? Maybe just two cents worth it? We just had a National Cybersecurity briefing come out. I mean, there's, you can ramble on for a bit what types of things gonna happen next for you, as far as cybersecurity databases, give me everything brand? I want everything, man.

24:20

Okay, a brain brain download? Yeah, I think I think we're still in the midst of massive amounts of change. I think cybersecurity is is become gonna become even more important than it is now. Just because of the the amount and value of the data. Every organization is a data organization. At this point. I was speaking with a senior officer in the in the Navy. He's and people think that we, we do ships, we do data now. That's what we do. We collect data for data organization, and I thought that was kind of funny. I think he was given me I think it was just because I'm a database guy. I think he was probably just maybe giving me a bit of a line but I don't think was 100% kidding there, the every organization is a data organization, their most valuable asset is their



data. And keeping it secure is going to be job number one, without a doubt. And it's it doesn't matter if your Social Security or the US Navy and everything in between, it's the data that's going to really matter. So the platform in which they choose to store that data, the platform they use, the choose in which to make use of that data is going to matter. The cybersecurity aspect can't be overstated. When you when you see that MongoDB stores data in a manner that data scientists and developers think about data and saving that efficiency. I think the trend that we've seen is 20 years ago, the most expensive person on the floor was your database administrator, everything ran through the day with database administrator. And in a relational world, they still has to because they're the person that has to make the changes. And it can sometimes takes weeks for a developer to get the changes they need out of that DBA. At this stage, the database administrator is not nearly as expensive. We don't have enough software developers. And if software developers are sitting on their hands waiting for a database change, it's it's costing the agency, it's costing the company, untold amounts of money, because these, these software developers are incredibly valuable. So I think that trend is going to continue, I think the software developer is good is going to be even more in demand, I think the data scientist is going to be even more demand than the software developer, because we're going to need to curate that data. As we move toward a lot of the AI ml technologies. A lot of that is a lot of that is really going to rely on your data scientist making sure that things are set up properly. And that I think that job is going to go through the roof MongoDB is in a unique position of having not only the security, but the platform, the flexibility and frankly the the global acceptance at this stage to really take advantage over the next five plus years to make it make to have the entire industry take a giant leap forward.

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Well, Brett, we started off by labeling discussions talking about databases, Feds and flexibility and I think he checked all three marks. Pretty Good job.

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All right. Thanks. Appreciate it.

27:11

You've been listening to the federal tech podcast with John Gilroy like thank my guests Brent leach area vice president public sector at Mongo DB.

27:21

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