Meeting Summary Output

**Raw Meeting Transcript Text:**

Raw Text: It's good when you, it makes you want to be there a little bit more. Yeah. Yeah. Can one of you guys text Austin? Yeah. Oh, here he is. Hey, Austin. I was just going to say, hey, I'm sorry about that. No problem. No problem. So Dennis. Dennis Austin. Austin Dennis. Nice to meet you, Dennis. You too. I hear you and Mark go way back. A little bit. We do. The good old and the bad old days. Yeah. We do. It's all good. All good. Okay. So Dennis, I'm going to just introduce the team very quickly. I'll just kind of reiterate what I had sent you earlier in my message. But Jess runs our partnership with AWS. So that is her sole focus professionally. She has a life outside of VR, but that is her sole focus at VR. So I thought, you know, depending on the conversation of where we go, it would be good to have her be a part of this, depending on if there's anything specific to AWS that we want to dig into. Brian Jackovich, Brian runs our AWS practice in totality. And Austin is one of our solution partners responsible for SRE and resiliency. So the right people for the conversation. I did debrief them on our conversation yesterday. So I think the topics, at least at a high level, are understood and the things that you're interested in. Our goal is, most importantly, to introduce you. We're going to treat it as if you don't know us, right? And we want to introduce you to the firm and the way that we go to market. And then we'll take you through some of our solution accelerators that we have that may be of interest or just make sure that you understand the types of investments we make in pre-built solutions that are code-based. And then we have some case studies. So the idea for us is get you comfortable or at least get you a base understanding. And then hopefully we can talk a little bit more about the work that you mentioned yesterday that you need to get done. Great. Do you want to do a quick intro? Would you mind doing a quick intro just to give them some background? Thank you. Yeah. So Dennis Mayer, I'm a senior director here at FanDuel. I started in March. Prior to that, I was at Capital One for five years. And before that, some of the adventures that Mark has talked about earlier that I worked on was working at KnowledgeInt and BusinessEdge and some of the other companies that you all might have heard the names of. My focus here is to build out our new data platform. So that includes Databricks along with a bunch of other data in and data out type tools from the Lakehouse. We are an AWS shop, of course. And with building a new platform, that runs pretty expensive. We also need to make sure that we have two things. One is FinOps in place. And then second is the site reliability. Today, we are halfway through that journey. We were on AWS Redshift prior to this and it's still operating. But we are moving everything over to the Databricks platform. And so the reliability and the FinOps and site reliability and FinOps is not really all there yet. So we need that to happen. The goal is to get completely on Databricks with all the new stuff by the end of the year. So we're halfway done. And now is the right time to think about how do we make the platform resilient and cost efficient. So I'll stop there. Hopefully that helps. Okay. Before we get in, Austin, do you have any questions? Do you want to lead off here? I mean, yeah. So it's kind of like I have so many questions, right? So I can start with 100 questions now. Or if we want to go through a little bit more of our practice and have the questions at the end. Dennis, do you kind of have a preference on if I dive into the technical details now about kind of what you're doing there? Or would you like to see a little bit more first? Either one's fine. I mean, I've talked to Mark. I've talked to Hema. I've talked to Bob over the years. I know a little bit about the company. Yeah.   
   
Actually a couple times I was thinking about joining and I didn't do it, but like, so I understand like, you know, your focus, you're a partner for AWS, so you don't really have to go too much into that, but like, more of the, if you can kind of give me an orientation around the problem areas that I'm talking about, that would be helpful. Sure, so we definitely have some of that. Yeah, go ahead, Brian, then. I got my questions here. I'll save them for the end. We'll go through this quickly and then love to ask a little bit more technical about what's going on. Sure, okay. Yeah, so Dennis, I'll give an overview of the firm, ask me any questions along the way. I'll keep the sales pitch to a minimum, right? So, as a firm, business technology consulting firm, and really our focus is on regulated industries, right? Areas where we have compliance requirements, regulatory requirements, dealing with auditors, right? Those particular areas, things that, there's criticality. To getting it right, it's probably the best way of looking at it. So, the way that we look to approach it is really that domain expertise in the particular, particular verticals, right? From a business perspective, and then from a technology perspective, building the technology solutions to solve those particular problems. So, it's really the best of both worlds for a couple of things, but there's a lot of stuff we don't do. So, in that area, we only do AWS, right? There's a lot of clouds, but we only do AWS, and that really the intention is to have that real deep expertise in that particular area and be able to provide those intricate, you know, details around why things work and why they don't work in AWS. The way that we have, so 20 years of domain expertise over 10 years of AWS expertise, I think we're probably pushing 15 at this point, really have a long, long tenure working with AWS. We break our AWS practice into seven different competencies. I'll go in more detail on the next slide, but the intention is really to meet you where you're at, but then provide a path forward as you want to get to, let's say, different levels of maturity on AWS. So, it's, we have a prescriptive approach, right? We don't walk in and say, hey, change XYZ to what we're doing, right? But we have a vision of what we've seen success in all the other customers we've worked with and why we believe that. So, we look to build that capability as we look at problems. We're a premier tier partner. We have a variety of different competencies. Probably the one that's most important for this is going to be the migration and modernization competency. This allows us to do what you have experience with working with AWS structure at CapOne and FanDuel, but we have migration funding. They call it MAP. So, we have access to a lot of the funding mechanics that AWS provides that we can use as part of projects that we work with our customers. We also have access to different beta programs and beta services, which we get incentive programs that we can offer to you as well. So, there's a lot that goes into the fact that we're a premier tier partner that we've kind of built all this in. But really the takeaway from us is that AWS expertise, industry domain expertise, and then we have what we call reusable accelerators, RSAs, which I'm sure you know the term from the business edge days, but effectively these are assets that we have that are very, very much real, right? These are code-based assets that we bring to the project, reduce the time, the cost, and the risk. But I really want to stress these are not paperweight activities. This is code. They have GitHub repositories. They have what you call product cycles, right? Roadmaps and such, but they're built off of customers we've worked with and seen multiple of similar type of problems that we want to solve so we don't have to recreate the wheel every single time. So, these are no cost to our customers. We bring them for free. There's no licensing. There's, you know, it's accelerating consulting projects is the way I think of them. So, I have more of an in-depth on the competencies next, but do you have any questions here? No, no. Sounds good. Okay, so as I mentioned, right, we slice up the AWS practice into competencies, which all of our consultants align to, right, to have that particular expertise in the technical area. One thing I'll mention is every single consultant we have is hands-on. Everyone writes code, writes infrastructure as code. So, think of us very, very deep from a technical perspective, but then we have opinions from, let's say, technical philosophical perspective. Bottom level here, enterprise program governance and PMO. This would be very large programs putting in the structure. A lot of times, you know, a customer   
   
are doing big migration or business-changing structures. So we'll come in, put the structure in place, right? How do you work with, from executive all the way down, think PMO program structure. The next up, this is really the tech piece, which is DevOps, security, and SRE. The idea here is how do you build a self-service, we call it platform, that you can provide all these capabilities that can be consumed as self-service as you look at scale across one app team, a data team, or 1,000 of them, right? Provide that capability that's repeatable and consumable. So from DevOps perspective, this would be infrastructure automation, codifying how the way you wanna design your EKS cluster is inherently gonna be different, I assume, than Goldman Sachs, as an example, right? So codifying the way that you wanna design your EKS cluster or any other infrastructure, and then making it consumable by something like Service Catalog, ServiceNow, really whatever consumption mechanism you'd like. But codifying that, building out the CICD pipelines, infrastructure pipelines, all that stuff. Security compliance would be preventive, detective, reactive, and proactive controls. We like to think about building a perimeter, a control perimeter around your AWS ecosystem. So as you start to scale, right, let's say from one account to multiple OUs to let's say hundreds of accounts, right, that your security and compliance control environment can move with you. Typically, our customers have a lot of requirements where they have to be able to provide, here's how I'm complying with XYZ regulatory requirements. So often it's NIST for internal, but PCI, MYDFS, you name it, from an external point. And how do you map all the controls to the compliance requirements? So that's what we spend a lot of time doing, and then providing the automated evidence collection. SRE resiliency would be for applications that simply can't go down. So the multi-region, multi-AZ, failover mechanics, disaster recovery, hooking all, putting that architecture and then automating all that. But then we also do the test automation. So being able to provide that these applications provide the evidence that they can hit their RPO and RTO requirements consistently, right? So it's an automated test strategy. We have a whole set of assets that Austin will go over, but this is a key area of expertise, and a lot of clients bring us in to go over this. So the idea, again, all this self-service, consumable, automated, et cetera. So once that's in place, then we look for app modernization, so replatforming, refactoring applications, moving them to AWS. We do a lot of work with, let's say, monolith applications, slicing them up into microservices, running them natively on EKS clusters or Lambda serverless, I'd say more containerized. And the data analytics would be like house architectures, database migrations, building out analytics environments, really quite extensive ETL pipelines, you name it there. Then last but not least, AI. So we function in really two mechanics here, helping the data scientists basically deliver the changes that they want to their models through a continuous delivery cycle, think of MLOps. But then also for AI, more focused on generative AI is where we're building out RAG architectures, agentic workflows, we use AI extensively. So that kind of rounds it all out there. There's a lot of stuff that we don't do, but in these particular areas, we have significant domain expertise and we like to think that we're one of the best. Okay, sounds good. Okay, any questions? Anything particularly relevant? I mean, I've heard when you went over the intro and some of the notes that we talked with Mark, I think SRE sounds like it's probably relevant, DevOps sounds relevant, FinOps is where we kind of lump it into to DevOps. I guess, is there particular areas that are most relevant for you here from what you've heard? Yes, so the SRE part as well as, I mean, it's not called out, but on the FinOps side as well. And then of course, SRE has some tie into DevOps, right? So like making sure that when we're deploying something that there is a resiliency strategy also in place for it and being able to, if there is something like an incident that we can move over. So like, of course, that will require automated DevOps for it to happen quickly to make our RTOs and RPOs. So the whole bottom part of that pyramid, except for the PMO, I mean, like the right above the PMO is what makes most sense to me. Okay, and around controls, what, is that relevant? Is that part of what you guys are focusing on like from a security perspective or is that somewhat out of scope right now? No, it's out of scope. Okay, got it.   
   
Okay, I think for the next slides what we have, I think that's kind of the overview, we have, oh, here we go, yeah. We have a, as I was mentioning, different assets, right, so we have about 35 plus here that are all RSAs that we have, they're built and developed, and they all align with different competencies, but there's two tracks where we've kind of built out this kind of progressive cycle of assets that look to solve the problem, I'd say, more holistically rather than point to solutions. So from a security perspective, we have what we consider the control suite, which I won't go into a lot of detail given it's not terribly relevant right now, but the idea is how do you align the compliance controls from a regulatory body to what specific controls you need in place, right, so what, when it's in common words, right, how do you move that into what an AWS control needs to consist of to hit that compliance requirement and adhere to auditor requirements? So we built out the automation supports that, then we do a control generation, so filling in the gaps, whatever controls don't exist, and then a broker, which it effectively is like controls as a service, so create the controls, put behind a service, and you make eight die calls to, you know, validate your control environment. But I think more relevant here is SRE and resiliency, we have the experiment suite. So this is only three of them, there's actually five, but the idea here is that when we want to do a test, we would do, let's say, a design for your resiliency strategy, right, we want to build out all the test cases that inject different types of failures, so actions, and then probes, evaluating whether or not those actions will accomplish a particular outcome. We want to be building out all the capability to be able to test your resiliency capabilities, so not just design, like on a whiteboarding activity, right, provide the continuous automation tests that you're going to be able to hit those particular expectations. So we have a generator, so a developer, which creates the, what we call actions and probes, a generator, which loops, bundles together the whole test case, right, so you're evaluating, you know, failure of a region, what does that consist of, and then the evaluator, which determines how do you align to your test cases. So all of these are built as really a, should be, if we were doing any resiliency activity, typically we're bringing these in, and they're reducing quite a bit off of a project. To kind of talk about that briefly, and I think this will matter with what you're talking about, if you're looking at like BCP, right, and what you're doing there, right, there's the event that occurs, then there's the failover, and then there's the validation that I responded in the appropriate manner, right, and so the pieces that, you know, the experiment suite cover kind of the first and the third piece there, right, we can introduce the event and all the aspects and make it very, very platform and application specific. We can validate that you have the proper response, that you hit all the right requirements, your NFRs and the things in between, and then, you know, using, depending on the service, if it's a data platform, it's an application, right, whatever that failover mechanism itself is where we get into the specifics and you start to look at the things you were talking about. What's the most cost optimized way? Am I doing active pilot, active passive, right? The architecture build out design gets informed by kind of, you know, the experiment suite kind of, you know, validating that I'm actually hitting the requirements that I have as part of my execution there, so we have solutions kind of across the track there to kind of give you that full BCP end-to-end scenario for you to kind of go back to your operations team and say, yeah, we, not only did we build it, but we also ensured that we're going to continue to build it. We have very high confidence in our system because we can show you the evidence why. Gotcha. Okay. All right, so, yeah, let's, let me, maybe here's kind of a good stop to just ask a couple questions. We do some case studies where we've done exactly this that we can kind of talk to, but I would just, because it helped me kind of understand and curate the conversation a bit, when you're talking about BCP for the data platform, what kind of, like, do you already have your requirements set for and known what you're doing with Databricks, like what kinds of data you're housing, how your customers are using them, you know, how frequently they need to get a data loss, that kind of aspect? Yeah, so we have today a variety of pipelines in Redshift that support the business, everything from the business and financial reporting every day, the tax reporting, as well as we have about 200 analysts that are using the platform.   
   
to do a variety of developing strategies or experiments on different things, like for example, sales marketing, like we call, if you're familiar with FanDuel, like when we give away bonus bets or some kind of generosity, we have programs that are targeting certain customer segments, and all of that is done through these analysts who are just trying to figure out how we can get more customers, make them happy, grow their, the usage on the platform, things of that nature. And so all of that is being done today in Redshift, and we are moving it over to Databricks. Databricks, we do not have a multi-region strategy yet with Databricks, and so that is like one of the gaps. And so, for example, we've had a couple of incidents lately with just a couple of the pipelines that have been migrated over. We do reg reporting already, so when I mean reg reporting, it's tax reporting, really. So all the 26 states that we do business in expect to get some kind of report telling how much revenue they would call it revenue they are gonna get for the previous day's winnings, et cetera, or us operating in those states. And so there's usually an SLA for each state to have those reports in. All of that is running on Databricks today. So we're using a combination of AWS instances of Databricks or Databricks Serverless Cloud. And then we have a variety of other tools that serve around that. So we use Kafka. We also use several other tools as well as an API layer that pulls data out of the data warehouse and serves our internal systems. All of those things need to be, by the end of the year, with a DR plan. And so we don't really have that yet. So even just to say do I have an RPO or an RTO of like 15 minutes or a half hour, an hour, I don't even know for sure if I can make any of those. We need to kind of do the work, figure out what we can do, and then partner with AWS as well as Databricks to figure out how do we fail over as quickly as possible. I'll tell you, we've had a couple of incidents where in one case it was down for six hours and we missed all the SLAs for the states that next day. And so that didn't go very well. So we need to make sure we do better. It may require like working with Databricks to get them to do an east-west strategy on AWS. Right now we operate principally on the east. And when something bad goes down, like we're kind of like dead in the water right now. Yeah, so and with that, you know, you go east-west or east-east two, something like that, right, you have some kind of mechanism to do that. Do you have like already in mind like a data strategy, like hey, we want to go active-passive, active-active, is that part of an analysis that you kind of need needs to be conducted to kind of meet those? Like six hours, obviously too long. Like we know you're not meeting SLAs at six hours, right? So that shortens it, like do you already, has there been any analysis like we are thinking of moving in this direction? Or are you looking for someone to kind of come in, do the analysis, and then help, you know, provide, this is the recommendation of where we think you need to get to? So historically, like my last position, my last company, we were at like in a platform like this would be active-active. Yeah. However, it was a bank generating billions of dollars of profit. We're not as big of an organization. So I would like to at least have a plan for active-passive. Yeah. And so I don't, you know, but again, I don't even know if I can make that yet. It's all green field right now. All we know we're operating in one region. We have like a hybrid of AWS compute that we run, and then another section of AWS compute that Databricks is running for us. And so it's kind of like a hybrid setup, a hybrid cloud, like it's not a hybrid public-private cloud. It's a hybrid public cloud that we have to navigate through and figure out like what's the strategy and what we can do and what would be the, what is an RPO or an RTO that I can hit? And is it something that we can afford, right? Because active-active is super expensive, but if it's something where it lets me be only down 15 minutes and gets all my regulatory reporting and all my other things done with that very little downtime, it might make sense. It just, it comes down to dollar and cents. Yeah. And so, and so that's obviously, you know, finances are kind of the big trade-off that we're obviously examining.   
   
here as we're looking at this. In terms of your migration currently that you're doing from Redshift to Databricks, as you've been doing that, do you have some kind of change data capture process in place, you're trying to kind of keep state managed in both and your jobs run off of the same data? The only reason why I ask that is because I'm just thinking about services. When you're doing multi-region, it's always about how do I get data into my alternate region? Do I need some kind of change data capture in some like active pilot light scenario? Do you have something that is already managing that today that can be reused or is that something that kind of needs to be built? So we don't have multi-region, it probably will need to be built. Not even multi-region though, just from like, from your existing, you're going from Warehouse to Databricks, do you have something that is like automatedly doing some kind of change data capture or some kind of data translation from Databricks to, sorry, from your current Warehouse to Databricks? So we are migrating the tables. So what ends up happening is that we have it running in Redshift, we have a team that's migrating them over to Databricks. Once it's back, once it's migrated, we're backfilling actively on both. And then eventually we say, okay, after the testing has been done, the teams then just stop using Redshift and start using the equivalent version of it in Databricks. So that's how we're, the migration from Redshift to Databricks is not really the concern in this particular area. It's more of like, how do I make sure like, can Databricks go to, if Databricks goes down, like what can I do to get back up? And it may be like building a strategy where today we're using a lot of their managed cloud, sorry, serverless cloud capabilities, but it may be having a fallback of having a set of EC2s, Spark EC2s ready to go and switch the pipelines from like, we're using Airflow to orchestrate. So it may be like switching all of that over to the EC2 Spark servers until the service is back up. So that way we can continue processing while they're down. But all these things are things that we have to think about. We just haven't gotten, we have to get started on that. Sure, and just to clarify my point there, I wasn't saying that we were gonna help with the migration. It's just the mechanism that you do to migrate can often be the mechanism that you also do to failover. So I was just trying to think through, what's your mechanism to migrate? Does that translate to a failover mechanism as well? Yeah, yeah, we've moved, like I said, we're six months in. So we're moving quite a bit at the end of this month, and then there'll be a few more business units, and then we're gonna get into the NFL season and then it'll start to like slow down. So we'll be only migrating business units that are not involved with the NFL season, because usually when that happens, like we don't do really too much change to the system during those peak times. So, yeah. Change freeze during NFL season for sure. That makes sense. Okay. No, that's really helpful. I think that kind of gives a lot of clarity in kind of what you're doing. And then you mentioned, you know, a lot of the different tools that you're using, but it sounds like you're gonna go, Databricks is very feature rich, right? There's a lot of different things you can do with Databricks. They have AI components and pipelines and all those things. Are you trying to use as much Databricks as possible when you're kind of moving with this migration? Or are you doing like, no, we're just doing Databricks for the warehouse and we're gonna continue to use other AWS services for pieces and components? Just to help with understanding the complexity of a DR swap. So we have Databricks for the warehouse. We have Databricks for machine learning models. And we are also, for AI, we're using Bedrock. So that's the slight twist. Okay. Okay. And how much of, like, are you using the Unity catalog? I assume so. Yeah. Okay, got it. Well, we have Unity catalog and we have Elation, which is, and so like, I haven't really gone into all the vendors, but we have Elation. We have Monte Carlo. We have Satori. We have Confluent. We have, there's like seven or eight other things in there. And so a lot of the strategy is gonna be like, working with all, like, in each one of those, sometimes we're running the compute ourselves. In some of the case, we're using their serverless or their managed compute. But each one of them has to be like, thought about through the DR and BCP and say, how to like, we, if we are down, how do we move things? Because they have support multi-regions as well, in most cases. But a lot of times we're just operating in one region. And so like, a lot of this work that I'm thinking is gonna be more about like, conversations with the vendors, figuring.   
   
out what the best option is or like accepting that certain things may work not work for enduring a DR event. So for example like Monte Carlo we're using that to do all our data quality but like if I don't have a good data quality dashboard up like for six to eight hours it's probably not the end of the world so maybe we just say okay that failed and we'll continue on but those are the things that we just have to navigate through and figure out like what's the plan. Yeah we usually do like a mapping activity of like how right becomes like a spider web right of all the different pieces that are kind of interconnected right and how the failover events affect each one of them and what your trade-offs are. So okay and one other question I have here so I think mentioned Mark mentioned that there's KPMG is I guess playing an audit role and there's some sort of thing I think at the end of the year that you guys need to hit in relation to them. How does that play into this? Yeah so I have to have a plan for the BCP plan by September. Okay okay so a plan for what you're going to do to start implementing for BCP okay got it. And what and why like is that? We went yeah yeah it's a good really good question so last year Flutter which is our parent company moved to the New York Stock Exchange from I think the London Stock Exchange so now we are covered under SOX and so KPMG is our auditor and they're gonna they're doing a SOX audit right now and so we we're going through a current audit but we also have put some timelines out to say hey like this is only a year out like we're we're not completely hitting every single requirement yet but like for SOX we need to have BCP and also just for continuity like we as we get on everything out to Databricks we need to make sure that those reg reports are getting out like it's whether it's SOX or not like we just have these things that we're getting by through fire drills but like it's not a well mature managed type of incident BCP approach so got it guys so so KPMG is doing effectively what's a BCP audit of in some shape or form of or I guess SOX findings and one of them is that like we just don't have the BCP plan in place okay so I just need to have like for them that by September I can say here's the plan and then they can look at it and tell me if it's adequate or not got got okay so we're working back at least from that perspective but with the plan for the plan for September okay yeah and then I I did so much BCPs around observability and in operations and how your team is handling things like it do you foresee a component of that you know augmenting the observability of the system being able to detect when failure or is it more about the failover itself or is it also kind of all of that work that needs to go into place to make sure that you know when to fail over does that make sense yeah I mean so we have I would say our observability is pretty good like we're using data dog we we know immediately when things start going good sideways but uh it's just what do you do once they do go sideways okay good just wanted to make sure it can be a place where sometimes you know people start talking about a BCP plan but then you look at the observability realize now oh you really need to start here first before you can yeah right or at least simultaneously so just wanted to make sure yeah okay uh one one other thing so giving you relatively tight timeline here uh do you have a plan in place of how uh like is there a team aligned to start on putting together a BCP plan like I guess how how are you approaching it right now or is that so why we're having this conversation so we're playing for q3 the engineering teams are going to um from two things one is that we haven't really talked about finops yet but like finops is like uh we're we're having the engineering teams work on backlog items around getting things tagged correctly even for like even for like BCP we just don't even have the right tags in place yet so like we can't even tell like hey what's a priority one pipeline that should have to go 100 over immediately first versus two and three priorities uh so the team's starting to do the tagging in this third quarter um I have a manager that should be starting by July that this will be their focus um and so they'll be the engineering manager that um whoever is going to get this work is going to is going to help is going to have to work with to get that plan in place um and there'll be other stakeholders as well like I've got product teams I've got um enterprise tech um that's responsible for   
   
the AWS Compute and all the other IAM roles and all the things that need to get the network, all the things that need to get figured out. So there'll be that team as well. So there's gonna be several parties of people that are gonna have to participate. I don't know if I've answered the question great, but that's my thinking. Yep, yeah, I just wanted to know where you're at in your strategy, right, of putting this together. So I feel like I understand that. And actually, you lead me right into the next set of questions, because you haven't really touched DevOps or FinOps. So what I guess I'm gleaning from that is you're effectively going through tagging strategy, I'm sure, finding cost center strategy, kind of the matrix that you look to apply across all your AWS resources. Is that what you guys are doing now and then figuring out what reporting you wanna be doing? So AWS plus Databricks and the whole ecosystem. Yeah, so almost, so AWS, of course, supports tagging pretty well. We're not using it to, like, we don't have, we've only now put together a tagging taxonomy. And so we have a document that's pretty much almost finalized, and I'm assuming it's gonna, as we go through these exercises over the next eight weeks to 12 weeks, like, it's gonna get modified a bit more. But essentially, we've gotta get all of the engineering teams that support these systems to use the tags so that we can pull it together for both FinOps and the SRE work. So that's underway. Not sure what else I'm trying to think here. So we have a lot of, like, we have our AWS, we have, like, we use Vantage, which is one of, you know, a public tool for AWS. We also use some CloudWatch and things of that nature and Datadog to, like, identify our costs. But, like, our dashboards are not that great right now. And so, and then we're also in the process of, like, we're running at double costs, right? So we're using Redshift and Databricks. There was a, I kind of adopted a budget last, you know, in March that was developed last year that is pretty far off the mark right now. So we're a little over, well, we're a lot over, I should say. And so, like, we really need this whole FinOps thing in place to kind of get the granularity we need to make sure that we're meeting, you know, the budget by the end of the year, as well as get our forecast ready for next year. Got it. Got it. One other question there. So what is your AWS account ecosystem? Maybe you don't have full visibility to it, but are we talking, you have one account, you have 500 accounts, and that typically matters when you think tagging at scale and enforcement. We have more than one account. Like, I'm wondering if it's 10, 20, 500. In my last place, we didn't have that many accounts for whatever reason. It was just odd, but we eventually had many accounts. So I don't know the exact number. I know that the data organization has a set of accounts and I'm focused on that. However, this is what I was telling Mark, is like, if we can do a pretty good job of showing how we're pulling this together and doing this in a well-managed way, there's opportunity to get in front of like, that we call the core platform engineering team, which is like a fancy word for enterprise tech and potentially, you know, show them what we can be done. The, you know, like from a maturity standpoint, maturity standpoint, FanDuel has run very fast over the last five years and does not have a lot of things. Like we are operating and we're profitable and all that, but we are like, we may still got a lot of tech debt to go fast. And so around this whole FinOps thing is not, it's not where it should be yet. And so there's some opportunity there from an enterprise point of view to do better as well as in within my organization. Yeah, I asked that because you typically, yeah, there's like a typically a platform team or a security team that you can define a strategy, right? But the enforcement may have to be dictated at a level of like a platform team is what we typically see. So, and I guess that's another question. Do you own your ecosystem or do you have to interface for deployments and from a platform team? Like if you wanted to launch up a new Databricks cluster, right? Yeah, no, we could do that. Like that's all within my group. If I need to, if I need to like on my API layers that are pulling data out of it, like if I need to launch a new EKS cluster and things like that, we can do that sort of self-service. We just have to also work with the enterprise team a bit, but like, it's not completely like, oh, you give it to them and it takes them six months.   
   
we have some capabilities on our own. Perfect, okay, awesome. I was gonna ask, given, I know that you came from Capital One, I actually did many years ago too, which is kind of fun, but I want one of the big cost things there was, you know, Cloud Custodian and kind of, you know, having those governance tools that you use, not just for reporting costs, but also minimizing cost. Are you seeing that as something that's potentially here as well, or is it more just the reporting aspect? There's none of that here. That's what I'm laughing at, like, it's like, we're reactive, not proactive on cost controls. Okay, okay. So there could be something there, like, while building out DCP, you know, sorry, your BCP and things like that, if there is, like, an analysis and an emphasis on, you know, providing some, not just cost reporting, but also cost control, right? Yeah, you know, I'll give you an example. Like, we used to have, like, every application had a name in ServiceNow, and so, like, that, if you were in the CMDB part of ServiceNow, like, you then would make sure that those tags that the identifiers in that title, you know, from that system were in everything in AWS, and there was a Cloud Custodian thing that would go through, and if it didn't see that tag, it would just wipe out that infrastructure right away. We're not doing anything like that. Like, it's, so, like, I'll have, like, RDS instances, and I'm, like, whose are they? And they're, like, I don't know, you know. I actually had a friend who just wrote, he wrote one of the rules there to delete all old snapshots that people aren't using anymore for EBSs and save, like, a million dollars. So, yeah, there's simple things you can do that'll just be massively huge. Like, right now, I'm just running around, like, looking at reports and saying, what is this number? And they're, like, oh, I don't know, and then you just, you know, spending time getting people running around to figure out, like, how can I get rid of that $30,000 that's showing up on my expenses, you know? Yeah, yeah, absolutely. That email is, is this yours? Yeah, exactly, exactly, yeah. Okay, let's, Brian, is it okay, let's maybe go to the next slide and just do a quick talk through this, unless you have questions. One, one other thing, and, so, I think we've kind of touched on the FinOps and the SRE and resiliency aspect. The DevOps component, what, what's the need there, or is it just kind of automating everything we've talked about in previous talks? Yeah, yeah, like, so, we're using Terraform, and, like, I want to see, like, all of our Terraform configurations, they should be having the tagging in place. If it's not, then I want it not to get spun up, things like that. Like, so, there needs to be a CICD piece to it, just so that, like, once we clean up the backlog of things, like, going forward, we're not using these things in an automated fashion. So, that way, I keep looking at reports, and there's something untagged, or whatever, or a mystery is deep, or is there, and I'm trying to make sure that we automate that, so that it's something that the engineers don't have to worry about. Yep, yeah, solve it going forward. Yeah, makes sense. Let me just ask this really quick. Have you seen, like, the quality of the Terraform? Like, refactoring everything to now have a region identifier in it, right, can be, like, it hasn't been built pretty well, so it'd be pretty easy, and if you don't know, that's fine, that can be part of a discovery effort, but, like, sometimes there can be major effort just going in and enabling multi-region in your Terraform IEC. Yeah, like, we don't, so, probably not, but, like, just curious. Yeah, we're just, everything operates in the east right now, so, like, I can assume it's just one region set up for this right now. Yeah, okay. And one other thing. So, you mentioned the pipelines in Terraform, and love how you're thinking there. Do you guys have anything, so, when we do, like, validation stuff, we think, like, open policy agent, or, like, TF lint, that type of, that type of thing. Is there anything that, let's, typically, I'd probably say security often puts stuff like this in place, but anything around linting, kind of, security qualities that's being forced upon, or provided to the team right now, or is it kind of black box? Yeah, I'm not sure if I know the answer, but there is a, so, there's a, we have our cyber security team that are, like, probably, if they wouldn't be responsible for that, I don't know if they are or not, but. It's something we can, you know, if we were to do any work here, it's something we would ask, and typically, we like to leverage those things rather than suggesting something new often, so that's the reason why. Yeah, yeah. Okay, all right, cool. All right, I think we want to go to the next slide. Yeah, so, this is just kind of an overview, so, I mean, frankly, a lot of the stuff you've talked about, Dennis, and we can get a little ahead of ourselves and ask you a million questions, so appreciate you, kind of, giving us some...   
   
detail there. These are areas, a lot of the stuff you've talked about, we've worked extensively across different clients. This is a short list, but definitely not inclusive. For instance, global payments, they were taking half their business modernizing on AWS, and we had to build out all the resiliency test automation, BCP design, everything for their issuer line of business that was going to be running natively on AWS. As Databricks involved in there as well. That wasn't extensive there, but it was inclusive. But we've done massive, massive design and build outs for resiliency capabilities and DR plans. We typically look at FinOps. As I mentioned, we kind of lump into DevOps, we automate tagging structure, tagging taxonomy, all that stuff. It's just almost like, you know, drinking water to us most of the time we're so used to it. So, you know, building out those capabilities, putting in cloud custodian type solutions is pretty common for us as well. But across global payments, JPMorgan, Bank of America, very large resiliency projects for Chase.com as their core application, and Bank of America is one of their line of business. And then in the media and telecom space, both Bell and TELUS also had TELUS more so around the test automation and resiliency failover. And then Prudential, a whole entire data ecosystem that we built out the whole failover strategy, and BCP design. So, you know, I think we have a pretty good understanding, hopefully that came through with a lot of the questions we were asking, that this is an area that we know quite well. And we, you know, again, we would meet you where you're at, right, but then provide some expertise of where we've seen pain points in the past and, and try to provide you kind of the best, best guidance from doing this quite a few times. Okay. Yeah, the Prudential one that I just read quickly through it seems pretty similar. Yeah. Yep. Yeah. And that's been a three year effort, building out that entire data ecosystem and the failover mechanics and everything. So quite a bit there. And to say that we didn't, it didn't take three years to build the failover mechanism, took three years to build the platform. Build the platform and then all that. Thank you, Austin. Yeah. Let's, let's jump to the next slide. Actually, we'll talk about Prudential here just a little bit more. So this is kind of, you know, is one of the case studies that we have specifically with that. So, yeah, they had a very large lake house that they were running. So data lake, data warehouse with all the different glue jobs. It was all AWS native. And they also have a snowflake that kind of is doing something similar where a lot of same design was used for that snowflake environment as well. But essentially, you know, looking at now because of the approach that they needed to take, and they had constraints on time limits and, and services that were not available or were available. So, you know, we kind of had to do both an active passive and an active active for certain components. Yeah, that was just because building out some of the mechanisms for the failover of the data. And running in an active app in an active passive manner was not was going to be much longer than it would be to just replicate the data across and leave those particular services up and running. Right. So they felt like the reduction in the in the time to implement outweighed the cost of keeping those services up and running in an alternate region. And so they went with a passive on certain things active on others. And so that's kind of what you're seeing here. But regardless, honestly, as you've been describing it, right, just felt like this, this very, very much aligned with what we were doing. Same thing, we knew the system, you know, we were able to kind of put together what, what a plan looked like, we're able to talk about service by service, this is what we're going to do this, how we do the failover, this is the order that has to happen in. And then all of that failover happens in an automated approach. We can custom build those using step functions, lambda functions, and things like that we could, there's a AWS service that we have early access to that is going to be, you know, enabling things like that. So, you know, whatever that kind of looks like, you know, we have good exposure doing that specifically with data platforms. And in kind of a large scale here, and then, you know, other projects, great Databricks experience, so not concerned with the technology. And so much is like understanding the use cases. And, you know, I'd say one of the biggest gotchas with this use case is that they were also looking there was operational data that they were also storing in their, their data warehouse. And so they felt like their RTO and RPO had to be a little bit more stringent because of that. And because there was like some, some aspect of real time in a portion of the data that they were doing. So you know, we kind of had to take   
   
into account, not just one user flow or data type, but like lots of different kinds of business units using this and how they used it. And, you know, making sure that we were hitting the requirements of both the most strict, but the most lenient while trying to be cost effective. So I hope that that kind of resonates a little bit as I know that you're doing this for lots of different people, but you know, part of it is looking at all the different kinds of users and data flows and making sure you're getting the appropriate selection for it in the end. Yeah. Any questions about that? Yeah. I mean, so like one thing I didn't really talk too much but we're pretty much, we're real time with these data pipelines. We're not batch, which kind of pushes you a little bit more towards the active side of things. But yeah, like, so it's like really, like, for example, if like we're using Kafka to populate the warehouse and if Kafka, you know, it's got a bit of ability to hold any of the messages. So if something goes down downstream, you can replay. But it does not hold forever. So like that has to be thought through as well. Like, how do you replicate that? We're using Confluent, we're moving over to Confluent Enterprise. So there'll be a little bit more features there because we were running Confluent prior by ourselves. And so like we're in the middle of that migration. So that may make it a little more complicated with the real time, but I just want to make sure that like, cause in my last place, we did more batch than real time. In this case, we're doing the opposite. We're doing almost all real time. Yeah. No, and the real time, you're right. It does tend to want to push you towards more of an active active. Usually what I find in that case, though, if you're trying to keep costs low, is you go for an active pilot, right? So you keep on the piece that's replicating the data and that's always going, but then all the other services are off and then you are able to pile out your weight on, right? So something like that. Actually, again, kind of getting some kind of split. Yeah. So. So I'm sorry, Austin, real quick. So Dennis, one of the things you mentioned yesterday is in terms of the way you're thinking about potentially getting help here is maybe being driven by open requirements that you have. So are you, is it the right assumption that you're looking for help based, meaning we'll provide you with two people that are really strong and you'll kind of direct them or are you looking for something more formal? Yeah, I think, so my approach, my fallback plan is that we're gonna hire two people. It could either do it like three months, six months from now, or right now I'm gonna have to kind of steal people from other projects that come onto this. So I'm looking for something that I can get two people who can hit the ground pretty quickly and who are familiar with the space, so that way I can hit that September timeline. Because worst case, I mean, worst case, I don't wanna change that timeline, but I could go back and say to KPMG, like, hey, we're just not gonna make it and then reset the date, but I'd rather not do that. And we're just spinning up the team now. And we can also, we can also limp our way through it. Like we could say the plan is, here's plan version A and it's kind of very basic. And then plan B and C would be next. But like, I gotta just show progress by September. But like, I just, yeah. I mean, typically hiring takes like two months. So like, I just probably don't know if we would be able to do that with an FTE here. So that's why I'm looking for outside help, potentially that could speed it along, or I'm just gonna have to steal somebody from other projects and put them on here for now. But that's gonna impact another major piece of my program. Okay. Yeah, I think we can definitely help. And I think we can move quickly. Maybe you and I should just connect separately about the mechanics of that. Yeah. There's a lot of like papering that may need to get done, but I know here, they move pretty quickly. Yeah, you mentioned that, that's great. Yeah. So, okay. So I guess let's connect separately. And Dennis, is it a safe assumption that if you have the open recs that the funding is the funding? Yeah, like I talked to my manager and I said, hey, like I'm going with, if I go with the consultant here, are you okay with that? And he said, sure. So I got at least two headcount either way, AFTE or contract or wherever I wanna go on this. Awesome, okay. Okay, so let's connect separately. And then in the meantime, would it be helpful to you to send you some profiles for people that you can take a look at? Yeah. Yeah, that'd be helpful. Okay. Okay. All right, so we'll debrief as a team and we'll get back to you, I guess tomorrow. You're not in tomorrow, right? For the holiday? No, I'm taking off. Okay, so we'll follow up on Friday either way. And then you and I can set up some time as well. Okay, sounds good. Great.   
   
Any other questions guys or are we good? All good. I think if you know like once you guys kind of like think through this a bit like I would probably think I don't know if how you want to do time materials or whatever deliverables but like it feels like we probably have to have more conversations around that before you guys can come back with something a little bit more concrete but uh glad to set up some time next week or uh early next week if possible so. Okay yeah that's what I was trying that's maybe I wasn't clear enough that's what I was actually trying to ask yeah and the other thing like the other thing I gotta just figure out is like the whole like MSA thing right like that that that's separate but just as as much work right so yeah probably right we probably need an NDA or you probably you need an NDA and an MSA so I don't know if there's like a formal procurement function or not but yeah so I have a partner in supply management to help us with that um but like I also like I want to get to a proposal because then the proposal will jumpstart that a little bit more versus like I'm having conversations they might just take their time then so yeah I got you okay so something more formal than just here some some good some good resources is what you're interested in yeah like I like I'm assuming like a start in July wrapping up in September October like what would that look like perfect would and then you know we um just one last clarifying piece on that we you know obviously we can help design and build the plan and things like that but also very much hands-on as as a capability would there be like a uh would you be interested in also kind of seeing what it would take to build out the plan or at least a you know an MVP of the plan like you know beyond beyond beyond building the plan and actually building the resources and everything underlying it uh what because it sounds like we're sorry just to make sure make sure I want to try understand September is more of like I don't want to say a paper exercise but it's more of like here's the roadmap right and then end of year is like I have it all created and now I'm actually functionally working in India is that right yeah like I just need to show that I've got a plan by September 30th and so it's really doing a lot of discovery work yeah putting together the components of what that plan looks like with activities like okay this is how we're going to do it over the next three to six months like I I'm going to do like I want to do like multi versions of it like I don't want to like try to get the whole thing done by December I want to get like the most critical pieces done and then work our way down and then because um like I want to be able to like we have incidents quite a bit so like I want to be able to start like by say September October sorry October November being able to use components of the plan already and then keep getting better at that because for true BCP DR to work well like it needs to be tested in almost like every six months and so uh I'm lucky if we can do one test right now yeah okay cool thanks yeah that was my last question of the day okay no these are all good questions no worries so all right so Dennis we'll come back we'll we'll be ready at some point next week to go through something more formal that lays out how we think we would approach it understanding what that you're you're thinking of a team of two and we'll we'll kind of yeah within yeah and we understand the timeline yeah and the two people would work with a manager and then we would have like many other teams within our so it's gonna be like like almost doing the discovery piece for like eight weeks or so whatever it may be and and yeah okay perfect cool thank you very much all right sounds good all right we'll talk to you soon thanks thanks