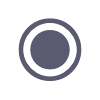
**DR Workshop GC Infrastructure Assessment Session-20250722\_113551-Meeting Recording**

July 22, 2025, 6:35PM

1h 33m 18s

 **Michael Pabon** started transcription

 **Kommuri, Venkata** 0:03  
Few things related to the infrastructure, especially with the data storage configurations, infrastructure setup, network architecture and operational process and there any security configuration that would need to have enough for now.  
For guiding their application.  
So that said, yeah, can you just start with the network architecture? If you have a diagram, just, you know, show the diagram will go through the network architecture.

 **Marc Kaplan** 0:40  
Yeah, give me a minute. I was just going through. I'm starting to pull a lot of that kind of in what phase we're in. I think this is a.  
Just give me a moment.  
Yeah, this is not the right phase.  
This let me just extract this though and put it in the.  
As reference.  
It works out.  
Try.  
There's one diagram. I'll keep digging for others as well too, but that's at least a starting point. It's a part of the network for the Palo side.  
Have a phase two one as well because we did not transition everything from the ASAS.  
But that gives at least a good start.  
Here's phase two.

 **Kommuri, Venkata** 2:02  
Let me stop my screen.

 **Marc Kaplan** 2:06  
This and put this in the chat as well.  
Oh wait, can you not get these?  
Documents from chat.

 **Kommuri, Venkata** 2:21  
Uh, no, I can't get it because I'm not onboarded yet.

 **Marc Kaplan** 2:24  
Oh.  
Do we have somebody that was on board and that could share those?

 **Michael Pabon** 2:28  
Yeah, yeah, yeah, I can.

 **Lei Shi** 2:29  
Yeah, no worry. I'm just sending. Go ahead, Michael.

 **Michael Pabon** 2:32  
OK, no, if you got it Lei, I'll I'll let you do it, but otherwise I can drop it over and so.

 **Lei Shi** 2:36  
Yeah, so I'm just downloading it and Slack to Ventada so he can still have the screen now.

 **Kommuri, Venkata** 2:44  
Yeah, OK.

 **Lei Shi** 2:45  
On your way, Venkata.  
I get it.

 **Kommuri, Venkata** 2:54  
OK, got one here. So how many? Just one or?

 **Marc Kaplan** 2:58  
There's there's there's gonna be a bunch I'm gonna, I'm gonna put over there. There's two in there right now.

 **Kommuri, Venkata** 3:02  
OK.

 **Marc Kaplan** 3:05  
So I apologize late, but thank you for transferring those over.  
Yeah, let's start with these.

 **Kommuri, Venkata** 3:30  
OK.

 **Marc Kaplan** 3:31  
So there's there's another one in here that's also then.  
The second one that I uploaded is kind of what it looks more like today because it also includes the ASA. This was to be our state after retire go ASA devices.

 **Kommuri, Venkata** 3:52  
Is this on?

 **Marc Kaplan** 3:53  
Yeah, this is where we're at sort of right now because we were in mid transit to convert from the ASAS to the Palo Altos and then retire the B block.

 **Kommuri, Venkata** 4:01  
Uh.

 **Marc Kaplan** 4:05  
So this is kind of the unfortunate mixed state we're in right now.  
So there's a good bulk of customers that are on the Palo. There's still a good bulk of customers that are on the ASA. The bottom right that shows V block that has been completely removed. So in the in the other diagram you'll see that it's removed and there is now UCSX and Hyperflex.  
On the bottom half.

 **Kommuri, Venkata** 4:34  
OK. Yeah.

 **Marc Kaplan** 4:36  
So just imagine there's Cisco ASA's to the right of those palos like like here in that image 9.  
But image 8 is more what the compute looks like.  
That make sense?

 **Kommuri, Venkata** 4:51  
Yeah.  
I'm just gonna keep it side by side so that I can.

 **Marc Kaplan** 4:57  
OK.

 **Kommuri, Venkata** 5:04  
Yeah.  
Yeah, go ahead.

 **Marc Kaplan** 5:06  
So this is, this is this, this will be again part of the challenge from what we're attempting to do with Dr. in this instance, because again, there is.  
I don't know. I don't know off the top of my head without the networking team joining and I didn't. I think I forwarded this meeting to them, but I don't know if any of them have joined. These would be the conversations with Gary as well too, that'll come up on what do we do in that Dr. landing space.  
Um.  
Knowing that this is a mixed bag of Cisco ASA Vlans and then Palo Vlans, at least from the Vlan perspective, whatever those are transferred to, it's not going to care, but that's kind of, I don't know how we would deal with that in AWS, so I don't want to.  
That.  
But all the current compute that we would be transferring over and then protecting the diagram to the left is obviously what that's gonna look like where UCSX is all pure based storage and Hyperflex is all native based storage.

 **Kommuri, Venkata** 6:13  
OK.

 **Marc Kaplan** 6:14  
Since the Hyperflex is considered converged infrastructure, it does have a good chunk of customers in it. We're trying to at the moment go through and get a SOW signed for an upgrade to the Hyperflex to move to vcenter 8.  
So we can start shuffling workloads between the nodes. UCSX was meant to be built for only production and Hyperflex was to be lower environments, which due to timing and other conflicts, we never really got that completed either.  
As a goal for last year.  
So that's what the landscape honestly looks like now. And then we've got to figure out.  
With the technology from ADR perspective as well as also the migration perspective like.  
We have block level data at that storage for Pure and the hyperconverge is not necessarily gonna be block level.  
So we got a mixed bag of storage types, if I'm not mistaken. I asked Slava to join this call, but it sounds like he's on an Active Directory conversation.  
But he said he wasn't gonna be able to join, but we can get more details from him.  
On how we want to handle that.  
But typically when looking, typically when looking at the pier, uh, the pier is.

 **Kommuri, Venkata** 7:35  
OK.

 **Marc Kaplan** 7:44  
The peer would have if if servers are in the UCSX, it is all peer storage including the VMDK.  
In the Hyperflex, the VMDK is going to be native and then the attached storage from Pure would be used for SQL servers.

 **Kommuri, Venkata** 7:57  
Mm-hmm.

 **Marc Kaplan** 8:05  
So all the additional drives beyond the operating system typically would then be on Pure and then the OS would be on Hyperflex native.

 **Kommuri, Venkata** 8:19  
OK, so right now, so right now in the right side diagram, right? So you have you you are moving all over guiding care application from infrastructure from.

 **Marc Kaplan** 8:30  
Ignore the compute. Ignore the compute on the right diagram. Only pay attention to the networking above the. What switch is that? Yeah, what switch is that? Let me double check. I think it's a 9K.

 **Kommuri, Venkata** 8:38  
Oh, OK. Yeah, this one. OK.

 **Marc Kaplan** 8:45  
Yeah, for the right diagram, everything above the 9 KS is accurate. For the left diagram, everything below the 9 KS is accurate.

 **Kommuri, Venkata** 8:48  
OK.  
Oh, OK.  
From here below 9K here it's set OK.

 **Marc Kaplan** 9:03  
Yes, yes.

 **Kommuri, Venkata** 9:05  
And this one is true for this one above 9.

 **Marc Kaplan** 9:09  
Everything above, yes.

 **Kommuri, Venkata** 9:11  
OK.  
OK.  
So when when so the migration is lift and shift, right? So that means here you are moving taking that VMD case and move to the AWS.

 **Marc Kaplan** 9:24  
Yeah.

 **Kommuri, Venkata** 9:34  
So I'm not sure. I know maybe we need to talk to Rafael and see the planning to use EBS volumes and take a snapshot, you know, for the backup and replication, you know all those things.

 **Marc Kaplan** 9:51  
Yeah.  
Well, and that's again like the on the left diagram. I think that has the Commvault stack, which is the backup and restore solution.

 **Kommuri, Venkata** 9:58  
Mhm.

 **Marc Kaplan** 10:02  
Um.  
In that scenario as well too, though, that Commvault solution is technically only backing up right now the SQL databases inside of the service as well as the document repositories on the Pure UDR, which would be Flash Array.  
Not Flash Blade. Flash Blade is the block level storage where the BMDKS would reside.

 **Kommuri, Venkata** 10:27  
Oh, OK.

 **Jared Sheltry** 10:30  
Mark, you said for the for the SQL servers, are you using like iSCSI or you do using like RDM?  
And VMware.

 **Marc Kaplan** 10:37  
You can't use RDM. We can't use RDM, so those are all just.

 **Jared Sheltry** 10:40  
SQL direct to the OS.

 **Marc Kaplan** 10:42  
Yes.

 **Jared Sheltry** 10:43  
Okay, cool.  
Yeah, so like a regular snapshot's not gonna work to replicate that, yeah.

 **Marc Kaplan** 10:49  
Nope, it won't.  
So that's kind of where I want to we'll need to ideate on kind of how do we do that because there could be phases to where we're going to have to do storage V motions if necessary. And again, I don't know whether or not like my biggest concern is with the Dr. side or the migration side.  
Is the same technology in use to be able to get the data replicated out of the data center into AWS? Is it similar?

 **Kommuri, Venkata** 11:20  
Yeah, it's. If you use the RDS, it's similar. We know it's the same. It's seamless here.  
And if if you're using lift and shift, then we'll have to think about how to do all this stuff, right?

 **Marc Kaplan** 11:41  
Well, that's why that's why I'm trying to ideate on the notion of would it make sense for us to then start doing staging to where we have VMDKS and disks in block level storage on Pure and is there a means with Pure to do the replication to get?  
That data into AWS to do the conversion to get it running.  
There or is it an agent based solution installed on the systems?

 **Kommuri, Venkata** 12:13  
It most most probably is a agent based install. Basically we if you use a DMS and other you know application assessment for first. Normally we do application assessment and infrastructure assessment right?  
So we we install the agents. If it is a VM, we install the agents. If it is a physical server, there's other approach to get the information of your network application storage, you know.  
Instances and everything and then we'll pull all the information from there.

 **Marc Kaplan** 12:54  
OK.

 **Kommuri, Venkata** 12:57  
Yeah, it's a different, it's a different migrations for different types of servers. Like you know, the watch permissions, they have different physical, you know, have different, you know.

 **Lei Shi** 13:16  
So here's how I understand whole process here. So from Dr. perspective we are not doing the Dr. during the migration. So the migration will happen first which is the lift and shift for the lift and shift approach if the original.  
Source server is like a VM type of thing. So we are using a tool called MGN to do the block level of replication. So it doesn't necessary to realize the VMDK or whatever is attached to the server or attached to the compute.  
So it's going to be treated as a single server nodes and replicate over to AWS as EC2 virtual machine host there and then that's going forward to be the migration for the server nodes and for the shared service, sorry shared storage like you know NAS type of thing.  
We also have like a different tools like you know the the data sync to sync or to replicate whatever the shared storage you have on Prem into AWS. So again that is the forward migration approach.  
After migration is like if we consider all the guiding care is you know different shift over to AWS environment and then we build a Dr. strategy on top of what we already migrated. So still we we we are not going to mix the migration process with Dr. process together.  
In another word, we're not using AWS as ADR site for you. So if that makes sense, yeah.

 **Marc Kaplan** 14:50  
Oh.  
I didn't know that was the scope because the criticality of the way Rob was describing this was that Guiding Care had a woefully inadequate Dr. solution right now, and we were on a major risk not having Dr. itself.  
Through the entire migration, we're talking about then 18 months of not having a good Dr. solution for on Prem.

 **Lei Shi** 15:15  
Um.  
So probably I didn't explain myself well. So what I mean is if right now you have like a two data center is like a Dr. either Dr. to each other or one primary one Dr. So when we lift and shift, we lift and shift the primary site from your on Prem into one of AWS region.  
And the different shift to your Dr. existing Dr. data center work work data set into another database region. So still you kind of have the Dr. solution in day one after the migration. Yeah, however.

 **Marc Kaplan** 15:48  
That's that's that's the problem like both of our data centers are active with independent unique customers.

 **Lei Shi** 15:53  
Uh huh.

 **Marc Kaplan** 15:58  
And we've we've grown so fast without keeping up with the funding for Dr. We don't have enough storage and compute on either side to be able to fail over an entire data set.

 **Lei Shi** 16:03  
Mhm.

 **Kommuri, Venkata** 16:10  
I think Le Mark is talking about the AW AWS as a Dr. for the current primary of data center.

 **Marc Kaplan** 16:17  
Yeah, well, and both are considered primary.

 **Kommuri, Venkata** 16:21  
Yeah, both are kind of primary. You want to have a AWS environment as a Dr. for your current infrastructure. That's.

 **Marc Kaplan** 16:30  
Yeah, I mean, like I I I think that's paramount because the way that Rob described it to me, which may not be the way that it's it was understood or written into the contract. We need to have that discussion though, because the original conversations we had 2 1/2 years ago battling for figuring out whether or not we were going to do.

 **Lei Shi** 16:42  
Mhm.

 **Marc Kaplan** 16:49  
Um.  
Oh, I forget the name in Azure. I think it was ASR, Azure ASR as a managed service through one of our vendors. That contract never went through and we've only grown since we started that initiative without doing more hardware purchases.  
So I'm strapped to be able to go through and do a failover of my entire data center to the opposing coast. We're replicating all the data there, but we have no means to be able to snapshot and back up the VMS to the opposing coast to bring them up.  
So if we have a data center to go down, we have 4 hours to bring it back up in the current data center. And if the contract is not calling out guiding Care's inability to do Dr. we're going to be another 18 months with no Dr. solution on Prem.

 **Lei Shi** 17:43  
So Mark, one quick question. So from your point of view to understand how the Dr. as a future state, is that on Prem still be in the picture or is it going to be the purely?

 **Marc Kaplan** 17:55  
Oh no, no. Once the once, once the migration is done, that's gone. We don't need to worry about it then. But I have 18 months until we get all those customers over. So how do I protect my current data centers from disaster?

 **Lei Shi** 17:59  
OK.

 **Marc Kaplan** 18:14  
That's the that's the risk and concern. I think that conversation needs to get struck back up because that was my interpretation from Rob and if my my interpretation from Rob was wrong.  
Then we're gonna have to then scramble to find out what is our solution for the data centers today.  
And that's why the impetus was GC goes first with ADR strategy.

 **Lei Shi** 18:40  
I see it.

 **Kommuri, Venkata** 18:40  
Yeah, that that for the that Mark that that I think that's yeah that is completely a different strategy we had to apply if if you need AWS as non and Dr. for or on from active infrastructure.

 **Marc Kaplan** 18:41  
And I thought.  
OK.

 **Kommuri, Venkata** 18:56  
Um.

 **Marc Kaplan** 18:59  
I'll have to escalate that then because my I get it. Maybe Rob's maybe the way that it was worded the way Rob said it is we have an inadequate strategy. Help us come up with a strategy for AWS and my interpretation was.

 **Kommuri, Venkata** 19:00  
Yeah.

 **Marc Kaplan** 19:14  
We have no ability to do Dr. today. We've got to have a solution right now, because if a data center goes down, we're in a lot of trouble.

 **Vidya Sambasivan** 19:23  
Is it part of it? Um, like for example doc IO mark or all of the functionality should be up and running with you? OK.

 **Marc Kaplan** 19:30  
It would be everything. It would be absolutely everything. Like I'd have to recreate and rebuild all of IAD in an alternate region, which I thought we would be doing with AWS before the migrations. And now I don't know when you joined Vidya, the commentary from the team was.

 **Vidya Sambasivan** 19:42  
Yeah.

 **Marc Kaplan** 19:48  
They're building ADR strategy for when we are in AWS, not for while we're on Prem.

 **Vidya Sambasivan** 19:54  
I I know, uh, there's a going.

 **Marc Kaplan** 20:13  
Yeah.  
Yeah.

 **Kommuri, Venkata** 20:15  
And you need to set up all the infrastructure there. That's anyway that's gonna happen as part of the migration and the the primary one will become a Dr. initially during this 18 months.  
Survival and once the complete migration is done then then you can completely switch over traffic to AWS and have a AWS to AWS Dr. solution.

 **Vidya Sambasivan** 20:42  
Yeah, but that's gonna take some time, right? That's Mark's point that we have up to 18 or 21 months to fully migrate over to AWS until such time we will not have a Dr. solution.

 **Marc Kaplan** 20:55  
I mean it it it from my perspective.  
It's it's good to know that at least the solutioning there for the migration is somewhat aligned with what would be done in ADR strategy technology wise. But does does that then just mean that we just go full bore and say everything gets block level replicated over to AWS in the event we lose?  
Data center and then we have a rapid wave like the whole data center gets replicated block wise. Like this was also why I was bringing up the concern that is a 10 gig pipe gonna be enough to replicate that level of data.

 **Kommuri, Venkata** 21:39  
Yeah, do do you need? Yes, I think that that's what we had to think. If we need to duplicate the entire data from on Prem to AWS, then and yeah, that's we had to.  
I didn't think about that. It's completely different strategy.

 **Marc Kaplan** 22:01  
No, it is. And it it might be the alternative that we look at to see instead of just going in waves with a certain set number of systems, we just go full bore with all of them as a safety net to be able to bring it up in AWS. God forbid there's a disaster.  
But that scope of work for bringing everything up all at once and meeting our RTO, massive strategy change. That's huge.

 **Jared Sheltry** 22:26  
In Mark for those SQL boxes, you might want to look into like just SQL replication or something, because it's going to be a nightmare doing iSCSI from Pure and trying to get those mounted onto servers in AWS.

 **Marc Kaplan** 22:32  
Yeah.  
Yeah, I I don't, I don't disagree with that. I mean that was one of the other thoughts of do we just hybridize and just be able to populate the databases as is as EC2 instances clean build.  
With IAC and just then have those staged without doing block level replication whatsoever.

 **Lei Shi** 23:04  
Hey, Mark, here's my thought is just speaking to to the experience I had with many enterprise customer there. I think you also agree with there's going to be many options to build a Dr. side, right. So I I think right now you're more tend to the option of.  
Of using AWS as a Dr. site for day one. So there's no migration happen for guiding care on day one just yet, but build AWS with one region as your Dr. site so you can replicate your data over AWS. At the same time, you'll still fully operate.  
On Prem and maybe day two and shift the primary site from your on Prem into AWS and then from that the first AWS region as a new primary site and build a new Dr. site in another AWS region. Then you can fully get rid of your on Prem.  
Data center there. So if you consider this is more like a two or three steps of a migration plus the Dr. and to maintain, you know there's no downtime for your end client. Is that what you expected?

 **Marc Kaplan** 24:18  
I mean that was that was kind of my expectation because the notion of what we were going to do with Azure was we were going to then fail over core services in ASR and once those services were failed over, we would never fail back to the data center and that is then a clean migration.

 **Lei Shi** 24:27  
Mhm.  
Gotcha. So two things I I I think it's maybe a little bit complicated. One one reason is because guiding care after we have the application architecture discovery session with you guys, there is a.  
I won't say so many, but it's not like a simple architecture. You have a lot of moving parts and dependencies, right? So it's not like just simple servers that we replicate in one address region and create replication in another region. So that can be simple. The effort is going to be no big difference.

 **Marc Kaplan** 24:55  
Nothing.  
Yeah.

 **Lei Shi** 25:09  
If we do database as a Dr. side 1st and then do a Dr. again versus you know we do you know the migration 1st and then enable the Dr. to the other region. For simple application architecture this is no big effort differences.  
But because you have a complicated architecture there plus has multiple different networks, for example some of live on Azure, so you need to have like a constant connectivity with Azure side and also you have existing doctor replication between the two data centers there.

 **Marc Kaplan** 25:26  
Yeah.

 **Lei Shi** 25:46  
If it's already 100% replicate to each other or there's some delta or big deltas between the two. So that will kind of you know be a complicated situation. If we want to day one use one of the AWS region as your new Dr. site, we probably need to look into that.  
To see how I think you know the objective is like the the priority that you're looking at is make no downtime or just minimum downtime whenever we do the Dr. or migration. I I think that's what you want, right?

 **Marc Kaplan** 26:20  
Yeah, ideally, yes.

 **Lei Shi** 26:21  
OK.

 **Marc Kaplan** 26:24  
Because we know there's going to be pre-stage requirements we have to deal with the customers on, which obviously would be like the VPN tunnels because those have to be pre-staged. There's the shared platform services that also should be pre-staged in some capacity. It's keeping the delta minimal between.

 **Lei Shi** 26:32  
Mhm.

 **Marc Kaplan** 26:41  
The shared platforms, because that's going to be challenging. I don't know how we do that, but you hit the nail on the head though. But like my concern is, is that this is the challenge we've been trying to deal with on Prem and have no have had no luck on figuring out a good strategy for this large of a application.

 **Lei Shi** 26:56  
Mm-hmm.

 **Marc Kaplan** 27:01  
Suite of solutions.  
It is super complicated.

 **Lei Shi** 27:06  
Yeah. So, so, uh, go ahead. Yeah.

 **Kommuri, Venkata** 27:08  
Yeah, you still need, you still need. If we if we wanna go with AWS as ADR in the first phase, you still need all the servers from you know both you know your data centers, right? ELA and as well as.

 **Marc Kaplan** 27:21  
Yeah.  
Well, and that that also then adds another.  
Another issue of context switching because would we then look at potentially focusing on one data center to not confuse the project even more and say solve for Reston VA now in a local Virginia region to do what we are calling Dr.  
And then enact the strategy once those systems are migrated over for their replication to like West US like I'm not talking about like Dr. I like I would not want to go through if we were to do something like that to say the same scenario of what we would have done with Azure.  
Using ASR to then do a Dr. test with the customer and do it technically with every customer. And then once they're over, they don't come back and it's within the same what, 300 miles?  
Or less.  
We'd have very low latency. We'd probably get really good speeds to be able to send that traffic in a local region because again, we're just going from Reston, VA, likely to Ashburn, Virginia. That's 30 miles.  
Maybe 3040 miles.  
And then the distance between Los Angeles, CA to Oregon.  
That's my speed of light problem there.

 **Kommuri, Venkata** 28:54  
So, so currently, do you have any customer that is configured LA as primary and Virginia as secondary, you know, Dr.

 **Marc Kaplan** 29:05  
Yes, every, every customer in Los Angeles today that is active is or any customer that's been deployed in LA is their active primary.

 **Kommuri, Venkata** 29:13  
Oh, OK.

 **Marc Kaplan** 29:16  
And then everyone configured in Reston VA that is their active primary and we do cross site replication. So backups from LA are held local and also then sent to Reston VA as the blast radius and then the same for Reston to LA.

 **Kommuri, Venkata** 29:32  
But if the let's say for that the customer will configure in Virginia, if that site goes down so that you are you, do you normally route the traffic to LA for those customers?

 **Marc Kaplan** 29:46  
Well, that's the expectation.

 **Kommuri, Venkata** 29:49  
No, no, in the current, in the current scenario, current scenario.

 **Marc Kaplan** 29:49  
But that's again that that that no, no, that's that's why. That's why again, Rob is so concerned about there not being a good Dr. strategy for guiding care that we'd have to go through and solve for it with possibly AWS and why we started the conversations with Azure that just never really came to fruition obviously.

 **Kommuri, Venkata** 29:54  
Oh no, you don't have it.

 **Marc Kaplan** 30:25  
Yes, yes, yes.

 **Kommuri, Venkata** 30:27  
And you don't have you just take a backups of data, but you don't have any process to restore in second data center.

 **Marc Kaplan** 30:35  
Well, what we have is we have the data available and if there is a disaster, God forbid, we're manually building all the servers from scratch. We're working with the customers to reestablish VPN tunnels if they don't have Dr. tunnels already, and we're not gonna meet our RTO of four hours.

 **Kommuri, Venkata** 30:39  
Hmm.  
Mm.

 **Marc Kaplan** 30:55  
That's the problem.

 **Kommuri, Venkata** 31:00  
OK, so right now it's you have just a backup and restore strategy you know in in in your on Prem data center.

 **Marc Kaplan** 31:08  
A a a really bad one, yes.

 **Kommuri, Venkata** 31:11  
Yeah, I would say that, yeah.  
It may take hours or days right to restore.

 **Lei Shi** 31:14  
So, Mark, uh.

 **Marc Kaplan** 31:17  
It would take weeks, if not months.

 **Kommuri, Venkata** 31:19  
Long weeks, yeah.  
OK, so then I think I definitely, you definitely need to solve your problem. You definitely need AWS as ADR at least you know phase one.

 **Marc Kaplan** 31:36  
Yeah, I mean that that was, that was what I assumed was going to happen and that that Dr. would potentially help us get into EC2 a little bit more cleanly. But I again, I don't know, I I don't know what options are there.

 **Kommuri, Venkata** 31:49  
Do do they have any requirements like you know if if the if the user is configured, if the customer is configured in Virginia, their backup suppose if we you know if we build a Dr. in AWS one of the AWS region.  
That region has to be in Virginia, or can it be in any other region?

 **Marc Kaplan** 32:14  
I.

 **Kommuri, Venkata** 32:18  
Because you know what I'm thinking is you you don't need to have a multiple. Suppose in case if we go ahead with this approach, you don't need to have a multiple AWSDR regions, you know have a one AWS Dr. region for for time being.  
Configure your customers. AWS has a and then Dr. you know region and then yeah, sorry.

 **Marc Kaplan** 32:45  
I I mean is is is the thought around that like cost a cost basis kind of thought or ease of centralization like what?

 **Kommuri, Venkata** 32:56  
Uh.  
It's not a cost based something to save the time, right? Because the migration. Anyway, migration is going to happen in parallel. It's it's unnecessary redundant work to have this system set up again, you know, after migration we have to.  
Um, you know, come up with again a Dr. strategy for AWS, right?  
This is a stopgap measurement but that you you you are planning to do it it list as a DF site.

 **Marc Kaplan** 33:33  
Well, it is. And again, it's it's gonna be, it's gonna boil back down to getting a little bit more clarity because either Guiding Care is gonna have to move faster to AWS to protect some of the largest clients we have.  
Which most of those clients are not interested in being some of the first adopters, which is going to become a problem.  
We know that most of those customers that are that large are not interested in doing anything in Q4, just like HRP. Nobody wants to touch Q4.  
So we're our earliest we could have a solution is still what roughly 5 months out for some customers to get them migrated which.  
Does leadership wanna take the risk of not having a landing zone for the data centers to fail over to in AWS?

 **Raphael Titus** 34:23  
So Mark, I have a question. So does reliability in AWS a driving factor for any migration with the customers?

 **Marc Kaplan** 34:36  
You said reliability.

 **Raphael Titus** 34:37  
Yes.

 **Marc Kaplan** 34:38  
I think reliability is probably the topmost factor given the state of the data centers.

 **Raphael Titus** 34:42  
Exactly so so so if they move to AWS and if they have a reliable application, so why are they hesitant to move quickly?

 **Marc Kaplan** 34:52  
Because if we're still on the data center and a data center goes down, it'll take weeks for us to bring them back online.

 **Raphael Titus** 34:59  
So that's that's what I was asking. So if AWS is going to be reliable, will they not support that move?

 **Marc Kaplan** 35:06  
Oh, they'll support the move, but nobody's gonna want to do that when it's open enrollment.

 **Raphael Titus** 35:10  
OK.

 **Marc Kaplan** 35:12  
Q4Q4 Most companies are putting a complete freeze on any changes.

 **Raphael Titus** 35:20  
OK.

 **Marc Kaplan** 35:25  
I mean, it doesn't mean that we can't stage them in Q4 and get them ready at the start of the new year. Yes, you that would work, but we would have to do all the planning to be able to make sure that we are ready to go and hit the ground running, you know, Jan 2 onward.

 **Raphael Titus** 35:45  
OK.  
Venkata, if you're talking, you're on mute.

 **Lei Shi** 35:49  
Hi Mark. Hi Mark. So I I know this session is not a solutioning call, but here just a quick thought there. Venkata also mentioned that earlier because like right now because you have like A2 physical data center across your right and.  
Also you know from your perspective you kind of have like a data back up to each other like a cross site from HA perspective. But if you look zoom into a particular client, it's kind of transparent to them and they are not actually using active active or primary standby because you know.

 **Marc Kaplan** 36:15  
Yeah.

 **Lei Shi** 36:27  
All those data replications, stand up a new machine in the different side, either for a drill or for actual Dr. is handled by your team. So with that said, one particular client, they kind of always operating in one region, is that correct?  
As of right now because you don't, yeah, yeah. And now here's the thought as you have like a footprint across two data centers and if we just during the migration, I think last time you mentioned that you probably have like 50 clients there and is that about to?

 **Marc Kaplan** 36:45  
As of right now, yes.

 **Lei Shi** 37:03  
To do a quick testing to see I just post a link in this chat. So if you can run the quick test per client environment. So this is kind of a reaching latency testing from the Internet there to figure out what's the latency to each of the best regions.  
And my point is if you will find out that 50 clients you have and issue this testing connections to this website and have similar latencies to the USC one at the best region, maybe an idea or option for us to think of is like you can just either you think of.  
Do the DR2 AWS in the phase one and from 2 physical data centers both DR2 will migrate to US East one but not split into two AWS region just yet if the latencies fulfill the requirement already which is not introduce big latency.  
Two particular clients then maybe this is going to be an easy approach for us. So we can simplify either the DRS setup or migration process there and they too and we can think of with this existing 50 client already operate in US is one in AWS region and then we can.

 **Raphael Titus** 38:12  
Yeah.

 **Lei Shi** 38:21  
Enable the Dr. capability in another AWS region as day 2 activity and the good part about this is like you kind of consolidate all your 50 clients in the first AWS region right and let them fully operate it and with no downtime and we enable another Dr. region.  
On day 2 activity so that you don't have to they want deal with like A2 at best region to do all of the mapping who is moved to which region that is kind of complex everything.

 **Raphael Titus** 38:52  
Yeah. And also Lei and just to follow up on the things that we are discussing, right, two things that I would like to, I mean we can collect all the data, but the discussion needs to happen on this thing, the Dr. for the on premises stack. Basically we are talking AWS as one of the Dr. site, right. We need to really double tap on that to see if.

 **Lei Shi** 38:56  
Yep.

 **Raphael Titus** 39:11  
We are going to do that because that is going to that is going to affect the migration schedule of the others and the work that are that needs to happen on that stacks that are going to move into AWS. So we need to see which is really important take a executive decision on that and that's a larger discussion to to see if that is really in the scope. The second the the.

 **Lei Shi** 39:13  
Exactly. Yeah. Mm-hmm.

 **Raphael Titus** 39:31  
The main thing, if I understand correctly, is basically to see the guiding care stack that is moving into AWS. Does it have Dr. What is the mechanism for that? That is one of the major scope. But the first part that we discussed, we need to have a larger conversation to see where we are going to land.  
Because it directly has an impact, yeah.

 **Marc Kaplan** 39:46  
Well, hey, hey.  
I I I think this call then reverts back to the original intention of this call, which is what is the Dr. strategy once those customers are in AWS and we did have the call today with Rob.

 **Raphael Titus** 39:57  
Yes.  
AWS, yes, correct.

 **Marc Kaplan** 40:04  
Rob agrees that we do want to do multi-region strategy, so that's still in play.  
8.

 **Lei Shi** 40:17  
Yeah, So what do we talk about here? Especially myself mentioned about consolidate everything in the first region is not get rid of the idea of enable, you know, the new Dr. side in another region. What I mean is like a.  
If we can, you know.  
Decouple this into two phases like a phase one, just you know, starting from one one region fully operate and then enable another region for the Dr. within the AWS.

 **Marc Kaplan** 40:48  
Well, and again, from my perspective, Los Angeles goes to Oregon. Reston goes to Ashburn.

 **Lei Shi** 40:54  
Mhm.

 **Marc Kaplan** 41:00  
And then Dr. is built from Ashburn to West US and West US is built to East US for Dr.

 **Lei Shi** 41:01  
Um.  
And you have the setup because it's easy for you to do the mapping for your client to goes to different database region.

 **Marc Kaplan** 41:22  
I mean, that's the state that we're in today. We just don't have the computing hardware to be able to see it through to fruition.

 **Lei Shi** 41:28  
OK.

 **Marc Kaplan** 41:28  
We won't have that problem in AWS.

 **Lei Shi** 41:31  
Yeah, so um.  
I I'm just thinking for you on the future state there. So if we're doing this like you know half of your client go to one region, half of client put in the other region and they kind of use that two regions as its own primary site.  
And in your future state, do you still want to do that across Dr. to each other perspective like you know 50% of your client using US East one as primary site and US West two as Dr. and the.

 **Marc Kaplan** 42:07  
Well.  
I mean the the the reality of it is this is that it's more likely going to be 75% to East US and 25% in LA.  
We have a lot more customers on the East Coast than we do the West Coast. I think it's a total of 19 or 20 of 53 customers.

 **Lei Shi** 42:27  
Mhm.

 **Marc Kaplan** 42:28  
So.

 **Lei Shi** 42:30  
OK.

 **Marc Kaplan** 42:36  
And again, the the silver lining with that for us that's kind of saved us in some regard is that if we have an impact in Reston, we don't impact LA, so the penalties to us are cut.  
Significantly.  
We're not affecting the entire customer base.  
We're also then accommodating the customers that are in Hawaii.  
With lower latency to the application because these applications are extremely sensitive with high amounts of data volume.  
I mean, I'd be OK with the notion of potentially then thinking Dr. for East US is what Ohio and then West US is Ohio? Sure.

 **Raphael Titus** 43:45  
Yep.  
Venkata, do you want to continue with the discovery that you were doing?

 **Kommuri, Venkata** 43:50  
Yeah.

 **Raphael Titus** 43:53  
Sure.

 **Kommuri, Venkata** 43:55  
So this I'm trying to put in a conceptual diagram what we're what we're talking. That's why you know just.  
One second, let me show you this one.  
So this is what we are talking, right? I mean, um.  
So right now you have.  
The data center LA and Virginia and you have a and data backup and restore strategy for Dr. for each you know customers and for this this is what I'm.

 **Marc Kaplan** 44:35  
Yes, yes.

 **Kommuri, Venkata** 44:41  
I'm in referring you know in AWS you have this one, other one is other region. You know for your current scenario because you don't have a a a proper Dr. site.

 **Marc Kaplan** 44:50  
Mhm.

 **Kommuri, Venkata** 44:58  
You can, you know we can build ADR here, you know all your the infrastructure application components here and then this will be Dr. for the LA and this will be same for you know.  
Virginia.

 **Marc Kaplan** 45:17  
Yeah.

 **Kommuri, Venkata** 45:18  
I mean if if you're OK with that, I mean it's another idea that I'm just.  
What opposing?

 **Marc Kaplan** 45:27  
Yeah, I mean, if we're, if we're talking about the scenario of protection of the data centers as it stands today, I'm fine with having Ohio be a central location or whatever, you know, something, something that's not gonna cripple my customers in Hawaii and California.

 **Kommuri, Venkata** 45:47  
Yeah.  
And and later, once we migrate everything to your SIS to one, once the migration is completed, then we can completely get rid of this and then we had to, you know, make ADR like this.

 **Marc Kaplan** 46:00  
Yep.  
Well, I mean, again, if the appetite for the businesses of the call today is to still retain 2 active AWS regions serving customers on the West Coast and the East Coast.

 **Kommuri, Venkata** 46:19  
Yeah, then we we still have an active, active scenario here, you know?

 **Marc Kaplan** 46:20  
That also.  
Yeah.

 **Kommuri, Venkata** 46:40  
OK.  
So uh, let me let's get back to the the network here.  
So it So what we need to consider here is the there is from in terms of the connectivity from the customer, you have a VPN connections to each data center from the customer.  
Our data center, right?

 **Marc Kaplan** 47:08  
Not all customers. Many customers though.

 **Kommuri, Venkata** 47:15  
OK.  
So many customers you have VPN tunnels already established in these data centers, OK.

 **Marc Kaplan** 47:23  
Yes.

 **Kommuri, Venkata** 47:26  
Do they have the? They also have Dr. VPN tunnels established along.

 **Marc Kaplan** 47:34  
Customers that customers that have that redundancy in their solution, yes, not all.

 **Kommuri, Venkata** 47:39  
OK.  
So what kind of security measures do you take between?  
The the the communication between these servers you know.

 **Marc Kaplan** 48:00  
So right now everything's logical and it's based off a VLAN and it's based off a VLAN type. So every customer gets its own dedicated 4 Vlans, which would be QA application and QA database. There's then prod application and prod database.  
Those are all requiring a CLS for any intercommunication between the application of the database and the database to any external VLAN that might be in in existence for replication of data depending on the size of the customer. Let's say the largest customer go with that as the example because it's a bit more clean.

 **Kommuri, Venkata** 48:17  
OK.  
OK.

 **Marc Kaplan** 48:37  
There would be an AG SQL cluster in there and that AG SQL cluster would have hanging off of it a replication distribution server and another replication server for like our BI and then for the VPN tunnel to the customer with.  
Only the tables necessary for what they need to report on because a lot of customers want to take the data out of our system to be able to do their own BI.  
So they'll do all their own business intelligence off of the data that we have inside of Guiding Care.

 **Kommuri, Venkata** 49:14  
So is there any connectivity between the customer Vlans? No connectivity, right?

 **Marc Kaplan** 49:22  
Between the customers, no.

 **Kommuri, Venkata** 49:24  
Yeah, between the customer V Lance.

 **Marc Kaplan** 49:26  
No, the only time that exists is in the shared platform side. So SFSFTP that's one way like technically one way traffic for data loads and then it's one way traffic out from SQL for anything like extracts that might occur.

 **Kommuri, Venkata** 49:31  
OK.

 **Marc Kaplan** 49:43  
And that's to those shared services that I had mentioned before.  
That we have to think about. And again, we did have a long call about this today about how do we get out of this notion of maintaining these VPN tunnels with Todd from HRP and Rob and Jim and everyone of looking at what alternatives we have.  
For some customers that may be in AWS to not have to need VPN tunnels and do some sort of secure transfer inside of AWS to them.  
Like the the the equivalent in Azure being you know V Nets and setting up V Nets if they have an an Amazon presence.

 **Kommuri, Venkata** 50:28  
OK.

 **Marc Kaplan** 50:33  
I mean the the at the end of the day Rob, Rob's concern is, is that VPN tunnels require IP addresses. IP addresses are fungible. If we need to do dedicated IP space so we don't worry about the, you know, the risk there, then we have to buy the IPV4 space.  
We'd like to look at alternatives of VPN and see what we want to do. And Jim, Jim and Source have have a means to do that, but we didn't really get too deep into that conversation.

 **Kommuri, Venkata** 51:07  
OK.

 **Marc Kaplan** 51:09  
I'd ideally like to get away from any VPN tunnels, but it's really what's the feasibility that the customers can support.

 **Raphael Titus** 51:10  
OK.

 **Kommuri, Venkata** 51:16  
So VPN tunnels are connected to their their VLANs, right? Let's say customer one connected to VPN tunnel with their VLANs, individual VLANs.

 **Marc Kaplan** 51:28  
Yeah, the the the only way that that would happen is is it would be a customer VLAN for production SQL production database and that's the only place we would have a VPN funnel.

 **Kommuri, Venkata** 51:36  
Uh.  
OK, what about lower environments like a sandbox or a?

 **Marc Kaplan** 51:47  
No, no.

 **Kommuri, Venkata** 51:51  
OK.  
So they they don't need any connectivity. Uh, VPN connectivity for lower environment.

 **Lynn Crumbling** 51:53  
Hey, Mark.

 **Marc Kaplan** 51:58  
Lower, no. But again, it's also dependent on the terminology we're using here for lower, like we classify production data to be pre-prod and prod, right? And lower environments would be QAUAT training to where that would not be the case.

 **Kommuri, Venkata** 52:09  
Yeah.

 **Marc Kaplan** 52:15  
So most customers do not have lower environment replication, they only have it for where production data exists.  
And Lynn, Lynn, you're gonna say something?

 **Kommuri, Venkata** 52:28  
OK.

 **Lynn Crumbling** 52:31  
Yeah, there there is one more data path between the SQL server and the SFTP server. So the ability to promote configurations between environments is one of our core pieces of functionality and the way that takes place is.  
There's SSIS jobs on the SF on the on the SQL server that grab the configuration and push it out to the SFTP server.  
Just wanted to make sure they were aware of that as well.

 **Kommuri, Venkata** 53:11  
OK.  
So, so they have a separate for each Vnet they have their. Is it a one single Palo Alto shade across all the customers or did you deploy one for each customer Palo Alto?

 **Lynn Crumbling** 53:16  
And then.

 **Marc Kaplan** 53:35  
No, it's a pair of palos for the entire region or data center.

 **Kommuri, Venkata** 53:38  
Oh, OK. Oh, OK.

 **Marc Kaplan** 53:41  
And then like stuff for SFTP though, Lynn, that's still all over the public Internet.  
Like we don't have tunnels or anything specifically there for SFTP. That's all IPV 4 over the Internet.

 **Lynn Crumbling** 53:57  
Oh no, I I was talking about because you at one point you had said there's it's a one way path to get from data loads to the SQL Server and we we do have a path for get to the SQL Server out to the SFTP server was what I was trying to.

 **Marc Kaplan** 54:11  
Oh yeah, no. Yeah. I mean, UMI does the same thing. Anything extract wise is then SQL out.

 **Lynn Crumbling** 54:12  
Thanks.  
Yeah, Yep. OK.

 **Kommuri, Venkata** 54:22  
So SFTP is going through Internet.

 **Marc Kaplan** 54:25  
Yeah.

 **Kommuri, Venkata** 54:42  
So the the you said there there is a some core guiding their core applications, right? So where are they located and which Vnet? Are they in a shared Vnet or is it in?

 **Marc Kaplan** 54:55  
It it's it's in a shared Vnet. Yeah, it'd be or shared VLAN, yes. I mean for mine, yeah.

 **Kommuri, Venkata** 54:59  
Oh, sure. Sorry, we will end. Yeah, it's not a Venus, sorry.  
I had to.  
Terminology.  
And all the API core API's are here, right?

 **Marc Kaplan** 55:26  
Yeah, like the APIM, yes.

 **Kommuri, Venkata** 55:49  
And the SQL instances are in their customer database Vlans, is that right?

 **Marc Kaplan** 55:58  
Yes, yes.

 **Kommuri, Venkata** 56:31  
OK.

 **Marc Kaplan** 56:33  
Again, I think.

 **Kommuri, Venkata** 56:34  
Do you have any any more questions?

 **Marc Kaplan** 56:46  
I was gonna say if you have that architecture diagram that I had shared, that's somewhat that's somewhat lays out what I've been talking about. Not these ones. There was there was one, there was another image that I believe was shared earlier.

 **Kommuri, Venkata** 56:50  
OK.  
That would the.

 **Marc Kaplan** 57:02  
That was a a single customer's production deployment.  
I don't know if you have that one.

 **Kommuri, Venkata** 57:07  
Oh, OK.

 **Lei Shi** 57:09  
Yeah, Venkata is, uh, the diagram that, uh, you know Mark shared in previous sessions.

 **Kommuri, Venkata** 57:10  
Um.

 **Marc Kaplan** 57:16  
Yeah.

 **Kommuri, Venkata** 57:16  
Oh, OK.  
Uh, this one, right? And this one.

 **Marc Kaplan** 57:20  
No, there's another one, the one before this one.  
I just don't know what the naming convention may have changed once it was shared via Slack, so.

 **Kommuri, Venkata** 57:33  
Oh, maybe I don't have it. I don't have that.

 **Marc Kaplan** 57:34  
The way that the.  
Me.

 **Kommuri, Venkata** 57:39  
Is this one or?

 **Marc Kaplan** 57:42  
Yes, this one.

 **Kommuri, Venkata** 57:44  
Oh, OK.

 **Marc Kaplan** 57:45  
So like I said, like you see at the bottom of the Gray areas there you see VLANXXXX. This this was a redacted version that went in front of the customer. So what would happen here is those the the bottom one and the top one would be considered shared V lans.

 **Kommuri, Venkata** 57:51  
Yeah.

 **Marc Kaplan** 58:03  
So yeah, the top and the bottom one would be considered shared Vlans and then the middle section would be the customer's production application VLAN and then on the right side of that is then the customer's production database VLAN.

 **Kommuri, Venkata** 58:04  
Uh, this and the bottom one. This not the top one.  
Mhm.  
Oh, OK. And this one. OK.

 **Marc Kaplan** 58:21  
Yeah.  
Just because I know I saw you, I saw you building out that the other diagram, I just wanted you to kind of have a visualization of kind of the connectivity between all of the nodes. Those would like the green lines would be all the AC LS that we have in play.

 **Kommuri, Venkata** 58:30  
Yeah, I'm tenting.  
Fine. OK, yeah.  
So where is your?  
Um.  
Uh, we learned that.  
So the where is they were egress or ingress Vlans?

 **Marc Kaplan** 59:05  
Well, that like that.

 **Kommuri, Venkata** 59:06  
So do do you have a, do you have you know a centralized ingress or egress or it just every VLAN has you know route to go out to the Internet?

 **Marc Kaplan** 59:11  
Yeah.  
Every villain has its own route to go out to the Internet.

 **Kommuri, Venkata** 59:19  
Uh, OK.

 **Marc Kaplan** 59:20  
Out of the gateway, yeah.

 **Kommuri, Venkata** 59:22  
Oh, OK.

 **Marc Kaplan** 59:23  
So they'll get their own IP space. I think every single customer within those Vlans gets a slash 27 of IP space and then they're all routed out to the firewall and the firewall then does the outbound egress.

 **Kommuri, Venkata** 59:31  
Uh huh.  
OK.  
OK.

 **Marc Kaplan** 59:46  
Yeah, we'd like to get a little bit more mature on that because I don't really. Again, there there's a lot of things that we're changing on our side that we have to figure out, especially filtering of traffic exiting the data center.

 **Kommuri, Venkata** 59:58  
Oh, OK.

 **Marc Kaplan** 59:59  
But that's a different conversation for another day. But yeah, as of right now, it's unfettered access outbound.

 **Kommuri, Venkata** 1:00:06  
OK and and uh.  
But.  
So this this shared VLANs right? The top one and the bottom one that the customer accesses shared VLANs from their data center.

 **Marc Kaplan** 1:00:15  
Mhm.  
They they don't access the VLAN itself. They access the load balancer through a NAT rule at the Palo.

 **Kommuri, Venkata** 1:00:24  
Uh.  
Oh, OK, yeah, at least there there is a communication between the data center and this shared VLAN.  
Communication channel open, you know and say.

 **Marc Kaplan** 1:00:41  
Yeah, I mean you're going to be looking at layer 7 traffic flowing through the Palo and all that traffic for all those lines coming from that cloud pass through our ASRS and our Palo's or our ASAS. There's they all have not rules and they are open to the Internet because.

 **Kommuri, Venkata** 1:00:45  
Uh.  
Oh, OK.

 **Marc Kaplan** 1:00:59  
'Cause we do have a lot of customers that are traveling.  
So it's it's just unfettered access to port 443 through those systems to the load balancer.

 **Kommuri, Venkata** 1:01:05  
OK.  
OK, so in the top I can see those are, you know, SFTP servers and others are Mongo and other servers here. But in the bottom, what are these? Why customer needs direct access to these apps?

 **Marc Kaplan** 1:01:26  
Well, that that's the Tableau application.

 **Kommuri, Venkata** 1:01:29  
Oh, this is OK.

 **Marc Kaplan** 1:01:30  
So that's again another one where it's fronted by a load balancer. They gain GUI access to the system and then the the blue server above that, that is the SQL replication node that then has a VPN tunnel established to a client SQL peer.

 **Kommuri, Venkata** 1:01:49  
So, so these so the clients will directly access the SQL replication. Oh.

 **Marc Kaplan** 1:01:54  
Yes, they will. They will access that server for the tables of data they require for their BI because they don't want to use Tableau.

 **Kommuri, Venkata** 1:02:03  
Oh OK is is this a a system to system integration or it just a users who go come on and access login and access from this?

 **Marc Kaplan** 1:02:13  
It's system to system, it's never user.

 **Kommuri, Venkata** 1:02:17  
Oh, OK.

 **Marc Kaplan** 1:02:20  
No, I'm not sure how we would tell that, but you know it's supposed to be system to system.

 **Kommuri, Venkata** 1:02:27  
OK.

 **Marc Kaplan** 1:02:28  
Like essentially the other side of that should be a client SQL Server that we're replicating with.

 **Kommuri, Venkata** 1:02:34  
Oh, God.  
So we so when we are you know the planning for Dr. we need to consider all the components here right in each shared shared Vnets and each individual.  
Clients V Nets and also the shared V Nets here, right?

 **Marc Kaplan** 1:03:06  
Yeah, yeah, unfortunately, yes.

 **Kommuri, Venkata** 1:03:11  
OK, yeah, this won't be a big deal when designing is much easier in in in the AWS because we have VPCS, you can segregate the traffic and their network, right? We have each VPC.

 **Marc Kaplan** 1:03:22  
Yep.

 **Kommuri, Venkata** 1:03:29  
Or customer, you can have a shared VPCS and you can also have a communication between VPCS if you want, you know using a VPC pading or a transit gateway.  
If you don't want it, you can restrict that traffic. Uh.  
This this is standard, you know in the cloud. It's a standard setup that most of the customers use.  
The network setup will be won't won't take much time but but each components let's see all these things you know we had to plan for the replication of data of each.

 **Marc Kaplan** 1:04:18  
Well, and and that.

 **Kommuri, Venkata** 1:04:19  
Servers and then apps here and I know.

 **Marc Kaplan** 1:04:23  
But that's in the capacity of the migration or a Dr. strategy. OK, OK, well, that's and that's.

 **Raphael Titus** 1:04:26  
Yes, Migration.

 **Kommuri, Venkata** 1:04:27  
Yeah, that's what we had to think it. If we need a Dr. strategy before migration, then we have to include it in Dr. strategy.

 **Marc Kaplan** 1:04:34  
Yeah. Well, and that's kind of where I want to just make sure we're clear on that because I know Rafael, we still haven't made a decision on it, but that item up there in that top box that says WSO 2 APM, that's potentially in scope for refactor and then the Tableau on the bottom is definitely refactor.

 **Raphael Titus** 1:04:52  
Yeah, Tableau is fine. The only component here that we need to make a quick addition is WSO 2.

 **Marc Kaplan** 1:04:58  
Yeah.

 **Raphael Titus** 1:05:01  
Because if you move the API gateway, that solves a lot of problem too from the Dr. perspective.

 **Marc Kaplan** 1:05:05  
Where are you? Oh yeah, absolutely.

 **Raphael Titus** 1:05:06  
Yeah, it's a managed service, so yeah.

 **Kommuri, Venkata** 1:05:11  
And are you planning to lift and shift the Palo Alto or are you planning to use the AWS network firewall?

 **Marc Kaplan** 1:05:11  
Well.  
That's a great question for Aslam. I don't know.

 **Raphael Titus** 1:05:28  
Jared, do you know?

 **Marc Kaplan** 1:05:29  
I've I've I've heard multiple different.  
Topics about that. I'm not sure what what has been settled on.

 **Raphael Titus** 1:05:44  
I think the security group is working Venkata. We can get a update from them.  
Yeah.

 **Kommuri, Venkata** 1:05:48  
OK, it's in in any case, right? Rahul, we need to look at the the, you know, the landing zone setup, you know how they're planning the and the networking.  
They coming up with a standard, you know, a network solution where you have VPCS for each customer and shared VPCS and central ingress and egress and the traffic between these VPCS, right?

 **Raphael Titus** 1:06:05  
Right. Yeah, yeah.  
Venkat, the only one thing I would suggest is we collected all the information that is needed from GC, correct?  
We can obviously have a working session with Gary and we can figure out the working model. Then we can come back with to Mark and the team to basically go through and get their feedback and we can integrate that and we can move it for finalization. But what I would ask is.

 **Kommuri, Venkata** 1:06:30  
OK.

 **Raphael Titus** 1:06:45  
Do we have all the requirements currently from the GC perspective that are needed from the application?

 **Kommuri, Venkata** 1:06:51  
Yeah, I think we captured most of the information that we had to. I had to put together in a document and then prepare all the, you know, artifacts and then we need to get it reviewed by, you know, guiding care team.

 **Raphael Titus** 1:06:55  
OK, great.  
Sure, OK.  
Yeah, so.  
Yep, Yep, Yep. If Mark approves and Vidya approves, I think we should be good on the requirements at least. Then it's basically solutioning, right? Yep, solutioning. Also, Mark will allow multiple sessions on the same to basically go over first draft, second draft, and ideally we'll.

 **Kommuri, Venkata** 1:07:08  
Yeah, a markup for then, yeah, yeah.  
Got it.

 **Marc Kaplan** 1:07:17  
Yep.

 **Raphael Titus** 1:07:20  
But we'll have to move parallel with our foundation work stream so that we can see who can work on each of the aspects and move smoothly. Yep.

 **Kommuri, Venkata** 1:07:29  
We also have you know the gap analysis session. I think I'm I'm thinking I think that we may not require it because we don't don't have a full Dr. here. It's gap analysis really not.

 **Marc Kaplan** 1:07:29  
OK.

 **Kommuri, Venkata** 1:07:45  
Dina. Um.  
I mean there there is no gap, so you don't have a Dr. right? So full Dr. so.

 **Marc Kaplan** 1:07:52  
Well, yeah, I yeah, it's not a full Dr. It is definitely partial.

 **Kommuri, Venkata** 1:07:56  
So you need, yeah, so you need everything to be built in the properly.

 **Marc Kaplan** 1:08:03  
Yeah.

 **Kommuri, Venkata** 1:08:07  
OK.  
OK, AWS team, anyone has any questions?

 **Lei Shi** 1:08:16  
Nope.

 **Kommuri, Venkata** 1:08:22  
OK, any more information related to database backups and and the timings?

 **Marc Kaplan** 1:08:40  
You mean like what is our strategy right now for backing up the database data? Oh, Slava's on the call. Feel free, Slava.

 **Kommuri, Venkata** 1:08:43  
Yeah, right now. Yeah, yeah.

 **Slava Olchevski** 1:08:50  
Well, we we run full backups every weekend. We run differential backups every night and transactional log backups every hour. And we hold production data for 60 days with all the with all the incrementals in between.  
That's a strategy for the SQL backups.

 **Senthil Ramasamy** 1:09:14  
And this is going to the com vault, right? Like the OK.

 **Kommuri, Venkata** 1:09:14  
OK.

 **Slava Olchevski** 1:09:16  
Correct. Mm-hmm.

 **Kommuri, Venkata** 1:09:19  
So they store the backups in local data center as well as in Dr. other data.

 **Slava Olchevski** 1:09:25  
Right, it is configured as S3 library, but it's local. It's on Pure Storage appliance.

 **Kommuri, Venkata** 1:09:33  
But.  
Oh, OK.  
And you have a cross region replication set up on your local storage.

 **Slava Olchevski** 1:09:42  
No, we don't have cross region replication. It's local storage. We we use auxiliary copying of the Dr. backups across MPLS link to the other data center.

 **Kommuri, Venkata** 1:09:53  
OK.  
What about the application data? Do you any any do take any backup software application data?

 **Slava Olchevski** 1:10:03  
Well, we make up documents from from from an SMB file shares.

 **Kommuri, Venkata** 1:10:08  
Mhm.

 **Marc Kaplan** 1:10:10  
Yeah, pretty much everything being backed up right now is an artifact of the customer that holds PHI, which is a contract requirement. It's just like configurations and the VMS and things like that. That's not being backed up, not fully.

 **Slava Olchevski** 1:10:11  
I.

 **Kommuri, Venkata** 1:10:24  
OK, and what about this RMA application and FICO application needs a version control, right? Git? Is it Git? Is it a distributed Git or just a normal single region Git Git repository?

 **Marc Kaplan** 1:10:42  
That's a great question because there's also SVN that we have and I don't know what's in use there. I I'm not familiar with that. I know Lynn, I don't know if you can Lynn still no Lynn. Lynn, you still here. Do you know?  
'Cause I know we have the SVN.

 **Slava Olchevski** 1:10:58  
Is it?  
We have a git server. I back up git server.

 **Lynn Crumbling** 1:11:01  
Yeah.  
So.  
So.

 **Marc Kaplan** 1:11:04  
Hello.

 **Slava Olchevski** 1:11:04  
Mm.

 **Lynn Crumbling** 1:11:05  
SSVN is used by the customer.

 **Kommuri, Venkata** 1:11:06  
S SVN is also in RMA uses SVN right? SVN or Git?

 **Lynn Crumbling** 1:11:13  
So SVN is used by the customers that maintain their own RMA code.

 **Kommuri, Venkata** 1:11:18  
Rules. OK, OK.

 **Lynn Crumbling** 1:11:23  
And they directly commit to that repo.

 **Kommuri, Venkata** 1:11:28  
Yeah, I I know, but how do you? What if that the repo SVN server is down in that region?  
What are they? What are they gonna do? So they're gonna switch.

 **Lynn Crumbling** 1:11:44  
Oh, they're gonna call us and say your SVN server's down.

 **Kommuri, Venkata** 1:11:49  
Is it a critical critical application or is it a like a?

 **Lynn Crumbling** 1:11:52  
I mean it's it's their, it's their repository for their code. So that's that's not where the code is running, that's just the with the version control. So that would only impact the developers if they're trying to actually commit changes to the the RMA rules.

 **Kommuri, Venkata** 1:12:10  
Rules, yeah, and then it's automatically pushed, deployed through CICD process to servers, Rule Manager servers.

 **Lynn Crumbling** 1:12:19  
I don't know. We'd have to check with DevOps for that.

 **Kommuri, Venkata** 1:12:25  
OK.

 **Lynn Crumbling** 1:12:25  
My guess, my guess is that yes, we do have a pipeline to to automatically deploy those, but it's probably a pipeline that needs to be executed manually.

 **Kommuri, Venkata** 1:12:36  
Mhm.

 **Lynn Crumbling** 1:12:38  
In other words, it probably don't doesn't automatically deploy. We probably have to deploy it when they release.

 **Marc Kaplan** 1:12:43  
I bet you it's a scheduled task.  
It's a time-bound schedule task and be my bed.

 **Lynn Crumbling** 1:12:50  
OK.

 **Kommuri, Venkata** 1:12:51  
So do you do you need? My big question is do we need a Dr. strategy for FICO or RMA application? Because this is little complex.  
It's not a back end. It's not a database in relational database, right? It's a version control systems you need to have.  
The Dr. scenario for RMA you need to. We need to set up a distributed SVN servers.  
And then check in should be automatically replicated to the Dr. site.

 **Lynn Crumbling** 1:13:36  
This.

 **Kommuri, Venkata** 1:13:36  
And you need to set up a two way replication. You know there will be conflicts when people check in into.

 **Lynn Crumbling** 1:13:44  
OK.  
It it doesn't impact the end customer directly if those services are down, it impacts the developers but not users of our system. So I I don't know, it depends what our, what our.

 **Kommuri, Venkata** 1:13:54  
OK.

 **Lynn Crumbling** 1:14:03  
SLA's call for. If they don't mention that, then I don't think we need to have Dr. of that Mark.

 **Marc Kaplan** 1:14:11  
Well, I I.  
I'm not going to answer that. I will only say this, this is the only opportunity we're going to have to figure that out for these services going forward.  
I, I, I mean, Venkata, like my problem with a lot of this is, is that the contracts are so vague that customers will tell us that it's critical even though we have no leg to stand on and they will just say it's critical. So we're kind of at the mercy there because there's no independent SLA of that service.

 **Kommuri, Venkata** 1:14:30  
OK.

 **Marc Kaplan** 1:14:43  
That that conversation is now coming up with the business on what are we classifying as an application rendered to the customer and if it's an independent service that's fronted to the customer, an SLA has got to be on it and that has to be agreed upon.

 **Kommuri, Venkata** 1:14:44  
Oh, OK.

 **Marc Kaplan** 1:15:00  
As we look at potential contractual term changes or terminology changes, like every API has to have its own SLA.

 **Kommuri, Venkata** 1:15:10  
Yeah, I I understand. Sometimes you know what happens if the customer needs to put the rule an emergency rule, right? And so if the if the application is down, they will not be able to put that rule, so you know and deploy the rule.

 **Marc Kaplan** 1:15:21  
Yeah, yeah.

 **Lynn Crumbling** 1:15:23  
You know, are there the subversion servers? Are they shared architecture or does each customer that maintains their own rules, does each customer get their own subversion server?

 **Marc Kaplan** 1:15:23  
Yeah, you can.  
If I'm not mistaken, there's only one SVM per data center.

 **Lynn Crumbling** 1:15:37  
K.  
Well, then maybe it's worth just assuming that we're going to want Dr. on that.

 **Kommuri, Venkata** 1:15:46  
Yeah, RMA application. As far as I know, RMA application doesn't support multi tenant. Hmm.  
But I don't know about our implementation.

 **Marc Kaplan** 1:15:59  
I.

 **Lynn Crumbling** 1:15:59  
Well, you're the the subversion servers, they're just hosted sites off of an Apache server or something. I mean, you could you could have an Apache server that had.

 **Kommuri, Venkata** 1:16:07  
No, no. Supportion is fine. I'm not talking about that. But your RMA, RMA has to be one for each customer, you know, and support.

 **Lynn Crumbling** 1:16:11  
Oh, OK.  
Yeah, yeah. Well, I'm assuming, I would assume that our RMA is DRD because that's integral to our application if if we lose, if we lose the rules engine.  
Our main guiding care applications impacted.  
Heavily.

 **Marc Kaplan** 1:16:37  
I wouldn't assume anything at the moment, Lynn. You might be surprised.

 **Kommuri, Venkata** 1:16:41  
Yeah, there there are two components, right? If you if a rules rules are deployed in an sorry.

 **Lynn Crumbling** 1:16:42  
Well, I mean, when I see impacted.  
When? So when I when I say impacted heavily, I mean the inability to run a rule means that potentially some action, such as a letter being generated, isn't going to be happening. And in that case, now we're.

 **Marc Kaplan** 1:17:01  
Yeah.

 **Lynn Crumbling** 1:17:02  
Now we're now we're in trouble.

 **Marc Kaplan** 1:17:04  
That's why I'm saying that has to also have an independent SLA on it, otherwise it's blanketed in the three nines and 1/2.

 **Lynn Crumbling** 1:17:12  
Gotcha.

 **Kommuri, Venkata** 1:17:13  
See, even this component is critical for you, right? This one. This is critical because that's one that's getting executed every time when the transaction comes. But this one I don't think we need high availability for this space.

 **Marc Kaplan** 1:17:18  
Nope.  
Agreed.  
But that's again part of the conversation of how do we.  
I guess how do we transmutate what is a service into a named application that's fronted to the customer to slap an SLA on it and then get our internal SL OS for everything that's a component of that as well.  
Because we might not want to front SLAS for all of it. We got to figure that out.  
Good call out though.

 **Kommuri, Venkata** 1:18:20  
Yeah.  
Oh.  
And anything else we need to know?

 **Marc Kaplan** 1:18:37  
Probably. I can't think of it off the top of my head.

 **Kommuri, Venkata** 1:18:45  
OK. I think, sorry, I'm going.

 **Slava Olchevski** 1:18:47  
A bit.  
Maybe Dell fix application?

 **Marc Kaplan** 1:18:55  
Well, I don't know if we get into that as part of this is like the the Dr. side of stuff, but maybe. I mean, again, we do rely heavily on Delphix and I know there's gonna be a conversation with Jawad about this.  
Because if we don't go forward with Commvault as a solution in AWS, Delphix relies solely on Commvault. So the question is, is you know from a Delphix perspective.  
Is that leverage in AWS going forward and then what is populating the data?  
And then how do we have Dr. for Delphix if that's the virtual database for customers if we do a failover? And I don't think we've really had that conversation because historically we're only contractually obligated to get production up and running in Dr.  
And all the lower environments are fed by Delphics.

 **Senthil Ramasamy** 1:19:55  
Yeah, Mark, we had a conversation earlier today with the Dbas regarding the Delphix there. There will be a Delphix involved for the Delphix engine replication to AWS and from.  
From that D source when the Delphix engine is replicated, all the VDBS non-production customer facing databases will be replicated again recreated in AWS. So that was the plan discussed earlier. We had a call with Madhu and Jawad.

 **Marc Kaplan** 1:20:25  
OK.  
OK.  
OK.

 **Senthil Ramasamy** 1:20:33  
The decision is not made yet, but that's the agenda. Yep.

 **Marc Kaplan** 1:20:37  
How will that work then overtime if we do waves of like lower environments that are fed by Delphix?

 **Senthil Ramasamy** 1:20:44  
Yeah, that's that's where we have to figure it out. And they said like the block level replication to migrate the Delphix engine will not work. When Madhu had a call with the Delphix engineers, they said they have their own way to migrate the Delphix engine system.

 **Marc Kaplan** 1:20:47  
K.  
Yeah.  
OK.  
OK.

 **Senthil Ramasamy** 1:21:04  
To figure it out.

 **Marc Kaplan** 1:21:06  
All right, so too soon to talk about that.

 **Senthil Ramasamy** 1:21:10  
Yep, there is almost like out of in HRP itself out of 1200 database servers close to 600 plus is like a delphix replicated non productions.

 **Kommuri, Venkata** 1:21:26  
So I oh one thing. I just want to quickly go through this slide and confirm few things.

 **Marc Kaplan** 1:21:37  
Oh, I'm glad you're still here, Lynn.

 **Kommuri, Venkata** 1:21:37  
So.  
OK, couple of things, you know. So this presentation layer, these are all like, you know, web servers, right? So you need Dr. of these, right? You need all of them. These are application servers.  
Most probably a Linux with the.net.net apps deployed on them, right?

 **Lynn Crumbling** 1:22:06  
So the portals are all hosted on the same application server. Usually there's anywhere between 2:00 and 4:00 nodes, and they're all running Windows 2022, and the APIs are also all hosted on those same nodes.  
So when a request comes in and it hits one of the portals, it hits local hosts, local hosts to get to the API.

 **Kommuri, Venkata** 1:22:28  
Uh.  
Oh, OK.  
It's a local OK, so so APIs and and the presentation layer both deployed in the same server.

 **Lynn Crumbling** 1:22:42  
Yes.

 **Kommuri, Venkata** 1:22:44  
Oh, OK.  
So those are Windows, not Linux.

 **Lynn Crumbling** 1:22:50  
Correct.

 **Kommuri, Venkata** 1:22:52  
Oh, Windows. So then we need to worry about all the the management of Windows, right? Windows authentication, the patching of Windows servers.  
So there is a AD Active Directory setup available there.

 **Lynn Crumbling** 1:23:05  
Correct.

 **Marc Kaplan** 1:23:14  
There is, yes.

 **Kommuri, Venkata** 1:23:17  
So they have to join the domain, right? AD domain.

 **Marc Kaplan** 1:23:21  
Yeah, every server is joined to the same domain. It's all traced to health.net.

 **Kommuri, Venkata** 1:23:25  
Oh, OK.

 **Lynn Crumbling** 1:23:27  
The SQL servers are also all windows.

 **Kommuri, Venkata** 1:23:34  
So here.

 **Lynn Crumbling** 1:23:34  
Much, much of our enterprise is Windows.  
Let's say probably what, 7580% of it, Mark?

 **Kommuri, Venkata** 1:23:39  
Oh.

 **Marc Kaplan** 1:23:43  
Production, yes, it's 100% enterprise.

 **Lynn Crumbling** 1:23:45  
Yeah.

 **Kommuri, Venkata** 1:23:48  
OK, and press Windows here. OK, it's good to know. And these are Ms. SQL servers and this the radius.  
Do you have any information about this Redis cluster? You know how many servers, you know how many shards you are using and all those things.

 **Marc Kaplan** 1:24:09  
Oh yeah, I was.  
I was just looking at that detail. Um.

 **Lynn Crumbling** 1:24:16  
That's all Linux.

 **Marc Kaplan** 1:24:17  
Yeah, it it's.

 **Lynn Crumbling** 1:24:20  
I believe it's a three by three host.

 **Marc Kaplan** 1:24:24  
Is it?

 **Lynn Crumbling** 1:24:25  
That's I believe so. We'd have to bring David in, but I'm pretty sure that that's that's the one where he has three by three.

 **Marc Kaplan** 1:24:34  
I mean, as far as I know, he's documented that heavily in confluence.

 **Lynn Crumbling** 1:24:39  
Yeah.

 **Marc Kaplan** 1:24:45  
So I'm seeing there's what, 45?  
Uh, that's not right. Hold on. It's not 45.  
There's 36 Redis hosts.  
Which is a combination of prod staging.  
So that's 18 per data center, 9 node.  
Redis clusters.

 **Kommuri, Venkata** 1:25:14  
No, no, no, it's OK. So are there those are shared, right? Shared across, OK.

 **Marc Kaplan** 1:25:20  
Yes, they are shared.  
Shared across all customers in the data center they're in, yes.

 **Lynn Crumbling** 1:25:26  
What is that Rocky 8?

 **Marc Kaplan** 1:25:28  
Yeah, it's Rocky A.

 **Kommuri, Venkata** 1:25:35  
And whatever Tableau database is is that that's also shared or is it a per customer?

 **Marc Kaplan** 1:25:42  
Tableau. So the Tableau, the Tableau.  
Well.  
You're talking about the replication servers feeding Tableau, right?

 **Kommuri, Venkata** 1:25:54  
Yeah, this one. Yeah, this one.

 **Marc Kaplan** 1:25:56  
Yeah, so the Tableau replication databases are supposedly 2 customers per.  
DB or database server?

 **Kommuri, Venkata** 1:26:09  
OK.  
Is it a single instance or a multiple as a as a cluster?

 **Marc Kaplan** 1:26:16  
Single.

 **Kommuri, Venkata** 1:26:18  
Oh, OK.

 **Senthil Ramasamy** 1:26:22  
So the both the read only DB replicas are from the MSSQL database, the main database, right?

 **Marc Kaplan** 1:26:29  
Yeah, the main transaction is all AG Enterprise Edition licensing and then.

 **Kommuri, Venkata** 1:26:29  
Mhm.

 **Senthil Ramasamy** 1:26:32  
OK. Always on. OK.

 **Kommuri, Venkata** 1:26:34  
These are per customer, right? This is per customer, the SQL.

 **Marc Kaplan** 1:26:37  
We no, there are some instances of smaller customers that are sharing an AG cluster. The larger customers have dedicated instances.

 **Kommuri, Venkata** 1:26:46  
Uh.  
OK.

 **Marc Kaplan** 1:26:51  
But when you look at like the SQL replica for VPN.

 **Kommuri, Venkata** 1:26:55  
Yeah.

 **Marc Kaplan** 1:26:58  
Those are typically dedicated and then the Tableau replicated DBS are typically actually most of them are all shared. I think Mata Vincento on our side try to do 2 customers per node at most.  
For replication.

 **Kommuri, Venkata** 1:27:20  
This uh this uh read only DB replicas.  
This one.

 **Marc Kaplan** 1:27:26  
Yeah, well that read only replica I think is referencing the AG cluster.

 **Kommuri, Venkata** 1:27:32  
Oh, OK. OK.

 **Marc Kaplan** 1:27:33  
And then the Tableau replication and the VPN replication feed off of the read-only node.

 **Kommuri, Venkata** 1:27:43  
OK.  
So you also need these processes in Dr. right batch and real time data processing infrastructure.

 **Marc Kaplan** 1:28:06  
Say that again. Sorry, I got pinged.

 **Kommuri, Venkata** 1:28:09  
So you you need this batch and real time data ingestion process to be in Dr. right? You need to you need them in Dr.

 **Marc Kaplan** 1:28:17  
Yeah, yes, absolutely.

 **Kommuri, Venkata** 1:28:25  
So basically you need everything in the whole, whole setting.

 **Marc Kaplan** 1:28:27  
Yeah, yeah. I mean again, like that's that's what I'm saying, like getting back to the original conversation earlier, like it, we were not able to devise a strategy well enough to be able to have the R given the level of like it was easy eight years ago when it was just guiding care.  
Now we've got all these APIs and other things that have been layered on over time and the complexity got more and more and the needs for storage and compute to be able to handle VR just diminished. So unfortunately that's where we got to today was.  
Prioritization of new features and new components and new capabilities of the product and not keeping up with the technical debt that was accrued, unfortunately.

 **Kommuri, Venkata** 1:29:13  
Yeah, I think if you after your migration if you try to rearchitect it will be much easier in AWS because all these real time and batch processing using AWS Blue and other you know.  
And the technologies need of this will be much easier. You'll have a clear separation and you know it's loosely coupled.

 **Marc Kaplan** 1:29:35  
Oh yeah.  
Yeah, our ETL pipelines right now are unfortunately a bit of a black box to most people that are not are not on that team.  
So we'd like to get more visibility into that process because I'm not going to say a lot of it's like archaic, but I feel like it's services running that we should have gotten rid of more than a decade ago.

 **Kommuri, Venkata** 1:29:50  
Oh.

 **Marc Kaplan** 1:30:05  
So that technical debt that's there is very high.

 **Kommuri, Venkata** 1:30:09  
Oh, OK. So when when you say this ETL process, do you know how many jobs you know and that that normally you run in a day like?

 **Marc Kaplan** 1:30:18  
It's it's it's it's gonna be AI would love to get with David and have him do a count of how many Dags is exist in airflow and how many scheduled processes run.

 **Kommuri, Venkata** 1:30:19  
Like a thousand. It will mean thousands of me.  
Yeah.  
OK.

 **Marc Kaplan** 1:30:33  
It's enormous. It is absolutely enormous.

 **Kommuri, Venkata** 1:30:37  
Oh, OK.

 **Marc Kaplan** 1:30:41  
And and again, it's unfortunately across multiple technologies, which to your point, getting to a WS is going to help us seriously consolidate down to a single solution to be able to handle all variables of file types to handle them better.  
That's what I want to see at the end of the day is less complexity, less sprawl in the technology handling one-offs.

 **Kommuri, Venkata** 1:31:00  
Yeah.  
Yeah, and they this process AWS won't charge for inbound data. You will get charged only for outbound, you know where you're going out from new system outside.

 **Marc Kaplan** 1:31:23  
Yeah.  
Well, and that's and that's again like some of the thought process of where we want to get creative when we go into phase two of re-architecting or redesigning some of these solutions. You know, how do we manage that with the customer given the contracts that we have today?  
Is there an opportunity to be able to have the customer then like require the customer to have space in Amazon to be able to then have that data transferred to their space? So if they want to egress it, that's on them, it's not on us. We just just get it over to them inside of AWS.

 **Kommuri, Venkata** 1:31:55  
Yeah, that's the mine. That's the.  
Yeah, that's much easier if they if they have a account in AWS, they can easily migrate using your, you know, what do you call, what do we call this private endpoints.

 **Marc Kaplan** 1:32:11  
Yep.

 **Kommuri, Venkata** 1:32:12  
We'll create a private endpoint and share the, you know, service and then they can pull the data.

 **Marc Kaplan** 1:32:18  
Yeah, ideally we'd like to. I'd like to see that.  
Because again, the complexity is enough as it is with guiding care and micromanaging any billing from that perspective is going to be a nightmare.

 **Kommuri, Venkata** 1:32:35  
I think we covered most of the stuff. I had a pretty good session in a lot of information. It's it will take some time to digest and put you know I'll I need at least couple of ways to.

 **Marc Kaplan** 1:32:42  
Yeah.

 **Kommuri, Venkata** 1:32:50  
Uh, go through each and every conversation and uh, you know, put together and then prepare the artifacts.

 **Marc Kaplan** 1:32:58  
Oh, again, if anything comes up in between now and then you need clarity on, just let me know. Feel free.

 **Kommuri, Venkata** 1:33:02  
Sure. Yeah. Thank you, Mark. Thank you. Thank you all. Thanks for your time. It's very helpful.

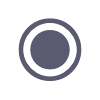
 **Marc Kaplan** 1:33:09  
Yeah, appreciate it.

 **Kommuri, Venkata** 1:33:11  
Thank you. Thank you.

 **Slava Olchevski** 1:33:11  
Thank you.

 **Lynn Crumbling** 1:33:14  
Take care.

 **Kommuri, Venkata** 1:33:14  
Bye. Yeah, bye.

 **Michael Pabon** stopped transcription