MOODY'S

Transcript

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MONA BREED

Sameer Kalucha:

Hi. I'm Sameer Kalucha, information services analyst here at Deutsche Bank. On behalf of DB, I'm extremely pleased to welcome Mona Breed, CIO, Moody's Corporation, to our conference. Welcome, Mona. It's a pleasure to have you here.

Mona Breed:

Thanks, Sameer. It's great to be here.

I think it's probably worth mentioning before we get into the questions, most of you probably know what Moody's does. But something I'd like to highlight from a technology perspective, Moody's is comprised of two major units: the Investors Service's, which is a regulated business, as well as the Analytics, which is not a regulated business. Together, those two make up our integrated risk assessment ecosystem. But it's – I called out the underlying regulated versus unregulated because it does play a role for us in terms of how we think about and build out our technology landscape that could be different than something, an organization that's fully regulated or fully not regulated.

Sameer Kalucha:

That makes sense. And that is the distinction I think we should be making for the technology audience here. Overall, total revenues of, say, roughly $6 billion, or whatnot; roughly $2 billion is coming from the Moody's Analytics side. So, there's a lot of things that are happening on the Analytics side, especially on the technology front. And maybe you can provide a little bit more color on the Analytics side of things and how does technology play a part in there. And what is

the scale of the infrastructure you have? I think it'll be great to start with that kind of context, Mona. Thank you.

Mona Breed:

Sure. So, our journey started in 2015, as we think about the Cloud. And before that, we were largely data center-based. And obviously, some of those data centers had come to us through acquisition. So, we had our primary ones as well as those that we acquired.

In terms of today, AWS, we've got about 10,000 servers; about 2,500 virtual desktops. In the Azure space, we have about 500 persistent servers, thousands more at scale, primarily for our insurance platform. And Google, our platform is relatively new to us; again, through acquisition. So, only hundreds of servers in Google (inaudible).

On-prem, we've got about 6,000 server instances; 15,000 workstations. And if you think about storage, we're just over 26 petabytes of storage.

Sameer Kalucha:

Wow.

Mona Breed:

In terms of Analytics business, 90% of that business – or just over 90% – is actually in the Cloud. And the ratings agency is a mix of on-prem and private Cloud. They are beginning – we are beginning to talk about the public Cloud journey for those suite of applications. In terms of bandwidth of LAN, ground to Cloud, we're moving towards (inaudible) somewhere between 10 and 100 gigabits per second, but that's really route-driven.

Sameer Kalucha:

That's a very sizable infrastructure. And then that kind of like plays into the scale of business you already have.

So, the theme here today is transition to the Cloud. And you mentioned a lot of these data centers or these infrastructures came to you through acquisitions. But in terms of your internal thoughts, as well, if you can kind of, like, give us a sense of the journey. How did you start thinking about Cloud? What were the key drivers? And how did you go about selecting the players you want to be involved

with? Because as you see right now, you have all the larger, big marquee names out there, and you mentioned those in your conversation, as well: you have AWS, you have Azure, you have GCP. And there are others, as well.

So, take us through the journey when you started. What were your key drivers, the key players you were looking at? What did you like about them? And what did you not?

Mona Breed:

Great question. So, our goal is to create a risk operating system that allows us to deliver those integrated risk assessment capabilities through state-of-the-art technical blueprints. That's just at the heart of it.

From the beginning, cyber resiliency was a factor in how and when we thought about Cloud. So, like many other regulated businesses, thinking about Cloud and what that means for your security profile was certainly something that was part of our initial thinking around the journey.

We started our app migrations in 2015 as an effort really to consolidate or eliminate those data centers. As I mentioned, some of them came to us through M&A, and it was getting costly and time-consuming, frankly, to manage all of those and upkeep the data centers. Quickly, that strategy transitioned from a "consolidate data centers" to, "wow, we can really drive speed to market, at scale, leveraging Cloud." Being able to scale up resources on demand in peak periods for specific customer needs was a huge benefit.

And then as we really started to look at rolling out SaaS products more globally, not having to be pinned to a data center, having that ability to touch and reach both existing customers with new products as well as new customers was a huge driver.

In terms of how we thought about the players, AWS was our first platform. There were three real reasons for that. The first was, in 2015, in terms of platform security, it was definitely a mature platform. The second piece that was very attractive to us was the depth and breadth of services offered by AWS. So, as you're having developers convert from more traditional infrastructure to Cloud, being able to leverage those Cloud-native services is exciting, attractive, etc., etc. And the third thing that really factored into our decision was truly the availability of the talent and expertise across the market, both as we were bringing internal talent to Moody's, as well as we were looking to partner with third parties.

Azure is used for key platforms. It is definitely a big part of our landscape. And it's typically based on a customer's tech stack and co-selling agreements.

As I mentioned before, the Google platform is newer to us, via acquisition, but it's really proving to be a performant and cost effective option.

Sameer Kalucha:

Got it. Great. So, it seems like you're working with multiple providers. And when you started working on the transition to Cloud, what is the architecture you envision? Are you thinking that certain applications are going to be in certain Clouds only and certain divisions are going to be in certain Clouds? Or you're embracing, like, a thorough hybrid multi-Cloud architecture for all applications? What's your vision there in terms of the journey?

Mona Breed:

I think that's a great question. And now, we do have a number of product suites that span multiple Cloud providers because of the demand specific to customers.

We are thinking about that to multi-Cloud and what does that actually look like in our environment. We have a number of use cases. And certainly, that's not in the near term. It's definitely something that we are working through and exploring. I think, again, for us the integrated risk assessment ecosystem and what do our customers want and need based on their tech stack and how are we best able to deliver that.

There's obviously costs associated with developing a product suite and having it hosted across multiple different providers. And certainly, there are container and other strategies that you can employ to actually make that a little bit easier. But it does still come with trade-offs and costs and those sorts of things. So, we're looking at all of that as part of that longer-term Cloud strategy.

Sameer Kalucha:

Got it. So, a hybrid multi-Cloud architecture in the long run.

You mentioned you've moved from existing data centers to Cloud. In terms of – how does the infrastructure footprint compare with what you had in data centers? Is it, like, much larger? Were you able to save something? Or how does that work in terms of how the picture looks different from what it used to be?

Mona Breed:

And so, I'll kind of take you through our journey. Because when we started – again, as I said – sort of the initial driver and excitement was around "let's close some of these data centers." And so, we did really fundamentally lift and shift. So, there wasn't a lot of refactoring that was done initially. And it was faster, it was easier. We got lots of products into the Cloud.

What we realized over time is that some of that wasn't as performant or cost effective as it probably could have been had we maybe thought about grouping some of those applications and to avoid Cloud to ground traffic or looked at would it be worth the investment to refactor certain products such that they would be more performant and more cost effective in Cloud.

So, from those early-day learnings we really have adopted a Cloud-first for any new build. And as we go through acquisitions and look at the last components of migration, we're much more deliberate about how we think about migrating those to the Cloud and the trade-offs between speed to Cloud as well as the refactoring code to improve cost and performance.

Sameer Kalucha:

Got it. So, it seems like we're on the software application side of things. You mentioned some of them were lifted, some of them were re-architected. What are the challenges you have encountered along the way? And how far do you think you are in migrating the applications and the related infrastructure to Cloud in terms of your overall progress?

Mona Breed:

Like I just mentioned, some of the challenges were the initial desire to get things to Cloud and then recognizing that, oh, this isn't performing in the Cloud quite the way we'd want it to or it cost more in the Cloud than we had anticipated.

I think one of the challenges many of us face is once you've moved something to the Cloud without refactoring, it can be hard to get the business stakeholders to be supportive of refactoring sort of that technical debt in trade off getting new features. So, that's certainly a challenge that we wrestled with. We certainly moved forward, being able to demonstrate that if in fact we do refactor some of the applications, you are going to be able to scale them, you are going to be able to do things that you might be limited from a tech debt perspective.

I think – we've got really everything from legacy monolith to our platform of the future, which is state-of-the-art serverless. And when I said we're Cloud-first, any new build is looking at that new blueprint, new set of patterns, so that we are promoting the interoperability of our products. Fundamentally, in that risk assessments, integrated risk assessment ecosystem, being able to have a customer be able to access data in one product through another product and that whole interoperability is definitely a goal. But again, getting from some of those legacy applications into the new Cloud, we're much further along. As I mentioned, we've got over 90% of those products in the Analytics side in the Cloud and have done quite a bit of refactoring in that space.

The Investors Service's side of the house, those applications are – again, as I mentioned – a mix of on-prem and private Cloud and really starting the public Cloud journey. The great news is we're going to use a lot of the lessons that we learned as we moved some of the earlier products to the Cloud and how can we leverage those as we start to think about the journey for the Investors Service's side of the house.

Sameer Kalucha:

Got it. So, staying a little bit on the infrastructure, so there's a software side of things, there's a hardware side of things, and then there are things on the side, like security and monitoring. I was wondering, how does your infrastructure look like right now in your key providers? Any color you can share on what are the key strengths you have in your existing providers that you love?

Mona Breed:

So, from a security standpoint, if I'm understanding you correctly, we actually – before the pandemic became locked down and the like – we were migrating to Palo Alto Always On VPN solutions. And also, prior to COVID we had made quite a few changes to our VPN concentrators, to our bandwidth, rolled out Zoom as well as Microsoft Teams. So, when we actually encountered everyone needs to work remote, we actually were able to transition to it quite seamlessly – knock on wood – despite a lot of sort of early trepidation and can we really do this, will this work?

As we look forward in the security profile, obviously, everything that's going on with cyber resiliency, as I mentioned earlier, is top of mind for us and really looking at how are we building out sort of that tooling landscape. A couple of key

highlights that we're thinking about is really around Splunk. We've made a pretty significant investment in the SIM module ES and migrating to Splunk Cloud.

We're also investing in the Palo Alto Data Lake cortex. One of the things there, we really find there's a lot of meaningful log data there that helps us in planning, investigation, the like. We're also looking to leverage Cribl to help really tune our data ingestion as it pertains to our cyber platform.

So, lots of work going on in a very dynamic environment. And as you suggest, we work closely with our Cloud providers, as well, to ensure that we are thinking about this from all dimensions. As you would in a traditional data center, you've got to think about security. It's different in the Cloud, but you still have to think about all of those different vectors and are we investing and are we taking care of all of those potential threat actors that visit us.

Sameer Kalucha:

That makes sense. And one of the things you mentioned is there, because of COVID, you had to change a lot of the work-from-home infrastructure that you had. And one of the things that has happened due to COVID is it drove certain changes in people's way of working, and it seems to be driving quite a lot, going forward, as well. So, one of the things we hear is of COVID accelerating the digital transformations at the companies and investing more in infrastructure. How does it or how has it changed your plans? And how does it accelerate the investments in Cloud and infrastructure? And then what are the key focus areas of investment, going forward?

Mona Breed:

Great, great questions. I think we as an organization are spending quite a bit of time. The technology got us through the sort of remote workforce. As we start to think about hybrid, and I know it's called sort of "return to work," but I don't know about you but I've been working the whole time. As we sort of start to return to our offices, what does that need to look like? And what does the technology need to look like? Conference rooms and as we think about collaboration tools. And again I'll go back to Cloud has definitely accelerated. Because not having to have people in data centers, not having to necessarily be patching things at the same cadence that you were when it was physical hardware, all of those things are advantages because then you can reinvest that money that you might have spent on those things in terms of extending the products, scaling the products, spending

to respond to the voice of the customer. So, again, I think COVID has accelerated all of that.

We're really focused on the workplace of the future and what does that mean. And really, we're spending quite a bit of time surveying folks and trying to figure out what is that mix going to look like. You've got folks who want to be in the office five days a week. You've got folks that want to be remote full time. You've got folks that want to be hybrid. And so, as you start to think about Cloud, you start to think about technology, how do you sort of create that level playing field post COVID for all the different work preferences and styles?

So, I think that's an area where we're spending quite a bit of time on. I think somebody said – and I've heard it multiple times – during the pandemic, and because of video conferencing, everybody's square was sort of the same size and it leveled that playing field. As you start to have folks in the office, out of the office, that whole mix, what does that collaboration look like? And I think Cloud is a huge part of that because, again, it's so much easier to get things out and at scale. And you think about even the number of our applications during COVID. We got quite a bit of very positive feedback. You didn't have to be on VPN with certain applications. You didn't need to worry about that because those applications were Cloud-based.

So, we definitely think it's accelerating and it's changing the way we're thinking about new Cloud products, as well as that whole collaboration and how are we going to in technology accommodate the workforces.

Sameer Kalucha:

Got it. So, a lot of changes happening on the infrastructure side. In fact, maybe we can switch gears a little to the data and analytics side of things. Because one of the things that is key to a company like Moody's – you have such a large data business – I just want to get a sense of what is the infrastructure in place for that and what kind of databases you have right now and how are they migrating, and then get a sense of how is the data distribution model changing by your adoption of Cloud. I think that's a key thing, a key change that is happening, and I'm curious as to how that is impacting Moody's and how is that happening at Moody's.

Mona Breed:

Another great question. Data distribution, of course, is at the center of what we do. In fact, our DataHub product is actually designed to meet customers where

they want to be met in terms of data delivery. APIs have been and continue to be a critical component of our interoperability and speed to market and getting data into the hands of our customers.

More recently, we have implemented Snowflake. And it's been used while we built out the ESG suite of products. Primarily, right now the focus is on data provisioning, aggregation, and analytics for Snowflake, but we really see this as part of – as it matures in our ecosystem – the longer-term strategy to share data more seamlessly across platforms internally and, ultimately, externally. We've got awesome datasets, and we're doing quite a bit of work with Snowflake and other tools to actually link those datasets together. And there's more power in being (inaudible). So, it's definitely a focus and Snowflake is right in the mix there.

It's early in the journey. So, we're anticipating that the platform adoption will expand as we look at the other domains in terms of commercial real estate, know your everything, credit, etc., etc. Lots of use cases and also demand for faster ways to distribute data.

Sameer Kalucha:

It seems like exciting times for Snowflake ahead, as well.

So, kind of a little bit on the infrastructure side of – on the data analytics infrastructure side. What about the real-time data processing solutions like Confluent, Kinesis, the messaging platforms? Any preferences there?

And the second thing is, by adopting these Cloud technologies, what are the – are there, like, any key things or new abilities that you get that allows you to do certain new things and offer new products or new capabilities that you were not able to do earlier? Any examples you can provide on that front?

Mona Breed:

We could probably spend a day and a half talking about that.

Sameer Kalucha:

We probably have a minute or two.

Mona Breed:

I'll give you one example. On our actuarial analytical model – it's a tool in our insurance suite – we actually spin out 10,000 cores on demand whenever a client wishes to analyze their portfolio. When the simulation is done, all the core servers are shut down until the next run. So, if you just think about how big that effort is and the ability to do something like that in a traditional data center. And first of all, to spin out 10,000 cores in a data center is going to be time consuming and tear down isn't a capability.

So, this is really leveraging the power of Cloud so that you are bringing as many data centers as a customer needs. And I think that's one example that for me really resonates in terms of the power of what Cloud has allowed us to do. In the past, we would not have been able to support, certainly not at that type of scale.

Sameer Kalucha:

That is fantastic. And it seems like the Cloud is enabling new capabilities, allowing you to get to new frontiers, allowing you to scale new heights, and that's pretty much the promise of Cloud, which is scale.

And we really appreciate all the insights you provided us today and sharing thoughts about your journey today, Mona. It was fantastic having you here. Thank you so much for your time. We really appreciate you being here today and sharing your thoughts with us.

Mona Breed:

Well, thank you so much for having me. It's been great.

Sameer Kalucha:

Great. Thank you so much.

Mona Breed:

Thanks, Sameer. It's great to be here.

Sameer Kalucha:

Great. Thank you so much.

Mona Breed:

Thank you. Have a great rest of your day.

Sameer Kalucha:

Thanks. You, too. Bye.

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