

Morgan Stanley Tech Conference

Company Participants

- Colette Kress, Executive Vice President and Chief Financial Officer

Other Participants

- Analyst
- Joseph Moore, Morgan Stanley

Presentation

Joseph Moore {BIO 17644779 <GO>}

All right. Good morning. I'm Joseph Moore, happy to be here today with the CFO of Nvidia, Colette Kress. Thank you, Colette, for being here. Maybe we just jump straight into questions, continue with the short session. At a high-level, you guys have been stretching beyond semiconductors. I wonder if you could talk a little bit about that. You're becoming a solutions company in autos, you are becoming a solutions company and data center, you kind of already were there in gaming. Can just talk about that sort of sense of migration path of the company type?

Colette Kress {BIO 18297352 <GO>}

Sure. So we've been in business for a long time, probably more than 27 years. And of course, we started as a gaming company, serving overall chips. But a lot has changed since our -- we focus on platforms, we focus on systems, not just for overall gaming, but for the data center, for workstations, and now even focused on automotive.

But now we're entering into a new phase, a new phase that we are thinking about software and a business model for software to sell separately. Now, software is incorporated in all of our systems and platforms today. What fuels so much of our data center focus on AI and on acceleration is the help that we have done in providing both the development platform and software SDKs and others for that. But now we have an ability to monetize separately, a great business model for us and a great ability for us to expand our reach for many of the enterprises that we are working with in our data-center business.

Focusing on a key area, for example, our work in NVIDIA AI enterprise. This is an ability working with VMware, which is such an important piece of most of our enterprises when they build out their infrastructure to use VMware, so that they can both track their servers, track the jobs, all without scheduling and really light up both now. There are standard overall CPU servers, but also what they can do in terms of

their acceleration. An important piece of that though is our addition of an AI packaged software. The exact package of system software that we use at Nvidia now enabled for the enterprises for them to bring to market so easily.

We'll probably talk more today about our other offerings, such as Omniverse. Omniverse has been about for the last couple of months, the last couple of months focusing in terms of what we can see in the future of the 3D world, the virtual world, and stitching to that together. We're having a software offering, a software offering to approximately 40 million creatives out there to begin their begin their work using our Omniverse software.

And then lastly, our focus on automotive and providing software for AV cars, we have two very major important deals that we have done with Daimler, and then most recently, with JLR, Jaguar Land Rover to where their entire fleets will be operated within video software and we will have the ability to share that software with those OEMs, and monetize it over the life of the cars being on the road.

So these are great opportunities that we see in front of us. We will keep you apprised in terms of our progress. The pipelines are growing for this and will look to provide metrics when the software is relevant.

Questions And Answers

Q - Joseph Moore {BIO 17644779 <GO>}

(Question And Answer)

I'm not sure what's happening with the mics here. I cover a lot of companies that have some software capabilities. I haven't seen them really monetize it, and sell those software. But obviously what you're talking about is on a different level where you're selling entire APIs and things like that. Can you just talked about that? Is it difficult to sell your customers on a revenue driving software business when they're like, no wait, you're a chip company, we use that as a reference and we get that for free. How difficult is it to get people to start thinking about that as a commercial opportunity?

A - Colette Kress {BIO 18297352 <GO>}

So when you think about selling the software, it is actually a continuation of our work that we already have with our partners and service providers. Meaning, they are already accustomed with the platforms that it is often supply -- supplying them maintenance support over the period of owning that infrastructure. Now, they have the addition to add that software capability. So this is a very common process with enterprises of what they are expecting with their infrastructures. So I think we can easily do this with our existing team that we have and all of our partnerships worldwide.

Q - Joseph Moore {BIO 17644779 <GO>}

(02:25 02) I'm good. You mentioned Omniverse and that's something you guys have talked about for really quite a while as one of the biggest opportunities. And I think that's starting to really resonate now given the focus on Metaverse and some of the things that are happening. Can you just talk about the state of adoption that you're seeing from some of your core customers there?

A - Colette Kress {BIO 18297352 <GO>}

Yes, it's correct. So Omniverse is not new. If you've come to our GTCs for many years, we often in the first 30 seconds, first two minutes, showcase something that we've been working on over the years, and Omniverse has been a focus for many of our GTCs in the past. But now is our opportunity for us to bring this to market. We are working on 3D design, focusing on collaborative virtual environment. So you can break this down into two key areas of focus, one from the collaboration. You should think about this as 3D for productivity applications.

All of the folks that are designing products, building products, being able for them to collaborate with their workforces across the world, no matter where they will be, not only focused on just being in a 2D world, but putting themselves in the 3D world that they can actually see the product that they are building. This is going to be an important change. We've been able to do this by bringing both ray-tracing to market, that is procuring real-time visual effects, but also bringing AI together and now simulating all of this together with just physics of those environments that they create. So for the 40 million different creatives that are out there. We can add at about a \$1,000 a person per year provide them software to do that. That's one important piece.

The second piece, is what you may have seen in terms of a digital bot, a digital twin, this is be used in many different areas, both inside of the car that could be a Chauffeur to tell you where your next stop is. This could be used for service centers, call centers, as they are using these robots to have more of an interactive discussion with their customers. This again, creating that bod, creating that digital twin could be approximately about a \$1,000 a year for each one of these.

These are the two important areas of the software that we're doing. But let's not forget the infrastructure that is needed to build out these virtual worlds and we will sell the hardware as well, which can be a multiple of the software revenue that we have. This is in the works. We have about 100,000 downloads of Omniverse today and the pipeline will continue to grow from here.

Q - Analyst

Great. And then the other commonality across all the businesses I want to ask you about upfront supply chain. We have every company that we cover pretty much is constrained by supply, but most of them are growing at a fraction of what you guys are. So how is it possible to put up the kinds of growth rates that you are in an environment everybody else is supply constrain it's slow rate. What have you done to sort of enable that type of growth?

We probably stepping back over this period of time realized quite quickly that this would be a supply onstrained world and that it would be with us for many years. And so our initial onset of thinking through our supply chain started very early in that COVID period of time and our focus was not just about the about the next quarter's out, but we stopped and paused to think about what it would mean for years in the future, and we have already procured what we need, for example, the current year and we have also engaged in procurement for things for the long-term. This can be anything from wafers to substrates or even focusing in terms of on the logistics.

So we saw that the demand was there, we saw the demand was very strong and is it exceeded or supply in many of our quarters of last year, and probably within these first two quarters of this calendar year. We're going to still be working on that supply, we believe the supply will improve each quarter of this year and we feel will be in a solid position when we look at the second half of this year.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. So, maybe looking at some of the businesses starting with data center. Data center growth has been really good. I guess, I guess, how do you think about the effects on that? We've had strengthened clouds spending, strength and enterprise spending and then obviously very strong adoption of this sort of machine learning workloads that you guys serve, how do you parse those different factors in terms of assessing?

Sure. When we think about our data center business let's step back and look at how we finished the fourth quarter. Our data center revenue was again at record levels. We saw record levels with our hyperscale and public clouds to where they doubled year-over-year in the fourth quarter. We see that as influenced by the focus on natural language processing, creating the recommendator engines, and really endorsing our -- platform across all of the different hyperscales and public clouds that we're see years.

Additionally, strength in terms of our vertical industries or enterprises also going quite strong year-over-year in that business as well. This is where we have now achieved new vectors of growth, not just focused on the hyper skills and public cloud, but reaching many different industries as they want to leverage acceleration in AI to so many of their workloads. Years ago, to this was probably a business that they were purchasing one by one to go and get a trial. What we're dealing with right now, is where they have groups of purchases as they are focusing on AI, and acceleration is a key priority for them, particularly now at the tail end of COVID and things opening up in that manner.

Need to stop, and also focus on our inferencing has been an area where probably three to five years ago, we said we would join many that we're focused on inferencing and computer learning, and people would ask us and says, well, what's your market share? We'd say, zero, and off we went to join the overall inferencing market.

Inferencing in Q4 for just our inferencing platforms alone tripled year-over-year 3x in terms of what we had seen in the year-ago. This doesn't take into account so far Ampere architecture are a 100 which has dual capabilities. You're able to virtualize and do inferencing and training at the same time. This is just our inferencing specific platforms. So whether it be deep learning training, whether it be inferencing, whether it be the hyper scales, the enterprises, our platform and all of our infrastructure continues to grow very well in this market.

Our growth in Q4 and moving to our Q1 guidance, we expect to accelerate our growth in data center year-over-year in Q1 as well. So right now, the platform is quite rich with capabilities and functionality, and I think that our upcoming GTC and a couple weeks, I think you'll hear more.

Great. I guess, also if you could, we talked about enterprise adoption of machine learning, DeepVariant type? Because, where are we now? And it seems like you mentioned the tie on everybody's priority list our surveys show that, and yet when you talk about what people are actually implementing, it actually seems like it's an early stage, they have data, they know it's valuable. They're still trying to figure out what to do with it a little bit? So, where are you? And how are you directly connecting through the cloud-based directly to those enterprise customers?

A - Colette Kress {BIO 18297352 <GO>}

Yeah. It's a great question enterprises and the vertical industries, a different market than the hyper scales. Yes, they've been using the public cloud for some time where the infrastructure is set up, but they do often want to bring that in-house have on-premise or possibly be in a hybrid environment.

We're focused on very key industries that we know that there's a lot of data, a lot of data that they want to process. And when you focus on that, you have to think about the workloads that they use or more importantly, the applications that they use every day. When you hear us discuss that our GTC in the fall, it was all focused on SDK, software development --.

So we influence more than 150 SDKs for these enterprise and vertical industries, to leverage accelerated computing, essentially rewiring their work to leverage the GPU in the work that they are doing. This can be financial services, very focused in speed trading that can be manufacturing lines. This can be our folks down in Southern California that are working in the film industry and rendering. There are many very important industries with a lot of data that the move to acceleration is essential our or another way of looking at it, it's not going back. We're not going back to a non-accelerated work that they need that performance and that performance that Nvidia has provided with the SDK helping them reroute is very important.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. Thank you. With regards to ARM, I'm sure in some day we are disappointed at the outcome of the potential acquisition. But looking forward you guys have some pretty interesting ARM-based products. How important is ARM to NVIDIA's longer-term roadmap?

A - Colette Kress {BIO 18297352 <GO>}

Yes. We spend a lot of time working with ARM, not just this last 16, 17 months, but for many years. We've been a partner with ARM more than a decade and we continue to have a 20-year license going forward working with ARM. When you think about our products today, we have Orin, our Orin SoC, which is available and is on ARM. We also have our work with our Grace CPU which will be coming out which is also our data-center CPU on ARM. And then thirdly, we have BlueField. Our BlueField DPU also on ARM. We will continue both our partnership and our strategy with ARM. We believe ARM is probably one of the most important CPU architectures for the next 10 years. So our partnership remains strong, and our continued work with ARM will continue.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. So I'd like to pivot over to the gaming side of the business. Focus on the Ampere cycle first, I mean you guys have had a lot of successful product cycles, but I've never seen an entire sort of two-year product life where nobody could get the product from beginning to approach in the end. I mean, it's done very, well. How much of that is a very strong gaming environment? How much of that is the kind of second generation ray-tracing capabilities? Why has Ampere done so well?

A - Colette Kress {BIO 18297352 <GO>}

Yes. Our gaming business, our Ampere GPU. We continue to receive requests probably every single day of, can I get a GPU for gaming? Even in the supply constrain world, it's been challenging to meet the overall demand that is out there. But why is that? Why is the demand so strong? The demand is strong because the gaming industry over the last 20 years, and even the last five years, has massively transformed. This used to be a product or a solution that a gamer with its computer by itself would entertain.

But now, it is about a social platform, but even more, it is an entertainment platform. The number of gamers that out there continues to grow, the market is much larger. When it became an entertainment medium, another thing focused, you have broadcasters, you have creatives, you have others that are finding different ways to use this entertainment sport, both to monetize, but also entertain the folks that are out there. And this is going to be an important piece, not only because of our strong Ampere architecture, but because it incorporates ray-tracing. Ray-tracing being on its second generation with Ampere, has really expanded the capabilities of how you build out games more than 250 games are now incorporated on ray tracing.

Three years ago, when we started out with ray-tracing, it was a chicken and the egg kind of challenge. What comes first? The infrastructure or the games. Now they're both here and there really is a difference of dual generations of ray-tracing and what we can continue to add to this product capability for the gaming world, as well as the many other use cases even in the enterprise. So a lot has changed for gaming. We have a lot more gamers that are out there. We will continue to work on supply, I think we'll be in a good supply situation again in the second half and trying to improve supply each and every day.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. I guess there's two areas that people push back to me on the strength of gaming. So just maybe may be work-from-home and cryptocurrency. First on the work from home peace. Obviously, we're going back to work now. It doesn't seem to have faded. But it does seem like that probably expanded the TAM a little bit, the people were sort of stuck in the environment that they were in. To what degree, do you see that as -- that TAM expansion is being something that will persist going forward?

A - Colette Kress {BIO 18297352 <GO>}

So on the first piece, COVID probably pulled forward gamers a lot faster into the market and that purchasing, but always a gamer for the long-term is what we have seen. Once they join the gamers, it happens that more end up adding as we move along. They're looking for all of their friends to join in terms of that piece and given all of the different types of use cases around that we do believe this is just continuing to build up the overall market faster than what we had expected. So we still see them, and we know, there are still many of them that have been unserved during this ability to both upgrade as we have probably a small percentage on Ampere given the supply constraints, and we have a great opportunity to get our install base back up to Ampere.

Q - Joseph Moore {BIO 17644779 <GO>}

Makes sense. And then on the cryptocurrency piece, I mean, you guys have done a lot to make sure that the products are getting into the hands of gamers. But the way you've architected the Hash Rate limiters and the crypto mining processor. But somebody seems to be mining somewhere. So can you kind of give us a sense for whether that might be having an impact on your business?

A - Colette Kress {BIO 18297352 <GO>}

Yes, the crypto currency mining it's difficult to anybody to predict, how much is there. It's rarely and it's not clear a single-use case, what I mean by that is, you will have folks that are gaming and potentially also mining at the same time to make up for the overall Hash Rates for their. It's just very difficult for us to estimate that piece. But a lot has changed over the last three years, you are correct that we've done more work in terms of trying to separate the need for the overall gamers, and the need for the overall crypto-miners. Our gaming cards, for example, have Lite Hash Rate. With those Lite Hash Rate, are not beneficial if you want to do mining and on the overall Hash, that would be available with the, with those GeForce cards, and then we separately have a card that is just specific our CMP cards for crypto-mining. We believe this has been a deterrent and hopefully enabling us to get more and more to the gamers the gamers and additionally versus three years ago the tight supply the low amounts that we have in the channel has also been helpful as we continue to really focus on what do we think that need is going to be for the gamers afterwards.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. And then last gaming question. New products, I know you're going to tell me you can't talk about, I don't know it's products, but to the extent that I guess you've got third generation ray-tracing, you have an a cycle that never really saw the demand completely satiated. Does that actually make A challenging a little bit in terms of a little bit in terms of transitioning from this product the next one when you never were able to fill that in? And am I right to think that their generation ray-tracing is probably an important feature?

A - Colette Kress {BIO 18297352 <GO>}

So we've always focused on exciting our gamers with every new generation that comes out or another way to think about that is of course we're of course, we're working behind the scenes, and what's coming up next. That's just something that we do. We believe in the best of breed that is when it's ready, we will bring it to market. That's about the best thing that we can do. And we always have gamers that are excited for each generation that comes out to be first to overall purchase that. So you're correct. We're not here to announce products and I think you'll continue to hear us both talk about some items here at GCC as well as things going forward. But it doesn't nothing changes. And even during this period of COVID and supply constraint, it's been interesting, because it's given us the opportunity for gaming to continue to sell both the current generation as well as the generation. So we've been doing that to provide more and more supply to our gamers in that and we may see something like that continue in the future. It was successful with Ampere and we'll see as we move forward.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. So I have a couple questions on automotive and then we can see if the audience has any questions. It seems like you're entering a new phase for the automotive business, when I look at the agreements with Mercedes and Land Rover, that you're developing these entire systems, and which is there's a lot of investment from you that happens up front, but then the sort of monetary subscription sharing that happens at the end of that could be quite nice for you, as well. Can you just talk about, what it takes to force those types of agreements? And how we'll know that those are going to be moving in a successful direction?

A - Colette Kress {BIO 18297352 <GO>}

Yes, we worked quite diligently on this model. Starting first with Daiwa, and they have been a great partner. I think our years with the automotive business for more than 10 to 15 years, we understand the OEMs. And an important part of that was understanding how they build product? How they build up their systems. And they knew that this was an opportunity for them to work with a technology company as probably one of the most important things that will be in their cars in the future which will be that software.

These are agreements are not short-term by any means, these are long outlook in terms of an agreement and they incorporate the full fleet of cars that both Land Rover and JLR will have. So you will see approximately 10 million cars over a decade with Nvidia both infrastructure hardware and software operating going forward. It is a joint work in terms of the software each company in terms of what they expect the

brand of their car to look like when it hits the road. We have the ability for the hardware to exist for the lifetime inside of the car, but yet the software to be addressed each time with over air updates and keeping that.

So not only does the hardware at the very beginning produce revenue, but software over the life of owning the car will. So we know that others are excited about these agreements, could be something that will continue in the future as well with more OEM.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. Thank you. We pause and see if we have questions from the audience.

Q - Analyst

Thanks. A lot of these experimental or new markets in many ways their industrial IoT or things like that. They tend to be much more fragmented in a lot of ways versus consumer markets and what tipping point, do you think that some of your experimental kind of business models and business lines will reach a tipping point where you become a standard of industry for say digital-twin or standard industry for some of the peripheral computing or kind of some of these others versus kind of just one of many? Thank you.

A - Colette Kress {BIO 18297352 <GO>}

Okay, if I understand the question regarding these different types of business models for the markets. They're all many different types, both either starting or already existing. How do we manage those types of differences? Is that correct? Sorry.

Q - Joseph Moore {BIO 17644779 <GO>}

In terms of like industrial markets, right? There could be 10 or 15 people that are all in the market, each with 3% to 5% share or in consumer markets where that might be someone with 50% share or something like that. Do you think there's network effects in these industrial or new markets that lends you to kind of standard of industry, kind of or standard of state-of-the-art kind of market shares? Or do you think it's going to be more of kind of more fragmented industry structure? Thank you.

A - Colette Kress {BIO 18297352 <GO>}

Yes, depending on the industry and our focus, whether you look at our Data Center business, or professional realization with workstations or even in terms of gaming, there's many different participants in this market. However, there's something very similar, no matter which one of our markets that we go out about NVIDIA that makes us different. NVIDIA has always focused in the platform and the infrastructure on the GPU, and a unified overall architecture across. It keeps us agnostic to anything that is out there in the market. Our product works with everything. We'll work with every CPU vendor, we'll work with every storage vendor, we'll work with every memory vendor. Depending on our solutions, we will be assured that we're going to use the best to perform for what the customer is looking to do.

Our relationships with the enterprise customers, a hyper skills and/or the game developers we're usually working with them years ahead of the games, even coming out. We're working with them years ahead in terms of their overall AI solution that they want to put out together. That allows us to think about what type of solution would work for them.

Although, we have many different types of products that standardization of the architecture has allowed us the most flexibility to address the customers. Even thinking about our enterprise customers and data center, the important piece is we know that this is a unique area for them. They have been accustomed to purchasing their servers in one way. We have the ability to say you choose. If you would like an NVIDIA OEM certified server, we can provide that and you can begin your work. If you want to do it in a perspective of with a co-lo, fully contained and on consumption and try it out, we can do that. And we can do everything in between that says how can we both focus our time on the software and on the solution, because we have many different configurations for the enterprises for them to be successful.

Many of our other competitors are peers look for something quick for an enterprise or others to use. But the reality is it takes that full stock for AI, that full stock of that infrastructure to complete that and that's where we're going to spend our time.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. I'm afraid we're out of time. Colette, thank you very much.

A - Colette Kress {BIO 18297352 <GO>}

Thanks, Joe.

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