Morgan Stanley Technology, Media & Telecom Conference

Company Participants

- Amy E. Hood, Chief Financial Officer, Executive Vice President

Other Participants

- Keith Weiss, Host, Morgan Stanley

Presentation

Keith Weiss {BIO 6993337 <GO>}

Great. Are we on now? Excellent. Thank you everyone for joining us this morning. My name is Keith Weiss, I run the US Software Research Group here at Morgan Stanley and very pleased to have with us kicking off our keynote this morning, Amy Hood, CFO of Microsoft.

Before we get started, I do have to read a lot of disclosures. So please note that all important disclosures, including personal holdings disclosures, Morgan Stanley disclosures, appear on the Morgan Stanley public website at www.morganstanley.com/researchdisclosures or at the registration desk. And from Microsoft, before we begin, Microsoft may make some forward-looking statements during this presentation, and you should refer to their SEC filings for the risk factors related to their business. And that's true whether you're here in person or listening on the webcast. Excellent.

Amy E. Hood {BIO 18040963 <GO>}

Excellent, Keith.

Keith Weiss {BIO 6993337 <GO>}

Thank you for joining us this morning.

Amy E. Hood {BIO 18040963 <GO>}

Nice job.

Keith Weiss {BIO 6993337 <GO>}

Thank you. So I wanted to kick off talking about overall commercial demand. I think the -- coming out of calendar year '19 was an extraordinary year for Microsoft in terms of the growth in your commercial overall commercial business -- commercial bookings growth. I think exceeded people's expectations each and every quarter throughout the year. Can you talk a little bit in the rearview mirror about what were some of the key catalysts for that demand in calendar '19. And heading into 2020, how are you feeling about the ability to sustain that level of commercial demand in Microsoft.

Amy E. Hood {BIO 18040963 <GO>}

Thanks, Keith. I think what's so interesting is what you talk about a sort of an annual concept. I think of as like a multi-year focus on where are we investing our dollars, every single dollar into the right markets, right secular trends, that we believe in over a durable period of time? And we've been really at that I feel like for six-ish years in terms of making those decisions every day, that we felt would set us up to be well positioned to do the things you've seen us do, not just in calendar year 2019, but I really think over the course of the past few years seeing this demand curve. And if you look and say where have we really focused and I think you see it in our results across each of our cloud properties, as well as in Windows for security and you see those results, I think in the bookings. And for me, bookings is really just a statement of both, obviously, years of research and development investment followed by sales and marketing investments to support that based on opportunity. And then solid execution and then customer commitments made really not just to that year's view, but really to a multi-year view, because most of those are multi-year commitments that customers are making. And people don't do that lightly. And we certainly don't take them lightly once made.

So I think it's less of a one-year view, that I have on these things and more of a multi-year frame. I'm feeling well positioned for the next decade.

Keith Weiss {BIO 6993337 <GO>}

Got it. To press a little bit on that, just in terms of the conversations you have with your customers. Just about how guys are feeling about their overall budgets, their overall IT budget outlook into 2020. And then I'd be remiss if I didn't bring in coronavirus and the potential impact that has on both the supply chain and sort of demand trends. So first on the demand side of the equation, IT budgets, are you feeling good about them in 2020 from your customer conversations? And two, does coronavirus have any impact on the demand side of the equation or is it only a supply side thing you guys right now?

Amy E. Hood {BIO 18040963 <GO>}

Let me start on the first half of the question. In general, I think, for me, it's much more about where your invested and feeling good about IT budgets. I think in terms of the markets that we participate in, the segments we participate in, our real focus on value has always been there. The ability to feel good about every dollar you spend with us, and the ability to earn a return on that. The ability to help you transform your

business in a way that makes sense for you. I feel like that positions you well, no matter what the IT budget is or what the percentage growth is year-over-year, the people tend to focus on.

It's always been about being in the right market for us, executing well, taking share, where we can and I think that's been successful right, as a plan, not to get overly focused on any quarter or any half year changes. Because if you think about it over the next decade. Do any of us sort of sit and say IT will be a bigger or smaller piece of GDP, no matter what that number is. I absolutely believe it will be a larger percentage of GDP in the next decade than it is today. And if that's true, being well positioned for that growth, no matter it's pacing quarter-to-quarter tends to be just how I look at the world in terms of demand. And the conversations we're having with customers really reflect that.

On the second half of your question, which is specifically on COVID-19. I think you really think about the adjustments, we've made have been pretty narrow to the supply chain, as we have said for our guidance this quarter. Our focus primarily day to day is on the health and safety of employees, partners, customers and the communities in which we operate. And so that for us really is the first priority and then watching the pace of the supply chain recovery will continue to do what others are doing and continue to keep an eye on it.

Keith Weiss {BIO 6993337 <GO>}

Got it. I want to drill down into, you talked about helping enterprises with their transformation into digital transformations. I think, oftentimes, we focus too narrowly on just the cloud side of the equation. We always want that Azure number from you. You've been talking to us for a long time, saying Listen, you've got to look at the bigger picture, really the hybrid cloud, Satya said the same thing to us. Last year I think we started to see that in spades with hybrid cloud advantage really becoming a big driver of the business. Can you talk to us about how customers are viewing that? How does that customer conversation go in terms of a hybrid cloud opportunity versus just the cloud opportunity? Number one, and does that expand that TAM for you? Does it create a more expansive market opportunity, when you think about it from a hybrid perspective?

Amy E. Hood {BIO 18040963 <GO>}

Yeah, I think maybe to start at the top again. The reality that compute will need to exist at the edge and in the cloud, I think we call generally hybrids, I think, is a reality that people are now beginning to see, we've been architected that way from the beginning and have been talking about the advantages of that also from the beginning. I do feel that some of the recent announcements, we've made make that more and more real for people. When you talk about the importance of latency or sovereignty or privacy or security. And in terms of the portfolio we have and how customers think about it.

For us that is for the Azure "part of the business". You're right, that number for us is best seen in the server and cloud products KPI. And we've talked about that for a

long time and I know people really focus on one or the other, but if you think about what customers are asking and how customers are contracting and what they're trying to achieve. It's far more similar to the all up KPI. And the way, I think you mentioned on our hybrid benefit. The way we've talked about that and what we're starting to see and I think we mentioned it on the earnings call was one-third of the customers who have those benefits are starting to use them in Azure. And so if you think about it, it's really like a funnel, a funnel of opportunity for us with customers, who are already committed to our platform. To convert and help them start projects and be successful with Azure as the most cost effective and cloud platform for them. And I do believe that going forward that opportunity for us is just beginning. And that again sort of reinforces why I tend to focus more on the server and cloud product KPI, but I know everybody picks their favorite one.

Keith Weiss {BIO 6993337 <GO>}

Got it. And the shift -- as people start to use the hybrid cloud identity on credits that they've purchased into, should investors be worried about a drag on the serving tools line because people starts kind of shifting their consumption towards Azure or is that just me being too myopically focused in the bigger picture of serving tools?

Amy E. Hood {BIO 18040963 <GO>}

I suspect you know my answer on this one because you answered it yourself. It's that I tend to believe that any view of trying to get a specific number, any specific quarter to say, did the server on-prem number go up or down and the Azure number go up or down. And is there some large drag or not is probably getting a little myopic in terms of the overall trend line, which is the overall cloud opportunity represented by on-prem hybrid and Azure continuing to show the growth in execution that we feel good about in terms of the explosive TAM and our market opportunity within that TAM.

And so, I probably would say that, but it's probably also in my nature to view it over a longer period of time and not get as hung up on a couple of points here or there. Especially with 606, I can just add some volatility to on-prem numbers that I tend to not be as focused on as opposed to overall bookings or consumption growth.

Keith Weiss {BIO 6993337 <GO>}

Okay. Got it. Speaking -- when I think of the hybrid story of Microsoft. One of the big benefits, I see is a real competitive differentiation versus other mega scale cloud players like AWS or GCP. How much of that translates into sort of the reality you see in the ground? How much of a competitive advantage is it having? A really strong story on both sides of the equation in the cloud and on-premise environments? And are the other cloud vendors starting to make any inroads in the competitive environment. Are they becoming fuller story via partnerships or some of the new products, they have out in on-premise environments?

Amy E. Hood {BIO 18040963 <GO>}

I think, this has been incredibly competitive market for a long time and so I'm not sure that I would characterize it as any different than it's always been an incredibly competitive market with very large, well-funded competitors. I think in general, the advantages we have are not and we talked some about hybrid as being an advantage. There's also unique attributes of the Azure cloud that are differentiated Arc and Sentinel. We have a lot of examples of examples of those stack synapse, if you go down the list. But it's also a real advantage in terms of our focus and our enterprise sales force which I'm incredibly proud of their execution, our global presence, our focus on the locations of our data centers. How far we are on that journey in terms of having a global presence that matters to global companies, and to local companies. I would add, I think we've done a nice job of making it easier for companies to make a choice and a commitment to us. And I also think the fullness of our commercial cloud offerings matter. It's not just Azure, for example, it's the conversations, we're able to have with customers around their total digital transformation by workload by solution and it stems across Microsoft 365 dynamics as well as Azure in terms of this really mattering to customers and relevance and adding industry layers and I feel quite good about that.

Keith Weiss {BIO 6993337 <GO>}

Got it. So if we think about the Azure growth and what is driving that growth. I think on our side of the sense there has been a perspective that is primarily been kind of workload driven, just more and more people moving to the public cloud, and starting to use some of those lower level services computing, storage and whatnot. And what we're trying to assess is, to what degree have the adoption of higher level services and sort of that ASP side of the equation, start to impact the equation to start to bolster growth. What kind of help, could you give us some sort of understanding that equation of where we are in terms of workload growth versus ARPU growth, if you will, against those units.

Amy E. Hood {BIO 18040963 <GO>}

Yes, I think we talked a bit about the past couple of quarters, I believe, in terms of the growth of what we would call premium services. The best way, and there is a lots of them, but if you think about premium services tend to have those attributes rates where it's higher ARPU. They tend to also have higher margin, margin comes from differentiation of course and you can see that as one of the core drivers of our especially IaaS and PaaS growth of course in the past few quarters. And because of the consumption based if -- that happens when it's being used, right, as opposed to simply being contracted. So I think we feel quite good about the momentum of the premium services in particular.

Keith Weiss {BIO 6993337 <GO>}

Any of those premium services in particular that you would point to being real hits, if you will.

Amy E. Hood {BIO 18040963 <GO>}

Right, I think if you looked across our data story is a place that I would, in particular, highlight great progress over the past year. And I think we're pretty excited about what the next year has to offer.

Keith Weiss {BIO 6993337 <GO>}

Got it. One last question on Azure, and then we'll go on to the rest of the product portfolio.

Amy E. Hood {BIO 18040963 <GO>}

I'm excited, because we have so many other thing that we can talk about.

Keith Weiss {BIO 6993337 <GO>}

Well, we double-booked you for two keynotes in a row, so you'll hit through all of --

Amy E. Hood {BIO 18040963 <GO>}

The first one is apparently for Azure, which is great.

Keith Weiss {BIO 6993337 <GO>}

So, I'm going to come back to margin. So in terms of overall cloud gross margins, you guys have seen remarkable improvement and really nice trend line there. If we drill down just kind of the Azure side of the equation. You've talk to us a lot about sort of the scaling equation. That as you scale, you're going to get better and better margins. How much more room is it there left, particularly if we think about the consumption side of the business. When I was sort of in Redmond talking to some of your more technically oriented guys, they are really excited about the ability to drive more efficiencies out of power cooling and CPU efficiencies and whatnot. On the other side of the equation, like you're saying premium services should come with a higher gross margin. So how should we think about and the ability for those gross margins continue improving on a go-forward basis.

Amy E. Hood {BIO 18040963 <GO>}

My feelings aren't hurt that you called other people more technical. But I will answer the question anyway, which is, you're right, is that there is a couple of mechanisms to improve commercial cloud gross margin specifically will talk about Azure in this question. You're right, we see a number of factors and improve that. You can talk through the power in the cooling. We talk about the design of data centers, we could talk about chips, we could talk about many levels of efficiency on the technical side and putting not just a hardware efficiencies but also software improvements take advantage of hardware improvements.

And I still feel like we have opportunities as the team walked you through to make improvements on that front. So in addition to that, of course and Azure, as we

continue to see premium services become a larger portion of the mix, that also provides some opportunity. And so overall, I do think on what I would call sort of the core Azure IaaS and PaaS consumption. There is still room for gross margin improvement and we're still focused on making that happen. Although with time, of course it gets harder and harder to have those improvements. But as we get closer, I would say it's a ideal state.

Keith Weiss {BIO 6993337 <GO>}

Okay. As an analyst, one of the interesting things that I'm always looking out for is areas of the story where the company is talking a lot about it, and investors aren't. And trying to explore those GAAP. Microsoft 365 I think is one of those areas that every conversation I have with management from Microsoft. Microsoft 365 comes up a lot. It never comes up in investor conversations. Can you help us understand that Microsoft 365 motion, how that sort of cements a stronger kind of deep relationship with the customer, and maybe just for the help of the audience, like what it is.

Amy E. Hood {BIO 18040963 <GO>}

Yeah, I actually think part of that lack of conversation at the investor community is of course, community is, of course, that is, in many ways my fault. We talk a lot about each of the component in our KPIs and there's not really a KPI we point you to that says Microsoft 365 X. And so it doesn't give you the same mechanisms to have that discussion. And so, I consider that good feedback to me to really consider how to make that a more transparent opportunity. Really what Microsoft 365 is the solution that take and brings together. Office 365, our EMS story, as well as Windows commercial. And it's not simply a bundle, it's about innovation done at the core, that is shared amongst those products that get sold within that bundle.

And the reason, we spend a lot of time talking about it. It is really is the product, that we lead with our customers and it is in fact their language with us increasingly over what really a modern and secure workplace and collaborative environment and experience for users looks like. So we would call that thing that I just said, this product Microsoft 365. And you see its impact on lots of ways, and I think that's what you're referring to. We've said recently that 25% of our Office 365 contracts are executed this way. And really, what that's meant to do is to tell people, wow, this is really the hero motion for us in terms of engaging with our customers and the conversation they want to have with us.

And so you'll see it obviously in our Office 365 results. You've seen some impact in terms of ARPU, it helps ARPU. You've seen it in our EMS results in terms of the number of subscribers. Right. That would be another way, you would see it. And finally, you'll see it in Windows commercial that's been a segment KPI that we talk a lot about. I'm not sure everybody realized how big it was. We've gotten a lot of feedback frankly from investors in many of our buy-side conversation saying we sort of lost track of how big each of the Windows components are."And Windows Commercial is now 30% of our overall Windows business" to give you a sense of the momentum and a lot of that frankly is also because of the integration into the SKU and the value in terms of our sales processes. And so this is a place that obviously

we're quite optimistic about, more based on customer signal then obviously my ability to sell it as an opportunity to this group.

Keith Weiss {BIO 6993337 <GO>}

So last week the RSA Conference was in San Francisco. You guys were hosting meetings there. And it was a fascinating conversation with Microsoft security because five years ago, the secure discussion on Microsoft is all about creating better security for your own products. It is almost a marketing spend, if you would like. We want people to be more comfortable using Microsoft. We're now Microsoft is in the leader quadrant in 5 Gartner Magic Quadrants. And there's over $1 billion you guys spent in terms of R&D on security. And you could point to some real validation points on the income statement of where you're starts to see that. And one of them was in store stats on Microsoft 365. This is the security people talking, but they're saying now was the primary driver of getting guys to go from an office 365 to a Microsoft 365 or to adopt this windows commercial services.

Amy E. Hood {BIO 18040963 <GO>}

So, I think security is and I would say, it's not as though there is clear value to customers by selling a secure products. And so to your point, that is an incredibly important part of our value proposition across our services. But as you saw at RSA, we've been realizing that based on customer feedback, the opportunity for us to solve more than that problem. And so we have seen real signal in terms of some of our new products. I think we're proud of the progress, we've made and you are seeing it. It is one of -- I would say, key value propositions across Microsoft 365 is some of the security value that you've talking about across the Gartner Magic Quadrants. And really what I think about just security. It's security and compliance. And underpinning that, of course, is identity. And so, for us, I think it's a pretty broad view of the opportunity that we have to help customers in that space.

Keith Weiss {BIO 6993337 <GO>}

Got it. Drilling down a little bit into Office 365 and in particular the commercial side of Office 365. You guys have spoken about having over 200 million monthly active Office 365 users now. We think about that in relation to the original base, that you guys set up of how big the commercial base was. You are pretty far into the opportunity and definitely pass the 50% point, which gets investors worry. We always worry about the back half of the slope. But there is offsets, obviously ARPU is all one offset but the F1 SKU and the ability to expand out the TAM with sort of the lower price SKU has helped user growth a lot. How should investors think about the Ps and Qs if you will, of Office 365. Is there still a lot of opportunity to expand out that base and sort of keep that user count growing very well on a going-forward basis or should we be shifting our focus mostly towards ARPU expansion and sort of the E3 to E5 SKU or the M5 SKU with Microsoft 365?

Amy E. Hood {BIO 18040963 <GO>}

Let me try to simplify a bit with all the code names that we use for SKUs a bit. If I were to say, how are we thinking about internally our opportunity we are still clearly seeing opportunity in both the number and our opportunity to grow installed base as well as our opportunity to grow. So and when you think about where we are, we have moved a long way through that, what I would say, initial view that we had of moving existing customers towards the future. But I really think what's been in some ways more impressive to your point is how we've actually grown the installed base at the same time. And there are lots of ways that happened and you brought up frontline worker SKUs. These are really people we have never touched with our products before. And I would say that it's been something we learn with time and you would say wait, is it just mobile opportunity. It is a lot of mobile opportunity, but is also beyond that in terms of the work environment and where can we bring some of the benefits to workers whether they sit every day at a large PC or desktop unit or whether they work through an environment and have intermittent experiences with ambient computing. And for us, we will continue to invest in building the installed base.

And you can see that even in some of the products that we brought to market more recently, whether you think about teams is really being a mobile first experience. Or whether you think about the Office app that people see now as an integrated experience on many phones. And I think you'll see that as continue to be a place where we see opportunity. On ARPU, you're right, there are a bunch of levers that can help us grow and I tend to think about that and not just the movements up SKUs, whether that's from one to three to five or whether that is moving people from office up to a more inclusive opportunity with Microsoft 365, all of those remain, I think, good opportunities for us.

I would say we've been -- we've had a good execution year. In particular, not just on Microsoft 365 but on E5 which is the SKU that offers a lot more opportunities with analytics and security endpoints.

Keith Weiss {BIO 6993337 <GO>}

Got it. And investors, how should we think about Power Platform? Is Power platform fundamentally extension of the Office 365 story or is it like, should we think about it more so an extension of the Azure story, because there's a lot of different components. There's kind of low-code, there's automation. My perspective is more on the Officer 365 side is really meant to expand what office workers could do.

Amy E. Hood {BIO 18040963 <GO>}

Interesting. I tend to think of it. This -- is I see where your logic is there. For us it's almost standalone.

Keith Weiss {BIO 6993337 <GO>}

Okay.

Amy E. Hood {BIO 18040963 <GO>}

For many of the reasons you just mentioned, it really brings together low-code, no-code, RPA and self-service BI and analytics. And If you think about those, it's got a fairly unique position across the portfolio and terms of the assets that it brings together. It of course has a relationship to Azure in terms of it starting in creating usage from the applications that are built. It absolutely extends for people who have not felt that they can build and solve business process, problems themselves, the opportunity to do that. So that's I'm sure the thread you're pulling on with Office in terms of it brings relevance and another opportunity for us to engage with the type of worker that we have historically associated with Office 365 or Microsoft 365. But it is quite different in terms of solving those problems.

And then of course it relates to dynamics. Dynamics is really fundamentally about addressing what I think it's just such the early part of the curve on reinventing business processes as they work today with the vast amounts of data that are available in a cost-effective manner. And so you can see why for me in particular and maybe for our company, we would see it is both a large opportunity, something that's quite nascent and early it's cycle of development and also really something that brings together other pieces of our commercial cloud and extends it, as an opportunity that we see is quite early in the cycle.

Keith Weiss {BIO 6993337 <GO>}

Got it. I think that's a great segue to Dynamics 365. I think most investors think about the Dynamics offering just from the CRM context. I think a lot of people overlook, it is a really broad portfolio solution you have rigor and the entire suite onto the Azure platform. It is in excess of $2.5 billion business, growing at a pretty good clip. So it's a real SaaS business. But I still, get the question from investors like one is Microsoft, going to get real about at. So what's the progress on dynamics that you've seen thus far. What's the kind of path to making it a bigger part of the Microsoft story on a going forward basis.

Amy E. Hood {BIO 18040963 <GO>}

Yes, this is one where, over 50% of that business is already cloud-based, which I think people probably don't always realize in terms of that business. You're right, it is far more than just a sales cloud workload, it goes far beyond that. And in terms of the modules and the capabilities, it's -- I think probably one of those if not, the leader in terms of AI enablement of those applications due to the modern platform upon which it work. And our ability to take into account, many of the other assets that we have at the company in order to make it world leading. It's a place where we have spent the year investing a lot more in sales capacity, which we're excited about and we're excited to have so many people joined the company in order to make that a reality on a global basis in terms of meeting demand. And this is a place, where I just think we're in the very early parts of the cycle in terms of what reinventing business processes will look like for the next decade. So this is certainly a place where I think my optimism remains high. We did see Dynamics 365 growth accelerate in Q2 on a larger base of business and we feel like that's in part, both due to the engineering

work and the product quality, but also our increasing focus in terms of sales execution.

Keith Weiss {BIO 6993337 <GO>}

Got it. One last sort of product division, I want to make sure that we touched on. Was a Window side of the equation. I think in Windows OEM in particular before COVID-19, it was a lot of investor anxiety just about the end of life for Windows 7 support and how we should be thinking about sort of demand ahead of that curve, that exploration demand on the back side. Any -- we look to as the analog would be sort of Windows XP. One is that a good analog to look to in terms of sort of the strength of Windows coming in, the strength of Windows going out or should we be looking at a different template for how Windows OEM trends from here.

Amy E. Hood {BIO 18040963 <GO>}

I think in general, these cycles tend to look similar, but what I would say is this one is certainly more complicated by a number of things that I'll talk about in a second. What is different about this. Is there still remains quite a bit of opportunity, more than we saw at this point in the prior cycle. A lot of that exists, where you would expect it to exist, which is small and medium business segments. Not unusual, but it means that we do have some room to continue to grow and likely means that the curve will look different than last time in terms of its shape.

Now, then you add to it two complicating factors, one of which you brought up, which has been chip supply, which has impacted some of the growth rates over the past fit and then the second one, which is the supply chain. Currently, in China in terms of bindings and production. And so those will -- and as we've talked about will impact the quarterly results. And so I'm not sure it will look like the exact same curve in terms of the prior cycle, not just because we have a little bit more left to go. Than we have had in prior cycles, but also because it's been a bit more volatile due to those two issues as we work through them.

Keith Weiss {BIO 6993337 <GO>}

Got it. Bringing into a broader kind of gross margin discussion. Calendar '19, we saw a really nice expansion in overall gross margins throughout the year. One of the investor concerns is that a lot of those tailwinds become headwinds spread, product cycles around Windows XP, Windows XP obviously, really high-risk margins. Product cycles around Windows Server and SQL Server are all sort of good tailwinds for you guys. In the prior year, that are high gross margin business, those data away. And then on the reverse side of the equation, you have new surface product coming out, which is a lower gross margin. But really Xbox is a big one people worried about in the back half of the year, there's going to be a new console cycle which could depress gross margins. How should investors be framing up just like the gross margin expansion potential for calendar 20 versus calendar '19.

Amy E. Hood {BIO 18040963 <GO>}

There are two things and I'll walk you. And I think you've mentioned numbers that we can walk through from a technically how does it impact margins. But if you step backwards for a second, in terms of maybe how, I and the management team -- Microsoft, think about this. It tends to be quite different than the nature of that question, which is we're excited about launching the world's most powerful console at holiday with Xbox Series X. We're excited because launching consoles has a very good lifetime value associated with it in terms of ROI. And in terms of what it means to the opportunity that we see a gaming to really bring together content and community and cloud on a go-forward basis. And so we look and say, well, that's an exciting time for the company to be a leader in opportunity in a market that we're excited and committed to.

So the fact that the initial year of any console launch it doesn't help gross margin. Is not something I take into account, as I think about funding the gaming business to do what I think it can do, and the importance it has to Microsoft. So yes, technically, next year, we will launch of console, it will impact gross margins because we will have higher revenue growth in that segment, because we have a console launch. And so then separately, when we think about the impact of selling more high margin in quarter recognition product, which are things like OEM or Windows and SQL server. And it's somewhat of a similar logic, which is I feel great, that we're executing well on end of support it builds a great funnel for us, as we think about transition to the cloud for customers and helping them on their hybrid journey. And so does that create some headwind for us, it does at the same time, I tend to focus more on gross margin execution by product which means, are we building and driving the most effective execution by products for their GM. And that mix is simply a by-product of execution and timelines. And so I thought especially good about our gross margin by product execution.

Whether you're talking about the cloud, whether you're talking about our on-prem products, whether you're talking about gaming and the responsibility each of our leaders have shown to make that happen. And so for me, I think you're right. You pick the right to mixes that will create headwinds on the percentage but the optimism in terms of cash flow generation or actually dollar growth is probably more, how I would frame how we think about it.

Keith Weiss {BIO 6993337 <GO>}

Got it. One last one for me, then I'm going to open it up to the audience for a couple of last questions. On the OpEx side of the equation, for the past four years, we've executed extremely well to growing OpEx below the radar for us gross profit dollar growth, which is what I should be focused on.

Amy E. Hood {BIO 18040963 <GO>}

Yeah. Thank you.

Keith Weiss {BIO 6993337 <GO>}

And a lot of that comes from shifting investments from lower productivity areas into the investment areas that should yield more durable over time. Is there still room within sort of Microsoft for that motion. And can you still sort of keep that pace of OpEx growth below gross profit dollar growth.

Amy E. Hood {BIO 18040963 <GO>}

Well, I do think you've obviously seen us accelerate OpEx growth as we've seen an opportunity to do so and where we feel like there is an opportunity be good revenue and profit growth. So I don't really think about solving for a number, I think about solving for opportunity and where we're well positioned to execute that tends to be how I think about allocating dollars every day. And I think in some way is really the mark of a healthy discussion and a healthy leadership team is their ability to look and say, gosh, is there a better way to execute, what we're executing on. Should we merge teams, should we move resources and having that be part of the every day conversation that's not led by finance, but led by having the right conversation. And I think you're seeing that, whether it's how we thought about building Azure over time or how we've thought about sharing resources and investment that we've done in AI across different groups. A lot more shared resourcing, so that we can put great leaders together to innovate faster. So for me, it's much more of a positive culture statement around innovating with customer solution in mind and the best way to do that, far more guides, how I think about investment than I think people may realized it is a landing with the right and best ability to achieve high ROI and solving for a number is not something I tend to do in that way.

So, I feel good about our execution; the growth opportunity, the market broadly for us.

Keith Weiss {BIO 6993337 <GO>}

Got it. So (inaudible) last question took us exactly to the end of the presentation. But Amy, thank you very much for joining us in a great --

Amy E. Hood {BIO 18040963 <GO>}

Keith. Thank you. It's nice to see you. Thanks, everybody.

Keith Weiss {BIO 6993337 <GO>}

Thank you.