Credit Suisse Technology, Media and Telecom Conference

Company Participants

- David M. O'Hara, Director

Other Participants

- Michael Barry Nemeroff, Director, CrÃ©dit Suisse AG, Research Division

Presentation

Michael Barry Nemeroff {BIO 6355446 <GO>}

Good morning, everyone. Day 2 of the CrÃ©dit Suisse Annual Technology Conference. Thanks for joining us. We are thrilled and delighted to have Dave O'Hara, who is the CFO of Cloud and Enterprise, Office, Dynamics, AI and Research for Microsoft. Dave, welcome.

David M. O'Hara

Thank you.

Michael Barry Nemeroff {BIO 6355446 <GO>}

And before I begin, I was asked to read the safe harbor statement for 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 relating to their business. And that's true whether you're here in person or listening on the web.

Questions And Answers

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

With that out of the way, Dave, welcome. Maybe if -- for the audience members, if you could just give us a little bit of a background in your role at Microsoft.

A - David M. O'Hara

Sure. Thanks. Well the simplest way to describe me, Michael, I think is that I'm the CFO for the commercial business, which includes our Cloud business. And that cuts across Cloud and Enterprise and Office and Artificial Intelligence and Research and many other areas. So that's my current role. Came in to Microsoft through the acquisition of Great Plains many years ago, worked in the Dynamics business for a while, was the CFO for the online business and CFO for Office and then Cloud and Enterprise. And then it all sort of came together.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

So basically, everything kind of grows at Microsoft is what you're responsible for.

A - David M. O'Hara

Not everything. But I would say that it's a unique position as Satya pushes for more unpredictable and consistent growth. We have a lot of levers that we can pull. And so I think within that remix, there are a lot of really good healthy growing businesses.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

So you've been at Microsoft for over 17 years. And so you've seen a couple different CEOs in that position. Satya's come in. What do you attribute the success of Microsoft over the last couple of years?

A - David M. O'Hara

Well there's a couple of things that -- some decisions were made when Steve was still the CEO. Like investing in Azure, for example, was a decision that was made originally under Steve's watch. And Ray -- a guy by the name Ray Ozzie, who I'm sure people know, was the original founder of that. Steve was there when we started to move to Office 365. Steve was there when we decided to get into the CRM online business. And so a lot of that stuff had -- was started many years ago. And I think what Satya did is really to step on the gas. And he just said, hey, there is -- the world is moving here faster than we thought. And we need to get there faster than we thought. And so he drove just better agility and acceleration, I think, as we moved to the cloud. And we were able to move resources over there. And we were able to catch up. And in a lot of the cloud services, we weren't the first mover. But I think we did a good job, especially on something like Office 365 where Google Apps was a cloud offering first. I think we did a really good job catching up and passing them and becoming the market leader. And so I would say, the simple answer for me is Satya drives sort of the cultural shift in terms of agility and acceleration and really focusing on growth.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Does this feel like a new age for Microsoft, completely different than it's been over the last five years?

A - David M. O'Hara

Well if you're there, I think it's harder to see sort of the instant change. I think the market perceives that there is some instant overnight change. And there really wasn't. It was more over the course of a few years. I do think we're in a better position than we were. So if there is an incentive of the new age, I just think we're better positioned. We're better positioned in the cloud. We're better positioned even in SaaS, in the Office 365 offerings. And so overall, I think the company is better positioned for growth than it was five years ago.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

What excites you the most over the next 1 to two years at Microsoft?

A - David M. O'Hara

Well the cloud business, we had some lofty goals and expectations for the growth of our cloud business. And we've even exceeded those. And so we would sit in a room and talk about how big it could get and how big the market could get. And we had some pretty big numbers. And I think we're all sort of -- we thought we'd get big, we didn't really know how big. And I -- as far as the nearest we can tell, it's actually exceeding our expectations on how fast the market can grow. And so I think we're, again, well positioned to grow in the cloud on Azure. I think Azure's had a really good couple of years. That's due to a lot of hard work and a lot of forward thinking and working directly with a lot of customers. And so I think the cloud business is by far the most immediate opportunity for us to grow. Longer term, the work that we're doing in AI has some really great applicability to customers. I think it's very early days in AI. But we've been doing work in AI and doing work with machine learning for a lot of years. And so I think the key for us is to be well positioned as a company. And then once you see something taking off, just be able to have the agility to move the resources there and invest in it.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Well let's dig in a little bit on the cloud and enterprise piece. We ran a survey or a couple of surveys over the last 12 months. And we -- in those surveys, the enterprise reaction was -- we saw an inflection point for Azure. And we saw that in the fiscal Q4 results when you actually showed a reacceleration of growth there. What do you attribute that reacceleration in the Azure business to?

A - David M. O'Hara

Well I think there's a few things. One is -- and you guys sort of remember these meetings after the fact. But I remember having a meeting a few years ago where we just said, look, we really need to double down on the engineering. We need to get this working better and faster. And we need to build out more services within Azure. And we did. And we just -- we made a bet. And the bet -- I think the bet has paid off. We hear from customers that the Azure service is in a much better shape. We feel it's much more competitive. We have differentiation in some very key categories like hybrid. And so I think we just made some bets a few years ago that are starting to pay off. And we're starting to see that. The other thing is that I think we're candidly just better at selling it. It wasn't something that came natural to us. We're used to selling on-premise products in an enterprise agreement environment. And we had to figure out how that goes. So an online product in the consumption environment. And it took us a while to get our sales force there. But I feel like the sales force has figured it out. And we're able to articulate the value prop better. We work -- I personally work very closely with many of the big deals that we -- with customers. And so I think we're closer to the customer. We have the value prop down, the services better. I think all of that adds up to faster growth.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

And what are those conversations like with some of your largest customers? And how have they evolved as you're selling cloud and Azure to those large enterprises over the last, let's say, 3, 2 and one year ago?

A - David M. O'Hara

Well I just -- I even think 3, two years ago, there were still people saying, do I need to move to the cloud? And if I do, when does that all need to happen? And we're kind of past that point. Any customers that we talk to are clearly in the mode of we need to move to the cloud, which I think points to the TAM expansion, the acceleration and the growth in the market and the market being even bigger than we might have thought. And so there's not a lot of debate anymore about whether or not they should move to the cloud. It's like how should we move to the cloud. I think there was a lot of fear at first for customers because they thought you need to move from this environment to this environment. You need to move from on-prem to cloud. I think that's one of the things that's caught on with our hybrid offering is we're saying, look, it doesn't need to be that dramatic. You don't need to just pull everything over at once. And so being able to offer some services in the cloud and some on-prem and have them all work together, I think that's probably what's resonating the most with customers. And so the shift for me over the last 2 or three years is they all get it. They all get they need to have a cloud strategy. But now they also get the fact that it doesn't need to just be one or the other, that they can migrate over there in a more responsible and reasonable way.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

One of the things that I talk with investors -- well, the question that I get from investors is about sizing the opportunity in the IaaS and PaaS and SaaS environment and the overall cloud opportunity. It sounds like the hybrid approach is an expansion of the TAM that we know in cloud. How do you guys view and size the market opportunity in cloud?

A - David M. O'Hara

Yes. It's a good question. And we resize it frequently, I would say. We look at it every six months and every year and just say, where are we at? And the good news is it gets better. I think it has also been the assumption around Microsoft. When we talk about hybrid, there's been the assumption again that our on-prem products will just sort of fade away and then the cloud will grow. And the question was always, that could grow faster...

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

The cannibalization.

A - David M. O'Hara

Cannibalization. And we've seen -- the Windows server as an example, we've seen a lot of our on-prem products continue to grow while we're also growing the cloud business. And I think that reflects the success in the hybrid strategy, which is people don't want to just throw out what they've invested in. They have a lot of money invested there. They have a lot of hardware investments that they want to make sure they make use of. And so they look at the cloud as more of let's move some stuff over, let's do our new stuff in the cloud. And then over time, we'll get there. I honestly don't even know what over time means, like what's the Windows server business look like 3, five years from now? Right now we feel good about our Windows server business. And we continue to see decent growth. And as long as customers are happy and as long as we can enable it to work and to coexist in a cloud environment, I think we'll continue to have customers.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

What is Microsoft's best guess as to what % of workloads are in the public cloud today versus still in -- behind the firewall? And where do you think that could -- what do you think that look -- could look like, that ratio over the next, say, five years or so?

A - David M. O'Hara

Yes. I mean, I don't know if I would call this Microsoft's best guess. But I would say some of the numbers I've seen here that -- like 10% of the workloads are in the cloud. I would make an argument that, that might even be optimistic. We might not even be there yet. And so I think we still have lots of opportunity to move workloads to the cloud. And so I think that will take place not over the next year or two years but more like over the next 5 to 10 years. Then I think even 10 years from now, we'll still have -- I think we'll still have some folks running some stuff on-prem. And so it's just going to be a hybrid environment for years to come.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

As you talk to these large enterprises, do you think that the hybrid cloud -- the hybrid approach that you have gives you a distinct advantage over competitors in the market?

A - David M. O'Hara

Yes. Absolutely. I think we're uniquely positioned that way and that we're the vendor that can go to them and say, hey, this on-prem stuff that you've been running, we can continue to support that and take care of that and help you run that well to have these cloud offerings. And you can do all that. And the only person you need to go -- the only company you need to go to for support is Microsoft. So I think just -- a lot of times, people look at legacy as something that might hold you back or a boat anchor. We don't see it that way. We see legacy as a great asset because we have all these customers running these products. And our responsibility is to make sure that our cloud offerings work with those existing products so that they don't have to go through some nasty transition, just bailing into the cloud. So I think there is no other company on the planet that has that array of offerings that we have.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

As you talk to some of the large customers who are -- that are moving some of their workloads to the cloud, what are the demand drivers of the shift to the cloud that you're talking to them about?

A - David M. O'Hara

Well the one -- there's 2 that I would point to, I think, that are probably the most pronounced. One is they don't want to be left behind. They want to make sure that they're current. They have the best technology. They -- it's -- so it's a competitive advantage for them. They just look at they can get a competitive advantage by moving to the cloud, or they just look at it and say, all of our competitors are going. And they just don't want to be left behind. That's one. Two is every conversation quickly evolves into a cost conversation. And can you guys really do this cheaper than we can do it? And we still have customers who say, even if it's a cloud offering, we can run it cheaper ourselves. Then when you get in and show them the numbers and show them the benefits of scale and the geographic footprint we get and all of the goodness that comes along with security and everything else that's in our cloud, then I think they understand that there's a different stream just running at low cost and running at low cost with all the compliance and security and everything else that goes along with it. And so for us, they want a competitive advantage and they want it at a lower cost than they're getting today. I would say those are the 2 primary drivers.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

On average, when you're looking at that total cost of ownership and it's less for you guys to do it, on average, approximately how much less from total cost of ownership is it typically? And I know it depends on the customer?

A - David M. O'Hara

Yes. It really depends. But I would say it's almost always double digits lower than what they could do it.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Great. And let's talk about -- there are obviously competing cloud vendors in the marketplace. AWS has got a -- and (Jesse) is talking right now. And we're talking right now.

A - David M. O'Hara

Thanks, everybody, for being here.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Exactly. Then Google Cloud is an up-and-coming vendor in that market. How do you guys -- when you're out in the field, how do you differentiate from the other cloud offerings other than just the hybrid cloud approach?

A - David M. O'Hara

Yes. And I think -- hybrid has been a lead story for us and I think will continue to be a lead story for us. Price is always a factor when you're out competing in this -- we've made some public statements that we're going to be a price matcher in. So we're basically saying we're not going to lose a deal based on price. And I think that the global footprint is something that's hard for everybody else to match. We have data centers all over the world. So for anybody who's doing business outside the U.S., that's super important as well.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

And you mentioned that you would match price cuts. But do you think you're better off matching those price cuts if not keeping the prices a little bit higher than the others in the market given the premium services that differentiate Microsoft?

A - David M. O'Hara

Well I think it's a combination of both. I mean, one is we just said, hey, we're not going to get our position on price, which is just that -- we just see that as fair. If somebody is offering a service and we're offering a service, then we shouldn't be underpriced. I think Microsoft has always been a company that has focused on share. And we'll continue to do that. I think we also are getting much better -- to your earlier question, Michael, about what are we seeing that's different, we're getting much better about explaining the innovation that we're adding to the cloud and some of the things that we offer. So to us, it's both. It's, hey, we're not going to get beat on price. But if you pay...

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

On compute.

A - David M. O'Hara

On compute. But if you pay -- if you're a customer of Microsoft for that price, you will get all these innovations that we're investing in. And so I think, ultimately, the market is going to go to being priced base on innovation as opposed to just low cost. And we -- when we came out and said, hey, we're going to match price, it was more to save price out of the conversation and to get the conversation back to innovation and back to the best technology.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

So you feel like the mix shift of your premium services versus compute will offset the price cuts. That's...

A - David M. O'Hara

Yes. Premium services is growing faster than core Azure. And we'll expect that to continue for.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

You mentioned earlier that you see your legacy products as an asset. What's interesting is the durability of the server products over the last couple of years. How do you see that continuing to evolve? And do you see that durability continuing in the server business?

A - David M. O'Hara

Well yes. I mean -- so I would just say that I -- we'll continue to support those server products and we'll continue to support those customers running those server products as long as they find them useful and as long as they're getting value from them. And right now they're getting a lot of value from them. And so we -- it goes back to the hybrid story of making sure those on-prem products work at the cloud. And we'll do that. Even Office, using Office as an example, the transition to the Office 365 and the online version has -- we've done well at it. But there's still a lot of room to grow there, too. And so all of the stuff takes years and years to transition over. And so I think the important thing for the customers is they made big investments. They don't want to throw out those investments. They also want the benefits of the cloud. So they expect us to make all that work together.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

One of the questions I get a lot from investors is your CapEx spending and where you are in the spending on building out the data center footprint around the world to support Azure and for how long it could support Azure. It looks like CapEx is going to be roughly flat this year from last year. Should investors expect that the large spending on CapEx to build out Azure over the last couple of years that you've done is not over but kind of leveling off so that we should start to see an improvement in the margins on that?

A - David M. O'Hara

Well I would say, we were getting a lot of questions on cloud margin, I think it was 12, 18 months ago in terms of how we thought about cloud margin. As we explained at the time. And we've been candid about this, we were playing catch-up. And AWS had a head start on us. Azure came out later. We had to catch up. Catching up meant that we had to build out our data center footprint in the U.S. but also around the globe. We were putting up lots of buildings and investing in a lot of servers and spending a lot of money on networking. And there is just a cost of catching up. And I'm not saying we're past that. But I do think we have a much better demand signal now. We've largely built out our global footprint. So from countries you can go into. But we're largely built out. And in addition to that, to the earlier comment I made about where we sat in a room and said we need to really double down on the engineering piece of it, I think we've driven some really good engineering improvements over the last couple of years. We have super smart engineers working on this stuff. And they've gone and done some things in the core code that make it run more efficiently and more cost effectively. And you can get more out of a server and you can get more out of a data center. And so I think when you look at the CapEx curve, we -- when it was at a steeper slope, we were playing catch up. And now as it sort of starts to flatten out, you're just seeing the benefits of scale and good engineering driving cost efficiencies. And so I think we'll continue to see some of the benefits from the engineering investments that we made. And we'll continue to see some of the investments from the global expansion that we made.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

One of the questions I get from investors around % utilization of those data centers, what is a comfortable % utilization as the CFO of those businesses that you fill with?

A - David M. O'Hara

Well any engineer would say you can measure utilization 50 different ways. And so it depends on (inaudible)

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

How do you measure? What metrics that you look at?

A - David M. O'Hara

I would say -- well, I'll give a very CFO answer. I measure it on how our cloud gross margins are doing, right, which is if a cloud gross margins are improving, you're getting more return on your assets. And so as long as we continue to drive improvement in cloud gross margin, I feel like we're getting decent utilization. Obviously, the engineers go through and look at that. And they look at the chokepoints within the data centers and say, what's the chokepoint and how do we expand that. And so we're counting on continued good innovation on the engineering side to drive better utilization of our data centers.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

You briefly touched on the gross margin of that business. And last quarter was the first time that we saw the actual margin split out for commercial cloud, which implied was a very healthy gross margin for Azure, probably a lot higher than people believed. What do you attribute that strength? And where do you see that going over time?

A - David M. O'Hara

Well I think it will continue to improve. I would say that I think there's a few things -- just to state the obvious, there's a few things that impact margin. And first and foremost is price. And so how do you think about the price you're able to achieve in the market, which was, again, part of our goal of sort of neutralizing price conversation because we do think, ultimately, it's about innovation. I do think we'll continue to see some engineering benefits. Even though I think the engineering team has done great work in the last couple of three years, there's still a lot of opportunity to go out and drive good benefits there. I also think there's some things that we're doing that will -- so there is always puts and takes. And some of the things we're doing like building out more availability zones to make sure that customers are up and running and they don't have any downtime, I think that's an investment we're willing to make. And that might swing it a little bit the other way. But I would just say, over time, we'll continue to see good improvement in cloud gross margin.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

I'm sure as a CFO, you look at your competitors' margins and their businesses and say, okay, how can I do as good if not better? AWS, industry-leading margins right now in the public cloud business. Is there any reason why you couldn't match or exceed what AWS is doing in their margins in their cloud business?

A - David M. O'Hara

Yes. We believe -- I always said that when we're at the same scale, when we're at the same inflection point, we should be able to have -- we should be able to achieve the same gross margins. I think Microsoft is in a unique position because, really, we talk about the Microsoft cloud. Last quarter, we reported $5 billion in cloud revenue. And that's -- we're talking about Office 365. We were talking about Azure. We were talking about Dynamics. Bing, you can even argue that Bing was the very first cloud service we had. And so when we're building out a data center, we don't build it out for 1 SKU. We don't build it out for sort of their metal SKU, for lack of a better word. We're supporting this very diverse cloud. And so I think it's -- there's a little bit of uniqueness there in terms of how we think about spend and how we think about the cloud build-out. I also think it puts us in a very unique position relative to competitors that we have a much broader cloud offering. And so I think over time, we will see -- it's fair to go in and say, how are those margins doing compared to others? How is Office doing compared to others' assets? How is Dynamics doing compared to others' assets? How is core Azure doing compared to AWS? I think those are all fair comparisons.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

That's great. That's a great segue into turning to Office 365, the commercial opportunity. The Office 365, the 365 commercial, for the first time recently, that eclipsed the licensing on Office 365. What inning do you think we're in? And how large do you think that 365 commercial business could be over the next couple of years?

A - David M. O'Hara

Yes. It's sort of interesting because when I was -- when I first moved in the Office business, I heard a lot of people saying, hey, Office is dead, flat, it's going to be done. And we have -- over the course of a few years, we've injected really good healthy growth back into the Office business. And so the question is, how high is up? I just revert back to our strategy, which is our strategy has been use Office as an opportunity to both continue to support customers in their Office environment but also to break into new markets. If you look at E5, that's helping us break into some new markets that we wouldn't have been in. Otherwise, we wouldn't have been a big player. And otherwise, security is a big piece to how we think about that. BI and analytics, voice, all of those are part of the E5 offering. And so what we did is we -- at one point in time, in its early days, our E1 SKU, our low-end SKU was the most predominant SKU. And now we've said that over half of our customers are running premium SKUs, which is E3 and higher. And so we just look at it as the Office playbook is keep offering SKUs, use the Office strategy to break into new markets and do it at a very cost-competitive way. So how high is up? It's really dictated by how innovative can we be? What's E next look like? We have E3 and E5, what's E next and what are those offerings?

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Can you tell us what is E next?

A - David M. O'Hara

We haven't announced anything. But we always -- I think it's an opportunity for us to continue to build on a really high value-add offering for customers.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Has the average of the different E1, E3 and E5 trended up over the last couple of years? The average pricing, average price paid per subscription of a subscriber.

A - David M. O'Hara

Well I would say, our ARPU has trended up. But that's more -- that has more to do with the mix. That has more to do with people moving to E3 or people moving to E5. And so we haven't increased pricing. But we have shifted the mix in the higher-value SKUs.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Within E5, what are the -- some of the demand drivers that are pushing that, the highest price tier? Is it BI? Is it security?

A - David M. O'Hara

Security is certainly top of mind for lots of people. And we have a really good security offering through the E5 SKU. And so when we're really talking to folks about E5, we -- security is a big topic conversation. The BI and the analytics, we have -- the Power BI stuff is very popular both either of the free version or the paid version. They're both doing well. And so I think the analytics piece is super important. Then voice is typically a longer-term sell. If you're in -- trying to get somebody to replace a PDF system, that's going to be a longer conversation. So I think it's a mix. When we came out with E5 SKU, folks were asking, how do these things tie together and how do they accrue value in certain companies that focus in more on one or the other. Then in the end, when you get done talking to them about it, a lot of them just say, fine, let's take the E5 SKU. And those are all good offerings that we'll use over time.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

I was just out at the Salesforce's Dreamforce Conference. And they had a market share slide with Microsoft really down low, with Dynamics at the bottom of that slide. How are you guys thinking about getting some more market share in the Dynamics business? And what are the drivers there? Is it with through the acquisition of LinkedIn and the data that that's going to provide? What are some of the things that you guys are working on to really pour some gas on the fire in the Dynamics business?

A - David M. O'Hara

Yes. I think Dynamics -- and Satya would say Dynamics as a company is our biggest opportunity for growth. And I think it's -- candidly, it's also -- again, very CFO's perspective. But it's the biggest opportunity for good, healthy gross margin. So we look at the Dynamics business and we say, the history of biz apps has been about big monolithic applications where people need to come in and pay a lot of money then pay even more money to get them implemented. And by the time you're done, you're years into it and tens of millions of dollars. And so we've been on a path to take that tech and break it down so it's more digestible and it's more disruptive to the marketplace, which is you don't have to buy these big monolithic apps. You can go in and buy a set of services and only the set of services that you need or you can just go in and buy a subset of those services. And we do it in a very cost-effective way. So what we're trying to tell folks, again, sort of similar to the cloud or similar to the hybrid story is, hey, you don't need to throw out everything you've invested in. So we're not in trying to say throw out your European build on our ERP. We're saying we have some really -- we have a great collection of biz apps services that can be broken down and you can just take pieces of it at a time. So if you already made a big investment in some ERP system, we can go in and augment that, we can surround that. And over time, if they want to throw all that out and go with ours, great. But it's not required. So I think, for us, the real opportunity Dynamics when you see that low share is it's all growth, I mean. So it's all upside. If you look at Office, we have pretty high share. There's still upside in Office. But it's a high share offering, whereas Dynamics, we just feel like it's all upside.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Closing out on Office, I'd be remiss if I didn't ask about the piracy -- pirated base of Office. It's a very heavily pirated software. How does the 365 commercial or the shift to the cloud help you on that pirated capacity?

A - David M. O'Hara

Yes. Well obviously, it's really, really hard to pirate an online service. And there's ways that we can govern that. And so we're building all of our innovation into the online services, continuing to innovate it on-prem as well. But a lot of the good news is coming in the online services. So if you want the latest and greatest Office, you should be in the online offering, which is hard to pirate. I would just say that our strategy on Office is -- first of all, we want you as an Office user. And secondly, we want you as a paying Office user. And so if the choice is having them use the pirated version versus having them use the competitive product, we'd probably take that. Then over time, we just want to move them to Office 365 when they're ready to move there.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

And just lastly, on Office margins, do you think that you can keep pushing past peak margins in that business, in the Office business? And when do you get there with your scale in the cloud?

A - David M. O'Hara

Yes, yes. I mean, I feel like the Office business is a pretty scaled business right now. There are still benefits of scale that we can achieve with Office. But if the -- and you pointed out earlier, over half of our customers are now cloud customers. That's a pretty scaled business. I would say an inverse of that or sort of a different lens on that question we get asked is, how do you feel about Office pricing, because if you really wanted to drive up margins on Office, you would look at pricing and say, is there something we can do on Office pricing. And we feel -- we're, again, a share company. We feel like it's important to have as many people using Office as possible. And so we're not focused on maximizing price. We're focused on maximizing value to the customer and maximizing share. And so I think there's always an opportunity to improve margins in any product, including Office. So we feel -- and we'll continue to see improvement in Office margins. So we feel good about our strategy. And our strategy is one more of share as opposed to maximizing price and maximizing margins today. It's more about the long haul.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

One of the things that we keep hearing Satya talk about is artificial intelligence. And you are in charge of artificial intelligence at Microsoft. I keep reading about advances and investments that you guys are making in hardware and quantum computing and pushing that. How does AI fit into the overall strategy of Microsoft? And where is that today versus just a couple of years ago?

A - David M. O'Hara

Yes. Well AI, we made a lot of progress in AI in the last couple of years. I also feel it's still very nascent. I mean, we -- it's -- the one thing about -- that's unique about the cloud business, I think, when we're -- and I'll circle around that to your question, I promise. But the one thing about the cloud business is it's just a high -- it's an expensive game to be in. And there just can't be that many players of scale. And I think we're seeing that. And I think we'll see that in artificial intelligence, too, which is it's really going to be an expensive business to play. And so I think...

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

How do you mean that?

A - David M. O'Hara

Well because the investment that you need to make just even in the engineering side, when -- and the engineering side in AI...

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

On the hardware side?

A - David M. O'Hara

Well on the software side first. And then when you start talking about hardware and you start talking about things like quantum and some of those other innovative technologies, I mean, you really got to sort of stare into the investment and say, am I ready for this? And so there just aren't that many companies that literally can afford to do it, much less have the fortitude to do it. And so I think the folks who win in AI will be the ones who are willing to make the big investment and who are willing to innovate, both on hardware and the software side. And we're making investments in both those. We're also seeing some companies out of China that are leaning in heavy on AI. And so I think it will be -- I do think it will be a bit of deep pockets race. There will be companies, point solutions, that do great work on AI. And it will be cool and innovative and helpful. But to really get scale in AI, I think you're going to need some fairly deep pockets. And so early, early days. You asked the question earlier about what inning are we in Office. I think in AI, we're absolutely still in the first inning.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

As the CFO, you're the person in charge of making those investments. And you just said you have to kind of stare into the abyss and get comfortable. But there's going to be a return on that. How much are you willing to put in, throw in to AI without knowing what the payback is going to be over the next 3, 4, five years?

A - David M. O'Hara

Yes. That's a good question. We ask ourselves that every day. I mean, yesterday, we were asking ourselves that question. I would just say that we focus on, is there value to customers? And so we try to take what we're building and what we're working on and get that in front of a customer as soon as we possibly can and say, does this add value for you? Would this -- do you see this as helping you run your business? And if the answer is yes, then ultimately, we feel like there's a monetization model there. And so we don't need to know the exact SKU or the exact price of that SKU or who's going to buy it. We just need to know the customers are going to look at it and say, hey, that's innovative, I want that, that will help me. Then we'll figure out the monetization strategy. So I would just say, the short answer is we'll make -- we'll continue to make investments. We will continue to be a market leader in AI. And there will be responsible investments that have some forward-looking lens on monetization.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Well how forward is that lens? I mean, I guess that's the question, right? If you are going to see the return in one year or two years, then yes, probably you're going to make that investment. But how willing are you to look out 3 to five years for some of the -- to see the monetization in the investments that you're making in AI?

A - David M. O'Hara

Yes. A part of our org is also Microsoft Research. And we have -- we invest a considerable amount in just pure research every year. And so a lot of the AI work, it's done in MSR. And then a lot of the AI work, it's done in the engineering groups. And so if you look at something like MSR, we don't look at that through a monetization lens per se. We just say, look, there's research that we need to be doing to stay on the cutting edge. And we're going to continue to do that. As it moves closer to our product group, we move it closer toward a monetization model. And so we -- I really look at it and say -- as the CFO, I look at it and say, is that something somebody would be willing to pay for? And whether that's a year down the road or three years down the road, I think that matters. But it matters less. It more like are we really adding value to customers. So we have the pure MSR research piece that is doing a lot of great stuff in AI and then you have the product groups which are doing AI that's closer to a customer solution and then ultimately, we'd just end up with something that people (inaudible)

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Related to AI as well as research, how do you measure success with some of the investments that you're making, especially if they're long-term investments?

A - David M. O'Hara

Well we had the -- we go through and do a deep analysis on the return on invested capital for CapEx, for example. And so that's another big bet where we were spending, obviously, billions of dollars. And we just say how are we really going to get a return on this. And so you get -- you have to go through and build the model. I think that from our perspective, the toughest part about building a long-term model is just getting a sense of the demand. I mean, do you really have your -- do you really have a nose for the demand curve and what that demand look like? And in AI, it's early days. I mean, all we know is everybody is super interested in it. They think it's cool. They really don't know how it's all going to work. But I think there's enough there for us to keep investing because people are saying if this really works, we'll pay for it.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

There's been a lot of investment and talk about collaboration tools. And you actually have the Microsoft Teams, which is a relatively new product competing against Slack, which, kind of in upstart, kind of went toe-to-toe with you guys publicly. How do you view the competition in the collaboration space right now?

A - David M. O'Hara

There's a lot of innovative companies out there. I think that Slack -- Stewart in that curve had done a really good work. And they were out front on a lot of that, how they think about collaboration and communication. We have customers that tell us, hey, we use Slack, we're a Slack shop. But we also use it with Office 365. So don't be confused. We love Office 365, that's just our communication tool. That's a little bit of what drove us to build the Teams as we decide -- folks using both. And we said, well, maybe there's an opportunity to just have that all work in one environment. And so I -- there's a lot of good innovators out there, I think. And lots of interesting stuff on collab. Some other companies out there are doing really good stuff. Ultimately, we have a really big base of Office customers. And we feel like if we can take Team to that Office, that base of Office customers, that's going to give them the collaboration they need.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

And that comes bundled in with some of the higher-priced tiered offerings. Have you been tracking usage? I'm sure that that's still a problem.

A - David M. O'Hara

Yes.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

And how has that been trending over the last few sets of offerings?

A - David M. O'Hara

It's good and growing.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Still new.

A - David M. O'Hara

Yes. It's good and growing and growing fast. To your point, it's early days.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Great. So what are -- you're obviously in charge of the Research division, too, which is the other cutting edge of what Microsoft is working on. What are some of the areas that are the most exciting things that we'll hear about from Microsoft over the next 1, 2 and three years?

A - David M. O'Hara

Yes. And we've touched on -- I think we've touched on most of them. I think AI, you'll see a lot of stuff manifested in AI. And a lot of that started in MSR. And then we'll eventually segue to the product groups. I think quantum is a really interesting opportunity. And I sit in lots of quantum meetings. And I'm still not sure I understand a bit. There are people who do. And I think they're doing really interesting work. And we'll see where that goes. But not all of those bets are going to pay off. I think we just need to make the bets. Then I'll just start back with the very first question we had, which is what's different about Microsoft? I feel like we're better at identifying the bets better serving to get traction and moving resources and dollars to those bets. So we're not trying to pick the winners right away. We're trying to invest in various areas. And once we see one of them start to win, then we're better at moving the resources there and investing.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Microsoft has always had the largest partner ecosystem and network. As your products are changing and the go-to-market is changing for the different cloud type or product, how has the partner ecosystem changed over the last couple of years? And where do you see it over the next couple of years?

A - David M. O'Hara

Yes. The partner ecosystem has -- in some ways -- I'm trying to figure out the best word. In some ways, they're hungrier, right? Because they know that they just need to keep paying the bills every day. And so they want that innovation and they want that newness. And the partner ecosystem has shown an amazing propensity for making big bets and big investments. They just -- a lot of them just come to us and say, tell us which you're working on, we want to get in front of that, we want to build a new practice. There are some partners who are more focused on taking care of their existing customers and maybe they're not innovating as much or investing in the new products as much. But we need to balance that. I mean, we need partner ecosystems kind of take care of all of our customers on-prem, in the cloud, wherever they are. And so I feel like -- I'm a big believer in the partner ecosystem. I know a lot of partners, personally spend time with them. And I think we have a partner network that's second to none. And we'll continue to have that.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

One thing I didn't ask about is Microsoft's security strategy. Very important these days, how would you characterize it these days at Microsoft?

A - David M. O'Hara

I would describe it as a very strong business and growing. That -- to the earlier question about E5, that's probably the biggest demand pull for how we think about E5. Those are the biggest demand pulls for how we think about Azure, which is securing compliance in people. That's just table stakes. If you have a cloud service, you have to have the best security. And you have to have -- there has to be compliance. And so we focus on those. From the very first day, we've been -- that's been a focus for us. I don't know that security is something that Microsoft has always been known for. But I think we're getting more known for that, especially as the cloud offerings continue to grow.

Q - Michael Barry Nemeroff {BIO 6355446 <GO>}

Dave, we're out of time. Thank you very much for joining us today. I think that was very informative. Thanks, everybody, for joining us today as well in the audience.

A - David M. O'Hara

Thanks, Michael.