

Citi Global Technology Conference

Company Participants

- Judson Althoff, EVP of Worldwide Commercial Business

Other Participants

- Unidentified Participant, Analyst, Unknown
- Walter H Pritchard, MD and U.S. Software Analyst, Citigroup Inc, Research Division

Presentation

Walter H Pritchard {BIO 4672133 <GO>}

All right. We're going to go ahead and get started here for the morning session on Thursday at the Citi 2008 (sic) (2018) Global Tech Conference. Thanks, everybody, for joining us. I know there's a few out getting breakfast still. If you could make your way into the room, we're going to go ahead and get started.

I'm going to read the safe harbor statement from Microsoft first. And then we'll get going. So 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 web.

So I'm, again, Walter Pritchard, software analyst here. Very happy to have Judson Althoff, who is the EVP of Worldwide Commercial Business at Microsoft.

I'm going to go through a number of questions that I prepared and -- to explore mostly the business that Judson is responsible for, which is their overall commercial business, including Office, Azure, the Windows business in the -- on the business side.

Then happy to take some questions. We'll have some microphones going around. If folks want to raise their hand, we'll get you a microphone

So Judson, thanks a lot for coming. Appreciate it very much, representing.

Judson Althoff {BIO 18004989 <GO>}

Sure. Good morning.

Questions And Answers

Q - Walter H Pritchard {BIO 4672133 <GO>}

So the company's executed really well on the transition from an on-premise software company to cloud services. Stepping back, where are we broadly in that transition? And what's still to come?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, sure. So I think it'd probably be good for me to just kind of you give a broad brush on sort of how Microsoft is doing in this cloud transformation as well as sort of largely on the market. I would tell you that we're both reasonably pleased on our progress as well as super bullish about the future. About 85% of our enterprise customers are already using 1 or more of our cloud services. And so we've had great growth in that regard. We're at about a \$7 billion run rate now as of the last quarter, \$6.9 billion. But the bullish side of it is that, that still only represents about 25% of our overall business; a little less than that, in fact. So the upside in terms of continuing to work with our own enterprise customer base and drive more growth even within that realm is huge. Then if you look at what's actually happening to the IT market overall, Gartner would tell you about 23% of enterprise IT spend right now is cloud based. So it sort of tracks to what our same ratio is. But that is expanding dramatically, growing 50% year-over-year on the platform side and about 30% on the SaaS side. When we look at what our opportunity is though, not only do we see a huge opportunity to capture more of the \$2.5 trillion IT spend. We actually see the IT spend dramatically increasing overall. So what was classically thought of as IT, an opportunity for companies like Microsoft is, in our view, going to double over the next 10 years. And sort of unpacking that and explaining how or why that is. So much of what we do with customers in the cloud today and at the edge is about really transforming their business. And so classically, what would have been thought to as COGS not related to IT is digitizing. And so when we look at an opportunity for a large retailer or grocer in their stores to help them keep food fresh, it's not about the servers we might sell them in the back of the office or the PCs that we might sell in the front of the office. It's everything from the sensor, the sensor fabrics, the large data stores, the AI capabilities that then help them reason over supply chain management for fresher foods. So effectively, you can almost look at the IT market as expanding into the world of COGS. And so we see about a \$2 trillion expansion on that market overall. And there's great objective evidence of that. We have some of our largest enterprise customers now spending in order of magnitude more with us year-over-year than they ever have had before.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it. And so your primary role is running the sort of the front office, the sales side of the organization in the commercial area. You made a number of changes, sort of evolved the structure of the sales force, how they're paid, as sort of adoption has happened of cloud services. Can you just review sort of what the changes are, where you are today and what your goals are going forward in terms of how you pay your people?

A - Judson Althoff {BIO 18004989 <GO>}

Sure. So by way of background, I've been with the company for a little over five years now. I came to the company originally to run North America, did that for three years. Then Satya asked me to run our commercial business globally. So my day job is running sales services and support for everything we sell from large corporate enterprises down to small businesses and public sector entities around the world. And it's about a \$70 billion business for Microsoft. The transformation we've gone through really has been sort of left to right across the company. And it's been a really pretty simple thesis, if you will. I mean, we've basically changed the company around the way in which we see the world of technology evolving. So we really see this paradigm shift of the intelligent edge and the intelligent cloud reshaping how every customer thinks about technology today. And it's really pretty simple. At the end of the day, people experience life through technology. And so we deliver product to market in 6 core solution areas, from gaming to modern life technologies, modern workplace technologies, business applications and applications in infrastructure, core apps and infrastructure in the cloud as well as data and AI. And those 6 solution areas allow us to go to market both in a consumer sense, gaming, modern life, mostly consumer; the other 4 in the commercial space. So we pivoted all of our engineering resources around those 6 solution areas, lined them up, not by product as we were previously but more by solution set. And it's allowed us to create more seamless offerings for our customers. On the sales side of things, we went through, last fiscal year, which for us ended in June, the largest reorganization that the company's ever been through and given our size and scale, perhaps the largest the industry has seen. We effectively changed the model that 50,000 people go to work in every day, predicated on a really simple thesis, put the right resource in front of the right customer at the right time. We implemented an industry model focused on financial services, retail, manufacturing, health care, government and education, automotive and telco. The company never had one before. So I'd have a sales team in Cincinnati, Ohio calling on the Fifth Third Bank, Kroger and P&G, has absolutely no ability to learn either of those industries to help a company truly transform. So reorganized the sales force by industry. That then had an artifact back into the engineering organization so that we actually build differentiated offerings for industry, recruit partners that line up for those industries as well. The second thing we did was to completely revamp the technology capability within the field. Look, we had historically a lot of sales overlay resources. The Microsoft bus would show up if you wanted to hear about our product lines. We had a lot of people who would sit you down and give you a PowerPoint presentation about our products ad nauseam. And we made a tough decision to let a lot of those folks go and replace them with developers. So I've hired, over the last year, more than 3,000 developers into the sales force so that we can actually code with our customers and help them really digitize everything they do within their business.

Q - Walter H Pritchard {BIO 4672133 <GO>}

So sort of a sales engineer-type function?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, exactly. But more than just what I would sort of traditionally call presales SE person, these are actually folks that rotate in and out of engineering. So they may

spend two years writing mainline code for Azure and then rotate out into the field and help our customers with the latest Kubernetes capabilities and things like that. So that's been huge for us. We lined those folks up by the same solution areas that I spoke of before in our commercial space, modern workplace, business applications, apps and data and AI. So the symmetry between the field and the engineering organization has helped us tremendously. The third thing we did was to build a customer success organization. You can think of this effectively as non-billable consulting that I pay for on my dime. These are people that live with our customers beyond the deal to make sure that our cloud services actually get infused into business processes that you don't have the cloud equivalent of shelf wear in the software world. Also been huge for us because the adoption and the actual utilization of the services has increased dramatically over the last year. It's why we're so bullish about the long-term trajectory of the business because we can see through telemetry, the usage curves and have some pretty good predictability about where those are headed. So those 3 big things we did to really increase the density of coverage on our largest customers. Now you go and do that, you have to figure out how to pay for it, right? So the next 2 things we did were really to add scale to the rest of our business outside of the enterprise. We have created what I call a new digital selling force. And think of this as sort of the modern era inside sales or call center teams. We have used our own technology, we drink our own wine, if you will. And have implemented an AI reasoning capability that links everything we do in marketing for all of our anonymous interactions with customers. And that then feeds demand response into our inside sales teams. And then they actually come to work every day. They've got a queue of calls, 100 different calls they could make. The reasoning -- the Cognitive Services basically tell them which 3 calls they should make first, what to say when they're on the phone with the customer, which specialist to pull into the deal or which partner to help with the opportunity and has created far more efficient way at reaching tens of thousands of customers around the world at scale. That then, coupled with revamping our entire partner organization around this notion that we want to build with our partners, build IP, build services practices, help them take the same to market and then help them sell the same has really helped us build much more scale. Then those 5 things kind of hinge together on the compensation model. We took a big leap. We don't pay people anymore on what we sell. In fact, less than 20% of the compensation plan for any of our people is tied to what they might sell to a customer. We pay our people on what our customers use and the value that they get out of our solutions. That provides a real interesting hook into this notion of helping even our enterprise customers take their IP to market in the cloud. As I was talking to you a little bit before we walked up here, we have some traditional commercial customers that have become what we call digital partners. The best example of this is the work we do with Boeing. I mean, Microsoft has been selling technology to Boeing for decades. But the work we've done over the recent years is we've actually taken their digital aviation assets, put them on our Azure platform and we co-sell with them to other airlines around the world. This drives huge top line revenue for them, helps them be much more nimble in their implementation. Then our people are actually engaged with them at the face of the customer to deal with things like the cloud architecture, data privacy, security and sovereignty. And it works very, very well with us.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it, got it. Super thorough answer there. Appreciate that. So you brought up digital transformation a couple of times. I had a joke a couple of days ago from a client that they met with a copy machine company and they were doing digital transformation. So I feel like this word is getting a little bit kind of overused. So maybe you could kind of break it apart for folks in terms of the agenda that your customers have? And maybe specifically, what should solution sets -- or I know you're not talking products as much. But there are a lot of us that think in product terms. What sort of tangibly -- the -- what parts of the business that you run have seen a boost from this trend in the market?

A - Judson Althoff {BIO 18004989 <GO>}

So first of all, you're absolutely right, digital transformation is sort of this digital washing of everything. Every new sale is, "Hi. we did a digital transformation at Company XYZ." We try to actually help our customers in a fairly consultative way, unpack what it actually means for them pragmatically. And whilst no 2 are really alike, we do kind of sort of think of it in 4 pillars. The first is employee empowerment. So if you're going to really be a digital company, your people have to work in a digital world. And so a great example of this is work that we've done with Carlsberg breweries. If you think about the diversity of workforce in a brewery, you have everybody who -- from like folks who are driving trucks delivering beer to bars to people who have their PhD in yeast science. Then -- had I known you could get your PhD on beer, I probably would have picked a different path. But in all seriousness, these are folks who don't find commonality very often. But by putting mobile technologies into the hands of the people who drive the trucks, connecting them through our Microsoft Teams products to everything from the marketing department to the yeast science teams, you can actually help their product evolution by empowering their employees. So we've done work with them to sort of say, "Well hey, how would you launch new products in new markets based on the data that you have coming off of this empowered employee set?" We ran an experiment with them and said, "Hi. listen, we think we ought -- you ought to take your Russian pilsner, remarket it and launch it in São Paulo, Brazil because of the matching of the customer data that we have, the customer sensibility we have as well as the tasting preferences we have coming off the yeast data," which to them was almost blasphemy. They're like, "I'm not going to sell Russian beer in São Paulo. What are you talking about?" Lo and behold, we sold 30% more beer in São Paulo than we ever had sold in St. Petersburg. So by digitizing the workforce, empowering employees, you get great progress. Categorically, we think about empowering employees. We think about rethinking customer engagement. So a lot of work happens in terms of, for example, in retail, helping customers develop omni-channel strategies that allow them to manage customer relationships in a less transactional way, more from anonymous through to advocacy, lots of work around optimizing operations. We are weekly working with dozens of customers, moving their SAP environment to the cloud. And when you do that, the operational burden that you leave behind is huge. So lots of differentiation there. In fact, SAP is running their own S/4 HANA instance on Azure. So lots of great triangulation work there. Then the fourth pillar is around product transformation. And it's probably the most interesting of all of the 4 DT categories that we work on. And the question that needs to be asked and answered is how can the data about your business become more valuable than the business itself. And my favorite example here is the work we've done with Maersk. If you think about their business, right, you -- big global shipping

company, not a lot of room for them to grow. They already have 60% of the world's market share. There's only so much fuel optimization you can drive to shave the bottom line. So what's the next generation of growth? Well we've helped them basically take all of the data about their business and create software assets with it. So if you think about it, they know where every product is in the world's global trade market at any given point in time. And so the ability to hedge on supply chain becomes a reality in addition to sort of offering end-to-end logistics capabilities for last-mile delivery. So those are the 4 categories that we help customers work through. Again, it has to be a very consultative approach because what we do for Maersk and what we do for Boeing and what we do for Walmart and what we do for Adobe are all very different things. But if you kind of methodically walk through those 4 pillars, you find massive opportunities for customers to reshape their businesses.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Yes, I agree. Got it. Maybe diving a little bit deeper into Azure, growing really fast in a pretty competitive space. You've got AWS, I think the -- at this point, the undisputed leader in terms of revenue. Can you talk about the strategy that Microsoft has to grow that business? And what elements of that part of the business are really resonating with customers?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, sure. So look, no question AWS was first. They are the big dogs to chase in all of this. But year-over-year, I would say we feel very, very good about the progress we're making in terms of gaining market share. So that cloud platform market right now is growing at about 50% year-over-year. Azure grew nearly twice that this last year. And it's on the strength of massive Fortune 500 relationships from Walmart to Adobe to Ford to Telstra to E&Y. I mean, you name it. Fortune 500, across every industry, people are betting on Azure. And you see we'd say, "Well okay. Why?" And sure, we have some really good relationships with those folks. But it comes down to a couple of things really. It comes down to: one, the flexibility of our offering. I talked about the edge in the cloud. We've been doing hybrid before hybrid was cool. And the platform we enable is completely heterogeneous. Whether you want to use Microsoft assets or open-source assets, do it on-prem, you want to do it on the cloud, we offer a common platform for developers to build product from left to right. The security fabric that's a part of that as well enables customers to very quickly latch on to whatever local security, data privacy, sovereignty and regulatory concerns there might be in the markets that they operate in. So the platform itself, the hybrid capabilities within it, a huge differentiator. The second big differentiator for us is trust. We spent a lot of time investing in being super clear with our customers that their data is their data, it's not our data; their IP is their IP, it's not our IP. And in addition, even our patent portfolio is something we extend to our customers as they're looking to digitize their businesses. And that's been huge in terms of building that enterprise trust and credibility because as the biggest of enterprises move to the cloud, the highly regulated market still haven't had huge adoption yet, that's critically important. And I would say the other big reason is, is that, without sounding too competitive, the reality of the situation is, is if you look at the 2 other big competitors in this space, Amazon is, frankly, attacking a lot of industries right now. And they're pretty bold and open about it. I mean, Jeff will say, "Look, your

margin is my opportunity." And there's evidence of that -- huge evidence of that in retail, of course. But also financial services and health care. And so I think our enterprise customers come to us going, "Hi. look, we want to go to the cloud. We're not interested in going to the cloud with somebody who's interested in taking our business. Microsoft, you've known our business for decades." So there's that enterprise trust factor. Then I think Google is seen as actually less of a direct attack. But a huge tax burden, if you will. If you think about the single greatest tax on any electronic commerce or digital interaction, it's search, it's ads. And so yes, you can seek out Google as a platform provider. But the reality is, is that, that's going to actually turn into a reverse burden on your business. So I'd say those 3 things, our business model, trust factor, the hybrid capabilities within the platform itself, are the biggest driver why we're growing twice the speed of the market right now.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it. Then on the hybrid side. So you mentioned you've been doing hybrid before hybrid is cool. Azure is a key asset in your hybrid strategy. Could you talk about where customers are in hybrid adoption? And I guess, specifically, give us an update on Azure Stack. I know it's a fairly early product for -- that has been out for about a year. But how is that product doing?

A - Judson Althoff {BIO 18004989 <GO>}

Yes. So we're super pleased with Azure Stack right now. We're taking orders at the threshold of our ability to deliver at this point. So we're very pleased with that. We're also pleased with where we're going with Azure Sphere. So if you think about this notion, the edge to the cloud, especially with the onset of 5G coming, I mean, you can really basically put compute everywhere, from the furthest edge through to midpoints and aggregate all the way to the public cloud. And the deep investments we've made in this space, having a common framework for identity management, a common data platform, a common security model, a common development model, I mean, even Google uses VS Code inside of their environment because our tools are so rich in supporting DevOps scenarios. The platform itself has been built from the ground up with hybrid in mind. And we think that, that's really going to take off, again, especially with 5G. And we're doing hacks right now with customers -- well, a German auto manufacturer, whereby they're taking -- at the very edge of their autonomous and semiautonomous vehicles, they're taking in imagery, of course, to do navigation and accident avoidance. And we have AI services running at the edge of their car, basically de-identifying all of the facial recognition for GDPR requirements. So if you think about the elaborate and elegance in the compute model there at the edge and the ability to say, "Well okay, where do we want to run - have running at the car? What do we want to have running at any type of cellular endpoint with the telco providers? And what do we want have running in the public cloud? And oh, by the way, what if we changed our mind?" I mean, the Azure platform is really the only thing that can deliver in that regard today. So we see huge growth there. Then there's the financial aspect of it. We have stepped forward pretty aggressively and said, "Anything you use of ours in a hybrid capacity, whether it be Windows servers, SQL Server, any of our core on-premises software assets, you pay for once." So in the scenario I just described, rather than paying for it 3 times, you're paying for it once. And if you project out what the competition would have to do,

we're like 80% less in terms of total expense. So the technology inherently is designed in a superior way. And the cost structure is dramatically lower.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Great. Got it, got it. So I'm going to go to one more topic here. We'll take a microphone around. After that, I can keep going if there's no questions. But Judson, on the Office side, I think we've seen -- this business has been around for a very long time. The economy is good right now. I think that's driving some corporate C growth. You've also done some things in the product, moved it to Office 365. You're adding a lot more value as it's cloud hosted. Could you help maybe unpack a little bit the growth drivers in Azure and Office and the macro plus some of the product side drivers?

A - Judson Althoff {BIO 18004989 <GO>}

Yes. Well -- so it's really interesting because the traditional PC market, of course, has been under a lot of pressure. Yet, Office has been growing double digits now for 5 straight quarters. And I think the biggest reason for that is the heterogeneous way in which we've enabled Microsoft experiences on all endpoints. We now have more than 100 million active users of our Office 365 products on iOS and Android. And so the growth really is not tied to the form factor of the PC as much as it is just the human experience. It's also done great things for us in terms of expanding the creativity and collaboration software assets. Microsoft Teams is really on fire right now. More than 200,000 entities use Microsoft Teams already. We have -- in just 1.5 years' time, we have more paid users of Microsoft Teams than Slack does. And they sort of invented this notion of teams and tribes collaboration. Part of that is because the same good old Office products that you sort of grew up and loved are infused right into the Team's fabric. So the collaboration is super easy. But this notion of Microsoft 365 as an offering that encapsulates Office 365, Windows 10 and our Enterprise Mobility Suite, everything basically we take down to mobile devices, has been huge for us because the suite driver has so much value for customers. Each independent offering has its own strong growth. And the Office in the cloud grew 29% year-over-year. Windows 10 is now on 700 million devices. EMS, as I described, the basis for growth on the mobile side as well as the identity fabric and security fabric that cuts across the same has been really strong for us. And it feeds well into Dynamics, Dynamics as a business applications product. We've had the strongest year we've ever had in Dynamics. Dynamics in the cloud grew 61% year-over-year. And the large enterprise customers taking on Dynamics instead of Salesforce has been huge, from American Airlines, to Walmart, to Nedbank, to Adobe, to HP, to Lenovo. We're seeing huge enterprise strength there. And it's because when you weave together the Microsoft 365 productivity environment or the Dynamics 365 environment, now you're reasoning over the same graph of data to, once again, help your employees be more productive. It's been good for us.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it, got it. I'm going to pause a second, see if there's any questions. We have a few microphones. Okay. Just right down here in front. There's...

Q - Unidentified Participant

Just a broad question on medium-, long-term sort of view on profitability of commercial cloud operation. Margins have been sort of trending down because of the transition from on-prem to cloud. Then it feels like we might be towards a level where margins could start to trend up. I just wondered whether you could qualitatively give us some color on that. And related to Dynamics, you just mentioned it's still a small business for Microsoft but what's the aspiration? What sort of, (given the) level, do you think you could get to that -- because it's still a small contributor relative to Office and other businesses you've got in there?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, okay.

Q - Walter H Pritchard {BIO 4672133 <GO>}

So maybe the -- we don't have the CFO on stage for the margin question. But do what you can.

A - Judson Althoff {BIO 18004989 <GO>}

2 for 1, yes. I mean, you asked -- qualitatively, I can tell you. Quantitatively, that's for Amy to answer. But qualitatively, I can tell you margins are continuously improving because of the shared nature of the state of where we are in this growth trajectory. I mean, when you enter a new market, you enter a new market where -- I should say markets. Because whether you're talking about the platform business and our competitors in AWS and Google or the productivity realm where we lead or the business applications realm where we're a challenger as well, when you enter those markets and it's a share gain, margins are under pressure. But as our growth in share and trajectory improves, which it is dramatically, in all 3 of those realms, we're growing faster than market, our ability to command higher margins is also improving. So I think you'll see good improvement there. Amy can give you the details. On the business application side, in terms of where we see the business growing, it's interesting. Because the way to look at Dynamics is to look at it, sure, as its own discrete business. But then also the knock-on effect, if you will, on our other businesses. Take, for example, the work that we do with Adobe and SAP. The beauty of Dynamics is that you don't have to actually rip and replace your existing CRM or ERP environment so you can effectively leverage it to implement a fairly nimble business process on top of any existing applications environment. So we may bid in a given situation with Dynamics 365, along with Adobe, along with SAP. We may win certain components of the offering. And that's what's driving a lot of the growth. But what drags behind it is massive growth for Azure and the data behind it. So both Azure as well as the LinkedIn asset benefits hugely from Dynamics even if Dynamics itself is not a huge driver. But in this case, we actually -- like I said, we have a healthy growth. I think that there are customers that are tiring of the expense related to Salesforce. Salesforce is a great solution. There's good folks running the company over there. But it's expensive. And customers aren't seeing the incremental value for what they want to charge and the incremental increases in subscription costs that they're placing on them. So we're doing a lot of heavy-lifting and migration work over to Dynamics 365 because it's a much lower-cost environment. It's a much more open environment. I mean, it's just sort of proof is in the pudding there with all the integration work that we do with Adobe and SAP.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Any others? So -- we do have one.

Q - Unidentified Participant

When you were giving your hybrid sales example, you said that, "We're not charging the customer 3 times. We're only charging them once." But presumably, the price you charge them is somewhere between 3 -- total price of 3 separate instances of an application versus one. You aren't -- you're not just giving away the other 2, you're capturing value that's reflected in the one price? Or are you just charging the lowest price?

A - Judson Althoff {BIO 18004989 <GO>}

Well -- so strictly speaking, I'll just unpack it a little bit more pragmatically. If you have SQL Server licenses from Microsoft and they are currently running on an on-premises server and you now want to take that workload to the cloud and run SQL in the cloud, if you do that with either Amazon or Google, you have to relicense it on their platforms. If you do it with Azure. So -- it's free because you already own the asset. Does that make sense?

Q - Walter H Pritchard {BIO 4672133 <GO>}

And you pay for the Azure would be the -- so part of your answer is you pay more since you're buying Azure?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, right.

Q - Walter H Pritchard {BIO 4672133 <GO>}

So any other questions? We do have one. These are good questions. So we'll keep going. Michael?

Q - Unidentified Participant

I think we all see the growth in Azure. But I think there's also still a lingering concern, at the end of the day, it's a declining business with a race to 0 pricing. Can you speak to the state of that?

A - Judson Althoff {BIO 18004989 <GO>}

Yes, sure. I think there are aspects of the cloud platform market that will be a commodity business and will be a race to 0. If you look at strictly Infrastructure-as-a-Service and storage -- compute and storage, yes, that will be a chase to the bottom and may the best price win. There are a couple of things though that even in that realm, I think, will lead to an advantage for us. I think the pure R&D on things that we do in the compute realm from quantum computing to cryogenic computing, the data centers that we're putting on the ocean floor, those will actually give us a competitive advantage in terms of the COGS related to even just pure infrastructure

and storage. So I actually feel pretty good about even the worst part of that business. The parts for us though that I think will lead to long-term differentiation and, again, some pricing power in the market are the platform services that we're offering. Take for example Cosmos DB. Cosmos DB is the -- really the only planet-scale database on the market. It can run in every Azure instance. It will eventually be able to run in every Azure Stack and Azure Sphere incarnation as well. And so you'll be able to put -- you'll be able to decide as a customer where you want your data to be and how to reason over it. And you basically conquer sort of the speed-of-light issues that any other singular-instance cloud platform database would have. In addition to that, it's 100% open. So if you've invested in anti-standard SQL or Cassandra or Mongo in terms of your big data interfaces or key value interfaces, you have to effectively move that code over in a singularity without having to do any re-platform work. That's a huge differentiation that we offer in any kind of operational data environment, any kind of AI sensing environment. The Cognitive Services that we're delivering to market and the library of services that we have there is materially greater than the competition. And so it will be the platform services, the ISV portfolio, the IP that you deliver that's vertically differentiated that will provide us with pricing power on the cloud platform.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Any others? So a couple of good follow-ups here on the Azure IC side. I guess I wanted to ask you to a follow-up on the Office PBP side. So E5 and some of these sort of higher-level, more expensive SKUs in Office have been good drivers. Could you talk about what -- there's security. There's data analytics. There's a number of different -- there's telephony, a few different sort of avenues that customers pursue there to get an E5. What are you seeing in terms of E5 adoption? And what are the drivers sort of today versus where they were initially?

A - Judson Althoff {BIO 18004989 <GO>}

Yes. We feel great about E5 right now. It's interesting. The #1 driver is security, followed very closely behind by analytics and Power BI. We really feel good about competing with and against Tableau with Power BI. In fact, we're replacing them left and right. When customers can effectively buy a suite with E5 that says, "Well gosh, I get all of these security benefits from advanced threat protection for my Windows estate, my mobile devices and heterogeneous endpoint protection through to my core Office 365 tenet. And in addition to that, I get effectively Power BI along with that and then also effectively Teams," where we're taking Skype and the convergence there, the value is immense. And so that's a huge driver for us. The stand-alone SKUs themselves are actually also doing incredibly well because people will look at it as either, "Well okay, I'll make an investment on the suite and roll it out from left to right" or they'll say, "Well look, I'll start -- my security problem is my biggest one. So I'm going to start with the security assets and then move into the rest of the suite over time." So it's been very strong. And we're bullish on the continuing growth right now because of the sort of share within the total base of the customer for E5 is still relatively small. So the growth opportunity is quite large.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it. Maybe diving into that a little bit more. I get this question a lot from investors, both on the Microsoft side as well as I cover the security space. Security is a massive market. You've got tens of billions of dollars. Microsoft has sort of played a little bit in that market. But there's a lot of money spent by customers on adding something on to Exchange or Office 365 to secure it. The same with the PC. You've got authentication solutions. People are sort of folding into active directory and so forth. What's the sort of higher-level strategy with Microsoft around security? And how do you view that as a revenue opportunity given your seat on the sales side?

A - Judson Althoff {BIO 18004989 <GO>}

Yes. It's a good question. Because -- security is one of these markets, as you pointed out, where -- if you take this approach, where like there can only be one or we want to kind of mop up all of these sort of niche vendors in this space, you'll be at it for a long time because the number of vendors that every company has on their security offering is enormous, multiple dozens on average. And so what we seek to do is to provide a common platform for security. First, starting with our own assets. If you want to secure Office 365, you want to secure your Windows estate, the very best way to do it is with our security offerings. And the lowest-cost way to do it is with our offerings because, effectively, it's like the Prego spaghetti sauce thing. It's in there, right? Then you sort of take the next leap and extension to that, that says, well, also you leverage active directory and Azure active directory in the cloud for all your identity and multifactor authentication for all of your mobile endpoints. And so we want to have that as an inclusive offering in the portfolio. And so effectively, that's the security that you get within Microsoft 365. That same security model and identity graph then flows into Dynamics 365. It's then available for you as an asset in Azure. So if you're writing your own bespoke applications, if you're using any ISV that's on top of the platform, we seek to dramatically lower the cost for anything related to the portfolio effectively. Where there will always be additional value-add is largely in the consultancies that help customers through cyberattack scenarios and that kind of thing. It's not really our core business. We have a lot of partners that we leverage in that regard and that sort of build on our stack. So will there be some consolidation in the market? Yes. Will it ever be to the point where like, "Hi. look there's 2 or 3 vendors. And you can get everything you need from one of them?" We don't think so.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Got it, got it. Well I think with that, we're going to close it out. I see 18 seconds on the clock. So thank you, everybody. Judson, thank you very much for coming. Appreciate it.

A - Judson Althoff {BIO 18004989 <GO>}

Thank you very much. Thanks for the time.

Q - Walter H Pritchard {BIO 4672133 <GO>}

Yes. You too.

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