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VZ - Verizon Communications Inc Investor Meeting

EVENT DATE/TIME: FEBRUARY 21, 2019 / 2:30PM GMT



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PRESENTATION

Brady Connor - *Verizon Communications Inc. - SVP of IR*

Good morning, everybody. Welcome to the Verizon Investor Day. First of all, we have done in 7 years. Glad to have everybody in the room. We're live on the webcast. So warm welcome to the folks that are listening in.

My job here is to kick us off with a Safe Harbor statement. The team is going to make some statements today that contain forward-looking statements with risk and uncertainties and you can see the website for our details. We've got a great agenda for you today.

So let's get it going by getting Hans up here and let's get the things started.

Hans Vestberg - *Verizon Communications Inc. - CEO*

Quick, that was very quick. Well rehearsed, Brady. Fantastic.

Just imagine how many hours he has trained for that one.

Thank you, Brady. And thank you, everyone, here in New York City, but also, of course, everyone joining on the webcast.

We know it has been a little bit challenging weather in the last 24 hours, but here we are in actually a packed room for the ones in LTE.

When we were planning to do this day, the Investor Day, we were -- had a couple of different purposes why we want to do it? And I just want to be upfront why we wanted to have it. First of all, we wanted to share a little bit more about our strategy, where we're going, what we're doing, a



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little bit more long term that -- than what we do on an earnings call. So you are going to hear us talking a little bit what we're doing, of course, directly right now, but even more where we think we are heading. I think that was one of the purposes.

Second purpose was, of course, getting ample time for question and answers and having a chance for both discussions here, physically, but, of course, also from the one attending the webcasts, which we normally don't do.

And the third one is, of course, we've quite a lot of new team members on the executive team. We wanted to get acquainted with them, that includes me as well. I'm pretty new as a CEO. So the whole idea is also to get the chance to meet them all during this day and ask your questions. And there are also for the ones here in New York, the breakout sessions in the afternoon where we're going to go deeper in some areas, which, of course, also is part of the whole idea to get the better understanding where we are heading as a company. And we have plenty of executives here from Verizon, not only ones in the executive team.

That was the purpose. And let me kick it off by actually showing you slide of the executive team. If you didn't know who they are, these are the team members that we have. You have on the far right, the 3 business unit heads. You have Tami running the Business Group; you have Ronan running the Consumer Group; and you have Guru running the Verizon Media Group. That's all the 3 business heads that we have. Basically, all 3 of them are new to the executive team. They have been in the company in different times. Tammi, of course, the longest-serving, and Guru, the shortest-serving. But all have been in the company for a while. Guru came in less than one year ago.

Then you have Kyle, which is my successor, CTO, Head of Networks and IT for the company. Matt has been around for a while and he is probably one of the most known of you, the CFO. And then, Rima joined a little bit more than 1.5 years ago, running Strategy, but also partnership -- strategic partnerships. And then, Diego, Chief Marketing Officer; and Craig, Chief Legal Officer; and Marc, Chief Administration Officer.

You are going to basically see all of them on stage, except the 2 last ones. Craig and Marc will not be on stage. Craig is here, as you know, but basically, you are going to see all others on stage today.

That's just to get acquainted with the people that are going to show up here so you know who they are, if you didn't know before.

Okay. Let me kick it off by talking about where we are in the business, what is the current state. We ended 2018, I think with a very solid year. We continued with the pace that we had both on improvement on profitability, but also on the growth. The wireless business has actually come around, since unlimited where you had our plans and executed well on their strategy you saw that in numbers. So we were coming in with a solid 2018.

At the same time, of course, with all these changes we're doing in the network, we're actually winning even more awards for the Best Network. Kyle will talk a little bit more about that, but I'm really impressed about the network team and engineers, how much change they have done and at the same time, they keep the Best Network. And what it tells me, we've even more to go.

At the same time, I see strength across customer relationships, our brand, our distribution and, of course, our network. That's how we build our strategy as well. That's our 4 core strengths of our company and that's how we're going to build our strategy and continue to execute.

If we look at efficiency, I think, the new introduction of our CapEx allocation model, or smart-CapEx allocation has really paid off well. We're doing more with less money. Very efficient process and we are still in the beginning of it. Matt, together with me and Kyle, has introduced that together with the engineering team. Very efficient and you saw last year, we had a really good run on the CapEx. We'll continue with that.

We are doing quite in auto transformation. I will come back to that.

We are building the foundation for 5G. Remember, this is a long journey. We'll talk a lot about 5G today. Very important is that we were so early out. That means that we're not only building technology and knowledge as well, but we're building capabilities in the company. That's very important when you launch technology. You understand how it's going to work, how you are going to build, how you're going to charge, customer care. It's a new technology and new opportunities. We will talk about that.



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And we talk about the Verizon 2.0 and I know that some of you say, yes, that's a reorganization. It's not a reorganization. It's a lot of other things we're doing at the same time. I will talk about it, but it's, of course, ultimately impacted also how we structure the company and operating model. But it was far many other changes that are more important that we're doing at the same time.

That's where we stand today with our structure. If I would summarize our strategy in the 4 pillars, that I think are the most important and that we agreed upon, number one, is the network. We build the network. Remember, we went from 4 vertical networks to one horizontal. We see that as a Network as a Service. The more we can get on that asset, the more capacity we can get and usage on it, the better it is. And that's how we're building the network and are building it since end of 2017.

We're, of course, building that with 5G and we call this network the Intelligent Edge Network. This is a fundamental part of our strategy.

The second part of our strategy is, of course, that we're now going to customer-driven model. And what we're doing here is that we had wireline and wireless for many reasons for a long time. We're now looking at the customers. And the great customer groups we have, they're going to enjoy a lot of the assets that we can multiply on, fiber, 5G, 4G, fiber-to-the-home or the families, all that we can now offer to all our customers instead of the dividing in between different technologies.

It's a huge change, but it's really going to serve our customers. And for us, we think, we can create more opportunities for growth. That also means that we can decide how far we go in the stack. Sometimes we only do connectivity, sometimes we do a platform and sometimes, we have the application. In many cases, have you seen already, we're taking partners instead of doing the ultimate application ourselves. We think, we're going to serve where we think we are the strongest and then we're going to bring the best brands in together with us because we think, with the network, the brand, the distribution, we can attract anybody that wants to work with us. And that's how we're thinking in order to not go away and buy ourselves vertically into areas. We think we can just use the best assets and we can still do what we want to do.

Trusted brand, that has been a core value for us. We will continue with that. Trusted and innovative, it's a core strategy for us as well. Together with what we're doing as a responsible business, we do a lot to encounter responsible business. We want to bring that forward, both for our employees, our customers are expecting for us and ultimately, where the shareholders are also going to expect that from us.

And we're doing it today. It's just that we want to bring it forward in our brand and we're executing on.

And finally, the financial discipline. I am less than 1.5 year in the company. I'm impressed about the financial discipline and the execution sort of capability in the company. Everything from how we do capital allocation, but also are now focused on best-in-class costs. We need to search for comparison in another industry in many cases because we are at that scale, but we're really going to drive ourselves to be even more cost competitive.

All that would lead to our overall target. If we do this right, we think that we can have a GDP growth plus, which we're aiming for, with a strong earnings and cash flow. That's actually how it all sums up for us. If we execute on these, we can actually deliver on the below. And we will see that we have opportunities for doing more in some areas and we will do it as well.

Talked about Verizon 2.0. Just to give you a quick summary of where we are and adding a couple of things we're doing more. We started by transforming the network. We did the horizontal Network as a Service because that was the first thing we needed to start with. That was end of '17 and execution '18 and, of course, going on.

The next was that we transform our way to go-to-market and thinking solution based. As you have the technology in the bottom, we can have products seamlessly going in between our different customer groups and actually taking advantage of the strength and the size of Verizon.

Then we're in the transformation of the brand. The trust and innovation and, of course, responsible business. We want to see that hang together. We think that, that will create opportunities for growth as well. We've a huge process transformation in the company. You have seen that where the voluntary program of more than 10,000 people that actually opted for it, half of them have already left us. The rest is going out in the next 6 months or 3 months.



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We also had a big change in our IT structure in order to be more agile. So we are doing outsourcing. We have done reductions in force in the Verizon Media Group and we're doing quite a lot. We do that in a moment of strength, where we have sort of, we can do this in an organized way, with very good way on quality and operational excellence. And we are creating a possibility and flexibility for the future. That's why we're doing it right now, even though, you can claim that we have a pretty good 2018. This is the time we do it.

The team is responding very well to these changes and operational excellence is on the highest in this company. So we're doing this at all the same time. And then, ultimately, as you've seen on the previous screen, we are also doing some change in talent, the leadership. You see a leadership team that many new faces. And at the same time, that goes through the company and how we're going to act and how we're going to work. So this is far more than a reorganization we're doing. It's actually changing the core of the company. We're starting with the network. So yes, you know.

And they will come more in this, but this is sort of the model we're now working with in order to meet the criterias on the previous slide on the strategies that we have in order to deliver on our overall goal and targets.

This is a structure we're going to have from the second quarter. Matt has talked about it, Brad has talked about it. We're going to continue to give you all the metrics. You have got them before on wireless and all of that, but at the same time, we're going to start reporting on Verizon Consumer Group and Verizon Business Group. And that's going to happen after the second quarter. So we'll come back to that and we will have a look back that you will get in due time so you can see how it looked historically as well.

That leads me to 5G. If we know where we are and 5G is such an important piece of our strategy. So I wanted to spend a little bit time on it and outline a couple of things that I see as opportunities. At the same time, pegging up for some of my colleagues that will talk even more about it.

So not sure how much I've studied this, but this is fairly important stuff when you think about 5G. And actually, I will quickly go through with. If you have not seen the spider diagram that we call it before, I'm going to briefly go through it. What is 5G doing that is so different than 4G?

You start with speed and throughput. Speeds are measured in gigabits and not in megabits. And throughputs in terabits here per square kilometer instead of gig the currencies that you had in 4G and that we have today in the 4G network.

Next, you're going to see 2 other currencies, mobility, 500 kilometers per hour. We can have a signal strength when somebody is -- something is moving at 500 kilometers per hour. Today you can do 200, 250 on 4G. Why is that important? That would be high-speed trains could be drones in the future that you need to cover on 500 kilometers per hour.

So that's why it's coming up.

Then connected devices. In 4G, we can connect roughly 100,000 connected devices per 1 square kilometers. Here we talk about 1 million. Suddenly, whatever you're talking about IoT, massive IoT is happening with 5G as well.

Currency 5 and 6, service deployment. That's how quickly you can get out the new service. Usually, this takes weeks to month for us to get the service on 4G. Let's assume you want to do a private 4G network. That will take us, I would say, a couple of months to do for certain customers. Here, the plan is to get to 90 minutes. It's a totally shift how agile we can be in doing new type of services. Energy efficiency, by optimizing the radio signals, you can actually be down as only 10% of current consumption. That is the currency you can actually do business on.

And the last 2 ones are, of course, the reliability, even higher than 4G. We're talking about 99.99%, which is 1 9 more, which when it comes to uptime, it is quite a lot. And then, ultimately, the latency that we've talked a lot about, where we go from probably 100 milliseconds in a 4G network down to 1,050 milliseconds in the 5G. Huge difference on real-time transactions, real-time connectivity that you need to have, not for a smart phone may be, but for many other devices or connectivities.

These we call the 8 currencies. This is what we can get out of 5G all the time. There are coming different software jobs you can get there and you can build it.



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In the case of Verizon, we want to have all 8 of them because we have customers that can benefit of all 8 of them overtime. You might be a carrier that doesn't build all 8 of them if you only have one customer group. But the greatness of these companies, we have all that distribution to all those customers that can benefit from this.

In order to do it, you need to have these type of things. You need a lot of fiber. You need fiber into all the base stations because it's a lot of data coming through here. You need spectrum and in certain cases, you have to have millimeter wave spectrum because if you don't have a chunk like this, you cannot get the throughput and you cannot get the latency. Just to be clear on that. And that's why, our holding in millimeter wave is important.

You also need a software-defined network. You need a virtualized network and all of that, which we have been working on for years and is part of the Intelligent Edge Network. And ultimately, you need a multi-access edge compute met. That is a small data center that can give certain things like latency enormous throughput. Verizon are building all of these. And Kyle will come back and talk a little deeper what we're doing in there.

This is needed to do all the 8 currencies. We have onto this for years. It's not like we started now. And that's why, it's so important the things that we're doing in the network because it's enabling growth that haven't seen or had before.

So what is then the multi-use case of the same technology and the same radio base station? It's not different networks right now. It's one network and one technology that we're rebuilding. Number one, is a defense strategy. We're #1 on wireless today and 5G mobility. We need to defend that one and Ronan will talk more about that. That's super important.

We have an extend strategy, that's fixed wires access businesses and consumers. We launched that in 4 cities last year. We'll come back when we're going to take the next step. That's an extend strategy, new market, we're not into it. The only area we're into is the Fios footprint that we have in a couple of states here in Northern U.S. So that's an extend.

Then we have a new segment, which we don't address today, that's to transform with a mobile edge compute, our customers business. In the beginning, B2B, but predominantly, could be B2B to C as well. And here, you can do it yourself. Again, I come back to the thinking, I can do connectivity, I can do platform, I can do application.

In some cases, like if it's a Verizon solution, we will do it all. In some cases, we're going to have third parties on top of it, non-software companies that are going to offer their services because they need latency, throughput or a secure connection.

Or in the third case, we can have developers developing applications on top of it, ultimately, for consumers or businesses. But again, it's not 5 different, 4 -- or 3 different, or 4 different business cases on the network. The network is the same we're building. We build the same network as a same radio base station and I was doing it. Very important to see.

And we have never seen that in any technology that we have so many business cases on one development. It's a reason why fixed wires access have never succeeded because fixed wires have always been a standalone network. And that's we have in so here.

Here we are building the same and we're using the same base station for all these cases.

So when it comes to the opportunity and launches, we're going to talk more about it. It's going to be rounded up by Matt when we're going to have the revenues as well. The fixed wires access, addressing consumers and businesses, where we personally talk to a consumer, but definitely this is a business of solutions well. Initial launch is done. We're going to relaunch with the NR 5G, which is the global standard, in the second half of '19.

The reason why it's a little bit later than mobility is because the CPs needed this other type of chipsets. That chips will be ready in the second half and then we can start doing that. The network is the same we're building. It's just that the chipsets for the CP is coming later than the chipset in the smartphone. That's why you see the 5G mobility coming in the first half of '19. And for some of you that might have been following the news



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the last 24 hours, there were some big announcements yesterday of some handsets. But I will only leave the thunder for Mr. Ronan Dunne to talk about.

So we're going to have phones coming out. We're going to launch 5G mobility in the first half of '19.

When it comes to the mobile edge, the different cases, we're going to have our first mobile edge compute centers after the end of this year because design and software is coming out. And then, it's the fourth business case that people tend to forget. Every new technology handles data better. And of course, the gigabit -- dollar per gigabit is coming down even more with 5G. Smart, the better.

And especially, if you have millimeter wave, then serve in areas is where the majority of all capacity is today. That's where a millimeter wave and the cost and economics for us is getting even better when we get that in. And that we're proving when we are discussing the sale side, meetings, how we are actually building this densification which were already done because of our spectrum positions.

This is sort of what we see the business opportunities. We will come back to it when we see the revenues impacting us. But it is a very different proposition than any previous technology. But it's based on our strength, the network, our distribution, our customer and our brand. And we have customers that can benefit for all of this, which is very different from many others.

So that leads me to a round up. I think the core business is in a strong moment. We're executing on that and that's very important for us. Don't look to march to the future, we have today, we have '19 to execute on, but we need to create the future that's what we're doing with Verizon 2.0. And all the transformation, creating flexibility and changing the company and we're preparing for the 5G. We're going to have the launches of this year, basically, of all the different 5G use cases. And we stand on a solid ground on financials and we'll continue to be prudent on the financials. We will be continuing to drive for cost efficiencies. That's a great opportunity for us to create flexibility.

That was my presentation. I will now pass it on to Rima Qureshi, our Head of Strategy and Partnerships, and she will talk a little bit more about it. Thank you, Rima.

Rima Qureshi - Verizon Communications Inc. - EVP & Chief Strategy Officer

Good morning. All right. So let's talk a little bit more in detail about strategy. And I want to start by giving you a little bit more information on what we are seeing in terms of drivers and enablers to be able to execute on the strategy that Hans laid out, and go into a little bit more detail on what we are doing.

So if you look in the planning horizon that we are looking at, we see strong growth opportunities and it's made up of 3 growth drivers. And this is, at this point, U.S. data, and more on the consumer side. We don't believe that all of the business opportunities are reflected in this data, and we're going to tell you a little bit more about those opportunities later in the day. And of course, we are continuing to work on how we see this market expansion.

So there are 3 growth drivers that are leading to the growth that you see there. First of all, enhanced mobility. We basically see the continuing shift from fixed to mobile, and we're seeing more and more where the mobile broadband and mobile overall is the prevailing technology, and basically that there is no other solution that you basically using the broadband -- the mobile broadband as your main solution.

Of course, everything is continuing to be connected. Not just people, but things. And there is the continued sensorization that we see across the industry. And of course, we take for granted, all of the services that we have on our phones, and we want those services and capability to be available everywhere. So it's the cloud capabilities that we all take for granted, but ubiquitous use of those capabilities across.

So that's where we see the growth from the perspective of the next 5 years.



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The other thing to point out, Hans talked to you about what we're going to be launching later this year. I would point out where we begin to see the growth in terms of 5G subscribers. So we're beginning to see that those subscribers are coming on board in 2020, and then it grows from there. So of course, it is the base cases that Hans showed as well as the extend cases and the new opportunities that we see on 5G.

And then, there are the trends. So think back to the slide that Hans showed you what the 8 currencies, and all of the capabilities that 5G will provide, and the enablers that we are beginning to see and the trends we see within the industry.

So first of all, everything is going digital. Everything is going to the Edge. More and more, you want to get closer to where the application is so you can provide the best capabilities for the application in question. Immersive experiences and augmented reality and virtual reality is becoming more standard and accepted. Everything that is going digital is also becoming more intelligent. So you have autonomous things that are becoming more and more intelligent, whether it be drones or whether it be cars that are connected or becoming more autonomous, they all have more and more intelligence.

And of course, the artificial intelligence capabilities that are becoming prevalent are becoming embedded in everything. And we need everything to be connected. We want a ubiquitous, uninterrupted and unified experience everywhere we are. That requires connectivity everywhere we are. And of course, if we look in the home, it's not only the connection to the home, but it's everything within the home that needs to be part of an ecosystem and to be connected.

So all of those things are the reasons why we see the growth that I showed you on the previous page and the opportunities that we see with 5G.

And at the foundation of this, we're hearing a lot more about privacy, the importance of data, the importance of working with businesses that are responsible and thinking about responsible business practices. We believe all of these trends position Verizon extremely well for the opportunities ahead.

So Hans talked to you about the principles of our strategy, continued network leadership, we are the best, we continue to be the best, and we will be the best in the network. We have our customer-driven models. We are much more focused now on a go-to-market that addresses the needs of the specific segments that we are working with. We have our trusted brand that becomes even more crucial in a world where we are very careful as consumers who want to do business with as well as on the business side. And of course, our continued financial discipline.

So he gave you the 5G example of the strategy. So the defend, which is mobility; the extend, which is fixed wireless access; and the new business opportunities with MEC. That approach applies to everything that we have within our portfolio and that is the way that we are looking at our strategy. So what are the main businesses across the portfolio of Verizon that we need to defend? And what are the ones that we want to extend? And the ones that we want to develop new opportunities?

So to enable this -- to enable the execution of our strategy, we will maximize our assets, our existing assets, and they are quite broad. And we will, where it makes sense, look at partnerships. And I will come back to the importance of partnerships and the overall ecosystem.

Strategic investments as well as, where it makes sense, bolt-on and tuck-in M&A. And all of this is on the foundation of our continued network strength, our strong customer base, our technology leadership, our brand and our overall scale, and that is within the U.S. market as well as overall within the international market as well. All of this together creates an ecosystem. So what do I mean by an ecosystem? And again, well let's use the example that we talked about.

We are not going to be the provider of solutions in every single domain. We are looking at where we have truly the competitive advantage and the right to win. And in those cases, we are looking at where it makes sense for us to go completely vertical up the stack as we saw in the 5G example, and where we will provide complete end-to-end solutions.

In other cases, maybe we will provide a developer platform because we believe that we want to enable the best to work with the best. Meaning, the best network, with the best capabilities to be able to deliver what the customers want.



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And in other cases, we want to be a player within the industry, and we will provide the capabilities whether it be connectivity. And this is going to be done case by case, business by business, product by product, looking at where it makes sense and which way we want to play.

All of this together creates the ecosystem and the approach that we want to take. We want to enable the ecosystem, we want to enable the overall development of the ecosystem, whether it be in 5G or in other businesses, and we want to ensure that we look at playing, specifically, where we believe we have the right to win and where we will win.

So looking forward what we see is strong market drivers. We have a very focused strategy where we are looking at all of our businesses and where we need to defend the position that we have, where we believe we can extend into adjacent businesses, and where we see opportunities to develop new revenues. And then of course, our approach and our strategy is an ecosystem strategy.

We believe we have assets that are truly the best, and we believe that we will partner and provide the best solutions overall within the industry to consumers, to businesses and to media. Thank you.

Kyle Malady - Verizon Communications Inc. - EVP & CTO

Thank you, thank you. Good morning.

I'm pretty excited listening to Hans because he is talking about 8 currencies. And in my job, that's a big deal, and so I'm excited to talk to you guys this morning.

My name is Kyle Malady. I am the Executive Vice President of Global Networks and Technology, and in this capacity, I -- my team and I, we design and build and engineer our networks, take care of them as well as define our technology roadmaps, product roadmaps, product development and our IT solutions.

So with that, let's just kick into it. So Hans and Rima spoke a little bit about Verizon 2.0. And for us, the way we look at this is really a way to go to market and serve our customers better. So historically, what we've done is, we've provided technology stacks for the separate business units. And so we've engineers doing similar work, but differently, depending on what business units they were in. And not only did we design and build networks differently, the technology stacks or the IT stacks were different as well. And that worked really well for a long period of time because we were able to optimize and focus on whether it be wireless, whether it be enterprise, whether it be wireline, and it served us really well. But in Verizon 2.0, as Hans mentioned earlier, we're going to horizontalize our networks, all right? And we think this really good because we'll have a new philosophy and a new engineering philosophy of, we'll build it once and use it many. And we think we'll be able to drive a lot of cost efficiencies as a result of that. We'll be able to accelerate new products, new technologies quicker, and we'll be able to simplify our operations and use new technology to really make it easier to manage our networks.

Now we think as Verizon 2.0 really as a technology-led transformation, however. So if you think about when we did the Vodafone deal a handful of years ago, I don't ago remember how long ago that was, but a handful of years ago, we could have simply taken some functions and put them together. For instance, we have network operations centers in wireless, we have network operation centers in wireline, we could have just put them together on a piece of paper, said we did a reorg and it's great. But that, frankly, would've been not very meaningful. Because when you have the technology stacks that are so different, you're not really going to gain any synergy out of that. So what we decided to do instead of that was, let's think about our technology, let's think about the technology that's coming, let's think about the way we want our networks to run, and how do we put all these things together, and how do we go out into the world and work with our partner vendors to figure out where we want to be. And where we want to be is what we call the Intelligent Edge Network. And it's a multipurpose network, right? I can't stress that enough. It's we're building elements that will be able to -- be utilized throughout all of the different business units, and it will horizontalize our structure, make us more efficient and really operate on a much better scale than we are today. Now there's a couple of key components in iEN that I'll get to in a moment. But one key thing that I want to point out here too is, we're using -- we're going to be doing a lot of virtualization in this iEN network, and we're really happy to be working with our Oath and our media group, Verizon Media Group, and the assets that we acquired over time to build that group. There's a lot of great web scale talent in that team, and I'm happy to be working with Guru's team, so we can even get better as we move forward.



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So now a couple of things that are important in the Intelligent Edge Network that we're actually deploying today and you'll be hearing more about as we go through 2019 and 2020. First is our CRAN architecture. This stands for centralized RAN. And really it's a design that centralizes the cell-site controllers and base band units into common hubs. And we call those CRAN hubs, as you would imagine. And really what those do is, those hubs connect to small cells and our radios out in the network. What that allows us to do is get a pooling effect and be able to run our network in lot more efficient means. The next term you hear a lot about is Next Gen PON 2. This is our evolution, our natural evolution of the PON technology we used in files for years. Now Next Gen PON 2 will be deploying nationwide, wherever we deploy fiber assets. And it's kind of -- it's evolution -- it's an evolution, but what it does is it gives like 10 to 20x more speed, latency benefits as well as automation benefits that we're going to bring to the table, and we can use this in all of our network to service all of our business units.

The next 2 things are important, and we've been working on these for many years. Unified transport, really how we think about this. These are boxes that allow us to bring legacy services along with the brand-new services that are out there today in one box.

So instead of having hundreds or thousands of boxes in our network that are specifically built to do a specific technology and do a specific function for a customer, we've been able to build a platform that can take legacy and new and put it into one which gives us a lot more cost efficiencies and simplifications again.

Then finally in the same vein is multi service edge. So just like we're doing with transport, we'll be able to do in the IP layer. So right now, we've proliferated a lot of routers into our network to do various functions and that's expensive way to do it. And it has worked until now, but we have a better way going forward. We've created these. We've worked with our partners. We have IPR in this, by the way, where we've created these multi-service edge boxes that can handle all of the key functions that we need to do going forward.

So on this one, we'll be able to take thousands and thousands of routers out of the network, thereby lowering our cost and improving reliability and efficiencies.

So all of this will be managed out of the system using virtualized and automated techniques that are now cutting-edge technology.

Now, while we're in the early days of the iEN deployment and we've been able to leverage it, there's other initiatives that we've also taken under so we can drive our cost down. As you can see, we've been making great progress on driving our cost -- our unit cost down for capacity year-over-year and we expect that trend to continue going forward, not only because of iEN, but because a lot of the process improvements we're doing under the transformation that Hans talked about, really getting -- managing our partners and our vendors, working on contracts, and really just really focusing on being more efficient. And you're going to see this continue going forward and iEN really helps with that.

But while we're happy that we've been able to drive down our costs, what's really important to note is that, I think, we've not only become more efficient, I think, we've become more effective. All right? And I think, you can say that because of the data that we have around our best networks.

So a couple of years ago, there was a lot of conjecture that we -- if we went to unlimited, we might not be able to keep up with the usage that our customers would demand of our network. And I can say that, you see the growth curves on the left here, we've been able to do that, we have been able to keep up with that growth. And not only have we kept up with it, we've increased our -- quality of our network. And that comes through on some of these third-party tests that you all see, you see some of the names up here.

And as recently as last week, in the RootMetrics study, we won in all 6 categories for the 11th time in a row. And I think, we even widened our lead a little bit.

And in some of these other reports, we've also -- there's also proof that we've increased our lead in terms of network capability and performance. So that's always a focus of ours. That's kind of what we do. That is the brand promise to have great networks, and we'll continue to focus on that in '19 and going forward.

So part of maintaining the Best Network is always keeping up with the capacity demands. Like I talked about before, there was concern about Unlimited and what will it do because if people migrated quickly, it might put an undue burden on our network that we can't deal with.



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But there's 3 tools, and I want to leave you guys with this thought. There's 3 levers that we have to manage capacity. They've been the 3 levers since like the day 1 of wireless. While I'm new to this role, I'm not new to this game. I've been here for a long, long time. These are the 3 levers that you have. And if something happens with physics, maybe that will be a fourth, but I don't know what that is at this point.

So anyways, we take these 3: technology, spectrum and densification. And our engineers use these 3 tools in context with what's going on in their local market on a daily basis to trend out what's going to happen, and they use the optimal version of all 3 of these things, both financially and from an operations perspective to manage what capacity they think that is going to come into our network.

Now one -- I guess, one example of this would be on the technology side is using CRAN. So that's a brand new technology that we've been working on that's going to allow us to drive a lot more capacity at a better cost into locales where we deploy that technology.

Now another area in technology that I would like to point out is LTE Advanced. We've been deploying LTE Advanced capabilities and features into our network over the last couple -- well, a year, frankly. And when I think about LTE Advanced features, I think about 4x4 MIMO, 256-QAM on the downlink, and carrier aggregation, either 2-channel or more. And our customers are enjoying this benefit today in over 1,500 municipalities throughout the United States over half our network.

Other people brand this capability 5G or 5 something, but we don't. Our customers are getting that on their handsets they get today, and it will give them greater speeds and increased capacity and increased performance.

The other thing I'll bring up here is LAA. We continue to work on -- this is a combination of technology, I think, and spectrum, where we'll be able to utilize 5 gigahertz unlicensed spectrum to further enhance our capacity and give our customers more capabilities.

Hans spent time on this, talking about 5G. The 4 key things, deep fiber in your networks, millimeter wave spectrum, virtualized and software-defined networks, and multi-edge compute. Now what we're doing in these 4 areas?

Well, let's start with deep fiber. We've talked to guys about this in the past. We've been at this for a couple of years now. We have construction underway in over 60 markets throughout the United States outside of our ILEC footprint. At the end of the year, we're going to have over 25,000 miles of fiber in the ground as a result of this program. And what I say, it will in the ground, it will be aerial too. But we'll have 25,000 miles deployed. And this is going to be the basis for our continued growth.

Now what do we do with this? Well, the first thing is, it allows us to densify our 4G network. So there's great benefit is that. That's where we're utilizing it a lot for right now. While also deployed our 5G small cells as we move forward to. It also gives us some cost reduction opportunities. So in areas where we rent last mile facilities from other ILECs or other Dark Fiber providers, we'll be able to roll those services that we're paying cash for onto our own -- onto this network, onto this platform, thereby, improving our cash situation.

So the next part is growth opportunities. As we roll out this platform, we roll out fiber, it gives us an opportunity to market new products and services. It will give us new fiber, new currencies and things that the BU leaders will be able to sell as we roll out into these new markets. And then, obviously, above that, it just leads to efficiencies. Strategically, we'll be able to offer new products and services, and will be able to, once again, build it once and use it many, many times. That's what we're looking for.

Back in the old days, the silo approach that I spoke about, you could walk around New York City, you could see a Fios technician putting in fiber for Fios, and you can go 2 streets over, and you'd see a Verizon enterprise person putting in fiber for their need. And that was all optimized for that business unit, but probably not the best way to do for firm value. So that's what we're changing and that's what we're moving to now.

The next part of our story here for the network is spectrum. Obviously, spectrum is a critical asset. We're very happy with millimeter wave. We've been testing it, working on it for the last couple of years. We're learning a lot from our deployments in the field and it's the real deal. It's really the spectrum that is going to allow us to really, really unlock the full capabilities of what 5G can do. So what I'm just showing here is, right now, we cover roughly 332 million POPs in the United States with our current 4G deployments. Over time, we'll be using -- we'll be deploying millimeter wave. That will be our initial launch into 5G. Over -- and we'll continue to build out our millimeter wave infrastructure, but we'll also bring new



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technologies to bear that will increase the penetration of 5G coverage and will also be refarming our spectrum that we currently hold and also make that 5G.

So sometime in the future, all of our spectrum will be running 5G. Now a question I get a lot is about households covered with this technology. So if -- and the number was 30 million. If I look at that from an engineering perspective, the question kind of becomes almost an academic exercise. Because if I went and if I modeled it out based on what we're doing with our TF technology and current generation of 5G, I would say, I could get to 30 million homes in 5 to 8 years. But the fact of the matter is, as you really pragmatically engineer this, because we're building a multi-use network, because we have a lot of new technologies coming, and because frankly you may want to position 5G fixed wireless access differently in different markets, it's hard for me to give a specific number on where we're going to be at some period of time.

For instance, right now, we're marketing in our 4 test areas 300 minimum -- 300 megabits minimum. We're finding a lot of customers, they don't even want that much, they will live with a 100. If you look at the average speeds around the country, it's far less than a 100. So if I went into a market place and I marketed for -- at a 100, I get a lot more households covered.

On the flip side of that, if we went into a really competitive marketplace where the floor is 750 megabytes or 1 gig, that would result in my coverage being a little lower. So I think the fact is, it's going to be -- we're going to focus on our capabilities, where we invest money, what's going to be the best return on investment, and that's what you're going to be hearing from us going forward, not necessarily trying to chase some household number.

Now let's finish with multi-edge compute. We've been working on this for the last couple of quarters. Really all this is, this is a simple concept, frankly. It's just taking the compute that happens in the public cloud and moving it closer and closer to the Edge, to the point that you have the compute sitting in the CRAN hubs that we talked about earlier. Now why is that important? Because it really unleashes the currencies that Hans spoke about. And we've done a lot of testing, proof of concepts, with a lot software providers and application providers on this concept. And the performance that you can get by doing your application on this kind of network is incredible. It's going to open up a whole new world of applications that we haven't even dreamed of yet.

So we're really excited by this. We will have our first implementations of it at the end of the year and more to come there.

So in sum, I'd just like to say, we're going to keep doing what we do. We build the best networks. We're going to -- that's what we focus on every day. And we build the best networks while making sure we have capital efficiencies. We're going to keep driving this network and service model to drive new business opportunities across the business groups and really 5G every day getting that in because we think that will give us a strong position for the future and really be able to change the game and how people use wireless technology.

So I appreciate your time today.

Guru Gowrappan - *Verizon Communications Inc. - CEO, Verizon Media Group*

Thanks. Hi. How is everybody? Good. Still morning. Feel it.

I've been here in this role now, running Verizon Media Group about 4 months, and there has been 3 big priorities that we've been focused on when you think about Verizon Media Group.

First has been around getting a core strategy aligned and also having good short-term and long-term execution priorities. Two, is taking that and showing some early wins that can stick, but also focus on innovation when you think about 5G and other things. And then three, I would say, which I'm glad to mention to everybody here today, that our integration within Verizon ecosystem is complete.

So that's been our 3 focus areas. So when you look at that, take it to what has happened because of that, we're seeing progress. Many progress that's happening mainly on mobile, and when you think about the digital on the advertising business side on the native ads, we're seeing growth happening there.



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That being said, there's a lot of focus on stemming or desktop decline as well. So there's a lot more work to be done, but that's how the focus is happening.

When you think about the Verizon Media Group ecosystem, I call it, it's a coin with 2 sides. The first one, you heard from Hans about our focus on customers. So if you take us, we are focused on building a super kind of customer-focused media ecosystem. What does that mean? We call it, if you see here, you see about 6 supers. We call them supers, which is our home, things like Yahoo! and AOL, including the apps and mobile and web. And then you have mail or coms, sports, news, entertainment. So you got and then finance, of course. So that's what we call our customer-facing products or we call them as supers.

And what do they do? They create good supply. So you can monetize them or you can go and have a subscription model on them. But the biggest difference here on our strategy being focused on going deeper, which means doing video, doing more deeper experiences. We announced yesterday a new product, called Yahoo Play, which is more experiential product. And then, we're also doing more subscription product with TechCrunch as an example. We launched Extra Crunch, which is the premium version of TechCrunch.

Now when you take all of that, the other side of the coin is how do you monetize it? So there is a lot of focus on the ad platforms, the current asset that we have and how do we strengthen it to build a better monetization. So one of the big things for monetization is you need good supply.

So when you do the first side of the coin really well, you get good supply, you monetize better. And when we think about our monetization strategy, the 3 things that matter a lot: one, we have a very diverse set of data. We're actually the second largest digital media ecosystem in terms of data -- diverse data we have; two, we give you access to multi-channel. So this goes from search, e-mail, all the media assets, display, video, native, you name it. So you get the entire ecosystem. Actually, it's very diverse and it gives you multiple permutation and combination; and three, which is the most important, we give you the most brand-safe environment as an advertiser when you come into the ecosystem.

So that is how the 2 sides of the coin work when you think about customers and then how the advertising side works.

Now we talk a lot about 5G. Hans mentioned about the 8 currencies. One of the biggest industries and segments that benefits a lot from these 8 currencies is the media ecosystem. So having a front-row seat on working on that, we've been focused on innovating on it. I'll give you a couple of examples: one, when you think about speed and throughput, you'll hear from Ronan later about 5G Home, where one of the things that's happening is a lot of nonlinear content. And when you look at what we're doing on the media side, the 5G world only helps us when we think about deeper content that we're building and more experiential around it. When you think about device density and reducing latency, now take that to your stadium experience, you're watching sports or you're playing fantasy sports, a lot of that when you start bringing in lot more engagement when you do that. And what excites me the most is the future of Yahoo Newsroom in the 5G world. So that's been our focus there in terms of strategy.

So now that I've spoken a little bit about what we've been doing, the second thing that I mentioned is focusing on some of the wins that we can get. So I want to show you a quick video of the products that we've launched, what is live today and things that have happened over the last few months. So let's now play the video.

(presentation)

So let's see if the slides come back up.

Okay. So I'll call out a few things. I hope everyone here is using Yahoo Finance. Or we'll make sure before you leave, you get the app downloaded. But it's an important call out. You saw -- I talked about finance. One of the things that we've done on finance, we have now 8 hours of live bell-to-bell coverage. And we're seeing that improve our engagement, the number of downloads go up on the mobile, but also, we are mapping that to a Yahoo Finance premium product, which is now an invite-only data, where again, we are giving retail investors more research in terms of content, more proprietary data and tools to be able to trade or understand what's happening in the market.

So that's one example on Yahoo Finance.

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The second one on the ad platforms, Native is the new extension when you think about the display ad market. And we're really focused on growing that. That's one product that's grown for us double-digits year-on-year, and we have today -- we are actually the second largest native ad marketplace when you think about the U.S. And what we're seeing now, about 40% of our Native ad marketplace in terms of revenues all about the new formats and new immersive experiences that you can have in advertising when you think about AR/VR, we talk about RYOT.

So what does that mean? Even in the 5G world, that only gets better as we start innovating on that.

The third thing here is on partnerships. We are -- when you think about the supers, that I defined earlier, that's called owned and operated. That's our core assets. But everything we do on owned and operated, we also want to take it to the partners and extend it outside. So we recently have been working, of course, we've announced this, the work we've been doing with Microsoft, Samsung and Amazon. Microsoft, of course, we extended our search and the display deal, which was existing, we extended that. But we also added an incremental deal on the native ad marketplace, which gives us 20% more in terms of supply in our marketplace.

The other thing I would call out is Samsung. You heard from Rima about how we think about Verizon holistically as an ecosystem. So you also heard from -- you probably saw the announcements when you think about Samsung as being a partner, not just what we do on the overall Verizon side. When you think media group, we take our ad ecosystem and have partner with Samsung now, we're in 14 markets with them on the native ad marketplace.

So that's how we approach partnership to make it much more scalable to have a bigger leverage as we scale up.

So taking all that, when you think about looking forward, look, we're playing offense. We have a strategy. We are focused on executing on that very, very prioritized. But first and foremost, comes to supply, which is really focusing on that customer-centric ecosystem, building that 6 supers, going deeper, building that engagement. Taking that, when you think about 2.0, is building the next generation of the ad platform, which monetizes the supply much better. And of course, 5G, which is core to the entire ecosystem, taking advantage of that and building that. Thank you.

Tami Erwin - Verizon Communications Inc. - EVP & President, Verizon Wireline

Okay. Guru, thank you very much. And he might be the newest member of the team, but he is clearly very knowledgeable about our media space, and it's really fun to see those assets come together as we think about the future of Verizon.

I may be the longest-tenured Verizon team member on the team, but I can tell you, I've never been more excited about the opportunity that sits in front of us and really delighted to be able to lead our Verizon Business Group.

When we look at the assets that we have to bring to bear in the marketplace, and you heard Kyle as well as Hans talk about the technology transformation that we're undergoing, we're seeing our own customers go through that same kind of technology transformation. And while I've been in this role about 6, may be 7 weeks, I've had an opportunity to run very large businesses as the Chief Operating Officer for Verizon Wireless and I'm seeing as I'm now doing and listening to with our business customers that they are going through and attempting to go through the same kind of transformation journey that we're on as a business.

Every business is talking about the importance of transforming their overall ecosystem to enable them to participate in the digital age and the digital era. And they say to me when I talk with them, Verizon holds a core to helping them make that happen. And so you can see that as we begin the pivot in the technology transformation, we're also really defining the transformation around customer requirements. And I'll talk about those requirements from a customer standpoint because I love that we're going to be customer-centric on how we approach the technology transformation because we are transforming to enable our customers to do more than they've ever done before.

Let me take a minute and just talk about our wireline businesses because as we bring together both our wireline and wireless assets to serve our business customers differently, I do want to acknowledge as we think about our wireline business that we faced some headwinds in this space. There are clearly secular headwinds as we think about the traditional wireline business. But what we've seen over the last couple of years as we think about this space is a nice advancement in some of the strategic products and services that we're bringing to bring to market.



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If you think about our Fios business, a very healthy business, where we have seen consecutive year-over-year growth for the last 4 years, in Internet growth as we've grown both our business and our consumer Internet growth and introduced gigabits speeds into the marketplace, as customers are moving up in their demands and requirements for speed.

As we think about advanced communications, whether you think about unified communications or you think about digital call centers, we're beginning to change the way manufacturing is done, retail, healthcare and financial services as we introduce advanced communications.

As we begin to look at the virtual network services, and Kyle began to touch on this, tremendous opportunity for us on software-defined networks as we think about businesses really creating and introducing simplicity and capability in their business, along with our secure cloud interconnect capability, we are seeing really double-digit growth in this category around VNS as customers begin to lay the foundation for their digital transformation.

And then finally, One Fiber, this is an area where Kyle went deep in terms of some of the benefits that we're enabling in terms of densification of our wireless network. He talked about network grooming and reducing the cost to serve our enterprise customers, but there is also the benefit of improving the performance of the network we deliver to our enterprise customers by building it ourselves and delivering the best world-class performance. And then there's also the ability for us to expand into markets where we have never played before on the small business space, enabling us to take advantage of fiber and introducing new services in the market place that will matter to customers.

As the other thing that I have had a chance as I talk to customers is, there has been a common theme, "help me transform my business and know me as a customer." When we think about the business segment, we've introduced 4 subsegments, starting with small business or small to medium-size business, tremendous growth in the small business space and they have a different set of requirements than the other customers do and yet we have an incredibly powerful distribution.

You heard Rima talk about the importance of distribution. You saw it on Hans' slide. We have a well-defined, I would argue, one of the best distribution teams in the industry here in the U.S. We'll take full advantage of that as we build out our small and medium-size business to continue to drive growth there.

As I think about our enterprise business, 100% to the top-200 -- Fortune 200 businesses do business with us today, and 98% of the top-500 businesses do business with us. And yet they want to do more as we begin to introduce 5G.

And then in the public space, this is a very wide space as we think about cities, the challenges that the cities face today, smart cities as we begin to unlock the power of 5G, the ability for us to show up on behalf of the state and local governments and then the federal government. We have long been a preferred partner for all of those players in public safety and first responders and how we show up, and we continue to -- we intend to continue to do that.

Let me talk about how we think about the network stack, and you heard Kyle talk about this. You heard Rima talk about how do we defend and then how do we extend into and play in new spaces that we've not played before. The core products, our connectivity sits at the bottom of the stack for customers. They expect reliability, they expect performance, and they expect availability of network connectivity.

So whether it's our 4G network or 4G LTE advanced network that Kyle talked about, whether it's the wireline business that we have and the build and the extension of fiber, that connectivity sits at the base of what we deliver to customers and yet we know that we have an opportunity to move up that stack, both in terms of how do we drive and develop new revenues in this space, and how do we deliver solutions that customers expect from Verizon. So whether it's moving up the stack into some of the virtualized network services we talked about, delivering security capability, which customers expect, UCC and advanced communications, we're moving up that stack and providing a different set of solutions and services that customers expect.

We also are hearing from customers that they want and need our help in managed services. You begin to think about moving connectivity, moving up the stack, and then really enabling them to transform their business to be really effective in a digital era. But the real fun begins when we start



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to talk about 5G because that's where every business customer today begins to really get interested in how we change the game for them, whether it's how we enable their business or it's about how we help them think about the B2B to C and enabling that potential and that capability.

I'm going to briefly touch on MEC, and you'll have an opportunity this afternoon in some of the breakout sessions to go deeper on really understanding how do we think about real-time enterprise because Kyle described in great detail the MEC and what that means in terms of the technical infrastructure.

We are beginning now to really go deep in testing and innovating with partners to understand what we do with real-time enterprise and the power of the information that becomes available to enterprises that changes the business, whether you're thinking about health care and how we show up on behalf of the patient-doctor relationship, whether that's in the room or around the world; how we shop in retail to be very customer-centric and work with our partners there; the ability to change transportation space that we know well today because of our telematics business; you begin to think about smart cities and the capability that we enable with the type of power that we get from RTE in the space of transportation and supply chain; and then finally, manufacturing, when you think about robotics, the ability to reduce errors, produce increased production lines, et cetera, incredible power that our team will enable and allow.

As we think about some of the things that we're testing, we begin to look at the power of multiaccess edge compute and the intelligence that, that brings. AR/VR, which we've just begun to scratch the surface on, the businesses are beginning to find really use applications for. And then the massive sensorization that Hans talked about in terms of the ability to really change and have the kind of density of sensorization that we've not yet imagined in a 5G ecosystem. It allows us to work with our partners and our customers to really develop these test cases. And while we're talking about revenues that are sizeable revenues in the space of 2022 and beyond, what you need to know is that we're working with customers today to test these use cases already. We have them in our labs. We're working with partners who really say how do we enable this capability, prove the use cases, respond to customer requirements to manage their business differently in a digital ecosystem. And the funnel is full of use cases as customers are saying let me and help me use the power of 5G and RTE to really change my business.

So in closing, I would tell you I'm incredibly excited about the direction of travel, not only because of the technical transformation that we're making in our business but because it is customer-centric and it is customer-centered. We have the ability to be a partner to businesses like we have never imagined before. And as we do our own transformation, we're helping businesses transform as well. We're doing that with the power of not only the networks we have today but we're doing it with the power of knowing that the 5G network will be a game-changer for customers. As we think about it, it allows us to really shed some of the headwinds that we face right now and begin to imagine the revenues and the growth that comes in a 5G world.

I thank you for being here today. I hope you can hear from our team how excited we are about transforming not just for technology but transforming for the customer as well.

Ronan, I will turn it to you.

Ronan Dunne - Verizon Communications Inc. - EVP & Group President of Verizon Wireless

Good morning, everybody, delighted to be here. You've heard a ton of stuff already this morning, a lot of it very, very exciting, but this is the real exciting part. This is the show-me-the-money slot. You know what? The wireless business is the 800-pound gorilla. So I want to make sure that you know how we're going to roar in 4G and then thrive in 5G. So here we go.

We've got a business that has regained its momentum. You will have seen since the time where we introduced the unlimited, we've seen progress '17, '18, and built a real cadence and momentum that has delivered a return to service revenue growth, the ultimate metric for all of us. And positioning for me is that as we look at the situation in 2019, I see the strength of my own core business and the momentum we have, and I see the context to the market place. And I'm very confident that the trends that we're seeing inside our business and what we're seeing in the marketplace creates a very nice market environment for continued growth. And really, what I want to focus on is how do we make sure that in that environment, we optimize our ability to capture more than our fair share of the growth that's out there.



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And while a lot of what I will talk about in due course is about the opportunities that 5G will deliver to us, the truth is I have a ton of opportunity in 4G already, and I have product and services that our customers love and engage with.

So let me start on the approach that we take to that is. We have a very well developed structured approach to the way we access the market, and it's all based around our award-winning network. Kyle already talked about the fact that in an unlimited world, not only is our network performing, it's got better, we've optimized the experience for our customers, and customers are absolutely loving it. So our platform idea is that network is a platform. And then the key there is there's scale in the network. So how do we leverage that scale? Well, the opportunity is to use that scale to then forensically target the broadest range of connectivity opportunity that's out there. And the approach that we take is effectively to identify 4 broad market segment opportunities: our branded business, which is the consumer premium business; access to that segment in wholesale, actually slightly at the lower end of that premium segment, where a lot of that revenue comes from; then the value segment or hybrid segment, which is kind of that bridge between the prepaid market and some of it coming into that kind of monthly BYOD market, where we have both relationships in wholesale but also now coming out of its beta phase of visible online-only offering, which is allowing us to target a discrete segment, Millennial there; and of course, in the same branded way, our premium segment for business. So that gives us the broadest range of opportunity against the scale opportunity that we have and the scale advantage we have with the best network.

So how do we go about that? So I'll focus here on the approach that we take within our branded business. And we effectively have a three-pronged approach here built around the value proposition, customer-based management and device and products. And really, when I talk about value proposition, it's ensuring that we have the widest possible reach and relevance in the target branded segment.

Then base management is ensuring we're engaging with the core of our customer base, that more than 100 million consumers that we have there, that's the revenue generator inside the base so engagement with that. Its loyalty, engagement in the category allows us to reinforce the Verizon value proposition and get the greatest loyalty. And of course, the way we expand the portfolio of products and services allows us to expand that core offering, increase people's engagement and broaden our share of wallet.

So let me just take a minute to talk about how we execute within each of those. Right at the front is a brilliant network. That is our single biggest competitive advantage. And that gets even better in a 5G world as we deliver 5G ultra-wideband. What you've seen us do though is that we take a much more targeted approach. There isn't just one size of unlimited, we started with one plan, then we brought it into prepaid, then we brought it into business, then we started to evolve the offering there. So what we're doing is we're segmenting in the market so we're creating more choice, more personalization and more differentiation.

What that allows us to do is grow our new accounts and grow our win share. But what it also does is it helps in our base management because what we're actually able to do is we're actually able to compete not just simply on a one-size-fits-all but whether it'd be geo-targeting, whether it'd be segment targeting, we can, where it's appropriate, targeted repricing within the base. We can look at individual segments, an example is the over 55. So we have a very strong market share in it. But actually in a market like Florida, I'm underrepresented, so I can go on the offense in that market, and I can go on the defense in other markets and use my CRM tools. So that allows us to evolve the offering. Loyalty is so important, and that's why you've seen us evolve and invest in our Verizon Up program. It's recognized everywhere as the loyal Verizon customer and rewarded within Verizon Up. That is allowing us to mitigate churn and continue to deliver the best-in-class churn.

It's also allowing us to step up. Some of you will have heard me say before, less than 50% of my customers are on an unlimited plan. A great opportunity to engage them in. There's more you can do in the category. And that -- be it peace of mind, be it expanded use cases, be it the fact that I have more connected devices, and that allows us then with our devices and product to expand our share of wallet, to expand our ARPA and, actually, build out the category even further. So those 3 things coming together in our 4G business means that not only are we defending that situation but we can actually grow our engagement in the category, grow our share of wallet, and that allows us to grow our ARPA.

So when I take that strategy and I look at 5G, so I got a core level of growth and opportunity there, but it also positions us really well. Kyle and Hans and others have talked about the multiple currencies. Well, the approach we're taking in 4G, although it's pre those 5G currencies, it's exactly that, we're looking at segmented approach, where we're looking at individual use cases for consumers and business. And we're meeting those particular needs. We're evolving the proposition. Just think of the increased capability we have in that context in a 5G world with 8 currencies, plus deep



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analytics at scale that allows us to personalize those solutions. And the beauty is that we're building it all on a common platform because our 5G network is building out on our 4G infrastructure.

So Rima and Kyle referenced already this idea of defend, extend and new. Our defend is more than simply defend. Our defend is the first layer of growth opportunity. On top of that though, I have an extend because, actually, there are more use cases in a 5G world, even in a consumer space. So that allows me to expand the growth opportunity there. And then, of course, I've got the real extend, which is I've got the opportunity to go into markets I wasn't otherwise serving, and that's my 5G home, but also 5G office because, actually, if I'm building out fiber in dense environments because that's where the traffic is, there's a great opportunity, not only as I go into residential areas, where there's a great opportunity for me to go into businesses in those urban environments as well. So what you see is the platform in the same way as the network build for 4G is preparing us for 5G, our strategy and execution, our segmented approach is actually positioning us to be able to enjoy more than our fair share of the growth capture opportunity when we get into the 5G world.

So let me talk a little bit about that because you'll want to hear a bit about the commercialization opportunity and the implications of our 5G build and rollout. So having started with the pretty global standards in our initial commercial launch, we now have access both to -- in our standard equipment but, most importantly, we've got access to tremendous insight and learnings from what we've been doing already. That is unique. There is nobody else who has an operational 5G network out there. And the learnings mean that as we start to deploy now and build the momentum of deployment, we have much more commercial and customer insight than anybody else. And as we've reminded you already today, of course, the strategy is mobility-led. So the key thing to understand is, as I build out mobility, I'm actually fronting with that, and I'll be able to go to more than 30 commercial markets this year. And one thing that's important to say here is some people will have announced to a ton of markets, but our definition of a commercial market, there are 0 markets out there except 4 that don't buy Verizon. So when I say I'm going to a market, that doesn't mean I'm lighting up a cell, it means I'm showing up, and I'm selling 5G. It's commercial. So more than 30 markets there. And as you know, for building one single network with mobility, every one of those mobility markets becomes a 5G home or 5G office opportunity in due course. So as Hans said earlier, as the CPE comes in the second half, I have the opportunity as I build out my mobility momentum to follow behind that and open out those markets. And so you'll see me open up more 5G -- residential 5G home markets in the second half of 2019.

So we're in really good position. The best insight, customer insight, of anyone, the only customer insight of anyone, that's out there and the momentum now in our build.

So let me talk a little bit about what needs to be true for this to be successful. We know we'll build the best network. But you know what? Even the best network won't be a success on its own, it needs the best range of devices. And that's why we work very carefully with Motorola to say take a great 4G phone and allow us to bring the benefits of 5G quickly to the market. And so the 5G moto mod is our first offering in that space.

Well, when a market opens up like this, what you tend to have is you got that first 12, 18 months where everybody is saying, oh, I'll prove the technology works. I'll give you a big flat phone. I'll give you one that works. 2 hours battery life. It's 4-feet wide, it's whatever else. But look it works. Well, guess what? We're going to kill all of that. We're going to go straight to reality.

So I don't know what the rest of you guys were doing yesterday, probably digging out the snow here on the East Coast. But a few of us went to a launch party. Now I'll tell you, being in this industry for 18 years, and I've only gone to 3 launch parties. Some people would turn up with the opening of an envelope, but I'm very, very fussy about where I show up. We went yesterday. And we went on your behalf. And I brought some pictures back, actually some good photos, actually, I think, Hans was on screen. Let me see if I can bring this up, see if you can see it. So this is Hans in our store yesterday, supporting 5G. Oh, did I mention, actually sorry -- this is the world's first high-end 5G smartphone. This is it. This is what we launched yesterday. All of us were around when 3G was launched, when 4G was launched. Did you ever see one that was slimmer, better than the previous generation, better screens, better everything? We, I reckon, are 18 months ahead in the adoption phase in the space of devices. We're going straight to best-in-class. That is a hugely important consideration when you think about the adoption curve. So that's why we spent some time on the West Coast yesterday, hugely excited.

So the team will spend a bit more time and talk about what else is on the road map later. But I just wanted to give you that opportunity to see that, actually, the best network deserves the best devices. And they're coming to a Verizon store near you.



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Okay, so let me just wrap this. 5G use cases, we know that the initial use cases that we just talked about in the new category are likely to be B2B-oriented. And Tami talked about a number of those. But what I would say to you is B2B very quickly becomes B2B2C, and so we will see that play out in consumer. But even in the first instance, is there a benefit for consumers in the 5G space? There absolutely is. Think about the fact that there is no capacity issue ever in a network. Even in the best network in America, there are occasions in 4G when we get some congestion. In a 5G world, no congestion. So what does that mean is you build use cases that know for certainty that you're going to have the bandwidth, multiplayer cloud real-time gaming, absolutely. The 4G use case, it's real in 5G.

New generation user-generated content. The least used thing in social media at the moment in UGC is the uplink. Why? Because you never get any bandwidth. In a 5G world, in our ultra-wideband, you'll have all the uplink you need. Guess what? When you're at the concert, it's not about sending out that photo that arrives 5 minutes after, it's about the live stream coming from there. You're right at the front of the queue. And obviously, the ability to deliver high definition stream is part of that. So we're already in the first phase. You've got some use cases that actually are going to be attractive to consumers before the new, new use cases come B2B and then, ultimately, B2B2C. So it's not just about defend, we have opportunity to grow in our defend strategy. And then we have opportunity, again, in the extend category.

So as I wrap it up, important thing for you to understand is there's a clear tested approach to the market that is delivering for Verizon Wireless. That trend will continue. And that's why I can say with real confidence that I have line of sight to continue growth in 2019.

5G just adds to the opportunity. It's an incremental growth opportunity, and it's coming to a town near you in 2019. We'll build it out, and the momentum from a revenue point of view 2020 and beyond. But the model that we're taking, both in the network build and in our go-to-market from a consumer and business point of view, means that we're best positioned to attack that opportunity. And I believe that through our reorganization in 2.0, what we're doing is we're not simply bringing 2 businesses together, we're creating the platform to exploit the best opportunity that our industry has ever seen. 5G isn't an upgrade, it's a fundamental transformation. And I think we're brilliantly positioned to lead in that transformation.

So with that, let me hand to Diego.

Diego Scotti - Verizon Communications Inc. - EVP & CMO

Thank you, good morning, my name is Diego Scotti. I lead the marketing function of Verizon. And we wanted to wrap this section up with a point about our marketing efforts and our brand in support of these business strategies that we shared today. The brand is our most important asset, I would say, after the network. It's our commitment to our customers and, at the same time, it's our reputation in the marketplace. So how we are going to continue to align our brand to our business, 3 very important strategies. Starts, number one, with expanding our footprint as a brand, which means moving from being a telco or just a telco to being an innovation leadership company where we talk about our expansion into the enterprise and the business plans that Tami shared with you today as well as our media business and also 5G. Creating awareness of the sum of the parts is very important for the strength of our brand. And you will now continue to see us doubling down on our human ability positioning and marketing campaign in the marketplace, which also connects with trust and innovation, as was described at the beginning of the presentation.

The second point is about owning the premium positioning at scale in the marketplace. If we are going to support or continue to support our premium economics, we need our brand, our products, our messaging and our propositions to support that squarely in order to differentiate versus our competitors. As you know, we're in an industry where, in a lot of cases, it has become a race to the bottom, who gets there first in terms of discounting and in terms of lack of macro differentiation. We are playing a different game. We are playing our game. That means that we will continue to double down in our network differentiation. When some people are trying to say that all networks are the same, we are not only going to say that our network is the best but also to ensure that consumers understand that when they make decisions of which network they want to be with, Verizon is the best. And lastly, it's about how do we maintain this aspirational value of the Verizon brand that is so critical to ensure that we continue to carry a premium in the marketplace.

And last, but not the least, is about winning on 5G. You heard a lot about 5G today. But this doesn't mean anything if we're not out there, to Ronan's point, with commercial viable solutions that we bring to market. We said we were going to be first, and we're going to be best. Being first, as you know better than anybody, has tremendous power in the marketplace in terms of first mover advantage. So we'll continue to do that in every opportunity to lead the marketplace and lead that mind share. And we're going to be best. So we have to ensure that consumers understand why



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5G ultra-wideband is the gold standard in terms of networks and then what it means for them both in terms of the currencies when we talk about enterprise and businesses but also to consumers when we talk about this amazing new devices like the Samsung phone that Ronan shared with you before. And then drive sales momentum, we're not waiting, so we are in a lot of these markets already with commercial propositions that need to be explained to consumers, need to be sold and create an amazing marketing machine, sales machine to drive the 5G efforts in the marketplace.

So before I leave, I wanted to leave you with a short video that shows you our very aggressive approach to driving 5G in the marketplace and a taste of what's to come. Thank you.

(presentation)

Matt Ellis - Verizon Communications Inc. - EVP & CFO

All right. Good morning. Thank you for your continued support in our company. Now before I get into 2019 and beyond, I want to take a minute to reflect back on 2018.

We are proud of the performance we had last year. As Ronan mentioned, we returned to service revenue growth on a like-for-like basis. And when you combine the increase in revenue with our cost efficiency work, we grew earnings and cash flow. Cash flow from operations increased by \$10 billion, and this allowed us to reduce unsecured debt by \$5.2 billion last year. As you see from the chart on the right-hand side, our EPS last year was \$4.71, and when you back out the impact of tax reform and the accounting revenue recognition standard, we had EPS of \$3.87, an increase of 3.5% over last year. And this increase included some headwinds that we discussed when we gave guidance a year ago, specifically the increase in share count, primarily from the Straight Path acquisition and the businesses that we divested in 2017. These impacts totaled about \$0.09 last year, so our underlying business grew \$0.22 over the \$3.74 in 2017.

A few weeks ago, we gave guidance for 2019. We said that revenue will grow low single digits. We're continuing the momentum that we built on last year in wireless service revenue. The revenue growth in 2019 will come from our LTE offerings as we don't expect revenue to scale significantly this year on 5G. We expect EPS to be similar to last year, before the adoption of the lease accounting standard, which started last month. And we expect to spend between \$17 billion and \$18 billion on CapEx, within our capital intensity range. And this includes spending on fiber deployment and the rollout of 5G that you heard Kyle mention earlier.

So while our guidance for 2019 adjusted EPS is flat or similar to last year, there is underlying growth in the business that is being offset by some other items, so it's worth spending a couple of minutes discussing. The revenue recognition standard becomes a year-over-year headwind for both 2019 and 2020. In 2019, we expect that headwind to be roughly half of the 2018 benefit that we had a year ago. I know a couple of below the line items that will also impact our EPS this year. We expect interest expense on the income statement to increase. As we capitalize less of our cost of debt, I expect from what we deployed in prior years is deployed into the network this year. And our effective tax rate will be slightly higher due to some nonrecurring items from last year.

So we expect those items to total between \$0.24 and \$0.28. And absent lease, our guidance implies another year of meaningful growth in earnings and the core underlying business, so for the second consecutive year. So as I mentioned earlier, we'll grow revenue, we'll manage the cost efficiencies, and this will drive earnings and cash flow in the business.

All right, you've heard a lot this morning about 5G, so let me bring some of the messages together in terms of what it's going to mean from a timing standpoint. Last year, we launched the world's first commercial 5G product, our 5G Home service in 4 cities on our proprietary technology. Also last year, we started to deploy 5G on the global standard into the network. And obviously, that continues this year. As you heard from Ronan, we'll be launching 5G mobility in the first half of this year and then 5G Home on the global standard in the second half of the year. We'll continue to build out the network this year and into 2020 and beyond, and we'll add more devices for our customers to choose from.

From a revenue standpoint, we expect 5G Home and 5G Mobility to begin to scale in 2020 and to meaningfully contribute to revenue growth in 2021. As Hans said at the start, 5G home and 5G mobility are exciting markets for us with their existing opportunities. The big new opportunity with 5G is the ability to bring all of the functionalities to our business customers with MEC and real-time enterprise. And we expect to launch our



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first MEC platform in the latter part of this year, and we'll continue to work with our customers to develop use cases and expect revenues to begin to scale in 2021 and build from there.

And while we're excited about what 5G means for the growth of the business, we're also working on making our business more efficient. Our business excellence initiative delivered \$2.3 billion of benefit last year, and we are on target to meet our \$10 billion goal of cumulative cash savings over the 4-year period. The benefit last year was primarily delivered from improvements in our capital -- capacity utilization models and enhancements to our inventory management and procurement processes. 2019, we'll get the benefit from the voluntary severance program that we finalized in December, continued enhancements on our supply chain and value created from process redesign work.

Our capital allocation model is consistent and disciplined. Our first priority is to invest in our business, and this begins with CapEx. And we expect our capital spending this year to be within our historical range of capital intensity. And as we build out 5G beyond 2019, we expect to stay in that same range. We will continue to add spectrum when it's the most efficient way to add capacity and coverage to our network, and we will continue to execute on acquisitions when they allow us to accelerate our strategy and do so in a value-creative manner.

Our second priority is to our dividend. Our board has increased the dividend for 12 consecutive years, and it is our intention to continue to produce results that allows them to continue that trend.

And our third priority is to our strong balance sheet. In 2013, we made a commitment to return to the pre-Vodafone credit rating profile. And we have made good progress on that, including last year when we reduced total debt by \$4 billion. In addition to that, we have improved the funding status of our pension plans. The funding status was approximately 70% at the end of 2016 and ended last year at 91%. And we established a leverage target consistent with a strong balance sheet. Our long-term leverage target is have net unsecured debt to adjusted EBITDA of between 1.75 and 2.0. We believe that unsecured debt is the appropriate metric to use here as our ABS debt is serviced from cash collections from customers whereas our unsecured debt is serviced from EBITDA and the cash flow it creates. This metric improved by 0.3 turns last year to 2.1. And we believe this target is consistent with a single -- a low single A credit profile.

So in summary, we are pleased with the performance in the business last year and the progress we made. We entered 2019 with good momentum. And we expect to grow the core business this year before we get to 5G, with revenues beginning to scale in 2020 and beyond. Our balance sheet is strong, and we have a disciplined capital allocation model that supports the business and allows us to pursue all of the opportunities ahead of us.

So with that, I'll turn it back to Hans, so we can get to your questions. Thank you.

Hans Vestberg - Verizon Communications Inc. - CEO

Thank you very much. Now you almost have seen everyone in my executive team and, hopefully, you got a little bit deeper understanding our strategy. So now it's open Q&A. So as well in the webcast, you need to have the microphone, so that people on the webcast can also hear your question. So we have some rotating guys here with your hands coming up.

QUESTIONS AND ANSWERS

Unidentified Participant

You opened up your presentation by saying that if you execute against the priorities that you just outlined, Verizon will be able to achieve a sustained GDP plus growth with strong earnings and free cash flow. Well, you didn't put a time line on it. So what do you see as the appropriate time frame to be sufficiently far enough down the road such that GDP plus revenue growth is indeed the key driver of the company's earnings and free cash flow growth?



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Hans Vestberg - Verizon Communications Inc. - CEO

I think that the assets are put together. We -- our ambition is to do that as soon as possible. I meant to be on that. I think what you heard from Ronan, we are very much focused on what we have in front of us right now. But you'll also see that we have greater opportunities given -- on 5G going forward. So I think that the 4 things that I outlined in my strategy on that slide should actually enable it, and we're actually doing all of them right now. So our ambition is to have that possibility to have GDP plus growth together with strong cash flow and earnings. And I think last year has proven that we had a good year, and our focus is to continue to have that. It's not that we're having a blip here and there. We just want to continue. I'm very pleased how the organization is responding on the changes. We're doing what was -- many of them are actually helping that. So that's our ambition, to do that. And I think that any strategy you have would need to have a target, and that's our target that what we have communicated before, so it's not a new target. But it's just for us to say that we, as a team, has come together and say this is what we need to do to get to that target. That then, of course, in any internal organization always have higher ambitions, but that's what we are communicating around.

Colby Synesael - Cowen and Company, LLC, Research Division - MD and Senior Research Analyst

Colby Synesael from Cowen. Kyle seemed to walk back the 30 million homes passed for fixed wireless broadband a little bit. I know that that's been a focus for investors, really, ever since you gave that metric. When you guys talk about 5G starting to be material to your revenues, I think in 2021, how big of a part is the home broadband component to that? And then I guess, just how aggressive do you really want to be with that?

Hans Vestberg - Verizon Communications Inc. - CEO

I think that as Matt outlined, I think that there were different areas of revenue impacts. And I think that when the mobility -- and I think what Kyle tried to say that we will be smart enough because we're going to roll out the network in any case, but we need to do it in different and different markets depending on what type of competition we have. We still believe that the fixed wireless access is a great opportunity for us for expansion of our growth over time, definitely. But clearly, we're also going to see how we're going to roll it out. But as -- what we learned from our proprietary standard is telling us we can do the 30 million. Just imagine, when NR is coming, we can use all the spectrum we have. We're going to have CPs with better power where the pricing models and speed commitments are different. Of course, this is going to go quickly than we thought because just go back to when 4G came, we had no idea when 4G came that you can do carrier aggregation and how much has that improved all the capacity we have in the network. So even though we don't know everything right now, we feel very confident that we can deliver on this earlier. Maybe Matt, if you want to add something on the revenue targets and what you can see there.

Matt Ellis - Verizon Communications Inc. - EVP & CFO

No, as I've said earlier, we expect that 5G Home and Mobility will start to scale in the revenue next year and then become more meaningful in '21. And as Kyle mentioned, this is about building on 5G a multi-use network. And so as we deploy, and you heard Ronan say, as soon as we have the CP, when I've turn the network on, where I turn the network on this homes, I can offer that product immediately. So there is absolutely no reduction in our belief, in fact, if anything, what we've seen since we launched the product is further belief that fixed wireless access will be a core component of our revenue stream in a 5G world.

Hans Vestberg - Verizon Communications Inc. - CEO

I need to point at the guys with the microphones, not at the people who are raising your hands.

Unidentified Participant

Can you clarify what you mean by sort of tuck-in acquisitions? And then things like wireless prepaid brands and things like that you might be interested in.



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Hans Vestberg - Verizon Communications Inc. - CEO

I think that we're not going into any specific assets. But I think that when we talk about tuck-ins, it's things that fortifies our strategy. I'll give an example. We bought Straight Part -- Straight Path. We bought XO. That was helping our strategy with our network and technology. That's what we're talking about right now, and that's how we see this playing out. I mean we have been -- or I've been clear on one asset that I get so many questions on, so I'm going to answer again, we're not looking into any linear TV big assets. But I'm not going into any more assets, but it's more about tuck-ins that's following the strategy we're talking about here.

Unidentified Participant

So on the 4G mobile rollout later this year, I think you said 30 commercial markets 5G. What will that experience be like with these new devices? Will it be limited geography given the 28 gigahertz spectrum? Or are you going to have pretty ubiquitous coverage across those? And how should we think about the monetization of that? Will you need to take a separate tier, an extra \$5 or \$10, or go to the higher tier? What's...

Hans Vestberg - Verizon Communications Inc. - CEO

I will talk, then Ronan will come in. I think that we -- as Ronan said, we're not planning to have sort of 1 radio-based station in this city and saying that they're covered. We want to have a good coverage in these 30 markets. And of course, they will have mainly, of course, they will have millimeter wave. So the experience will be fantastic because the phone that Ronan showed has millimeter wave in it. So it's just going to be a totally different experience from speed and throughput that you have never seen before, so it's going to be a great experience. The commercial model, do you want to go into them right now? I can help you with...

Ronan Dunne - Verizon Communications Inc. - EVP & Group President of Verizon Wireless

Yes, only if -- I'm not going to launch pricing this morning on this. But I think, just building on Hans' point is -- and the reason I made the point as clearly as I did is I have a commercial go-to-market city-by-city plan. I have map that says when I meet certain thresholds from a mobility point of view and from a residential point of view, I will put leather on the street. I will be going door to door during residential. I will be in those retail stores. So this is not about the fact that I've got a build plan over here, and that is something else. I've got a completely integrated go-to-market strategy, which says I've enough coverage in a contiguous area in a market place to go out and market. So when I talk about 30 markets or more, those are real markets that will be open for sale. So that was really the message. And what I think is that what we're seeing on the devices is the device adoption curve I'm more confident about today than I was maybe 6 months ago, given that we actually have an iconic top-of-range device in the first wave of the technology for the first time ever. As regards plans and propositions and model and stuff like that, watch this space.

Hans Vestberg - Verizon Communications Inc. - CEO

And I'm not sure whether it was clear, but as it was announced yesterday, the Verizon customers will be the first one to get the Samsung 5G phone, and we'll even have an exclusive color, titan gray.

Unidentified Participant

Hans, you and, I think, Kyle and maybe when Ronan is there as well, you talked about your -- the importance of millimeter wave spectrum in your plans. Can you just update us on your thinking about where additional mid-band spectrum fits in your capacity expansion for the network? And what's your latest thinking about the fungibility of spectrum versus CapEx, where your preference is?



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Hans Vestberg - Verizon Communications Inc. - CEO

And you saw that Kyle talked quite a lot about the 3 components. We'll have all the time when we look into what spectrum or for data growth, if we need spectrum technology advancement and, of course, densification. So we look at that all the time. And so I think we were sitting on the very good spectrum position, of course. But then we're in middle of this auction as well, I need to be a little bit careful what we say here, it's an ongoing auction as you know but, in general, we will look into that all the time and see what is making sense for us. However, as Kyle said, ultimately, all spectrum is going to be 5G. That's basically the nature of it, that 4G is becoming -- then, just to be clear, in 4G, we'll still exist in this market for a long time. Rima showed what we're expecting in a couple of years from a consumer point of view here, basically 50% of the markets is going to maybe have a 5G phone. So it's still going to be 4G. So we need to handle that. It's coming one feature in the network if it's very important, which is instant allocation on the frequencies, where you actually don't need to allocate the frequency to a certain technology, they will handle it. So today you need to decide, this is a 5G network -- 5G spectrum, and this is 4G spectrum. That will go away over time when come a new software. And then you have a sort of an instant allocation in between them, so that's very important. Kyle, do you want to add something?

Kyle Malady - Verizon Communications Inc. - EVP & CTO

No, I think dynamic spectrum allocations is key for us.

Hans Vestberg - Verizon Communications Inc. - CEO

Dynamic spectrum allocations. I say instant, dynamic is the right word, just to be clear on it. Do you want to say something more? Sorry.

Kyle Malady - Verizon Communications Inc. - EVP & CTO

No, I'm not going to say anything. I mean, that's a really important feature for us because that really gives us the fungibility to move through our different spectrum bands and engineer in a way that we can -- we know what's going to happen.

Unidentified Participant

So 2 questions. One, mobile edge compute. You talked about greenfield opportunity and new use cases. What sort of discussions are you having with your larger enterprise customers in terms of the actual use cases we should be thinking about? And then secondly, on fixed wireless access. I think there was talk of some customers don't need 300 megs, some are okay with 100 megs. Does that necessarily imply that you may go beyond 30 million and vary your offering by market? And I don't mean to get too specific, but any color you could share would be great.

Hans Vestberg - Verizon Communications Inc. - CEO

It's a good question. I think on the first one, as Tami said, I mean, we are supplying already right now basically 100% of all the top 100 -- Fortune 100 companies in this country. And of course, we have conversation with all of them. And we go through these currencies, and we talk about them, what will you do with them? I think that you see in the distribution chain, you see definitely opportunities in the whole retail. But you also see in sort of low -- let's say, private 5G networks, where you basically have all the data processing going around the network, what can you do because you don't need to send the data somewhere else and how quickly can you take real-time decisions in those networks. So I think we have -- and we have been on the list for a long time. George Fischer is here, our Head of Enterprise, Nicki, Sanyogita, a lot of team members meeting these customers every day to discuss with them, so we understand what use cases. And that's where it comes into how much are we doing ourselves and what software companies do we bring in to make that solution. But remember, the connectivity is one. But now we have the 5G platform, that 5G platform we are supplying, the latest in throughput, that has to come from us. They need to collaborate with us, and that's sort of the strength we're coming from, so that's how we work with it. When it comes to the fixed wireless excess, can we go beyond 30. Of course, I mean ultimately, that's how we're going to scale it. And then our network is going to scale way beyond where we are today, we're just in the beginning of 5G. So of course, wherever



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we're going to have a 5G network, we're also going to have opportunities on fixed wireless access. That's the beauty of this model that we have multiple use cases on the same technology.

Jennifer Fritzsche - Wells Fargo Securities, LLC, Research Division - MD and Senior Analyst

Jennifer Fritzsche with Wells Fargo. I wanted to ask about fiber. Just putting on your old equipment hat, Hans, are you building fiber fast enough? Or are regulations really hurting that? And then a separate question, as there has been some talk of Verizon adopting a turf model like your largest competitor, is that something you would embrace?

Hans Vestberg - Verizon Communications Inc. - CEO

We're building fast enough. You're never satisfied. You're always chasing the team to do better and faster. I think they are not lacking the resources to do as fast as they can. And our speed, that's come up dramatically over the last quarters and year. So of course, I want them to go faster. But there are also limitation. It's a physical work that needs to be done. But as you saw what Kyle said, we're now deploying in more than 60 cities, markets, which is quite substantial, sort of a substantial amount of fiber going down to the ground. And the good thing for us, it's a multipurpose equipment again all the way from our wireless network up to the IoT solutions and, of course, our enterprise customers. Kyle, do you want to add something?

Kyle Malady - Verizon Communications Inc. - EVP & CTO

I mean, what I would add is -- yes, I mean Hans, actually, always press us on a daily basis to go faster, so one should expect. But we keep learning as we go through this. We keep bringing systems. We keep bringing technologies. We keep working on our processes. And you can see all that panning out. As Hans said, month by month, we're increasing our ability to put more output out there. Now honestly, it still is difficult. You have to deal with municipalities and get permitting and all those kind of things, but that's what we're good at. We've been doing that for years. We know how to do it. We know how to deal with it. But we just keep working on our processes, and we keep ramping up.

Hans Vestberg - Verizon Communications Inc. - CEO

Yes, we have another question embedded with that, probably...

Brady Connor - Verizon Communications Inc. - SVP of IR

A perfect curve ball. I don't know what that means...

Hans Vestberg - Verizon Communications Inc. - CEO

Exactly, that's why I'm dodging.

Kyle Malady - Verizon Communications Inc. - EVP & CTO

I don't know what that means.

Brady Connor - Verizon Communications Inc. - SVP of IR

It's a curve ball.



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Jennifer Fritzsche - Wells Fargo Securities, LLC, Research Division - MD and Senior Analyst

Turf model, meaning using a bunch of -- fewer vendors to be kind of the GCs in certain areas to subcontract to them?

Kyle Malady - Verizon Communications Inc. - EVP & CTO

Well, actually in One Fiber, we actually do use -- we have multiple large construction partners that we use. And they some -- they turnkey, sometimes they use subs as well. But we do have partners working with us to build the fiber.

Jeffrey Kvaal - Nomura Securities Co. Ltd., Research Division - MD of Communications

It's Jeff from Nomura Instinet. Thank you for hosting the largest session. I was hoping that you could spend a little bit of time on the mechanics of that GDP plus growth? And what are the levers that you are expecting to drive that? Is that ongoing prepaid-to-postpaid migration? It sounds like we've made a lot of progress on the unlimited migration. 5G is a couple of years away, so what is that? And then I guess, on a follow-up, I'd love to know how fast we should expect that in FTE as it tend to be humming in those steady markets.

Hans Vestberg - Verizon Communications Inc. - CEO

Yes. I think on the growth that you're asking about, I think that a lot of the things that Ronan was outlining, I mean, we have now a very solid base leases that we're actually moving on. And what we have seen -- and I can speak on behalf of the wireless team, what we have seen in the last year with the rolling thumb and coming of new things, which is actually giving us the growth, I think that I have confidence that they will continue with it. And that's what Ronan was showing. I think that's what the essence was. Then we have our business that are in secular decline. We're going to push them every day to get out of that secular decline. Some of them might still be there, but we have products in those portfolios that are not in secular decline, they're actually growing. They're not big enough. I mean, you heard from Guru, you heard from Tami, so that's our work every day. And we're grinding on that every day, and we'll continue with it. The second question was when will we see the S10 in the hands of Jeff Cole? Was that the next question? I think we're still keeping it in the first half of 2019. And -- but it's not too far away.

Unidentified Participant

How's that?

Hans Vestberg - Verizon Communications Inc. - CEO

Half. I mean, I want it tomorrow, but it's not going to be tomorrow. It's going to be in this first half of 2019. I keep that to myself. It's a very competitive market, you know that. So we want to keep it to ourselves for a while. But you're going to notice, I promise, you're going to notice when it comes. Okay, Ronan, was that the case -- answer? Thank you.

Michael Rollins - Citigroup Inc, Research Division - MD and U.S. Telecoms Analyst

Mike Rollins from Citi. So I heard you and the team talk a bit about broadband access through Fios, fixed wireless access. And also, I think you briefly touched on mobile broadband substitution that you're seeing some of that as well. So is the longer-term goal for Verizon for a consumer or a business to be the only or primary broadband provider for that customer? And if the answer is yes, what proportion of the country do you envision creating this value proposition?



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Hans Vestberg - Verizon Communications Inc. - CEO

Good question. I think that definitely, on your first statement, we want to be the broadband provider across the country. But we want our customers to define what broadband they need. Some might need 4G. Some might need fiber. Some might need 5G. So that's what we see ourselves doing, and that's the platform we are building with Intelligent Edge Network. On top of that then, we decide, hey, we're going to do an applications as well or we're going to partner. And that's an opportunity we'll have. And that's why we are focusing on thinking through where is our assets, where are we going to double down and we're going to partner. So of course, ultimately, we want to offer broadband to as many enterprises, customers, consumers as possible in this country. It's going to work over time. But we have different means of it right now. And it's -- as Kyle said, then it depends on what is broadband for you. In some cases, it's 1 gigabit. And for some other, it's 100 megabit. And we will see that we can manage that, building a network that is flexible enough that can do that and upscale it. Ronan?

Ronan Dunne - Verizon Communications Inc. - EVP & Group President of Verizon Wireless

Yes, just one comment. I think, in the context of as we look into a consumer, if I focus on that is, I think, it's almost predicated on the consumer insight that says people won't buy wireless from wireline in 5 years' time. It will be connectivity, ubiquitous connectivity. So as such, our preeminent offering is our network. And therefore, the layer that I will use to create the value that's both in the connectivity there and the value above is using that ubiquitous connectivity. I don't -- even in a few years' time, I'm not sure I'll be selling a residential or a mobility play in many instances. But when you do that, then what it is, is the value-add layer is not just I've got a residential offering and, therefore, I can do value-add above or I've got a mobility offering. The thing is I've got one layer of connectivity and, therefore, I can give -- sell into an experiential layer that goes across. And that, for me, is the approach that the platform of a consumer business is actually positioning us to take that approach as opposed to a technology adoption-led approach, if that make sense.

Hans Vestberg - Verizon Communications Inc. - CEO

Tami?

Tami Erwin - Verizon Communications Inc. - EVP & President, Verizon Wireline

Yes. So listen, I think when we think about the ability to expand fiber or Internet connectivity to across the U.S., having choices of how we do that is going to be really important. What we know is outside of the markets, the 13 Eastern Seaboard markets that we serve today with Fios, we don't have the ability to effectively bring Internet connectivity to small business customers, as an example. And we know that's a huge opportunity for us. And so as you think about the expansion that Kyle talked about in those 60 markets, the ability to provide high-quality fiber to small business customers and then give customers choice about video and how they consume video content is another big component for us. So I think our objective is get Internet to everybody, give them choice on speeds and give them choice on how they consume content.

Unidentified Participant

So just a couple. First, on the fiber side, I think Kyle had a data point saying you'll have 25,000 miles of fiber at the end of this year -- incremental fiber at the end of this year. So when you think about it, I mean you already have a lot of embedded fiber within your network, and this on top of it. What orders of magnitude are we talking about longer term in terms of how much fiber you really need in the network and how we should be thinking about it? That's the first. And second one, Hans, you talked about the currencies of 5G. So when you think about -- this seems to imply that there are different pricing models when it comes to different applications. How much of this is a function of regulation? Because the net neutrality rules still seem to be litigated, it's still going through the courts and so on, it doesn't seem to be definitive yet, so how are you thinking about how regulation plays a role on that?



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Hans Vestberg - Verizon Communications Inc. - CEO

So those were 2 questions. I used to remember the first, but I was thinking about the second one. I'll start with the second one, so the current -- first of all, I mean, we are fully supportive on the net neutrality rules that everyone should have access to all of it, so that's not something that we even are debating. That's obvious for us. I think that when it comes to some of the currencies, I think that, of course, it might be different pricing models only because you're going to give them different type of option, mainly that is coming into, I would say, for enterprises. I mean, the consumer is still going to be a consumer market, where you basically have whatever we have today when it comes to offerings. So I don't see any issues in between those different questions, the currencies and net neutrality. We are following -- supporting that 100%. The first question was how much fiber do we need in the future? You saw the pyramid of the opportunities we'll have on fiber. So we are also -- just to be clear, we're always looking into is it better to build, buy or rent all the time. That is what Kyle and his team, sitting here, is doing every day. So they can come, I mean, it's better to rent here. So we're actually doing that. We use to now find out, in more cases, for us, it's better we own our economics for us as we have so many use cases for it that we build ourselves. And to be honest, much of the fiber in this country is point-to-point. And if you think about our business model and how many customer groups that are using it, we need rings of fiber that we can do sort of shoot-offs to either an enterprise or a radio-based station. But point-to-point doesn't help our strategy. So sometimes we get a question about that asset is great, point-to-point doesn't help us. We -- if we're going to serve everything from the bottom of the wireless sites to substitution for enterprises small, medium or creating new solutions. So that's what going to define it. But clearly, we have a very high speed on it. We have a very high speed on our fiber deployment for several years. And as Matt said, that's inside of our capital budget. So sometimes when we get the questions about the Capex, me and Matt, okay, or you're asking us, okay, but now it's going to go up and down. How to shift inside the money even though it's the same amount is enormous, how we are reallocating and how agile the whole enterprise or the engineering side of the companies is to be able to shift money, see that we get the best output. And the whole thing that Kyle and his team are doing, I've never seen anything like it. That was a positive comment to your team.

Kyle Malady - Verizon Communications Inc. - EVP & CTO

Thank you.

Unidentified Participant

Hey, Hans, [Sean Butler]. A quick question. You alluded to SDN before, which really sets that foundation for 5G. And I was wondering if you could tell us where you are in the process of implementing SDN across the network. And then separately, we were talking before about fiber and expanding the small business opportunity with fiber. But wouldn't it make sense just to do it with 5G? And if so, thoughts on how to market that.

Hans Vestberg - Verizon Communications Inc. - CEO

I'll start with the second, and comment to the first because I always remember the last question first. So we're going to create optionality for our small and medium businesses, as Tami said. I mean, sometimes if they want fiber because they need that type of speed, they're going to get that. But over time, we can also say, hey, your best solution is going to be 5G. So we want to be agnostic. We want to give optionality for our customers. And I think that's the network and services essence. Everything from a data center and IT to the access is the same network. And then we decide from the access point, what access is best for you as a customer. Is it 4G, 5G, fiber, NG-PON2, all these acronyms that engineering team is coming up with, we design there. So I think that, that's what we're really thinking. And I think we're into a market where broadband digitalization is going to happen in every corner of the country. We are best situated for doing that. First question was about SDN. So I'll point to someone, Kyle and Tami is going to help me with that.

Kyle Malady - Verizon Communications Inc. - EVP & CTO

Yes. So I'll take it from a network perspective. I mean, we've been kind of quiet. We don't go out there shouting what we're doing with SDN and NFV. But we've been working on it for a long time. We have hundreds of hundreds of applications that we've -- from a corner of the network that we've moved over to, what we call, our VCP platform. And some that are some applications we house kind of in the middle, in the core, as we call it. And then we have other applications out closer to the edge. And we just continue to do that. As a matter of fact, Ronan talked about the Visible



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offering. That offering is 100% virtualized. There is no boxes that we built that we have from vendors. That is 100% virtualized. And we've been able to really show and prove the benefits of this kind of technology because we can -- we find a bug, we're able to spin right through in a day or so. So these are really good technologies. We continue to leverage it. And I think it's part of -- one of the reasons why we've been able to drive our cost down over the couple of years, too. It's just we don't -- we have a hard time defining what -- how we talk to people about what it really means. So we're just doing it, and it comes out in our costs.

Hans Vestberg - Verizon Communications Inc. - CEO

Tami, from a customer point of view?

Tami Erwin - Verizon Communications Inc. - EVP & President, Verizon Wireline

Yes. And just from a customer point of view, the faster these guys build it, that the faster we sell it. And there is a lot of interest in -- we're selling that actively today as we think about software-defined wide area networks, providing simplicity and flexibility, when we think about Secure Cloud Interconnect and really beginning to redefine the infrastructure the businesses have for how they're transforming their businesses to a digital ecosystem. So the faster he builds it, the faster we sell it.

Hans Vestberg - Verizon Communications Inc. - CEO

Yes, one or more 2 questions.

Michael McCormack - Guggenheim Securities, LLC, Research Division - MD & Telecommunications Senior Analyst

Great. Mike McCormack, Guggenheim. Hans, maybe just a quick comment on Ronan's discussion around under penetrated segments in wireless. Where do you see the greatest opportunity? And is there a shift in the marketing strategy to go after that? And then secondly, on the premium wholesale stuff, what's the appetite to scale that with other large providers?

Hans Vestberg - Verizon Communications Inc. - CEO

Wholesale on wireless or wireline?

Michael McCormack - Guggenheim Securities, LLC, Research Division - MD & Telecommunications Senior Analyst

The wireless?

Hans Vestberg - Verizon Communications Inc. - CEO

Wireless, okay. On the first one, I think that yes, we see new segments coming up all the time in the wireless space. And I think that what Ronan and team, they have found some of those, and we still have some more of them. I'm not sure if you want to go in where you see it. But I'll leave it to you, and I can't comment on -- you can comment on the wholesale as well.

Ronan Dunne - Verizon Communications Inc. - EVP & Group President of Verizon Wireless

So the board strategy play is we have a national network, which is highly efficient at producing capacity. And in that context, we need to make sure that we don't just simply narrowly define the opportunity as the Verizon premium branded offering. That's the essential proposition. So within



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that context, if I use the example of Visible, Visible is a new evolving segment. It sits at the high end of the value segment, the low end of the premium segment. A lot of the people who would be candidates to use the Visible service are not traditional buyers of premium traditional branded offerings. That's not what they do that, that Millennial group. So we have an opportunity to do that, we will do that direct. The TracFone partnership that we have is, I'm not going to build 10,000 retail units of 600 square feet each to go and do. So I have an opportunity to access that market with an efficiency related to my network but also a go-to-market strategy that optimizes where I invest my resources because I can invest them in a premium return in my branded while, at the same time, getting the economy of scale within the network. So what you will see is that the approach that we're taking is segmenting the market, looking at where the go-to-market strategy that supports that particular segment is and then optimizing our investment to maximize yield. That's the strategy.

Hans Vestberg - Verizon Communications Inc. - CEO

Okay, one more. Upfront there.

Unidentified Participant

Hans, can you talk about 5G standalone, kind of what do you see the timing of it and what CapEx implications you see there?

Hans Vestberg - Verizon Communications Inc. - CEO

Now we get really deep into technology -- but continue. So the question is around the core network for 5G, and there's 2 ways of doing it. You have NSA, nonstandalone. And you have SA, which is standalone. I think that the industry went away on NSA in the beginning, and we're following that. We will migrate to SA as soon as it's feasible. I'm not sure we're giving any time lines. Kyle, Adam, Nicki, Ed? No, we're not giving. But we will be there soon because it makes sense to do an SA.

Thank you for that question. Love those. I actually do. I will wrap this up very quickly. Remember what I said in the morning, the main purpose for you here in the room and on the webcast: get a little bit deeper understanding for the strategy that we are now executing on; meeting the team, you have met almost all of the executive team members here today; as well as having a chance to do Q&A. And I hope that you feel that you have gotten that opportunity.

For the ones here in New York, we're just going to [treat you] with a lunch and then break our sessions, and the executives are going to be here to take questions during lunch, so hopefully, we'll continue.

I'll just round it up saying that we have good momentum in our current business right now, and we will continue to focus on that. We see a great potential in 5G, and we are building for that. We are doing the transformation of the company from a moment of strength in order to actually be stronger in the future. And we are very much focused on execution and the fundamentals of our business. And hopefully, you have seen that the team that is fairly newly created as actually very focused on that. . Thank you very much for being here, thank you all on the webcast.



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