

Q Tracy Swedlow, Editor-in-Chief, ITVT/TVOT

A Ted Malone, VP Consumer Products & Services, TiVo



Q: Hi, this is Tracy Swedlow, Editor in Chief of InteractiveTV Today, and this is Radio ITVT. I am very happy to have **Ted Malone**, who is **Vice President of Consumer Products and Services for TiVo**. Welcome to the show!

A: Great. Thank you, Tracy. I appreciate you having me.

Q: Well, TiVo is a very important company in our business. We are always watching what you guys are doing. Of course, you've been to our conferences before, TV of Tomorrow, and you're part of this community, a leader in the community. The news that just has come out is in the swirl of everything that's going on right now, so we thought we would touch base and see what we could find out about this - beyond the basics that have been covered.



A: Yeah, fantastic. Love to talk to you about it. I don't know if you saw it, but we got a shout out from Jimmy Fallon on the *Tonight Show* last night.

Q: I missed that, but congratulations!

A: He mentioned us in his monologue. It was really funny. He said, "Now that TiVo works with Alexa, now you'll have to go over to your parents' house and fix two devices!"

Q: That's funny! We were talking about our hometown before the call, and in the early days, I remember trying to convince my father, the attorney, the analogue attorney, that he needed to move into the TV of Tomorrow universe. First thing I tried to do was to get him to buy a TiVo. I actually wound up buying it for him because he was resistant at first.



He loves television, but moving him into the digital on-demand space was challenging, but I did manage to get TiVo in his hands. Of course, it took off from there, and that's all he did.

A: That's fantastic. I remember way back in the early days, before you were running this awesome conference, I remember when you were doing a newsletter and we used to share some emails and things. You were very on top of this in the early days of this market developing. I just really appreciate how far you've taken it and the community that you've built. It's fantastic.

Q: Thank you. I don't take compliments very well, but thank you very much!

A: Okay, well, I won't give you any more then.

Q: All right. Okay, so, we have intro'd what the news was in general, as text, if you access our e-mail newsletter or our Web sites, but just in short, of course, TiVo has just announced integration with Amazon's Alexa system, and I believe you already had previously announced Google Home Assistant. But before we go into what that news is, can you tell everyone a little bit about what your mandate is over at TiVo, please?

A: Yeah. So, I am responsible for running our consumer retail business in the United States. So, everything having to do with our consumer products, the retail distribution of those, direct sales via TiVo.com, I'm pretty much the general manager, if you will, for all of our retail consumer products, which is, I think it's about 20% of TiVo's overall business. We still have quite a large business of licensing television technology to cable and satellite operators, we've been doing some new work with voice search, etc., so a lot of licensing, technology licensing, but the consumer business is about a fifth of our business. So that's what I'm responsible for.

Q: Can you actually provide any statistics for your installed base, for boxes and also MVPD partnerships?

A: Yeah, so, I believe that TiVo stopped reporting details on those shortly after the merger with Rovi, so I can't announce exact numbers. I think at the time, the last public numbers that TiVo had put out was around a million retail devices. I honestly don't even track the operator side of our business. So I don't even, myself, pay that much attention to what our cable operator or the MSO business is, but I think it's fair to say that over the last two years, our cable business--so we support both digital cable, cable card DVRs, as well as OTA, or antenna over-the-air DVRs, and our OTA business has been growing about 15% to 20% year-over-year, and our cable business has been tracking with the overall cable market, which is flat to slightly down. So, I guess I would say that over the last couple of



years, we've probably grown our consumer business maybe 10% year-on-year. I can give you those round numbers.

Q: Okay. But you definitely have a lot of very interesting partners, North American Operators and things like that. It's a widely-distributed consumer business through all of those partnerships, as well as just people buying it off the rack.

A: That's right. We're pretty successful in Canada, with cable operators in Canada, and I think our largest deployments are in Europe or in the UK with Virgin Cable, and in Spain, with ONO Cable, which is part of Vodafone. So, we've got some pretty big European deployments as well.

Q: You recently hinted or announced that you're not going to manufacture boxes anymore; you're going to license the software. I know we're not here to talk about that, but licenses talk, and you're working with a third-party device manufacturer to deliver the TiVo experience, correct?

A: [0:06:14] Yeah, that's right. I think, in a way, this is a return to what we had originally tried to do in the early days of TiVo when we were just a consumer business. Our goal was to identify hardware partners who could develop the hardware and sell that into retail, and we primarily wanted to focus on the software and the service. I think we moved away from that. So, in the early days, we did a variety of different retail products with Toshiba, with Pioneer, with Sony, with Phillips, with Humax, with a variety of different consumer electronics manufacturers, and I think what we learned early on was that we ended up fragmenting the market. So, I think there's a time and a place to bring competitors online, if you will, and I think what happened was, we brought too many different device manufacturers into the mix before there was enough volume, and so we had several different manufacturers fighting over a still-developing market and none of them were able to put together the kind of volume to justify the business long term. So, we brought it all back in-house to consolidate the volume and to try to focus on that development. I think at the time, we felt like that wasn't really going to be our long-term strategy, but it was necessary in order to preserve the business, because I think these different CE manufacturers were, like I said, moving away from our product line. So now what we've done is, we've made this decision to partner with a hardware manufacturer. It's somebody who builds set-top boxes, both streaming devices as well as DVRs and zapper boxes. They're one of the world's largest manufacturers of set-top boxes and we're working with them to create TiVo retail products that will be slightly modified versions of products they sell into the operator space. Our goal there, for both of us, is to have a box which benefits from the larger volumes that they sell into the operator market, and that benefit comes in two forms: one is cost and the other is reliability. So, we think that by partnering with them to make small changes, more cosmetic changes, if you will, to the design but then focusing on the internals being very similar to what is sold



into the operator space, that we can then benefit from their economies of scale. So, we hope that this is going to end up bringing down the retail cost of our products over time and allow us to focus on what we'd really like to do, which is deliver new software and services, which I think is probably what we're going to talk about next.

Q: Yes. It sounds like the business is being focused towards an MVPD route and the consumer monetization will come from developing those relationships once you're already there.

A: Yeah, I think that's right. If you step back and look at our business, the operator business is high volume but lower margin, if you will, because there's a lot of competition in the vendor space for TV technology. So, I think that is an important part of our business, but we also need to be able to innovate, and in order to innovate, you have to invest. And so I think what the consumer business allows us to do is, we can make a little bit more margin off of a smaller user base, and we can use that revenue to innovate, to try new things, whether it's things we've done in the last couple of years with voice search or some of the new smart home things we're doing now. Those things, we test and we innovate in the consumer retail market and we try to listen to feedback. It's a smaller audience, so we can actually hear them and we can interact with them online and we can do beta testing and we have a bit more control over it because it's a direct-to-consumer business. And then we take that and roll it out more broadly to, primarily, they're cable operators. We have some non-cable operator customers, but most of the companies that are licensing our technology right now are traditional cable operators in the MSO space.

Q: One more question before I go into the home ecosystem discussion [with regard to the voice]: Are you taking into account the revolution that's coming [down the pike] with ATSC 3.0 and local television, and how that will play a part?

A: Absolutely. Yeah. I think the OTA business, as I said, is growing, so if you think about where that business is going, especially in North America, I think ATSC 3.0 is super interesting. I know there's some regional trial broadcasts that have been happening, and there's some companies that are coming together to try to look at delivering premium services over ATSC 3.0. So, I think it's still pretty early days right now, but I expect that when there starts to be real national commercial availability and the viability to have a consumer product in that space, that we will be one of the first ones there.

Q: Okay. Great. I am excited about the desire to focus on innovation and investing in that [way], because I think there's so much more to be done on an OTT platform that can be done with the integration of voice: I think it's going to get extremely exciting. So, let's explore that.



So again, the announcement is the integration with voice systems, and I believe that it's because, as I've seen stated, you guys are interested in being part of the whole home ecosystem [offering], providing services not only for the TV, to use the TV, but potentially to explore the Internet of Things marketplace and how content and living in general all become part of the consumer experience. Please go ahead.

A: Well, I was just going to say, you're absolutely right, and if I were to draw on a board, there's a lot of complexity with the different ecosystems that are out there, and if you drew the Venn diagram of the different people that are innovating in this market, whether it's Amazon or Google or Microsoft or Samsung and all the different things that are happening in the voice processing space, and then all of the more advanced features around things like search and discovery and natural language understanding, there's so much going on in this space. I think it's important to be able to pick a couple of areas where you think you can move forward with an actual product and deliver some innovation, and then just keep knocking them down one at a time. So, what we announced at CES in January, at the Consumer Electronics Show, was that we were working on both Alexa and Google Assistant integration, and we demo'd both of those live, as well as IFTTT, the IFTTT integration, which allowed us to plug into a broader suite of connected devices. So, we shift IFTTT support in a beta form, and it's turning into an extended beta, because we haven't really released that en masse yet, but we have about 10,000 customers that are in this trial period with IFTTT to try to understand what consumers want to do with their TiVo devices, if you could plug it into anything. If your garage door opens automatically tuned to CNN, or what have you, those kinds of more esoteric or fringe scenarios, we are supporting and trying to learn from in the If space, and the next out of the gate, this week was our announcement around Amazon Alexa support and a TiVo skill that's built on their new video skills kit. And then we hope later this year to be launching the Google Home Skill that uses their new smart home capabilities.

Q: Of course, there's also the autonomous vehicle, or simply riding in digitally-enabled vehicles, as they're integrating video. It's not just the home: it's everywhere.

A: Yep. And that's an example of where, I believe we actually are licensing some technology to some manufacturers who are looking at providing things like guide data in their cars. So, I don't know that we have any consumer-facing technology or consumer-facing products that we're announcing in that autonomous vehicle or smart car space, but you're right. I think the manufacturers, they are looking at how they can bring more entertainment services into the vehicle. I think that's an area where we've got some components that we'll license to them, and then eventually we'll see whether there's a tighter integration with our consumer products.



Q: I'm actually going to be having a fireside chat with Arthur Orduna, who you probably know. He's Chief of Innovation at Avis Budget, and we're going to be talking all about that kind of thing, at the TV of Tomorrow Show conference coming up on June 13th. That's another time, another discussion!

What I'm curious about is [what you're going to do with Alexa and Google.] You also have your own voice-controlled device called Vox. I'm curious which of these offerings you think will win out? Do you think you'll just explore all of them? Are you looking to see which one people glom onto; which one is the most flexible? Is this a "put it into the market and see which one pans out," or do you feel like you'll support all of them going forward?

A: Well, that's a good question. I think we're trying to experiment a bit here, because I think taking a "one size fits all" approach is not a great strategy in the consumer market, and we're a little bit too small to have the luxury of trying to just pick one and go with it. I think what you're seeing from us is some innovation in these different areas. So, the Vox control, which is our TiVo near-field voice (near-field meaning that the voice control is built into the remote control....We shipped that in late October last year, 2017, and what we did was, we put voice control remotes in all of our new products. So, the TiVo Bolt, we revved it to the TiVo Bolt Vox, and the TiVo Romio, we revved to the TiVo Romio OTA Vox. And really, the only primary difference from a hardware standpoint was we moved from a standard remote to a voice remote. With that, I think that innovation had taken us about two years to bring to market, because it wasn't just the putting a microphone into the remote, but it was bringing online the web services to do both the speech to text, which we use Nuance for, and then the natural language understanding of what does the user actually want? And for that, we actually wrote our own, we call it the NLU, the Natural Language Understanding engine, and that's a Web service that we developed ourselves entirely, and we run it as a Web service. So, when a consumer uses the remote, they press the button, they say something into the remote, it's sent to the TiVo box, it's routed to Nuance, we convert it to text, then it routes to our NLU engine, and the NLU engine then looks at what we think the user wanted. Was it a search? Was it a command on the set-top box to go to a different area of the UI? What was the user trying to do? And then we also personalize the search results. So, if at your house, you spoke into the remote and said, "Show me comedy movies," and I said, "Show me comedy movies" on my TiVo - the results are going to be a little bit different between your house and my house, even if we have the same service providers for cable or OTT.

Q: You've probably integrated AI into the system somewhere, right?

A: So that's what the Natural Language Understanding engine has, is it has a variety of both recommendation and predictive capabilities built into it, which try to figure out what you want to do, what you're looking for, and tries to adapt that to each user. So that all runs



in real time. I think that kind of system, where it's near-field and it's tightly integrated, in many ways, you can do a bit more because largely we own the end-to-end system. When you start integrating with, whether it's the stuff we do with IFTTT or now with Alexa, I think now you are not really controlling the ecosystem anymore - you're just controlling your ability to plug into that ecosystem. Amazon's done a great job with their skills development kits to allow developers to plug into their system. But there are limitations. So, we have to, by using the Video Skills Kit, or the VSK, we have to plug into their framework or their schema for how a TV device should be controlled. They don't just tell us how they want to do it. They meet with us and listen to us and they try to understand our use case. But we have some constraints based on what they enable in their skills kit, so we don't necessarily have the ability to innovate outside their kit. We can convince them to try to add some new capabilities and then we can integrate them into our system, but there's dependencies there. To answer your bigger question, that's why I think we're trying some different things as we're trying to figure out what we can and can't do in these different areas and learn.

Q: It sounds to me like it's not completely available to third parties to develop, to come up with some new ideas yet. It's still trying to figure out what it can do on these OTT platforms.

A: Yeah. And I think, just sticking with Alexa, because that's what we announced this week, you can do a whole lot more if you don't mind the customer having to say a much more complicated command. So, let's say that we wanted somebody to be able to go to their list of recorded shows and somehow delete a specific episode of a program. We could construct a command for Alexa that says, "Alexa, delete episode 7 of *Game of Thrones*, Season 2," and you've got a super complicated command to do that. But you have to string that all together and you have to make sure you put the "tell TiVo to do this," and then that routes it to a custom TiVo skill. We chose not to do that, and we chose instead to use their developer kit so that the commands could be really simple. So, they are, "Alexa, watch CNN." "Alexa, pause." "Alexa, play." It's not, "Alexa, tell TiVo to pause" or these complicated things. So, we chose to work within their framework so that what we delivered was a lot more consumer friendly.

Q: It's interesting, the rise of voice commands. People use Siri and things like that on their phones and they're becoming more familiar with the way to control their phones. To what extent do you have to follow those trends? Or is Google Home Assistant so different from Siri? Maybe not. With Vox, it's going to be a whole other system. To what extent, through your research, are you finding a consistent way for people to approach this experience, so you don't confuse them? The other part of that question would be, is it a different voice system between, let's say if they have Alexa and they want to do something with their Vox? Because I know Vox can search for content, can do other



things - it has more controls, versus using Alexa, which can access the apps, tell it to play, you can skip commercials, do all these basic things. But the Vox can search for content.

A: It can do everything.

Q: Are those two systems compatible or different, in terms of voice commands, what they recognize?

A: They are different, for sure. I think that is one of the challenges that we have is, how can we try to get them to be consistent? And for the most part, right now, they are, in that the Vox commands are really a super set of what you can do with Alexa. So, if you said, "Alexa, pause," you can grab your remote, press the button and say "pause." Or, if you said, "Alexa, watch CNN," you can grab the remote and press the voice button and say, "watch CNN." So, I think, in a way, they're not inconsistent. So, hopefully they're not too confusing. But as I said, because we depend on Amazon support for the video skills kit, we don't have the underlying support via Alexa to do everything that we can do with Vox. Will we get there? Yeah, probably, or at least the superset will be a lot smaller superset than it is today. But Vox really lets us do anything we want to, and then we can show some of that to Amazon and it helps them figure out what else we want to be able to do. This is still pretty nascent market. And, even though these speakers have been out for a while, I think this idea of tightly integrating other devices into these ecosystems is still new. It's super easy to plug a Web service into an Echo and say, "What's the weather? Is my train on time?" Those kinds of things are super easy. But, when you connect one device to another, it's much more complicated because of the different device-specific features and functionality and the dependencies, and if you update the software on one, what if the version of software on the other isn't updated and so now you have all these versioning problems. I think this is going to continue to be a problem for our industry, in general, as we try to innovate rapidly and compete on our own devices, but also integrate with other product teams that have their own priorities and their own schedules.

Q: Well, we certainly try to [create] those kinds of conversations [at TVOT]. I'm sure you do it privately, but [we] bring all kinds of interesting people together at our conferences so you can hear about new ideas on other platforms that you might not have known about. That's a little promo for us, but that is what we do.

A: Well, and if anybody hasn't been to the Presidio to see the location where you host this, it's one of the most beautiful places in the country. Love it.

Q: Yeah, I love it. Alexa, or I should say, Amazon, are out there trying to promote interactive games using Echo and all kinds of new ideas. To what extent are you talking with them, or maybe it's too early, about creating content using voice or using the voice to navigate



content, but to gamify it or to even explore the commerce aspects? Is that part of the mix right now or is that a little too early?

A: It is part of the mix. I think those conversations are happening. Amazon, and anybody who's done business with them probably understand this, Amazon is a very *[audio cuts out]* so for instance, we sell TiVo--

Q: Actually, sorry, Ted. Can you repeat that? You blocked out just for a second. You said Amazon is a...?

A: Amazon's a very large company, so we sell TiVo boxes on Amazon and we have a sales team that we work with. We're doing these voice controls via Alexa and we have a smart home team that we work with. We are licensing some metadata to them in another areas. On TiVo, we have Amazon Prime video support and so for that, we're working with an app team there. So, they're such a large company and they really are so involved in the smart home and the entertainment space. It's difficult to talk about them as if they were one company, because there's all these different teams. We are certainly talking to them about some new ideas and where want to go with this, but we don't really have anything there that we're ready to talk about.

Q: Speaking of metadata...Rovi was absorbed into TiVo, or you guys are one company now, [now] you have so much to tap into.

A: That's right. And actually, some of the Natural Language Understanding that I talked about was actually a development that was going on, on the Rovi side, or some of the voice control. So, some of it was DigitalSmiths' that was on the TiVo side, and some of it was some of the Natural Language Understanding was actually developed on the Rovi side, as well. So, I think there is some really interesting synergies there, I guess, if you will, with all of the experience that Rovi had on the metadata side. And it was, I think, technically, it was Rovi acquired TiVo, but they were similar-sized companies, they were about \$500 million companies, so I think in practice, if you think about the people that are here now versus who was here at the merger, it feels like two companies that came together with equal size and equal businesses, so it's really been a blending of two organizations.

Q: You're a good spokesperson, Ted. You have a good answer for any question I throw at you.

A: Okay, well thank you for that. I don't take compliments very well.

Q: You're doing great. One area, where I haven't seen enough innovation, is creating actual interactive programming or interactive shows. I guess you sort of said you can only do so



much. I've always thought that TiVo was in a particularly good position. There was some exploration in the early 2000s to create partnerships with broadcasters and work with the showrunners to do something that might be interactive. I think now that Voice is involved, it's not just about doing two-screen integrations. You're not working with two different devices. How do you explore that real estate on that big piece of glass?

A: Yeah, and I think also, virtual reality. If you think about some of the other innovation that's going on in the television or the lean-back entertainment space, we are working with several different technologies in an R&D sense. So, we have some pretty cool VR demos if you ever want to come by and see them.

Q: I'd love to.

A: We're not sure how, when, and where that translates into a mass market thing, but we are definitely looking at ways, similar to what we did with IFTTT. We're looking at ways where we can actually do real external consumer trials of some of that, so that it's not just some engineers that are inside dreaming up some cool trade show demos, but we actually really getting out there and testing the market. I think some of us from a distance might say, "Hey, VR, it's just about gaming right now or more industrial use." But the reality is, there's so much development going on in that area and you just have to assume that it's going to collide with more of the living room entertainment. That's an area where I feel like we definitely need to be thinking outside the box about maybe interactive TV the way it used to be defined, never really took off at scale. But that doesn't mean that there's not a lot of really cool new interactive things that are going to be happening in the living room. Microsoft Kinect ended up not working that well, and so there's lots of companies that experiment, but it doesn't feel like anybody's really landed in the living room with anything interactive at scale.

Q: There's a lot of great visualizations out there I can send you, if you're curious about what [could] happen. I think when we were talking earlier about the home ecosystem, it really is home entertainment, environment immersion, because you can do voice control, the content as a VR thing [and] as a projection on your walls like Microsoft's project was trying to do, and then controlling the environment [with] sound. The home theater becomes something much more than just a big screen and the TV; it's a whole experience. I actually started in the VR business in the early '90s, myself. That's how I got into interactive TV.

A: Well, then you definitely have to come see our demos.

Q: Okay. I'm there. I'm only a few miles away. All right. This sounds great. You helped me ask that next question which is, what is leaning forward next? So that's good to hear. I



think we have pretty much covered it all, but is there anything else that you'd like to add about what's coming out?

A: [0:34:52] Wow. I think the main area of innovation that we're focused on is OTA, so the Over-The-Air TV programming. I think we understand that consumer trends are moving away from buying large-pay TV bundles and into skinnier bundles that they supplement with either SVOD or other a la carte services. So, I think you're going to see continued innovation from us in that area, where, at least on the consumer side, we start to plug into that consumer desire more and more.

Q: Well, maybe there'll be TiVo watches and all kinds of other devices. We'll see. All right. That sounds great. Ted, I really appreciate your giving us more of a far-ranging interview and look at what TiVo's doing today, launching off with this piece of news about your integration with Alexa, Amazon's Alexa system. So, we look forward to seeing those June 1st, [when] I think they're coming out. Correct?

A: Yep. We're rolling them out in phases. We've actually started and we're getting some early feedback, but we'll have fully released them to our entire install base of premier Romio and Bolt devices by June 1.

Q: Okay, well, we're going to have to show them off at TVOT June 13th and 14th. Don't click off the phone yet, because I want to mention something else offline. But thank you so much, Ted. This is Ted Malone, Vice President of Consumer Products and Services at TiVo.

A: Thank you, very much, Tracy.

Q: Thank you. This is Tracy Swedlow, Editor of ITVT and Co-Producer of the TVOT Show, which is June 13th and 14th in San Francisco, at tvotshow.com. Thanks so much!

[End of Recording]

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