S1 EP34 - 2023 MWC Barcelona Preview

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On this week's episode, join Peter Carson, Senior Director of Solutions Marketing and podcast host Chris Banuelos to hear their discussion on Marvell's most recent product announcement as well as what is to come at MWC Barcelona 2023. Be sure to stay tuned to hear how Marvell enables carriers to efficiently transform their networks. Check out the latest press release: http://bit.ly/3IREPwL

Speakers
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C **Christopher Banuelos** 00:04
Welcome to the Marvell Essential Technology Podcast. I'm your host, Chris Banuelos. On today's episode catch Peter Carson, Senior Director, Solutions Marketing, discussing Marvell's recent product announcement and what's to come at MWC Barcelona 2023. Also learn more about how Marvell is enabling carriers to efficiently transform their networks. Hey, Peter, it's great to have you on today's episode, I wanted to talk about the product that Marvell just announced. Can you tell me how it will transform the 5G Radio Network?

P **Peter Carson** 00:43
Yes, thanks, Chris. And thanks for having me, again. We just announced the OCTEON® 10 Fusion processor. This is the industry's first 5G processor for the radio network that utilizes cutting edge five nanometer process technology which enables even better performance and power efficiency than our previous generation. It's built on very widely and proven Marvell 5G baseband technology. In fact, we estimate that more than half of the world's smartphones connect on networks that use Marvell 5G silicon. This processor is built for both the RU and the DU. The RU is the radio units typically the the box that you see the top of a cell tower that actually provides the signal that connects directly with your phone over the air. And then there's the DU, which is the distributed unit, which does the digital processing in a box that's usually a lot bigger and sits at the base of the tower somewhere in the data center. The unique thing about this this processor is in the industry is that it's built on proven baseband technology, which means that it's the process of as delivering this very high performance of the 5G networks that people enjoy today. But now we were bringing it to the market in an open a virtualized radio access network technology, which makes it a cloud radio network capable platform as well. So having customers that actually are supplying both the existing 5G networks, and already moving into the cloud RAN market are in a position to deliver the same performance. And that's what's missing from the VRAN and market today. So you'll hear a lot of different terms Open RAN, vRAN, all these are enablers for what is kind of in the greater sense, a cloud native 5G Radio Network, up to this point, it's been challenging, deploying those networks on general purpose processors, what we bring in Octeon 10 Fusion, the real differentiator here is what we call inline hardware acceleration for the very challenging 5G functions that actually do all the over the air processing to deliver that signal to you at very high bandwidth at very low latency very reliably. It's very

challenging thing to do in software, which is why the the traditional integrated systems that integrate hardware and software more in a more optimal way, deliver such high performance and make for a very high bar when you're moving this in a virtual to a virtualized environment, and trying to do it in software. So you do need the hardware acceleration to actually make this work as well as the previous technology. And that's actually our core differentiation here. And it will help carriers bridge this transition as well.

C **Christopher Banuelos 03:29**
Hey, well, with a Mobile World, Barcelona coming up, can you tell our listeners what's new with Marvell? And what can they expect to see at the show?

Peter Carson 03:39
Well, Chris, we're excited to be back. This is our first on site appearance since 2019. And we expect the show to be back in full swing. So we have a showcase that will demonstrate our industry leading 5G silicon portfolio, literally from the edge of the network, the radio all the way back to the central part of the network called the core network. We're also going to demonstrate the relevance and hopefully educate the the broader wireless industry audience on our cloud optimized silicon strengths in in the hyperscale cloud infrastructure, really powering all the world's largest clouds and why that is so relevant to this whole trend of 5G Cloud convergence. We actually are going to feature a lot about the open end VRAN platform cloud RAN platforms has many different names, but essentially it's an open virtualized radio network. That is one of the hottest topics in the industry because of the challenges the industry has had with the early general purpose processors and we have we're going to show a lot of ecosystem momentum for our our product based on OCTEON® 10 . So you'll see that a lot around the show. Carriers major infrastructure vendors, server vendors, processor technology vendors cloud software by vendors, you're gonna see our VRAN solution show up in a lot of places at Barcelona. But that's not all. So the OCTEON® 10 processor, as I mentioned, also serves the radio unit end of the market as well. Because massive MIMO is the technology in the 5G radio tower that actually adds all this additional, what we call beamforming, being able to steer the signals to where users are to get better efficiencies, higher throughput, lower latencies. And it requires a lot more processing power, but much lower energy consumption. Because those those boxes have to be small and lightweight, and be in very hot or very cold environments, extreme environments. If you can reduce the power, those those systems perform well at lower power and can be, you know, decided everywhere, because we're actually growing the number of sites and increasing the complexity through these these more advanced beamforming technologies. And that's where OCTEON® 10 Fusion in our partnership with Analog Devices, we'll be showcasing a next generation radio unit reference design with OCTEON® 10 Fusion is the first the world's first 5g Digital beamforming solution in the five nanometer process technology for for advanced, massive MIMO deployments. So we're excited about that too. One of the newest areas that will showcase is security, 5g security, with the industry moving to open ran and the migration to cloud. What that does is disaggregate the network and virtualize separate software and hardware and create more urgency around having advanced security platforms what is already a very urgent need for advancing the state of security in the 5G network. So we will showcase our liquid security two Hardware Security Module, which was announced back in September, which is the most advanced hardware security literally proven in all the world's largest hyperscale clouds. So where you would procure as a business eight, what we call HSM as a service from a hyperscale cloud, you're very likely using Marvell liquid security. And so this is now available for 5G carrier networks. And, and we've got a showcase of explanations and tutorials around this demonstration that will show you how we secure 5G data from the SIMs and eSIMs. Those are the Subscriber Identity Modules that contain very sensitive subscriber information and authentication credentials and things all the way to the cloud, where you have this new containerized architecture. So we'll talk about cloud and container security, as well as support for the latest 5G security standards NIST certification, and actually at the Bottom. Bottom line is really best in class performance, power, total cost of ownership. And most important for future networks is crypto agility. So you may have heard about post quantum computing and the the challenges that quantum computing creates for keeping secure your encrypted data. And so Liquid Security 2 (LS2) actually has crypto agility, so we'll be able to evolve and upgrade through firmware and software to support the most advanced algorithms for post quantum crypto as they become available. And then finally, the markets on the cusp of a new tenure switch upgrade cycle routers and switches in the transport networks telecom networks. And typically this is where the opportunity for both switch transition where we have pristera Switch silicon that is

one of the leading switch silicon platforms in the market. We'll do some demonstrations around that as well as our transport module ecosystem of optical modules. Now, our optical DSPs have actually helped disrupt the whole Optical transport business in the cloud by basically replacing expensive fixed boxes that are much more expensive, more power hungry with very small low cost, high performance, low power optical modules that literally plug in three standard interfaces into an existing switch so as you upgrade these switches, you have the opportunity to then rethink your, your optical network because data traffic is always growing and you need to go to higher speeds but you got to keep costs down and power down. And so we are going to show about I think it's between about 20 to 25 different optical modules that literally span from the edge of the network 25 and 50 Gig gigabit per second fronthaul all the way to backhaul into the core network and beyond long haul transport up to 400 gigabit per second speeds in these very small, very low cost low power optical module. So it'll be a pretty impressive ecosystem display with lots of explanations and technology tutorials and things like that. So we'd love to see everybody come in, and experience the whole Marvell portfolio from edge to core across all these different technologies.

C **Christopher Banuelos** 10:25

Sounds like Marvell is really expanding in a lot of areas across the carrier networks. Peter, my last question for you is how is Marvell going to help these carriers transform?

P **Peter Carson** 10:34

Yes. So what I just talked about was our product breadth from edge, edge to core. I also talked about technologies from radio unit and digital signal processing for beamforming, all the way to the edge of the network, optical and switch transport from literally the edge to the core of the network and beyond. But the biggest opportunity in leveraging these technologies, because as I mentioned, we have a very strong presence as a strategic supplier and partner to the biggest hyperscale cloud service providers in the world. And a big position in the radio network that is now expanding all the way into the core and beyond with these technologies. So you know, the biggest trend right now transforming and disrupting the mobile industry is actually 5G Cloud convergence, basically moving all these functions into data centers, as software on servers, and you require very specialized processing to maintain the fantastic performance that 5G networks deliver today, not just in the radio, as I discussed before, but also in the core network. So we bring these technologies, acceleration technologies into aspects of 5G, like the new core network that has a new data plane, that is really where you, you control the ability to deliver these very low, fast, responsive services, low latency, high reliability at high bandwidth, end to end. And that technology doesn't run very efficiently on a general purpose processor as software. So it does require acceleration, we're going to show how we can bring all that to bear. And then of course, all these other technologies, as well. But if you think about this industry, one of the things we realize several years ago, when Marvell really became a strategic supplier to the big cloud platforms is that every cloud is unique. And and actually, we found even in the 5G business, in the infrastructure business, you know, every major OEM that we work with has, they bring unique assets to the table, so are really unique ability to customize the most advanced most complex 5G and cloud platforms. You know, like I said, both in the wireless industry, and the data centers, will will be coming together, as you know, we moved to a cloud native 5G architecture. And we're the company in the best position to do that at scale for the world's largest OEMs and cloud service providers. And we're proven in both areas. So I think this is a very relevant time to talk about how we can, we can use that unique ability to customize as well. It's not just we deliver a one size fits all we customize that scale for very large OEMs. With very demanding requirements, we're executing with the likes of Nokia and Samsung, in growing their and enhancing their existing networks, but also in the transition to this cloud native world is not that we just work with the big players where we also create the open and virtualized disruptive architectures that we talked about and VRAN and cloud RAN, that are enabling a very diverse and growing ecosystem of suppliers from Dell, which is obviously a very established player in the even in the telco space, not just cloud space. And they moved into VRAN but also the small module vendors that I mentioned in the optical space, which really disrupted the cloud and really brought down the cost structure of the cloud, because a lot of it is about these, you know, really mind boggling optical speeds and trying to keep the cost and the and the power down while you flexibly scale those networks to the next transition. So you know, bottom line is we're we're the best positioned of any of the silicon vendors in the 5G world to help customers and partners seamlessly

transition their carrier networks over this kind of decade plus transition from conventional networks that are highly integrated, highly optimized to these new disaggregated cloud native architectures, which today have a lot of compromises. And as they move to deploy our acceleration technology and all these optimized lower cost approaches that maintain the high performance, were able to bridge that gap. Close the Gap between you know the trade offs that you typically see in, in software running on general purpose processor to a more optimized approach. We use the cost, we can use a common silicon platform to actually bridge this transition. So you have not only the flexibility and the programmability of the new cloud native architecture, but also the performance of the existing established 5g networks.

C **Christopher Banuelos** 15:19

Peter, thanks again for being on today's podcast. Great conversation today and looking forward to a future discussion.

P **Peter Carson** 15:25

Thank you, Chris.

C **Christopher Banuelos** 15:27

Thank you for listening to the Marvell Essential Technology Podcast. As always, please feel free to visit our website to learn more, and we'll see you on the next episode.