**Patrick Moorhead:** Hi, this is Pat Moorhead and a huge welcome to everybody to the Six Five Summit 2023, four years running. We're talking about the greatest things in technology, talking to the most influential leaders out there. This year, the theme is Navigating Troubled Waters. And as we know, Daniel, what gets us through this, innovation in technology. How you doing, my friend?

**Daniel Newman:** Four years, who would've thought?

**Patrick Moorhead:** I know.

**Daniel Newman:** We started this thing right before 2020, which obviously made a huge inflection to all things digital, but as the analysts, thinkers that were ahead of the curve, we knew the trendline would be, how do we get information out quickly, put it out in front of the paywall, make it available for people, and talk to the innovators, the disruptors, the companies that are doing things and leading the way. And Pat, this year, we all knew there was going to be some challenges. We saw it coming. It wasn't a massive prediction to say, but for our audience that we've been focusing on innovation with, it's time to put these leaders in front of them and say, "Hey, how do we get through this?" And with all these trend lines, with AI, with multi-cloud, with security, to put these leaders in front of them, hopefully an opportunity to learn so much here.

**Patrick Moorhead:** Absolutely. We've had some incredible leaders open up the Six Five Summit and we are so pleased to introduce Hock Tan of Broadcom. Hock, how are you?

**Hock Tan:** Good. Nice to be here.

**Patrick Moorhead:** Yeah. You're a legend in this industry and the changes and the dynamism are incredible. What you've done on the hardware side and now what you've done on the software side is impressive.

**Hock Tan:** Thank you.

**Daniel Newman:** So you heard my preamble. Sometimes Pat accuses me of going on a bit, but it's very exciting times, Hock. Whether it has been the cyclical nature of the chip industry, which of course Broadcom is weathering, or it is the innovations in software, the security movements and people working on cyber or even AI and generative AI, which of course has become top priority for so many companies.

We are seeing a year of very different macroeconomic conditions. We've got interest rates up, we've got inflation persistent, we're not sure if the rate hike cycle is over yet. That means future earnings are being impacted. That means some stocks have been able to weather other companies not so much. I'd love to just get your broad take on the macro environment and how companies should be thinking about technology and innovation in this current market.

**Hock Tan:** Well, the way I look at this, in the business we are in is, well we are very fortunate in many ways, Broadcom I'm referring to, in the technology side of the industry. And what it does is, I think the business model, we over the years have seen and have preferred to adopt is one that's very different from the older economy. But simply put, when we look at a situation, an economic

uncertainty, macroeconomic uncertainty, as we are seeing today, the way we look at it is this is to take a longer-term view. Now, we have to be mindful of short-term risks, very thoughtful about things that might change. But in the broader scheme of things, see technology in my view is an evolutionary process. People like to talk about disruptive. Frankly, I think it's less disruptive. It's really evolutionary. And the way we look at it is we should not be in technology captive to economic cycles.

So as we look at what we are seeing, economic uncertainty now, we do not necessarily see spending towards technology in the global sector going down. It may pause, but there still is a need, there still is increased consumption. So our way to drive through it is we're basically mindful of certain risks we are taking. But our model gives us some advantages, which I'll touch on a second. We keep on innovating. We keep on designing for the next generation product cycles because we know, beyond this down cycle, our customers will need a new generation of products because they need to give value to their customers.

Patrick Moorhead:   Broadcom has 60 years of innovation packed into it. Names like AT&T Bell Labs, Hewlett Packard, LSI, and more obviously the innovations that you're bringing together today. I want to hone in on this evolutionary thought here because you're right, a lot of the headlines seem to get made out of this disruptive black and white, life is going to change tomorrow on the planet. Can you talk about why adopting this mindset is better than maybe going for the black and whites of a revolution?

Hock Tan:   To start with fundamentally, people, society do not adopt technology as fast as we like them to. It never happens. We are, yours truly included, adopt technology slowly, much slower than we like to believe. Technologists will always say things will change overnight, never does. And my customers behave the same way. And their customers, the customers of my customers behave the same way. An example is this, we just were the beneficiary of an announcement made by our largest customer, Apple, on a multi-year partnership in providing chips and key components for 5G and other products.

Daniel Newman:   Congratulations, by the way.

Hock Tan:   Thank you very much. Because we do have a very deep and lasting partnership with Apple and it didn't come out of thin air. We have been doing those components, the same components, the same kind of components announced in this deal, in this recent announcement, since iPhone 4. So you can imagine, now we're going towards, next year, iPhone 15. We've been there. Generation after generation. It's an evolutionary process. It's not enough to be available to your customer. It's not enough you show up one day and give a product that is the best of its kind. You have to be there again the following year and the following year, and they have to count on you being there. So it's not about just doing the best product at any point in time. It's being able to be around to provide them with a trend, with an evolution through multiple generations.

Daniel Newman:   That's awesome.

Hock Tan:   Yeah.

Daniel Newman: No, it's tremendous. And it's funny, we had that conversation. It was an episode or two back where we talked about sustainability and he's talking about sustainable business, and that's a very important thing that we need to build things to last. I really like, Hock, how you talked about that technology never really changes the world overnight. Now it feels a little bit like that right now with generative AI, but I always say Google's been finishing my sentences in Gmail for two years now. Generative things have been happening in our lives and then all of a sudden there's this inflection or a waterfall that comes over the edge and everyone's like, "Whoa, the whole world's changed." But these things do happen more gradually than most people tend to notice, and I think you're really able to take advantage of that.

The other thing though that I think is very interesting about your approach in studying the business and spending some time analyzing it, is how you define value. So in your annual shareholder meetings, in your quarterlies, you talk a lot about delivering more value. Your M&A strategy is about delivering value, your partner strategy value. Talk a little bit about Broadcom's approach to value, because I think the word can be interpreted differently by-

Daniel Newman: The word can be interpreted differently by different stakeholders and shareholders in your community. How do you define it? How do you make sure you continue to deliver it and truly be a company that provides meaningful value to your customers, your ecosystem, your partners and beyond?

Hock Tan: Well, I mean, for a technology company like us, the most obvious way we deliver value is what technology; what features; how do we make our customers' products better? And better in the sense that they can... Whether it's cheaper, whether it's very often more feature reach, lower power, depending how it is, it's all about delivering to what they need.

So when I say we deliver technology, I would say really we deliver products from core fundamental technology that meets the needs of our customers, and it varies depending on the end markets we are in. And also, it used to be speed, speed, speed. Today, it's speed weighted against power, in today's environment. And so the core technology we deploy goes towards products that meet what a customer needs.

And to put it directly, our most important partners are really the customers, because they're the ones who tell us what we need and we develop the technology and the products that addresses it, and that's intended to create value that any customer or set of customers of ours want in any end markets at any particular time. And it's about the ability to adapt and evolve as the customer evolves, and we do that and we try to do that on a sustainable basis through multiple generations. And that's what creates for us a sustainable business. And by creating that value, we basically, in a nutshell, monetize the technology we have for shareholders.

Patrick Moorhead: Yeah. I'm sure a lot of the viewers are fascinated at how pragmatic the approach is. I mean, essentially helping to make your customers' customer more successful in some way, shape or form, either through the experience, either through lowering cost, but at its fundamental, and that is what value is all about that you capture.

Now, none of that is free. It takes a lot of R&D to make that happen. In fact, based on our numbers, I think R&D has outpaced your revenue by 50% since 2009, which is phenomenal when a lot of people today are winding down R&D to even cut costs over time. The other

approach that you've taken is your R&D is an evolutionary approach as well. And I'm curious; how does that evolutionary R&D approach affect your customers and your customers' end users?

Hock Tan:     As I indicated earlier, our ability to keep coming out with our product roadmap in any of the areas we focus on is extremely critical to our customers, because the whole idea that we all like to be in technology, it never stays the same. And we have to keep progressing. Customers want to keep progressing because they want to be able to create a reason for coming out with better products, for coming out with more value to their own customers, as we do. And one of the nice things about technology is it doesn't stay stagnant, and our ability to keep coming next-generation products is great.

Having said that, not all products, not all end markets, evolve at the same rates. To give a sense, the phone that was so ubiquitous, it changes every year. Our business with our largest North American customer, we come up with a new generation of products to adapt to what they want to attract their consumers. Every year. We come up with a new generation every 12 months. Then we talk about data centers. In networking, we come up with a new generation of switches every two, three years, steady speed, and our customers come to count on it.

Now, they would tell us, frankly, if I can give today... Our switch goes at basically 25 terabit per second, which is pretty fast. They will tell me they would love to have 100 terabit per second tomorrow. But I know the ecosystem doesn't support it, nor necessary do they have all the needs to be able to address it. So we know we will go from 25 to next generation, which will happen in 2024, 50 terabyte per second, and it'll be another four more years before we get to 100. But the ability to be very counted on, to be able to deliver that trend of products, is what I think makes us as valuable to our customers as the fact that we have the technology.

Patrick Moorhead:  So it's funny. It's timing. It's timing it right and not going for the latest shooting star or fad that's out there. It's just sticking to it on a consistent basis, hammering away at it, and from a resource-allocation standpoint, that's optimal.

Daniel Newman:   Yeah. We've seen a lot of different models and mixes, but I think the longer term tends to tell the best story, meaning that you can get it right once, but companies that tend to get it right over many decades tend to have some things that they've learned along the way. And what I'm hearing here, it's durability in the strategy, Hock, and you're showing a lot of that, because the results have been consistent; persistent, you could even say. You're in the process of a pretty big deal, VMware, and I'm sure our audience, this is something they're going to want to hear from you about.

VMware's... I've heard you on the record. You've said they have some very, very good capabilities to help bring the multi-cloud to its potential. But you've also said there's a way to go. I think VMware made a billion-dollar R&D commitment. You actually came out and said you would like to put another 2 billion towards R&D to bring the multi-cloud to life. Everyone out there wants to hear. Share a little bit about, A, what you can about how the deal is progressing, and then, of course, with these big investments, what do you see coming out of this deal, presuming it gets done? What's next?

| Hock Tan: | That's a very good question. And first of all, Broadcom has a model of acquiring technology, acquiring assets, which has very good technology. Because we are a line technology company. The difference, we think, is our ability to deploy that technology in terms of creating very successful business models, and VMware fits that model perfectly. I mean, they are first and foremost in a very proven and rapidly growing market still even at this stage. |
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| | And what's that market? It's really about attracting. It's about enabling application workloads to run in data centers. That is it. Run as efficient as possible in data centers. And that's a big market today. It's a $400 billion enterprise market between on-prem and in the public cloud. Now, VMware started 20 years- |
| Hock Tan: | Now, VMware started 20 years ago and it has the technology. It was one of the earliest companies to come out with technology that enable virtualization, virtualization of hardware. Started with computing hardware. Why? It enables workloads to be run so much easier and at much less expensively. They were earliest, very successful in compute. The trouble is, things change. Today we talk about a cloud environment. What does a cloud environment mean? It means you run not just computing virtualized, you run entire data center, computing, storage, networking, management, all on virtualized software environment, what you call, software defined data center. Well, VMware has been overtaken by the public cloud companies, the hyperscalers, today. You go into the public cloud environment, you have a totally, very elastic, very resilient virtual environment. But VMware has not been as successful, been able to deploy its technology into enterprises, not in any scale on a virtualized data center. |
| | So what we're coming in to basically address is simply this, standalone VMware doesn't have the scale, the financial wherewithal to make the kind of investments to be able to create that dream of creating a cloud environment for enterprises on-prem just as they get it in a public cloud. You hit it right on. They're investing, but inadequately. What we propose to do is invest in two directions. One is increase R&D by a billion dollars a year to basically make their products, the full stack of products, much more easy to consume, much more easy to use and operate. |
| | And the second part is, you can't do it on your own. You need to create an ecosystem. You need to create partners. Is to invest additional billion a year to train, certify professionals who can use, who can practice on VMware's virtualized products. That's what we see ourselves doing as soon as we are able to in closing this deal. And if you do that, what you create on-prem among the enterprises is private cloud, which also enables application workloads running on the prem to go hybrid, public cloud, and back again. You create that multi-cloud environment that you're talking about. And that's the long-term plan we have for VMware. But it's a journey and something that'll take us a few years to achieve. |
| Patrick Moorhead: | Hock, multi-cloud is one of my favorite topics that I'm talking with enterprises or other people out there in the industry. And the great news is we have arrived at the point that multi-cloud is accepted, if nothing else because all Fortune 500 companies have multiple is providers. What I'm really excited about with Broadcom energizing VMware is the ability to solve the problems that those enterprises have. Because of all the resources that they're putting in, essentially stovepipes. So I'm excited about this. The enterprise is excited about this. And quite frankly, it's going to require a company who is more Switzerland, who can go between the public cloud vendors, can go between the on-prem companies out there. So known challenge, and I think |

right now with the extra added investment that Broadcom can bring to VMware, an acceleration of that capability and that digestibility of that for enterprises. So I'm excited about that.

**Hock Tan:** So am I.

**Patrick Moorhead:** Exactly.

So, I mean, it wouldn't be a high-tech conversation if we didn't talk a little bit about AI.

**Hock Tan:** Of course.

**Patrick Moorhead:** And I know we've talked about evolution versus revolution, but I think we can all agree that we're not talking about NFTs, which was clearly a fad. But also on the other side, AI is not something that's new. In fact, you go to the early days of AI algorithms, they're from the 1960s. And then we had AI followed by machine learning and deep learning and now here we are with generative AI. A lot of the hype has been driven by the consumer applications. At the backend, I mean there's a lot of processing that goes on there. Some have talked about a 10X increase in what it takes to train a generative AI model.

But aside from consumer applications, what other type of benefits with generative AI have you been thinking about or maybe talking to your customers about, maybe enterprise capabilities of this?

**Hock Tan:** Well, that's a very interesting topic and one can approach it in a couple of ways. And you're right, A lot of the hype today is on consumer applications. Write poems to your wife, girlfriend, get ChatGPT to do it for you just like that because they have a database, it's well-trained, but you got to go sign up and go to the cloud to do that. Now, if you're an enterprise, and say you're a bank and you want to get employees to run certain models and you don't have it on-prem, you want to go to Google or Microsoft Azure to run it. Look, first you got to transfer data from your company over into where the models are sitting, where the training is happening. And you know what? You're not allowed to do that these days. So many companies, including Broadcom, have put in place checks and balances that says that if any employee hooks up to a cloud with generative AI and we start seeing data from the company, any data, starting to flow, we'll shut it down. We can do that through information security tools that we have.

So the bottom line is for enterprise applications, data is what, perhaps, stops the potential of basically shooting for the stars. Trying to create all kinds of applications for generative AI is hard. So you can't get data over, so you're going to run in on-prem and if you try to run generative AI on-prem in terms of large language models, LLMs, huge parameters to do all these fancy stuff, cost you a lot of money. And again, your point exactly Pat, AI has been going on for the last 10, 20 years. Banks stress test is AI and they run it on CPUs. You put your model in it, run on batch, you go for a cup of coffee, you come back, the results are there. That's good enough. You don't need to do it in real time. Generative AI gets really large scale when you want results in real time. And who does that? Social media, some consumer applications, search engines. Most of us, we don't need it.

So it will take time to be adopted and like all technologies it is been something that's been evolving and, my belief, will continue to evolve. This is not a disruptive phenomenon.

Daniel Newman:    Yeah, it's going to be really interesting though to see how this does proliferate into the enterprise because I think we're really in the, we found, I guess what you would call that sort of killer app for inference. Because we kind of knew the training-

Daniel Newman:    That sort of killer app for inference, because we kind of knew the training has been taking place. And by the way, all this kind of flow of immediate spend is really about training. Every enterprise, every hyperscale or every company that wants to get as much compute as possible to get training these models. But, the inference is where we experience this, whether it's running your ERPs and CRMs, or it's some sort of knowledge base of company insights that helps an employee figure out how to deliver service or helps a customer figure out what product to buy. And so these things will continue to proliferate in really exciting ways, but it is going to be a combination of your proprietary data has to be over here, and there's going to have to be some sort of walled garden that separates you from the kind of open internet consumer experiences that we have. Or else every company's competitive advantage goes away, because that data, so much of the competitive advantage sits there.

Hock Tan:        Worse than then. Now the privacy rules, you cannot send your data out.

Daniel Newman:    Yeah. And you shouldn't. Just in case anybody's thinking about it.

Hock Tan:        Right.

Daniel Newman:    So, something that I learned that was really interesting actually when we were doing some research on Broadcom is that, I think it's around 75% of the employees of Broadcom are engineers.

Hock Tan:        Yes.

Daniel Newman:    And you talk a lot. Well you don't actually come out on the record a lot, which is why we love having you here. But, when you do, you talk a lot about kind of an engineering driven organization and culture. And, I'm interested Hock, as we kind of wind down this interview, to talk a little bit about that. Talk about why you've gone the route of having an engineering led culture. How does that shape the innovation, the product development, and Broadcom's ability to be this durable, sustainable company over the long-term?

Hock Tan:        Well, it's actually very simple. And in the words simple, it's what drives the entire business model of Broadcom. We are a technology company, stand first and foremost. And we pick through acquisitions, but some organically, mostly acquisitions. We pick specific areas in technology where we chose to be very successful. And part of the reason we have been successful and been sustained that success within that scope, narrow scope, is simply because, I mean we are very focused. It's all back down to focus and keeping the business simple. And, so from that viewpoint, your technology company, what they drive it, tech engineers, you know you don't. And you get the engineers to create the technology, you want to monetize the technology into products, into how you get it deployed in customers. Make it simple. Do not

create anything more complicated than that. And the less you have of non-engineers in a technology company, the more likely you're to keep it simple.

So that's why we have 75% of workforce engineers. And the other 25%, making the model, supporting the model, as it goes along. And it's a really a culture of innovation, but more than it is about culture of getting the talent. So our 15,000 engineers roughly out of 20,000 workforce, are among the best engineers in the areas they are in, in the world, by none. And, it's not they don't fall into a lab. One of it is when we acquire leading companies, we inherit some. The rest, we go out and find the talent where they are. And one of the nice things in America is the... Lot of talent from the rest of the world show up in American colleges. And they want to stay in America after they graduate. So we go out and make sure we find the best of the best. And if they don't come to America, we go look for them elsewhere in the world. And we set up at least 10, 12 design centers all over the world where they are.

And they work in close collaboration, with our design centers in America. And that's what we create as a very globally competitive technology company.

Patrick Moorhead:    Wow. This has been a incredible 30 minutes here Hock. And I just want to thank you so much for coming on. And what I know that the listeners and the viewers are going to appreciate, is the wisdom that comes out there. And sometimes it's one thing to say, oh, we don't agree with some company's approach, right? I look at the results, and the results speak for themselves. And the core focus of value proposition of customers and customers, customers, that's very unique in a world that is focused many times on the flash and the fireworks of what's new. And Broadcom's consistency, its focus on evolution, versus revolution, doubling down on engineering and R&D, that 50% increase since 2009 on R&D. I mean it's working and it continues to work. And not just in hardware, right? I mean, here we are moving this game into software, and whether it's mainframe braced applications, whether it's cutting edge cybersecurity. And now, my hope is with multi-cloud and VMware. So thank you so much for coming on.

Hock Tan:    Thank you. Thank you. Enjoyed being here.

Patrick Moorhead:    Thanks.

Daniel Newman:    Yeah, that was great. Everyone, we want to say thank you so much for joining us this year. It's our 2023 opening keynote here at the Six Five Summit. You just heard from Hock Tan, CEO of Broadcom. Now, we've got three full days ahead. So much more content for you. We hope you'll subscribe. If you don't watch it live, all these sessions are available on demand. Stay tuned with us. For Patrick and myself, we're signing off for now. See you soon.