Rami Rahim: The Internet is, in my view, maybe a little bit of a biased view, the greatest vehicle for innovation and human advancement the world's ever seen.

John Waldron: Welcome to Talks at GS. I'm John Waldron, president and chief operating officer of Goldman Sachs. I'm very excited to be joined today by Rami Rahim, the CEO of Juniper Networks. Rami, thank you very much for being here with us today.

Rami Rahim: Thank you, John. Pleasure to be here.

John Waldron: So you're now the CEO, but by training and professional experience you're an engineer, one who I think holds more than a dozen patents, so a proper engineer. Maybe talk about how your technical background has impacted the way you've emerged as a leader.

Rami Rahim: Yeah. I mean, I think that my engineering background is super useful. I do not believe that one needs an engineering degree to do the job that I'm doing today as CEO. And I certainly -- this probably comes as no surprise -- that I've taken many steps along the way from being an individual contributor as an engineer to where I am today as a CEO.

Having said that, having a technical background doesn't require a degree, but being technical certainly is extremely helpful to being the leader in any high-tech company. It's rare that you get a decision on your desk that you need to make that doesn't involve some sense of technology. I leverage my background in developing products and solutions, in helping to make those decisions.

And also I'd add that a big part of leadership, a big part of being a CEO is sales. It's being able to sell a vision to your employees. Sell products to customers. Sell a strategy to your board of directors. Sell shares to your investors. And having the ability to bridge the divide between technology and business and outcomes is extremely helpful.

John Waldron: All right. So let's pivot a little bit to Juniper's role in the broader technology landscape, which is obviously an important role. So the Internet, as we all know, it disrupted nearly every aspect of our personal and professional lives, maybe more so now in this pandemic which has accelerated a lot of the trends. What role would you say Juniper has played in this past transformation? And how do you

think about Juniper's role going forward in future transformation?

Rami Rahim: Well, the Internet is, in my view, maybe a little bit of a biased view, the greatest vehicle for innovation and human advancement the world's ever seen. And I'm super proud of the work that Juniper has played in advancing the Internet to where it is today. I think we're among just a small handful of players in this industry that are essentially entrusted by our customers to keep that global network, the Internet, running. We're keepers of the Internet in many ways.

And it has gone through several major inflection points just over the last few decades. I mean, in the '80s and '90s, around the time that Juniper was born, there was this recognition that TCP/IP, that one protocol that's going to be the common language for all services running over the global network, is going to be that protocol. And Juniper bet its existence on that. Had we bet wrong -- and there were debates around the time that the company was in fact started -- had we bet wrong, I wouldn't be here today. This company wouldn't exist.

In the '90s, it moved to around high-performance silicon technology that was required to scale the Internet at the time that the dot-com boom was happening. So there was an explosion of capacity. And Juniper didn't only participate in this trend, we actually led it with our ASIIC and our silicon development.

And my view is that the next frontier for Internet innovation lies in software. You know, they say software is eating the world. Well, I mean, it's certainly eating the Internet as well. And the outcome of that software in my view is around this thing that we call experience-first networking, which is networking -- simplifying, dramatically simplifying networking for those that are running the network and delighting the end users that are using network for whatever purposes.

John Waldron: So I want to talk about cloud computing a little bit. Just from my own vantage point, I just can sort of look back and think about how the cloud emerged. And all of a sudden, all we started talking about was the cloud and how that was the future of computing and computing power. Just talk about your own view on the cloud, how it's evolved, and how Juniper is embracing the cloud and thinking about the cloud going forward.

Rami Rahim: You know, to say that the cloud is an important

trend is sort of the biggest understatement. It's a supernova in IT, in our industry. And it has some very unique effects, properties when it comes to the networking industry. I mean, if you think about what cloud is in its essence, you're pooling resources -- compute storage, applications -- but you're putting distance between those resources and the consumers of those cloud services. So in many ways, it's stretching networking, and it's putting an immense amount of pressure on networking.

For us at Juniper, it touches practically every single part of our business. It's not just about serving the public cloud providers, who we love and respect and they're wonderful partners and customers of ours. But look at what's happening in the enterprise space. Enterprise customers are struggling to keep up with the demands of their business while 70%, if not more, of the costs that they incur are just in keeping the lights on. And they're seeing smaller disruptors leverage the cloud to upend their business. And so the answer that they're all aligning to, the answer that they're embracing is becoming far more efficient, far more nimble by leveraging cloud-based technologies.

And the similar story on the SP side and service providers. Their traditional markets are maturing. Revenue growth is stalling. They know that they have to move up the stack because connectivity is no longer a viable business model. And they themselves are starting to embrace this concept of a distributed telco cloud. Essentially converting those distributed networks into highly distributed data centers off of which they can deploy these agile software-based services.

So cloud is an architectural transition, a supernova that's affecting practically everything that we do in all of our customer segments.

John Waldron: All right. So let's just shift for a minute and talk about AI, another major trend, if you will. I'm not sure "trend" captures the full throw weight of what's going on. Just talk about how you're thinking about AI, Juniper, and how you're using AI at this juncture.

Rami Rahim: Well, if you're going to talk about AI, you have to start by talking about data. And data is now our most valued resource across not just IT but practically any industry. We are accumulating -- "we" as in the industry, IT, much broader across any industry -- are accumulating data at, like, an unprecedented rate. 90% of all data that has been accumulated

on this planet was done so this last two years alone.

So the question now is: Well, what do you do with this data?
And there's obviously way more of it than can be analyzed or
processed by human beings. And this is of course where AI comes
into the picture. You use this data to train machines in much
the same way that a human learns. And I think the easiest way
to think about AI from my perspective is that artificial
intelligence combined with this data that we're getting from
sensors all over the world results in an ability to predict the
future.

So for networking specifically, take our AI-driven enterprise
solution where Marvis, our AI engine, is the heart and soul of
that solution. Marvis is collecting data in real time
practically every second about sessions, users, devices,
learning from that data and then automatically doing very useful
things with it. What are those things? Well, it's actually
keeping amazing outcomes. Fastest deployment of new technology.
Fewest trouble tickets that will impact the user experience.
And the fastest time to resolution of problems, typically before
a human even knows that a problem has in fact impacted the
network.

So I know AI gets a lot of skepticism out there. It's
understandably so because there's a lot of AI washing. But it's
real. And honestly I think AI today is rewriting networking for
the next decade.

John Waldron: Okay, so let's talk about 5G. 5G is another
major kind of trend in technology. It's attracted an enormous
amount of investment of late. Talk about the opportunity you
see for 5G for Juniper and any challenges that you see with 5G.

Rami Rahim: Yeah, it's certainly a huge opportunity both in
service provider and in the enterprise space, initially in the
SP space. And the attributes of 5G are very, very compelling.
I mean, first, it's about speed. It's for fiber-like
reliability because of the advances that have been made in
antenna technology. It offers lower latency for latency-
sensitive applications. It scales to billions of devices, which
is of course very important for IoT. But probably the most
important thing or aspect of 5G is that it helps to elevate the
service provider business model so that they can offer new and
compelling services, things that we've been talking about for
quite some time but I think only really now have come to
fruition because of 5G. Connected cars, augmented reality,

industrial IoT are all examples of these types of new services that are going to be enabled by 5G as a technology.

And for Juniper in particular, there are a few key areas. I mean, first, 5G is about performance, so you need to have infrastructure that can deal with the increase in capacity. And, you know, performance is sort of our middle name at Juniper. We know how to develop products to keep up with the demands, the insatiable demands that are being put on mobile networks. At the core of the 5G transformation are that it's going to be inherently a virtualized or even a cloud-native technology. Many of the services that will be delivered on 5G are going to be done so through distributed clouds. Essentially software as a service delivered to the end user. Here again it's a wonderful opportunity for our edge cloud, our data center solutions, and last but not least security. I mean, 5G is inherently an IP, an all-IP technology, which means that the infrastructure, the users, data are all going to be susceptible to attacks. And what operators need is this ability to keep up with the performance that 5G promises while also protecting all of the above.

And we've got these solutions for high-end security that combine efficacy with performance that turns out to be perfect for 5G.

John Waldron: Great. All right, so I want to spend a few minutes on some macro kind of questions and talk a bit about the broader landscape. Aside from COVID, are there any other external forces you're tracking as you think about broad macro risks in the world or other forces -- geopolitics, climate -- you know, anything in that sphere that's kind of front of mind for you as a CEO and you're thinking about in terms of its potential impact on Juniper?

Rami Rahim: Well, governments around the world right now are recognizing the importance of ubiquitous broadband connectivity. And this is not just in developing countries. It's also in developed countries such as the US. So there's a large portion of this country that still does not yet have reliable access to high-speed broadband. And this contributes to the economic divide in the country. And unfortunately, this has only been exacerbated by the onset of the pandemic. And our administration, the Biden administration, recognizes this. They see that there is in fact a need to invest in improving our broadband connectivity, our reach. And of course we at Juniper support the plans to further these types of investments, these infrastructure investments that are just so important to both

the economy but also the competitiveness of the country.

John Waldron: You and I are speaking virtually right now of course, but as we were talking about earlier today is a big day at Goldman Sachs where we're kind of reopening and re-welcoming our employees back in. Maybe you can just give some reflections as you think about it for your company and more broadly maybe the technology industry about the return to offices. Whether it's a hybrid return or a more fulsome return, what do you expect? What's the impact going to be? How do you think about it at Juniper and across your peer firms?

Rami Rahim: I'm looking forward to gradually and thoughtfully increasing the number of employees that we have in our offices around the world. I think we as an industry have proven that we can be productive working from home, but I also believe that you miss something without that in-office experience. I think the randomness of communication is really important for a very innovative, creative, high-tech company like Juniper. I think long term you need to have more people in face-to-face environments in order to develop the culture of a company.

As far as the impact on our business, we've achieved some really impressive results on the enterprise side over the last year despite the challenging environment where big parts of the enterprise were essentially shut down because nobody was in the office. But as more and more companies start to return to the office, I do believe this is going to be good for business. With the return to the office, I think more companies will look to modernize their office environment, so I don't think anybody's going to rush to the old ways of on-premises complexity. I think the future is about AI-driven, cloud-delivered, experience-first networking. And I honestly believe that this represents a huge opportunity for Juniper that I'm excited about.

John Waldron: Rami, I'm going to close there. I want to thank you for taking the time. You have a lot of optimism about the future and rightly so. And Juniper is a really important company on the global stage, and you're doing a wonderful job managing it. Thank you.

Rami Rahim: Thank you so much, John. I really appreciate the invitation. I'm a big fan of this series and it's a pleasure to be on.