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PRESENTATION

Jess Ian Lubert *- Juniper Networks, Inc. - VP of IR*

(presentation)

Good morning, everyone, and thank you for choosing to participate in Juniper Networks' 2021 Investor Day. My name is Jess Lubert, and I'm Juniper Networks' VP and Head of Investor Relations.

We have a great lineup for you today, which will include presentations from Juniper's senior executives and business leaders. These sessions will provide insight into our end markets and the actions we are taking that should position us to deliver sustainable long-term growth and improved profitability. Following our prepared remarks, we will host a live Q&A session, which will last for 1 hour. If you wish to ask a question, but remain anonymous, please feel free to send me an e-mail at jlubert@juniper.net. From a logistical perspective, we plan to take a 5-minute break after the Connected Security segment, plan to conclude today's event by 2 p.m. Eastern Standard Time.

Before we start, I would like to remind everyone that today's presentation contains certain forward-looking statements. These statements are subject to risks and uncertainties, and actual results might differ materially. These risks are discussed in our most recent 10-Q, 10-K and in our other SEC filings. Our forward-looking statements speak only as of today, and Juniper maintains no obligation to update these forward-looking statements. The materials presented today will be posted to our website shortly following the conclusion of today's event.

With that said, I will now turn the call over to Rami Rahim, Juniper Networks' Chief Executive Officer.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Hello, everyone, and thank you for joining us for this year's Investor Day. I'm thrilled you've all made the time to be here with us today. I'd be remiss if I didn't first take a moment to acknowledge what an extraordinary year it's been and continues to be. My thoughts are with anyone affected by COVID-19 and a big thanks to all those on the front lines, fighting to keep us safe and healthy.

Of course, the last 10 months have also brought into focus just how critical the global network is to maintaining business and societal continuity as best that we can. So with that being said, I wanted to first spend a minute providing you some upfront context on how we see the market forces impacting our industry and what's driving our strategy.

If we take a step back and think about the top level drivers influencing our customers and their customers and affecting their spending patterns, at a high level, it's about digital transformation, devices, data and distribution. Just about every company on the planet is undergoing some form of digital transformation. From something as basic as going paperless to bigger initiatives like adopting SaaS, building applications with CI/CD models and agile development, implementing large-scale data analytics or IT automation, which all fundamentally change how an organization operates and delivers value to its customers.

Analyst firm IDC, estimates that spending on digital transformation efforts hit $1.3 trillion in 2020. And this broad trend across practically every industry in the world is leading to a proliferation of 2 key things: devices and data. McKinsey has shown that 127 new devices are coming onto the network every second while research firm Business Insider Intelligence projected that there will be more than 41 billion IoT devices out in the world by 2027. That's up from 8 billion a year ago.

All of these new devices coming on to the network and our own insatiable digital needs are, in turn, spawning a ton of data, which, of course, traverses the network. In general, it is thought that 2.5 exabytes of data are produced by humans every day, and that will rise to 463 exabytes per day by 2025. That's 185x in just 4 years.

And it's also not as if there's one central location where this data is stored and analyzed. As entire industries and workforces move to a remote work model and our need for near-zero latency on our devices, on our applications and services intensifies with the continuing rise of 5G, the cloud as we know it is quickly becoming more and more distributed.

IDC has predicted that by the year 2022, 60% of all network resources will be deployed at remote edge or service provider locations to get closer to the end user and to satisfy performance needs up from only 20% in 2020. So naturally, these trends have a profound effect on the network. They, in fact, require the network in order to be successful. The cloud transition that's been underway across all of our customers from enterprises to service providers, and of course, the cloud providers is only accelerating. Everyone wants to reap the OpEx and agility benefits that the big hyperscalers first demonstrated. In fact, Gartner has predicted that in just the next 4 years, 50% of all organizations will use cloud-based network management platforms as the primary method for configuring and supporting their networks, up from less than 15% today.

And the cloud trend is not only about public cloud. More and more enterprises, especially the large and complex ones, are accepting the practical reality of a hybrid cloud model. As the number of apps explode, the newer ones typically do land across different public cloud auctions, but the mission-critical and core business apps tend to stay in private data centers. And until the cloud starts running on pure magic, underlying high-performance hardware is going to matter. The next bandwidth speed inflection of 400 gig will be playing out throughout this year. In fact, 650 Group says that by 2022, nearly 30% of all money spent on data center switching deployments will be for 400 gig.

And at the same time, service providers are beefing up their network infrastructure from the RAN all the way through to the core to support the low latency and high-speed requirements of ubiquitous [5G]. The Global mobile Suppliers Association trade group predicts $1 trillion in cumulative CapEx spend from 2018 to 2025.

Of course, as bandwidth needs grow, devices proliferate, digitalization becomes more pervasive, 5G becomes ubiquitous, and the underlying network grows with it, so, too do the security risks. Each new connection into a network introduces new levels of risk. In fact, through 2022, 80% of organizations, that's up from 30% in 2018, will undergo some change in their security organization structure as a direct result of digitalization according to Gartner. And everything I've mentioned here translates to one uber issue, and that is complexity.

Network use cases are becoming more complex with containerization, virtualization, all crossing multiple network boundaries and address bases running at higher speeds with more stringent SLAs. We fully expect that IT leaders, CIOs and business leaders will prioritize network automation and increasingly, AI and ML to manage infrastructure that can no longer be manually handled. Nearly 50% of enterprises consider accelerating automation a major priority in the next 12 to 24 months, according to a recent report by the Boston Goods Consulting Group.

So what does all of this mean for our strategy here at Juniper? Well, for decades, you've heard the old adage, build a better mousetrap and the world will beat a path to your door. And so, too, has it gone in our demand of networking. This industry has become an arms race to out-spec and leapfrog each other with the latest and fastest box as these network trends mount. This company, Juniper, was founded on and has derived its success from making high-performance networking silicon, systems and software for large and typically very technical customers around the world. The good news is that Juniper is very, very good at this, and we will continue to be very good at it. But networks for the next decade will not look like the networks of the last 2 decades. While networks were core to the value chain of service providers over the last 20 years, now they are core to the value chain of all businesses.

The short of it is that as infrastructure has become infinitely more complex, the box simply isn't enough. The new challenge to solve is ensuring a simple operational and a superior end-user experience. So that's where we start with our strategy, which we call experience-first networking. And in many ways, this has become more than just a strategy for us. It has become our true north as a company.

I believe the winners in our industry will be those that deliver the best possible experience. In our case, we're talking specifically about the experience of network operators, those living in the trenches to keep the network up and to keep it healthy as well as the end users, those that are leveraging the network to learn, to do life-saving research and to keep the economy moving, among many other activities.

Importantly, I should clarify that I'm not just talking about redesigning the [DOI] for our products. That's only a part of the experience equation. The basis for winning the next decade will require a new solution that delivers performance, scale, programmability, along with AI-driven automation and assurance. Think about this as going beyond just building better networks. Our mission is to make networking better. The distinction might sound subtle, but it isn't because the future is about putting the user first from when they initially engage with us, to how they deploy our solutions, to day-to-day operations, to upgrade, to new service rollouts and to the ongoing support of their existing services.

We are actioning this experience-first strategy across 3 business areas: wide area network solutions that can handle cloud scale and agility, cloud-ready data center solutions for public and private data centers and cloud-delivered AI-driven solutions for the enterprise. And security is, of course, a foundational element to everything, which is why we call it connected security.

Okay. First, let's look at the wide area network, the WAN, the business that put Juniper on the map. It's what allows us to count 49 of the top 50 service providers and 20 of the top 20 cloud providers among our customers. In terms of sheer size, this is our largest business, representing 36% of Juniper's overall revenue. And admittedly, this is a business in which we faced some headwinds and challenges in the past due to service provider spending trends as well as major product transitions. But that is all behind us now. We've taken deliberate actions to stabilize this sticky business, and the future looks bright. With the advent of 5G and 400 gig, the WAN is undergoing a major upgrade cycle. We're executing in this business, not only to protect our sizable worldwide footprint, but to take market share as service provider, cloud provider and enterprise customers transform their networks.

Let me explain how. Our approach is to focus on 3 key areas: the 400 gig inflection, Metro and access networking and automation for a superior service experience. When it comes to performance, our classroom has a rich history. We've had a front row seat and learned every step of the way from the most demanding hyperscale cloud providers and top-tier service providers in the world as they've evolved their infrastructure over the years. Well, we are now bringing that rich tech history and lessons to bear for the 400-gig opportunity, and I'm confident that we can capitalize on our investments in this area.

First, if you're building anything for the cloud era, you need to start with software. So we've retooled Junos, our on-box operating system. Junos Evolved isn't a mere upgrade. Rather, it is a total reinvention of our #1 technology asset in the company. We've made it modular to make the upgrade process far simpler, made it more flexible to meet the demands of our cloud customers that require more programmability. And its advanced state management gives operators visibility and much greater access to data and telemetry across the whole network.

One of the key attributes we built into Junos Evolved is its hardware abstraction that enables us to leverage best-of-breed silicon architectures to optimize it for different use cases. This includes our own silicon technology when it makes sense or merchant silicon options when that's all that's required for a particular use case.

Of course, as always, when it comes to our own silicon offerings, we've been busy, and we are really proud of what we've accomplished. We've now released 4 new silicon engines in the last 3 years. The MX router is on its fifth generation of Penta silicon, which delivers a 3x bandwidth increase, 50% power efficiency gains and infinite programmability, sort of like an Intel CPU for networking.

And our PTX product line is now on its fourth generation of Express silicon called Triton, which is optimized for performance at scale and has become an indispensable building block for our hyperscaler, service provider and large enterprise customers. As an example of the innovation in our silicon, Triton has security and encryption built into the chip itself, simply enabled through software and resulting in new meaningful power for performance ahead.

400 gig will be big. We have compelling and differentiated technology to help us capture this next feed grade in networking. We are ready. In fact, we're already seeing strong momentum with well over 100 customers around the world who've made the decision to build their networks with Juniper's 400-gig routing or switching products.

Now I'd like to touch on another important plan opportunity that I'm excited about and that's the Metro. Simply (inaudible) build a robust 5G network without also building a metro access and aggregation network that's capable of dealing with the vast increases in performance that 5G promises. Analyst firm ACG predicts that by the year 2025, the combined average monthly mobile and fixed broadband transport traffic per user on the metro would increase 4x. All in all, this represents a $2 billion opportunity for Juniper and one of the fastest-growing subsegments of the WAN.

In many ways, the Metro has become the new high-performance core network. And fortunately, for us, high-performance networking is our specialty. We're coming from a place of strength in routing with our existing footprint and portfolio in the edge and core to address this new growing market segment with a slew of new Metro products you'll hear more about in the coming months.

Taking a step back, high-performance silicon, OS upgrades with new levels of telemetry and programmability and new products to keep up with 400 gig in metro traffic are certainly critical for performance and flexibility at speed. But as I said earlier, they're not enough. The new challenge is in reinventing network operations to deliver even more than just connectivity, such as an assured service experience to end users, coupled with a more efficient operational experience for operators. This is where network automation plays a key role in the future of our industry and our strategy.

To that end, we've been working diligently on what we now call our Paragon Automation suite, which we just publicly announced earlier this morning. Juniper Paragon Automation is a modular portfolio of cloud-native software applications that deliver closed-loop automation to translate business intent into service performance across the entire service delivery life cycle, from planning to orchestration, assurance, correlation and optimization.

And we just made Paragon much stronger with the addition of Netrounds, software which enables operators to go from just offering basic connectivity to assuring their customers that the services they need will be delivered with a high-quality of experience. This is the kind of capability that when coupled with our industry-leading systems can truly differentiate our WAN solutions.

We are already seeing success in the market with our WAN routing solutions showing 3 recent quarters of share gains and 4 quarters of year-over-year order growth. And I'm confident our new Paragon Automation portfolio will help us continue to take share and build recurring revenue.

Now let's look at the data center. The heart of next-gen cloud services. Data centers today lie at the center of user experience and revenue-generating services. In this business, we're specifically focusing on our public, private and hybrid cloud data center solutions with our QFX switching portfolio and Contrail software-defined networking offerings. It's with this portfolio that we're able to count among our customers, companies like Zoom Video Communications, which trust Juniper to power its data center infrastructure that have seen an absolutely massive amount of growth in the past year. And like our automated WAN solutions, we already have a fantastic system portfolio in place with industry-leading EVPN VXLAN support, which is increasingly becoming the network protocol of choice for the modern data center. We were first to market with a 400-gig switch leveraging Broadcom's latest Trident 4 chipset, and Junos Evolved has the necessary attributes of a cloud-ready OS.

Well, we've now coupled our system portfolio with a truly best-in-class automation solution in Apstra, bringing self-driving network into the data center with a solution developed by real industry luminaries. In fact, Apstra pioneered the intent-based concept of network operations that radically simplifies the experience of deploying and operating modern data center networks. Just describe how the data center should behave in terms of outcomes, and watch the system implement and continuously assure that network behavior actually matches your intent.

Gartner has said that intent-based networking systems like Apstra's are known to reduce network infrastructure delivery times by 50% to 90%. And employing this technology can reduce the number and duration of network outages by at least 50%.

Yahoo! Japan said of using Apstra, all you need to do is connect the switches to the network, and Apstra automatically configures them. What used to take several days is now completed in tens of minutes. Apstra helps Bloomberg Television's team continuously validate the performance of its massive multi-vendor media production network through automation, providing digital assistance to its engineers who are tasked with monitoring, predicting and preventing disruptions in real time. Speaking to how Apstra simplifies IT, Bloomberg's Head of Capital Projects said, "Apstra system gives us a single view into the entire network regardless of our devices, switches, operating systems or vendors."

As you can see, adding Apstra to our industry-leading data center portfolio creates a highly compelling solution that will change the experience of operating in modern data center for our customers. Additionally, Apstra will accelerate our ability to increase recurring revenue for the company.

Last, but certainly not least, let's drill into the AI-driven enterprise. This business includes Mist wireless APs, EX switching, branch SRX secure routing and SD-WAN, all cloud-managed and AI-driven through the Mist Cloud. But more than that, it is a wonderful example of the power of experience-first differentiation, driving real customer value and Juniper business momentum. At the heart of our AI-driven enterprise business is our AI engine, Marvis, which more than anything else I have seen in my career is delivering on the promise of experience-first networking.

As many of you probably also feel, AI has gotten a bit of a bad rep given how noisy the space has become and how liberally people, especially our competitors, apply the term to just about anything. So naturally, there are skeptics out there, and I get that. I was one of them. But make no mistake, what we have and are delivering is as real as it gets.

Perhaps the fact that one of the top universities in the world, which also happens to be the birthplace of AI, Dartmouth College, chose Juniper to provide AI-driven wired and wireless networking is proof enough that what we're doing is real AI. With Marvis, Dartmouth is able to manage 27,000 devices with a very limited IT stack and is even able to augment their help desk to act with students that have little or no IT experience. And after cloud company ServiceNow deployed this AI-driven network, they saw what used to be hundreds of IT trouble tickets logged by employees fall by more than 90%.

Stories like these are a big reason we're seeing such strong momentum in this business. New Mist logos grew by 125% year-over-year in Q4, while orders grew at 140%. We exited 2020 with Mist WiFi at an annualized order run rate of more than $200 million. If you include EX switching sold in conjunction with the Mist Cloud, our annualized order run rate was around $300 million. This Mist momentum has propelled our campus and branch switching revenue 13% in 2020 over 2019. And in fact, 2020 represented Juniper's best year ever for campus and branch switching. And the beautiful thing about Mist is that it was built to scale to the largest networks in the world. Already, 4 of the Fortune 10 in the U.S. and 3 of the Global 10 companies now trust Mist with their enterprise networking needs.

I know that our competitors have been talking a big game. But the problem is you can't just take a legacy LAN controller built for complex on-prem deployment into the cloud and call it a modern cloud-delivered solution. To do it right, to generate the results that we're delivering every day, the competition would need to literally start from scratch. Marvis has now been collecting valuable data from networks around the world and the devices connected to them and learning from that data for 5 years. So even if the competition were to start leveraging AI today in their own ways, they'll find themselves years behind where we are. That's an eternity in high tech. And by threading Marvis through our switching, routing and security products, Marvis is only getting smarter and smarter, making more and better decisions all on its own without a human touching the controls.

So the short of it is that Marvis is truly unique in the industry, and we are and will continue to benefit from its differentiation. It's no wonder that Gartner has now validated our undisputed #1 position in execution in their wired wireless MQ.

So we're leaders. In fact, the leaders. You might ask, well, now what? Now is the time to realize the full vision we have for our AI-driven enterprise business. From day 1, that vision behind the Mist experience has always been client to cloud, not just wireless LAN, not even wired and wireless. Delivering a great user experience is necessarily about everything between the user and the cloud. Because ultimately, that's the end-to-end path that will make or break the end-user experience, which is exactly why we've added 128 Technology to bring the benefits of AI to the WAN and Apstra to bring intent-based operations to the data center, ultimately, to complete our vision of client to cloud, to take our momentum and success to a whole new level.

So why 128 Technology? After all, it's no secret that our industry is littered with SD-WAN solutions. Well, it comes down to 3 things. First, 128 provides a best-in-class operator experience for both deployment and ongoing operations. Second, 128 brings superior economics because of its unique tunnel-less architecture. We're talking here about a 40% reduction in WAN overhead and a 75% savings in hardware costs. And lastly, 128 offers superior performance, especially for the kinds of network applications that matter most today, like real-time voice and video.

In summary, these are the areas we are investing to lead to win. And I believe with conviction that these investments will make us stronger as a company and deliver value to our shareholders.

Taking a step back. One thing you'll notice about the recent acquisitions I've covered in this presentation, they all represent software offers. And there are very deliberate reasons for them. First, software lies at the heart of our ability to deliver on our experience-first strategy via characteristics of easier operations, lower cost, higher reliability, faster time to resolution, immediate updates and increase in security. All of these ingredients are necessary to provide the best possible experience with a network that high-performance hardware alone cannot achieve.

And software also often represents a control point in our customer's network that will help us achieve more strategic outcomes with them. Often, these control points are sticky and provide ample opportunity to either upsell into higher layers of value or cross-sell into adjacent networking layers, leading to further growth opportunities. It enables us to deliver more value to our customers that we can monetize and thereby expand shareholder value. Software also carries higher gross margins, and high-value recurring revenue software like our diversification strategy provides increased levels of stability and predictability. Our recent acquisition activity will only enhance these financial attributes of our business.

In closing, we are well positioned with a TAM of just over $62 billion that is growing sustainably at mid-single digit per year, with a lot of room to run. The priority for all organizations now is digital transformation, and the global pandemic has only accelerated this. At the core of this movement is the global network. However, the high-performance networks built over the last 2 decades for throughput scale and resiliency are simply not enough. We've reached a point where humans cannot keep up manually managing rising complexity and the deluge of traffic traversing our networks. Networks must be built to be managed as a service from the cloud. They must infuse AI-based automation to optimizing operations and costs. They must ensure the network delivers the mission-critical experience end-to-end from the user to the application, application to application, application to data.

For the WAN, the consumption of SaaS applications, migration of workloads to the cloud and the emergence of 5G will all be long-term tailwinds. With our portfolio platforms and our end-to-end suite of visibility, automation and management we are well positioned to grab share in the growing segments of the WAN. Coupled with the progress in customer diversification beyond only the largest providers, our biggest business segment in automated WAN has stabilized, and we are in a position to see additional opportunities to sustain our revenue and margin over time.

Additionally, we are systematically building and scaling a highly compelling and differentiated portfolio to go after high-growth opportunities through focusing on operational and end-user experience in both the AI-driven enterprise and cloud-ready data center. In other words, not only are we diversified across use cases and customer segments to avoid cyclical troughs, but our solutions are also highly unique and differentiated in the market. And we are investing with focused and operating leverage, both organically and inorganically to deliver on these investments. Look no further than the success of Mist for proof of our ability to do just that.

I'm convinced that focusing on experience in both networking operations and how end users interact with the network will drive sustainable revenue and operating margin growth for Juniper. In fact, I've never felt better about our team, our technology and our opportunity ahead.

Now I would like to turn it over to Juniper's Chief Product Officer, Manoj Leelanivas, who will go into more detail about how we're aligning our business to capture our growth opportunities. Thank you very much.

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Thank you, Rami. Good morning, everyone. I'm Manoj Leelanivas, Chief Product Officer, responsible for products and marketing at Juniper networks.

As Rami described, our true north is experience-first networking to help our customers achieve their business outcomes. To do this, we have transformed our operating model and organized Juniper around businesses that focus on driving the strategy. These businesses are in mid WAN, cloud-ready data center and the AI-driven enterprise, all of which have a connected security portfolio embedded in them will focus on winning key use cases to drive Juniper's growth.

This business structure aligns with our growth drivers and create share gain opportunities. In each of these businesses, Juniper plays in large and growing markets. Most of these markets are going through mega inflections today, and Juniper is positioned to take full advantage.

I came back to Juniper in 2018 to help drive this transformation. Today, we want to discuss this evolution, our opportunity to win and how we will report out to you on our progress. Previously, we have reported business performance by technology, routing, switching and security. As we move forward, we will report our performance in terms of our 3 businesses: automated WAN, cloud-ready data center and AI-driven enterprise, along with the customer view of service provider, cloud and enterprise. Essentially, how we are running the company internally is how we report externally.

Our automated WAN business includes our routing product portfolio of MX, PTX and the fast-growing APX line targeting the Metro market. It also includes the recently acquired Netrounds products that are part of the WAN Automation suite we just announced today called Paragon Automation.

Our cloud-based business includes the QFX product line, Apstra and Contrail product lines, along with the mid-range and high-end security portfolio of SRX, targeting data center security for service provider, cloud and enterprise. And our AI-driven enterprise business encompasses our super differentiated client-to-cloud portfolio, our cloud-delivered campus wide and wireless solutions of Mist and EX switches, our secured SD-WAN portfolio that now includes the 128 Technology and branch SRX solutions. Software is also a key enabler, and each of the businesses include a recent acquisition to accelerate our growth: Netrounds, Apstra and 128 T, respectively.

Our goal is to own an important software control point for upselling our infrastructure products. This software-driven paradigm not only creates stickiness to build a rock-solid foundation, but also protect and grow our gross margins.

The common theme throughout is delivering on our true north of simplified operations and superior end-user experience. In addition, we are building a repeatable go-to-market motion to scale our Enterprise segment and driving diversity in our Service Provider and Cloud segments. Last but not least, we are focused on sustained growth and increasing profitability.

Our Automated WAN business is Juniper's heritage and still represents our largest business. Service provider routing has declined double digits in 2018 and 2019 for us, and we have turned the corner in 2020, where sales for routing was nearly flat year-over-year. We have also been driving diversification when spend from large carriers reduced significantly. We did not lose any of the large franchises, and they have stuck with us. And now the business continues to stabilize.

In cloud routing, you know that we had a significant ASP compression in our transition from MX to PTX. This is predominantly behind us, and we are seeing growth in cloud routing. The sales provider stabilization, combined with growth in cloud and enterprise routing has also enabled the Automated WAN business to post growth in 2020.

Exiting 2020, we have also seen significant momentum in the enterprise data center and AI-driven enterprise businesses. We continue to post record mid-quarters that have led to a record-setting year for the enterprise all up despite COVID headwinds. Now for each of these businesses, I will discuss the market opportunity, the market inflections and our strategy to win, starting with the Automated WAN.

The core market is growing at 1% CAGR. And we are focused on capturing the inflection driven by 400 gig adoption in both cloud and SP, with our new 400 gig platforms. The 400 gig routing market is expected to grow to be 30% of this market by 2022. The edge market, on the other hand, is predicted to go down 3% per year. However, we are focusing on the growing portion of the next-generation access and edge architectures, along with 400 gig needs there.

We weren't participating in bigger growth markets like metro, and this is something we are addressing this year. The metro market is growing at 6% CAGR. We are targeting the growth driven by 5G and cloud with a purpose-built next-generation portfolio. Enterprise digitalization is expediting movement of workloads to public cloud, which is a positive trend for the Automated WAN business in general.

Our key strategic bets on the product side: number one, we are in the midst of 400-gig refresh in cloud and SP, and we feel confident we can win with 400-gig edge and core portfolio, powered by our new silicon engine and a cloud optimized operating system. Simplifying operations and reducing operational costs are top of mind for service providers. Our organic offerings and recent acquisitions are designed to add new levels of automation and ensure network assurance to simplify the experience.

For opportunities in 5G, we are ready with a portfolio of metro and next-gen solutions. On the go-to-market side, of course, we have mastered engagements with Tier 1 service providers and cloud providers. We will continue our focus there. And we will also focus on expansion and diversification in the cloud majors, Tier 2, Tier 3 and international service providers and high-end enterprise to diversify this business. We expect the automated WAN business to continue to be stable and provide slight growth over a 3-year period. It is a shared gain thesis.

We have done well in the data center, but we could have done better if our portfolio was better positioned for the 100-gig data center switching cycle. That is not the case for 400 gig. We are well positioned with our portfolio of 400-gig and then 100-gig switches to take advantage of the cycle to grow. The markets we address for data center networking are large enterprise, cloud majors and Tier 1 cloud providers. Data center security is also a key market we focus on.

The market for enterprise data center is growing at 10% CAGR, and we are targeting the high scale, self-service, private and hybrid and multi-cloud data centers with our automation-first, automation-led solutions.

In the cloud majors market, we are addressing the demand for hyperscale-like operations, utilizing AIOps and automation. There's a large market for hyperscalers growing at 20%-plus CAGR. But the part really addressable by OEM vendors with complete our disaggregated solutions is a subset of this market. While we are focused on winning key use cases here, we are not modeling any major hyperscaler wins in data center-enabled growth projections.

For security, we are addressing the inflection driven by 5g in service provider data centers. In cloud and enterprise, there is a need for higher scale and integrated security across physical, virtual and container firewall.

Let me elaborate on our key strategic bets on the product side. We have a strong 400 gig portfolio utilizing merchant and custom silicon integrated MACsec with industry's best EVPN VXLAN fabric. We have an industry-best intent-driven fabric management solution from Apstra with closed-loop automation. Our focus is to make the enterprise data center self-driving. This approach is very similar. Yes, very similar to the Mist playbook in the campus, lead with Apstra and the switches follow. Make no mistake, we are leading a data center networking transformation.

We continue to enhance our high-end firewall capabilities and performance for all customer segments. From a go-to-market perspective, we are driving further investment in data center specialists to drive a more focused motion. We have a packaged turnkey solution with switches, Apstra and content overlay, which we can now win and repeat. The multi-vendor stance of Apstra is really powerful for system integrators to break into Cisco and Arista's stronghold.

We expect our cloud-ready data center business to grow high single digits over a 3-year period. 2020 showed the power of our Mist momentum. New customers, expanding customers. We have taken share. Why are we even more excited about our growth potential here? We are transforming the client to cloud experience with a cloud-delivered experience-first portfolio. Change is happening. The incumbent loyalties are falling. The wired wireless market is growing at 3% CAGR, while the cloud-managed wired and wireless market is growing at 16% CAGR. This is the inflection we are targeting.

This optimism regarding our AI-driven enterprise business is not a bet on market trends improving. It is because the spending is transitioning from legacy infrastructures managed on-premise to cloud-based architectures. The reason this transition is happening is because cloud-managed architectures deliver a superior user experience and significantly reduce operation costs. If anything, COVID is likely to accelerate this transition, and we are exceptionally well positioned to capitalize as this evolution unfolds given the technology leadership of our Mist AI platform.

The SD-WAN market is growing at 21% CAGR. COVID created an inflection towards work-from-home. Network-centric SD-WANs are going to be increasingly replaced by user-centric SD-WAN. We are focusing on winning user and application experiences from client to cloud with our 128 Technology's portfolio combined with Mist AI.

Another key inflection we're targeting is client to cloud security and the evolution of SASE architecture. We're not addressing this as a stand-alone, but instead addressing it with an integrated secure networking approach.

So what are our key strategic bets on the product side? First, we are delivering an AI-driven, cloud-delivered, experience-first wireless LAN and LAN portfolio. This means simple to design, install, operate and upgrade. Juniper has the most modern cloud infrastructure built on microservices architecture. Our cloud is modeled after the leading SaaS companies to deliver maximum agility, scale and resilience.

In short, enterprise networking as a service. Our efficient, smart client to cloud SD-WAN, powered by 128 Technology's super easy to deploy and scale. Everyone else's SD-WAN gives visibility to application performance, while ours does that and also provide visibility and optimization of key users experience by applications. Our connected security strategy focuses on securely steering traffic and applying policies from client to cloud, leveraging the brand security portfolio, 128 T Zero Trust network access capabilities, along with additional capabilities we're building in the cloud. This focus is intentional, and we will continue to partner with best-of-breed cloud security companies to augment our solutions.

On the go-to-market side, proof of concept, sale, repeat. We have invested in sales and marketing so that we can get more customers to approve of concept where Mist can sell itself. We also benefit from leadership positions in Gartner Magic Quadrants and marquee customer references. As Rami mentioned, we now work with 4 of the Fortune 10 in the U.S. and 3 of the Global 10 companies. We expect AI-driven enterprise business to grow double digits over the next 3-year period. It is a take share plan, and we have proved our ability to execute on it in 2020.

Make no mistake, we are driving a business and experience transformation. The common theme across each of these businesses is experience first. We're demonstrating 400-gig leadership across the WAN and data center, across service provider and cloud. This means the best cost per bit, power per bit and integrated security experience.

Software control points in each of our businesses. Mist, Apstra and Paragon will drive the automation and AIOps that make the associated infrastructure easier to install, manage and operate. In addition, we are on a mission to connect the Juniper portfolio to the cloud, so we can drive the benefit of AI-driven operations on the telemetry we collect in the cloud.

This AI-driven support drastically cuts our customers' OpEx by proactively eliminating issues and automating remediation. Our control points allow API-based application support to enhance experiences like Zoom like never before. These control points are also designed to work in a brownfield environment and not just greenfield. Mist and Apstra are great examples of this. Our cloud connected portfolio is based on open standards. We provide customers a choice that leverages openness. We have embraced disaggregation. Today, we support Juniper Systems running Junos, white box running Junos, or container routing on other network operating systems, and we have openly embraced SONiC.

As for go-to-market, we are focused on repeatable, outcome-driven motions across all of our businesses, not just in the enterprise but also in cloud majors and Tier 2, Tier 3 service providers. Marcus will elaborate more on this.

As I conclude my portion, I want to emphasize that we have never before been in so many leadership positions in Gartner Magic Quadrants in Juniper's 25-year history. We are the leaders, in fact, leader among leaders in wired and wireless access infrastructure. We are a leader for data center and cloud networking. We are positioned as a visionary for vantage infrastructure and also for indoor location services. We are a challenger in network firewalls. I'm excited about our market position, ability to execute and the level of innovation we can offer our customers. We are confident we can deliver robust growth in our business with expanding margins, primarily due to our software growth.

We've been driving this business transformation for the last 12 to 18 months. We have new leaders running these businesses, leaders with an outstanding track record before joining Juniper. Brendan Gibbs runs the Automated WAN business; Mike Bushong leads the cloud-ready data center business; Sujai Hajela oversees the AI-driven enterprise business; and Sujai Hajela our Connected Security business.

Now I'll invite my team to discuss why we will win and share additional proof points with you starting with Brendan Gibbs.

Brendan Gibbs

Thanks, Manoj. Hi, everybody. My name is Brendan Gibbs. I'm Vice President of Juniper's Automated WAN business, and I'm here to talk to you today about our strategy to grow and win in the Automated WAN business. Networks are going through a significant pace of change, led by the introduction of new services such as 5G, SD-WAN and the shift to the cloud, all of which have large impacts on next-generation network design and architectures. These new services enable huge growth in end-user bandwidth and quantity of connected devices that results in a massive net growth in the scale and scope of networks.

At the same time, these new services drive significant change in traffic patterns, shifting service delivery into the metro ever closer to end users. Finally, these changed traffic patterns in turn drive architectural shifts, simplifying the traditional routed edge role and emphasizing new service delivery from the metro and the cloud. All of these changes taken together signal a clear inflection in how networks will be built in the future. Networks built to last for the next decade won't be the same as those built over the last 20 years. And Juniper is investing to win that inflection.

COVID, especially, has had a significant impact to accelerate shifts of everything online. With people stuck at home due to the global pandemic, we've all had to adjust to working, learning, playing and communicating with friends and family remotely over the Internet. And as much as COVID itself remains a major issue, some of the unintended side effects of shifting all of our lives online have been positive. These changes will likely be permanent because even after vaccines are globally distributed and people are able to reemerge from home quarantines, the advantages forwarded by mass scale digitalization by enterprises as well as focus on automating operations and assuring services will remain compelling.

And thinking back to the early days of the pandemic, what we saw was that the cloud providers and service providers that have best prepared their networks for unexpected capacity needs were best prepared to deal with the dramatic change in network traffic patterns that global quarantines brought overnight. Another enduring lesson of the pandemic is the agility to adapt to unexpected unknowns is a blueprint for future success in the next global shock.

Of course, one of the byproducts of everybody living their lives on the network today is that the criticality of that network and the services we rely on daily shoot sky high. Outright outages not only cost businesses significant direct money, but they have even more widespread impact than ever.

Look at what happened last August when a popular video conferencing service went down just as students were heading back to school online for the first time ever. Anxiety about how that model would even work was amplified with questions about whether it would even work. And a global search engine outage in December impacted our very ability to search what was going wrong. Service availability and the quality of those service experience is paramount.

But from an operator perspective, the direct business cost of outages pales in comparison to the cost of losing customers over their service degradations or interruptions. It's been estimated that 95% of unhappy customers don't complain about poor service experiences. They just walk away, and then they tell their friends. And so outages tend to snowball in terms of business impact. As a result, it's more important than ever for cloud and service providers to measure and assure the quality of service experience for their customers.

At Juniper, we're investing to win the market inflections caused by these network changes. We're competing in a large routing market, but we're specifically targeting investments to win growing submarket opportunities such as metro access and aggregation and the core.

Metro represents an entirely new TAM opportunity for Juniper. It's doubly attractive to us because it's not only a new market opportunity for us to enter where we are set up to participate with our proven Juno software control point and early traction with our new ACX portfolio, but the market itself has strong multiyear growth prospects, driven by new services such as 5G mobility and cable fiber deep expansions.

The bandwidth tsunami that originates in the metro access layer will ripple through the network to drive significant need for capacity expansion in the core. I believe every cloud and service provider customer will need to upgrade their cores to 400-gig speeds over the next few years, creating an attractive technology inflection and growth opportunity, which we're leading with the right products in our PTX portfolio ready now.

And in the edge, we're improving efficiency of our OpEx investments to protect our incumbency, while diversifying our go-to-market sales outreach with expanded use cases and geographic coverage. Customers need intelligent routing solutions now more than ever to be ready for the next unexpected unknown event, and Juniper MX edge routers are ready now.

We have 3 high-level strategies for how we're going to win and grow in automated WAN. First, we're driving to stabilize our revenues in our traditional large edge and core routing markets while diversifying our go-to-market outreach to new customers. Second, we're protecting margins for that existing traditional business through a shift to software monetization and through smart investment into both custom and merchant silicon to give us cost flexibility across different customer use cases. Finally, though, a key element of our strategy is to expand our portfolio to new growth markets where we haven't competed in the past, such as metro access and aggregation as well as WAN automation software.

One thing to recognize straight off the bat is that we realized Juniper routing declined for 3 years in a row between 2016 and 2019, and the reasons for that decline have been well publicized. However, our new strategy and execution have started to pay off in 2020, and I have conviction that we'll be able to build on that success as a strong foundation for new growth aspirations in 2021 and beyond. We've managed to turn 3 years of decline into now 4 quarters in a row of year-on-year order growth, along with 3 quarters in a row so far of market share gains in SP routing with Q4 2020 not yet reported. And this was all done in our current traditional core and edge routing markets.

What's really exciting is that we're taking our strength in core and edge routing anchored by our common market-leading Junos operating system and expanding into metro access and aggregation to expand our overall routing TAM. We're also seeing initial strong success in winning the 400-gig inflection with over 100 customers so far for WAN solutions alone adopting our 400-gig product offerings.

And not only are we driving for top line growth, we're also working to solidify the bottom line margin foundation with commercial disaggregation of hardware and software. We're offering software sold separately from hardware as either perpetual or subscription license offerings to help better recognize our ongoing software innovation in Junos. We'll be better able to match pricing with customer feature needs now they're offering too many features if customers want a low entry price nor discounting too heavily if customers value ongoing feature innovation. This can help our

ASPs because there's no Moore's law for software. There's no automatic annual price compression for software as one season hardware with Moore's law driving cost reductions per bit as silicon speeds improve.

We're also set up to better cushion margins going forward by rightsizing systems and silicon for respective use cases. We'll be able to have a more refined maps of customer price points and given use cases to the level of features, scale and intelligence that customers desire for that price. We especially see cost advantage stemming from our custom development of internal silicon as an alternative to white box-based platforms.

Finally, we're driving to expand our business further into software with creation of new TAM for cloud-delivered automation. We fundamentally believe we are entering an experience-first era of networking, helping customers shift away from a focus on managing boxes into a focus on assuring services, and from a complex reactive approach to managing networks to a simplified and real-time proactive and even predictive model of automated network operations. This helps Juniper to help customers save money in simplifying and automating their operations and at the same time, share in their savings by monetizing their saved OpEx as new software TAM for WAN automation.

This morning, we publicly announced our new Juniper Paragon WAN automation software suite, a cloud-delivered solution to assure customer service experience. We'll be linking that Paragon Suite to our IP infrastructure from the metro to the edge to the core for a better together customer advantage that tethers the infrastructure to cloud-delivered services for a virtuous feedback group.

Now I want to talk a little bit about some of our specific results and drivers of growth in a few key customer segments starting first with our cloud segment. We've had a focus in our go-to-market sales outreach on diversifying our cloud customer base, and it has been paying off. We are already the #1 provider of cloud WAN routing solutions. And I believe, given that large franchise installed base, we can continue to grow along with growth of the cloud customers themselves.

As Rami noted in our most recent Q4 earnings results call, we grew orders for our cloud WAN routing business by double digits year-on-year. And at the same time, as we've grown so strongly, we've reduced reliance upon our largest customers by expanding into what we call cloud majors, which are Tier 2 and Tier 3 cloud companies.

But one of the most exciting opportunities we've got in cloud really affords us a 2-sided business opportunity, which is driven by enterprise digitalization. The more that enterprises shift their workloads in a public cloud, the more that Juniper will benefit because those enterprise cloud connect points are anchored by our intelligent MX edge routers. And often, the enterprise WAN router that connects to the cloud is another MX router.

Additionally, we're seeing strong interest and early adoption for 400-gig core upgrades in the cloud segment based upon the performance and scale of our custom Triton silicon for our PTX platform. One of the largest cloud customers in China has already deployed our PTX 10K router with 400-gig ports to anchor their next-level capacity expansion.

In the Service Provider segment, we're similarly seeing the benefits of diversification. We've turned what had been a multiyear decline into 4 quarters in a row of year-on-year order growth and 3 quarters in a row of market share gains in SP routing. And again, we've paired that growth with reduced reliance upon our largest SP customers by expanding more into the cable segment and to global Tier 2 and Tier 3 telco companies.

We're seeing early traction with our new metro offerings with a universal access win in Taiwan Mobile for new 5G mobility services as well as residential and business service aggregation connected to MX edge routers. As noted before, we believe expansion into this metro segment is a key opportunity for TAM growth for Juniper in the next few years to come. We've also had success with our 400 gig-ready MX edge routing portfolio at Telefonica who has rolled out upgrades based upon the MX10K for business service connectivity for enterprises. And again, we have that 2-sided business opportunity to not only sell routers to service providers but also to high-end enterprise WAN customers on the other end of the circuit as well.

Finally, as noted before, we believe adoption and growth of WAN automation solutions by service providers represents yet another source of growth opportunity for us going forward, which also helps create preference and pull-through for our WAN infrastructure portfolio.

Just to wrap up and remind everyone what our key value points are, we believe we're well positioned to win and grow in automated WAN. We're stabilizing our traditional edge and core markets, which we believe we've done well in 2020 and expect to continue this year and beyond. We are protecting margins for our traditional core and edge platforms through monetizing our Junos operating system software as well as through smart use of both custom and merchant silicon to better match optimize cost points to customer needs for different scale and functionality in their network designs. And finally, we're complementing our traditional markets by expanding into new growth opportunities with expanded TAM in metro and automation software.

Thanks for your time today. I really appreciate the opportunity to talk about our plan to grow and win in automated WAN. Next, I'd like to introduce Mike Bushong, who will discuss our strategy and plans for our cloud-ready data center.

Michael Bushong

I'm Mike Bushong, Vice President of Data Center here at Juniper Networks. In this session, we'll introduce our overarching data center strategy and talk about the primary growth levers, both intrinsic and secular, that will drive our commercial prospects in 2021 and beyond.

If we look at our strategic starting point, consistent with what you've heard, our data center solutions are all about transforming experience. As the hub market undergoes a fundamental shift from product-centric to experience-led, the battle lines will be redrawn. At worst, this will open up neutral opportunities for Juniper as the incumbent grip is loosened. At best, we'll see significant share moves built around a secular shift in how equipment is considered and procurement decisions made.

So what does experience-first mean in a data center context? As Rami said at the open, it's the acknowledgment that customers are transitioning from building better networks to making networking better. Networks are nouns. They're defined by the devices, the protocols, the technologies. Networking is a verb. It's defined by the people, the process, the tools. Experience first means that it's the operational experience, not the speeds and feeds that will dictate the winners and losers in the go-forward data center networking market.

Hyperscalers have already proven this out. Cloud customers aren't paying for other people's servers. They're taking advantage of other people's operations and that trend will slow down market. This represents a fundamental secular shift in purchasing criteria that we expect will open up competitive insertions, not seen since client server fundamentally reshape data center connectivity needs over 25 years ago.

Where the past was dominated by the command line interface and the vendor certifications required to demonstrate proficiency, the future, and really the present, is about letting specialized software operate the network. By prying people away from the arcane, vendor specific semantics of yesteryear, we're allowing them to spend less time on the business of management and more time on the business of the business.

Let's begin our discussion of the Juniper growth opportunity with what we're delivering to the market right now. Our portfolio strategy begins with foundational elements, and our platforms are led by our QFX family powered by Junos, our common operating system across our portfolio of routing, switching and security.

In this case, we've chosen form factors that are centered around cost-optimized 25 and 100 gig, which is where we see the bulk of our sales today. We're ahead in the transition to 400 gig. I'll talk about our strength here when I discuss our growth drivers.

If platforms are a foundational element, and we want to really transform in the operations space, the first thing we need to understand about automation is its most basic premise: you see something, you do something, which means that there's a foundational requirement that we have rich telemetry capabilities. Juniper's long-standing leadership in telemetry enables hyperscale-like operations and ultimately unlocks the power of AI.

On top of these foundational elements, our central thesis is that operations is going to drive buying decisions. So while we monetize the hardware, it's the software that allows us to stand out. We see 2 separate ways this will play out. First, our companies where the network is a part of the supply chain. They're delivering a cloud service or they're a SaaS company and want to do things in a hyperscale-like way. Every operational expense represents a margin dollar. They'll optimize and tune and develop code to improve profitability. For these customers, we deliver automation practice, tools, combined with the support and services surround to satisfy their needs for custom approaches.

On the other side, our customers where IT is primarily seen as an enabler for the business. Their focus is on simplifying their operations. They trade in agility and reliability. In this space, we focus on a holistic approach from design to deploy to operations. Sometimes you'll hear this call day 0, day 1 and day 2. Our products here are built around intent. The idea that you want to specify what you want, not how it's implemented. The best part, we do this in a way that allows multi-vendor deployments, creating both an insertion and a competitive moat. As Juniper offers both an automation practice and a packaged experience from common underlying technology, we expect relatively small investments can reap large returns.

And then looking forward to the next few years, changes in application architectures will drive different requirements for the network. Along with existing integrations with VMware, we're evolving alongside the Kubernetes and multi-cloud ecosystems to meet these new needs. So if that's the foundational strategy, so the next question is, in which markets do we carry the strategy out?

Our primary growth thesis is centered around large enterprise and cloud majors. Large enterprises are looking for operational change across a mix of on-prem data centers and public cloud. They already have incumbent suppliers. And what we offer is operational transformation. In this space, our client roster includes 2 of the top 5 energy companies, 2 of the top global semiconductor manufacturers, 3 of the 5 top global car manufacturers.

For cloud majors, the combination of our underlying best-in-class portfolio from a hardware perspective, and our automation tools and capabilities deliver unmatched value. And we have strong traction in the market already. We have a presence in many of your favorite SaaS and Web 2.0 companies, including the biggest names to hit the market in the last 10 years.

Between the cloud majors and large enterprises, the blended market growth rate is about 9% CAGR over the next 3 years based on data from the 650 Group. With that growth rate and an operational inflection, we have more than enough opportunity to fuel our growth thesis.

While the cloud majors and large enterprises together represent the largest portion of the market, the hyperscalers also represent opportunity where they're not committed to white box. We're making investments here as well. What you need to understand here is simple. The hyperscale segment represents pure upside in our model business. Certainly, we were playing to win, but we actually don't have to have breakthrough success with hyperscalers to hit our targets.

Then the next question is, how do we grow? Let's spend some time on our top 4 catalysts for growth. I'll start with 400 gig. We acknowledge we were out of position in the 100-gig transition. We had the wrong form factor, and we were late with merchant silicon.

When we look at the 400-gig transition, we're approaching it from a much stronger position. We were first to market with Broadcom's latest Trident 4 platform. This proves that when we plan properly, we have the engineering team to execute and lead the market. Being earlier, it means we can monetize the upgrade opportunities throughout the entire adoption cycle. Additionally, we have rearchitected Junos to deliver a cloud-optimized solution. Early traction with our cloud customers demonstrates we're on the right track, leapfrogging our competition in a head-to-head compare.

We have early wins in the 400-gig space, while 400-gig is a bit slow out of the gate in data center for the entire industry, as people take a first step in 400-gig capable platforms by leveraging 100-gig breakouts. We saw a doubling of data center switching wins from Q3 to Q4 in rapidly growing cloud computing and infrastructure as a service providers.

As I mentioned previously, operations represents our central data center thesis. If operations is important, then what better move than to go out and acquire the industry's best. Apstra literally coined the term intent-based networking. They are the pioneers of operational change. And they've been taking that change straight to the heart of Cisco and Arista since their founding. How? The Apstra solution allows people to specify what they want to happen without having to worry about the arcane mechanics that are different from device to device and vendor to vendor and which for decades have represented barriers to entry in many accounts.

The Apstra software automatically configures the network, assures it's behaving as intended and lets you know when and why an issue may be brewing. By recognizing that assured operations starts with design intent, Apstra successfully leapfrog competitors.

Let me give you 2 examples. Beelastic, a cloud provider to Swiss financial institutions, went from proof-of-concept to production in 2 weeks. A typical data center deal will be measured in months and quarters. This speaks not only to what Apstra does, but how easy it is to understand, deploy and use. In a world where vendor certifications are measured in years, Apstra is driving change in days.

Yahoo! Japan runs 1 operational model across all its data centers while using 3 switching vendors. No other supplier even claims to support multi-vendor management. It's not just a differentiator. It's a powerful insertion, and it's unique to Juniper. This profoundly different approach to data center operations brings Juniper to the table at a time when teams are increasingly frustrated with the fragility of their existing networks, when vast amounts of aging gear is reaching the end of its useful life, and when vendors aren't exactly helping people migrate from old to modern. Why? Because change represents a threat, and their threat is our opportunity. Juniper will use multi-vendor software as an insertion, allowing us to present a viable path forward, where customers can cap existing investment and transition to the new thing, while still achieving operational benefits over the entire set.

Juniper plus Apstra is receiving enthusiastic feedback, including T-Systems, a large European IT consulting firm with EUR 7 billion in annual revenue. Their CEO lends his name and a quote to our announcement as an endorsement of our coming together.

In the first week alone following the acquisition announcement, our sellers had well over 100 opportunities identified, representing all segments and all geographies. And we've already agreed to terms in a 9-digit multiyear deal in the public sector, where Apstra will be driving operations over a Juniper data center fabric, a decision that was reached in days on Apstra after a single meeting and subsequent demo.

Of course, Apstra is not just a supporting element. It's a lead. At Juniper, our data center portfolio now includes unmatched automation, our policy-driven SDN, our cloud optimized OS, the best switches, connected security and the automated WAN. This allows us to sell broader solutions led by software. With Apstra, we're seeing more deals, a higher close rate and a higher average deal size and all of that maps directly to growth.

But innovation isn't only what you acquire. We're also innovating in-house to drive disruption. In the large enterprise space, we've made a lot of traction with Mist in the campus and branch wired and wireless. Customers see the vision of what AI means across the network. We're already seeing more opportunities in data center based on having Mist inside the portfolio. Beyond that, if we take the AI engine that supports Mist, and we combine that with the point of control that Apstra represents, we have the ability to bring AIOps to the data center.

And the extensibility of our technology and management, we're seeing innovations that open further opportunity. Contrail, built around Kubernetes, opens up a new space where networking is important, giving us access to a different class of conversations with high relevancy to applications. We already have franchise wins in the advanced operating environments of Workday and Riot Games to support new application developer practices that the hyperscalers use, such as CI/CD. We add to that innovations around edge cloud, silicon photonics, smart mix. Every one of these represents a new conversation with a customer.

Then finally is the disaggregation space led by SONiC in containerized routing, delivering a routing stack in the container. In these solutions, we have high-margin software with volume potential in the tens of thousands of instances, with virtually no cannibalization of existing products. These represent a software-led means of routing Juniper in the most massive, fastest-growing networks on the planet. We've already sold thousands of instances of our containerized routing into hyperscalers. We also have early SONiC wins in China and active conversations across our cloud majors accounts.

The punchline is that we're leveraging these organic technology investments to expand our footprint across our target markets and drive new growth for our business. In essence, we're opening up new Juniper addressable market opportunity that's otherwise unreachable. That's how we unlock the hyperscale upside to the data center financial model that I talked about earlier.

Marcus will cover our expanding market reach more in his presentation. Here, I want to focus briefly on the global system integrators as a route to market. This is important because it's a leveraged sales motion and allows us to build a solution and then have them carry it to market. We see opportunities to both gain share within existing accounts and open up new logos. We have great traction across major SIs around the globe, often displacing competitors, whether that's with IBM, Atos, Capgemini, Fujitsu or TCS, and that's before Apstra, which is attracted the SIs as it provides multi-vendor management.

To summarize, the big things I want to net out for you. First, a simple reminder that the market is changing to experience led buy-in. This is our true north, and this changing market condition opens up opportunities that we can and will exploit.

Second, our strategic focus and our growth thesis is based on success in the large enterprise and cloud majors. Any growth outside of these represents pure upside to the model. The opportunity in the data center is huge. In the data center switching market alone, totaling more than $12 billion last year, our select markets are growing at a CAGR of 9% through 2023.

Combined with transformational changes in network design and vendor consideration, there should be double-digit share up for grabs. And finally, we have 4 catalysts creating a growth inflection for our data center business, 400 gig, which represents an upgraded cycle with opportunity to expand share in the 2 to 3-year horizon. Apstra, our software lead to deliver a differentiated experience over what Cisco and Arista can do that we expect to lead to share gains in software and hardware across both large enterprise and cloud majors. Disruptive development and AI, cloud-native and disaggregation that opens up new use cases and expands opportunities, especially in the hyperscale space. And system integrators, where we leverage Apstra to expand an already strong presence to unlock a leveraged sales model.

Amidst the changing market conditions that no longer favor the incumbent, the next 3 to 5 years will reshape the data center space. The future will definitely not be more of the same. Who wins in data center operations will ultimately take share, and we have the portfolio and the team to capitalize.

Now I'd like to introduce you to Sujai Hajela, the lead for Juniper's AI-driven enterprise business.

Sujai Hajela - *Juniper Networks, Inc. - SVP of AI-Driven Enterprise*

Welcome to the AI-driven enterprise that has unleashed the network for the next decade. And in this network, user experience is the new uptime. My name is Sujai Hajela, Senior Vice President for the AI-driven enterprise and formerly Co-Founder and CEO, Mist.

The networking industry is ripe for a change. While traditional solutions give good visibility into how an AP, a switch or a router is doing, they are not designed to give visibility and enrich end-user experience.

For example, have you ever complained about bad WiFi only to hear, "Well, the network is just working fine." And frankly, when you look up to your home broadband router, given most of us are working from home or a different new workspace, you generally see a green light blinking. You don't see a problem.

All too often there is a disconnect between network performance and user experience, which just gets worse as the number of users, devices and applications grow. And frankly, if anything, the global pandemic has shown the importance of end-user experience where your home has now become a micro branch with heavy video demand off the network. Up is not the same as good. And just passing traffic is no longer an acceptable measurement of a successful IT infrastructure.

Welcome to the Juniper AI-driven enterprise. The time is right for the AI-driven enterprise. For example, the new WiFi 6 and upcoming 6E technologies are driving major WiFi refreshes in almost every vertical. By applying our proven Mist AI technology to 802.11ax/WiFi 6, Juniper is differentiating from the competition and leveraging this opportunity to displace the wireless incumbents. And guess what, these wireless refreshes drive wired switching pull-through.

Furthermore, as enterprise demand agility and business continuity, the move to cloud has accelerated. Projects that took years need to now get completed in weeks or months. And thus, the modern micro services-based cloud built from the ground up from Juniper delivers maximum agility, scale and resiliency in near real time. And with the evolving workspace, even a home needs enterprise-grade support. Enter AI-driven support enabled by Marvis AI, coming to your home, near you. And all of the above with no compromise and security-driven by Juniper-connected security.

We are uniquely positioned to take share, a differentiated vision, unique client to cloud, a differentiated architecture, AI-driven, cloud-enabled and a software delivery platform that enables rich cross-sell, upsell and pull-through opportunities to drive real results.

And this last point, real results, I cannot stress enough. AIOps brings much needed automation to IT to lower cost and maximize operational efficiencies. It brings unprecedented insight into user and application experiences. And it enables proactive actions that can fix problems before users even know they exist. But all this cannot happen in a vacuum. For automation, insights and AI-driven actions to deliver maximum results from the client all the way through to the cloud or several clouds, they must be coordinated. More specifically, correlation is required across the WiFi, wired LAN and WAN and security domains to deliver a cohesive story.

Welcome to the AI-driven enterprise. This is where we truly excel. Let us put this into perspective with a simple example, one we can all relate to. Bob's video call dropped. Why? Was it his WiFi? A bad Ethernet cable? A Zoom application server in the cloud data center issue? His device or his internet WAN connection? With end-to-end service levels, event correlation, anomaly detection and self-driving mechanisms, you can easily discover that it was the last of these issues, the WAN and frankly, fix it before Bob even knew there was a problem. Real results.

Now what is required to deliver this modern enterprise network for the next decade? There are 4 fundamental pillars, which make the AI-driven enterprise. Number one, assured end-user experience. We provide visibility all the way down to the individual client application and session. This lets you set, monitor and force things like service levels to optimize assured user experiences.

A cloud-first mentality. As mentioned prior, Juniper leverages a modern cloud infrastructure for faster troubleshooting, agile feature delivery, including, yes, new pushes every week. Christmas comes every Wednesday at the Juniper AI-driven enterprise.

Number three, a self-driving network operations. AI is used for network support, enabling problems to be addressed proactively and with minimal disruption to IT personnel. And last but not the least, the fundamental pillar of security. When it comes to wired, wireless access, these architectural differences have led to a very clear competitive advantage. I actually call them we dares, as these are the features that are unique to Juniper and cannot be easily copied by competition. And this is Sujai saying I dare the competition to do these.

But let's take some examples. I dare the competition to deliver weekly product pushes, which only Juniper does, thanks to the microservices cloud. I dare the competition to dynamically detect anomalies in real-time and automatically start capturing packets for troubleshooting with no human intervention. I dare them to provide service levels all the way down to the individual client to set, monitor and enforce best user experiences. And yes, I dare them to try and troubleshoot their network using simple natural language queries such as what is wrong with Jeff's WiFi, or why was the switch on the second floor having a problem. We, Juniper, dare.

The AI-driven business model has been simplified via a cloud-delivered model and has created strong potential for customer lifetime value on 3 vectors. The first one was organic expansion. There is obviously organic growth. That is a Juniper deployment happens on a greenfield. And once initially deployed and proven, we replaced the incumbent vendors as new and new buildings come up for refresh. For example, a customer buys a WiFi AP and there's 100% attach of a mandatory subscription and then maybe a Marvis assistant.

Second is upsell. Upsell of subscriptions with an attach of over 25% beyond the mandatory subscription. Next, the customer wants advanced Marvis capabilities via Marvis. They can then expand to subscriptions for social distancing or analyzing business measures via premium analytics.

And yes, the third vector, the cross-sell, where the pull-through potential of, for example, EX is 2 to 3x WiFi. And then they buy wired assurance and then further upsell to Marvis assistant. And I haven't even spoken about SD-WAN, another cross-sell opportunity.

And here is the best part. All of the above, by a click of a button, to instantly enable these services for the customer, all automated, no truck rolls.

Some examples. When customers expand with the Juniper AI-driven enterprise, they clearly see real results. The gap deployed the network in record time and has been successful in increasing their transactions per store while reducing the OpEx required to handle network operations at these stores.

Unfortunately, I cannot name this customer, but they're a global transportation and logistics company, who you probably see or experience every day. They rely heavily on Juniper wireless for inventory management, warehouse logistics and employee productivity. They also leverage SRX for secure WAN connectivity. They have clearly [seen] day 0, day 1, staging process reduced, staging to bring up the network reduced from 5 hours to minutes. Yes, hours to minutes.

Day 2, all about network operations, (inaudible) packet capture has allowed them to significantly reduce the time required to troubleshoot issues. The proactive alerting alone has reduced mean time to repair from 48 hours to just 2 hours. This is the AI-driven enterprise from Juniper. I dare the competition to even think about doing or delivering these real results. And if all this was not enough, you can always take Gartner's word for it.

Our movement in the wired wireless access (inaudible) was unprecedented, having leapfrogged over 4 vendors to be the highest in the ability to execute in the industry. Yes, the highest. We went from a visionary to a leader in just 3 years.

And yes, we are taking a page from the playbook of a wired wireless in the WAN Edge. Our vision for AI-driven operations has moved us into the visionary quadrant this year. And as we bring 128 Technology into the fold and execute on a unique Session Smart routing value proposition, we expect similar great things on the horizon. A highly differentiated portfolio with defensible architectural differences. A portfolio and a vision resonating with customers and analysts. A business experiencing strong growth with added upsell and pull-through cross-sell capabilities. Welcome to the AI-driven enterprise from Juniper.

And now I would like to welcome Samantha Madrid, Vice President for the Connected Security business. Welcome, Samantha.

Samantha Madrid

I'm Samantha Madrid, Vice President of Juniper's Security business. I've been in the security industry for more than 2 decades, doing everything from hands-on technical design and operations to building and bringing leading security products to market. My expertise is around business transformation, which is what I've been doing with our Security business since I joined, and we're starting to see the green shoots of these efforts.

Today, I'll be covering 3 areas: our road to connected security, the strategic use cases we're focused on and examples of customer wins that show how we're positioned for success.

Over the past 20 years, security technology has undergone near-constant evolution as to how it's consumed. In the late '90s, early 2000s, it was all about secured connectivity. Firewalls are focused on IP and host-based controls and VPN. But given the Internet access was becoming more central to corporate productivity, security technology had to evolve to accommodate. This gave way to cybersecurity technologies to stop malicious activities from entering the network via the Internet and providing context about the traffic to make sure it was safe from attacks. And because employees started working in nontraditional locations, traveling, working from coffee shops or home, it drove the need for mobile device security to accommodate employees using their own personal mobile devices instead of corporate-issued devices.

And that brings us to present day. At each one of these inflection points, we've carried forward lessons from the past technologies and applied them to new architectures. The inflection point we're seeing now is around the convergence of networking and security. The most notable reference architecture that captures this convergence is SASE, a term that Gartner coined. This convergence of networking and security brings services closer to the user and is being recognized in a variety of ways.

5G transformation is all about bringing high bandwidth, low-latency applications closer to the subscriber. Service providers are expecting widespread adoption of 5G over the next few years. This means more data center locations distributed all over the globe and more devices connecting, increasing the attack service.

There have been an acceleration of cloud adoption since the pandemic. The cloud provides easy access and reliability from anywhere in the world and levels the playing field for companies of all sizes to consume top-tier applications. Increased cloud consumption, again, means an increased attack service because more users and devices are accessing cloud services. But it also means that cloud providers are more heavily investing in security to deliver a fast, reliable experience that's secure.

This is an upward trend across multiple industries. What this means for security is this new architecture called SASE is starting to take shape, but businesses are taking a phased approach. They're looking at what they have on-premise and methodically moving that to the cloud. Businesses are also determining how to secure cloud access and how to secure data traversing from client to cloud.

We acknowledge that there has been a lack of growth in our business. But we took the last 2 years to ready our portfolio for the transition to SASE architecture, which opens up the market to a $5.1 billion TAM. Knowing that customers are going to need a transition plan and that infrastructure security and support to make that transition seamlessly.

Because more applications and data are living in public clouds, the requirement for data integrity, privacy and compliance is driving the need for encryption, presenting secure on-ramps to cloud services. But as with all good intentions, encryption also increasingly being leveraged in attacks to evade detection. Security has not been as effective as security needs to be because it's separated from the network and bolted on after.

SASE is not a product, it's an architecture. And it's one that requires strong networking and security woven together. Given all these changes in technology and the way they're being adopted, a new way of securing the network is needed, meaning stand-alone security companies will no longer exist. Security must be tied to the network. This is where we're headed as a company, and this is the power behind Juniper Connected Security.

When we introduced Juniper Connected Security strategy over 2 years ago, we did so with the mission to transform how you secure a network because we believe security needs to be part of every point of connection to effectively secure users, applications and infrastructure. Our Connected Security strategy is putting us in an excellent position to help businesses make the transition to this new architecture as we continue to grow our Security business. And that's what has excited us, is the validation that we've received from industry, starting with the analysts.

From Dell'Oro agreeing that all networking infrastructure plays a role in security to Gartner validating not just our competitiveness in all use cases, but just a few months ago, Gartner moved us out of the niche quadrant, where we have been for 5 years, into challengers. Noting that we are a good shortlist candidate for new architectures that converge networking and security. A perfect example of that convergence is SASE.

We're turning the corner in security and as we balance innovation with transformation, Forrester has recognized our ability to tackle new security challenges, most recently highlighted our ability to provide data integrity, privacy and compliance with security for encrypted traffic.

But with any transformation, it's about adapting your understanding of the market to the changes that are occurring. To get to this point where analysts are recognizing our potential for market leadership, we started our transformation by first addressing capability gaps in our portfolio. We then went on to invest in third-party validation. We worked with industry-leading independent testing houses to validate security technologies against use cases customers are actively deploying.

We've been recognized for our security effectiveness in scale, performance and threat mitigation. I know what you're all thinking, how did we fare against vendors considered to be leaders in security? Well, let's have a look.

Our recommended rating at NSS Labs, beating out Cisco and Palo Alto Networks in security effectiveness, scale and performance as well as in high availability which is a customer expectation for data center deployments. Both Cisco and Palo Alto Networks opted out of that [HA] test.

ICSA Labs Advanced Threat Defense is a test designed to benchmark vendor effectiveness in catching today's most advanced threats, including ransomware, phishing and botnet attacks. Juniper was the only vendor to block 100% of these threats without any false positives, not one.

And lastly, CyberRatings, a new testing company, started by the founders of NSS Labs. This is the complete next-generation firewall test from end-to-end security, scale and performance. These are results and the recognition that our Connected Security strategy has been receiving from leading analysts puts us on very good footing with customers and partners as we go forward with our transformation.

And we're going forward by addressing this shift in architecture with customers by focusing on 2 areas of the network that are transforming the fastest, the edge and the data center. Our focus is on ease of deployment, ease of management and ease of insertion, which enable -- that follow the user security policies that support the customers' desires for a more distributed and extensible network without trade-off between experience and security.

We're giving them both. With network architectures shifting to enable direct client connectivity to the cloud, securing the enterprise edge and the safe transition to a SASE architecture, is where we differentiate from competitors. Customers are looking for ways to safely transition their applications from on-premise to the cloud by bridging their existing security policies across their newly built out environments.

This is where unified policy management and closed-loop threat protection is critical. The success of this transition depends on it. When security policy and management differ for different environments, this creates security gaps that leave networks vulnerable to attack. We see this problem arising even when customers implement leading solutions that are purpose-built and designed for the cloud, promising threat detection without compromise. But customers are forced to compromise. To address these gaps, it often means increased overhead to translate policies from one environment to another, again, leaving room for error, increasing risk.

The way we're addressing this need is resonating with customers. We've seen over a 50% increase in our security subscriptions over the last 12 months, further indicating that we're on the right path towards growth. We start by evolving our SD-WAN architecture that couples Session Smart routing with our advanced security policy delivering of ease of use through security-as-a-service, maintains follow-the-user security and connection integrity for every user and device anywhere. This is Zero Trust security. The transformation in the data center presents a large growth opportunity for us, driving the need for consistent security policy across all data center junctures.

Let me explain what I mean. Think of the data center as an art museum. There are entrances and exits, hallways that lead to different sections and exhibits and there are

(technical difficulty)

Juniper physical firewall sits at (inaudible) software on that gateway make sure that visitors to the museum who go in and out have tickets and are not leaving the museum with stolen art. Security subscriptions on the virtual firewall that sit inside the data center are like the security guards and cameras inside each exhibit area, making sure visitors and employees go where they're supposed to go.

The containerized firewall protects each application. Applications are like the individual statues and art pieces. The cSRX protects each application, just like each art piece is secure, making sure they're not stolen or tampered with.

Sometimes the museums have several buildings and just like multiple data center locations that are linking together by walkways secured by guardrails. For the data center, these walkways are alike the inter-data center WAN links that transport data to and from other data center locations. The threat intelligence and enforcement built into our automated WAN portfolio secures walkways between each data center location. Whether you're a regular visitor, a VIP or an employee, you're only going where you're supposed to go based on your identity.

Our segmentation, user and application-based traffic policies and threat prevention services enable a Zero Trust data center.

According to Onvia's latest research, performance and security drive WAN investments, and this is true as service providers transition to 5G. 5G supports higher capacity and moves applications closer to subscribers. Service providers are breaking their data centers into smaller, more distributed data center locations to support distributed mobile applications requiring security at scale. We secure everything providers need to manage subscriber networks, not just the mobile subscribers, but we're also securing the applications, deploying to maintain subscriber service offerings.

From cell tower to cell tower to and from distributed data centers and within each individual data center location, we're securing the entire service provider experience.

I want to share with you a very powerful story that happened just before the end of the year. We have a service provider customer based in Europe, who uses our MX routers for high-capacity bandwidth. Our account team was doing a POC for this customer, and the team noticed some DDoS attacks. A couple of days later, the customer received a note from hackers, threatening them by demanding millions of dollars in Bitcoin or the attackers would launch a massive DDoS attack and bring down the network. Well, the customer decided to get Connected Security a try, and our DDoS solution was able to completely protect them from the attack. There was zero impact on the customer's network. The customer was so impressed that they placed an order after just 2 weeks into the POC.

So how does this translate for you as a user, even as you watch this presentation? It means I should pick up your mobile device, to respond to a text, reply to a quick e-mail or check the latest stock post, Juniper can secure the entire data transaction. From securing the signal your mobile provider enables to the data being accessed as it traverses the data center to the intended application, juniper offers fully integrated security with unified policies at every point of connection. That's Juniper Connected Security.

And here are some referenceable wins where we've been selected over incumbent competitors such as Cisco, Palo Alto Networks and Fortinet for security across these 3 use cases to facilitate customer architectural shift.

Let me talk you through 2 wins. The first is a customer who operates and secures the network of one of the top 10 largest cities spanning 30,000 employees in multiple locations and municipal services. They chose Juniper to secure their entire network, including end points which they were responsible for but, previously did not have a way to manage.

The next is a customer that owns a number of brands in the restaurant industry. They need high-performance connectivity with advanced security for thousands of restaurant locations. After a technical bake-off with a leading firewall vendor, they chose Juniper even after that competitor dropped their prices. Because with Juniper, the customer stood to save around $2.4 million over 5 years due to our security efficacy, performance, scalability and ease of use.

Our wins in these areas and the fact that we're better positioned with our complete portfolio than any other vendor to lead these architectural shifts in enterprise cloud and services provider networks from end-to-end. Networking vendors are acquiring security technologies and security vendors are acquiring networking technologies. Juniper has both, and we've proven that we're really good at both. This puts us in a great position for growth in these areas going forward.

Thank you so much for tuning in to hear about our connected security strategy. And now we will take a 5-minute break, after which you will hear from Marcus Jewell, Juniper's Chief Customer Officer, regarding the company's go-to-market strategy.

(Break)

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Okay. So hello, everyone. It's my great pleasure to speak to you today. My name is Marcus Jewell. I'm the Chief Sales Officer and Executive Vice President here at Juniper Networks.

I'm going to talk to you today about the 2-year journey we've been on and also the journey we got ahead of us and why we're so excited, not only what we've done, but even more excited of what the future holds.

So first of all, I want you to understand how we've modernized the sales force over the last 2 years. 45% of our reps are actually new, and that was incredibly important. The world now requires outcome-based selling in addition to relationship-based sales. I'm going to explain what that means in simple terms.

The first point is we now adopt a philosophy, which is used by most ARR and software-focused companies, and that is the MEDDIC philosophy. This is a common language tool which allows buyers and sellers alike to make sure we're on the same page at the same time and has proven to be incredibly effective in delivering results on a consistent basis. Most world-class organizations will base their sales strategy around MEDDIC. And Juniper is one of the very few, if not only, companies in the infrastructure space, which uses this model and approach.

Now looking at the infinity curve and the way that we deal with our customers, we can see that the journey is closed-loop and starts with awareness, interest, consideration, moves to purchase, delivery, onto use and maintain, and of course, loyalty. Now that's always been the case. But what we can now do is automate a lot of those processes. We can take the human interaction away or actually augment human interaction to make it even more powerful. It allows us to assign the correct cost to each [emotion].

Relationships remain key with a large service provider, enterprise and hub scale. But many other transactions can be delivered with a lower touch and, therefore, cost.

We use the best-of-breed companies to help us in the area. We use [Aviso] to help us with our virtual war rooms and work in a virtual environment. So we actually review deals and give ourselves a competitive edge on an ongoing basis.

We use Gong and NLP, or natural language processing, to make sure that when we speak to our customers, we're capturing the data and inclination to see if they're likely to buy or not. [Mind Trigger], which is a world-class enabling tool, which gives our skills transformation into the team a very modern and applicable approach. Outreach to make sure we're actually reaching our customers and they're using our technology in the correct way, and we're right at the cutting-edge with Salesforce using their Einstein project to actually use true AI to increase our forecast accuracy and make sure that our results are more consistent going forward.

It will be a surprise to many of you that a number of organizations are nowhere near this level of sophistication in running their sales teams. We are completely data-driven, and this gives us a big advantage. All this work was undertaken before COVID. I had a view that the world was going to move to more outcomes and virtual-based selling. Buyers are becoming younger. Gen X wants to engage in a more dynamic way, and they're not only interested in relationships, they are also interested in outcomes. As much as we have a differentiated portfolio, we have a differentiated go-to-market that I believe helps us deliver a truly competitive edge.

The tagline from my sales team is consistency, clarity and judgment. That is being consistent in our approach to each segment, being clear on what the benefits of working with Juniper are and then making a judgment on where it makes sense to where we are with Juniper. And what I mean by judgment is focus. Focusing on the customers who see value. The market is so big and the opportunity ahead is so huge that we can be very selective in our engagements, and that has proven to be incredibly important as we double down and increase our revenue shares.

So let me break this down into each customer segment we sell into and also the solutions these segments utilize. Starting with cloud. In cloud, there's a lot of talk about our routing use cases and there's a lot of threat perception out there about wide box replacement and competitive pressures. Let me assure you, routing use cases are completely mission-critical because they are the ones that connect the actual application to the user of the cloud solution. And they continue to expand at an incredible rate.

The other thing that's important to understand is that they are very, very sticky technologies. And our control point of Junos' operating system is incredibly hard to dislodge in those places. So we are confident about protecting our market share against all of the competition, including disaggregation. We also know that we can expand them because routing is about scale and scale increases with complexity, and Junos can run the most complex systems in the world. White box cannot and will not.

It is not about protecting and expanding our existing use cases, but there's also diversification into the new customers, especially into Tier 2 or the cloud majors. There is, of course, a great deal of focus on the hyperscaler customers. I deal with these customers every day and fully understand that they have a huge amount of buying power, but there is a large and growing list beneath. And in 2020, we won 5 new franchises in cloud major companies, in addition to seeing growth and diversification in use cases in the hyperscalers.

Interestingly, the cloud major providers are far more than routing. They also are our big data center opportunity, and that brings me to the next point in hyperscale. This is an opportunity for Juniper. The 400 gig transition is upon us. It will start to monetize in 2021. This will mean share shift. And what I can assure everyone is that the revenue share will be more equitable than it is now. Data center and hyperscale is an opportunity for Juniper. And rest assured that we are playing to win share and I believe that we would do just that.

Across the hyperscalers and cloud major companies, an area we don't draw enough attention to and actually feel we don't get enough credit for, is our diversification outside of the core network. In these accounts, our campus use cases and security use cases are growing at an exceptional rate. They have very large campus needs. They have very large security needs, and we're very pleased with our progress with Mist and our security space. It's fair to say that we're one of the leading providers of security into the data center for the hyperscale market.

Now moving our attention to service provider. There is, of course, solid growth in our existing routing use cases, and that's good news for us. We've seen core aggregation and edge and routing use cases expand through more virtual working during the COVID-19 pandemic. Discussions on Open RAN have opened up with more use cases for us, and we have some exciting announcements coming up with Open RAN partnerships with some significant players such as Samsung and NEC.

With our success in data centers within the service provider community, doubling our installed base and also expanding with 5 major wins in Tier 1 telcos, and those data centers are set fair to increase over the forthcoming years.

Importantly, looking forward, we have a fresh Metro portfolio. There's great initial traction with our first orders on the books, and we're looking to expand that. 2022 will be the start of a big time expansion in Metro, and we'll be competitive and take our share within this space.

So moving to Enterprise. Enterprise has been a real growth engine for us over the last while, and we can see that continuing and accelerating. I could believe that we can deliver market-leading growth and take share for a very long time to come. We are recognized as a market leader now in multiple use cases, as evidenced by our position in the Gartner MQs, and this has a huge impact on interest.

We're very clear on the focused verticals we have. We only focus on critical infrastructure organizations. We're not exposed to the headwinds faced by transport organizations or the leisure sector. We are very much looking at the critical infrastructure into government, into power supply companies, into education and into health. Therefore, the Juniper business is more protected than others in our space. That was by design, and I feel it gives us a big advantage for growth factors over the coming period.

We've extended our differentiation with our recent M&A. Those products are flying, and we're very happy where we are now. They give us a much more complete client-to-cloud strategy to back up and complement our infrastructure story. The first deals from these acquisitions were booked within hours of closing, which is [great proof] the decision on why we made these investments. SD-WAN and data center automation are both control points that customers have a big appetite for. Automation of the data center and connecting client to cloud are in nearly all CIO's top 5 imperatives.

We now stand alone in the way that we train our people. A Juniper representative is very different than our competition. And if you pay attention to platforms like LinkedIn, you will start to notice. More importantly, we're becoming a destination company. People are seeing that we have great technology in a [greater] environment. And are willing to join us on our journey.

Now finally, channel. Now as soon as I say channel, most will assume that there is no chance to disturb the incumbents in our space. This is simply not true. I've been in this space now for over 22 years, and I've seen the whole evolution. Indeed, many years ago, I was the owner of a network reseller. The existing vendors' control that they have over partners is coming to an end. There is huge fatigue within commerce suppliers. Also, the buyers are now younger and changing. They don't have the loyalty to the brand that you believe they have. They are interested in outcomes, not brand names. Legacy partners are also unlikely to make the pivot to outcome selling. So if you control a legacy route to market, you have to question how much is that actually worth?

There is a huge swathe of legacy resellers in the networking space. These will not exist over the next 3 to 5 years. The profitability of the model is squeezed. The relevance of their value-add is no longer there, and they have to adapt. But of course, there is a next-gen of managed service partners that provide managed cloud-delivered technologies. And our solutions in our portfolio with Mist and 128 are incredibly attractive to those organizations. So our expansion of partners is impressive. And when we look at the MSPs coming to the waters and taking our products, in a very different way, I'm very excited of what the future holds.

We've also signed 3 new agreements with global partners to replace existing vendors. Let me be clear, that is replacement of existing vendors, not in addition to. That is a seat change we have not seen in our market before. I can impress to you enough the fatigue and risk from some of the larger legacy companies in our space.

There's also legacy thinking in the competition. They lack the agility and creativity to respond quickly. An example is the market leader's new channel program will take 2 years to deliver and takes 120 slides to explain. Being our size, we have the ability to move quickly with channel programs and leadership. I have an assertive, vibrant and forward-thinking leadership team that is making a big impact.

This is evidenced by the recent Canalys report from EMEA. This is data from partners, not submitted by us. It's a blind survey, and I'm confident there will be similar results in the U.S. and APAC when those reports are delivered in the next few months to establish our position as a true channel player.

So I said I would talk about this now, and I want to move to the worldwide sales average headcount. As you can see, the journey is detailed from 2016 to 2021. I've been able to increase the number of feet on the street in a relatively dramatic way, but also have been incredibly prudent with our operational expense. If I expand this more, you'll see that we've been able to reduce the average cost of sales head significantly through the period, as shown by the blue curve.

By looking at a different profile, we no longer feel that we must have to hire the world's most experienced and expansive people. We're looking for upcoming talent that has taken us in new places with assertion and intent to make a difference in the world we work. We balanced our relationship setting experience with modern outcome AI-augmented sales.

And this is the best summary slide I can give you. We have a great balance of account managers, SDRs, and VSEs. So SDRs being the people that actually make the contact to the customer to get the interest, and VSEs is the internal sales base or virtual sales executive. And you can see that's where the expansion is. Virtual sales executives, people that don't necessarily ever have to leave the office or their home. And in fact, more than that, our classic account managers are working in a virtual environment through COVID, and more and more of this will last even post COVID.

Buyers don't have the time, inclination, or indeed now, the technical skills themselves to understand purely deeply technical approaches. So we're now moving, as I said, to be a very experienced and outcome-based solution. Our customers are telling us we're on exactly the right track, and that is backed up by our growth in enterprise. And more importantly, it means that we are prudent with our OpEx.

Looking at the average cost of sales figures, we've done a dramatic decrease there, and I believe it's my goal to do better again. So why are we winning?

Well, the first thing is that we have a differentiated customer outcome. Let me put that in simple terms. We focus on time to value and consistency. People buy technology from Juniper to enable something else. And the quicker they get to that value consistently, the better that we are perceived. We have digitized our sales process. We now formally cross-sell and identify growth. We use artificial intelligence. We use insight. We understand what customers are telling us, and therefore, take advantage to make sure we meet their needs. We engage consistently, and we're now driving very hard world-class customer experience and support mechanism, and we have an expanding portfolio in automation that takes us from client to cloud.

We don't rely on human interactions all the time. A great part of my sales can now be done automatically or zero touch using the correct partners and the correct AI tools. And I'm looking to drive those internal sales bookings 2x in the next 3 years.

And then finally, and this is probably the biggest takeaway, our segmentation helps us. We are very thoughtful about who we sell to. We are achieving customer diversification not only in cloud, but in service provider, and clearly, enterprise with a very solid growth rate. We focus on critical infrastructure. If the network matters, you should be buying from Juniper.

And in cloud, we have use case protection and upside. We are not as exposed to the COVID-impacted verticals and the SMB market. Much of our competition is, so I feel that these things, we are set fair to extend our growth and deliver impressive results. It's our time.

So thank you for your time and attention today. I'm going to now sign off and hand over to Manoj, who will talk to you more about our software strategy going forward. Bye for now.

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Thank you, Marcus. I'm back again and this time to update you on our software transformation journey. You heard from Rami about our true north: to deliver and [experience-first] portfolio for our customers. You heard from the business leads on how we're winning through differentiation and taking market share. Now I'd like to highlight that our differentiation and our experience for strategy are truly software-led and our focus on leading with software gives us 3 critical benefits: one, better customer outcomes, proof points for a self-driving network that provides superior operator and end-user experiences with software; two, build deeper relationships where Juniper gains a bigger wallet share and a higher lifetime customer value; three, a strong business model with predictable, recurring revenue at higher margins.

The most important sign that we are on the right track is what our customers are saying. With software, we deliver real impact for our customers in terms of access, reliability, time to deployment, and expediting issue resolution. This makes lives easier for our customers and creates a better user experience for their end users.

We are offering these benefits across all customer segments and businesses we spoke about today. First, in automated WAN, the automation and service assurance portfolio, of which net RAN is a key element, has delivered a real shift in customer experience for consolidated communications for a service provider in North America. There are many more examples, including Tier 1 service providers who are benefiting from this portfolio.

Second, in the collaborative data center, we create examples at Bloomberg, where the intent-driven approach from Apstra made the ongoing management and operations of a complex [network principle] in large service provider elect systems and many more enterprise customers have created our outcomes to share with our cloud-ready data center portfolio.

Third, an AI-driven enterprise, a powerful outcome for IT at ServiceNow. 90% reduction in IT help desk tickets, and many more customers across multiple verticals are beginning to see this outcome of a nearly self-driving network.

Next, our differentiation builds a virtuous circle with our customers. Sujai uses examples to show the impact of Mist on AI-driven enterprise business. I'm going to talk about it from the software control point perspective.

Let me walk you through an example of a Fortune 10 customer, where we have proved out a great upsell and cross-sell of our portfolio, all driven by software, the power of the Mist control point. Our first sale in Q2 2019 was wireless assurance and Mist access points together. The Mist AI-driven control point was established. The first upsell we did was the Marvis Virtual Network Assistant.

A year later, we sold EX switches with wired assurance, leveraging the same Mist control point. Roughly a year later, we sold 128 technologies to the same customer, and we are expanding the power of the Mist control point by adding WAN assurance to the sale. And there are many more opportunities to upsell advanced and premium analytics in the future.

This is the same picture for other customers, too. We start with the Mist control point and then expand. Of course, the wired, wireless and WAN refresh cycles happen at different times. However, once we have established Mist as the control point of the customer, we are in a very strategic position with the account to win every opportunity when it arises. For every dollar in WiFi, there is an opportunity for $2 to $3 in wired switches and $0.50 in WAN in the corresponding virtuous cycle. Half of our Mist customers have now joined Mist plus EX customers are actively trying this joint solution. This is the same cross-sell/upsell story in our cloud-ready data center business with Apstra and Contrail, along with our QFX switches and the Paragon Automation suite for the automation WAN routing portfolio.

In summary, we are increasing the proportion of software, and particularly, the subscription value for our customers over time. By adding the interoperability with the rest of our portfolio, we're expanding into other larger use cases, which are critical for profitable growth. This approach accomplishes 4 goals for Juniper: number one, we add new customers; number two, we increase the wallet share at each customer; number three, we build a stronger and a more strategic relationship with each customer; and number four, all of this gives us more as-a-service recurring and predictable revenue.

Our software business is built on a compelling, high-growth and highly rated portfolio that plays across business segments. We are expecting double-digit growth of software for all 3 businesses: automated WAN, cloud-ready data center and AI-driven enterprise, above the rate of Juniper itself and at a high-margin from an increasingly significant base. Each offering is consistent with our differentiator and hard to replicate value proposition with a focus on experience for our customers.

In automated WAN, the software portfolio consists of on-box software in our routers called Junos Flex, our Paragon and Metro offerings. We are at nearly $200 million of software business in annual revenue, and it is expected to grow low double digits over the next 3 years. Most of this growth is expected to be perpetual software given the market requirements of these customers.

In cloud-ready data center, the software portfolio is a combination of Apstra, Contrail, security and Junos Flex on-box offerings. We are at nearly $200 million of this business in annual revenue as well and is expected to grow low double digits over the next 3 years. Most of this growth is expected to be subscription.

In AI-driven enterprise, the software portfolio is a combination of Mist, 128 Technology, SD-WAN portfolio, security and Junos Flex on-box offering. We are at roughly $130 million today and growing fast. In fact, we expect to double this business in 3 years. And most of this revenue is fully ratable and is accounted as true annual recurring revenue, or ARR. This is a great segue into our software definitions.

Before we jump into what our software business looks like in aggregate, a couple of definitions. We will report revenue from software and related services every quarter. Profitable services is excluded from this number. We will also report our annual recurring revenue, or ARR, periodically. Here, we are including only truly ratable software revenue per the strict definition in the accounting standard ASC 606. All of the Mist subscriptions, other software offerings in the cloud and security software subscriptions are included here. In addition, the revenue from the cloudification of existing products will also come as ARR.

I want to point out that we want to report and disclose ARR with a pure definition that reflects the real incremental value for Juniper's customers in terms of outcomes and Juniper's business model. Many other companies lump even on-premises, term licenses and subscription, which is not truly ratable.

So in total, our software revenue is large and outgrowing our aggregate business. The last time we spoke about software was during Investor Day in 2018. Since then, the software business has accelerated, and we expect it to accelerate even more as the aggregate business returns to growth.

Our total software revenue grew double digits over the last 2 years. Our FY '20 software revenue was approximately $530 million. We expect our software revenue will grow 50% over the next 3 years and with gross margins north of 80%. We will report on the software and related services every quarter.

If you look at our annual recurring revenue, or ARR, the picture is even stronger. We have grown ARR even faster over the past 2 years, and our FY '20 ARR was $158 million. We expect to grow ARR by more than 100% in the next 3 years. Yes, we will double our ARR to over $300 million. This growth is predominantly driven by our SaaS offering, security offerings and other cloudified offering. It's already high-margin for Juniper. And as we grow, we are gaining efficiencies of scale to further increase this margin. We will report our ARR progress periodically.

Our achievements to date have not just been on the back of acquisitions, but with systematic transformations over the past 3 years to lay the foundation for group. I also want to emphasize that we have built the capabilities needed for a strong growing software business, to ensure we grow profitably and leverage our installed base.

In summary, we have a significant and profitable software business. We have critical control points with differentiation for high-growth markets. We are able to reduce our customer acquisition costs by leveraging portfolio selling, and it is a high-growth business for Juniper.

And now I'll pass the baton to Ken Miller, our CFO, to take us through the 3-year financial model. Thank you.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Good morning and afternoon, everyone. Thank you for joining us today. I plan to walk through our key financial principles, which are designed to position Juniper for long-term success and to create shareholder value. These principles are sustained revenue growth on a full year basis, non-GAAP operating margin expansion and strong capital stewardship. Let's double-click on sustained revenue growth and some of the reasons we believe this should be an achievable goal starting this year.

First, we are well positioned in large and growing markets with a TAM, or total addressable market, of just over $62 billion, which is expected to see mid single-digit growth over the next several years. Second, as you heard from our technology leaders, Brendan, Mike, Sujai and Samantha, our product portfolio has never been stronger. And third, the investments and transformation we have made in our go-to-market organization under Marcus' leadership should allow us to further diversify our business. These factors give us an opportunity to gain share across each of the core markets we serve. I am confident in our base case forecast looking for at least low single-digit growth over the next few years.

This forecast, which I will double-click on further in my subsequent slides, assumes our organic business sees low single-digit growth. The opportunity to outperform this base case forecast comes down to execution and our ability to further capitalize on the inorganic [bets] we have made recently.

As you heard earlier today, Netrounds, Apstra and 128 Technology, each brings disruptive technology that not only opens net new revenue opportunities, but also has the potential to pull through sales of existing solutions.

I'd also like to make it clear that our long-term revenue growth forecast does not assume a material hyperscale data center switching win, significant 5G tailwinds and or a material improvement in the global economy, all of which could potentially be a source of upside to this base case scenario.

Now I'd like to share some of the assumptions underlying our forecast. Starting with automated WAN solutions, which is the largest component of our business, accounting for 36% of total sales in 2020. All of the revenue from this use case is generated by our routing products. Our results here have been under pressure in the past due to the MX to PTX transition a few years ago as well as weakness with some of our service provider customers. Despite these past challenges, what you can see is that we've actually stabilized this business in 2020 as the growth we achieved with our cloud customers more than offset the decline in our service provider vertical.

You will also notice our enterprise routing business is sizable, and this primarily includes sales to large enterprise customers and government organizations building carrier-grade networks. This part of our business has been relatively stable over the last few years.

We feel good about our ability to maintain stability of revenue in our automated WAN business as we expect growth in cloud and further stabilization within service provider. I do believe there's potential for us to do better in this business as our forecast does not assume material 5G tailwinds. We have also taken a conservative approach in modeling our Metro opportunity, both of which could present a source of upside.

Moving on to the cloud-ready data center, which represents 15% of total revenue. This market is expected to see healthy growth. And as you heard from Mike, there are data center opportunities we are targeting across each of the verticals we address. While switching generates the largest portion of our data center revenue, this solution also includes our high-end security portfolio, which sits in the data centers of large service providers, cloud providers and enterprise accounts. Our cloud-ready data center business declined in 2020, but this was due to the inclusion of certain switching products sold into a wide area use case. Excluding this, our cloud-ready data center business would have grown in 2020.

Going forward, we believe we are very well positioned to grow this business. While much of our optimism is driven by the health of the market, and the strength of our data center switching portfolio, Apstra gives us the chance to accelerate our success, particularly with cloud majors and large enterprise accounts. We believe approximately 60% of the opportunities in these verticals are decided based on the strength of the company's [fabric] management and closed-loop assurance capabilities. And Apstra provides us with market leadership in these areas. The early customer feedback on Apstra is really encouraging, and we are already closing deals that we likely would not have won otherwise. We are also quite encouraged by our early 400 gig data center switching momentum, which now includes dozens of wins, including an opportunity with a top 10 cloud provider. And the pipeline here remains healthy.

Putting this all together, we currently expect to grow our cloud-ready data center business 5% to 9% over the next 3 years, in line with market growth, excluding hyperscalers. This base case forecast does not assume a hyperscale data center win or even significant market share gains. However, we are going after the hyperscale data center opportunity. And as I mentioned earlier, Apstra has the potential to accelerate our success in the broader data center market.

And finally, AI-driven enterprise. This represents our smallest but fastest-growing business due to the substantial differentiation of the Mist portfolio, which you've heard about through the course of the day, especially from Sujai. This use case also represents the largest TAM we serve.

While we sell this portfolio across each of our traditional customer verticals, you can see on the right, the majority of this vertical is coming from enterprise accounts. You can also see most of the revenue comes from our switching solutions, which includes our wireless LAN products. We also have a sizable campus and branch security business that is part of our AI-driven enterprise offering that we also expect to grow with the acquisition of 128 Technology.

Our AI-driven enterprise business experienced 7% growth in 2020 despite the various challenges presented by COVID-19 due in large part to the success of our Mist-ified business. As a reminder, our Mistified business includes Mist wireless LAN, wired assurance, Marvis Virtual Network Assistant and associated EX pull-through. This business generated $150 million of revenue in 2020 and saw a triple-digit growth year-over-year.

We believe the Mist portfolio is truly differentiated and exceptionally well positioned to benefit as campus and branch architectures transition from being more on-premise to being managed from the cloud. We feel very confident in our ability to grow this business going forward with Mistified revenue and 128 Technology to see better than 30% growth each of the next 3 years. We believe 128 Technology holds the potential to further accelerate our success and complete our vision of delivering a secure, self-driving network that provides the best user experience in the industry, from client to cloud.

In total, we believe our AI-driven enterprise business is likely to deliver 9% to 13% growth over the next several years. However, I'd like to mention that this forecast does not assume a major improvement in end-market conditions. So even here, there could be upside.

Now let's look at our expectations by vertical. As we've highlighted through the course of the day, we expect our service provider business to be relatively stable over the next few years due in large part to the diversification efforts we have been driving. The stability we achieved this year was despite a decline in activity with some of our largest customers, which were simply not spending much last year. In addition to winning new customers and selling a broader suite of our portfolio to our carrier accounts, we are also quite excited about the Metro market, which we believe will present an attractive opportunity that further enhances our ability to at least stabilize trends in this important vertical.

Moving to cloud. We are confident in our ability to grow this business over the next several years. This forecast assumes we hold on to existing wide area footprint and make steady progress with cloud major customers. This remains our most concentrated vertical, however, we have seen an increased level of diversification within our largest accounts.

Finally, we believe our Enterprise business is likely to see 5% to 9% growth over the forecast period, and this will eventually become our largest vertical, potentially as soon as later this year. We remain very optimistic regarding our prospects here, and there could be upside if end market conditions improve.

Moving on to our traditional product and service field. While we are no longer planning to disclose our business based on routing, switching and security, we want to give you a final look at that forecast in order to bridge the gap from our old to our new disclosures. Consistent with our automated WAN forecast, we expect our routing business to stabilize on a go-forward basis as growth in cloud should offset any potential headwinds in our service provider business. We expect our switching business to deliver at least mid-single-digit growth due to success in both the campus and the data center switching markets. We expect our security sales to grow due to the ongoing success of our high-end security products and our SD-WAN solutions. Finally, we also expect our services business to grow due to the success driving attach rates and renewals. In addition, we expect our Software-as-a-Service and software subscription business to accelerate.

In order to provide a full view into our business, we will provide some additional disclosures going forward, which relates to our security and our software results. As I just mentioned, we will no longer be providing a comprehensive breakdown of routing and switching going forward. However, we will continue to disclose our security revenue. Instead of simply providing product revenue, we now plan to disclose our total security business, inclusive of services, which is likely a bit larger than many of you realized.

As I mentioned previously, we are confident regarding our ability to grow this business going forward due to the strength of our portfolio, particularly at the high end, as well as the positive impact we expect to see from the inclusion of 128 Technology. I'll also mention the reason the security growth rate on this slide is faster than the prior one is that in this forecast, we are including services, which embed some of our faster-growing software subscription offerings.

In addition to providing a complete look at our security business, we are also planning to disclose our software and related services revenue. Software and related services revenue accounted for 12% of total sales in 2020. We believe this business will grow 150% by 2023. We will report our progress against this target on a quarterly basis.

As Manoj mentioned, annual recurring revenue, or ARR, was $158 million in 2020, and we expect this number to approximately double by 2023. We remain laser-focused on capturing more value from software, particularly subscription offerings, as it improves top line visibility, benefits margin and is sticky in nature.

Now that I've laid out the path for revenue growth, I'd like to shift your attention to how we improve non-GAAP operating margins from current levels. We plan to achieve this by improving non-GAAP gross margin and growing operating expenses slower than revenue. We are committed to achieving both of these objectives. The only reason we don't expect to see operating margin improvements in 2021 is due to the short-term dilutive impact of our recent acquisitions. We believe the revenue growth we are forecasting in our base case model of at least low single digits will enable us to deliver steady operating margin improvements in 2022 and beyond.

A key factor to expanding non-GAAP operating margin is our ability to gradually expand non-GAAP gross margins. Here, you can see how our customer solutions stack up from a non-GAAP gross margin perspective and the trajectory we are anticipating for each of these areas. As an example, our automated WAN business has gross margins above the corporate average, and we are anticipating stable trends in 2021. However, we do see this business facing some modest gross margin headwinds going forward as some of the new use cases we're going after carry a lower margin profile.

In our cloud-ready data center business, we are also anticipating relatively stable trends in 2021. However, we do see margin in this vertical improving in the out-years as our new 400-gig capable products, which carry our superior margins, begin to account for a larger portion of our overall revenue. We also see the potential for Apstra to generate an incremental software revenue stream that should prove accretive to our cloud-ready data center margins over time.

Our AI-driven enterprise business has gross margins below the corporate average, but this business has significant room for improvement. One of the reasons this business carries low margins is that the hardware associated with Mist is recognized upfront, while the software is recognized ratably over time. Since Mist has been winning a lot of new customers of late, hardware shipments have represented a disproportionate amount of the revenue, but this will start to catch up over the next few years. In addition, 128 Technology will add another software-centric revenue driver, which should help improve the margin profile of this business going forward.

Importantly, our services business is not only growing but has gross margins above the corporate average. We believe there are opportunities to further improve this margin, which should help us expand overall gross margin. Finally, we are anticipating improvements in COVID-related costs during this forecast period.

Moving on to non-GAAP operating expenses. We expect 2021 expenses to grow faster than revenue due to our recent acquisitions. However, on an organic basis, we expect expenses to grow slower than revenue. Going forward, we remain committed to growing expenses slower than revenue and delivering continuous operating margin improvement in each of the next few years.

While we continue to invest at a high level in R&D, we see the potential for leverage over the 3-year period as revenue grows. Sales and marketing is an area where we will continue to make some incremental investments, and expense as a percentage of revenue will likely remain near our expected 2021 levels. We will always look to be as efficient and effective as possible within our G&A functions. We are committed to remaining prudent with our non-GAAP operating expense management and to expanding operating margins over time.

Our final financial principle is strong capital stewardship. We expect to continue to generate strong cash flow. Our balance sheet remains healthy. And we've delivered consistent capital returns over the last few years. More recently, we have made some acquisitions as part of our deliberate effort to accelerate our strategy. From a mergers and acquisitions perspective, we will continue to leverage our returns-oriented approach to both benefit our business and to drive shareholder returns. Anything we execute is expected to deliver a risk-adjusted annual rate of return that exceeds our cost of capital and a superior return as compared to alternative uses of cash.

Let's start with reviewing free cash flow and our uses of cash. Looking back at the last few years, we've generated strong free cash flow, and our conversion rate has remained relatively high. We expect our cash generation to remain strong going forward and to largely track with the direction of earnings over the next few years. You can also see on this slide that we deploy our capital in several different ways, which include buying back stock, paying dividends, retiring debt and engaging in value-enhancing M&A.

It is worth mentioning that following our refinancing actions late last year, the rates on our outstanding debts are highly attractive, and we maintained no near-term maturities. We also maintain an investment-grade rating, which we view as important.

Now I'd like to briefly review our capital return history. We have a strong history of returning capital to shareholders. While our commitment is to return more than 50% of free cash flow to shareholders, we've returned more than 100% in each of the last 3 years, opportunistically buying back stock and growing our dividend. These efforts have enabled us to reduce our share count each of the last 3 years.

Moving on to our base case financial model. Our 2021 expectations are consistent with what we outlined on our fourth quarter earnings call in late January. We expect to see approximately 3% to 4% top line growth, which includes 1 point of growth from the recent acquisitions. While we expect non-GAAP gross margin of approximately 60%, and we expect non-GAAP operating margin to be approximately flat on a year-over-year basis as we absorb the impact of the recent acquisitions, non-GAAP earnings are expected to grow faster than revenue.

Long term, we believe we should be able to deliver at least low single-digit revenue growth going forward. We believe our core business alone is likely to see low single-digit growth, while some of the assets we recently acquired could potentially enable us to accelerate our sales growth in 2022 and beyond. We expect non-GAAP gross margin to trend slightly higher moving forward as higher volumes and incremental software should more than offset a higher mix of lower margin products. We also expect non-GAAP operating margins to expand each year and for earnings to see high single-digit growth through the forecast period.

As you have heard through the course of today, there are clearly opportunities to do better, but we want to be prudent in light of the ongoing macro uncertainties and lay the foundation for long-term success. With respect to capital returns, we remain committed to returning more than 50% of our free cash flow to shareholders and plan to grow the dividend with earnings. We plan to be opportunistic with our share buyback program and offset the dilution from employee programs.

In closing, I'd like to reiterate my belief that Juniper has reached an inflection that will result in sustainable growth and improved profitability in the years to come. My optimism is driven by the fact that we are not only well positioned in several large and growing markets where we are winning, but also by the fact we have aligned ourselves in a way that should enable us to accelerate our success in future periods. I also want to reiterate that while 2021 is an investment year for Juniper, we remain committed to improving profitability in 2022 and beyond.

Finally, I'd like to emphasize that Juniper will continue to be a good steward of capital with a focus of strengthening the company and delivering returns to our shareholders. I'm confident that we will make Juniper a stronger company and deliver attractive shareholder returns. Thank you. We will now open the call for questions.

QUESTIONS AND ANSWERS

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

(Operator Instructions) So our first question of the day comes from Jeff Kvaal.

Jeffrey Thomas Kvaal - *Wolfe Research, LLC - Research Analyst*

Can you hear me okay, Jess?

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Hear you loud and clear.

Jeffrey Thomas Kvaal - *Wolfe Research, LLC - Research Analyst*

Okay. Super, super. I have a couple of questions. I guess, first, on the big picture, I think, Rami, you talked earlier in the presentation about private data centers or enterprise data centers. I think it's quite easy, I think, for many of us who sit here to hear the story about migration to the cloud and really think that much of the action is in the public cloud, not in the private data center. Could you expand a little bit on what you were seeing in terms of how and why enterprises are choosing their private clouds instead of migrating to a public cloud, please?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

I'd be happy to. So I'll start, but actually, I'm going to hand it over to Marcus because he's also seeing some things specifically in the go-to-market organization. There's no doubt as we shaped our data center strategy, our cloud-ready data center strategy, we looked like long and hard at this question and what we anticipate is going to be the evolution of this industry in the future. And undoubtedly, public cloud is going to be a growth vector. Many enterprises are going to choose public cloud as an option. We need to support this. And it's why our cloud provider business is so important for Juniper. But we would not have made the investments that we've made, both on the hardware and the software, if we did not feel that there is, in fact, a large, growing, lucrative private cloud business and TAM for us to go after.

And I'll tell you, and Marcus can talk a little bit more about this, the trend more recently is that more and more companies are starting to reconsider some public cloud investments and thinking more about private or hybrid.

Marcus, I'll hand it over to you.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Yes. Thanks, Rami. And Jeff, it's a great question. This momentum has been building now for about 18 months. And again, it was -- I wouldn't say it was a surprise to us, but we've seen a couple of cohort groups decide that public cloud isn't the destination that they believe it is. It's mainly driven by 2 factors. The first factor is price. If you're around the 5,000 or below user mark, which still is a significant company, the pricing doesn't really work to your advantage, and the way that they price for input and output is very good, but egress and ingress and that how some applications work is actually very expensive. So we're seeing that dramatically push people out.

The second group of cohorts is data protection issue. That can be driven by compliance in a vertical or compliance in a country. But more so, it's -- there is -- I wouldn't say there's a trust level, but there is a competitive level, especially for retail-type companies where they have some concerns about their data integrity being copied or their IPR being copied. So we're seeing that thing move as well.

And then the third element is customer data. So we sometimes overrotate on data centers -- do 2 things. They host applications, but they also host data. And a lot of people really want their customer data to not be attached to certain applications, which the cloud providers put on, which appear to be free, but then it's very hard to undo it. They want to keep their customer data pure so it can be transposable as they get to the future. There are 3 drivers, and the cohort groups are cross-vertical and actually are cross-geo. And actually, if anything, there's momentum growing about private data center build-outs through COVID.

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

The only point I'd probably add, Jeff, is that there's 2 types of customers. One is the large enterprises. The other one is the born in the cloud companies, right? The SaaS companies. And both of them are increasingly driving towards an operational data center where there is hyperscale-like operations, which is enabled for their private and hybrid clouds. I think those are the 2 customer segments, which we already know from the market data, is actually growing, growing at a pretty healthy clip, as you know.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Yes, that's a good point, Manoj. Something I want to say, Jeff, just want to kind of wrap on that as well is that if you're providing a service, if you're a SaaS company, what you call a pure enterprise organization, which is making SaaS, you have the technical ability and the flexibility to do what the public cloud offers. And so it just comes down to a price and ownership issue. And so a number of the companies just really don't want to pay that tax. So I actually advise on a couple of companies, very large customers of -- and looking to migrate out because it's just -- they don't see the benefit of the flexibility of the price. If you're a traditional enterprise, they're much more likely to want to move their assets to the public cloud.

Jeffrey Thomas Kvaal - *Wolfe Research, LLC - Research Analyst*

I had a follow up for you, Ken, but let me just stick on this topic for a second. Can we get back to price for a bit? Because at the beginning of that conversation, Marcus, it sounded like you were talking about price didn't really work for the smaller companies. At the tail end, it sounds like price didn't really work for the larger companies. And I'm wondering if you can connect those dots for us.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Yes. Look, let me try and put that into context. So when you look at where the price really doesn't work, there's a pricing paradigm, which looks a bit, not optimal further around the 5,000 and below mark. So let's say your enterprise is around 2,000 users or 5,000 users. And of course, their data usages could be a lot different even in the scale of that business. At the high end, it works in terms of scale, but then also it doesn't work when you have a lot of the skills yourself. So if you think of a PaaS company or a SaaS company, they have those skills themselves. So although the economics work, they don't really want to pay for that level of flexibility, which they believe they simply don't need. So it's almost like how big is your IT department will determine your speed of migration towards public cloud.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

So our next question will come from Rod Hall.

Roderick B. Hall - *Goldman Sachs Group, Inc., Research Division - MD*

Great. Okay. Let me -- hopefully, you can hear me okay. I wanted to dig into the growth a little bit. And maybe it's just because we haven't managed to build a disaggregated model just yet from all the data that you guys have released, but the enterprise growth rate under the old definition looks to me like it needs to accelerate quite a bit, Ken, in 2021 to, like, kind of the, let's call it, 7% growth from not as fast a growth in 2020. And I wonder could you use some of the data you've provided, maybe to break that down? It feels like maybe missed and some of these other things are growing much faster within that. I see the faster growth in the enterprise product category. Could you just kind of help us maybe bridge back to that kind of growth rate in '21 and how you get there?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. Sure. So for enterprise, just to be clear, our vertical customer mix did not change. The disclosures there are the same definition. So what we used to call enterprise is still enterprise, whether which change, which routing and switching security, moving more to the AI-driven enterprise, automated WAN and cloud-ready data center. So the verticals remain the same.

And the guidance we put for enterprise was 5% to 9% growth. We just came off a year of 3% growth, but I would argue that it was more of the more difficult years in the history of selling, right, with the whole COVID pandemic, et cetera, and we accelerated throughout the year. We exited the year with actually 7% enterprise growth year-over-year basis. So I feel very good about the momentum we have in enterprise.

It is -- there's a lot of strength in our automated -- sorry, our AI-driven enterprise with Mist, et cetera, but we're also seeing opportunities within data center as well as security -- connected security. So all up, I feel very good about our ability to continue to grow enterprise, and it'll be our largest vertical here in the not-too-distant future.

Roderick B. Hall - *Goldman Sachs Group, Inc., Research Division - MD*

Okay. Can I ask one more question, a follow-up, Jess, if it's okay? I just wanted to check, I like the fact that you guys are talking about operational leverage. So that's great. I wanted to maybe just come back to R&D a little bit. I know that a lot of your R&D cost is -- relates to silicon design, or at least that's always been our thought on it. And I wonder -- we know that silicon design costs are going up. So maybe talk a little bit, Ken, about how you hold back constant as revenue grows over the next couple of years?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Ken, let me start on this one, if it's okay. So our approach to silicon design actually starts with software. And you might have caught in my prepared remarks at the beginning of this presentation, that we've actually architected into Junos, and especially Junos Evolved, an abstraction layer that allows us to easily move our operating system from one silicon engine to another. And the key reason for this is it's actually some part of -- it's disaggregation at the end of the day. It's architectural disaggregation that gives us flexibility to choose the best silicon engine for different use cases. So we are, at the beginning of every new silicon project, taking a very hard look about whether we need to build internally, what are the advantages of building internally from an economics or a features and differentiation standpoint. And if we can use merchant options, we're doing that.

And in fact, you'll see with our road map, especially as we get into the Metro, in certain parts of the data center, that we will be leveraging merchants and merchants more and focusing our silicon investments specifically in areas targeted use cases where we believe we need to in order to get either economic or differentiation advantages. That's the way in which we achieved some level of checks and balances and the amount of investment that we need in silicon. And I think it's worked well for us thus far. I think all of the decisions that we've made on where to invest in silicon, where to use merchants have been exactly the right ones, Jeff.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. And just to comment on overall R&D spend. I mean, we will continue to invest in R&D. Obviously, innovation is the lifeblood of this company, and we're about going after sustained revenue growth, sustained earnings growth. So this isn't a point in time. So we're not going to slow down on our innovation engine. That said, I do think we will be able to get some leverage out of our revenue on an R&D perspective. We should be able to grow R&D slower than revenue and gain operating leverage as we kind of maintain kind of current levels with maybe modest growth, and we expect revenue to outpace that modest innovation growth.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Aaron Rakers.

Aaron Christopher Rakers - *Wells Fargo Securities, LLC, Research Division - MD of IT Hardware & Networking Equipment and Senior Analyst*

Perfect. I guess, a lot of the presentation -- a lot of emphasis on kind of the software depth and the expansion of the product portfolio and leveraging, obviously, the success you've seen with Mist. Can you talk a little bit more about Apstra and how you see the cross-sell opportunity with Apstra maybe comparable relative to Mist? You mentioned $2 to $3 of incremental spend on -- with Mist going to WiFi? Do you see it similar or do you see more opportunity for Apstra? Just help me understand how you see that progression.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes. Let me start, and I'll quickly hand it over to Manoj. So you're right that there are similarities here. In fact, the success we've seen with Mist in the client to cloud use case and business led us to believe that there is a similar opportunity for us to go and get in the data center.

And I'll tell you in the early days of Apstra as being a part of Juniper, thus far, I'd say my confidence in that thesis has only grown and grown meaningfully based on the number of opportunities that have now piled up.

Manoj, why don't you talk a little bit more about the strategy?

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Yes. Like Rami said, I think we are really adopting the Mist playbook here in many ways, right? Apstra is a key control point, specifically in terms of -- you heard from customers, pop to production in 2 weeks. 10,000 devices network, to smoothly manage that network from day here or day 1, day 2 operations specialty. So this is really our control point, right? So with Apstra come switches.

The only difference is that the actual dollar value is probably significantly higher. When you go with the Apstra control point in the data center, data center deals are much bigger in size compared to a campus deal. So you leverage the Mist playbook, but higher dollar value in that.

The other point which Apstra brings in is a true heterogeneous network control point. So we have the ability to go into a -- particularly Arista or Cisco stronghold where Apstra is there and now show the value of Apstra plus Juniper even more, right? This allows us to go into data centers where we have no presence today. So the power of the control point, the higher the dollar value and the ability to go into new networks, we were never able to penetrate those before. That is what the power of Apstra is today. So it's a combination effect where Apstra has a control point for fabric management, which allows you to do a fully intent-driven network with close look automation. And then you have -- for those customers who want to do an overlay to a multicloud scenario, we have control elements. And then we have industry's best switches underneath, right, in terms of -- EV with LAN scale, the capabilities. So at this time in the 400 gig cycle, we are actually very super competitive with the rest of the folks in the industry, right? So that 3 combo is what we are looking at. And it's a very similar playbook like Mist, but the dollar values are higher.

Aaron Christopher Rakers - *Wells Fargo Securities, LLC, Research Division - MD of IT Hardware & Networking Equipment and Senior Analyst*

That's very helpful. And just as a second question real quick. You talked a lot about the portfolio -- the question recently around silicon. But just curious of silicon photonics. Where does the company currently stand? Is it something that we should think about as being material 2022, 2023? Just walk us through or remind us where we stand in Juniper on integrating silicon photonics.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes, certainly. So first, we totally subscribe to the industry trend that the future is going to be about silicon photonics, first in pluggable optics, but then eventually in put-packaged optics that are in the networking silicon technology itself, the network chip as switch silicon. So we, as you know, made a decision a few years ago to invest and to build a bit of a core competence in this space with our acquisition of Aurrion a while back. I have very high confidence that the technology that we have is super differentiated, in fact, somewhat unique in this industry in terms of the level of integration we are able to achieve. And the more integration, the better economics, the better ability that you have for co-packaging in the future.

Where we are right now in that project is we've got the technology proven in the lab. It works. It's about scaling it. And it's about scaling it from a manufacturing standpoint. So we have some very strong manufacturing partners that are helping us with this problem. And our goal is to release it sometime this year, really around the time the 400 gig initially takes off. So we're timing it with that 400-gig inflection. But the nice thing about this technology is that it really also scales nicely to 800 gig and other silicon photonics use cases in the industry as well.

So stay tuned. We're busy working on it, and I'm very excited about the differentiation that we have here.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

So our next question comes from Simon Leopold.

Simon Matthew Leopold - *Raymond James & Associates, Inc., Research Division - Research Analyst*

Great. I wanted to ask 2. The first one is maybe to help us get a better understanding of the use cases within the cloud vertical. I understand it's not appropriate to focus on cloud or public cloud CapEx as the necessary indicator. But everything we've heard suggests that in 2021, we'll see more data center structures built. And presumably, those structures need to connect to a wide area network, which should suggest better growth for your routing opportunities. And I'm just wondering whether there's something erroneous in my thought process of the use case or whether there's an offset that explains the modest growth rate you forecast. And then I've got a follow up on Mist.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Okay. So let me start, and then my team might want to weigh in as well. First, I think your question was about which of our use cases apply to the cloud, the answer is all of them. There's WAN that you sell into the cloud. There is data center that you sell into the cloud. There's also the AI-driven enterprise. And actually, we have a healthy AI-driven enterprise that we're selling into the cloud, including hyperscalers. So it's really a nice diversity of use cases.

Second is around, I think, the modest, I think, in your words, growth rate for our cloud business. Just keep in mind a couple of things. Our routing business in Q4 was up double-digit year-over-year in the cloud vertical itself. Our switching business in Q4 saw a very healthy sequential recovery, and we talked to you a little bit about some of the switching dynamics specifically in the hyperscale where they're primarily used in the WAN space. We've retained our footprint. So this is something that has been a very important strategic imperative for us. Even though there have been strong competitors that are knocking on the door trying to get into the footprint, I can say confidently we have retained our cloud routing footprint among the hyperscalers. And our objective is to leverage that footprint to grow and, of course, to take share.

And as far as our outlook is concerned, Ken mentioned this as well as Mike Bushong, we did not anticipate, we did not factor in major hyperscale share shift. Okay. Now this does not mean we're not going after it. In fact, we're planning for success in hyperscale across all use cases, but we didn't want to model that in, right? We wanted to put something that we can model -- comfortably meet, if not exceed. So that's really the philosophy behind the outlook that we provided in the cloud vertical. And I'm confident we're going to hit it, if not exceed it, if things go our way. And certainly, if we were to capture some major net new hyperscale footprint, whether it be in routing or switching, then, of course, we can exceed our guidance.

Simon Matthew Leopold - *Raymond James & Associates, Inc., Research Division - Research Analyst*

And then the follow-up I wanted to ask was, in regards to the Mist narrative and the proposition to your target customers, I think what we've seen is mimicry is a great form of flattery in that many of your competitors have basically adopted the same story, the same pitch. So if they're telling the same story, how do you win deals if they've tried to essentially match your narrative?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

It's a great question, and maybe Marcus or Manoj can jump in on this one as well. But let me just say this. It's -- imitation is the best form of flattery. This is what we see all around us right now. The #1 objective that we have when we enter into a deal or a competitive process is to get to a proof of concept. Because when we get to a proof of concept, I think, Marcus, you know this stat, it's 9x out of 10, we win because, yes, you can put something on a slide, but ultimately, what matters is how you perform. So Marcus?

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Yes. I think there's a couple of things. I think the -- it's great that the market tries to copy, and it's even funny that some people can actually bring themselves to copy and use words like cognitive as opposed to artificial. So we can have a little joke about it internally. But the reality is it's not the artificial intelligence that we sell. That's what we're missing. That enables the outcome. That enables the experience. And the way that the ML machine works is, as Rami said in his presentation, we've built up 4 to 5 years of data. So we have the natural language ability to literally type in why is Jeff's or Marcus' WiFi not working very well? Why it's not -- what's going on? Nobody can do that. So the good news is we have the momentum. And as soon as we get the proof of concept, it's a very, very well-trodden sales path for us, and we feel that we can actually accelerate that use case going forward.

The next thing is the cloud connectivity, and I'm going to get Manoj to answer more of this to back it up, allows us to take the solution elsewhere, including into the 128 Technology and back into our core infrastructure with our switching. So we really have kind of a triple threat play there, which gives us many, many advantages, and we're making, hey, while we can, and we believe we can extend our advantage there as well.

Manoj, do you want to answer a little bit on that as well?

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Sure thing, Marcus. First of all, from a technical evaluation of POD, we win 10 out of 10, right? 9 out of 10 is because we have the typical layer 8, layer 9, political issues and you kind of lose a deal out of 10, right? And it's a very exciting journey for us for multiple reasons, right, when you use cloud connect to the portfolio, and it's built on a modern microservice architecture, right? And this is not to channel Captain Kirk from Star Trek, right? It's not at that network. It's built on a super modern microservice architecture, which gives you the feature agility, the customer agility and actually the ability to start right from -- take a product right from manufacturing, through procurement and automated install, automated deployment and automated ongoing deployment.

And Rami told you what the benefits of the power of AI in Marvis. For 5 years, we've been collecting the data in the cloud. And now if you look at a customer like ServiceNow, 90% of the trouble tickets are gone, right? And it's almost a self-driving effort because over a period of time, Marvis can correct things in the network with our actual user environment. That is the leading edge for us.

So for a competitor to easily bridge that 5-year gap of learning and the machine learning algorithms and AI algorithms we incorporated, it's a tall order, really.

Second, the microservice architecture and the control point, how we designed it, it's so easily adaptable to the next use case. Adding a wired network, all of the wireless -- wired switches, as well as the new 128 Technology's acquisition, right now, which gives the power per user-centric as DRAM solution, but now it's connected to the Mist control point, right? That is the power of the solution, right? You start with the Mist control point, and you go from use case 1 to use case 2 to use case 3 with 5 years of core engineering and technology embedded in this architecture. I think it's an amazing opportunity for Juniper.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from David Vogt.

David Vogt - *UBS Investment Bank, Research Division - Analyst*

Can you guys hear me?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Yes.

David Vogt - *UBS Investment Bank, Research Division - Analyst*

I just wanted to maybe take a step back and ask a high-level question around the segment market growth projections earlier in the presentation versus your 3-year plan. It seems given the market share growth and your ability to take share, you should be growing a little bit faster than your 4-year plan. And when you think about software, the growth in that business alone should probably add 1.5 to 2 points of growth. So maybe just to start, can you kind of discuss the offsets to that confidence and what maybe is holding back the revenue growth? And then I have a quick follow-up.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

David, let me start, and then, Ken, you could probably jump in on this one as well. We really wanted to make sure that we did not assume any big market inflections or even share inflections in our outlook. So for example, we all know that the enterprise macro environment, because of COVID, is challenged. We didn't assume some massive recovery. But if there was a massive recovery, we're going to take advantage of that.

In the cloud, as I just mentioned earlier, we didn't assume massive share shift in certain key use cases, for example, in the data center, even though that's something that we're absolutely going after. In the service provider space, if 5G were to pick up and accelerate, that's something we could take advantage of, we're not assuming that either. So we wanted to make prudent assumptions and to create an outlook that we're confident that we can hit. That was the #1 philosophy that we applied to this outlook. So that's why you might see a little bit of a discrepancy between market growth and our outlook.

And Ken, maybe you could add a little more to that.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. I would just reiterate, I mean, we want to have a prudent financial model. There's a lot of uncertainties in the market still today, and we want to set ourselves up for long-term success. We want to set the foundation from a P&L perspective that with at least low single-digit growth, we could return value to shareholders with high single-digit earnings growth, as an example. So that's really the path forward.

I think the messaging you heard today was really from our business leaders. And to be honest with you, they're going after all the opportunities. In my base case forecast, I outlined some of the opportunities we're not baking in, such as hyperscale data center wins, such as tailwinds from 5G, some of the other opportunities that we've explicitly not baked in because I just want to be a little more prudent, a little more conservative than that. But it doesn't mean we're not going after them. And as you heard today, there are a lot of opportunities that aren't baked into the base case forecast.

David Vogt - *UBS Investment Bank, Research Division - Analyst*

Great. That's helpful. And maybe just a quick follow up on software. Manoj provided pretty granular growth rate assumptions. And to be fair, software has been a little bit choppy as of late with some uneven performance. What's changed in that business that gives you confidence to assume sort of double-digit growth over the next 3 years? Is it just -- does that reflect really the acquisitions from the last couple of quarters Netrounds, 128 and the like? Or is there something structurally changed in that business over the last year that gives you confidence in hitting those numbers?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes, Manoj, why don't you start?

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

So first of all, I think it's a combination of the organic portfolio as well as the inorganic portfolio, which is driving the software growth. And if you look back at the last 2 years, while, overall, Juniper was slightly under planned or in a flat to below -- to decline for the 2 years, software grew double digits, right, in this decline period. So -- and you could have grown software much faster. The only reason why we couldn't grow that faster was because some of the legacy use cases, predominantly based on perpetual software, I think we had a decline in some of those product lines as is reflected in Juniper's overall performance. That is the only reason why it didn't grow fast.

However, everything based on Junos' flex, which is our term-based offerings, everything based on Mist, everything based on security offerings, which are subscription-based, they have been growing steadily over the last couple of years. As well as -- we put solid operational capabilities to drive the software business all the way from product offerings, product bundling, how do you work with go-to-market and how we put the operational elements, including the IT stack, to enable the software business. So all of that has been really healthy.

And going forward, the acquisitions actually play a huge role into it. It's going to be a combination of the Mist and 128 T control points and the corresponding software, predominantly driving subscription and actually ARR revenue, Apstra and associated software, which you're going to pull through from hardware on Box -- on Box 2 as well as if you look at the Paragon automated assurance portfolio, we have the ability to pull in more revenue from our Flex routing on the on Box. So the combination of those 3 really will give us the impedes to drive the software growth much faster.

And also, I'll comment on 2 things. The margins are very high, which actually helped offset some of the traditional business challenge in terms of commoditization and whatnot, because software helps pull up the gross margin for the overall business. And then all of the ADAS you focused on is to drive more ratable revenue, more subscription-oriented revenue. And actually, that drives bigger value for our customers, Juniper because we keep much more stickiness with our customers, and more importantly, the software value drives more value for the company from an external point of view.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Sami Badri.

Ahmed Sami Badri - *Crédit Suisse AG, Research Division - Senior Analyst*

Okay. Can you hear me now?

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Yes.

Ahmed Sami Badri - *Crédit Suisse AG, Research Division - Senior Analyst*

Perfect. Rami, I just want to go back to some of the messaging that you guys are giving us and just kind of the part regarding Michael Bushong's presentation and hyperscale not being captured in the forecast. I mean, I think you spent 1/3 of your presentation really walking us through the silicon, the software and then just how right the opportunity is in front of you. Is there just a reason why you guys did not want to include that in the overall forecast? And then I have a follow-up after that.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes, Sami, thanks for the question. It's actually a good one. I think the main reason is that we recognize that share shift in any network is difficult. I mean, take, for example, our routing footprint. We said to ourselves -- we committed to ourselves that we're going to retain it. Everybody around us, our peers, our competitors, said that they're going to take it from us. Guess what, they didn't take a single router from us. Share shift is hard in this industry. And of course, if you're the incumbent as we are in most hyperscale routing networks, that's great. We're leveraging that. And to the extent that the cloud providers invest a bit more because of some of the dynamics, I think, mentioned in an earlier question in that segment, we're going to benefit from that better than anybody else in our industry. The same dynamics are in the data center. Mike said that in hyperscale data center, it's all upside for us. We win 1 network, it's a 100% upside to this plan. And I think that's the prudent way to model.

Now that said, we are in a constant state of engagement with our hyperscale customers across all opportunities, whether it be in the WAN, data center interconnect, in the data center itself, in AI-driven enterprise for warehouses or whatever, I mean, constant state. And I believe there is a good chance we can win. I just can't tell you when or how much or how big. It's just, I think, the right thing for us to do to not set expectations, but of course, internally to fight like heck to go after that opportunity. So I hope that explains a little bit of the approach we're taking here.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

Can I add a little bit -- sorry there, but just the other thing is that the migration is not going to be one big migration. So 100 gig was a place in time, where a 10- to 100-gig transition happened very quickly. With 400 gig, it's very use case dependent in terms of how they're setting up and designing the data center. So there isn't going to be this case, which I made in my presentation of 1 winner and 2 users, which is going to happen in 2021. Everyone is going to change. What I can almost guarantee you is that the market share will be very, very spread. It's not going to be like it has been in terms of dominance of one vendor. That's pretty clear from early trials with all of the people because there's also a question of silicon diversity, which is now required in the market. So I would watch the space very carefully. And as Rami says, we play to win. Speak to those customers every single day. We're in the labs every day, and we will be the first to update as and when we see successes coming down later in the year.

Ahmed Sami Badri - *Crédit Suisse AG, Research Division - Senior Analyst*

Got it. My next question, actually, I remember back when Mist was announced. And I don't think it surprised people, but it was definitely a change in the way Juniper was kind of going to market and posturing. And you now have made 2 more acquisitions after that, that are, I guess, major acquisitions that I think are really preparing you guys for go-to-market, but are you guys thinking about anything else that you guys potentially start slotting into your product portfolio or your opportunities just because when we look at your capital return program, it looks like there is a cushion for something strategic that could be there, maybe small, but maybe you could just tell us your vision, Rami, in terms of how you see things, any opportunities for Juniper in excess of what we already kind of got from your presentations today.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes. Yes. Another good question, Sami. So we're always going to be looking for value-accretive opportunities out in the market that will accelerate our execution on the strategy that we've outlined in this event. And I acknowledge the last year or so, we've been more acquisitive than normal. I would not -- I don't want this to be a signal to you guys that this is going to be a new normal for Juniper. I mean, we are still primarily an innovation-first where we can develop organically. That's our priority. And then we will look for opportunities to accelerate with acquisitions.

And quite frankly, right now, where my mind is at is integration. We've just bought 3 companies in 2020. Have a lot of confidence. In fact, the early indications for these companies is that these could have the potential to be as successful as Mist has been for Juniper. We got to make sure that we've got enough bandwidth internally to integrate these successfully following the Mist playbook. That's where the focus is at least for the time being now.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

And I'll just add, from a flexibility perspective, you're right, we do have flexibility, and that's intentional, right? We want to maintain flexibility, maintain our access to cash and keep a healthy balance sheet so that we can be opportunistic. And when the time is right, that applies to both our capital return program as well as to potential value-enhancing M&A.

And just to define value-enhancing, I just want to reiterate what I said in my prepared remarks that we really focus on making sure we get a risk-adjusted rate of return that is greater than cost of capital, want to make sure we get a superior return to other uses of cash. So maintaining flexibility is important, but utilizing that cash in the smartest way is also extremely important for us.

Operator

Our next question comes from Paul Silverstein.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Guys, can you hear me all right?

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Yes.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

So at the risk of asking an overly broad question before asking some more specific questions. Ken, you presented the base case. If we think about reasonable best case and reasonable worst case, and I recognize it's maybe an unfair question, but especially on the margin side, any thoughts you can share with us how much upside opportunity to that? I think you said -- was it 61% or 62% or 60%, 61% in next year?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. It's 60% to 61% over the next couple of years, 60% in FY '21. So I would say, I mean, our revenue commentary was at least low single digits. So to me, from a worst-case scenario, that gets you to low single digits. Very low single digits would be on the worst-case side of that guidance.

Our opportunity obviously is to do better than low single digits. I believe our base business alone should accomplish that objective as we diversified service provider routing as a great example, as we continue to plow ahead in some of our data center opportunities and even AI-driven enterprise. But when you layer that on top of some of the more recent acquisitions that have the opportunity to accelerate, that's how we get into the bigger end of that range of at least low single digits.

From a margin perspective, there are a lot of levers, obviously, a lot of moving parts here. The biggest one is software. Obviously, our software ambition is pretty high. We expect to double our ARR business over the next 3 years, and we expect to grow our software business all up very meaningfully, outpace the rest of our business. So that will absolutely help gross margin as that business obviously carries a higher gross margin.

That said, we do have some mixed challenges, right? We do have -- if you look at our vertical mix, enterprise margin is lower than our service provider margin as an example. And that's really product-based. And so that's going to go against us, kind of overall mix, but we think we can more than offset that with our software focus and other levers that we're pulling to increase gross margin.

And I don't want to dismiss services. About 1/3 of our revenue is our services business. We've been expanding gross margin there. We see there's still opportunity to expand gross margin going forward. So that's going to be a big focus on the gross margin line.

And then when we get down to operating margin, we expect to expand operating margin beyond this year. This year would be more challenged because of the recent M&A that's going to be dilutive this year. We've talked about that when we closed the deals. But those very acquisitions are the reason why I'm confident in accretion and expanding operating profit in the out-years because those are growth assets. We're going to exit the year much stronger than we entered on those acquisitions, and they're going to actually fuel our opportunity to expand margin over time.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

And Ken, I assume your operating leverage comment excludes the potential for any further M&A? Any other deals may or may not have an impact.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Absolutely. We'd have to evaluate future M&A as separate from this base case model. That said, we were going to be very strict about our returns-oriented approach on M&A and make sure we do see value accretion in the not-too-distant future if we were to get into more M&A going forward.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

One other question, if I may. At the risk of, again, being unfair. Rami, for those of us who remember, I think it was back in 2011 in that time frame roughly 10 years ago, and it was -- certainly, the details were very different. But as I recall at the time, you all had some really exciting internally developed products, QFabric, MobileNext. I think ACX or ACD, there were 5 in total, as I recall, again, a long time ago. And it was awfully exciting when you all announced the great potential in QFabric, never ended up coming to the market, MobileNext ended up being still born. Again, I recognize this is different. It sounds like the products are there. Some of it's M&A like Mist and 128 and Netrounds, et cetera.

But given -- if we think about Juniper and scale relative to Cisco, the obvious largest competitor in the space, is there the risk that you're taking on too much? How do you -- you have all these opportunities, but at the same time, there's the challenge of trying to drive in 3 different markets, service provider, cloud and enterprise, across different use cases and products. Is there -- at the risk of stating the obvious, is there the same risk? What's the differences this time around?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes. It's a difficult question, Paul. I think if you actually go way back then -- I'll try to get that back into memory. It's been a while. But if anything, I think we were trying to take on too much then. And right now, with a focus on 3 key, not just businesses, really just use cases, we've really aligned the entire company organizationally how we invest behind these 3 use cases. And quite frankly, I mean, my job now is sort of the chief, now officer to anything that is outside of those 3 strategic use cases in the company. So if anything, our focus is greater. But then -- I mean, I will be the first to acknowledge, some of the bets that we made back then weren't -- didn't pay off. I mean, they just didn't. But the difference now is we have some real proof points that what we're up to is actually working, I mean, in all 3 of these cases. Our data center businesses. There's nothing wrong with it. It's a good business. But with Apstra, it's just going to be much, much better.

Our AI-driven enterprise business, again, it's a thriving business. With 128 Technology, it's going to be just better. And in fact, we're already starting to win global 10 accounts full stack, wired, wireless and win. And then even in the routing business, I think we have a much better idea of what it's going to take to succeed, in particular in the Metro, which is really the new opportunity here. And the one thing we really have going for us in the Metro is that we're timing the entry of our Metro portfolio with a market inflection point for 5G.

So I mean, honestly, circa 2011 compared to now, my confidence in our focus, our tech, our team is like 1,000% better.

Manoj, do you want to add anything else?

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Paul, the only thing I would emphasize is that it's part of a deliberate and thoughtful strategy, right, is organizing the company around the 3 swim lanes. And like Rami said, things have to fit into those 3 swim lanes, cloud-ready data center, AI enterprise or automated brand. That's all we are focusing on, right?

And if you look at the acquisitions, there is a method to what we did, right? We are adding control point to each of those swim lanes, right? Whether it's 128 T to add to the edu enterprise with its Apstra discovery data center or Netrounds to automated brand. So it is a focused effort, and we are complementing our organic solutions, which are actually getting very strong, with good control points, which are actually getting great traction in the industry and then combining the 2 together. So it is a focused effort. It is not by any chance a wide effort like you think it is, right? So it is very focused, and we will continue to deliver more proof points like each of the customer stories we share today as we go through, and we'll also get to drive the growth.

And if you look at the businesses, again, there is a reason why we're looking at it separately. If you look at the automated brand business, the key word is stability. We want to drive that stability over the next 3 years. And I think we have everything for that stability. The product portfolio in 400 gig, getting into new markets, Metro. We have great diversification across cable, Tier 1, Tier 2 service providers and international service providers, right? That is the one which is giving us that stability. And if you look at the cloud segment, we have expanded from not just the Tier 1 hyperscalers, but to a large swath of cloud majors, and we're growing very rapidly there, right? So both on the cloud service provider and even the enterprise part of the automated brand, we're getting stability.

But the 2 high growth businesses we will drive is the cloud-ready data center and AI-driven enterprise. And there, it's not -- it's a combination of the organic and inorganic products, which is driving the growth, and the customer proof points and the early signs of growth is all driving in the right direction. The reason why sort of excitement is because it's been a not just a product and a strategy from a product perspective, but it's also a product and go-to-market going hand-in-hand. This is a very strong connected sales and marketing strategy, which is highly repeatable, right? The sales motion is super repeatable now. The talk, sale, repeat motion is across the board in AI-driven enterprise as well as cloud-ready data center. So the repeatability of the sales and marketing motion, along with the strong product portfolio, is what is driving the growth in those 2 in a swim lane. So it's just 3 swim lanes and no more.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

And Paul, I'd like to add on the sales side. I wasn't at Juniper in 2011, but I was competing against Juniper. And Juniper was -- had some fantastic technology, but it took everything with a service provider approach. And I would say, it was purely an engineering-led company by then. And I would say it's still an engineering-led company but with a very strong product voice, but a very strong marketing and sales voice. And so we've optimized and got a lot of efficiency in that we sell to our customers, that's why we collect them in this way, in very different ways. And that is proving to be way more successful than trying to take a, I would say, a relatively legacy approach to the market. We are much more modern in our approach, and I'll stand up for to criticism from any of our competition. So that does give us a competitive edge as well.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Ryan Koontz.

Ryan Boyer Koontz - *Rosenblatt Securities Inc., Research Division - MD & Senior Research Analyst*

Great. On the operations side, likely for Ken, any medium-term concerns about supply chains and gross margins with respect to semiconductor industry capacity challenges that are coming up? Or what are you guys doing to mitigate that situation?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. No. It's a very good question, Ryan. And clearly, this is very top of mind. As everybody on this call I'm sure is aware, there is a significant shortage in semiconductors kind of across the globe, if you will. And it's something that we're very mindful of and working every day with our key partners to make sure we can mitigate any impact.

At this point, I'll -- first, I'll say it's very dynamic and fluid. But at this point, we feel that we can still deliver the financial expectations that we have for this year. We think there will be some disruptions. There could be some customer satisfaction issues. We could have some extended lead times, et cetera, but we do think we'll be able to navigate it and deliver the financial results that we're going after at this point. So it is something we're working on each and every day. It isn't helping mind risk, but I feel we have the team in place, and I believe we'll be able to mitigate the financial impact at this point.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Meta Marshall.

Meta A. Marshall - *Morgan Stanley, Research Division - VP*

Great. Question on just on the WAN market and how you see kind of the opportunity for Huawei insertion or just the -- maybe unique needs that you can help address or unique approaches you can give to kind of help customers transition away from Huawei. And then maybe just secondarily on that, just is there any difference to kind of the blend of MX, PTX that you think service providers will use versus kind of your assumptions a couple of years ago?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Thanks for the question, Meta. On the Huawei opportunity, I do think there is an opportunity, let me put it that way. And certainly, our strategy at Juniper is not one that's based on the challenges that some of our competitors face around the world. But should those opportunities come up, we're going to be ready to take them.

I think there have been opportunities, especially internationally, especially in certain parts of Europe, where some of the challenges around security and geopolitics have weighed into decisions for new projects. Those don't happen overnight, again, in our industry, when we talk about share shift, that happens in time frames of years, by the time you've done the necessary design and IT integration and so on. So I don't think it's huge, but there is an opportunity. And of course, we are going to go after it.

And the second part of the question is around MX to PTX. Our MX to PTX corp sales in both service provider and cloud provider had been relatively stable right now, that ratio for a number of years. So there might be some shifts here and there from a quarter-over-quarter or year-over-year standpoint, but I think we've reached sort of an element of stability. And certainly, I would say that the big inflection that we saw -- well, was it now a couple of years ago in the cloud is at this point largely behind us. There will always be a lingering long tail. But like I said, I mean, the telling sign, the data point of interest here is it stayed steady right now among both SP and cloud for a number of years -- a couple of years.

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

I'll kind of add -- there's a couple of factors. It's not only against Huawei as a competitor, but Netrounds is a great insertion point to distract from any competition because we can go in, start orchestrating, automating and then make a difference, and then drag the hardware behind. So that's something I draw attention to.

And the second thing is MX has got a nice life left and always did have, but there's been a lot of broadband build-outs. And there's certain features built into the MX portfolio that's probably now in the B&G scale that allows us to actually take advantage of that. So it's not only mobile build-out that's happening. Because of COVID or post-COVID world, we see a lot of broadband build-outs. So we actually see both parallel product lines having good growth opportunities going forward.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Samik Chatterjee.

Samik Chatterjee - *JPMorgan Chase & Co, Research Division - Analyst*

Hope you can hear me. I had a couple of questions. The first one, I just wanted to see -- you talked about announcing ORAN partnerships with Samsung NEC. If you can help me think about what -- as we expect to see some ORAN, B-RAN deployments picking up, obviously, not near term here, what do you see is Juniper's role in that? Particularly does it help in terms of the other parts of the portfolio in addition to routing? And then I have a follow-up for Canada margins, if I may.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

You're on mute, Rami.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Sorry about that. So I'll start. So 5G is a big opportunity for Juniper all up, and I'd categorize it in 3 different areas. One is transport, and Manoj talked about our Metro portfolio and that opportunity for us. The second would be security where we have a unique capability of both efficacy but also performance, which matters a lot to any telco that's building out their network for 5G readiness. And then the third would be telco cloud, right? Essentially, the data center opportunity in the telco space where 9 times out of 10, those data centers are being built for 5G because 5G is inherently a cloud-native architecture.

So those are the primary opportunities for us. We are certainly looking for key partnerships with technology providers in the O RAN [Open RAN] space. So take, for example, Ericsson, Samsung and others that can complement those 3 areas where we have real strength in Juniper. And yes, the end goal here is a better-together solution where you can tie in transport, security and cloud.

And I'll just point out one really interesting opportunity for us, and in fact, this is an area where we're investing in a new capability called a RIC, which is a Radio Intelligence Controller. The beautiful thing about a RIC in a 5G context is that it ties cloud security and transport together with this concept of network slicing. If you talk to many 5G operators out there, they'll say that one of the biggest advantages of 5G is this ability to slice networks. And if you slice those networks, you use them more efficiently, you can target specific segments, and that has an ability to create a pull-through effect for our technology at Juniper.

Kenneth, do you want to add anything?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

So the 5G for me also drives very hard towards the Metro portfolio. The insertion of the timing is perfect because as the O RAN stacks are being built by NEC and Samsung. They're very interested in driving forward with our new Metro portfolio. And don't just think of 5G opportunities within service provider. It's actually a lot in enterprise.

This week, actually, we won a deal for a Swiss watch manufacturer for a 5G network using NEC and our technology, which is, I'm not sure why they're using the 5G network yet. I need to come find out. But we are seeing industrial use cases as well built out, and NEC certainly have an ambition to work with us on a wider market than just service provider. And then...

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

The only thing I would add is two point...

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes...

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

Number one, if you look at the 5G opportunity, there is a here-and-now opportunity, right? Rami talked about security telco cloud metro. As more and more of these deployments were to really get the impact of 5G, data centers are moving close and close to the edge. There is more of an edge cloud sort of deployment, which is where security comes into play, more data centers come into play, more of these, smaller data centers come into play. So that's a huge opportunity for us.

But as the traffic grows, it's not just the metro portfolio that is going to benefit from it, right? Metro, in turn, report -- the data reports to the core and the edge network which give us a huge advantage. So that's the 5G immediate opportunity.

And what Rami talked about the RIC opportunity, the Radio Intelligent Control opportunity, if you look at that, the Open Ran evolution is happening in this space, right? And holding a key control point there is very vital for us, right? To Rami's explanation, I think connecting the pieces together from the data center security and the slicing, right? So you want to own the right control points and make sure that you are there for the next generation, right? That's where the strategic partnerships are going to come to play. So it's a combination of the here and now and watch the future. Just want to be very clear about that.

Samik Chatterjee - *JPMorgan Chase & Co, Research Division - Analyst*

Okay. If I can just follow up for Ken. Ken, based on the operating leverage comments that you had and the earnings growth target that you laid out, I'm estimating somewhere, as you exit this 3-year horizon, you're around 18% operating margin, 17% to 18%. Correct me if I'm wrong there. But more importantly, I just wanted to get your thoughts. I think the last Analyst Day that you did, you had guided to about 22%. When we now start to look at progress towards that margin, has there anything that's structurally changed that hampers progress towards that? Or is it just more a matter of time of getting the operating leverage year-over-year to make progress towards that?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. So I wouldn't think -- I wouldn't say anything structurally changed. I mean I would say this. I mean it starts with sustained revenue growth, right? And the reality is over the last 3 years, we haven't had that, right? So it starts with sustained revenue growth, and then growing OpEx slower than revenue growth. And that's what we will do over the next several years. I believe that our ability to grow with top line, we've talked a lot about today, there's a lot of opportunity there, and we'll continue to be prudent on OpEx. I feel we've been prudent over the past few years in our expense management. We just haven't had the top line to really support leverage into the P&L. Moving forward, I expect that to change. We'll focus -- very focused on gross margin, very focused on operating expense management. And that, coupled with sustained revenue growth, should lead to operating expansion over time.

There's really nothing preventing us from getting to 20%, 22% in the out years. I just don't see it in the next 3-year period. We will expand margin, but it will take us a little longer given where we are now to get to those kind of 20-plus levels.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Next question comes from Jim Suva.

James Dickey Suva - *Citigroup Inc., Research Division - MD & Research Analyst*

And it's great to see you here today. We appreciate it. And also, we appreciate the additional details from the financial disclosures. I have one question for Rami and just one question for Ken, and I'll ask them both for the same time.

Rami, many times, your executive specifically called out the forecast does not assume hybrid scale wins. Why the big call outs? Is it, a, on one hand, because you can infer you're having some meaningful discussions, but the timing is hard to know? Or b, you just don't want to do something like that? I mean there's just 2 very different ways to interpret why one can say, let's not assume a hyperscale win.

And then for Ken. Ken, you gave a nice 3-year outlook, gross margins of 60% to 61%. Maybe my memory is wrong, but I thought 3 years ago, you were talking about potentially 62% range. So kind of what has changed where now the gross margins look to be kind of permanently lower than your lens gave you 3 years ago? Or maybe COVID has changed up? Or my memory is just wrong.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes, Jim, let me start with your first question, and then, Ken, you'll follow up with the financial answer. I think you should view our commentary around hyperscale as a positive comment. The reason is if I were to go come here and say to you guys, okay, here is our outlook for cloud, and we baked in some massive data center share shift in hyperscale. I would say that, that's probably a risky proposition considering the lack of certainty and timing, the fact that there is already large incumbents in the data center and so on.

So we basically said to you that we can grow cloud without these massive share shifts. And yet, we are absolutely going after them. I think we have the right team, the technology. And it's just a matter of when it happens or where it happens and so forth. We just don't want to bake that into the forecast. So I really do think that you should look at this from a positive light as opposed to a negative light. And then Ken, I'll hand it over to you.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. On the margin front, the last time we spoke about long-term margins, we talked about 58% to 62%, and we thought we'd get towards the higher end of that range towards the out years. And now we're talking about 60% to 61%.

There's a lot that's changed really. I mean you mentioned a couple, COVID and I would say tariffs. I mean there's -- I will say over the last 3 or 4 years, the supply chain has been as impacted as any other function of the company from a curveball perspective. And I think that is factored into our current guidance.

That said, I think the other thing that is not discounted is volume, revenue growth, right? I mean our revenue is down from where we were a couple of years ago. And in particular, if you'll go back to our Analyst Day a couple of years back and kind of compare and contrast where we hit our objectives, where we didn't, where we missed was in the service provider routing space. I mean we saw significant declines in 2018 and 2019. That has a pretty big impact on our overall gross margin. We've stabilized that business. That's why I'm so optimistic about our ability to really -- this is an inflection point or a turning point for Juniper where we can get on sustained growth.

We really needed to stop that double-digit decline that we saw in our biggest business, and we've done that. Last year, we actually grew from a bookings perspective, and we stabilized revenue. And we expect that to continue going forward with the diversification of customer, diversification of products, opportunities like Metro, et cetera. So the service provider impact not only hurt our top line growth over the last few years, it quite honestly hurt our gross margin. And going forward, we think we can build from here.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Irvin Liu. Irvin?

Jyhhaw Liu - *Evercore ISI Institutional Equities, Research Division - Research Analyst*

I probably missed this in your earlier presentation, but can you repeat the mix of business for your automated WAN, cloud-ready data center and AI-driven enterprise segments?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes, Ken, why don't you go ahead? Ken, you're on mute.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Sorry. Yes. So we talked about the size of each business and automated WAN being our largest business, about 30%, 35%, 36% of the business; followed by our cloud-ready data center business; and then followed by AI-driven enterprise, which is our smallest but fastest growing business. Now if you add those together, you're not going to get to 100%, because what we don't include in those businesses is our maintenance, our hardware and systems services maintenance contracts, which is about 1/3 of our business.

So really, when you look at our automated WAN, our AI-driven enterprise and cloud-ready data center, it's really product revenue plus services -- software and related services revenue. That's why you're missing a good chunk of our overall revenue, which is our services maintenance and support contracts as well as a bit of a professional services business as well.

Jyhhaw Liu - *Evercore ISI Institutional Equities, Research Division - Research Analyst*

Got it. And this one is for Ken as well. Your long-term target model assumes that your operating expenses will grow slower than your revenue growth. However, in the event you engage in further M&A to bolster your portfolio, can you talk about your ability to maintain an OpEx trajectory that tracks below that of your revenue?

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Yes. I do think M&A is a bit of a wildcard. I can't say with certainty what future M&A would do to our financial model. But I will tell you with certainty that future M&A will be value accretive for Juniper. I mean that's going to be a key sticky point from my perspective that we not only make strategic purchases, but we also make accretive purchases for Juniper over the not-too-distant future.

Now in any given period of time, it's difficult for me to say with certainty, Irvin, that what OpEx is going to do because of M&A. But I do feel that we have what we need now. We have what we need to be very successful. Our base case assumes operating margin expansion. And if we were to do some tuck-in M&A, smaller M&A, we're going to be very focused on continuing that top line and bottom line earnings momentum.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

And the only thing I want to add here is we believe we have what it takes from a technology standpoint to win. There are no glaring issues or gaps in any of our 3 strategic use cases. So it's not like this plan depends in any way on additional M&A in order for us to achieve success.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

Our next question comes from Paul Silverstein, and this will be our last question.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Very kind of you to give me a second bite at that. Thank you, Jess. A couple of specific questions. Rami, Ken, I appreciate that you all have left 5G out of the base model. But based on your conversations with service providers, and assume you're having the service providers, as we speak, what are you hearing in terms of both the time line and the magnitude of scope of planned deployments for your routing and other solutions? I assume specifically the routing with respect to backhaul, fronthaul and upgrades of core access Metro, et cetera?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

So Paul, 5G is definitely a big element of our strategy. And we've made certain assumptions around the timing of 5G. We weren't very aggressive in those assumptions, like we don't expect 5G to result in a step-function increase in IP transport sales sometime in 2021. But certainly, we've factored in 5G as the opportunity in the 3 areas that I outlined, telco cloud, transport and security.

And in terms of conversations that we're having with customers, I mean, we're in 49 of the top 50 service providers around the world. We have very strategic relationships. I personally have, along with my leadership team, very close ties and relationships with the executives. So we have a very good feel of the opportunities that are coming up. And basically, we're investing in a way that allows us to capture those opportunities. But we also recognize who we are as a company and who we are not. We're not a RAN company. So having these strategic partnerships with strong RAN players in order to come up with a more holistic 5G solution in areas and accounts where that is necessary is definitely part of our strategy. So that's the way that we view that opportunity.

Manoj, do you want to add anything?

Manoj Leelanivas - *Juniper Networks, Inc. - Executive VP & Chief Product Officer*

I think Rami covered all of it. The only thing I would say is that 5G also drives enterprise opportunities. And with our AI-driven enterprise portfolio and it's close time with 5G, I think there's opportunities we can target on the enterprise side, too, not just service provider. And on the service provider side, the Metro portfolio is already seeing some positive traction as you've seen in Brendan's presentation with the actual customer use case which he went through.

So we are seeing more and more of the Metro deployments. And especially given our automation portfolio, coupled with Metro, we are seeing the right opportunity to target these inflection happening in Metro driven by 5G.

So transport is in a very good place. Security, again, is in a very good place because more and more of these data centers are coming up to deploy 5G solutions. So security in the data center is vital.

Similarly, from a telco cloud perspective, I think they're going more cloud native. We have the opportunity to kind of drive things more there. So overall, we are seeing good uptick in the Metro as well as the 5G sort of control point deployments. We expect more growth to come in the traditional edge and core as the ripple effect continues on to those segments shortly.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Rami, can I push you on timing? Or would you be disappointed if this didn't have a nice impact in 2022? Or could it even be further out than that?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

I think it will have an impact in 2022. I mean we see projects. We see RFPs. We see specific tenders for Metro, for telco cloud that are now. So I would be surprised if it did not have an impact on our routing business, a positive impact in the '22 time frame. Marcus, would you -- sorry, go ahead, Paul.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

I was just going to -- I want to throw in one last quick very specific question.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Okay.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

But I interrupted you.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Well, I don't know, Marcus, did you want to add anything? Would you agree with what I said?

Marcus Jewell - *Juniper Networks, Inc. - Executive VP & Chief Sales Officer*

I think I agree. I think it's about getting those franchisees engaged this year. So I think we'll know from a bookings perspective, what our outlook is and then we'd expect that to monetize into revenue through '22, for sure.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Okay. Paul, go ahead with your question.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Rami, you all worked in several times throughout the day, the major cloud, i.e., the Zooms and LinkedIns, very prominent companies, albeit right below the big 5 hyperscalers. I don't think I've seen quantification from any of the industry analysts. My question here is, do you have quantification in terms of what the total size of that opportunity is at present and what's the growth rate?

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Yes. In fact, I think Mike Bushong provided that in the material. He outlined the opportunity and how it splits between cloud majors, which is anything outside of the hyperscalers, the hyperscale and then the large enterprise.

Michael Bushong

Well, we're going to post all these materials as this event is over. So you'll be able to see those forecasts.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

And we've always -- Paul, we've always done well with the cloud majors, including the Zooms of the world. But I'm telling you, based on what we've seen in the early days of Apstra, I think this is an area that we can accelerate. I really am confident that this is going to give us a very powerful weapon to compete in that part of the market.

Paul Jonas Silverstein - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

I wish you success.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Thanks very much, Paul.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Thanks, Paul.

Jess Ian Lubert - *Juniper Networks, Inc. - VP of IR*

That concludes today's session. Thank you, everyone, for your great questions.

Rami Rahim - *Juniper Networks, Inc. - President, CEO & Director*

Thanks, everyone.

Kenneth Bradley Miller - *Juniper Networks, Inc. - Executive VP, CFO & Treasurer*

Thank you.
