

Juniper

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down from about eight — commonly referred to as Cisco and the Seven Dwarfs — to two, Kriens predicts.

"If you look across any mature technology marketplace, there's not room for more than two players," he says. "It's a new game and it's not just out there for anyone who wants to participate in it anymore."

Juniper's arsenal includes a high-end switch that can support as much as 128 10 Gigabit Ethernet ports. At the low end, as many as 10 of the fixed-configuration stackables can be interconnected into a virtual chassis of 480 Gigabit Ethernet ports.

Juniper says it can leverage its heritage in high-performance routing, single operating system architectures and enterprise security leadership, and perhaps grab as much market share from Cisco in switching as it did in carrier routing. Juniper took away as much as a third of Cisco's share in carrier routing a few years after it started up business in 1997.

The high-end EX 8200 series will go up against Cisco's Nexus 7000 series data center switches, also unveiled last week. Even though the 16-slot EX 8216 falls short of the Nexus 7000's 15Tbps switching capacity, Juniper believes it offers twice the processing performance of the new Cisco switch.

Juniper also announced partnerships with IBM, Microsoft and Oracle in launching its assault on the enterprise switching market. These vendors have pledged varying degrees of software and application integration and interoperability with the new Juniper platforms.

The company likes its chances in switching because the EX line shares a heritage with Juniper's routers and NetScreen firewall and VPN products. The network-access-control support, which Juniper calls Unified Access Control (UAC), enables the switches to enforce access policies rather than rely on other vendors' firewalls, VPN gateways or switches.

All these switches are built around the same modular Juniper Network Operating System (JUNOS) that Juniper uses to run the rest of its gear. The company says its using JUNOS means customers deal with the same set of features, configuration and management tools that other Juniper devices use, and get consistent performance and manageability end-to-end; that can translate into lower training costs for network administrators, reduced operating costs and downtime, Juniper says.

The JUNOS lineage is what prompted Juniper to spend two years and hundreds of millions of dollars developing the EX line in-house instead of acquiring a competitor. Company officials acknowledge they did contemplate acquiring a switch company and evaluated virtually all of them, but the gating factor came down to silicon, software and other requirements needed for high-performance computing.

"It's in the DNA of the people that get up
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Q&A

Juniper CEO Kriens:
It's the OS, stupid!



Juniper's entry into enterprise switching with the EX line is rooted in a common operating system that extends across the switching, routing and security domains of an enterprise network — something that's lacking in what's viewed as a mature market dominated by Cisco. Juniper CEO

Scott Kriens shared his thoughts on the company's opportunity — and what it means for Cisco's competitors — with Network World President and CEO John Gallant and Managing Editor Jim Duffy at last week's EX launch in New York.

Why develop the switch on your own instead of getting it through acquisition?

The power of [our Juniper Network Operating System (JUNOS)]. Wanting to see a common platform and one feature written one time running everywhere on the same day. From switches to routing, and even security products now. The development decision was driven by the JUNOS strategy. In the case of operating systems, more is worse.

The switching market is considered mature with little opportunity to penetrate Cisco's dominance. Why do you feel different?

For the same reason we felt that way 10 years ago in the router market. The requirement for the network has changed. What used to be networks simply for the sake of connectivity are now networks for the sake of survival. In that scenario, the performance of the network matters more, and the criteria for buying and operating a network changes from what it was to what it needs to be. And that, to us, is an inflection point that we're very familiar with. And we're seeing, as Yogi [Berra] says, déjà vu all over again.

So, the six other competitors to Cisco in enterprise switching did not see this? Or could not address this in some way?

Well it's the synthesis of the portfolio, really. Because it's switching seamlessly, interoperating with routing, with security, and so on, that I think is the distinction. And this is the difference between the box strategy and an operating system strategy; and it's that latter strategy that is unique relative to all the players in the market, big and small. That's what our customers have told us is the distinction and so that's what we're

investing in. The best way to think of those products is as vehicles for that operating systems strategy.

Has there been a fundamental shift in switching that makes now the optimal time to enter the market?

I'd almost call it a different market. Because it's not a switch market; it's a network services market, which is why the network operating system is so important. That's a very different model than thinking of it as a switch or as a hardware problem. Different architecture, different priority of development. That's why it has to be so seamless through networks where you're connecting the switching, the routing — it's all about the operating system.

Is that why it's not a concern that the switch capacity of the EX 8216 falls short of Cisco's Nexus 7000 and only matches Foundry's BigIron RX?

The important metric to look at is actually the packets per second that can be processed inside the machine. So, you can physically connect ports and add up the total speed of the physical ports, but once you get into the machine it's not the port hardware speed that matters — it's how many packets per second you can process inside the machine. That's really where you hit the capacity limitation. So, that's where we think we have very strong performance capabilities. We have over 500 patents. And most of them are centered around that problem. That's where I think the distinctions are going to be drawn.

Do you expect you'll have more success at the low end or high end — from the data center out or into the data center?

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That's a great question. I hope I know that answer by about midyear. There are cases ... where people are saying, 'It's absolutely mission critical that I have the density, that I have the reliability and performance because I can't imagine losing the connectivity to the data center. I think that the EX products are going to appeal to that same group but I also believe that people are going to be looking at branch applications, and in many cases solutions where the user doesn't even really know or see or care what the underlying platform is. From the customer standpoint, it just turns into a painless [service-level agreement]. I don't know what the distribution's going to be. There's definitely pain in the data centers but it's more pain to do with network performance and network

access, and the risk of the consolidated data center being a single point of failure, which is a little different from the agenda of getting in the middle of the data center and virtualizing all of the servers and the storage and changing around the whole topology of the data center. That's important, but the urgency is, I've got all my eggs in this one data center basket and I absolutely need that to be accessible worldwide.

Is there an opportunity here to consolidate a big chunk of market share from all of the other switching players that may not have the wherewithal to take their customers forward?

It's not a question of if but a question of when that happens. If you look across any mature technology marketplace, there's not room for more than two players. Because you need a scale of R&D, which requires a

certain scale of revenues. And you need some differentiation. So it's unnatural for there to be a large number of single-digit-percentage players in any technology market over time. Probably one of the most powerful takeaways from the surprising coincidence of our friends [Cisco] and their announcement yesterday... What it says is, the stakes are going up. Distinctions are going to be drawn here. What [has been] left for others [in the past] is not going to be [in the future]. Exactly how that translates and whom that affects more or less, and when and how that happens, and who goes public, private, merges, gives up — that kind of stuff is never easy [to foresee] and doesn't happen overnight. But to me that's the strongest takeaway of the last 48 hours: It's a new game and it's not just out there for anyone who wants to participate in it anymore. ■

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everyday and come to the buildings," Kriens says. "It positions us to execute."

Execution will be key because none of Cisco's other competitors have been able to make a significant dent in the giant's market share. Juniper says it will not be marginalized like the others, because it offers a system of routers, switches and firewalls instead of point products, which lets it become a strategic partner with the customer.

Hitesh Sheth, Juniper executive vice president and general manager, says the company plans to tap three main veins to establish its position in enterprise switching — its base of enterprise routing, the NetScreen installed base and dissatisfied Cisco customers.

Kriens says Juniper is entrenched already in 96 of the Fortune 100 companies.

A couple of users seem ready to give the EX a spin. The Philadelphia Stock Exchange is a beta customer.

"It's the fastest switch we've ever tested," says Frank Ziegler, vice president of communications at the exchange. "Latency was below 4 milliseconds at line rate forwarding."

JUNOS enables policies implemented at the network edge to "move out to the world," says Joel Lynch, chief network engineer for digital media technologies at Turner Broadcasting. "Security in JUNOS can be implemented a layer closer to the servers."

Indeed, analysts say Juniper has a technologically credible offering with the EX. But there still are hurdles in creating value in a multivendor environment, they say.

"If they can do what they say they can do, they're on the short list now," says Abner Germanow of IDC. "A single operating system is huge. A single interface and functionality brings a level of simplicity. But it assumes your entire network is built with one box. If the EX is in one place in the network, how does that help your network?"

Germanow also notes that Cisco has a vast installed base it can continue to sell to for

years. "Juniper has to build that base," he says.

And despite Juniper's No. 2 ranking as an enterprise router vendor, Cisco still owns about three quarters of that market, analysts note.

"What are they going to do to convince users not to buy from Cisco?" asks Jim Metzler of Ashton, Metzler Associates. "They've not been that successful at that so far in enterprise routing. Why now?" He notes that Juniper does have an opportunity to be a more open and neutral alternative to Cisco because Cisco competes with its data center partners, such as IBM, more directly.

And this is where Juniper sees its opportunity, according to Kriens. "The Wal-Mart strategy is not Juniper's — convenience from a catalog," Kriens says, stressing the company's focus on sophisticated technologies, open networks and partnerships with leading vendors. "We're not here to supply all things for all purposes. Deployment of applications is the definition of success in the markets we serve. The answer to the problem is not to buy more; the answer is to buy smarter." ■

Here's a switch

Juniper throws its hat into the LAN-switching ring

| Switch | Configuration | Price | Availability |
|---------|---|---------|-------------------|
| EX-3200 | 24- and 48-port 10/100/1000Base-T with eight, 24 or 48 PoE ports, and four-port Gigabit Ethernet small-form-factor pluggable (SFP) uplink module. | \$4,000 | March |
| EX-4200 | 24- and 48-port 10/100/1000Base-T with eight, 24 or 48 PoE ports; 24-port 100Base-FX/1000Base-X fiber SFP interfaces. | \$6,000 | March |
| EX-8208 | Eight-slot, 1.6Tbps chassis with as many as 64 10G Ethernet ports. | N/A | Second half, 2008 |
| EX-8216 | 16-slot, 3.2Tbps chassis with as many as 128 10G Ethernet ports, or 256 per rack. | N/A | Second half, 2008 |



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