

Top to Bottom Success in the Enterprise WAN

Written by Mike Bushong
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By Mike Bushong, VP of enterprise and cloud marketing, Juniper Networks



Multicloud has changed the world, and as much as the transition is impacting the inside of the modern data center, it is reshaping the networks between them. In championing the migration to multicloud through 2018, Juniper Networks saw growing momentum for our Contrail Enterprise Multicloud and Contrail SD-WAN solutions. Given the heavy focus in the industry on automation and overlay (commonly known as SD-WAN), the underlying network (commonly known as Enterprise WAN) is often overlooked. Juniper has been delivering solutions for Enterprise WAN across private and leased networks that enables a secure, reliable and scalable network underneath SD-WAN.

Today, we published the enhanced Enterprise WAN 5-step journey, <https://forums.juniper.net/t5/Enterprise-Cloud-and/Rewiring-the-Enterprise-for-the-Internet-of-Clouds-An-Enterprise/ba-p/440511> along with leading thinking about the evolution of routing and securing enterprise networks under the sweeping forces of multicloud. So let's peel back the SD-WAN overlay and see how enterprise customers are securing and automating their Enterprise WAN with Juniper Networks solutions in four key areas: WAN backbone, data center interconnect (DCI), public cloud and internet peering.

Routing the Enterprise

Here is what our customers are saying:

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- *“The entire retail industry continues to evolve, and at Tractor Supply, this starts with our network. With Juniper Networks, we significantly enhanced the backbone of our network, allowing us to streamline operations processes and bring faster alignment across all of our locations. Juniper’s routing technology is like the Swiss Army knife of platforms—the MX Series offered us every feature set we were looking for within one box.”*

- Raymond Beaudoin, Network Architect, Tractor Supply Company

- *“The MX480 that is responsible for the WAN between the data centers of Tokyo, Osaka, and Yokohama and our Internet connection boast incredible stability. The Internet side sometimes has to handle a full BGP routing table of more than 500,000 routes, but it goes off without a hitch.”*

- Tomotake Wakuri, corporate senior architect for security and network of Ricoh’s Digital Promotion Division

- *“The City of Portsmouth is on the brink of digital transformation for smart city foundational infrastructure. We are investing in Juniper’s offerings to securely connect our network, community, and region for the virtual generation. In partnership with Juniper Networks, we are securing and automating our multicloud WAN, which will allow our digital growth without constraint and accomplish our goals of increased mobility and open data infrastructure.”*

- Daniel Jones, CIO, City of Portsmouth

- *“At University of South Carolina, we take pride in the quality of our research. By partnering with Juniper Networks to enhance multicloud routing and connectivity, we will be able to vastly increase the capacity of our network, consequentially opening up a greater breadth of research possibilities for our scientists and academic researchers.”*

- Paul Sagona, Interim Director of Research Computing, University of South Carolina

Juniper Enterprise Multicloud Routing Top to Bottom

Hastily jumping into public cloud or proprietary data center solutions can encumber enterprises as they move to multicloud. With multicloud squarely in Juniper's enterprise strategy, our goal is a future where enterprises are free to move workloads between clouds with optimal networking and strong security in the overlay and underlay networks—top to bottom. Overlays and underlays are well understood in the data center, but in the WAN, examining and optimizing the underlay for the new multicloud era is not well covered, nor well understood.

Starting at the bottom in the WAN underlay or transport, Juniper's strength in WAN routing technology and vision is built on a foundation that helps enterprises connect their campuses, data centers and the super-highway of direct connections into public cloud with SDN-based traffic engineering using NorthStar, switches, and routers like the MX10003, MX204, QFX10000 and PTX.

On top in the WAN overlay, solving the difficult challenges upfront, Juniper purposely built Contrail SD-WAN to conquer NFV, uCPE and SD-Branch. We are now the provider of the most scalable and versatile secure SD-WAN solution, while other vendors in the space are fettered with architectural revamps to try to add in branch security and LAN orchestration. Best of all, our open standards-based solution bridges seamlessly with WAN backbone routing used in the underlay or traditional multi-vendor routing.

Juniper's portfolio easily serves the largest enterprises that need to direct the WAN backbone and other underlay routing use cases. It also serves enterprises, big or small, looking for SD-WAN control. And unlike some SD-WAN vendors, Juniper acknowledges and addresses WAN solutions top to bottom. Furthermore, the WAN overlay solution is only complete with solid SDN overlay control for the data center interconnect (DCI).

New in Multicloud DCI

SDN inside the data center was easily the first major use case for more dynamic software control over scale-out switching architectures and plugging into workload orchestration systems. Other use cases found in a DCI involving secure underlay. This could be over internet with IPSEC, over dark fiber with MACSEC and simple DCI. On top of the secure underlay, EVPN

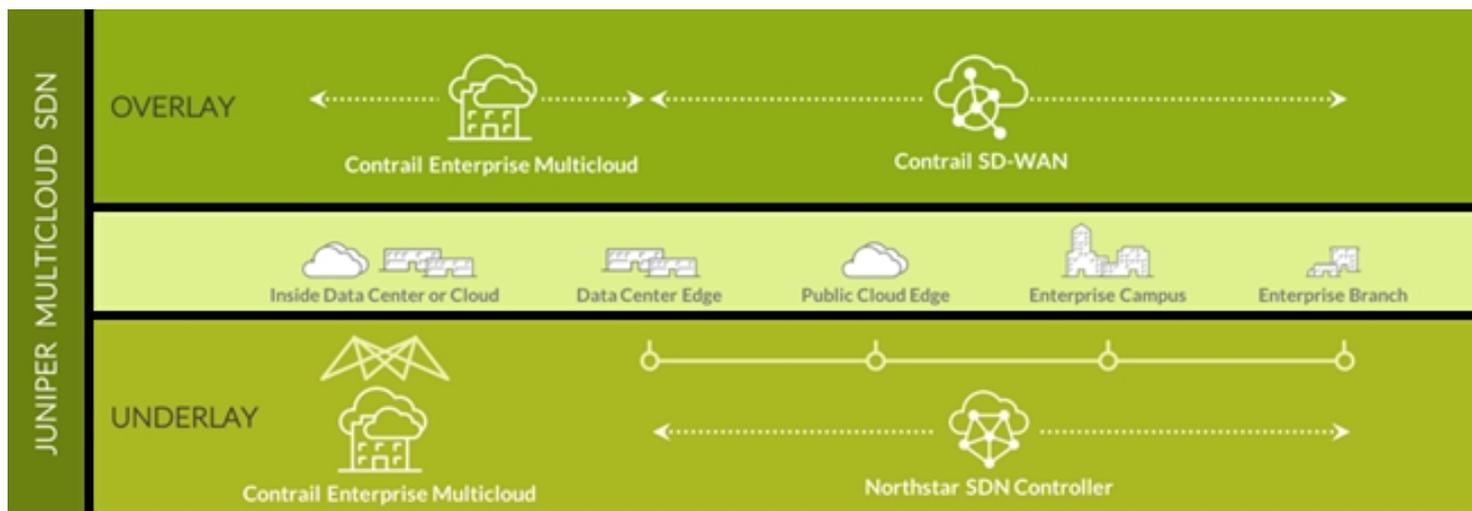
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gives you the ability to achieve large scale multi-tenancy and workload mobility. Contrail Enterprise Multicloud handles the data center top to bottom, managing the physical underlay fabric, virtual overlays, and security and can plug into a range of workload orchestration systems.

To bridge the SDN journey between data centers in the WAN, we have now expanded Contrail Enterprise Multicloud for overlay control with standards-based EVPN-VXLAN type 5. The solution to orchestrate L3 DCI is available today and supported with our MX and QFX Series devices.

The new DCI features naturally complement the Contrail Enterprise Multicloud solution inside the data center, and round out our SDN orchestration for enterprises end-to-end and top to bottom.



The Enterprise's Reach Should Exceed Its Grasp

Enterprises of all sizes need to plan their journey to a multi-vendor multicloud reality because change is inevitable but network rip-and-replace disruption is not. To this end, Juniper has put together the latest 5-step enterprise WAN journey to secure and automated multicloud.

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As enterprises are advancing their multicloud routing and WAN to develop SD-WAN, DCI, multicloud transport routing and SDN optimization, Juniper Networks' building blocks and commitment to open standards can maintain smooth growth with an evolvable architecture.

Mike Bushong is the vice president of enterprise and cloud marketing at Juniper Networks. Prior to his 12 years at Juniper, Bushong ran product management, strategy, and marketing for Junos Software. After the first Juniper stint, he joined data center switching startup Plexxi as the head of marketing. Most recently, Mike was responsible for Brocade's data center business as vice president of data center routing and switching, and then Brocade's software business as vice president of product management and software networking.