

DELL TECHNOLOGIES IS OPEN FOR NETWORKING

SCALABLE, AGILE, AND EASY TO DEPLOY AND MANAGE

EXECUTIVE SUMMARY

The deployment and management of enterprise networking can be a daunting task for IT operators. Disaggregation of hardware and software and the adoption of software-defined networking (SDN) tools aim to lower capital and operational expenses. However, these new architectural approaches tend to introduce networking complexities. The need to support both campus and remote workers post-pandemic will also require massive connectivity scale-out and improved operational efficiencies. Open source and cloudification have the potential to bridge the gap, but enterprises demand a networking infrastructure provider that possesses the experience and necessary resources to deliver a complete solution.

How do enterprise decision-makers navigate the myriad networking solutions that are available? How do networks keep up with a still-growing explosion of data exchange? Does a single platform exist that delivers the needed end-to-end capabilities, including automation, device provisioning, assurance, analytics, remediation, self-healing, and security? Enterprises require a modern networking platform that provides an optimal mix of these discrete functionalities but is also easy to deploy and straightforward to manage.

Moor Insights & Strategy (MI&S) believes that Dell Technologies can deliver a complete networking solution to the enterprise market given its DNA rooted in open standards and an ability to provide massive scalability through its SONiC, VMware, and third-party application development efforts. Furthermore, we believe that capital and operational expense savings and improved agility can be realized through Dell's portfolio of enterprise-grade disaggregated, standards-based hardware and open-source software. Finally, and possibly most importantly, we believe that Dell Technologies can deliver this experience through deep investments in tools that ease network deployment and management spanning the data center network, edge to cloud.

A MODERN ARCHITECTURE THAT DELIVERS

A modern approach to network architecture delivers many advantages to network operators.

First, microservices – independently developed and deployed modular components – aim to improve the agility of software development and maintenance through the elimination of interdependence. The benefits include better scalability, faster deployment, and improved maintenance through expedient issue isolation and resolution. Developers can leverage a modular application design approach and link building blocks through common application program interfaces (APIs). The additional benefit of microservices is that there is less of a need to coordinate across development teams. Since each microservice is independent, software teams can focus on one particular component in isolation.

Second, the deployment of containerization in a networked environment creates an abstraction at the application layer. As a result, containers can deliver improved response times to end-users with fewer calls across the network, as well as improved security given that end-users do not have direct access to the network.

Third, a cloud-native approach to networking facilitates improved management, visibility, and control for IT operators. For end-users, it provides a more consistent application experience and a higher quality of service spanning campus, branch, and work from home.

The beauty of SONiC, a network operating system (NOS) built on a containerized, open-source platform, lies in its capability to leverage these three modern networking infrastructure elements. MI&S views Dell Technologies as an open-source networking leader given its development and distribution of SONiC. We believe that Enterprise SONiC Distribution by Dell Technologies enables several significant capabilities for network operators:

- Containerized operating system components have the potential to deliver improved network operator agility and massive scale-out.
- Dell's comprehensive testing and validation across an ecosystem of partner applications and production hardening with several large enterprise customers ensure that the necessary features and reliability are in place.

- A centralized management framework and open API design leveraging the latest Linux-based open-source architectural components can ease management and lower operating costs.

Finally, we believe that Dell Technologies possesses a unique capability to integrate the latest open-source and virtualization innovations through partnerships with Dorado, Augtera Networks, VMware, and others. Even though VMware will spin out of the Dell Technologies portfolio of companies in the fall of 2021, co-development efforts related to VMware NSX-T and other SDN innovations will likely continue given Dell and VMware's shared vision of a software-defined data center.

AGILITY THROUGH CHOICE AND DISAGGREGATION

Enterprises demand choice in networking infrastructure to mitigate operational and capital expenditures and enable access to best-of-breed solutions. MI&S believes Dell Technologies can deliver a flexible, disaggregated offering through several NOS choices, open switching, and edge-enabled platforms.

First, Dell Technologies offers a broad portfolio of standards-based NOSs, including the aforementioned Enterprise SONiC Distribution by Dell Technologies, Dell EMC SmartFabric OS10, and other third-party offerings. Dell EMC SmartFabric OS10 provides a blend of Linux, open computing, and networking to deliver the benefits of disaggregation in the form of an improved total cost of ownership and consistency across multiple data center environments. The NOS's full programmability also ensures future investment protection and compatibility with an expansive ecosystem of Linux applications and automation tools.

Second, we believe that Dell Technologies is well-positioned to deliver white box-like economics with the added value of a global sales and support footprint with its line of open switching solutions. The Z9332F-ON represents the industry's first 400GbE Open Networking Ethernet Switch, and the Dell EMC PowerSwitch portfolio is broad enough to facilitate switching in both data center and campus/branch locations.

Third, Dell EMC Virtual Edge Platform (VEP) solutions provide flexibility through disaggregation by supporting a choice of SD-WAN offerings, as well as firewall, cloud on-ramp, and WAN acceleration. VEP is purpose-built, modular, compact in footprint, and validated for compatibility with a host of virtualized software platforms, including factory-installed VMware ESXi. Dell's strategy is to offer a flexible NOS path and an open switching and edge product portfolio built on x86, data center-optimized

microprocessor platforms such as Intel Xeon Scalable and AMD EPYC. MI&S believes this can deliver the expected benefits of disaggregation to network operators.

A BEST-IN-CLASS NETWORKED EXPERIENCE

A best-in-class network experience is rooted in its architectural capabilities and ease of procurement, deployment, and ongoing management. We've examined some solutions that Dell Technologies makes available on a direct sales basis and through strategic IT channel partners, including CDW, Worldwide Technology (WWT), Insight, and others. It has been interesting to witness Dell's sales model evolve over the years from direct-only to driving well over half of its revenue through the IT distribution channel. As a result, Dell Technologies networking solutions are easy to procure.

Taking a deeper dive into the Dell Technologies solutions themselves, it is incumbent to examine two elements that have the potential to streamline network deployments – SmartFabric Services and VMware NSX. SmartFabric Services automate network deployment, Day 2+ operations, and lifecycle management for operational simplicity. VMware NSX aims to reduce complexity even further through the integration and management of physical and virtual network infrastructure to deliver IT operational efficiency.

MI&S believes that these tools, in conjunction with Dell's recently announced APEX IT consumption services, have the potential to ease both Day 0 and Day 1 network management as well as provide the benefits of treating infrastructure as an operational expense line. APEX also has the power to deliver the latest features and security provisions in a continuous integration and delivery (CI/CD) model.

CALL TO ACTION

Disaggregated hardware and use of open-source software will lower capital and operational expenses for network operators, but it is not without complexity. COVID-19 exposed the weakness of some connectivity infrastructure solutions as the massive shift to work-from-home placed enormous pressure on legacy architectures. Enterprises now realize they require a modern networking platform that can scale, deliver agility to IT staff in support of DevOps and application support, and be easily deployed and managed.

MI&S believes that Dell Technologies can deliver scale, agility, and ease of management through a modern, standards-based, open architectural approach. Proof

points lie in its Enterprise SONiC Distribution by Dell Technologies, Dell EMC SmartFabric portfolio of tools, Dell EMC PowerSwitch line, Dell EMC VEP solutions, VMware co-development efforts, and support of an expansive partner ecosystem that provides flexibility and choice. We also believe that these efforts position Dell Technologies to deliver an exceptional customer experience to network operators and end-users who utilize network services in campus environments and at home.

CONTRIBUTOR

Will Townsend, Senior Analyst at Moor Insights & Strategy

PUBLISHER

Patrick Moorhead, Founder, President, & Principal Analyst at Moor Insights & Strategy

INQUIRIES

Contact us if you would like to discuss this report, and Moor Insights & Strategy will respond promptly.

CITATIONS

This paper can be cited by accredited press and analysts but must be cited in-context, displaying author's name, author's title, and "Moor Insights & Strategy". Non-press and non-analysts must receive prior written permission by Moor Insights & Strategy for any citations.

LICENSING

This document, including any supporting materials, is owned by Moor Insights & Strategy. This publication may not be reproduced, distributed, or shared in any form without Moor Insights & Strategy's prior written permission.

DISCLOSURES

This paper was commissioned by Dell Technologies. Moor Insights & Strategy provides research, analysis, advising, and consulting to many high-tech companies mentioned in this paper. No employees at the firm hold any equity positions with any companies cited in this document.

DISCLAIMER

The information presented in this document is for informational purposes only and may contain technical inaccuracies, omissions, and typographical errors. Moor Insights & Strategy disclaims all warranties as to the accuracy, completeness, or adequacy of such information and shall have no liability for errors, omissions, or inadequacies in such information. This document consists of the opinions of Moor Insights & Strategy and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice.

Moor Insights & Strategy provides forecasts and forward-looking statements as directional indicators and not as precise predictions of future events. While our forecasts and forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could cause actual results to differ materially. You are cautioned not to place undue reliance on these forecasts and forward-looking statements, which reflect our opinions only as of the date of publication for this document. Please keep in mind that we are not obligating ourselves to revise or publicly release the results of any revision to these forecasts and forward-looking statements in light of new information or future events.

©2021 Moor Insights & Strategy. Company and product names are used for informational purposes only and may be trademarks of its respective owners.