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The Cumulus Networks Story

JULY 30, 2014 PETER WAGNER

In 2011 I got a call from longtime friend and colleague Ed Bugnion, a co-founder of VMware and later CTO of Nuova, the famous Cisco “spin-in” project that developed numerous key products for the virtualized data center including the Nexus 5000 and the UCS. He wanted to introduce me to two guys from his former Nuova team that were working on a bold idea in data center networking – JR Rivers and Nolan Leake.

JR and Nolan have interesting and eclectic backgrounds. JR is one of the most experienced, finest minds in networking. He was an early engineer at switching pioneer Grand Junction, and later a critical technology leader in Cisco’s desktop switching business unit. He also helped build Google’s networking infrastructure, was Chief Architect of Nuova, and eventually set out to pursue his own startup. In doing so he teamed up with Nolan, a talented software colleague from Nuova with deep experience at VMware. These two had a unique perspective on the future of networking enabled in part by their rich array of experiences – including switching, virtualization, data center infrastructure, webscale operations and Linux kernel development. What they saw was the chance to reshape an industry.

The modern data center is based on openness. Old vertically-integrated concepts have given way to distributed systems of commodity hardware elements running primarily open source software. Webscale operators like Google, Amazon and Facebook have led the way with great leaps forward in infrastructural agility and economics. Networking, however, has been the laggard amongst the major infrastructure disciplines. The vertically-integrated systems business model stubbornly persists, raised to high art by Cisco, even as challengers like Arista seek to wrap it with “open” API’s. JR and Nolan had a far more radical definition of “open” in mind. What if software could be fully decoupled from hardware, as had occurred long ago in computing? Others were talking about the separation of the control and data planes – the key tenet of Software-Defined Networking – but this would be different, a wholesale cleavage of the OS from the switching hardware.

But what should that OS be? The answer is all around you in the modern data center – Linux. JR and Nolan realized it had to be implemented in world-class fashion on modern switching hardware in order to break open the networking industry for good. They founded Cumulus Networks to go after it.

For years I had struggled with one of the inevitable consequences of cloud computing. As more and more workloads migrated to the public cloud, enterprise IT infrastructures would be hollowed out. Vendors of infrastructure technology products would find their enterprise markets losing momentum, and face the difficult challenge of selling to a concentrated group of cloud service providers instead. These cloud giants would have little interest in supporting high vendor margins, preferring to substitute their own engineering resources and pull functionality into their own applications in order to drive down costs and achieve greater agility. This was bad news for the conventional vendor business model! The incumbents were already struggling to find a place in the public cloud, offering their products at cost and still getting the cold shoulder.

When I met the Cumulus Networks team, I was immediately struck by the potential to forge a new business model tightly aligned with that of the webscale operators. Could it be possible to take this product to market by targeting these behemoths as our first customers? It would be a risky strategy, but if we could pull it off, the effects would be profound. Imagine the power and also the challenge of having one of the largest network operators in the world as your first reference customer!

JR and Nolan had already made tremendous progress working on the technology in bootstrap mode, but felt that the time had come to productize a release that a major operator could deploy. This was a big step, but it made sense to pursue it efficiently, with more brains than brawn. I worked with the founders and fellow investors Ed Bugnion, Diane Greene and Mendel Rosenblum to craft an appropriate seed financing for Cumulus Networks, and JR and Nolan then set about building a team that was equal to the audacious challenge before them. Working quietly under the radar, they began to win the confidence of some of the largest network operators in the world. These customers saw the opportunity to transform their cost structures by embracing commodity switches running Cumulus Linux, while simultaneously achieving the ultimate in network flexibility. Interesting initial conversations turned into true collaborations, and customer testing became more and more intense.

We knew we were making progress, but the question remained: would organizations of this scale

really make such a major break with the past? This question was answered resoundingly when the Cumulus team signed its first deployment contract with one of the largest, most demanding operators on the planet. As other major customers reached the same conclusion, it became clear that a revolution was afoot.

Cumulus Networks Signing Its First Major Contract

Cumulus Networks is now a standard-bearer in the Open Networking movement, and represents one of the most significant disruptions the industry has ever faced. The incumbents have a lot to lose and won't go down easily. This story is still being written, and will undoubtedly include gut-wrenching strategic choices, bumps in the road and existential threats. But by the time it's complete it may also include a total restructuring of one of the last bastions of proprietary IT.

- Peter Wagner

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