

# SOMETHING UP BROCADE'S SLEEVE, AND IT LOOKS GOOD

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Brocade's got some new tricks up their sleeve and they look good. For far too long Brocade fought against convergence to protect its FC install base and catch up. This bled over into their Ethernet messaging and hindered market growth and comfort levels there. Overall they appeared as a company missing the next technology waves and clinging desperately to the remnants of a fading requirement: pure storage networks. That has all changed, Brocade is embracing Ethernet and focusing on technology innovation that is relevant to today's trends and business.

## **The Hardware:**

Brocade's VDX 8770

([http://www.brocade.com/downloads/documents/data\\_sheets/product\\_data\\_sheets/vdx-8770-ds.pdf](http://www.brocade.com/downloads/documents/data_sheets/product_data_sheets/vdx-8770-ds.pdf)) is their flagship modular switch for Brocade VCS fabrics. While at first I scoffed at the idea of bigger chassis switches for fabrics, it turns out I was wrong (happens often.) I forgot about scale. These fabrics will typically be built in core/edge or spine leaf/designs, often using End of Row (EoR) rather than Top of Rack (ToR) designs to reduce infrastructure. This leaves max scalability bound by a combination of port count and switch count dependent on several factors such

as interconnect ports. Switch count will typically be limited by fabric software limitations either real or due to testing and certification processes. Having high density modular fabric-capable switches helps solve scalability issues.

Some of the more interesting features:

- Line-rate 40GE
- “Auto-trunking” ISLs (multiple links between switches will bond automatically.)
- Multi-pathing at layers 1, 2 and 3
- Dynamic port-profile configuration and migration for VM mobility
- 100GE ready
- 4us latency with 4TB switching capacity
- Support for 384,000 MAC addresses per fabric for massive L2 scalability
- Support for up to 8000 ports in a VCS fabric
- 4 and 8 slot chassis options
- Multiple default gateways for load-balancing routing

### **The Software:**

The real magic is Brocade’s fabric software. Brocade looks at the fabric as the base on which to build an intelligent network, SDN or otherwise. As such the fabric should be: resilient, scalable and easy to manage. In several conversations with people at Brocade it was pointed out that SDN actually adds a management layer. No matter how you slice it the SDN software overlays a physical network

that must be managed. Minimizing configuration requirements at this level simplifies the network overall. Additionally the fabric should provide multi-pathing without link blocking for maximum network throughput.

Brocade executes on this with VCS fabric. VCS provides an easy to set up and manage fabric model. Operations like adding a link for bandwidth are done with minimal configuration through tools like “auto-trunking.’ Basically ports identified as fabric ports will be built into the network topology automatically.

They also provide impressive scalability numbers with support for 384,000 MACs, 352,000 IPv4 routes, 88,000 IPv6 routes, and 8000 ports.

One surprise to me was that Brocade is doing this using custom silicon. With companies like Arista and Nicira (now part of VMware) touting commodity hardware as the future, why is Brocade spending money on silicon? The answer is in latency. If you want to do something at line-rate it must be implemented in hardware. Merchant silicon is adept at keeping cutting edge at things like switching latency and buffering but is slow to implement new features. This is due to addressable market. Merchant silicon manufacturers want to ensure that the cost of hardware design and manufacturing will be recouped through bulk sale to multiple manufacturers. This means features must have wide applicability and typically be standards driven before being implemented.

Brocade saw the ability to innovate with features while maintaining line-rate as an advantage worth the additional cost. This allows Brocade to differentiate themselves, and their fabric, from vendors relying solely on merchant silicon. Additionally they position they're fabric as enough of an advantage to be worth the additional cost when implementing SDN for reasons listed above.

Source: <http://www.definethecloud.net/something-up-brocades-sleeve-and-it-looks-good/>