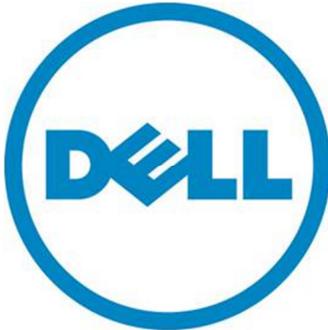


# Open Standards Drive Simpler Data Center Management

---

A Dell Networking Point of View



THIS POINT OF VIEW PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2012 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.

*Dell*, the *DELL* logo, and the *DELL* badge, *PowerConnect*, are trademarks of Dell Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

July 2012

**Contents**

Open = Efficient ..... 2

Consolidate and Standardize ..... 2

Open Standards Approach..... 3

Networking with Dell ..... 4

Conclusion ..... 5

## Open = Efficient

If your company is like most, infrastructure sprawl is rampant. When a department needs to roll out a new application, it sends a request to IT, which must procure and provision a server, allocate network connections and storage resources and deploy the solution stack. This could take days, or even weeks, from request to rollout. After a few years of this, the data center is a logistical nightmare, full of underutilized resources that draw high loads of expensive electricity and require extensive cooling.

The integration of workloads—whether physical, virtual or cloud-based—introduces yet another challenge. If the company has several locations distributed around the country or the globe, these problems are multiplied by the number and type of facilities under management. Different locations may phase in resources from different vendors and using different management tools, leading to an Infrastructure that can barely interoperate, let alone integrate smoothly with outside organizations. This challenge is further compounded by the fact that a majority (and growing) percentage of the data that is being stored and managed within the data center is unstructured. This includes books, emails, business communications (e.g., text documents, presentations) social media content, instant messages, etc.

Ultimately, the problem becomes a hard-to-manage IT Infrastructure that has an adverse effect on business performance:

- The budget and human resources needed to “keep the lights on” become prohibitive as energy prices mount and heterogeneous technologies are updated sporadically, if at all.
- Non-standardized data centers waste money on redundant staff and software licenses.
- Delays in deploying resources toward new projects or initiatives can impede time to market and erode a company's competitive edge.
- A heterogeneous environment is also very difficult to back up and restore in case of a disaster.
- Outdated IT equipment prevents the company from operating with the agility needed to adapt quickly and respond to changing business conditions, or leverage new market opportunities.

An organization that wants to achieve cost efficiency and business agility must streamline its IT infrastructure and take full advantage of the latest technologies for simplifying management.

## Consolidate and Standardize

Over the last few years, many companies have launched infrastructure consolidation projects, aimed at curbing data center sprawl and reducing the IT overhead needed just to maintain routine operations.

Virtualization technology is a prime enabler of consolidation, as it replaces physical servers and devices with virtual resources hosted on powerful, next-generation hardware and managed centrally. In most deployments, companies roll out virtual servers for testing and development tasks first. As they grow comfortable with the management of virtual resources, administrators extend the paradigm to more applications and more data center tiers.

## Open Standards Drive Simpler Data Center Management

In fact, the “second phase” of virtualization involves abstracting storage and connectivity resources from their underlying hardware, too. When all the data center equipment is made available as an addressable pool it becomes a “private cloud,” allowing administrators to assign predefined stacks of compute power, storage capacity and network connections, instead of deploying physical resources.

Obviously, a management interface that only controls some elements of the pool or hardware devices from a specific vendor is not optimal for managing a unified virtual infrastructure. Rather, companies need a centralized and standardized management protocol that works across all infrastructure components. Businesses that are planning to unify their data centers under a private cloud have a prime opportunity to consolidate and simplify their IT management tools, as well. There is a danger, however, in standardizing on a proprietary technology and management stack.

Some vendors suggest “ripping and replacing” existing data center equipment in favor of converged server, storage, and network components that operate under one management console. The problems with this approach include:

- **Heavy retrofitting:** The existing application infrastructure must be revamped entirely to conform to the new system and leverage its instruction sets.
- **Vendor lock-in:** Being committed to one vendor's technology means the customer does not have a variety of choices when seeking best-of-breed solutions. It also limits the company's growth options to whatever upgrades and enhancements are provided by the vendor, on the vendor's schedule.
- **Reduced ROI:** The rip-and-replace approach forces companies to jettison equipment that may still be useful. Ending a device's lifecycle prematurely prevents the business from reaping the full value of its ongoing investment.

## Open Standards Approach

Rather than opting for a single-vendor stack, companies should seek out best-of-breed solutions that are based on open standards. These will work smoothly across multiple technologies and tie into centralized management tools.

Companies that insist on standards-based technologies enjoy a wide field of vendor choice and flexibility in creating solutions that meet their specific needs. They can evaluate and purchase equipment based on factors like flexibility and agility instead of compatibility. And with a centralized management framework, components across different platforms can all interoperate under a single console.

With an open, standards-based infrastructure in place, companies can leverage their existing equipment and purchase new systems judiciously. The efficiencies created by consolidated management's increased automation also help lower IT costs and streamline business processes.

## Networking with Dell

Dell's Virtual Network Architecture (VNA) vision enables intelligent and automated orchestration of the underlying server, storage, and network resources in an open fashion, while ensuring that the system is agile and optimized so it can address today's challenges while also being able to scale for future requirements. VNA is cost effective and simplifies the balance between the needs of applications against available network resources. Dell has developed its networking technology using Virtual Network Architecture (VNA), which is based on three key tenets:

- Open and Optimized
- Agile and Automated
- Flexible and Cloud-driven

### *Open and Optimized*

Dell's standards-based approach allows companies to adopt an open, simple architecture, and avoid the vendor "lock-in" which may result from being sold a proprietary technology. Open architectures can also help you achieve a simplified environment by minimizing the footprint of IT and facilities assets. This helps reduce costs, standardize IT management processes (where appropriate) and consolidate IT infrastructure.

### *Agile and Automated*

These inherent attributes to Dell Networking Solutions enable the network to scale effectively by utilizing its full capabilities, instead of simply expanding outward. By utilizing the capabilities of each device and enabling automation where possible, you can improve the efficiency of the IT infrastructure. Not only will this reduce the overall footprint, it will enable rapid deployment of services, and support intelligent performance & network monitoring--from the cloud to the data center and campus.

### *Flexible and Cloud-driven*

Dell Networking Solutions have flexibility built in, to allow the creation of an efficient, shared infrastructure; an example of this is virtual switching, which is optimized for the customer's unique needs. This allows you to build on a foundation of agility, as applications can respond instantly to changing needs and the network can scale based on new business demands and IT requirements.

Dell's commit to providing open, standards-based solutions is exemplified by our Open Cloud Networking framework and its family of products for the data center that offer infrastructure support and interoperability that embraces multi-vendor architectures. This allows our customers the maximum choice of available options with lower cost structures, due to the selection of best-of-breed solutions. Dell's technology also allows interoperability with any compute or storage environment that supports open standards. Dell's AIM software completes the picture with centralized monitoring and management comprehensive automation routines, and a simplified administrative workload.

Dell Networking Solutions enables you to deploy a fully extensible and scalable infrastructure that can support other important initiatives such as storage and archiving, access control, compliance, security and much more - all of which can be fully integrated and optimized based on your specific requirements or industry vertical. This is a major thrust behind our solution approach - forward compatibility to support future business requirements.

## Conclusion

Companies that want to compete in the 21st century must streamline their operations by embracing virtualization and cloud technology. Open standards are critical to ensure interoperability, preserve customer choice, control capital and operating expenses and maximize flexibility.

Dell's portfolio of networking products is a superlative choice for businesses looking to move toward with more efficient IT operations. Based on open standards, Dell networking devices integrate seamlessly across multi-vendor platforms and deliver cost savings in the acquisition stage and in day-to-day operations.

With Dell, you'll get solutions that are based on open standards and services that are 100% configurable and modular, so you can strike a better balance between risk and flexibility. And you'll also get the expertise to help you pull it all together in a way that makes sense for your business—from start to finish. Dell helps companies address their current challenges, while also helping them to reduce costs, streamline cumbersome processes, and improve performance.

To learn more, visit [www.DellNetworking.com](http://www.DellNetworking.com).