The Launchpad for Transformation: How Innovative Networking Powers a Dynamic Company

Dell, Inc. uses Dell Networking to maximize efficiencies and increase competitive edge
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1 Transformation starts with the network

For many organizations today, the old adage often holds true: “The only constant is change.” Globalization, economic pressures, myriad competitive factors and a rapidly changing workforce are all contributing to the evolution of global business. In this era of change, technology is a key enabler—it often makes the difference between keeping the pace and setting the pace. Enterprise leaders are increasingly embracing this realization and calling upon their IT organizations to find new ways to put technology to work with systems that do not merely support enterprise initiatives, but advance them.

Dell is an example of a company leading enterprise transformations. It is a recognized provider of innovative technology solutions that help organizations accelerate results and thrive in a virtual era. Its expertise spans from the data center to the campus to the end user and its market leadership is recognized. And, like its customers, Dell also discovered opportunities where putting the right technology in place would not just support, but advance, key enterprise initiatives:

- **Cost savings.** Dell needed to maximize efficiencies and the best place to start was with the enterprise network. Simply “keeping the lights on” was becoming an expensive proposition due to parts of the existing infrastructure. It represented both the greatest opportunity to transform and the greatest challenge, spanning many different network types and sizes across the globe.

- **Future-proof foundations.** Like many organizations, Dell was growing. When a new Dell manufacturing facility was set to open in China, Dell recognized the opportunity to leverage a new networking approach at the outset to reap the benefits for years to come. This meant building an optimized, efficient network that would deliver needed capabilities today while providing an economical, future-proof foundation for tomorrow.

- **Enhanced competitiveness.** Dell continues to lead in the marketplace with innovative solutions. Dell product teams are always looking for ways to increase competitive edge. When it comes to Dell’s cloud-based and hosted services, it is critical that the underlying network supporting these offerings be up to the challenge.

Old giving way to new presented Dell with significant opportunities. The first step was to transform the way it approached one of every organization’s greatest operational assets: its network.
Network innovation powers the possible

Dell had already been reaping the benefits of its Dell Networking campus platforms for many years. So when Dell IT was tasked with transforming the network beyond the edge, the team quickly seized on an opportunity to extend the benefits of Dell Networking deeper into the network and the data center.

The benefits offered by Dell Networking are the result of over a decade of innovation and industry leadership in networking. From developing the first all-1GbE switch for the enterprise in 2002 to its acquisition of Force10 Networks in 2011, Dell has firmly established its role as a challenger to outdated networking paradigms. In an industry dominated by costly too-big, too-complex, proprietary systems that limit choice and therefore limit innovation, Dell has sought ways to transform the network.

Dell Networking provides organizations with a new way of building, managing and operating a network to transform and improve IT economics. Dell Networking solutions are open standards-based for maximum interoperability and preservation of choice; designed for simplicity to reduce complexity and its costs; and architected for efficiency. With a full end-to-end portfolio, Dell Networking solutions are able to address a variety of environments, from the largest data centers to the smallest office.

Dell required high-performance infrastructure throughout its network to meet demand and advance its critical business initiatives. As a large, multinational organization, it required solutions that would provide an economical, easily managed, scalable foundation. Finally, it had some entrenched vendor equipment and wanted to preserve its previous networking investment as much as possible—interoperability was critical. Only Dell Networking satisfied all of these requirements.

To further realize the benefits of a transformational networking approach, Dell Networking data center platforms were implemented at several strategic points within Dell’s IT infrastructure.

2.1 Dell IT enterprise network

Dell IT owns multiple remote office and branch offices (ROBOs) that are geographically separated from the corporate location where policy is enforced. Unifying all these locations is a technology challenge that is overcome with a governance strategy that applies operational standardization, consolidation and automation. (Figure 1)
Dell Networking helped standardize the network architectures of the ROBO, achieving uniformity across all sites and resulting in fewer moving parts and lower costs. The first site to be standardized was Dell’s San Jose, California office. The challenge here entailed transitioning the network of a previously acquired company’s headquarters—with its own legacy IT approach—into a standard Dell IT network. To achieve this, a Dell Networking Campus and Branch installation template was created. This template deployment has since been deployed at various sites across the globe, from Bracknel, Ireland to Mexico City, Mexico, further helping to simplify transitions and ensure standardization.

The next major undertaking is the refresh of the network at the company’s headquarters in Round Rock, Texas. The campus is large and disperse, with numerous multi-story buildings spread across a wide municipal area. As the campus includes a large amount of existing equipment, as well as almost 30 years of historical practices and applications, the interoperability and flexibility of Dell Networking solutions will ease the transition and provide significant benefits. In addition, Dell expects that training time for staff will be minimal; those familiar with another vendor’s popular OS interface will find substantial similarities in the Dell Networking FTOS interface and CLI, so they can get up and running quickly.

2.2 Dell manufacturing

A new manufacturing facility takes a lot of planning and coordination—and it’s typically an infrequent event, compounding the importance of “getting things right” from the start.
Dell embarked on building a new manufacturing facility in China, slated to be operational before mid-2013. This manufacturing facility would have multiple lines of assembly and QA along with a data center and a branch office. Fresh from its IT enterprise network transformation, Dell teams knew it would be important to build the new network for efficiency—today and tomorrow—from the ground up.

The results have been impressive. Built as a model for a next generation 10/40GbE deployment, the new facility’s infrastructure includes a mix of various platforms, each positioned for an optimal balance of price and performance. A combination of modular switches, like the Dell Networking E600i and C300, and fixed-form-factor switches, like the 10/40GbE Dell Networking Z9000 and S4810, form a high-density, scalable Layer 2 core. The management network is reliably supported by Dell Networking campus platforms. (Figure 2)

Figure 2 The manufacturing facility under construction in China uses a mixture of Dell Networking platforms throughout the network.

In addition to the manufacturing facility above, Dell manufacturing labs that customize orders of servers and laptops now also run on new Dell Networking.

With the new facility’s network built on a Dell Networking foundation, operators can be assured their investment is protected and their costs can be managed today and in the future. Because of Dell’s relentless focus on efficiency, Dell Networking solutions deliver lower TCO compared to the competition, with infrastructure solutions architected to consume less power and require less space than competing approaches. Furthermore, a complementary suite of available service offerings can free up IT staff for innovation over operation and the lifetime warranty on Dell Networking products ensures that reliable, predictable performance can be counted on.

2.3 Dell.com

Dell.com forms a portion of the larger online presence of the entity known as eDell. Customers interact with eDell on Dell.com and its sub-sites like Dell Premier, Global Portal, B2B, the Channel Portal, eSupport and the Dell Community.

“This solution delivers a cost savings [of approximately] $3-4 million and demonstrates the capabilities of Dell Networking products in a critical manufacturing environment.”

Conor Foley, Facility Architect
For Dell, eDell is a vital business delivery tool through which a high-quality, differentiated, personalized online experience is offered to customers. There are over 1 billion visits to Dell.com every year, and an online order is placed on the site, on average, every 3 seconds, from over 160 countries and in 30 languages. That’s why it was critical for Dell to choose a networking foundation that could support eDell’s high demand, was extremely reliable to avoid outages and downtime which could result in lost revenue and would be economically scalable to support eDell’s growth without significantly increasing OpEx.

With a portal of this magnitude, the backend consists of large database stores, running on Dell servers and storage devices. The supporting network now runs on Dell Networking platforms which provide high-performance, non-blocking 40GbE interconnectivity between servers and storage for faster throughput and a better user experience. In addition, because Dell solutions work better together, operations in the Dell data center have been streamlined through Dell Networking features like auto-discovery of Dell servers and storage and auto-configuration.

2.4 Dell Cloud

Dell Cloud services are a way for Dell customers to access latest technologies without huge upfront investments. With Dell Cloud, customers can save on the investments in hardware, software and related capital expenses typically incurred when maintaining complex IT infrastructures and staff while still enjoying the benefits of cloud computing. Dell offers cloud Infrastructure as a service, or IaaS, which enables systems administrators and developers to self-provision processing, storage, networking and other resources required to deploy and run applications and operating systems. (Figure 3)

![Figure 3](image)

Dell’s cloud IaaS relies on its network to power the services delivered to customers.

Dell is building and running private dedicated clouds and Dell vCloud (Dell Cloud with VMware vCloud Service) for public clouds. In the vCloud, Dell offers Virtual Desktop-as-a-Service, email management
services and health care archiving services that provide flexibility for the mobile workforce and centralize IT control of applications.

In addition, Dell customers can build their own cloud infrastructures using Dell Cloud-enabled servers, storage and networking on their premises using Dell Active Infrastructure (e.g., Active System 800) running on 10/40GbE switches, which helps simplify deployment and management of infrastructure, workloads and applications. Or they can opt to have Dell manage their private cloud with the hosted-managed model. Customers can also integrate SaaS, cloud and on-premises applications with Dell Boomi, a pure SaaS integration platform requiring no software or appliances.

All of these service offerings are powered by the Dell network and Dell Networking. For Dell Cloud services, the network is not just an enabler of a technology—it’s a key way for Dell to innovate and advance new offerings, create competitive advantage, maintain attractive pricing and increase customer satisfaction. If the network is not optimized for cloud—with economical scalability, elasticity and reliability—Dell Cloud service offerings could be disadvantaged.

Dell Networking also allows Dell to utilize innovative technologies for cloud, like OpenStack. Dell is an early pioneer and an active leader in the OpenStack community. Because of the flexibility of Dell Networking, Dell was able to commit to a new cloud platform offering, Dell Cloud on Demand with Open Source, based on OpenStack. While Dell will continue to provide the best overall solutions for any type of cloud customers want to run, the company believes that the open and compatible nature of OpenStack allows customers to take advantage of hybrid capabilities to move workloads between private and public clouds as needed—and this approach is fully supported in Dell Networking platforms. This support, as well as its automation capabilities (APIs) and broad-based support for software-defined networking (SDN)—important for multi-tenancy—made Dell Networking a perfect fit for Dell Cloud services.

At the heart of Dell Cloud service offerings, Dell Networking stitches together the fabric of servers, storage and workloads into the cloud. Dell Networking platforms are certified for OpenStack and Dell’s Big Data Hadoop offering, allowing Dell Cloud service operators to build a massive, scalable foundation with easy manageability. These services are made possible through the use of Dell Networking’s 40GbE Active Fabric solutions. Innovative Active Fabric solutions provide Dell with the high performance and scalability needed for massive cloud offerings, but at a fraction of the price, power consumption and space requirements of competing approaches. (Figure 4) Along with Active Fabric’s flexible manageability, Dell Cloud service operators are reaping the benefits of low TCO unmatched by other leading vendors.

Figure 4  Active Fabric sets a new benchmark in fabric economics.
2.5 Dell SecureWorks managed security

Dell SecureWorks blocks more than 20 billion malicious attacks each day for customers and was positioned by Gartner in the “Leaders” quadrant of its 2011 Magic Quadrant for managed security service providers. SecureWorks provides security services for Dell Cloud with VMware vCloud Datacenter Services.

SecureWorks’ security monitoring services take data from security devices, servers and hypervisors and pass it through a series of filters and correlation rules. Specially trained security consultants then examine all results and instantly take action on any issues they find. Customers also have control, with the ability to set threat levels to designate which threats require notification and which can be handled by Dell.

SecureWorks, which is offered via Dell Cloud Services, uses Dell Networking as infrastructure for its hosted security offering. The Dell Networking portfolio is certified for the highest levels of security—FIPS 140-2 and AES 256, certified for use in US government departments and regulated industries—which is critical to ensure the integrity of the SecureWorks network. In addition, Dell Networking supports the IPv6 protocol and is USGv6-tested.

2.6 Dell Solution Centers

Dell Solution Centers were launched in 2012. With teams focused on customer engagement, Dell Solution Centers are at the core of Dell’s solution strategy, offering customers the ability to experience Dell solutions and technologies firsthand.

Dell Networking is at the backbone of global Dell Solution Centers. (Figure 5) With a live Dell Networking environment, Dell Solution Centers are able to connect customers and account teams in open, meaningful conversations over reliable videoconferencing supported by Dell Networking. This saves travel costs while still providing a rich, compelling experience.

“Simply put, Dell Networking is in our Dell Solution Center DNA.”

Joe Barzycki, Networking Expert, DSC Chicago

![Figure 5](image-url)  
Dell Solution Centers around the world are powered by Dell Networking.
3 Transformation in your organization

Organizations of any size can transform to maximize efficiencies, accelerate results and increase competitiveness. Dell began its transformation process by optimizing the network throughout the organization, which helped reduce costs, advance innovation and increase customer satisfaction and market competitiveness.

The network is often the foundation for many enterprise initiatives, so it makes sense to start with its optimization as launching point for broader enterprise transformation. Here are some best practices to consider when optimizing the network to enable enterprise transformation.

3.1 Know your network and have a plan.

Networking is typically the heart of the organization; consequently, refreshing infrastructure—especially on a large scale—can be a process that undergoes significant scrutiny from many different stakeholders. Start with executive awareness and make the case for change.

Then, get a transition plan in place. Include resource development, sources of funding, staff training and technical support. Ensure that all stakeholders are involved from the beginning and ensure that all required aspects for the new infrastructure are covered—reliability, interoperability, needed feature/function capability, adaptability for future needs and anticipated costs.

3.2 Get more from your previous investments.

Updating the network need not mean a costly and time-consuming rip-and-replace. Even organizations which have legacy, proprietary network infrastructure—like Dell did—can augment their networks without a costly rip-and-replace, if they choose platforms that are open standards-based for maximum interoperability.

For Dell, this meant augmenting their existing network with Dell Networking platforms. By augmenting, rather than replacing, they were able to preserve their investment already made in networking while adding needed capabilities. And because Dell Networking offers the highest levels of interoperability with the most popular network vendor’s infrastructure, Dell was able to reduce associated risks and simplify the deployment process of the new infrastructure.

Getting more “bang for the buck” extends beyond networking. Dell had already invested in Dell servers and storage; deploying Dell Networking alongside them helped Dell get more value from their investment, as the Dell solutions work better together. Not only did Dell reap the performance benefits of Dell servers and storage, they were also able to reap the benefits of streamlined operations and performance efficiencies by connecting those servers and storage with Dell Networking.

3.3 Avoid overbuying.

Too often, needed networking projects are abandoned due to the daunting costs involved with purchasing new network infrastructure. Certainly this can be the case when organizations are locked into proprietary
systems or outdated paradigms of network infrastructure seemingly founded on the premise that “bigger is better.”

Dell was able to avoid this by deploying Dell Networking platforms, which are optimized for efficiency. Dell Networking platforms offer a more streamlined approach that results in lower costs at the outset as well as reduced operational costs and lower TCO throughout their lifetime. In addition, Dell Networking solutions are modular and flexible, so that organizations can invest as they grow, eliminating the need to over-purchase at the beginning of a deployment or a project.

Start your enterprise transformation today: Contact Dell to schedule a network assessment with an expert who can help you maximize efficiencies in your network.

Visit dellnetworking.com to learn more about all the solutions discussed here and how they can work for your network, too.