DELL STREAMLINES CONVERGED SYSTEMS BUSINESS TO ALIGN WITH MARKET NEEDS

SOLUTION-FOCUSED GO-TO-MARKET CAPABILITY & INTELLIGENT AUTOMATION COMBINE TO MEET FUTURE SERVICE-DEFINED INFRASTRUCTURE REQUIREMENTS

EXECUTIVE SUMMARY

IT organizations are quickly increasing their scope to provide applications and services that drive competitive differentiation for the business. Many IT organizations see the hybrid cloud as the path to stay on pace with market requirements and help drive long-term business growth. This change in IT requirements is driving a shift in the market to infrastructure that is service-defined, where pools of resources are dynamically allocated and reallocated based on the changing needs of applications, users, and service level agreements.

Dell recognized the market's shift toward workload-defined systems and launched its Active Systems Portfolio with Active System Manager in 2012. Since that time, Dell has adjusted its strategy to help create end-to-end converged systems solutions with additional flexibility and "last mile" capabilities around service, support, and flexible financing models. At the heart of Dell's strategy is a long-term plan to use its automation engine (Dell ASM and Dell System Builder) as a source for competitive advantage to help deliver a heterogeneous, service-defined infrastructure. Also, Dell's pending acquisition of EMC has the potential to bring together two organizations with strong converged systems capabilities. IT organizations looking to develop infrastructure strategies that keep pace with rapidly changing business needs should add Dell's converged systems portfolio to their shortlist for consideration.

INDUSTRY SHIFT TO SERVICE-DEFINED INFRASTRUCTURE

IT organizations have permanently shifted from "keeping the lights on" for back-office applications to providing the business sustainable competitive advantage through technology-enabled services, products, and business models. Many IT organizations see a hybrid cloud model as the approach to service their business needs over the long term, allowing them to deliver new services more quickly and flexibly to meet changing user demands. Traditional IT infrastructure and business models can no longer keep up; IT is looking for significant enhancements to both private and public cloud infrastructure to meet their business needs. On the private cloud side, converged systems have gained traction over the last several years by helping IT simplify hardware integration

and increase responsiveness to business demands while reducing the overall cost of computing. On the public cloud side, service providers have changed expectations for how IT services should be delivered. Public cloud service providers have successfully decoupled specific hardware as a key component required to create and honor SLAs.

IT organizations want the same high bar of service delivery in their private clouds that is currently available with the public cloud. Moor Insights & Strategy (MI&S) believes the industry is approaching an important inflection point in the future of converged systems, driven by increased expectations for how IT services are delivered. We call this shift in requirements **service-defined infrastructure**. Service-defined infrastructure means IT policies, service level agreements, and workload requirements (the "soul" of the system) can be converted and validated into templated code. With service-defined infrastructure, IT can dynamically provision (and re-provision) all resources to keep up with user requirements, provide support for continuous operations, and adhere to consistent end user service levels. MI&S details the long-term requirements for service-defined infrastructure in our paper here.

DELL'S APPROACH TO CONVERGED SYSTEMS

Dell has been participating in the converged systems business for a number of years, beginning with the launch of the Dell Active Systems Portfolio in 2012. Dell Active Systems were designed as tightly integrated IT building blocks to help IT organizations of various sizes get to market quickly. Dell found that IT organizations latched onto the Active Systems concept, but many customers found the product definitions too rigid to align with their workloads' specific needs. In addition, Dell sales organizations and channels had difficulty positioning Dell Active Systems, since the solution sales aspect made it more challenging to sell than traditional server, storage, and networking infrastructure.

Since launching Dell Active Systems, Dell has recognized the long-term market shift to service-defined infrastructure and has adjusted its strategy to align with where the company sees the market going. One key step Dell has taken is to create a converged systems business organization to deliver end-to-end solutions. Dell's streamlined business model includes all aspects of product delivery, from product development through go-to-market to customer financing. This business model has the potential to provide competitive advantage in time-to-market acceleration and delivering solutions aligned with market needs.

SOLUTION-FOCUSED DEVELOPMENT & GO-TO-MARKET MODEL

First, Dell now takes a solution-focused approach to converged systems product development. Rather than handing off product lifecycle management across various organizations, as is done with traditional product lines, Dell created **one** organization. This single organization uses an agile lifecycle development and management model to take a solution from concept through go-to-market with dedicated sales resources who have expertise in the solution stack areas. With this approach, Dell is able to shorten new product introduction (NPI) to keep up with evolving market needs and implement process and supply chain efficiencies for faster delivery to customers. Dell believes this is the right model to service its customers with fully optimized converged solution stacks from mid-market through enterprise, with a range of consumption models.

Second, Dell's solution focus for its converged systems business includes "last mile" go-to-market activities that make it easy for customers and partners to choose the right solutions that align with their business needs. For example, Dell Blueprints help Dell sales teams and channel partners provide customers with validated solutions that include hardware, software, and services, resulting in quick time-to-market. Dell offers blueprints in the areas of big data analytics, HPC, UC&C, VDI, and virtualization.

Finally, Dell Financial Services' flexible payment options for hardware, software, and services are designed to spread solution costs into an operating lease (OpEx) and out of a capital budget (CapEx). For example, Dell offers Cloud Flex Pay financial services with its hybrid cloud engineered solutions to help remove the perceived risk of adopting private cloud. Cloud Flex Pay includes options for payment after provisioning, payment plans that increase as the business grows, and payment for technology as it scales.

INFRASTRUCTURE & WORKLOAD-OPTIMIZED PLATFORMS

As IT organizations transition to service-defined infrastructure, the traditional lines of converged systems types will blend. Dell offers different consumption models to meet customers' varying needs with solution focus areas including big data, cloud, HPC, UC&C, VDI, and virtualization. Dell's solutions fall into two broad categories.

- **Dell Engineered Systems** are converged systems designed, tuned, optimized, and supported by Dell. Dell management software "delivers" the system via policies / templates. Systems have flexibility with choice at every layer (compute, network, storage, hypervisor, cloud, apps) to support specific customer needs. Dell XC Web Scale Converged Appliance and Dell Hybrid Cloud System for Microsoft CPS Standard are examples of Dell's solutions in this space.

- **Dell Validated Systems** provide fast time-to-value with robust integration, automation, and systems management capabilities with a primary goal to address a specific customer problem. Solutions leverage Dell's external partner ecosystem to deliver an integrated system. Dell and partners often co-brand these systems and provide joint support and go-to-market capabilities. Examples include Dell Validated System for Mirantis OpenStack Cloud and Dell Validated System for ScaleIO.

FIGURE 1: DELL VALIDATED SYSTEMS & DELL ENGINEERED SYSTEMS

(Source: Dell)
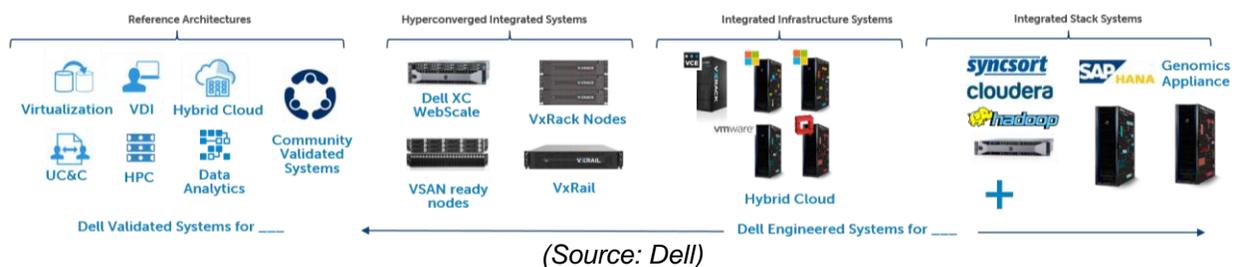
As Dell moves toward service-defined infrastructure, the company is aligned around an increasingly heterogeneous enablement model that will include Dell Validated Systems with a broad ecosystem of hardware, hypervisor, and applications partners.

Dell is also committed to the adoption of standardized APIs. Dell's goal is to enable a heterogeneous service-defined infrastructure through standards like Redfish (an open industry standard that specifies a RESTful interface and uses JSON and OData to help customers integrate solutions within their existing tool chains). Dell's iDRAC with lifecycle controller, shipped with Dell servers, supports the Redfish 1.0 standard. In addition, software-defined application stacks can sit on top of Redfish, and orchestration layers like OpenStack can be integrated below.

Dell believes that a service-centric vision requires a continuum of innovation, and a key enabler is intelligent hardware with APIs that can automate that hardware. With intelligent management, software-defined storage, and software-defined networking, Dell's hyperconverged infrastructure combined with virtualization helps align infrastructure with application needs today. Dell intends to continue providing technology enhancements over multiple hardware generations and direct innovation toward intelligent management software to match workload requirements to the underling infrastructure. Dell's goal is to provide service-defined infrastructure benefits spanning from older 12th generation platforms to FX2 Architecture and future platforms.

INFRASTRUCTURE MANAGEMENT WITH DELL ACTIVE SYSTEM MANAGER & SYSTEM BUILDER

Dell believes that robust infrastructure automation capability is central to delivering the service-defined converged systems of the future. Dell's vision is greater than just delivering automated hardware; it includes service-defined delivery and optimization for both traditional and cloud-native workloads. Dell's investment in infrastructure automation began with the purchase of Gale Technologies in 2012, and the company has been investing resources to advance these capabilities over the last several years.

Dell's open, heterogeneous approach means the underlying hardware infrastructure in a service-defined world can extend beyond a given Dell form factor and will become increasingly independent of form factor and vendor. Today, the infrastructure ecosystem includes Dell infrastructure as well as storage from EMC and NetApp, servers and switches from Cisco, and switches from Brocade.

Dell's automation engine consists of two primary elements: **Dell System Builder** and **Dell Active System Manager (ASM)**. Dell System Builder provides a user interface that asks key questions about what the customer is trying accomplish including IT policies, configuration needs, and workload requirements. Based on these requirements, and customer preference, Dell sales teams and channel partners can use System Builder to create a tailored yet validated, orderable integrated system, including all hardware, software, and services.

Dell System Builder creates an Active System Manager (ASM) service template to help ASM understand the resources available for allocation. Using a catalog of available hardware, Dell ASM converts the hardware into pools of infrastructure resources that can be used to deliver applications and services. ASM delivers a system personality (the "soul" of the system) in the form of a template optimized to deliver a specific service or application. Today, ASM pools server resources in a private cloud. Over time, ASM will include pools of other infrastructure resources like storage, networking, and public cloud. Figure 2 provides an example of the Dell ASM user interface. MI&S will elaborate on the benefits of Dell ASM and Dell System Builder in a future paper.

FIGURE 2: DELL ACTIVE SYSTEM MANAGER (ASM) USER INTERFACE
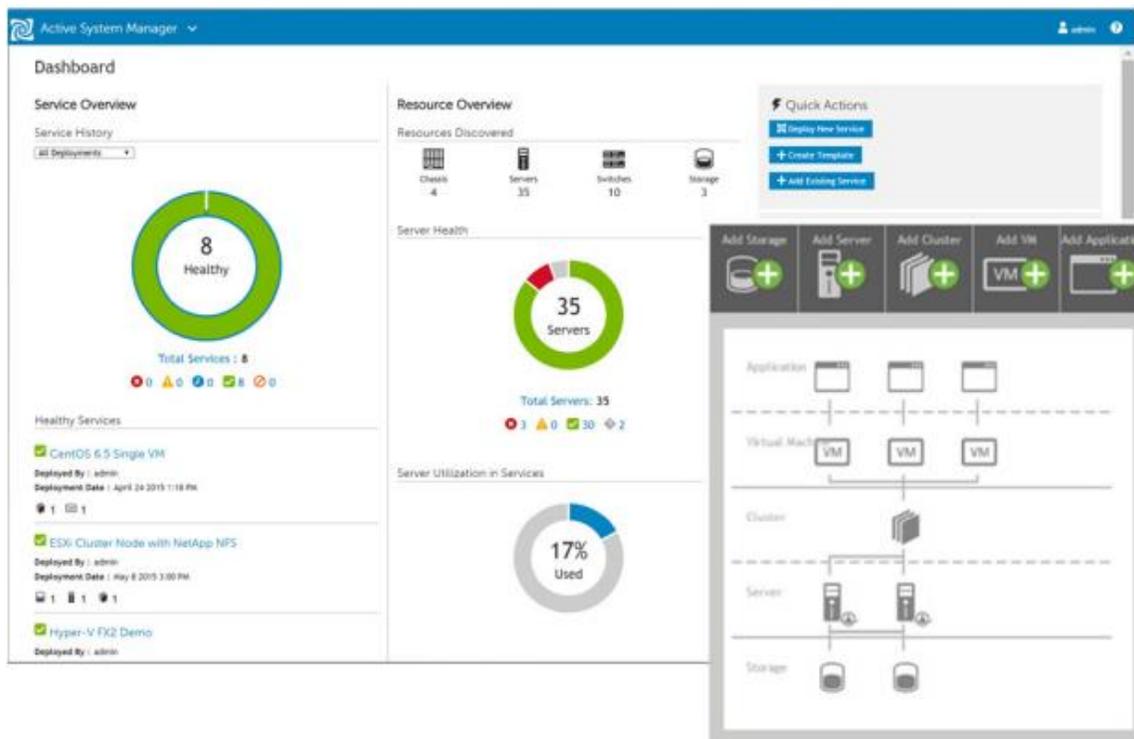
(Source: Dell)

WHERE WILL DELL GO WITH CONVERGED SYSTEMS IN THE FUTURE?

With just a few major milestones to go, it appears that all is on track for Dell to acquire EMC and for the companies to merge enterprise organizations as Dell EMC by the second half of 2016. If this deal goes through, and it appears it will, MI&S believes Dell and EMC bring together converged systems lines-of-business that are rich in assets, experience, and capable people. VCE is a leader in converged systems today and has been very successful with enterprise customers. Dell's historical strength in the mid-market combined with the company's leadership and strong breadth of offerings in hyperconverged infrastructure can help extend the joint organization's combined reach. Dell EMC has an opportunity to capitalize on the movement to service-defined infrastructure and unify their converged systems portfolios under one umbrella over the long term. If Dell and EMC get this strategy right, MI&S expects customers to see a strong mix of converged systems entry points and a roadmap backed by solid R&D resources to address this market as it continues to transform.

CALL TO ACTION

When searching for solutions that meet the varying needs of each workload, it is increasingly evident that "one size fits none" for IT infrastructure. Fragmented user requirements and SLAs means today's datacenters contain a mix of technology from a variety of vendors as well as a choice of hypervisors and cloud management platforms, all adding layers of complexity to cloud deployments. Many IT organizations look to deploy technologies based on standards with robust sets of APIs as a way to ensure choice in deployment models and vendor solutions.

Dell is setting itself up well to "skate ahead of the puck" with an end-to-end business model for delivering converged systems. At the heart of Dell's strategy is a long-term plan to use its automation engine (Dell ASM and Dell System Builder) as a source for competitive advantage to deliver a heterogeneous, service-defined infrastructure. In addition, Dell's pending acquisition of EMC has the potential to provide a comprehensive converged systems portfolio to service both mid-market and enterprise customers. IT organizations evaluating next-generation converged systems should add Dell to their shortlist of vendors for consideration.

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