Why Dell EMC Validated Systems?

What is the Validated System for Virtualization?

In July 2015, Gartner stated that “IT projects need less complexity, not more governance.”

Dell EMC agrees. Of all the IT project types, data center expansions and upgrades can be the most challenging. From equipment procurement to installation to configuration, these interdependent tasks create organizational and technical complexity. Flawless coordination, perfect timing, strenuous effort, and good fortune are all required to meet the dates in the master plan.

Converged infrastructure (CI) is a practical alternative. By pre-integrating compute, storage, and network components, CI ensures that the compatibility and complexity risks are all but eliminated, as are the previously inevitable cost and time overruns. Within the CI category, pre-integration subcategories are defined by varying degrees of technology and configuration flexibility. To the left of that CI continuum, as shown in Figure 1, validated systems offer an advantageous mix of configuration flexibility and engineered pre-integration.

Fig. 1. Taxonomy of converged infrastructure

Validated systems provide pre-tested, configurable hardware and software options to meet workload requirements for a wide array of workloads, including custom-built applications, OLTP databases, web servers, decision support systems, and more. A validated system can be as small as two compute nodes with local storage, growing to multiple high-density racks scaling in increments by as little as a single node or disk drive.

The Dell EMC Validated System for Virtualization allows IT organizations to:

- Deploy mission-critical services more quickly
- Utilize compute, network, and storage resources more efficiently
- Improve ongoing service quality for the entire system lifecycle
Why Validated System for Virtualization?

For decades, IT leaders have tried to estimate what balance of compute, networking, and storage was needed for business-critical applications. Dell EMC Validated System for Virtualization eliminates the guesswork and allows IT to deploy balanced infrastructure that is more efficient in the purchase and consumption of compute, network, and storage resources. Dell EMC Validated System for Virtualization is designed around the concept of a Customer Defined Scale Unit (CDSU). CDSUs combine compute, networking, and storage components attuned to specific workload requirements. CDSU building blocks are the cornerstone to predictably scaling deployments from as small as two compute nodes up to multiple high-density racks.

Choosing a Dell EMC Validated System for Virtualization reduces the time to stand up a fully operational virtual infrastructure by streamlining the entire procurement-to-deployment process. Teams of product experts, engineers, and manufacturing professionals have coordinated every phase of selecting and deploying a virtualized infrastructure with the goal of saving you time and money. Figure 2 shows how validated systems can streamline the procurement-to-deployment process.

Dell EMC validated systems are pre-tested by engineers to eliminate complexity, interoperability, configuration, and sizing risks of the do-it-yourself (DIY) approach. The benefits of pre-testing mean that Dell EMC can streamline the entire transaction experience to deliver a predictably consistent virtual infrastructure in less time and at a lower cost than the typical DIY experience.

Design flexibility: Remote office scenario

Dell EMC validated systems offer a broad range of pre-tested servers, network, and storage options for greater design flexibility with verified interoperability.

Consider the customer scenario of deploying a new remote office that depends on virtual desktops and a highly available database application. The customer uses Dell EMC Avamar and Data Domain for backup and restore services. The base system requirements analysis concludes that the customer needs are as shown in Table 1.
Table 1. Customer requirements

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 virtual desktops</td>
<td>Per virtual machine:</td>
</tr>
<tr>
<td></td>
<td>• 2 vCPUs</td>
</tr>
<tr>
<td></td>
<td>• 4 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 100 GB of storage</td>
</tr>
<tr>
<td>Application database</td>
<td>• Low latency response times for performance</td>
</tr>
<tr>
<td></td>
<td>• Capacity for data growth</td>
</tr>
<tr>
<td></td>
<td>• 99.9 percent uptime or better</td>
</tr>
</tbody>
</table>

The Dell EMC sales representative uses an intelligent configuration tool called System Builder to walk through the design requirements with the customer. In twenty minutes or less, the validated system configuration has been completed. Figure 3 shows a partial list of the hardware bill of materials for the recommended solution.

![Validated System for Virtualization – Sample Build for Remote Office](image)

Figure 3. Sample System Builder configuration for 50 VDI desktops and application database

This system fits the needs of the remote office scenario because the virtual desktops can be supported from two servers. The third server supports the application database. Users of the application and virtual desktops will appreciate the low latency response times of the Dell all-flash storage array. The Dell Networking S4048-ON switch has 48 10GbE ports and, with break-out cables, can add up to 72 ports, which is the correct size for today’s needs with some room for future expandability.

The VMware vSphere administrator uses the recommendations of System Builder to implement the application configuration, as shown in Figure 4. Strengths of this configuration include using VMware vSphere High Availability to support the entire workload on the surviving servers in case of a planned or unplanned outage.
An all-flash array such as the Dell EMC SC4020 delivers a simple and efficient storage configuration without the need for detailed RAID and disk group design considerations. The physical system architecture and application configuration were submitted to the Infrastructure Review Board for approval. The approval timeline was significantly shortened because the validated system eliminated the compatibility, interoperability, and sizing verification requirement that typically adds delays and uncertainty to the deployment schedule.

In this scenario, the decision-makers elected to have Dell EMC Professional Services deploy the new virtual infrastructure in the remote office. Because the deployment was carried out by Dell EMC, the project benefits from reduced installation time and quick remediation of any technical issues. However, you can also install new or upgraded Dell EMC Validated System for Virtualization with in-house experts.

Management and maintenance of the remote office is done from a primary data center. To address this, the IT engineering team needs a tool to quickly update the servers and provision new services. Dell EMC Active System Manager (ASM) was selected at the customer’s request through System Builder for its robust range of provisioning and deployment management capabilities. The ASM unified dashboard gives the IT practitioner the ability to manage the remote office infrastructure, apply updates, and automate lifecycle activities. ASM is available in System Builder during the design process and is recommended for any validated system.
IT organizations are under increasing demand to quickly provision infrastructure and services in today’s competitive marketplace. Figure 5 shows some of the systems that are part of the Dell EMC Validated System for Virtualization. Dell EMC can work with you to design, deliver, install, and configure an entire virtualization infrastructure in significantly less time and at less cost to your business than if you build it yourself. The Dell EMC Validated System for Virtualization is the right choice for your business if you want to choose specific server, storage, and networking components for data center standardization, preferences, or in-house expertise.

**Summary**

Most traditional data center expansions or upgrades start with the question of how many bids are needed for all the pieces of networking, storage, servers, cabling, and so on. When the hardware arrives, the rack, stack, cable and test is started. After this test is complete, you may still have a data center with equipment from a number of vendors, which can generate interoperability and support issues.

Dell EMC validated systems provide a combination of flexibility, simplicity, and efficiency that can be delivered more quickly and at a lower cost. Our key focus is on streamlining a virtual infrastructure deployment tailored to your business needs. You have the flexibility of a DIY approach without the associated complexity and risks.
The Validated System for Virtualization advantages can be summarized as follows:

- **Flexibility**—A pre-tested modular system of compute, networking, and storage configured by sales and customers collaborating to address their workload requirements

- **Simplicity**—From designing a validated system to ensuring compatibility, every phase has been streamlined to reduce complexity and give customers complete control

- **Accelerate**—Every component of a validated system has been tested and engineered for interoperability so that IT organizations can deliver a virtual infrastructure faster than building it themselves

- **Efficiency**—Validated systems are enterprise-quality infrastructures that can automate updates and lifecycle management with the use of ASM

- **Lower Cost**—Dell EMC is a leader in providing enterprise solutions with groundbreaking economics

In our scenario of sizing a remote office for virtual desktops and an application database, we have shown how easy and quick configuring a virtual infrastructure is with System Builder. The customer had the flexibility to design the infrastructure to match business requirements, and chose Dell EMC professional services to own the deployment. Further efficiencies were gained by using ASM to remotely update and manage lifecycle activities from the central IT data center.

Dell EMC validated systems provide a competitive edge for any business. The system places control and choice where it belongs, with you. Reduce complexity, risks, and accelerate the deployment of virtualization services to your business. The Validated System for Virtualization is the best choice for your business if enterprise flexibility, efficiency, and groundbreaking economics are important for your IT organization.

If you are interested in obtaining more details about the Dell EMC Validated System for Virtualization, contact your Dell EMC sales representative. They will work with you to understand your needs and help you design a better virtual infrastructure. It takes just minutes working with your sales representative and System Builder to produce a validated system configuration. We encourage you to discuss the options available to customize the initial configuration based on unique workload requirements. Your new system can be tailored to your specific needs.
The information in this publication is provided as is. Dell Inc. makes no representations or warranties of any kind with respect to the information in this publication, and specifically disclaims implied warranties of merchantability or fitness for a particular purpose. Use, copying, and distribution of any software described in this publication requires an applicable software license.

Copyright © 2017 Dell Inc. or its subsidiaries. All Rights Reserved. Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be the property of their respective owners. Published in the USA February 2017 Solution Brief H15789.

Dell Inc. believes the information in this document is accurate as of its publication date. The information is subject to change without notice. 

Author: Sam Lucido, Fiona O’Neill