



# A comparison of Hewlett Packard Enterprise and Dell/EMC

as “lead” IT vendors for midsize to global enterprises

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## Executive Summary

The IT environments that businesses require today have significantly evolved from the past several years. Data is everywhere and data driven decisions are mandatory. Success is often defined at how quickly a business can deploy new resources, increase efficiency and simplify management. Innovations such as Big Data, cloud, and mobility are making automated hybrid environments key to optimize performance and efficiency.

In this report we look at how Hewlett Packard Enterprise (HPE) and Dell/EMC compare in addressing these trends as “lead” IT vendors for midsize to global enterprises. We look at what is required to be a lead IT vendor, trends in the marketplace today, and the recent history and capabilities of HPE and Dell/EMC.

After careful review of available information, please consider the following results:

- Dell or EMC customers who are evaluating a refresh of existing storage platforms need to carefully consider product and technology roadmaps. Product line consolidation is a certainty and not all product lines will have graceful options. In addition, hyper-converged systems with virtual storage offer an interesting alternative.
- Customers of converged solutions such as VCE may also face migration headwinds as Dell/EMC sets priorities amongst its partnerships. Going with a single vendor solution, such as HPE, could be considered a pragmatic solution.
- Small and medium businesses who have relied on Dell servers owe it to themselves to look at alternatives. Advances in remote management and virtual storage can reduce operational costs and improve flexibility.

In the following sections we look at trends in the current market and our evaluation criteria, define the criteria for “readiness to lead” and present an evaluation based on that criteria.

## Requirements of Enterprises from a Lead IT Vendor

Businesses are faced with many challenges today that they have not faced in the past. Technology such as Big Data is being consumed in radically new ways. Businesses need to not only evolve with these changes but also continue to support the workloads that currently run their business. To get there businesses will embrace simplicity, which means reducing the number of vendors and on placing an emphasis on optimizing for speed.

Actual, measurable business outcomes are essential! Successful companies are looking for an IT vendor who can help them address new challenges in efficient and creative ways. The “lead” vendor will be the one that brings the strongest arsenal of technology, alliances, partners and vision to their customers.

This paper examines two recognized stalwarts, Dell/EMC and Hewlett Packard Enterprise (HPE). Both have been reinventing themselves to meet these challenges, and are still to some degrees, works in progress.

## Trends in the Marketplace

While investments are increasingly shifting towards the cloud, Big Data and mobility, companies must be capable of running their businesses on their legacy applications while moving to environments that can truly accelerate time to business value.

**Applications First**—Today's processors are incredibly powerful, yet servers have become an inexpensive commodity. What matters today is less about the actual hardware and more about how quickly and efficiently a business can design, deploy and support applications and services. Data center automation is a key to accelerate provisioning, patching and managing across environments that support traditional datacenters and the cloud. Software-defined controls and automation simplify management and free IT resources for more value-added tasks.

**Hybrid IT**—Hybrid environments are becoming necessary to obtain optimum performance and efficiency, yet recent surveys have shown that nearly half of all IT executives lack confidence in managing hybrid environments. Applications are being transitioned to cloud but many organizations will need help in implementing the right solution for their business. Solutions dependent on Internet of Things (IoT) architectures will accelerate the need for robust hybrid cloud environments.

**DevOps**—This collaborative software development philosophy is taking hold in the industry. About 25% of Global 2000 companies are expected to adopt DevOps by 2016, and according to Gartner, tools to support the work could be a \$2.3 billion market by the end of this year.<sup>1</sup> Commonly used by cloud and mobile developers, it will become widely accepted by other industries.

**Big Data**—Data is everywhere, and the insights obtained from analytics continue to help businesses reduce costs and grow revenue. But with ever-increasing data volumes speed becomes increasingly important. While businesses want access to data in real time, many have found that using Big Data is challenging. Adoption of technology to continuously analyze streams of data will increase. For instance, as it applies to IoT analytics, and raw data is expected to grow at a compound annual growth rate of 30%.<sup>2</sup>

**Security**—Protecting users and data has always been important but it has become increasing challenging. As new consumption models such as cloud and mobile are being embraced, more integrated protection mechanisms are required. The cost of responding to cyber-crime is increasing every year, and while IT budgets are declining investment in cyber-security tools is increasing. Security and risk mitigation has become a top IT spending priority, with 46% of businesses saying they will spend more in the coming years on cyber-security tools.<sup>3</sup>

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<sup>1</sup>[blogs.wsj.com/cio/2015/03/06/devops-moving-deeper-the-mainstream-gartner/](http://blogs.wsj.com/cio/2015/03/06/devops-moving-deeper-the-mainstream-gartner/)

<sup>2</sup>[idc.com/getdoc.jsp?containerId=prUS25329114](http://idc.com/getdoc.jsp?containerId=prUS25329114)

<sup>3</sup>[computerworld.com/article/2840907/forecast-2015-it-spending-on-an-upswing.html](http://computerworld.com/article/2840907/forecast-2015-it-spending-on-an-upswing.html)

## Recent History of Dell and EMC

On February 13, 2013 Dell announced that it had struck a leveraged buyout deal that would have its shares delisted from the NASDAQ and the Hong Kong Stock exchange and taken private. Michael Dell provided \$700M of his own money, leaving him in control of the company, and the private equity firm Silver Lake contributing about \$1B to the transaction. Microsoft also agreed to lend Dell \$2B.

While Dell has given reasons to go private, we suspect that the primary is to insulate awkward decisions from analysts, investors and the media. Dell is well aware of how sinking stock prices can raise questions with customer purchase decisions. For instance, when Dell took on \$15B in new debt, financial analysts said it could be considered manageable provided that Dell's PC business remained strong. However, the strength of Dell's PC business is now an open question.

On October 12, 2015 Dell and EMC announced that they had signed an agreement in which Dell and its owners—Michael, MSD Partners and Silver Lake—would acquire EMC Corporation while maintaining VMware as a publicly traded company. EMC owns 80% of VMware but it operates as a separate company with its own stock and accounting. The deal is expected to cost about \$67B and will result in debt of about \$51B, the interest of which will cost Dell about \$2.5B a year. The FTC has approved the deal and it's expected that they will receive EU and Chinese approvals in the very near future.

Dell believes that this merger will create an end-to-end technology company that combine two of the world's largest technology franchises and that "the company will offer customers a broad, end-to-end product portfolio spanning all key compute, networking and storage segments—both legacy and emerging—to address customers facing technology-driven disruption."<sup>4</sup>

Taking on \$51B of debt to acquire EMC could reduce R&D activities in the new company. Dell and EMC currently have very different cultures, thus bringing these together could strain customer satisfaction and employee retention.

With Dell/EMC, we are concerned that their wide range of initiatives will yield "scrambled" rather than "converged" infrastructure for their customers.

- EMC and Lenovo have an alliance that enables Lenovo to resell EMC storage. Lenovo is also a key contributor to the VSPEX converged reference architecture. If Dell replaces Lenovo in VSPEX it is uncertain whether the storage resale agreement will survive.
- Dell also has an OEM agreement to deliver the Nutanix hyper-converged solution on Dell hardware. Dell's acquisition of EMC could create significant issues with the Dell / Nutanix relationship, leaving customers uncertain of what the future will hold. While it is likely that Dell would like to keep Nutanix as a partner, Nutanix will ultimately decide if they want to continue to offer Dell in addition to Supermicro (the standard solution) and Lenovo. Unfortunately for Dell, Nutanix doesn't believe that most customers care about the logo on the hardware that they use with their Acropolis hypervisor.<sup>5</sup>

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<sup>4</sup>[dell.com/learn/us/en/uscorp1/secure/dell-emc-transaction](http://dell.com/learn/us/en/uscorp1/secure/dell-emc-transaction)

<sup>5</sup>[go.nutanix.com/rs/031-GVQ-112/images/Dell%20EMC%20Acquisition%20and%20Impact%20on%20HCI.pdf?mkt\\_tok=3RkMMJWWfF9wsRokuq7Jde%2FhmjTEU5z16OgpWK%2B%2Biokz2EFye%2BLIHETpodcMTcFgM73YDBceEJhqyQJxPr3FL9EN3cNsRhDjCg%3D%3D](http://go.nutanix.com/rs/031-GVQ-112/images/Dell%20EMC%20Acquisition%20and%20Impact%20on%20HCI.pdf?mkt_tok=3RkMMJWWfF9wsRokuq7Jde%2FhmjTEU5z16OgpWK%2B%2Biokz2EFye%2BLIHETpodcMTcFgM73YDBceEJhqyQJxPr3FL9EN3cNsRhDjCg%3D%3D)

- The EMC and VCE announcement of VxRail adds to this uncertainty. EMC has acknowledged that VxRail is expected to compete directly with Nutanix, which seems to add additional conflict with the Dell and Nutanix relationship. This leaves Dell and EMC customers uncertain which set of solutions will be offered and supported in the future.
- EMC joined with Cisco and VMware to create VCE, which sells converged infrastructure solutions in preconfigured blocks. While all of these companies have confirmed their commitment to the partnership, it's also likely that the merger will open the door for Dell to include more of its server and networking hardware. Cisco, who is a key to the VCE partnership, scaled back their investments in 2014 when VCE became an EMC Federation company. Additionally Cisco does not have a storage offering, yet storage is key to converged infrastructure solutions. While Cisco will need to determine who to partner with moving forward, customers need to avoid being pawns between Dell/EMC and Cisco.<sup>6</sup>

From our viewpoint, that is a lot of balls to keep in the air. Customers should be asking for roadmaps and guarantees.

## Recent History of HPE

On November 1, 2015 HP split into two publically traded companies. HP Inc. is focused on printing, including the emerging 3D printing technology, and PC Technology. Hewlett Packard Enterprise (HPE) is focused on providing infrastructure and services for the quickly evolving corporate market. HPE believes that this new structure will provide a clear, distinct focus on meeting the needs of business customers. "Some of our customers run traditional IT environments. Most are transitioning to a secure, cloud-enabled, mobile friendly infrastructure. Many rely on a combination of both. Wherever they are in that journey, we provide the technology and solutions to help them succeed."<sup>7</sup> HPE chief executive Meg Whitman recently noted that HPE and Dell have taken very different paths. She noted "We decided to get smaller while they got bigger. We decided to lean into new technology while they're focusing on old technology in a cost takeout play... And we're super focused on being fast and nimble for our customers. So both strategies may work."<sup>8</sup>

We discussed at length the storage-related product line rationalization that Dell/EMC must address. HPE has already moved through that knothole, with HPE 3PAR StoreServ and StoreVirtual now the primary lines. In addition, while HPE offers a variety of compute platforms, they appear rationally segregated by value proposition and workload.

HPE is betting that large customers will not move everything over to providers like Amazon Web Services and will instead build their own hybrid environments. In a recent NY Times article, Thomas Bittman of Gartner stated, "A typical large enterprise has on average 24 cloud services from nine different providers. HP is in a good position to be the company that handles merging all this stuff"<sup>9</sup> It remains to be seen whether smaller, younger companies take the same path as larger companies.

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<sup>6</sup>[cio.com/article/2990447/five-big-questions-about-dells-mega-merger-with-emc.html](http://cio.com/article/2990447/five-big-questions-about-dells-mega-merger-with-emc.html)

<sup>7</sup>[hpe.com/us/en/about.html](http://hpe.com/us/en/about.html)

<sup>8</sup>[fortune.com/2016/03/04/emc-dell-is-good-for-hpe-says-whitman/](http://fortune.com/2016/03/04/emc-dell-is-good-for-hpe-says-whitman/)

<sup>9</sup>[nytimes.com/2015/11/25/technology/hewlett-packard-hp-quarterly-earnings.html?\\_r=0](http://nytimes.com/2015/11/25/technology/hewlett-packard-hp-quarterly-earnings.html?_r=0)

HPE will focus on four key areas that include transforming IT to a hybrid infrastructure, protecting their customers' digital assets, enabling customers to be more effective data driven organizations through the effective use of big data services and analytics, and helping customers' enable workplace productivity in today's mobile, work anywhere, interconnected world. At the same time, investments such as CloudLine indicate that HPE is taking cloud providers seriously. We expect that the efficiencies HPE will develop in this market will convert to their enterprise product lines.

HPE has a long history of strategic alliance partnerships with companies such as VMware, Microsoft, Oracle, SAP, Red Hat and Citrix.<sup>10</sup> These partnerships are ongoing and continue to remain strong. While the merger of Dell and EMC has created some questions and concerns surrounding existing partnerships the splitting of HPE and HP Inc. does not raise similar concerns or potential conflicts of interest.

## Criteria for Addressing “Readiness to Lead”

Customers are looking to IT vendors to help them run their businesses more efficiently and effectively. They see the need to transform their infrastructure based on emerging technologies but often need help to make these changes. Their IT vendor needs to be able to help them integrate and support old applications, deploy new ones and improve operational performance. Those efficiencies can free up funds to invest in new services delivery for their internal and external customers' unique needs.

A lead IT vendor must be conversant in their own technology, emerging technology, including open source and new business models, and have a clear, committed roadmap and vision for the future. They will need to be reinforced by a strong channel that can deliver efficiency and value to smaller customers.

We will be looking at the ability of HPE and Dell/EMC to lead customers in meeting their needs of today and tomorrow. For example, by improving time to market for new applications and services, transitioning to a best-fit cloud or hybrid cloud model, and enabling customers to achieve their desired business outcomes.

## Evaluation Model

There is no question that Dell/EMC and HPE can offer broad portfolios. However, there is more to a lead IT vendor than “what's on the truck”. The focus of this discussion is the value realized from the customer's viewpoint. The criteria in the following table will be used to compare HPE and Dell/EMC in terms of roadmaps of their portfolios, breadth/strength across their portfolios, alliances and partnerships, industry position and readiness to support customers with future ready solutions.

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<sup>10</sup>[h22168.www2.hp.com/us/en/index.aspx](http://h22168.www2.hp.com/us/en/index.aspx)

Business Criteria	Purpose of Evaluation
Predictability and investment protection	<ul style="list-style-type: none"> <li>• Is there support for the current traditional IT environment and can it be redeployed to a hybrid cloud or expanded to on-premise cloud environment?</li> <li>• Can they offer scale as demands grow?</li> <li>• Are the same management tools used to manage on-premise IT and cloud solutions?</li> </ul>
Industry position	<ul style="list-style-type: none"> <li>• Is the vendor considered a thought leader in multiple areas and product categories?</li> <li>• Are they a follower in any area and how does this affect the customer experience?</li> <li>• Are they a niche or declining player in areas that would be a concern to customers?</li> </ul>
Future-readiness in support of customers needs	<ul style="list-style-type: none"> <li>• Does the vendor have the ability to deploy traditional and hybrid cloud based solutions?</li> <li>• Can they provide converged and hyper-converged infrastructure alone or with stable partnerships?</li> <li>• How do they address trends including the expansion of mobility solution and big data analytics?</li> <li>• Are they positioned through investments and public commitments to enable the software-defined datacenter?</li> </ul>
Risk	<ul style="list-style-type: none"> <li>• What level of risk is associated with each vendor?</li> <li>• Who offers customers the most reasonable chance for success? What level of success is probable?</li> <li>• What is the track record of the vendor for successful implementations?</li> <li>• Can the vendor be counted on in the future to provide innovation and support?</li> <li>• Are the underlying technologies of critical products included in the vendor portfolios?</li> </ul>

Technology Criteria	Purpose of Evaluation
Breadth and strength of the portfolio	<ul style="list-style-type: none"> <li>• Does the vendor have innovative products available to support trends in the marketplace?</li> <li>• Are the server, storage, networking, management software, security, support and cloud systems considered best in class?</li> <li>• Are they able to support today's workloads in addition to applications and workloads of tomorrow?</li> </ul>
Alliances and partnerships	<ul style="list-style-type: none"> <li>• Success may depend on the strength of the alliances with key industry companies such as Microsoft, Red Hat and VMware.</li> <li>• Can cloud providers be included in the recommended solution?</li> <li>• What partnerships exist with application software companies such as SAP and Oracle?</li> <li>• What is the relationship with channel partners that can expand reach throughout the market?</li> </ul>
Integrated and converged IT	<ul style="list-style-type: none"> <li>• Is the vendor pursuing innovation in products, support and services in support of integrated and converged IT?</li> <li>• Are they investing in and can they deploy converged and hyper-converged solutions?</li> <li>• Is the strategic direction of the company clear?</li> <li>• If partnerships are needed to deliver a solution, are they stable and secure?</li> </ul>
Roadmap	<ul style="list-style-type: none"> <li>• Are they pursuing innovation in products, support and services that will continue to improve the customer experience? For example, the software defined datacenter.</li> <li>• Is the roadmap clearly understood?</li> <li>• Is the strategic direction of the company clear?</li> <li>• Does the roadmap deliver solutions for impending investments such as Big Data, software defined data centers, mobility, and IoT capabilities? Are there any major product lines that are likely to lead to a dead end?</li> </ul>

Each company has strong solutions but there are significant differences in commitment, innovation and capabilities. For each vendor, we considered only the products and services publicly available today. A 5-point scale was used to assess how these capabilities may impact the business:

5 – Best in class, clearly exceeds other competitive offerings currently available

4 – Exceeds, in some aspects, the other competitive products

3 – Can achieve expected results

2 – Meets expectations with some deficiencies

1 – Does not meet expectations

## Evaluation of HPE

HPE offers an extremely broad range of server, storage and networking products to support traditional IT infrastructure. HPE has been #1 in WW server market share for the last 8 quarter, with HPE ProLiant servers leading the market in both revenue and units for more than 79 consecutive quarters or more than 19.5 years. HPE has the broadest range of x86 server technologies, from tower to rack, blade, scale-up and hyper-converged. HPE continues to bring mission critical performance and reliability to the x86 world with the new HPE Integrity Superdome X. This innovative solution combines the latest Intel processors with HPE's proven Integrity architecture to run applications on Linux, Windows and VMware.

HPE has simplified their storage portfolio to focus on fabric-attached 3PAR StoreServ and the software-defined StoreVirtual arrays. These platforms enable HPE to address traditional IT, emerging hyperconverged and "composable" segments, and the booming market for flash memory for commercial thru enterprise customers. As a result, HPE has grown storage market share for the last 9 quarters.

HP OneView is an open, programmable and automated platform for managing servers, storage and networking components. It is the foundation for composable infrastructure and includes support for specific Cisco networking products. Only Superdome X falls outside the HPE OneView umbrella.

HPE has a clear commitment to OpenStack and the Openstack Foundation, whose mission is to produce an open source cloud computing platform that meet the needs of public and private clouds, regardless of size. HPE is a member and a major contributor of code to the community, bringing extensive knowledge and decades of datacenter transformation experience to the HPE Helion Openstack solution. HPE Helion Openstack is specifically tuned to configure and manage cloud solutions of all types. HPE Helion CloudSystem Enterprise builds on the strengths of OpenStack to provide a secure and flexible open-sourced platform for delivering cloud infrastructure services. Additionally HPE Cloud Service Automation makes it easy to automate and simplify the deployment and management of hybrid IT services.

HPE has made significant investments in hyper-converged platforms to facilitate the shift in IT towards cloud, Big Data and mobility. Solutions such as the HPE HC 250 and HC 380 are intended for mid-size and larger enterprises. Both combine compute, highly available storage, a hypervisor, and OneView management software into an OPEX-friendly and scalable resource fabric.

HPE's investments include density-optimized servers, designed specifically for advanced data analytics and high-performance computing workloads. HPE Apollo Server Systems are high-density servers designed specifically for massive data analytics that provide up to four times more performance than standard servers. HPE Moonshot Systems are a modular design that has been engineered, tested and integrated for specific task and applications needs.

HPE Synergy is purpose built as composable infrastructure. Through a single user interface, HPE Synergy composes physical and virtual compute, storage and fabric pools into application-optimized configurations. HPE expects Synergy to host a broad range of applications and operational models such as virtualization, hybrid cloud and DevOps.

## HPE—Scorecard Analysis

Business Criteria/ Score	Comments
Predictability and investment protection  4	HPE offers IT platforms suitable for traditional IT environments that can be utilized when transitioning to hybrid cloud or on-premise cloud environments. HPE Helion cloud solutions provide a complete portfolio of cloud products, services and solutions for scalable, secure and manageable private and hybrid cloud solutions. The HPE OneView management tool provides management capabilities for on-premise IT and support when a customer moves to a private cloud. The only exception is that HPE OneView does not support the Superdome X server.
Industry position  4	HPE has been a market a market leader in servers for more than a decade and retained its #1 spot for 2015. HPE storage is #2 behind EMC, but HPE's share grew in 2015 while EMC's declined. Of the top 5 HPE was the only storage vendor to grow in Q4'15. While Cisco tends to lead in networking market share HPE networking revenue grew by 54% during the first quarter of 2016. Also given the strong product offering from Aruba in wireless, this growth is expected to continue in the immediate future.
Future-readiness in support of customers needs  5	<p>HPE has recognized the trends towards converged and hyper-converged infrastructure and has invested accordingly. HPE understands that every customer's need is different and thus offers infrastructure to meet these needs.</p> <p>By providing a wide range of products, including converged architectures such as HPE Synergy, HPE ConvergedSystem and HPE Hyper-converged, HPE can support its customers needs today and into the future. These solutions allow customers to react to business needs instantly and to analyze data in real time to reduce costs and drive growth. HPE and its partner community also have the capability to design, recommend, deploy and support these solutions.</p>
Risk  4	HPE offers a compelling combination of up-to-date technologies, cloud platforms and global services and support that can reduce the risk for most organizations. HPE is a low risk choice for customers.

Technology Criteria/ Score	Comments
Breadth and strength of the portfolio 5	HPE has been the market leader in the server market for over a decade. To differentiate its solutions in the market, HPE remains committed to innovation as exemplified by the Superdome X, Hyper-converged and Synergy product offerings. HPE is the only major storage vendor to hold and gain share over the last 9 quarters with their best in class flash offering contributing to this growth. HP has the strongest and most complete portfolio in the industry.
Alliances and partnerships 4	The needs of customers are changing and the need for strong partnerships and alliances has never been greater. HPE has a long history of strategic alliance partnerships with ISV's such as VMware, Microsoft, Oracle, SAP, Red Hat, Citrix and Systems Integrators, an extensive reseller community with decades of experience in designing, deploying and managing datacenter and converged infrastructure solutions. HPE launched Project Synergy in 2015; a plan to work with ISV's and developers to develop composable infrastructure solutions. Composable infrastructure treats infrastructure as code. This allows customers to deploy resources quickly, easily and exactly as needed to enable gains in application speed and efficiency and to optimize application performance. While well received in the press the success of the HPE Synergy portfolio will depend on HPE's ability to communicate the benefits to customers.
Integrated and converged IT 5	HPE has shown a vision for the future with hyper-converged and composable infrastructure and has invested accordingly. Integrated data center solutions include HPE ConvergedSystem that integrates compute, storage and networking resources that are software-defined for easy integration into existing infrastructure and will quickly transition to hybrid cloud models. HPE Hyper Converged Systems are pre-configured appliances that make setting up, deploying and managing IT simple and mobile. HPE Synergy is a new platform architected for composable infrastructure where compute, storage, and fabric are always available as a pool of resources that can be instantly configured according to the needs of each application.
Roadmap 5	HPE has a primary focus on providing products and services that enable customers to quickly achieve the outcomes they need to be successful and profitable. Most of the revenue for HPE comes from hardware and associated IT infrastructure services and HPE is gaining market share in these technologies. HPE offers compelling solutions in the areas of Big Data, cloud, mobility and IoT and continues to lead in helping customers keep up with market trends.

**HPE Total Score = 36**

## Evaluation of Dell/EMC

While the combination of Dell and EMC creates a company with a broad portfolio of server and storage products it doesn't really change the technology market dynamics. Dell already resells EMC products and Dell customers already purchase EMC products. EMC is a leader in storage technology but Dell as the parent company is only considered a leader up to a certain point.

The SEC filing ahead of the merger shows that Denali Holding Inc., the company that owns Dell, will take on \$59.1B in debt if the deal goes through. The filing also shows that Denali Holding aims to reduce its indebtedness in the first 18 – 24 months after completion of the merger by selling Dell's "non-core" businesses. The filing doesn't state which of Dell's businesses are considered "non-core", adding to the uncertainty for customers surrounding the merger. However, services is the first business unit to exit.<sup>11</sup> While Dell believes that they can increase investment as a privately held company because there is less scrutiny on short-term gains the fact that there is less transparency adds to these concerns.

<sup>11</sup>[informationweek.com/strategic-cio/dell-sells-it-services-unit-for-\\$3-billion/d/d-id/1324867](http://informationweek.com/strategic-cio/dell-sells-it-services-unit-for-$3-billion/d/d-id/1324867)

Dell's PC business generates around 65% of their revenue, however that business is in decline as customer preferences for smart phones and tablets increase. The filing also notes that many Dell partners and customers feel the need to obtain updated agreements because they will be working with a new entity. While Dell was selling EMC products, it was also bringing more upscale storage to the market while EMC was expanding downstream. We believe that the unknowns in their server and storage roadmap leave their customers with unknown risks. It is also unknown how disruptive layoffs and losses of key personnel will be to existing customers.

The acquisition of EMC does make Dell a large player in the storage market. However, customers have many compelling choices from other vendors, as well as the option of moving to cloud based services. There is strong concern from EMC-only customers who have a negative impression of this deal or are concerned about the consequences of a failed deal.

## Dell/EMC—Scorecard Analysis

Business Criteria/ Score	Comments
Predictability and investment protection  2	Dell offers IT platforms suitable for traditional environments and with the addition of EMC provides a broad storage offering. While EMC offers storage solutions that scale well, Dell in-house server products only scale to 4 sockets. As there is no single management tool that will manage Dell and EMC's combined portfolio, management could become complex. Dell has a variety of cloud solutions, giving its customers the ability to build, use, and manage private and hybrid cloud solutions. Dell and EMC offer converged and hyper-converged solutions; however because they rely on relationships that haven't proven secure we recommend caution when investing in these solutions.
Industry position  4	Dell has been a market leader in servers but only up to a certain point. While it is #2 behind HPE in revenue their growth has been slower than that of HPE, Lenovo and Cisco. While Dell's storage sales have recently trended flat to slightly declining, EMC remains the #1 storage vendor as worldwide sales have declined. The only storage vendor to recently gain in market share is HPE. While not a leader in networking Dell has recently released Dell Networking Operating System 10 (OS10), which runs on an unmodified Linux kernel. Dell believes that this new SDN offering will give customers an additional strong alternative to Cisco.
Future-readiness in support of customers needs  3	Dell has the ability to deploy traditional and cloud solutions with alliances with Microsoft, Red Hat and VMware. Their converged and hyper-converged solutions rely on several relationships; it is not known at this time what those relationships will like after the merger.  Dell OS10 is their first step toward the software-defined data center. Dell feels that by using an unmodified Linux kernel, keeping it closer to the server version will make management similar to any other server. HPE's OpenSwitch and most other open NOS's have a modified Linux kernel. While it's not expected to be broadly adopted in the near future, it is expected to appeal to the DevOps community who seek consistent OS environments across server, storage and networking.
Risk  3	While Dell and EMC have successfully delivered solutions to mid-size and enterprise customers there are some concerns as the companies merge. Their corporate cultures are quite different with Dell being a "cost cutter" and EMC having more of a big spending, big risk taking culture. The amount of debt that Dell will be taking on is also a concern. It is not known what will happen if any of the financing falls through and until the overlap in the product portfolios are reconciled, customers will not know if the product they are buying today will be supported in the future.

Technology Criteria/ Score	Comments
Breadth and strength of the portfolio  4	Dell and EMC combined have a very broad portfolio of market leading products. They have a strong offering in private and hybrid clouds, as well as converged and hyper-converged solutions that currently rely on outside relationships. Customers are quickly moving to all flash arrays; EMC's XtremIO arrays have been well received and scale well. While robust, their management tools lack the single pane of glass view, making management more complex.
Alliances and partnerships  3	<p>Dell has perhaps too many overlapping alliances, which include Citrix, Oracle, Red Hat, VMware and Microsoft, who put up \$2B in support of the original buyout. Dell currently relies on partnerships and alliances to deliver several key solutions. EMC has a relationship with Lenovo to sell its hardware; Lenovo is also a key contributor to the VSPEX converged reference architecture.</p> <p>Dell has an OEM agreement to deliver the Nutanix hyper-converged solution. EMC joined Cisco and VMware to create VCE, which sells converged infrastructure solutions in pre-configured blocks. Cisco scaled back their investments in VCE when it became a EMC Federation company. All of these relationships are essential for delivering converged and hyper-converged solutions that customers need yet it is not clear whether the relationships will survive a merger.</p>
Integrated and converged IT  3	Dell's converged and hyper-converged solutions currently rely on partnerships. It is not known what strategic direction the combined company will take with these solutions. For converged and hyper-converged systems Dell and EMC rely on partnerships to deliver a complete solution. Dell does not have a composable infrastructure solution, as it believes the solution is impractical, expensive and not what its customers are looking for.
Roadmap  2	Dell's roadmap has many unknowns. This should be a red flag to customer with large server investments. While it does have an end-to-end product portfolio the combination of Dell and EMC also creates overlaps in their portfolios that need to be reconciled. Dell has also stated that it will sell "non-core" businesses but we don't know what these businesses are or how that might affect their existing customers. Additionally Dell relies on partnerships and alliances to provide converged and hyper-converged solutions. It is unknown whether these relationships will survive the merger of Dell and EMC.

**Dell/EMC Total Score = 24**

## Conclusion

We recommend that Dell and EMC customers evaluate their needs, and HPE's offerings, before committing to new investments with Dell/EMC. HPE has recognized and invested in major trends in IT, and understands the importance of speed, agility and flexibility. HPE offers compelling hybrid infrastructure solutions that are solid environments for customer's applications whether they are deployed in traditional, mobile or cloud environments. These secure solutions support both the connectivity needed in the today's increasing mobile, interconnected world and the powerful analytics to support real-time decisions.

Several points in HPE's favor:

- Lowest risk: HPE is a safe choice for IT with a proven track record of delivering innovative, future ready solutions and services. The Dell merger with EMC leaves many unanswered questions including how their overlapping portfolios will be reconciled, what "non-core" business will be sold to reduce debt and how current relationships will survive the merger.
- Converged IT: HPE has invested heavily in converged, hyper-converged and composable infrastructure and offers a variety of solutions. Dell and EMC do offer converged and hyper-converged solutions but there is some overlap and the solutions rely on partnerships that may not survive the merger.
- Investment protection: HPE offers stable products that customers can deploy in traditional environments and utilize when transitioning to highly virtualized and cloud environments. With the merger of Dell and EMC it is not known which products will move forward, be eliminated or sold.

## Roadmap and Investment Evaluation

The following chart summarizes how HPE and Dell/EMC address customer's business requirements and the relevant supporting technologies. It includes their current market position and whether the supporting technologies are currently available.

Business / Technology Requirements	Supporting Technology	Vendor	Market position	Availability
Faster application cycles with increased focus on analysis	Big DATA, DevOps,	HPE	Leader—Enterprise	Ready now—all
		Dell/EMC	Leader—SMB and Enterprise growing	SMB ready with Enterprise growth
Vastly extended and more open storage	FLASH, Drives, Virtual	HPE	Player—gaining	Ready now—all
		Dell/EMC	Leader—largest storage vendor	Ready now—all
Infrastructure and application mgmt.	Cloud, VMware, Tools	HPE	Player—Ready Now	Hyper-converged
		Dell/EMC	Partner—realignment	App server/drive
Always on services	Service, Support, IoT, Disaster Recovery, Business Continuity	HPE	Leader—Enterprise	Strong—Ent/SMB
		Dell/EMC	Leader—SMB and Enterprise growing	Strong—Ent/SMB Storage
User, network and data security	Data Protection services, Fabric, Stability, Risk, private Cloud	HPE	Leader—gaining	Strong—Ent/SMB  Strong—SMB/Enterprise growth
		Dell/EMC	Leader—SMB and gaining in Enterprise	
Elastic, pay as you grow infrastructure	Platform Consolidation, Server Virtualization, Analytics, OLTP, Cloud, VDI, XaaS, Data Driven, Digital Enterprise, Mobile	HPE	Leader—all available	Ready now—all
		Dell/EMC	Player—SMB strong, Enterprise growing - future roadmap(s) coming very soon	Ready now—with product overlap currently being adjusted / aligned

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