Magic Quadrant for Integrated Systems

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Summary

Hyperconvergence is disrupting the integrated system market, with major system vendors joining the growing number of startups (some of which are now mature). I&O leaders should still recognize a role for solutions based on SANs and either blades or rack servers, depending on workload requirements.

Strategic Planning Assumptions

By 2019, approximately 30% of the global storage array capacity installed in enterprise data centers will be deployed on software-defined storage (SDS) or hyperconverged integrated system (HCIS) architectures based on x86 hardware systems, up from less than 5% today.

Twenty percent of mission-critical applications currently deployed on three-tier IT infrastructure will transition to HCISs by 2020.

Market Definition/Description

This document was revised on 9 November 2016. The document you are viewing is the corrected version. For more information, see the Corrections page on gartner.com.

Gartner's view of the integrated system market is focused on transformational technologies or approaches delivering on the future needs of end users. It is not focused purely on the market as it is today. Integrated systems are combinations of server, storage and network infrastructure, sold with management software that facilitates the provisioning and management of the combined unit. As organizations seek to modernize and consolidate legacy data center infrastructure, the appeal of integrated systems is high, as these technologies are able to coexist with existing systems and integrate increasingly with the use of external cloud services. Software vendor support is rarely an issue with most integrated systems that are aimed at generic situations, and the dividing line between the role of integrated systems and that of traditional three-tier server, storage and networking infrastructure becomes more blurred with each year.

The market for integrated systems can be subdivided into broad categories, some of which overlap. Gartner categorizes these classes of integrated systems (among others) as:

- Integrated stack systems (ISSs) — Server, storage and network hardware integrated with application software to provide appliance or appliance-like functionality. Examples include Oracle Exadata Database Machine and Teradata.

Hyperconverged integrated systems (HCISs) — Tightly coupled compute, network and storage hardware that dispenses with the need for a regular storage area network (SAN). Storage management functions, plus optional capabilities like backup, recovery, replication, deduplication and compression, are delivered via the management software layer and/or hardware, together with compute provisioning. Examples include Nutanix, Scale Computing, Cisco (HyperFlex) and SimpliVity.

Integrated infrastructure systems (IISs) — Server, storage and network hardware integrated to provide shared compute infrastructure. Examples include EMC Vblock Systems and Hewlett Packard Enterprise (HPE) ConvergedSystem 700.

Integrated reference architectures (IRAs) — Products in which a specification for a logical set of hardware and/or software components for an integrated system are certified by two or more vendors (ideally with a common source of service and support). Examples of all listed integrated system types can be deployed as reference architectures.

Hyperconvergence vendors may engage with one or more system vendors to create a solution based on their software stack as either an additional type of IRA or an OEM agreement. Examples include SimpliVity working with Cisco, or Atlantis Computing partnering with Dell, Supermicro, Cisco, HPE and Lenovo. Some hyperconvergence vendors only deliver reference architecture solutions through their software value-add (a "bring your own hardware" approach to complement their software solutions). Examples include Stratoscale and HTBase. We exclude such approaches from this research if the vendor has no other integrated system market presence. In terms of market penetration, the HCIS market is very skewed, with over 70% of revenue accounted for by just Nutanix and SimpliVity. Early enterprise preference showed markedly for appliance solutions around HCISs, but new opportunities for software-only approaches are opening up as the market expands to address other use cases.

Some forms of IRA allow vendors to group separate server, storage and network elements from a menu of eligible options to create an integrated system experience. Such reference architectures may be based on a loose partnership between software and one or more hardware vendors, or between multiple hardware vendors. Support and escalation may also be divided across multiple vendors. Reference architectures that only support a variety of hardware and software components are more variable by their nature, and are, therefore, more difficult to assess versus packaged integrated systems. Deploying these reference architectures without a single point of support may also result in a variable support experience that makes it difficult to assess them versus packaged integrated systems. We have, therefore, chosen not to evaluate them in this research. However, where eligible vendors also engage in IRA prescriptive blueprint initiatives, we do assess this as part of our overall evaluation of the vendor.

Added market complexity is created because integrated systems of different categories are frequently evaluated against each other in deal situations. For example, because IIS solutions are generic multipurpose systems that can run a variety of workloads, it is common for one IIS to be compared with another. However, users that want to deploy a specific workload — such as an Oracle Database Management System (DBMS) workload — might compare an Oracle Exadata Database Machine (which has the workload embedded) with a generic IIS system that is also capable of running the workload, or with an IIS platform that has an applicable reference architecture. However,

it would be rare to see one ISS competing with another ISS, because the choice of stacks and workload takes priority over the choice of platform. So if Oracle DBMS serving is the required workload, the only viable ISS solution is likely to be an Oracle Engineered System. However, our client inquiries indicate that IIS solutions are increasingly challenging IIS competition, especially where concerns about technology lock-in are high.

It is also increasingly common for HCIS solutions to be evaluated as a form of IIS solution, especially in "greenfield" situations where no integrated system has been bought before. Hyperconvergence vendors will challenge the need for and expense of SAN technology and enterprise blade servers.

This Magic Quadrant continues to assess different classes of integrated systems versus each other as organizations tend to follow the same evaluation process, and will compare alternative forms of integrated systems for certain workloads. Hardware (server, network and storage), operating systems and virtualization software are evaluated alongside any associated management tools and high-availability (HA) solutions. It considers hardware depth and scale, software stack management breadth and depth, and support of the infrastructure, as well as flexibility in the use of reference architectures. This research is not intended to judge embedded software stacks, application or platform components individually, such as middleware, DBMS software and cluster software in the application or DBMS tiers.

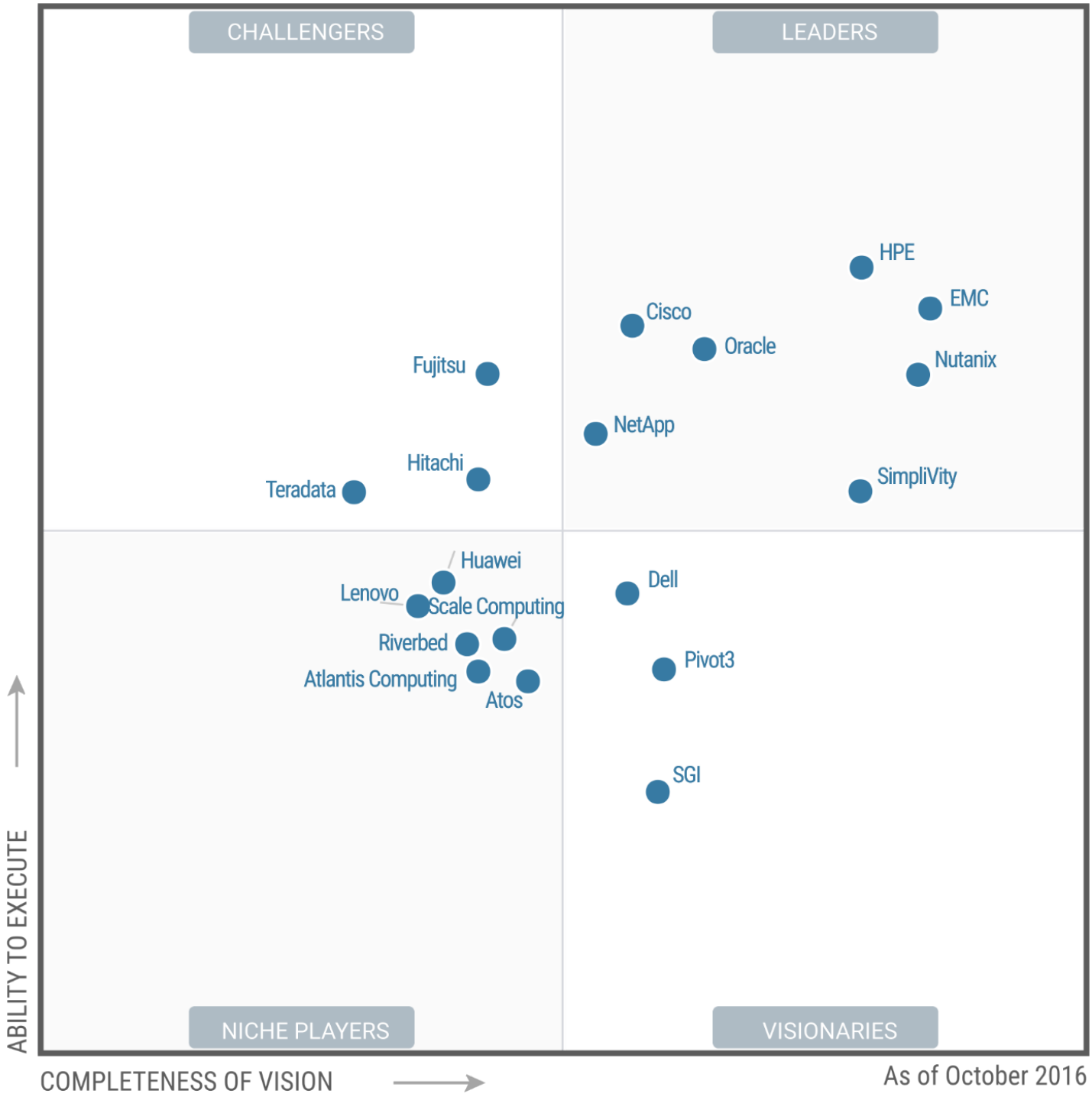
Most IIS and ISS solutions are based on blade server technology, with closely coupled SAN and network-attached storage (NAS), which enable boot-from-disk capability for all physical and virtual nodes; thus, the system becomes stateless. However, blades are not a prerequisite, and some vendors will promote rack-based solutions as well. As the blade server market morphs toward composable and other packaging approaches, this will drive evolution in the market for IIS solutions as well. Hyperconverged solutions are usually based on rack-optimized nodes that can be extended through the life of the system. The majority of IIS and ISS solutions are really effective packaging of server, storage and networking components that are sold as separate products in their own right, while HCIS solutions are purpose-designed and built to form a prepackaged integrated system. We are also seeing the emergence of new-generation, chassis-based "fabric-based computers" that merge the three compute, storage and network elements more seamlessly.

Like blade-based infrastructure, integrated systems deliver value that is more facilities- and operationally based; generic systems will rarely run applications any faster or more reliably than conventional infrastructure. They augment and complement traditional data center infrastructure, but will not always be the best solution for new-generation workloads and modernization projects. But technology and adoption trends will gradually blur the lines of distinction, resulting in a future market opportunity for integrated systems that will be as fertile at the network edge as it is in the data center today.

Magic Quadrant positions are calculated using the weighted evaluation criteria listed later in this research Every criterion is separately scored for each vendor. Even when vendor scores increase year over year, visible improvement in chart position is dependent on how well that vendor's scores improve in relation to the improvements being achieved by other vendors.

Magic Quadrant

Figure 1. Magic Quadrant for Integrated Systems



Source: Gartner (October 2016)

Vendor Strengths and Cautions

Atlantis Computing

Atlantis Computing, making its debut in this Magic Quadrant this year, is a venture-capitalist-backed startup marketing a software-based HCIS solution. The vendor was not eligible for inclusion in this research last year because of its lack of a hardware solution. That changed with the launch of HyperScale, an all-flash HCIS appliance, in May 2015. It was created by bundling USX software with

hardware from five major partners (HPE, Lenovo, Dell, Cisco and Supermicro). HyperScale provides intelligent volume-to-volume rapid migration of files and virtual machines (VMs) through a unique, patent-pending, capability called Teleport. Atlantis cultivated its customer base with its virtual desktop infrastructure (VDI) solutions first, and has expanded into other workloads, including ERP, Microsoft Exchange and/or remote office/branch office (ROBO), but plans to keep its focus on the virtual workspace.

The Atlantis value proposition for ROBO success is driven by two imperatives — price and clear communication of its message. Atlantis is determined to undercut most other HCIS vendors, with the ability to implement viable starter configurations at a sub-$35,000 mark. The vendor has invested in web-based tools that provide quantifiable value propositions for prospects, including percentage savings versus alternatives, summarized offerings and details about partnerships.

Atlantis USX SDS technology began shipping in February 2014 and provides data protection via two-way replication, protection against solid-state drive (SSD) or node failure via HA, and metadata-based snapshots. Atlantis HyperDup content-aware data services, an in-line deduplication technology, provides compression and input/output (I/O) acceleration using system memory.

STRENGTHS

- Atlantis HyperScale provides all-flash advantages at a similar cost to disk-based HCIS appliances (i.e., under $200 per desktop), with the ability to manage multiple data centers in a single management domain and no limit to the number of server nodes.
- Atlantis USX SDS technology allows users to build flexible hybrid storage volumes to storage media and RAM.
- Atlantis' data reduction technology, a patented in-line deduplication technology (in-memory in-line deduplication) with granular 4K block size, offers an innovative way to provision storage.

CAUTIONS

- Atlantis is a privately held company that lacks the financial transparency and perceived stability that many larger enterprises demand of their vendors.
- The vendor is missing channel and support capability in some countries, preventing it from offering true global solutions.
- Atlantis brand recognition is relatively weak in enterprise accounts.

Atos

While Atos is a well-known and proven data center vendor with global reach, it is new to this Magic Quadrant. Its acquisition of the French computer vendor Bull in 2014 provided Atos with a range of highly differentiated server platforms that include the bullion modular server platform, a high-end x86 server platform with a variety of use cases. Bull is particularly well-proven as a high-performance computing (HPC) vendor, and the new collaboration with Atos could potentially enable higher performance and scalable integrated system solutions if the synergies with HPC are well-leveraged. Bullion's place in this research is based on its current promotion as an SAP Hana appliance. Bullion for SAP Hana can be deployed from two to 16 sockets, supporting the latest Intel Broadwell processors and up to 12TB in DBMS size. The platform ships from the factory with

integrated EMC VNX 5400 storage and the required operating system, and SAP Hana software. The bullion technology includes a number of features developed by Atos, which draw on the vendor's experience in supercomputing and hardware resilience for mainframes and Unix-based systems. Features include hardware partitioning, hot-swap memory and predictive failure tools.

Atos was a recent starter in the Hana appliance market, but the vendor has a long reputation for working with SAP and other top independent software vendors (ISVs). Atos has already achieved a number of strong Hana references, across a number of geographies. With a strong presence in the French market, and limited budget and awareness, Bull was always constrained to achieve broad international success. Atos will need to accelerate channel recruitment and leverage its own SAP installed base presence to increase the footprint of its Hana appliance in a market that is being targeted by multiple data center vendors.

STRENGTHS

Atos is a well-known and trusted global service provider with a large installed base of SAP users that can be mined for new business opportunities.

The bullion platform is well-proven, and supports a broad set of scaling and resilience capabilities that are well-suited to the needs of Hana users.

The vendor has already cultivated a small, but impressive, set of household-name Hana customers, which positions Atos strongly in terms of performance and functionality.

CAUTIONS

Atos has no public image as a data center hardware vendor, and the Bull technology is little known outside its core vertical and geographic markets. The vendor needs to invest in brand awareness to create credibility in a congested market.

International presence in terms of channel partners and reference customers is patchy, and the vendor needs to broaden the distribution of business to prove itself as a global player.

Atos has limited opportunity to expand the business for bullion until market demand grows beyond SAP Hana for alternative in-memory workloads.

Cisco

Cisco has steadily expanded its portfolio of integrated systems, with a main driving force toward storage partner integration. The focus is on validated designs and consistency across converged infrastructures (CIs); however, that strategy will now make room for new developments in hyperconvergence. Cisco had a leading execution position in last year's Magic Quadrant with various validated storage stacks, such as Hitachi (Unified Compute Platform [UCP] Select), IBM (VersaStack), Nimble (SmartStack), NetApp (FlexPod), PureStorage (FlashStack) and Red Hat (OpenStack). It has also expanded platforms to the edge and distributed sites, including ROBO with the Unified Computing System (UCS) Mini.

The emerging force of hyperconvergence is thrusting Cisco into modifying its product and marketing approach to integrated systems. With HCIS becoming a force in the data center, Cisco now collaborates with Springpath for its HyperFlex solution, and with SimpliVity, StorMagic and Maxta for other hyperconverged integrated solutions — all aimed at broadening Cisco's market reach. Cisco

has turned internally to develop a fully engineered HCIS solution for HyperFlex. The solution is still early in adoption, but is gaining momentum with 500 customers since its announcement in April 2016. Cisco's main challenge is to integrate UCS automation and maintain UCS momentum, as the pending Dell-EMC merger potentially drives EMC's VCE business unit toward increased usage of Dell as an alternative platform.

Development priorities are anticipated to be tighter integration across the portfolio and hybrid cloud integration, with more attention given to policy-based composable infrastructure.

STRENGTHS

Cisco has a strong Vblock and FlexPod data center presence from which to expand share into distributed and replicated site solutions.

The vendor is leveraging multiple HCIS partnerships, such as SimpliVity, Maxta, Atlantis Computing, Pivot3 and StorMagic, on top of its established blade installed base, to set lower price points and gain higher-volume sales for edge and remote site deployments.

UCS Manager and Director form the foundation for advanced orchestration as an important and desired evolution of many users toward simplifying infrastructure, agility and business outcomes across multiple tiers of IT infrastructure.

CAUTIONS

Cisco must deliver a unified and extended orchestration strategy across a wide variety of validated architectures.

Cisco's HCIS strategy is still evolving with HyperFlex and must educate the channel to avoid confusion and conflict, in contrast to the previous marketing message around UCS/VCE/storage.

Cisco's storage-based CI/HCIS strategy faces competitive disruption as EMC subsumes VCE, and is driven by Dell technologies into a conglomeration with unified block/rack/rail and software-defined data center (SDDC)/cloud ambitions.

Dell

With Dell's grouping of multiple integrated system variants under the Engineered Systems banner, a new go to market (GTM) program, and the targeting of ubiquitous workloads like SAP Hana and Hadoop, the vendor's strategy has crystallized, and marketing and positioning have improved. While Dell's range of offerings is proof that a large portfolio of products is no guarantee of instant market success, the vendor continues to invest and is making good progress after stumbling with its early integrated system strategy. Today, market penetration is improving, although still varied by geography, where North America proportionally outweighs penetration in EMEA and other regions.

Central to Dell's vision for integrated systems is its Active System Manager, which has benefited from the publication of an API and accompanying software development kit that enables customers to further compose infrastructure and add applications to an engineered system. More focused examples in the portfolio include PowerEdge VRTX, which was an early example (it launched in 2013) of a tailored, small integrated system for small or midsize businesses (SMBs) and ROBOs. Dell also offers multiple reference architectures that address hybrid cloud. However, the vendor's greatest success with integrated systems has been derived from its OEM relationship with Nutanix,

branded as the Dell XC Series, which has benefited both vendors greatly. By aligning itself with the clear HCIS market leader, Dell has been able to avoid the uncertainty over HCIS market commitment that most other major vendors have struggled to overcome. Meanwhile, the market reach for Nutanix-based solutions has also increased — particularly with more conservative buyers or geographically remote companies that can leverage Dell's global presence. Dell's partnership with Microsoft has also broken new ground. The Microsoft Cloud Platform System (CPS) Powered by Dell provides the means to deliver on-premises Azure stack support that coexists with the usage of public cloud workload consumption; it has been joined by a partner platform for Microsoft analytics. However, Nutanix and Microsoft now have parallel alliances with Lenovo and HPE, respectively; thus, Dell must work to demonstrate that the Nutanix and Microsoft alliances remain strategic and long-lasting.

While recently solidifying its partnership with Nutanix with a new multiyear OEM renewal, proving the viability of the Nutanix alliance will be complicated by the Dell-EMC merger, as Nutanix directly competes with EMC's VxRail and numerous elements of the VMware integrated system strategy. Every Dell integrated system will have to prove its viability versus, or alongside of, the EMC integrated system portfolio, and we believe it is inevitable that some product rationalization and consolidation will be required during the coming year. Meanwhile, Dell's competitors will seek to exploit any uncertainty caused by client confusion.

STRENGTHS

Dell has a broad portfolio of integrated systems and reference architectures that address most market requirements.

The vendor has forged strong partnerships with Nutanix and Microsoft that benefit both sides; the Nutanix OEM relationship, in particular, has resulted in substantial business for Dell, and has helped to position Dell as a market contender.

Dell brings leading compute technologies to the new Dell-EMC-VMware triumvirate that EMC always lacked and had to address via alliances. Once the new combined strategy and portfolio are defined and roadmaps are published, Dell-EMC will be well-positioned to maintain the market presence in key integrated system areas already achieved by EMC.

CAUTIONS

While significant progress has been made, most enterprises still lack clarity about Dell's overall integrated system messaging and commitment.

Most Dell integrated system offerings have patchy market awareness and a limited installed base (especially when compared with some of the EMC-VMware strategies coming in-house). Market uncertainty will build quickly unless the vendor moves rapidly to clarify areas of portfolio overlap.

Once-exclusive partners like Nutanix and Microsoft are hedging their bets by broadening their hardware vendor alliance strategies. Dell must prove that these alliances remain strategic in order to keep winning the hardware selection battle.

EMC

During the past year, EMC has taken full control of the VCE joint venture, renaming it the Converged Platforms Division (CPD). CPD has retained responsibility for the VCE product portfolio, which chiefly comprises Vblock (and VxBlock), VxRack and now VxRail. Vblock is generally regarded as the benchmark for blade-/SAN-based IIS solutions; the technology is well-proven across multiple vertical industries, use cases and geographies — a status it has achieved since its launch in 2009. Vblock branding has always been based on technology from EMC, Cisco and VMware (although EMC will support other hypervisors or even bare metal, if demanded). Vblock systems deploy only Cisco's Application Centric Infrastructure (ACI) technology where network automation is required; VxBlock systems are technically identical, but can support ACI or VMware NSX. Earlier this year, EMC extended the joint support/engineering agreement with Cisco and reiterated its public commitment to continue using Cisco UCS and Nexus technology.

EMC launched VxRail in February 2016. These are hyperconverged systems, based on Quanta Computer compute nodes and VMware vSphere and VSAN software, with additional management software from EMC. VxRail is a natural successor to VMware's ill-fated Evo:Rail strategy, launched in late 2014. We expect that EMC will adopt Dell compute nodes in the near future, and the vendor has made the commitment that mixed configurations of Dell and Quanta nodes would be supported. Finally, VxRack is positioned by EMC as an intermediate platform that is architecturally similar to an HCIS (there are no SANs or blades), but able to achieve much greater scaling than a traditional HCIS can deliver.

EMC claims that it can address most CI requirements with its compact portfolio of products. The vendor supports numerous reference architecture options as well, and topical workloads like SAP Hana are also addressed. EMC is poised to continue its success if the obvious and significant product overlaps with Dell's even larger integrated system portfolio can be speedily resolved and new roadmaps articulated as quickly as possible after the Dell-EMC merger completes.

STRENGTHS

EMC's integrated system portfolio is compact, but comprehensive enough to address the great majority of workload requirements.

The vendor articulates its product position clearly and consistently, and this has contributed greatly to EMC's success in this market.

With a long-proven business model of strong factory-led testing, certification and integration, the Vblock technology is generally regarded by end users and competitors as the industry benchmark for blade-/SAN-based solutions.

CAUTIONS

EMC faces a period of inevitable uncertainty as the new Dell-EMC-VMware combination brings multiple overlapping and competing integrated system strategies under one roof.

Despite leveraging VMware technology extensively throughout its portfolio, the positioning of EMC's portfolio versus the independent (and increasingly aggressive) marketing of VMware VSAN creates market confusion.

After the acquisition of EMC by Dell is complete, the new organization must demonstrate the will to work with hardware vendors like Cisco and Quanta if it expects to retain existing customers of products from those alliances, and not lose them because of fears related to future maintenance and upgrade strategies.

Fujitsu

Fujitsu was a pioneer in the market for infrastructure convergence long before the market was really identified; FlexFrame was launched at CeBIT in 2003 by the then Fujitsu-Siemens as a fully integrated system for SAP and Oracle workloads, and the direct descendants of that technology live on today in parts of the Primeflex portfolio. As the integrated system market has gained form and valid use cases have multiplied, Fujitsu's portfolio has grown steadily, with a particular emphasis on strong end-to-end services designed to add client value throughout all life cycle phases.

In late 2014, Fujitsu launched a common integrated system brand called Primeflex to create a cleaner and more consistent umbrella term for its portfolio. Today, the vendor actively markets a number of configurations, many of which are optimized for specific workloads or markets. Primeflex includes both ready-to-run and reference architecture versions, which can be delivered preinstalled. Regional variations in installed base penetration also enable Fujitsu to focus some aspects of the portfolio exclusively (or predominantly) on single markets. So, for example, Primeflex for Oracle Database is deployed only in Japan, while Primeflex vShape (a simplified solution for rapidly deploying virtual environments) is predominantly deployed by EMEA clients.

Given the FlexFrame heritage, it is no surprise that SAP environments make up the lion's share of implementations today. Primeflex for SAP Landscapes can deploy and manage a complete SAP environment of varying configuration sizes, including SAP Hana. Gartner believes that Fujitsu technology ranks as the third most widely deployed Hana infrastructure. Fujitsu has over 1,300 customers deploying Hana-based solutions.

Beyond SAP, Fujitsu sells Primeflex variants targeting cloud and OpenStack infrastructure, Hadoop, VDI, HPC, VMware VSAN and others. Many are sold with a focus on self-service capabilities for non-IT business users. Fujitsu's technology and broad market expertise make the vendor a viable choice where variations in regional presence (for example, low North American market share) are not an inhibitor. A new Solution Development Center has now been opened in the U.S., to spearhead a concerted push toward solution selling into the enterprise, particularly for North American accounts.

STRENGTHS

Simplified and consistent branding is now enabling Fujitsu to create better market awareness and expectations for its broad portfolio of solutions.

Fujitsu has cultivated deep working relationships with ISVs like SAP, VMware, Microsoft and Oracle, with a particularly strong track record in systems optimized for Hana and other SAP workloads.

With strong compute and storage expertise (and broad network switch support), Fujitsu is able to offer holistic solutions, both directly and through partners, that benefit from strong end-to-end services.

CAUTIONS

Installed base penetration of most integrated system options is usually skewed toward EMEA (and sometimes Japanese) clients, limiting the scope of the portfolio for clients that want to deploy on a global basis.

The vendor's North American presence remains limited; some variants have no North American users at all. Affected users should always validate that a system is a viable option before shortlisting Fujitsu.

While Fujitsu is a significant vendor of broad data center solutions in its domestic Japanese market, the domestic sales of integrated systems have been limited due to the strong local focus on services and complex integration projects.

Hitachi

Hitachi UCP integrated system solutions haves made steady progress, supported by the U.S.-based Hitachi Data Systems (HDS), Hitachi's primary IT subsidiary. HDS has been leading UCP's product and marketing efforts, and successfully expanding its volume and geographical coverage.

Since 2015, Hitachi has successfully broadened its UCP portfolio, including an entry-level (rack-based) system, HCIS (UCP HC and Hyper Scale-Out Platform [HSP]) and all-flash integrated systems. UCP's use cases have expanded from typical workloads, such as virtualization/data center modernization, in-memory SAP Hana and business intelligence, to emerging workloads, including Internet of Things (IoT), DevOps and data analytics. Hitachi's products use Hitachi servers and storage systems but also support Cisco and Quanta servers. For example, UCP Select is a reference architecture based on Cisco's own UCS server platform. Its networking partners are Brocade and Cisco, depending on the product. Its HCIS lineups are relatively new, as UCP HC (for midsize businesses and ROBOs) started shipping in 2H16, and HSP, targeting Hadoop, Pentaho, Spark and analytics workloads, has been available since October 2015. UCP Director, its management tool, integrates VMware and Microsoft, and allows users to automate controlling its infrastructures. The vendor introduced Hitachi Enterprise Cloud, a VMware-based cloud services package, in 2016.

STRENGTHS

Hitachi's financial strength, long-term vision, worldwide presence, strong engineering capabilities and technology innovation, and high-quality customer support are growing its integrated system revenue.

UCP has extensive partnerships with key ISVs, including VMware, Microsoft, SAP and Oracle.

The vendor's broad portfolio, addressing a wide variety of workloads, also embraces an emerging business model of service-based pricing.

CAUTIONS

Hitachi is a relative late comer to the fast-growing market for HCISs, at a time when the market is already crowded and historically weaker in marketing than engineering. It needs to work harder to find unique solutions that only it can provide (HSP is relatively new and has not supplied substantial revenue yet).

Although its integrated systems are sold worldwide, its sales are mainly in North America and EMEA.

Hitachi's Japanese parent company and HDS have different levels of focus, although HDS drives global sales and marketing responsibility in integrated systems.

HPE

Hewlett Packard Enterprise offers multiple converged, hyperconverged, reference architectures and point systems of various design points. But as the volume market leader in many segments (including blade and rack servers), it is only logical that HPE should be a leading vendor in this market. One of HPE's stated goals is to radically simplify and speed deployment (thus, the introduction of the Hyper Converged 380 [HC 380]). A second part of the strategy is to reinvigorate, unify and recast its earlier line of Converged Systems (CS 500, 700 and 900). A third design point is to market workload-optimized solutions with various integrated form factors and different configurations (Moonshot, Apollo, CS 500 and 900 for SAP Hana, NonStop, and Superdome X). Into this mix, HPE introduced another design center called Synergy. But unlike the other designs, Synergy appears to have been positioned as both infrastructure and an "uber" brand for the entire HPE evolution of its next-generation converged and integrated system portfolio. HPE is laying a common foundation based on the concept of composable infrastructure.

While positioned to deliver fluid resources dynamically (such as to Mode 2 agile and development environments), Synergy will also stand for the overlay and ecosystem encompassing hybrid cloud and the principles that envelop all HPE integrated systems moving forward. Foundational principles of Synergy-related systems will be the unified management of OneView, cloud orchestration under HPE Helion and third-party-enabled ecosystems. HPE is on the challenging journey of creating an upgrade path for most systems to a composable infrastructure.

HPE is engaged in creating bridges to its other converged systems via OneView as the central orchestrator. Closest among the systems with agility in mind is the newest hyperconverged system, HC 380. HPE is grooming the system for its simplicity (easy upgrades and life cycle management), economics (rental or purchase) and hybrid cloud building blocks.

HPE announced the acquisition of SGI in August 2016. The deal should close during HPE's first fiscal quarter (November 2016 to January 2017). This will create potential overlap between the SGI products being assessed in this research and those of HPE, although, for the most part, the portfolios are complementary. Gartner will publish research later in 2016 to guide users on the likely outcomes of the deal.

STRENGTHS

HPE has broadened its portfolio of integrated systems and reference architectures, and has broadened and strengthened its channel and partner relationships to target nearly all use cases and workloads.

Unlike many vendors, HPE can offer convergence to cloud (on-premises and public) with single contract support and accountability, factory integration, and pay-per-use options.

HPE has strong GTM potential with the new Synergy line that is opening up land-and-expand opportunities in both established accounts and new and exploratory leading-edge adopters.

CAUTIONS

While launching a major new initiative in composable infrastructure, HPE faces technical and marketing challenges to bridge an ever more complex portfolio.

The OneView ecosystem, although based on RESTful interfaces and industry standards wherever feasible, creates the impression of a highly proprietary technology in an era in which users are increasingly reluctant about lock-in and non-open-source solutions.

HPE is a relative late starter in HCIS and is frequently absent from competitive hyperconvergence evaluations versus more established vendors.

Huawei

Huawei has made significant progress since the previous iteration of this Magic Quadrant, published in 2015. Its integrated system business has achieved a 130% CAGR (2013 to 2015) in revenue, supported by many major wins from global customers. Huawei's integrated system product, FusionCube (6000 for 4 nodes and 9000 for 8/16 nodes), targets a variety of workloads, ranging from typical ones (i.e., virtualization platform) to DBMS and mission-critical applications (i.e., SAP Hana). FusionCube is expanding its capabilities, including OpenStack and Hyper-V support, while adding more storage features.

Huawei has developed a comprehensive software suite of homegrown software, including ManageOne (unified management), FusionInsight (big data), FusionStorage (software-defined anything [SDx]), FusionAccess (VDI) and FusionSphere (cloud platform). As a result, Huawei enjoys a revenue stream from its software offerings in addition to its system sales.

Huawei's SAP Hana platform has helped build brand recognition and enable more penetration in the international market outside of China. Its next focus is to evolve FusionCube into a hybrid cloud platform. To enhance its efforts, Huawei is trying to enhance its cloud ecosystems, including ISVs, service providers and carriers, while adding more functions, such as container support. Huawei launched its public cloud infrastructure as a service (IaaS) in China in 2015.

STRENGTHS

Huawei has strong R&D capabilities, proven by its rich portfolio of homegrown software, including ManageOne, FusionInsight and FusionSphere.

FusionCube has good cloud management tools to lead a pathway to the cloud. Early success came from outside of China.

Huawei historically has a strong relationship with telecom companies and service providers from its networking device sales, enabling it to cross-sell its modular servers and other data center technology.

CAUTIONS

Huawei has made good progress on ISV support for FusionCube, but must expand hypervisor and container support, as well as key storage features such as deduplication or data compression, although it is not a trivial task for its scale-out model.

Huawei has increased its global presence, especially in EMEA and Latin America, but still the majority of its integrated system revenue comes from China.

Huawei has not had as much success in the biggest addressable IT market, the U.S., due to geopolitical issues between the U.S. and China that fuel concerns about the influence that a foreign government may or may not have on the vendor's independence.

Lenovo

A great deal of Lenovo's early attention has been on delivering high levels of hardware reliability and ease of system installation and deployment through XClarity. IBM's installed base has given Lenovo promising opportunities to nurture IBM account loyalty, such as the strong base of IBM in SAP Hana installations, now assumed by Lenovo.

A second major initiative was launched in June 2016 and is known as the Converged HX Series. These HCISs are designed to place Lenovo squarely in the market developing around SDDC, cloud, agility and fast business results. The company has launched five new models that cover various market segments, from SMBs with low-cost nodes to high-performance enterprise systems in a rack of clusters. Lenovo will continue to make refinements to its strategy during the lifetime of this document. Configuration validations, training, proofs of concept and collaborative support on the Converged HX Series (and between Nutanix and Lenovo) have been underway since 2015. Lenovo has leverage with worldwide global resellers to capture market opportunities in favorable areas, such as the Asia/Pacific region.

A critical challenge to Lenovo's entry as a major global supplier was its ability to persuade major North American accounts, especially in government and finance, to accept it as their new trusted supplier in place of IBM — especially given the geopolitical concerns regarding Chinese ownership. Using price and performance, it has made gradual inroads, displacing some Dell and HPE legacy infrastructures. HCIS is a new market opportunity, where Lenovo has little experience and track record, which it seeks to build by leveraging relationships with known and successful HCIS vendors, such as Nutanix, Pivot3, Atlantis Computing, StorMagic, SimpliVity and VMware. Lenovo will lean on VMware's vSphere for management and operations, but will need to add its own value in policy-based resource allocation, orchestration and management. Lenovo has the potential to build a significant new image as a holistic integrated system supplier attracting third parties, but the process may take two to three years.

STRENGTHS

The core of Lenovo's converged integrated system strategy includes options in high-performance networking and third-party switches, modular scale and storage reference architectures, and close alignment with Intel's chip roadmap.

A rapidly expanding portfolio of strategic HCIS OEM partnerships, including Nutanix, SimpliVity, Pivot3, EMC's VSPEX and VMware's VSAN-ready nodes, raises Lenovo's hyperconvergence credibility and reach.

From limited server roots, Lenovo has raised its visibility and credibility in the x86 converged system market with competitive alternatives to HPE, Dell, Cisco and VCE.

CAUTIONS

Lenovo will need to establish clear differentiation in marketing and messaging between Flex Systems and the new partnerships with vendors like Nutanix.

XClarity system management must evolve to a higher ecosystem of orchestration, automation, cloud integration, containerized services and hybrid cloud integration.

Lenovo must expand API and hypervisor support to be considered a credible supplier of hybrid cloud solutions, infrastructure policy management and automation, and service catalogs on modular and composable infrastructures.

NetApp

NetApp's FlexPod is a reference architecture that users can purchase as an IIS through Avnet's FSA One Frameworks. FlexPod consists of NetApp's FAS storage platform with Cisco Systems networking gear and UCS, and multiple hypervisor technologies — VMware, Hyper-V, Xen Project and KVM. Since FlexPod began shipping in 2010, NetApp has shipped over 20,000 units to 7,100 FlexPod customers. FlexPod's storage, compute and networking can scale, nondisruptively, in any dimension, enabling configuration-to-order design for initial deployment as well as future scale-out requirements. Its single network fabric design supports any storage protocol natively over a 10G Ethernet fabric, and predominantly has been used for multiapplication virtualized enterprise workloads with integrated support for NetApp and third-party backup options. With 70% of FlexPod revenue coming from the FlexPod Datacenter offering, NetApp also has been shipping FlexPod Express for midmarket and ROBOs, as well as FlexPod Select, designed specifically for custom applications like Oracle and Hadoop.

With most prominent sales in North America and Europe, FlexPod uses a channel sales model leveraging the Cisco-NetApp joint partner ecosystem of over 1,100 partners. To accelerate adoption and improve end-user experience, FlexPod is now available as FSA One Frameworks, which consist of eight prevalidated, presized and fully integrated configurations designed to cover the majority of enterprise use cases.

Over the last 12 months, NetApp has added FlexPod with Infrastructure Automation, which simplifies ordering, delivery and installation, and is delivered to customers in preassembled and cabled packages, with automation provisioning, thus simplifying installation and reducing installation time.

NetApp differentiated FlexPod from other Cisco CI solutions through the development of a life cycle management service offering, with the ability to automatically certify an on-premises installation with the Config Advisor tool. NetApp has been introducing its solid-state offering through the FlexPod with FlashAdvantage promotion, with a 4:1 effective capacity guarantee for better economics and density.

STRENGTHS

FlexPod is based on mature products that have a large installed base, offering existing customers flexibility of sizing, multiple hypervisor support, platform continuity and management familiarity.

The FlexPod reference architecture is now benefiting from NetApp All-Flash FAS arrays that feature high availability, scalability, data reduction, and support for file and block protocols.

The acquisition of SolidFire technology, with enhanced quality of service (QoS) and distributed storage architecture, should enable enhancement of NetApp's integrated system product line over time.

CAUTIONS

FlexPod system revenue remains flat as unit prices are dropping, and the vendor is coming under increasing competitive pressure to diversify and expand its converged integrated (CI) portfolio.

NetApp's new infrastructure automation capability is currently limited to a single design and distributor. For the rest of the product lines and geographies, end users are still purchasing FlexPod solutions as a reference architecture and are facing more complex configuration and installation challenges.

End users need to be aware that the FlexPod solution relies heavily on NetApp's partnership with Cisco and does not have independent control of its CI/hyperconverged integrated offerings.

Nutanix

Founded in 2009, Nutanix has now grown to 1,800 employees, and has been the market and "mind share" leader in the hyperconverged space since 2011. It has captured more than 50% of the HCIS market by revenue, with over 3,200 customers worldwide. In 2016, Nutanix continues to differentiate itself in technology and execution by investing more than $100 million per year in R&D and growing its year-over-year revenue by 82%.

This year, Nutanix has made continuous enhancements with two major releases improving the integrated virtualization features of Acropolis Hypervisor (AHV; based on KVM), which is front and center in the company's future differentiation. Since its launch in July 2015, AHV has been adopted by 15% of the vendor's customers. Nutanix has also announced additional data services to address more data center requirements (Acropolis File Services [AFS], Acropolis Block Services [ABS] and Acropolis Container Services), and has added one-click hypervisor conversion while reinforcing multihypervisor support.

The vendor also introduced Nutanix Prism Pro, an optional add-on software license that extends Prism infrastructure management by adding predictive analytics, capacity planning and optimization advisory with Prism Pro X-Fit technology. Illustrating confidence in Nutanix Acropolis software and its easy, nondisruptive upgrade process, 43% of Acropolis users upgraded to the latest 4.6 release within 100 days of it being generally available. Nutanix's vision and roadmap items are showing further execution on breaking up infrastructure silos and becoming an enterprise cloud platform for all workloads in the data center. Nutanix filed an initial public offering (IPO) in December 2015, which was executed in September 2016.

STRENGTHS

Nutanix's aggressive product development and execution resulted in strong sales growth and larger overall deal sizes across top global enterprise accounts.

The vendor supports multiple hypervisors, including one-click conversion and cross-hypervisor disaster recovery and backup.

Nutanix Prism, a purpose-built management tool, provides users with a "single pane of glass" for robust nondisruptive compute and storage operations.

CAUTIONS

- Nutanix will find it increasingly difficult to maintain a price premium relative to other HCIS vendors as privately owned rivals improve their market credibility and product attractiveness, and as large system vendors address the space.
- By not publishing independent performance benchmarks, Nutanix perpetuates market doubts about the scaling of HCIS solutions, providing an opportunity for some rivals to exploit.
- Many enterprises are reluctant to commit their mission-critical workloads to vendors that have not reached profitability.

Oracle

Oracle pursues a hybrid infrastructure and cloud approach as Oracle's strategy is centered on the needs of the Oracle software community. This creates a finite, but significant, addressable market for the vendor's products; however, it also enables Oracle to create a strong message of differentiation.

The most successful platforms — by a large margin — are those focused primarily on database optimization. With thousands of systems deployed, the latest Exadata X6 generation targets both analytics and online transaction processing (OLTP) workloads, and utilizes InfiniBand, PCIe-based flash and advanced columnar compression to minimize disk space and maximize I/O throughput. Meanwhile, the latest-generation SuperCluster M7, based on SPARC, introduces several differentiated capabilities including software in silicon, which makes it practical to encrypt not just data at rest, but also data in-memory (aka Silicon Secured Memory). Oracle also offers an array of other solutions that optimize Oracle workloads and data center operations. These include Oracle Database Appliance, big data appliances for Cloudera Hadoop, Spark and SQL workloads; Exalogic (which optimizes Java workloads); and an appliance that streamlines backup and recovery of Oracle Databases and other workloads.

A key part of the Oracle Engineered Systems strategy is to have a precise equivalent to on-premises Engineered Systems in the Oracle Cloud. The vendor is convinced that a significant proportion of its user base will elect to run Oracle (and potentially other) workloads under the control of Oracle's public cloud service. Oracle Cloud Machine is designed to provide an on-premises platform that enables a user to create a seamless hybrid cloud entity, where services running in the Oracle Cloud can coexist with corresponding services being provisioned and run locally.

By bifurcating the market with more generic and commoditized x86 solutions, Oracle is also able to concentrate on high-value, high-margin business that allows the vendor to primarily target Oracle software users that have become disillusioned by third-party solutions that deliver suboptimal results. Users with suitable workloads that are willing to trade off hardware vendor neutrality for differentiated performance, licensing and support should evaluate Oracle's solutions alongside more generic alternatives.

STRENGTHS

- Oracle sells a huge portfolio of tailored integrated stack systems that target specific workloads with promises of differentiated cloud delivery model performance, support and licensing.
- The massive global installed base of Oracle software users provides the vendor with a large and captive addressable market for itself, its partners and providers.

Oracle's Engineered Systems appeal both to on-premises and providers' data centers that want to modernize infrastructure, and to lines of business that want to implement a complete hardware/software solution that is capable of being managed by application software administrators.

CAUTIONS

Many application users prefer to maintain a separation between the software and hardware vendors that support their application environment. Oracle needs to overcome these fears in order to succeed.

By targeting the "red stack" community, Oracle has chosen to ignore the market for generic integrated systems, plus other fast-growing vertical solutions like SAP Hana.

The installed base of Oracle Engineered Systems is heavily skewed toward the Exadata and SuperCluster branded solutions. Users choosing to deploy newer or more marginal appliances should insist on valid references, and should evaluate Oracle's competence to deploy and maintain the technology in their geography.

Pivot3

Pivot3 is in the process of shifting its market emphasis from its core competency in video surveillance and HCIS use cases to becoming a broader data center integrated system supplier. Pivot3's vision is to break out of HCIS constrictions toward a more expansive data center and mission-critical opportunities. Instead of individual and specific use cases, Pivot3's new vSTAC SLX, based on technology from its NexGen Storage acquisition, is aimed at delivering strong performance and reliability to data centers at scale on multiple mixed workloads.

Fifty percent of its deployments now expand into broader applications beyond surveillance. Pivot3's wins against leading HCIS vendors are often based on its large-scale performance, cost, ease of use and advanced erasure coding algorithms that have evolved over seven generations to tolerate up to five simultaneous failures, while maintaining acceptable levels of performance during the rebuild process. To penetrate large enterprises with high capacity and performance requirements on legacy systems, Pivot3 has been expanding and rebuilding its organization. It is in the process of reorienting its GTM strategy around OEMs (e.g., Cisco, Dell and Lenovo), value-added resellers (VARs) and integrators (e.g., Ingram Micro, Avnet and Cerner), and has grown its engineering staff (by 100% in the past year). Many of its video surveillance customers (e.g., FedEx, Massachusetts. Bay Transit Authority, the military, etc.) have expanded in additional application directions.

When its full SSD storage tier implementation with NexGen finishes rolling out in 2017, Pivot3 claims it will be able to integrate its HCIS with existing legacy system applications and run as if the external storage features were native to its HCIS direct-attached storage (DAS) architecture, without the complexity of today's SANs. Full policy-based resource allocation and management will be enabled through simple dashboard controls that allow dynamic resource allocation according to the SLA requirements of the mixed workloads in a multitenant environment. Its main challenge will be to get itself into more open competitive evaluations to prove performance and capacity superiority (up to many tens of petabytes).

STRENGTHS

Pivot3's acquisition of NexGen Storage improves its HCIS appeal by integrating PCIe flash storage arrays with its QoS performance monitoring engine for mission-critical workloads.

The vendor has overhauled its business model from a single-driven workload centerpiece (surveillance) into a broad-spectrum application supplier.

Pivot3 has altered its integrated hardware-driven appliance approach to include validated configurations (e.g., Dell, Cisco, Supermicro, Lenovo and others to come).

CAUTIONS

Pivot3's roadmap takes it into new and adjacent territory (e.g., integrated multitiered storage), while repositioning from its earlier narrow focus.

Functional limitations exist in hypervisor support (VMware only), and a lack of integrated data protection policy management (such as recovery time objective and recovery point objective goals, due in 2017).

Pivot3 must expand its marketing, channels and sales to increase global coverage and greater market awareness.

Riverbed

Riverbed, new to this Magic Quadrant, is a well-known and established vendor that has not been associated with the integrated system market; the vendor has enjoyed success deploying WAN optimization software and appliances. The primary target market for Riverbed has always been ROBO and departmental opportunities, in which the objective was to accelerate the delivery of applications and data to best compensate for the latencies created by distance.

Riverbed continued its focus on solving the challenges of "edge IT" with the introduction of SteelFusion. Traditional approaches require organizations to deploy and operate edge IT as disparate and heterogeneous islands of remote infrastructure, or ROBO mini data centers. SteelFusion enables the centralization of remote data and edge IT operations to the data center (or cloud), without as much compromise of application performance at the edge. This leads to improved data security and business continuity, while reducing the time and costs associated with deploying and operating remote IT. Launched in 2012, Riverbed now has over 900 SteelFusion customers with over 7,000 edge appliances deployed. The SteelFusion solution consists of edge-located twin nodes that combine a VMware-based compute node with a management node that handles WAN optimization and data management. Only a minimum subset of the working set of data is maintained at the edge, and it is dynamically retrieved and written back as needed; what makes SteelFusion unique is a secondary device (called the SteelFusion Core) that is located in the main data center. The core enables centralized management of both data and the edge devices themselves, but allows for the performance benefits of local execution. The combination of the two enables the authoritative data to leverage all the management tools associated with the centralized SAN environment. SteelFusion also offers the ability to compress and encrypt all data at rest and in flight.

So, whereas the success of most HCIS strategies are predicated on the ideological arguments between centralized SAN storage and local deployment, the Riverbed strategy seeks to preserve the role of centralized IT, but still achieve most of the local "data center in a box" benefits of an HCIS.

This makes Riverbed a viable HCIS partner for shared storage vendors that would normally regard HCIS vendors as inevitable competitors. The solution will suit organizations that favor strong centralized IT control of edge computing, where retaining the data at the core is regarded as more secure and controllable than enabling localized storage.

STRENGTHS

Riverbed is a well-established vendor with a strong track record in WAN optimization devices and tools that strengthen the integrity of managed storage.

SteelFusion provides a safe HCIS solution for organizations that still want to maintain centralized control over data in edge-based ROBO environments.

With all management concentrated at the core IT location, little or no IT expertise is required for SteelFusion's day-to-day deployment.

CAUTIONS

Despite formally being on the market for four years, there is limited awareness of SteelFusion and the product has not really been marketed as an HCIS solution until recently.

HCIS vendors frequently offer functionality like data compression and deduplication at the source, impacting the business case for WAN optimization that still sits at the heart of the SteelFusion business model as alternates to mainstream data center vendors in the ROBO.

Riverbed's established partnerships with data center storage and compute vendors appear to be more tactical than strategic, as the major vendors increasingly invest in their own competitive HCIS initiatives.

Scale Computing

Scale Computing was founded in 2007 and has been shipping its hyperconverged HC3 product since 2012 — capturing more than 1,500 SMB customers with 5,500 systems deployed. The vendor's primary differentiator versus its competitors in this space is its sole focus on SMBs that lack the expertise and resources to effectively run their IT infrastructure.

With 40% of the revenue invested in R&D, Scale Computing HC3's sole focus was to provide a user-friendly hyperconverged appliance for the specific needs and budgets of the SMB segment or distributed enterprise scenarios. HC3's Hypervisor Embedded Storage product has been replacing entire stacks of servers, switches, storage and VMware hypervisors with an all-inclusive clustered architecture. HC3 remains a popular choice for smaller IT organizations (those with up to five full-time employees) that are looking for an alternative to a VMware-based converged solution.

Over the last 12 months, Scale Computing added support for flash and automated tiering, and introduced more hardware models. Customers have the ability to mix and match the various HC3 product lines to better fit the requirements of their environment within the same cluster. The HC3 product has improved backup and disaster recovery capabilities with ScaleCare Remote Recovery Service, adding real-time VM statistics and introducing single node systems for ROBO or disaster recovery purposes.

STRENGTHS

Scale Computing's price/performance value proposition continues to gain positive traction, particularly in the SMB market.

The vendor offers hypervisor embedded storage technology that has lower overhead for storage operations, which results in better hardware utilization.

Scale Computing's mix-and-match node architecture and all-inclusive software pricing allow for more flexibility and business longevity.

CAUTIONS

Scale Computing will face fierce competition as bigger HCIS vendors are now targeting SMBs through the introduction of lower-cost ROBO products.

The vendor's channel operations will be impacted as partners are now facing many choices for hyperconverged competitive products and partnerships.

The Scale Computing KVM-based hypervisor has limited software ecosystem support.

SGI

Most IT leaders identify the SGI brand with HPC, but the vendor is developing a growing reputation for its product relevance in the broader IT market. During the past year, SGI's UV 300H platform has gained significant awareness in the fast-growing SAP Hana appliance market. SGI recently attained the largest single-node-certified Hana platform with up to 20 sockets and 20TB systems, and certification is pending for systems that will stretch to 32 sockets and 32TB of memory.

SGI has successfully expanded the channel for the UV 300H to include two other vendors that actively endorse and sell the platform as an extension of their own portfolios. First Dell and now Cisco are marketing the UV 300H as a high vertically scaling system for situations where their own Hana appliances — which top out at four (Dell) or eight (Cisco) sockets — cannot deliver enough scaling. And HPE resells the eight-socket variant of the UV 300H, which HPE markets as the Integrity MC990. The platform is also certified as a tailored data center integration (TDI) solution for SAP Hana., although HPE's focus for Hana business understandably favors its own designs where possible. SGI also partners with both EMC and NetApp.

Despite only entering the SAP Hana market in 2014, SGI has already established a viable base of customers that typically have scaling requirements that challenge the capabilities of most Hana appliance vendors; the vendor has cultivated a number of well-known reference customers that span multiple geographies. SGI claims to have over 800TB in total of live Hana projects deployed across more than 100 systems. The UV 300H is available both as a full Hana appliance (with SGI InfiniteStorage 5100 storage), and as a TDI solution with other third-party storage. SGI is also working with numerous service providers to deliver SAP Hana Enterprise Cloud (HEC) solutions. Beyond Hana, SGI is investing in several other initiatives to create new business opportunities. The new SGI UV 300RL is certified for Oracle in-memory support in anticipation of a broader future market for other database workloads. SGI is also targeting other high-performance data analytics applications for its UV 300H server line.

In a new development, HPE has indicated that it intends to acquire SGI; deal closure is expected during HPE's first fiscal quarter (November 2016 to January 2017). We believe that SGI's technology strengths and HPC reputation are a major factor driving HPE's interest, but existing and prospective users should anticipate a period of uncertainty while the acquisition is underway.

STRENGTHS

SGI has successfully expanded beyond its HPC roots to become recognized as a leading vendor of high-end SAP Hana appliances.

The vendor is driving additional business opportunity through its OEM relationship with HPE, and the active promotion of the UV 300H by Cisco and Dell.

SGI is well-poised to capitalize on the rapid market expansion that SAP Hana is achieving, and the potential market for Oracle and other in-memory DBMS solutions that we anticipate will grow.

CAUTIONS

SGI's client base remains numerically small, which makes the vendor dependent on a sales funnel that is prone to spikes and uncertainty.

Because SGI addresses high-value and high-end projects that are often beyond the reach of other vendors, the monetization of projects can take a long time to achieve.

SGI's market opportunity is finite. Other vendors like Atos and Huawei are challenging the unrivalled performance leadership that SGI has enjoyed until now; meanwhile, the majority of Hana demand can usually be met by more modest platforms or scale-out SAP Hana deployments.

SimpliVity

Founded in 2009, SimpliVity has been one of the key players in the HCIS market, reaching 750 employees worldwide and doubling its year-over-year revenue with more than 6,000 systems shipped globally since 2013. SimpliVity has a reseller network of more than 1,000 partners in 73 countries, enabling the vendor to generate 50% of its sales outside of the Americas.

In 2016, SimpliVity expanded its market penetration from midmarket toward both large and small enterprises, with a focus on ROBOs. Differentiating by providing guaranteed enterprise-class resilience features (such as hardware high availability, instant VM recovery, remote backup and restore, and site-to-site disaster recovery), SimpliVity is now being considered by CIOs as a prime candidate for a general-purpose core IT enterprise platform for virtualized workloads.

The OmniStack Data Virtualization platform has been designed from the ground up to enable always-on global in-line data services like compression and deduplication by taking advantage of a PCI-e accelerator card that provides consistent performance to virtualized production workloads. OmniStack can be deployed in the form of a preintegrated OmniCube appliance or as software on preselected servers from Cisco (UCS), Lenovo and Dell. It is now offering a selection of hardware options, from ROBOs to high-performance workloads, to fit enterprise needs. SimpliVity has highlighted its enhanced built-in backup capabilities with file-level restore and policy management by guaranteeing data efficiency and data protection in the OmniCube and OmniStack warranty with its HyperGuarantee. Ongoing 2016 enhancements to OmniStack 3.5 and the broad suite of products included improvements to the workload optimizer, RESTful APIs for third-party and custom

application integration, and expanded support for a multinode stretched cluster. The OmniView management suite now includes web-based predictive analytics and troubleshooting for mission-critical end users.

STRENGTHS

The vendor has a strong midmarket presence and growing acceptance in large enterprises as a general-purpose consolidated IT platform for virtualized workloads.

The SimpliVity OmniStack Data Virtualization Platform provides guaranteed storage efficiency with global data deduplication and compression, while offloading heavy data processing to the PCIe OmniStack Accelerator Card.

SimpliVity provides users with a built-in comprehensive backup solution and off-site disaster recovery capability, which allow customers to sunset their legacy enterprise backup.

CAUTIONS

SimpliVity is a privately held company depending on venture funding.

The vendor will face challenges for maintaining the No. 2 position in the HCIS market due to the need to differentiate versus a growing number of competitive products from both established and innovative new vendors in the evolving hyperconverged space.

SimpliVity is lagging behind in the adoption of all-flash-based technology.

Teradata

Like Oracle and those vendors selling solutions targeted only at SAP Hana, Teradata focuses on a specific set of use cases, not the broader general-purpose market. Teradata's own parallel DBMS sits at the heart of the five integrated systems it builds, which are all targeted at various forms of analytics and business intelligence workload.

The vendor has been building and selling data warehousing appliances for over 30 years, and the family of systems has grown to accommodate topical next-generation workloads. Every system is homogeneous, based on Teradata's own highly proven Bynet switch topology and OEM compute and storage technology provided under contract by other vendors. All current systems are based on SUSE Linux. Optimizing performance and reliability are important priorities for Teradata, and the vendor invests in hot swap and redundancy features that make the technology suited to mission-critical deployment.

Teradata has been selling four classes of integrated systems for a number of years, with periodic technology updates every 12 to 18 months, in cadence with the Intel processor update cycle. The 680 is positioned primarily as a data mart appliance with a 12TB maximum capacity, although many users deploy these as test/development or small data warehouse machines. The 2800 is a larger system that scales to 54PB, and is targeted at larger data warehousing needs. The 6800, scaling to 94TB, is positioned as an active data warehousing platform for workloads requiring very high capacity or data concurrency. Finally, the 1800 is a big data analytics platform that scales to 341PB, and competes primarily with Hadoop and similar solutions.

The latest addition to the range is IntelliFlex. Based on Dell compute nodes, NetApp storage and an InfiniBand switch topology, this is a 20PB capacity system that has been engineered to provide the best possible potential for future growth. Teradata will position this platform for hybrid cloud deployments, plus other scenarios where rapid capacity expansion is a stated need.

Because the vendor is dependent on selling solutions that leverage both its hardware innovation and software stack, this creates competition for the vendor from a number of quarters. Teradata must, therefore, continue to invest in hardware and software innovations, and leverage alliances like those with Dell and NetApp, to enjoy continued success.

STRENGTHS

Teradata has a culture of hardware and software innovation that enables the vendor to build highly differentiated integrated systems that compete well with other vendor solutions.

The installed base is significant and highly loyal, creating an annuity business that Teradata is able to exploit and mine to help fund new strategy investments.

Ownership of the Teradata DBMS qualifies the vendor as a proven expert in all aspects of business intelligence and analytics.

CAUTIONS

IT leaders can apply the Teradata solution to a limited set of business cases; the vendor only addresses workloads associated with analytics and business intelligence, and the need to promote the Teradata DBMS then forces the vendor to compete with alternate third-party software stacks.

However good the Teradata solution is, its clients must deploy technology from other vendors for transactional workloads. This exposes the vendor to competitive attack, as other vendors will often be able to compete with Teradata's own solutions.

Teradata is perceived as a high-end, high-value vendor, and client expectations are that it is less well-equipped to handle scaled-down deal situations that are more price-sensitive.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

Added

Atos has been added to this Magic Quadrant, having bought the French vendor Bull, and is now addressing the market for SAP Hana appliances.

Atlantis Computing is a well-established hyperconvergence vendor that became eligible for this Magic Quadrant by launching its own branded appliance in 2015, alongside multiple reference architecture partnerships with leading system vendors.

Riverbed's SteelFusion edge computing appliance is a hybrid solution that satisfies the criteria for a hyperconverged system.

Dropped

Gridstore has been removed from this Magic Quadrant. The vendor has recently changed its name to HyperGrid, as the result of its acquisition of another vendor, DCHQ. The new company no longer sells HCIS appliances and will pursue a software-only model.

IBM is not included in the 2016 version of this Magic Quadrant because Gartner believes the PureSystems technology that IBM retained (after selling the majority of assets to Lenovo) is no longer being actively marketed.

Nimboxx has been dropped because the company ceased trading in November 2015.

Inclusion and Exclusion Criteria

Inclusion criteria are used to determine which vendors will be covered in this research. The vendor inclusion criteria for the Critical Capabilities research are the same as those for the Magic Quadrant research. We have defined the following eligibility criteria for inclusion in this Magic Quadrant:

Integrated systems must have servers, storage, network and a management software layer associated with them.

Software-only integrated systems do not qualify at this time, as the customer or the integrator would have to layer the software on top of third-party hardware, and integrate and support the offering.

Integrated systems that fall into both the integrated infrastructure/stack and reference architecture categories are eligible, if they meet other required inclusion criteria. Each integrated system that leverages a reference architecture is assessed for inclusion based on its individual merits. Only reference architectures that are mutually inclusive between the partners would be eligible. To be included in the research, each vendor must sell at least one valid SKU that is built uniquely by them (or for them), and is sold and supported by them.

Vendors that only contribute technology to the integrated system market in the form of a reference architecture will be excluded, although their contribution may be assessed as part of the evaluation of another vendor. For example, if one vendor works with multiple other vendors to create a range of similar solutions, we assess the single, common vendor and take all the solutions into account. We would only include that vendor if it also builds and sells a valid integrated system that is a single SKU.

Some vendors also will not have an integrated networking switch in hardware, but will deliver some or all of the functionality in the virtualization software layer.

If the end users or multiple channel partners are responsible for integration, the technology is not an integrated system that is valid for inclusion. This, again, eliminates software-only solutions, because the customers have to configure their own hardware. The value proposition of an integrated system should remove the need for racking and stacking from the customers' hands.

A system that ships with included just a bunch of disks (JBOD) storage will not be an eligible integrated system, unless the vendor delivers integrated management capabilities for storage and related processes (as hyperconvergence vendors do with backup and recovery of workloads).

The support aspect is considered crucial. We believe that Level 1 (call center/service desk) and Level 2 (escalation) support must be integrated to facilitate quick and easy problem resolution. However, Level 3 (engineering) support can still be delivered separately for the individual components of integrated systems based on vendor partnerships.

Eligible vendors must have been shipping general availability integrated systems since 1 April 2016 across at least two of the major geographies (the Americas, EMEA, and the Asia/Pacific region and Japan).

The vendor should provide a minimum of three full production customer references, ideally with at least one outside the home geography of the vendor.

A vendor may have more than one integrated solution in its portfolio, in which case this research assesses the overall combined solution and vendor's effectiveness as a single representation.

Finally, we stipulate proven vendor collaboration regarding engineering, laboratory coordination, certifications, qualifications, testing, etc.

It is not mandatory that inclusion criteria for Magic Quadrants and Critical Capabilities are common, but we believe it will be desirable for the list of assessed vendors to be identical in both research deliverables.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate technology providers on the quality and efficacy of the processes, systems, methods or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively impact revenue, retention and reputation. Ultimately, technology providers are judged on their ability and success in capitalizing on their vision.

Product or Service: Core goods and services offered by the technology provider that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets, skills etc., whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Includes an assessment of the overall organization's financial health, the financial and practical success of the business unit and the likelihood of the individual business unit to continue to invest in the product, continue offering the product and advancing the state of the art within the organization's portfolio of products. The growing proportion of startups in the industry requires validation of business models and investment risk.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness. The dynamics in the market require increasing flexibility.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the vendor's message in order to influence the market, promote the brand and business, increase awareness of the products and establish a positive identification with the product/brand and organization in the minds of buyers. This mind share can be driven by a combination of publicity, promotional, thought leadership, word-of-mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements, etc. Conservative buyers will consider references critical in this emerging market.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	**Weighting**
Product or Service	High
Overall Viability	High
Sales Execution/Pricing	Medium
Market Responsiveness/Record	High
Marketing Execution	High
Customer Experience	High
Operations	Low

Source: Gartner (October 2016)

Completeness of Vision

Gartner analysts evaluate technology providers on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs, and competitive forces and how well they map to the Gartner position. Ultimately, technology providers are rated on

their understanding of how market forces can be exploited to create opportunity for the provider.

Market Understanding: Ability of the vendor to understand buyers' needs and translate these needs into products and services. Vendors that show the highest degree of vision listen and understand buyers' wants and needs, and can shape or enhance those wants with their added vision. This is a relatively new market and continues to evolve.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization, externalized through the website, advertising, customer programs, and positioning statements. The constant stream of new entrants puts pressure on positioning and the ability to differentiate.

Sales Strategy: The strategy for selling product that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: A vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology, and feature set as they map to current and future requirements. Strong strategy is required for product differentiation.

Business Model: The soundness and logic of a technology provider's underlying business proposition.

Vertical/Industry Strategy: The technology provider's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes. Emerging technologies must be addressed and integrated.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that geography and market.

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	**Weighting**
Market Understanding	High
Marketing Strategy	Medium
Sales Strategy	Low
Offering (Product) Strategy	High
Business Model	Medium

Evaluation Criteria	Weighting
Vertical/Industry Strategy	Medium
Innovation	High
Geographic Strategy	Low

Source: Gartner (October 2016)

Quadrant Descriptions

Leaders

Market leaders will typically be able to execute strongly across multiple geographies and other market segments, with integrated systems that cover at least two, if not all three, of the multiple market categories (ISS, IIS and HCIS). They will also have active reference architecture initiatives to address vertical and other more specialized opportunities.

Challengers

Challengers are typically vendors with proven global presence and market achievement that only target a narrower subset of the market, or that have not yet established themselves across the broader market.

Visionaries

These are typically vendors that are focusing on strong innovation and product differentiation, but are smaller vendors with limited reach or achievement to date, or larger vendors with innovation programs that are still unproven.

Niche Players

Many integrated system vendors will address a more narrow market niche, or they may be vendors with market programs that have not yet established their differentiation and/or execution ability. However, all vendors will have met the inclusion criteria and may address their specific market category with great effect.

Context

As the CI market matures, vendors are expanding their product portfolios to provide more differentiated and agile offerings. At the same time, new vendors are entering the market. Today, the CI market includes dozens of vendors and offerings.

Across these many offerings, vendors tend to highlight features and attributes of their CI offerings as unique differentiators. For example, some vendors highlight storage-defined capabilities, while others tout how their system is compute- and server-workload-driven. In addition, some vendors talk about their systems in terms of software convergence with flexible hardware integration, and others boast about their hyperconverged systems for the SDDC.

In addition to navigating through confusing CI naming and categories, infrastructure and operations (I&O) leaders need to contend with various CI features, benefits, form factors, costs and use cases. Bringing further difficulty, early-generation CI and integrated systems are about to undergo a revitalization and makeover through advances in automation.

Although the CI market may appear crowded and a source of confusion for prospective buyers, I&O leaders need not be discouraged. CI will remain a key infrastructure foundation and enabler of digital business and bimodal IT. Advances to the technology will make it possible, over time, for I&O leaders to integrate adaptive, intelligent infrastructure with a faster time to deployment and simpler management (see "Plan Now for the Future of Converged Infrastructure"). In the near future, changes to CI technology will transform integration into something that is dynamic and occurs in real time. In addition, infrastructure integration, through the use of CI systems, will span on-premises and the public cloud, enabling better-optimized resource utilization.

See "Best Practices for Adopting Converged Infrastructure in Times of Market Turbulence" to learn more about the best practices for integrated system investment.

Market Overview

The integrated system market is outgrowing other data center segments, but the growth has been stabilized. According to Gartner statistics (see "Market Share Analysis: Data Center Hardware Integrated Systems, Worldwide, 2015"), in 2015, integrated system sales grew 11.2% over 2014, totaling $9.6 billion, constituting approximately 5.6% of all server, external controller-based storage and data center networking spend by the end of 2015.

The concept of the integrated system emerged around 2010 and has caught industry attention, notably by the entrance of many traditional data center infrastructure OEMs and the emergence of many venture capitalist (VC)-funded startups. VC activity in the integrated system market is still active, especially around HCIS, as it is the strongest growth segment within the integrated system market, accounting for about 6% of integrated system revenue in 2015.

Although the market is maturing, product innovations are expected to continue. We will see more acquisitions and strategic partnerships impacting its competitive landscape and product offerings. We can also expect to see the once rigid, easily definable market segments begin to blur, as providers evolve their offerings, integrate new technologies and expand their market addressability with new product strategies.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.
