Magic Quadrant for Storage Resource Management and SAN Management Software

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SRM and storage area network tools enable customers to manage shared storage environments. These fully featured, integrated and user-friendly tools are offered as solutions ranging from the holistic to the specialist, for customers with a broad range of maturity levels and requirements.

Market Definition/Description

Storage Resource Management

Storage resource management (SRM) products provide data collection and automation agents that consolidate and operate on information from multiple platforms supporting storage management tools on multiple OSs, storage products, storage area network (SAN) and network-attached storage (NAS) devices. Key functions include capacity reporting/analysis, performance reporting/analysis, capacity/performance management automation, storage provisioning, storage management product integration, application and database integration, and hardware integration.

SRM solutions often integrate with network and system management offerings to enable SRM products to externalize events to other management products. Integration with device resource and replication management products, as well as media management products, should include launching hardware configuration utilities from the SRM console, collecting/reporting agent information and integrating logical-level data.

SAN Management

Products that provide discovery, topology mapping and monitoring SAN components are also included in this segment, because many are included in SRM suites or are expanding to include SRM functionality. The key components of an SRM solution are described in the sections that follow.

Central Administrative Console: The console is increasingly Web-based and provides a way to view storage resources and metrics, based on a user's profile and credentials. The product's security features define the level of access and the breadth of view a user will have for role-based administration.

Discovery and Storage Information Repository: The SRM tool must be able to automatically identify new storage objects, and collect and store information on those objects in an information database. Data must be collected and stored so that it can be used to identify the current state of the environment, as well as conduct historical views and future trending. Data on managed storage objects includes metadata information on data files (such as size, date of creation and owner) and physical storage systems (including capacity, performance and protection characteristics). The repository ties the storage information to the application and the user. The repository should be based on a commercially available or open-source relational database, with an open and published schema, so that it can be queried via standard database reporting tools. It should be able to manually add data about an object, such as acquisition date, location and asset tag number. The data should be exportable to another relational database management system (RDBMS).

Capacity Management and Planning: This includes activities that identify resource use. It also provides tools for reclaiming space for better resource use and ensuring that storage is available, as needed. The information stored in the repository is used to analyze trends and, using modeling and simulation, predict future capacity requirements by server, department, application and enterprise via user-definable groups that align with a line of business (LOB). Capacity management and planning capabilities include the identification of storage shortfalls and the need to purchase more storage or networking devices.

Quota Management: A quota management application implements a corporate policy regarding the amount of disk space allowed per user. Many products offer only soft-quota management, which is informational. Hard quotas, which stop allocation once the defined level of storage space is used, have most commonly been implemented in the Windows and NAS environments. Filters provide capacity management by preventing certain types of files from being saved to disk or tape, sometimes by scanning file content versus only detecting file type extensions.

Performance Management: This should monitor, diagnose and optimize the performance of the application, server, host bus adaptor (HBA), storage network and storage devices. Because many of these resources are shared, the capability to model and understand complex interactions and their impact on performance is desirable. When performance issues are identified based on defined thresholds, events can be sent to notify storage administrators or trigger actions to correct the problem. Performance management functions should take advantage of historical views of the environment and event correlation techniques.

Event Management: This collects events sent from applications and devices that indicate, for example, a pending disk failure or an out-of-space condition. It then initiates the appropriate notification or triggers a predefined response to correct the problem. SRM products should be able to consolidate multiple events and percolate these events to systems and network management solutions.

Root Cause Analysis: This analyzes events to determine the underlying root cause, and eliminates the need for blind troubleshooting, which expedites the diagnosis process.

Reporting: This provides basic real-time and historical reports, and the capability to use reporting tools — including powerful online analytical processing (OLAP) tools — to generate custom reports and views. The goal is to have a few useful documents, rather than hundreds of reports.

Chargeback: This acts as the counting mechanism for billing users and LOBs for their consumption of storage resources. Comprehensive chargeback includes multiple cost metrics, based on the type and quantity of storage resources consumed.

Configuration Management: At a minimum, this provides the capability to monitor, log and track changes to the storage environment. Ideally, this enables the active configuration of heterogeneous storage arrays and fabric resources from a common console, not just the link and launch of resource element managers.

Change Management: This helps control and manage planned changes to the storage and networking environment, and monitors and reports on all unplanned changes, alerting users when configuration rules have been violated. Some products take snapshots of the storage environment at set intervals so that, in case of a problem, the configuration can be compared with the last-known working state or can be used to generate a bill of materials.

SAN Design and Analysis: This helps create and verify that the layout of the SAN and the configuration of all edge devices have been designed and implemented to compatibility rules.

Provisioning: This is the process of adding, deleting or modifying the capacity of logical unit numbers (LUNs) required for a given application. It follows proper rules for authorization, security, performance and availability, and takes into account storage arrays, network paths and potential replication targets.

Workflow Automation: This enables organizations to automate frequently preformed storage activities (processes) in a way that links to instrumentation and active management capabilities.

Scalability: SRM products should deliver the designed functionality with high availability and adequate performance for large-scale environments. SRM products should be capable of addressing small-, midsize- and large-enterprise environments so that hundreds of storage arrays, thousands of SAN switch ports and hundreds to thousands of servers can be monitored and managed from a single product.

Integration: The SRM solution should be self-contained and require as few infrastructure components as necessary. The ability to navigate seamlessly across all product features to which the user or role has access rights with a single sign-on (SSO) capability is important. Common agents, repositories and consoles for the product are desirable.

Ease of Use and Deployment: The time and resources required to deploy and configure the product to the point of delivering useful results to the organization should be commensurate with the scale and scope of the deployment. Modest deployments should be user-installable, with professional services available for more-complex environments. Independent validation of the reported data is essential to benchmark and validate the configuration, and to ensure that it has been correctly calibrated.

Protocol and Device Support: All block-oriented SRMs should broadly support Fibre Channel technologies. Internet Small Computer System Interface (iSCSI) discovery and management should also be supported by block oriented SRM tools as iSCSI deployments continue to increase.

Although FCoE adoption is low, most vendors have provided FCoE support or detection. For those SRM tools supporting NAS, support for Common Internet File System (CIFS) or Network File System (NFS) is critical, and the ability to discover, monitor and manage the Ethernet topology is a significant advantage. Gartner recommends requesting road maps and statements of direction from candidate vendors.

Element Support: Products should also support mainstream disk arrays, tape drives and libraries, storage networking devices and NAS filers, as appropriate. Ideally, SRM products should add capacity planning and use-reporting support for solid-state disk, virtual tape library (VTL) and deduplication products, which are now mainstream solutions in the storage infrastructure. Failure to manage and include VTLs and deduplication solutions in storage dashboards will lead to islands of management that reduce the ability of IT departments to plan upgrades and monitor the effects of a change in one area of the storage infrastructure and its effect on interrelated components. Support for heterogeneous server platforms should include support for AIX, HP-UX, Solaris, Linux, VMware and Windows servers.

Magic Quadrant

Figure 1. Magic Quadrant for Storage Resource Management and SAN Management Software
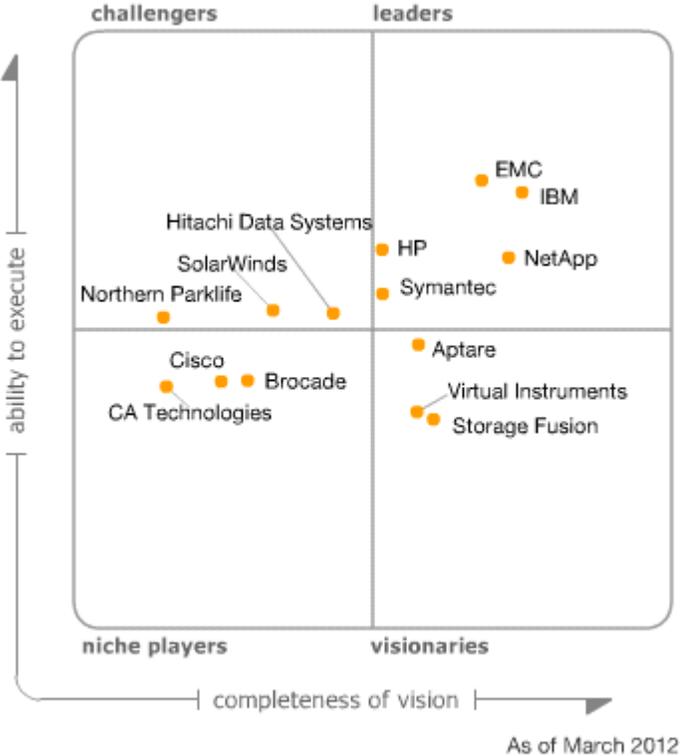
Source: Gartner (March 2012)

Vendor Strengths and Cautions

Aptare

Aptare's SRM product is StorageConsole.

Strengths

- Aptare uses a fast and simple-to-implement agentless architecture that has good and seamless integration with Microsoft Active Directory and VMware.

- StorageConsole focuses on pure SRM reporting, monitoring and chargeback; it recently added a high-speed and low management station overhead file-level reporting capability into the latest release.

- Storage management and reporting is core to Aptare, and the company is investing and expanding direct sales coverage from North America into Europe, the Middle East and Africa (EMEA).

- StorageConsole is hardware-vendor-independent and provides a vendor-neutral reporting and management tool.

Cautions

- StorageConsole does not have reporting or topology diagrams for iSCSI or FCoE SANs.

- For customers that require a configuration tool, StorageConsole does not provide device configuration, provisioning or element management functions.

- Outside Northern America and EMEA, clients need to purchase and obtain support from channel partners, such as Hitachi Data Systems, or obtain it directly from Aptare through remote sales team members.

- Compared with storage hardware vendors that also offer SRM products, Aptare does not provide comparable high purchase discounts; nor does it bundle its product at low cost with storage hardware purchases.

Brocade

Brocade's SAN management product is Brocade Network Advisor (BNA).

Strengths

- BNA can report on non-Fibre-Channel storage network devices and statistics from iSCSI and FCoE networks.

- The product offers improved exception analysis reporting concerning contention, bottleneck, transport errors and diagnostic features.

- Brocade can now offer a merged Internet Protocol (IP)/Ethernet and SAN management tool. However, most of Brocade's customers purchase Fibre Channel and FCoE storage networking equipment, rather than IP/Ethernet networks.

- Brocade has a large and satisfied installed base of Data Center Fabric Manager (DCFM) customers, and the synergistic ability to manage and configure Brocade HBAs is an added advantage.

Cautions

- Topological display of IP and Ethernet-based networks, such as iSCSI and FCoE, are not as detailed and comprehensive as the equivalent diagrams for FC networks.

- Most of Brocade's customer base uses FC and FCoE storage networking equipment, rather than FCoE and IP/Ethernet network switches. Thus, the value add for clients of having a converged IP and SAN management product is useful, but not a high priority.

- Customers that want to exploit management synergies among specific Brocade hardware components, such as HBAs, converged network adaptors and switches, can only obtain this functionality by using BNA.

- DCFM customers will have to invest time when migrating to the new BNA product. Clients also need to plan which storage or Ethernet networking functions they require from the new, broader network management product.

CA Technologies

CA Technologies' SRM product is Storage Resource Manager.

Strengths

- CA Technologies has continued to invest in the open-system SRM suite that supports large-scale environments and has incrementally improved discovery, visualization and reporting in its product.

- In the recent v.12.6 release, feature upgrades include improvements for predefined monitors and alerts, storage categorization, hyper-V support, qualitative analysis, storage visualization, historical storage trend analysis, collaboration and knowledge management.

- The Vantage version of the SRM product complements the open-system version by supporting mainframe environments that can be useful for mixed environment data centers.

- As a software-only supplier, CA Technologies is relatively vendor-agnostic in its hardware support matrix and is capable of supporting customers on a global scale.

Cautions

- Product awareness, marketing presence, sales focus and mind share is relatively weak compared with other competitors in the SRM space.

- Most customers will require professional services to fully install and configure the SRM product.

- CA Technologies is more focused on selling SRM into IBM mainframe markets than the open-systems SRM marketplace.

- CA Technologies' SRM requires agents, and implementation, management and operational complexity can be higher than newer agentless competitive products.

Cisco

Cisco's SAN management product is Data Center Network Manager (DCNM).

Strengths

- DCNM has reduced and has relatively lower-cost end-user pricing when only SAN network management, configuration and reporting is required.

- For large director customers that are fully populated with active ports, Cisco's chassis pricing model can be competitive, compared with other pricing models, such as per-port pricing.

- In addition to Fibre Channel and iSCSI network management, DCNM has broad coverage and deep support for FCoE networks and devices.

- Cisco has a useful, time-saving SRM product and database migration feature for established customers that are using the v.5.0 versions of DCNM, which can be moved to the recently released v.5.2.

Cautions

- If FCoE adoption does not become mainstream, the extensive FCoE features in DCNM will not provide Cisco or their customers with a competitive advantage.

- DCNM is most suitable in Cisco storage networks when configuration and provisioning of Cisco network devices are the highest priority requirements.

- DCNM does not provide server or storage array threshold reporting down to the file system or disk level.

- Features for server file system and storage array reporting and visibility have failed to materialize, but are still promised and planned in future road maps.

EMC

EMC's core SRM product suite is ProSphere.

Strengths

- EMC has the largest SRM installed base by revenue and remains the No. 1 vendor in revenue market share for SRM; it is particularly strong in EMC hardware environments, with a comprehensive and holistic SRM tool.

- EMC is continuing to invest in the SRM market by developing a totally new product called ProSphere, which will replace EMC Control Center (ECC).

- The new ProSphere product is designed from scratch to be agentless and simpler to implement as a virtual appliance; therefore, it promises to be easier, to require less operational management and to be less expensive to support and maintain.

- EMC can leverage its close partnership with VMware to create a wider system management product that incorporates all of the SRM features from ProSphere.

Cautions

- ECC customers that expect to stay with EMC SRM tools need to start to plan for the migration from EMC Control Center to ProSphere. New ProSphere customers that plan to purchase the SRM component of the ProSphere suite should purchase it separately.

- Customers should request proof of concepts and longer-than-normal evaluation periods for ProSphere, because it is a completely new product, with modules that are still under development. Early support for heterogeneous storage devices in non-EMC storage environments is not fully available.

- The migration and automated deletion of file data using File Level Reporter has reached its end of life; it should be purchased separately as part of the EMC SourceOne product.

- Do not increase investments or expand existing EMC Control Center implementations, if you're planning to stay with EMC as an SRM supplier. Plan to move to ProSphere, but verify whether ProSphere has any current or required ECC features.

Hitachi Data Systems

Hitachi Data Systems' SRM product name is Hitachi Storage Command Suite.

Strengths

- Hitachi Storage Command Suite is the foundation device and storage management software for Hitachi Data Systems' storage product line. Hitachi continues incremental improvements in Storage Command Suite v.7.2.0 by improving support for hypervisors, shared storage, file services, storage-as-a-service constructs and its own storage virtualization platform — Virtual Storage Platform (VSP).

- A preconfigured management appliance and installation wizards are available to simplify and speed the implementation of a Hitachi Storage Command Suite environment. The appliance frees administrators from software installation and promises to shorten implementation times.

- Hitachi maintains a global presence, with a direct and indirect sales model, and continues to grow its customer base primarily as a byproduct from the market growth of its enterprise class disk arrays (e.g., VSP).

- Hitachi Storage Command Suite has improved its graphical display and expanded SRM monitoring to report on and display application service-level monitoring to provide a more holistic and useful application for storage view.

Cautions

- Hitachi Storage Command Suite provides direct support for Hitachi storage environments and is not positioned as a generic SRM tool for non-Hitachi environments. Active capabilities are primarily targeted at the company's own hardware products.

- No support is available for FCoE.

- Active management of the recently acquired Blue Arc products requires a combination of BlueArc-specific management tools and the Hitachi Storage Command Suite tools.

- For some devices (e.g., servers), agents are necessary. For Hitachi storage products, vendor-specific APIs or industry-standard SNIA SMI-S interfaces are used and require attention to versioning compatibility.

HP

HP's SRM product is Storage Essentials.

Strengths

- HP has rationalized the number of options and reduced purchase costs for the base Storage Essentials Enterprise product by approximately 30%.

- HP's direction is to integrate Storage Essentials into a wider data center management and automation system — for example, integrated server, network and storage provisioning.

- The Storage Essentials v.9.5 is now available agentless on Windows and Linux servers, because it uses the Windows Management Interface (WMI) and Secure Shell Login to interrogate systems and retrieve information.

- Storage Essentials has extensive support for the iSCSI-based servers and storage. It provides all of the fundamental storage reporting and mapping information when using this protocol.

Cautions

- Storage Essentials is still not completely agentless; agents are required if customers require detailed HBA or server-application-specific storage information.

- Installation by HP Professional Services or HP-certified partners is still recommended by HP; although this may be useful for larger organizations, it can increase acquisition and implementation costs for potential customers.

- HP's revenue from Storage Essentials is flat, its market share has been decreasing by one percentage point per year for the past three years.

- HP is one of the few vendors that license its product on a per-server basis, rather than the more common storage-capacity-based licensing method. This can be costly in a large-server, small-storage environment, but competitive in a small-server, large-storage environment.

IBM

IBM's SRM product is Tivoli Storage Productivity Center (TPC).

Strengths

- In the latest release of TPC (v.4.2.2), support was added for the new Storwize V7000 and the XIV storage arrays. Monitoring and report generation have been improved to enhance storage tiering by identifying data eligible for movement to alternative storage tiers, based on activity metrics.

- IBM now offers many different pricing models, so that clients can get the full product functionality with TPC Select at enclosure-based pricing, and can also purchase the TPC Standard Edition at capacity-based pricing.

- IBM continues to tighten the relationship of TPC with storage virtualization and upstream system management tools to provide a comprehensive storage environment.

- IBM continues to incrementally grow the number of TPC customers through its direct and value-added reseller (VAR) relationships and has a global presence dominated by customers in North America and Europe; it also includes other regions, such as Asia and South America.

Cautions

- The user interface for TPC is dated and requires an update to meet the expectations of a modern administrative interface.

- The go-to-market strategy centers on supporting IBM products first and best as part of an overall solution. For all IBM environments, this is a positive. IT organizations that use several storage vendors will need to verify the breadth and depth of TPC for its compatibility with third-party storage.

- Pricing ranges from competitive cost-effective starter packs to relatively high-cost acquisition prices in large environments.

- Customers should expect discounts from the list prices, especially when purchasing complete systems. Request a breakdown of all components in a system purchase to verify that there are

no cross-product subsidies and that all components are being purchased at a competitive price.

NetApp

NetApp's SRM product suite is NetApp OnCommand Management Software.

Strengths

- The NetApp OnCommand portfolio (updated in the third quarter of 2011) is the foundational storage management software for the NetApp storage product line. NetApp continues to consolidate its management software with the recent introduction of its Workflow Automation and Unified Manager products.

- The Akorri management platform has now been integrated into OnCommand as the Insight Balance module. It adds heterogeneous capabilities by providing analysis and reporting of third-party storage arrays.

- OnCommand Insight and Unified Manager offer vendor APIs for integration with third-party management suites, including BMC Atrium, CA Spectrum and VMware vSphere, Netuitive and Cisco.

- NetApp maintains a global presence, with a large number of direct salespeople and VARs and continues to grow its customer base, primarily as a by-product of the market growth of its disk arrays and file servers. OnCommand System Manager and Unified Manager are included with every controller, with SnapManager and OnCommand Insight offered at an additional charge.

Cautions

- NetApp OnCommand System Manager provides direct support for NetApp storage devices, but is not positioned as a heterogeneous SRM device configuration tool for non-NetApp hardware environments.

- Automating workflows and provisioning storage are relatively simple and flexible with the Workflow Automation and Unified Manager option. However, this could lead to operational software lock-in, which is complex, difficult to migrate from and to deinstall.

- The Insight offering has relatively few large, heterogeneous enterprise customers, when compared with NetApp's overall customer base.

- Limited support is available for iSCSI and FCoE environments, with endpoints being detected, but topology diagrams are not visualized.

Northern Parklife

Northern Parklife's SRM product is Northern Storage Suite (NSS).

Strengths

- Northern Parklife is a small, private corporation that targets unstructured data management in large enterprises. Sales are through direct and VAR channels. The VARs are large storage vendors selling NSS as a niche solution for file management. Northern Parklife updated its software offering in October 2011.

- Northern concentrates on CIFS storage within EMC, NetApp and Windows file servers.

- Custom capabilities (e.g., chargeback metering) are possible with NSS by using its open and documented SQL database. NSS's professional services are available to assist on the development of custom SQL queries or stored procedures, as well as custom Excel templates.

- NSS has a fast client-scanning architecture and the ability to identify files for archiving.

Cautions

- Northern limits its features to file-based storage assets. Because these features target the management of unstructured data, the product is not appropriate for holistic storage management in block-based storage environments.

- Northern has a limited global presence and a small sales and support staff. It is primarily European- and U.S.-centric, but is expanding into the U.K.

- Northern recommends professional services for product installation and configuration.

- NSS supports only CIFS file shares and clients running the Microsoft Windows or Windows virtual machines running under VMware vSphere.

SolarWinds

SolarWinds' SRM product is Storage Manager.

Strengths

- SolarWinds intends to be the value leader in the SRM market by offering a low-priced, heterogeneous SRM solution (last release in November 2011) aimed at the small or midsize business (SMB) markets. Pricing is uniquely based on the number of physical disks under management and is significantly lower than the larger competitors.

- SolarWinds has a large installed base of customers in which most have midsize storage environments.

- SolarWinds distributes its SRM product globally through direct sales and a limited number of VARs. Approximately two-thirds of the sales are direct. The largest installed base is located in North America, with the balance primary split between Europe and the Asia/Pacific (APAC) region.

- In addition to the established Fibre Channel and file-based protocols, Storage Manager supports iSCSI SANs when an SMI-S provider is available. NetApp and Dell Equalogic are supported through their native APIs.

Cautions

- SolarWinds is a relatively small public corporation with revenue of less than $200 million and does not have a large dedicated sales and support team.

- Storage Manager provides basic storage monitoring and reporting and provides limited integration with other system level management tools. Current vision does not include increasing management scope to include applications or provide higher-system-level integration, other than through Simple Network Management Protocol or third-party direct access to Storage Manager APIs.

- Storage Manager does not provide a visualization of the storage topology. The topology information is captured, but is presented in textual form.

- We recommend that customers considering Storage Manager for large, complex storage environments obtain references from similar customers.

Storage Fusion

Storage Fusion's SRM product is Storage Resource Analysis (SRA).

Strengths

- Storage Fusion provides a cloud-based SRM as a service product that enables customers to benefit from a professional SRM tool without having to purchase or manage their own SRM infrastructure.

- Storage Fusion has a good understanding of the SRM and storage consultancy market, with an extensive partnering model that is vendor-neutral and storage-hardware-independent.

- Storage Fusion specializes in the specific higher-level management areas of trending, reclamation, chargeback, server and storage virtualization capacity and exception reporting.

- SRA is a relatively simple and quick-to-install, agentless solution with simple-to-use standard and customizable reports.

Cautions

- Direct sales are only active in Western Europe and North American Markets, but can be purchased globally via a partner network.

- SRA reports storage utilization from the storage device and array perspective, not from the server or file system viewpoint.

- SRA is mainly purchased and used by large IT departments, consultancies and storage vendors to perform quick storage health checks and review projects; however, it can be used as a long-term, ongoing reporting tool.

- SRA has limited storage device support to the major vendors and is designed as a reporting tool, not a provisioning, device or element management tool.

Symantec

Symantec's SRM CommandCentral product is being superseded by the Veritas Operations Manager (VOM) tool.

Strengths

- The new VOM Advanced tool, introduced September 2011, provides a converged storage and server management platform that moves toward a holistic view of a server/storage environment.

- An agentless deployment is possible that can support use cases including capacity planning, chargeback and disaster recovery compliance.

- For those already or planning to use Storage Foundations Enterprise, VOM Advanced is provided at no additional cost. Incentives are available if customers are using other Symantec products, such as Storage Foundation Standard with Thin Provisioning, SmartTier and Veritas Cluster Server.

- Symantec maintains a global presence and sells direct and through VARs, with VARs handling the bulk of the sales. A large sales team and VAR presence is maintained in North America and Europe. In South America and the APAC region, VARs provide the bulk of the sales activities.

Cautions

- Symantec is in a transition phase as it de-emphasizes the stand-alone CommandCentral in favor of the new VOM suite of management tools. Customers should be aware that using the built-in workflow between VOM and VOM Advanced will require the implementation of Storage Foundation Suite.

- Servers without Storage Foundation require a VOM Advanced license.

- For some use cases and devices (e.g., servers), agents are necessary. Symantec offers a converged agent for interaction between Storage Foundations and CommandCentral for deep host visibility and proactive management.

- CommandCentral requires professional services to install and, in some cases, for complex upgrades. The new Veritas Operations Manager does not require professional services and offers automated installation download, if desired.

Virtual Instruments

The SAN Management product is called VirtualWisdom.

Strengths

- Provides an agentless real-time Fibre Channel SAN performance and availability reporting system, which can be used for detailed SAN instrumentation, problem determination, capacity planning, performance optimization, status monitoring and debugging.

- VirtualWisdom is a storage- and network-hardware-independent product that can review, report and determine root-cause problems related to performance, utilization and availability issues for Fibre Channel devices in a SAN.

- Virtual Instruments is a small and fast-growing company that has found a real-time, detailed performance monitoring and planning niche in the market where there are no other pure-play Fibre Channel SAN management competitors.

- VirtualWisdom can monitor and report FCoE-based SANs, but will only have full data center Ethernet/FCoE switch monitoring in the future.

Cautions

- VirtualWisdom is a relatively high-acquisition-cost tool used mainly by large data center customers that have 500 TB or more of disk storage and run performance-sensitive or mission-critical applications.

- For maximum benefits, requires the installation of hardware, including traffic access points (TAPs), similar to Ethernet "sniffers" to monitor protocol traffic. This is simpler to implement, when upgrading existing SANs or when installing new SANs.

- Virtual Instruments has a direct sales presence that focuses on large data centers only in North America and Western Europe; however, it has a worldwide indirect coverage via reseller agreements with a number of OEMs and distributors.

- End users should be aware of competing and established SAN management vendors spreading fear, uncertainty and doubt about compatibility and support issues when using VirtualWisdom in a Fibre Channel SAN. Request proof and demonstration from any vendor doing so.

Vendors Added or Dropped

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

Added

Cisco, Storage Fusion and Virtual Instruments were added to this Magic Quadrant.

Dropped

NTP has been dropped since the last Magic Quadrant.

Inclusion and Exclusion Criteria

Included vendors must be the developers of their products, or have made significant functional additions or modifications to the products' codes, not just be pure resellers or VARs. Each company should have at least five enterprises that are using the software in a production environment, for which they can provide references to Gartner.

Evaluation Criteria

Ability to Execute

Several factors contribute to the vendors' execution ratings. The product capabilities were evaluated separately for basic and advanced functionality. Special focus was placed on capacity management, change management, policy automation, performance management, integration and root cause analysis. Because this market includes many small vendors with uncertain futures, financial viability was an important factor. Vendors' ability to anticipate and respond to changes in the market and to achieve competitive success when market dynamics change were also highly rated (see Table 1).

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	standard
Overall Viability (Business Unit, Financial, Strategy, Organization)	standard
Sales Execution/Pricing	high
Market Responsiveness and Track Record	high
Marketing Execution	standard
Customer Experience	high
Operations	low

Source: Gartner (March 2012)

Completeness of Vision

Gartner evaluated each vendor's Completeness of Vision, based on its ability to convincingly articulate its future product direction and demonstrate innovation in meeting customer needs,

enabling the vendor to more effectively compete in the market. The credibility of the vendor's vision was weighed against its past ability to execute against previously stated plans. Market understanding is the guiding factor in new product development to ensure that the product engineered meets customer needs. Managing the complexity of storage environments requires innovative approaches that will distinguish Leaders and delight customers (see Table 2).

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	high
Marketing Strategy	standard
Sales Strategy	standard
Offering (Product) Strategy	high
Business Model	standard
Vertical/Industry Strategy	standard
Innovation	high
Geographic Strategy	low

Source: Gartner (March 2012)

Quadrant Descriptions

Leaders

Leaders have the highest combined measures of Ability to Execute and Completeness of Vision. They have the most comprehensive and scalable products. They have a proven track record of financial performance and an established market presence. In terms of vision, they are perceived as thought leaders, with well-articulated plans for ease of use, as well as how to address scalability and product breadth. For vendors to have long-term success, they must plan to address the expanded market requirements for change management, root cause analysis and performance analysis.

Leaders must deliver to current market requirements, which continue to change, as well as anticipate and deliver on future requirements. A cornerstone for Leaders is the ability to articulate how these requirements will be addressed as part of their vision for resource management. As a group, Leaders can be considered part of most new purchase proposals, and they have high success rates in winning new business.

Challengers

Challengers can execute today, but have limited vision. They have capable products and can perform well for many enterprises. Vendors in this group have the financial and market resources and the capabilities to become Leaders, but the question is whether they have an understanding of the market trends and requirements needed to succeed in the future. In addition, Challengers may not devote sufficient development resources to achieve leadership.

Visionaries

Visionaries are forward-thinking vendors, but their execution has not propelled them into leadership positions. These providers are differentiated by product innovation, but they have not achieved a completeness of solution or the sales and marketing expertise required to give them the high visibility of leaders.

Niche Players

Niche Players are narrowly focused on an application, a market or a product mix, or they offer broad capabilities without the relative success of their competitors in the other quadrants. Niche Players may focus on a segment of the market and do it well, or they may have modest horizons and lower overall capabilities, compared with competitors. Others are simply too new to the market or have fallen behind and, although they may be worth watching, they have not yet developed complete functionality or the ability to execute.

Context

SRM tools are used to improve the cost-effectiveness of storage hardware and simplify operational processes. This — together with budgetary pressures to reduce the operational costs of storage, the demand for reliable service delivery and the challenges of rapid data growth — has remained a fundamental value proposition from SRM vendors since Gartner started tracking the SRM market. These tools are especially relevant today, due to an unexpected increase in storage cost as a consequence of the hard-disk drive (HDD) shortage in 2012. An SRM tool will help clients act on Gartner's recommendation that organizations understand their storage infrastructures and data in more detail. This will enable informed decisions concerning the procurement, management and implementation of storage technologies and products.

Many organizations believe that it costs less to perform SRM tasks by employing full-time administrators to gather data manually, develop and maintain their own SRM tools and reports than to purchase an SRM product. Therefore, the SRM market, which has had only a 2% to 7% compound annual growth rate (CAGR) during the past five years, can only grow further if SRM vendors provide features in a format required by customers, lower the purchase and ownership costs, and reduce implementation and management complexity and costs.

In the meantime, due to improvements in areas such as the move toward agentless products, SRM tools continue to become simpler to use, purchase and implement. In the past year, a few vendors have also reduced acquisition costs. SRM products are often offered as a collection of modules,

each sold separately. This enables IT departments to start with only the features they require, such as basic reporting, and then grow into more-sophisticated functions, such as workflow management and provisioning.

However, there is a trend with vendors such as EMC, HP, IBM, Symantec and NetApp for creating broader system management tools that incorporate the SRM tool as a component. This trend can be positive for organizations seeking the highest level of capability from their SRM tool.

SRM tools are not being developed to perform direct device configuration tasks, other than provisioning and monitoring. For devices other than those supplied by the vendor and, in many cases, also for those supplied by the SRM vendor, the SRM tool will launch or start the specific device configuration tool as a proxy for the SRM's lack of detailed device configuration capability.

Most SRM tools concentrate on block-level storage. There is a general trend to move file-level reporting to file management, e-discovery and archive tools for detailed decision making during data deletion/retirement, archive and information life cycle management projects. Examples of this include EMC ProSphere and Symantec's VOM, both of which de-emphasize file metrics in deference to their other file management tools (e.g., Symantec Data Insight).

Gartner's position has not changed since the 2010 SRM Magic Quadrant, in that we believe the SRM market will segment into two product categories that mirror customer maturity: installed storage capacity and complexity. What has changed is that system vendors will gradually merge their SRM capabilities with their system management solutions to simplify the management of vertically integrated computing platforms.

Therefore, we still believe that the first group will consist of three to five major SRM vendors that will have holistic and comprehensive SRM products used in large, mature storage-heterogeneous enterprises. The second group will consist of three or four specialist SRM vendors offering core SRM facilities to monitor use, performance and resources for SMB customers.

The specialist vendors are outlined as follows:

- For SAN management, Brocade and Cisco are pure-play vendors, and do not attempt to offer SRM functions outside the SAN or Ethernet environment. Virtual Instruments provides extensive Fibre Channel SAN performance and problem determination and migration-planning features, but does not provide SAN switch or HBA management.

- Other vendors, such as Northern Parklife, focus on capacity planning, file blocking and management on Microsoft Windows and NAS filers, using the CIFS and NFS protocols.

- Aptare, Storage Fusion and SolarWinds concentrate on the core storage management features by providing storage management dashboards, capacity planning, storage reclamation, performance monitoring and storage utilization reporting from the application level to the storage device. Aptare and Storage Fusion offer their SRM tools for one-time storage assessments as sales tools for VARs and OEM suppliers.

These specialist vendors do not offer workflow and storage-provisioning features, leaving device management to the tools that are supplied with the storage devices.

Since the last Magic Quadrant, there has been no change in the requirement for professional services. This increases the purchasing costs for customers buying holistic SRM products that recommend or mandate professional services during implementation. However, some niche SRM products (e.g., Aptare and SolarWinds) do not require additional professional services.

Gartner advises customers to select solutions that can meet their requirements with the standard supplied reports, or to select products with the simplest and easiest-to-use report creation tools.

Market Overview

Pricing models are changing, with vendors such as HP, IBM, NetApp and SolarWinds reducing base prices by between 20% and 40%. This will help vendors grow their businesses for the base reporting products by attracting customers with smaller environments and budgets. NetApp offers core SRM functionality with its products at no charge, and per-usage pricing is available from StorageFusion for those doing one-time assessments. Pricing continues to be capacity-based either by raw managed capacity, by capacity tiers or in one case (SolarWinds) by physical disk count. The industry trend is to bundle more capability into the core product and then upsell customers to advanced functionality, such as analytics packages or replication management.

IT managers can use SRM tools to reduce costs by reclaiming and finding unused storage resources and improving the operational productivity of storage administrators. However, even though the price of HDDs has increased for the first time in more than a decade, Gartner does not believe, that, at an approximate 5% CAGR, the SRM market, which had a total revenue of approximately $750 million in 2011, will grow faster this year than in previous years. This is because the accepted behavior of purchasing more disk space, using manual spreadsheet tracking techniques and searching for technological solutions, rather than automating storage reporting and changing work practices to manage storage better is too ingrained in IT departments.

In situations in which no spare storage capacity can be found in the data center, businesses will be motivated to consider storage in the cloud; however, cloud storage, which is not immune to the HDD price increases, will be limited by these cost increases. It is likely that budgets will be transferred from other projects, and more internal HDD capacity will be purchased to meet the immediate demands. Many potential customers for SRM products still consider it too complex to delete, archive or manage storage better, so they will simply buy more capacity. What is more fun, shopping or tidying up your cupboards?

Since the last Magic Quadrant, vendors have made little progress in supporting either FCoE or iSCSI environments. Most SRM or SAN monitoring vendors will detect and display the iSCSI storage devices, but not the iSCSI or Ethernet networks with which they are connected. iSCSI is not really a new protocol, compared with FCoE. Nonetheless, the issue of which product or department manages the Ethernet storage network remains an outstanding challenge (see "Solve Operational Challenges Before Merging IP and Storage Networks"). FCoE storage and network monitoring support is faced with similar challenges, with little support other than from Brocade and Cisco, and then only for the FCoE network devices, with no detailed information for the server or storage nodes. Clients must explicitly check with any SAN or SRM vendor as to what is and is not detected, displayed or managed when using iSCSI and FCoE.

External cloud storage services are not supported by any of the SRM vendor products analyzed in this research. SRM vendors have not found strong demand from customers to include cloud storage visibility and, thus, they have not added relevant features. As large enterprises investigate cloud storage and create hybrid storage clouds, expect SRM vendors to respond to their demands to holistically manage internal and external storage resources. Until the acceptability of cloud storage moves up from the SMB market tier to enterprise acceptability, do not expect SRM vendors to add any significant cloud-related capability. Server-based and stand-alone solid-state disk (SSD) devices are also outside present SRM product reporting capabilities. Therefore, we see little FCoE, cloud storage and SSD support. New islands of unaccounted-for and operationally expensive storage that require separate management and reporting tools are appearing again.

Due to the ever-increasing proportions of IT budgets being spent on storage — on average 6.5% in 2011 (see "IT Key Metrics Data 2012: Key Infrastructure Measures: Storage Analysis: Current Year") — and the wide differences between usage patterns and customer requirements, the SRM market will continue to be populated by the large storage vendors, with the smaller vendors offering specialized or cost-competitive solutions. This will encourage segmentation and, therefore, will enable the major and specialist vendors to survive in this market.

The only acquisition in this market since the 2010 Magic Quadrant was NetApp's acquisition of Akorri.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Magic Quadrants and MarketScopes: How Gartner Evaluates Vendors Within a Market"

"Solve Operational Challenges Before Merging IP and Storage Networks"

"Use SSDs, Rather Than Disk Striping, to Improve Storage Performance and Cut Costs"

"Why, When and When Not to Purchase Storage Resource Management"

"How to Cope With a Worldwide Hard-Disk Shortage in 2012"

"Overcome Disk Autotiering Problems With These Deployment Recommendations"

"Navigate Through the Storage Innovation Doldrums"

"Application Requirements Must Drive Storage Purchasing Decisions"

"Why a Small Minority of Servers Increases Storage Costs"

"IT Market Clock for Storage, 2011"

"How Much and What Type of Disk Storage Do IT Departments Need"

"Recommendations for SAN Fabric Dashboards"

"Recommendations for a Storage Array Dashboard"

"Recommendations for a Backup and Recovery Dashboard"

"Recommendations for an Enterprise Information Archiving Dashboard"

Evidence

"IT Key Metrics Data 2012: Key Infrastructure Measures: Storage Analysis: Current Year"

"Forecast: Storage Management Software Market, Worldwide, 2008-2015, 4Q11 Update"

"Market Share: Storage Management Software, Worldwide, 2010"

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor 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 (Business Unit, Financial, Strategy, Organization): 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 investing in the product, to continue offering the product and to advance the state of the art within the organization's portfolio of products.

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

Market Responsiveness and Track 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 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.

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 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 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: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature set 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 verticals.

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.

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