

Vendor Landscape: Mid-Range to Entry Enterprise Storage Arrays

Find a storage solution that will support your organization's needs, now and in the future.

Introduction

Storage is the backbone of your IT infrastructure. Make sure yours is capable of supporting your organization's needs.

This Research Is Designed For:

- ✓ Enterprises seeking a solution for mid-range to entry enterprise-scale disk-based or hybrid storage arrays

This Research Will Help You:

- ✓ Understand what's new in the mid-range to entry enterprise storage array market.
- ✓ Evaluate storage array vendors and products for your enterprise needs.
- ✓ Determine which products are most appropriate for particular use cases and scenarios.

Executive Summary

Info-Tech evaluated eight competitors in the mid-range to entry enterprise storage array market, including the following notable performers:

Champions:

- **Dell** continues to assert its position among mid-range to entry-enterprise vendors with its strong Compellent offering.
- **EMC** is a champion for its comprehensive feature scores, as well as rock solid reliability.
- **Hitachi Data Systems'** HUS 100-series and HUS VM arrays have features to meet most organizations' needs at a surprisingly affordable price point.
- **HP's** new StoreServ 7000 brings some of the best features of its enterprise-focused line down to the mid-market.

Value Award:

- **Hitachi Data Systems** is by reputation an enterprise-level vendor, but the pricing on its HUS 100-series arrays should fit into most mid-range organizations' budgets as well.

Trend Setter Award:

- **IBM's** innovative SANSlide technology significantly streamlines site-to-site replication and enables organizations to get more mileage out of its existing IP networking infrastructure.

Info-Tech Insight



- 1. Expectations for storage are changing.**
Recent trends around virtualization, cloud computing, and data growth have pushed the SAN to its limit. Vendors are being forced to change their approach to storage architectures to meet today's requirements.
- 2. Ethernet is now a viable option.**
More organizations that started with Fibre Channel (FC) are evaluating the benefits of deploying their SAN on Ethernet. Vendors are responding by adding support for iSCSI and FC over Ethernet (FCoE).
- 3. Make your selection with the future in mind.** Don't count on your reseller to tell you what you need. Put together your list of needs and wants in an RFP, but keep in mind what's coming down the road. Consider the cost of scaling performance and capacity after the initial purchase, and clarify these with your vendor.

How to use this Vendor Landscape

There are multiple ways you can use this Info-Tech Vendor Landscape in your organization. Choose the option that best fits your needs:

Vendor Landscape



Do-It-Yourself

Use this Vendor Landscape to help you complete your purchasing decision. The slides in this VL will walk you through our recommended evaluated vendors in this market space with supporting tools and deliverables ready for you to make your decision.

Free Guided Implementation



We recommend that you supplement the Vendor Landscape with a **Guided Implementation**.

At no additional cost to you*, our expert analysts will provide telephone assistance to you and your team at key milestones in the decision to review your materials, answer your questions, and explain our methodologies.

*Gold and Silver level subscribers only

Book a free guided implementation today!

Info-Tech is just a phone call away and can assist you with your project. Our expert analysts can guide you to successful project completion. For most members, this service is available at no additional cost.*

Here's how it works:

1. Enroll in a Guided Implementation for your project

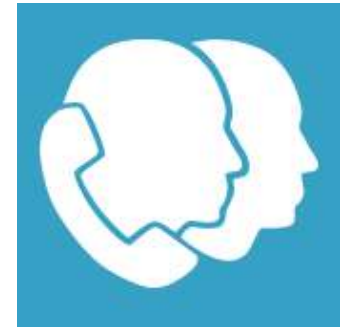
Send an email to GuidedImplementations@InfoTech.com
Or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

2. Book your analyst meetings

Once you are enrolled in a Guided Implementation, our analysts will reach out to book a series of milestone-related telephone meetings with you and your team.

3. Get advice from a subject matter expert

At each Guided Implementation point, our Consulting Analyst will review your completed deliverables with you, answer any of your questions, and work with you to plan out your next phase.



This symbol signifies when you've reached a Guided Implementation point in your project.

*Gold and Silver level subscribers only

Guided Implementation points in the Mid-Range to Entry Enterprise Storage Array Vendor Landscape

Book a Guided Implementation Today: Info-Tech is just a phone call away and can assist you with your evaluation. Our expert analysts can guide you to successful technology selection.

Here are the suggested Guided Implementation points for the Mid-Range to Entry Enterprise Storage Array Vendor Landscape:

Section 1: Shortlist Assistance and Requirements

Get off to a productive start: Discuss the market space and how vendors are evaluated. Decide on which deployment option suits you best and narrow down the options based on customized requirements.

Section 2: RFP and Budget Review

Interpret and act on RFP results: Review vendors' RFPs and ensure the solution will meet your needs. Discuss average pricing of solutions and what can fit into your budget.

Section 3: Negotiation and Contract Review

Purchase optimization: Review contracts and discuss best practices in negotiation tactics to get the best price for your solution.



This symbol signifies when you've reached a Guided Implementation point in your project.

To enroll, send an email to GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Market Overview

How it got here

- **Storage became a key enabler.** Over the past decade, networked storage expanded from being a high-end data management solution for large enterprises to providing the foundation for consolidation and virtualization.
- **High availability and data recoverability became a given.** Snapshots, site-to-site replication, and hardware redundancy continue to be must-have features across storage solutions.
- **VMware integration became a must.** While Microsoft Hyper-V has made some leaps in the last year, VMware still holds dominant market share. As most workloads become virtualized, joint management of storage and virtual infrastructure becomes critical.
- **Capacity requirements have exploded.** While the cost of disk is dropping, data growth rates are making it difficult to realize any savings. The explosion of unstructured data, especially, has made scalability a must-have for most organizations.

Where it's going

- **Start-ups are disrupting the market.** New entrants into the market are proposing innovative new approaches to the same old problems. Their disruptive solutions are driving the big players to innovate – or pursue a more aggressive acquisition strategy.
- **Flash will become increasingly ubiquitous.** Virtualization has driven up workload density and I/O, and the cost of flash is trending downward. Most vendors now deploy flash as a cache or as a tier of storage in SSDs, and many now offer an all-flash array.
- **Vendors are doubling down on software-defined storage.** If the gala EMC threw to announce its VIPR product is any indication, software-defined storage (SDS) is the next big thing; however, vendors still need to iron out the value proposition of SDS for themselves and their customers.
- **VVOLs are still on the horizon.** VMware has yet to pull the trigger on its Virtual Volume (VVOL) technology. Some vendors consider themselves prepared for the eventual release; others remain in wait-and-see mode.

Mid-Range to Entry Enterprise Storage Array vendor selection: market share, mind share, and platform coverage

- The storage array market has historically been dominated by a handful of major vendors. However, new contenders have emerged, shaking things up with innovative new features that have the potential to disrupt the field.
- For this Vendor Landscape, Info-Tech focused on those vendors that offer broad capabilities across multiple platforms and that have a strong market presence and/or reputational presence among mid- to entry-enterprise organizations.

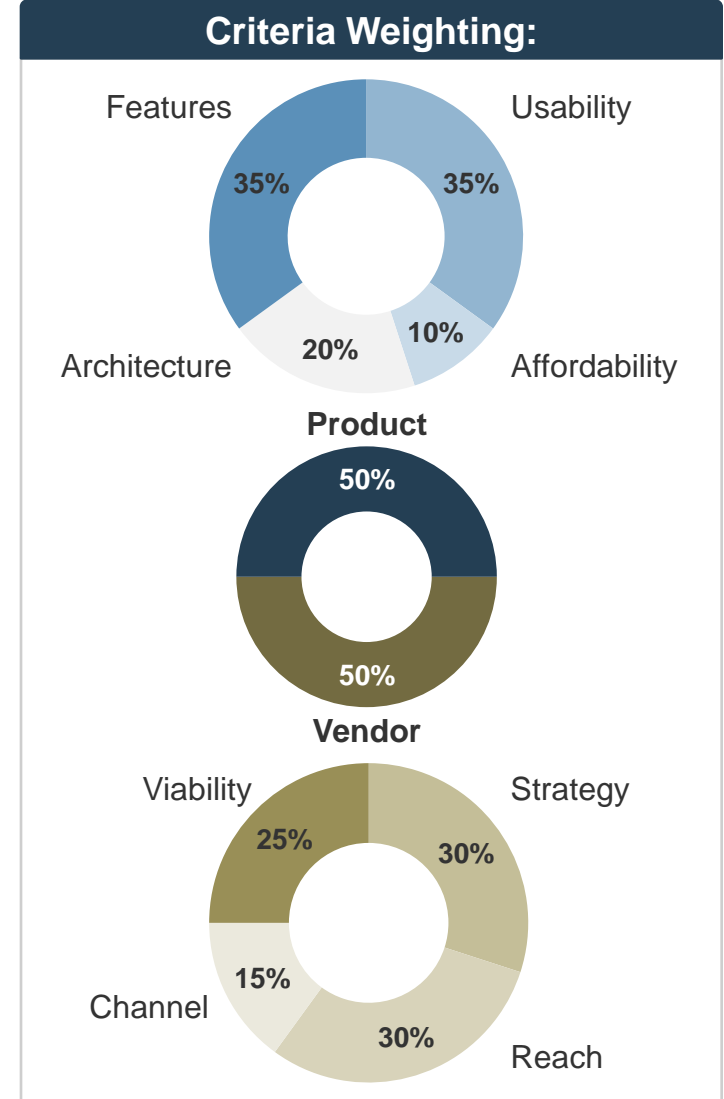
Included in this Vendor Landscape:

- **Dell** acquired Compellent in 2011, and has integrated it into its product family as a modular solution for mid-range to entry-enterprise organizations.
- **EMC** continues to dominate mind- and market-share for storage arrays, helped in no small part by its highly reliable, feature-rich VNX series arrays.
- **Hitachi Data Systems** has a reputation as an enterprise storage provider, but its HUS 100-series line is a versatile solution that can meet the needs of small or large organizations.
- **HP** continues to expand its flagship 3PAR line with the new StoreServ 7000, a good option for mid-range organizations.
- **IBM's** Storwize V7000 array is suitable for most mid- to entry-enterprise organizations. Organizations with more modest or more robust data requirements should also consider the new V5000 or the XIV, respectively.
- **NetApp's** lineage in unified mid-range storage has established it as a perennial contender in the mid-range storage market.
- **Nexsan** is a smaller provider, but its unified NST line offers exceptional reliability to organizations looking for a unified storage solution.
- **X-IO** focuses on providing highly reliable performance by innovating on the hardware end of the stack. Its 200-series and Hyper ISE lines deliver impressive performance per dollar and excellent reliability scores.

Mid-Range to Entry Enterprise Storage Array criteria & weighting factors

| Product Evaluation Criteria | |
|-----------------------------|--|
| Features | The solution provides basic and advanced feature/functionality. |
| Usability | The end-user and administrative interfaces are intuitive and offer streamlined workflow. |
| Affordability | Implementing and operating the solution is affordable given the technology. |
| Architecture | Multiple deployment options and extensive integration capabilities are available. |

| Vendor Evaluation Criteria | |
|----------------------------|---|
| Viability | Vendor is profitable, knowledgeable, and will be around for the long term. |
| Strategy | Vendor is committed to the space and has a future product and portfolio roadmap. |
| Reach | Vendor offers global coverage and is able to sell and provide post-sales support. |
| Channel | Vendor channel strategy is appropriate and the channels themselves are strong. |



The Info-Tech Mid-Range to Enterprise Storage Array Vendor Landscape

The Zones of the Landscape

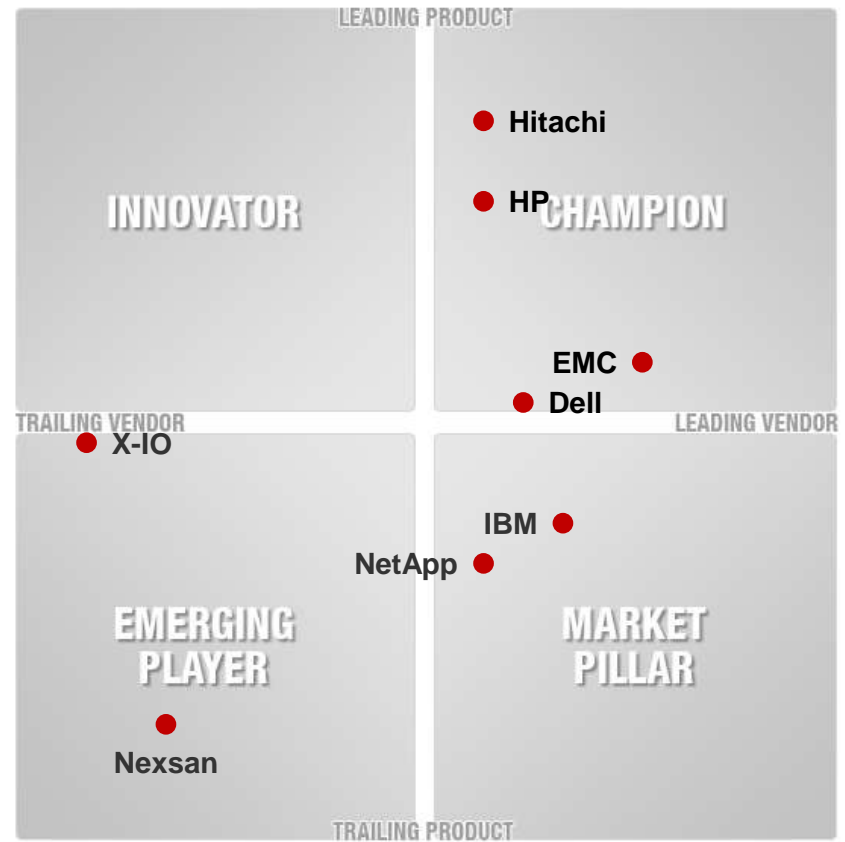
Champions receive high scores for most evaluation criteria and offer excellent value. They have a strong market presence and are usually the trend setters for the industry.

Market Pillars are established players with very strong vendor credentials, but with more average product scores.

Innovators have demonstrated innovative product strengths that act as their competitive advantage in appealing to niche segments of the market.

Emerging Players are comparatively newer vendors who are starting to gain a foothold in the marketplace. They balance product and vendor attributes, though score lower relative to market Champions.

The Info-Tech Mid-Range to Entry Enterprise Storage Array Vendor Landscape:



For an explanation of how the Info-Tech Vendor Landscape is created, see [Information Presentation – Vendor Landscape](#) in the Appendix.

Balance individual strengths to find the best fit for your enterprise

| | Product | | | | | Vendor | | | | |
|---------|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| | Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| Dell | | | | | | | | | | |
| EMC* | | | | | | | | | | |
| Hitachi | | | | | | | | | | |
| HP | | | | | | | | | | |
| IBM | | | | | | | | | | |
| NetApp* | | | | | | | | | | |
| Nexsan | | | | | | | | | | |
| X-IO | | | | | | | | | | |

Legend =Exemplary =Good =Adequate =Inadequate =Poor

*The vendor declined to provide pricing and publically available pricing could not be found

For an explanation of how the Info-Tech Harvey Balls are calculated, see [Information Presentation – Criteria Scores \(Harvey Balls\)](#) in the Appendix.

The Info-Tech Mid-Range to Enterprise Storage Array Value Index

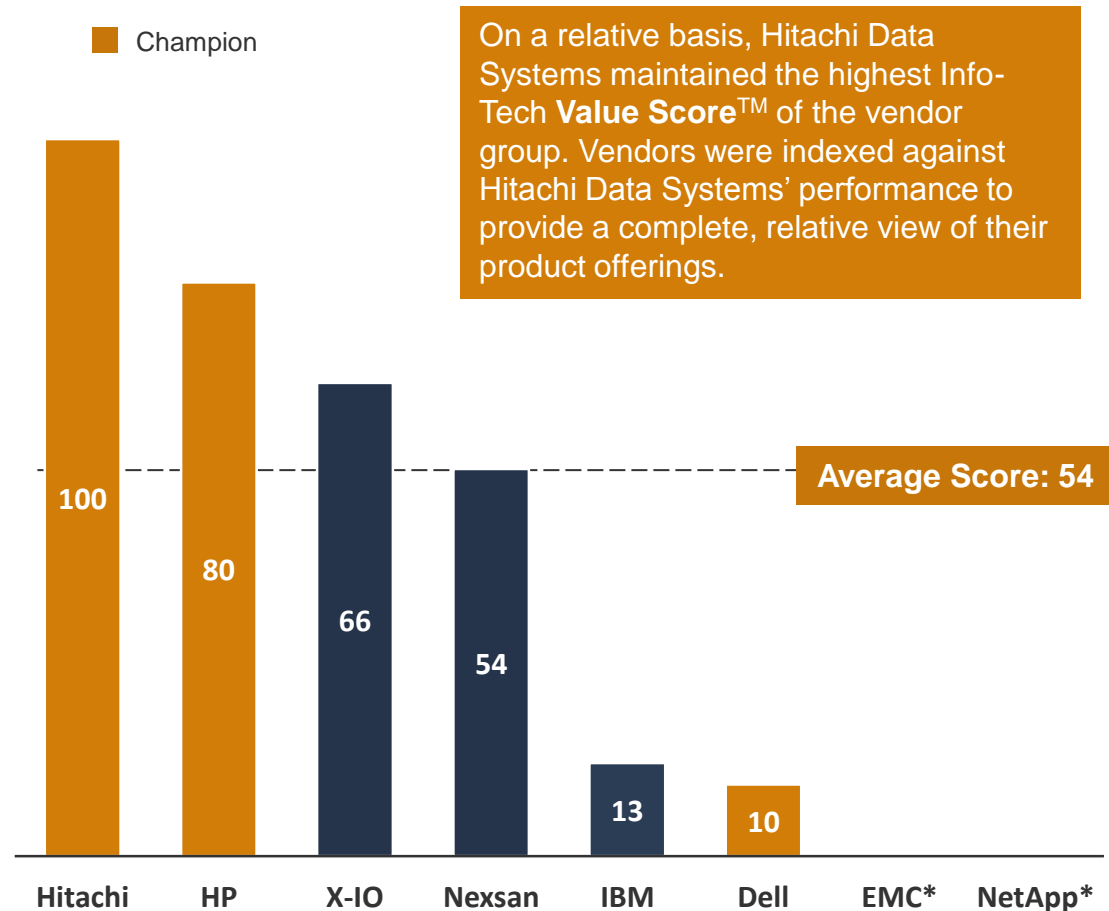
What is a Value Score?

The Value Score indexes each vendor's product offering and business strength **relative to their price point**. It **does not** indicate vendor ranking.

Vendors that score high offer more **bang-for-the-buck** (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

* The vendor declined to provide pricing and publically available pricing could not be found



For an explanation of how Price is determined, see [Information Presentation – Price Evaluation](#) in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see [Information Presentation – Value Index](#) in the Appendix.

Table Stakes represent the minimum standard; without these, a product doesn't even get reviewed

| Feature | What it is: |
|-----------------------------------|--|
| Fibre Channel Support | The solution supports the Fibre Channel protocol. |
| Active/Active Controllers | The array deploys two controllers with concurrent access to the drives to ensure little or zero interruption in service in the event that one controller fails. |
| Site-to-site Replication | Data can be replicated between sites for failover capabilities to enable disaster recovery. |
| VAAI Support | The solution supports VMware vSphere Storage APIs for Array Integration (VAAI). |
| Performance Monitoring App | The solution includes a user interface that provides monitoring and trending reports, with drill-down capabilities into virtual- and non-virtual machines and servers. |

What Does This Mean?

The products assessed in this Vendor Landscape™ meet, at the very least, the requirements outlined as Table Stakes.

Many of the vendors go above and beyond the outlined Table Stakes, some even do so in multiple categories. This section aims to highlight the products' capabilities **in excess** of the criteria listed here.

Info-Tech Insight

If Table Stakes are all you need from your mid-range to entry enterprise storage array solution, the only true differentiator for the organization is price. Otherwise, dig deeper to find the best price to value for your needs.

Advanced Features are the capabilities that allow for granular market differentiation

Scoring Methodology

Info-Tech scored each vendor's features offering as a summation of their individual scores across the listed advanced features. Vendors were given one point for each feature the product inherently provided. Some categories were scored on a more granular scale with vendors receiving half points.

Advanced Features

| Feature | What we looked for: |
|--|--|
| Block Deduplication | Data is deduplicated on a per-block basis. |
| Inline Compression | Data is compressed inline as it is stored on the array. |
| Auto-tiering | The array automatically allocates performance-intensive data to high-performance media. |
| Flash Caching at the Controller | The array caches performance-intensive data on SSDs or PCIe-based flash storage. |
| Virtualization of Connected Storage | The array can virtualize connected external storage targets to facilitate management of these resources. |
| VASA Support | The array supports vCenter Storage Awareness (VASA) features. |
| SRM Support | The array supports vStorage APIs for Site Recovery Manager (SRM). |
| Multi-tenancy | The array supports the sharing of resources among independent "tenants" while maintaining isolation of data and services. |
| Scale-out Architecture | The array supports the addition of nodes that work in concert to increase available compute power and capacity. |
| Quality of Service | The array can be configured so that specific VMs, LUNs, or volumes receive guaranteed levels of performance consistent with user-set policies. |

For an explanation of how Advanced Features are determined, see [Information Presentation – Feature Ranks \(Stoplights\)](#) in the Appendix.

Each vendor offers a different feature set; concentrate on what your organization needs

| | Evaluated Features | | | | | | | | | |
|-----------|--------------------|--------------------|--------------|-------------------------------|-------------------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| | Block Dedupe | Inline Compression | Auto-tiering | SSD Caching at the Controller | Virtualization of Connected Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
| Dell | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| EMC | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Hitachi * | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| HP | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| IBM | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| NetApp | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Nexsan | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| X-IO | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Legend ● =Feature fully present ● =Feature partially present/pending ● =Feature absent

* For Hitachi, a blue stoplight indicates a feature that is available on the HDS HUS-VM array, but not on the HUS-100 series arrays.

For an explanation of how Advanced Features are determined, see [Information Presentation – Feature Ranks \(Stoplights\)](#) in the Appendix.

Shortlist Assistance & Requirements



Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Prior to the Guided Implementation

1. Have reasoning as to why a new solution is being discussed.
2. Compile list of incompetencies and gaps.

During the Guided Implementation

An Info-Tech Consulting Analyst will discuss with you:

- Review the market and understand the rationale behind the evaluation.
- Decide deployment method.
- Analyze required and available features.

Value & Outcome

At the conclusion of the Guided Implementation call, you will have:

- Deep understanding of the market situation.
- Narrow list of vendors with customized evaluation tool.
- RFP template to distribute to vendors.

Narrow down the market depending on your existing or planned fabric investments

Every vendor reviewed supports FibreChannel, SMB, and NFS. Many also support iSCSI and FCoE protocols.

1 Protocol Support

2

3

Why Scenarios?

In reviewing the products included in each Vendor Landscape™, certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

iSCSI Support



EMC²

HITACHI
DATA SYSTEMS



NEXSAN
by imation

FCoE Support



EMC²



For an explanation of how Scenarios are determined, see [Information Presentation – Scenarios](#) in the Appendix.

Choose a solution that simplifies management to reduce operational effort

A solution that streamlines management can free up your technicians' time to pursue more strategic projects.

1

2 Ease of Management

3

Why Scenarios?

In reviewing the products included in each Vendor Landscape™, certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Exemplary Performers



X-IO boasts a fast, simple installation. Systems can be directly managed via a web-based UI, SSH, or a RESTful API. Larger grids can be managed with ISE manager or a RESTful API. The tool offers performance information and event logging, supplemented by the Active watch telemetric, phone-home monitoring tool. The big value comes from X-IO's innovative self-healing capabilities, which improve the longevity of the hardware and contribute to a very low return rate.



Hitachi Command Suite (HCS), an integrated management suite, consists of configuration, provisioning, data protection, data management, and performance optimization tools. HCS centralizes and consolidates management operations under a common GUI and includes analytics and correlations wizards for root cause analysis. Hitachi Data Systems also supports phone-home monitoring with the Hi-Track Remote Monitoring System.

For an explanation of how Scenarios are determined, see [Information Presentation – Scenarios](#) in the Appendix.

Make your selection future-ready by understanding your vendor's approach to adding capacity and performance

Your performance and capacity needs could change dramatically over the life of your array. Ensure that it is able to scale to meet your growing needs.

3 Scaling Capabilities

Why Scenarios?

In reviewing the products included in each Vendor Landscape™, certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Node-based Scaling



EMC²
Available via
VPLEX

HITACHI
DATA SYSTEMS



IBM



X-IO™

Controller Upgrade (Zero Downtime)



EMC²
Available via
VPLEX

HITACHI
DATA SYSTEMS



IBM

NEXSAN
by imation

For an explanation of how Scenarios are determined, see [Information Presentation – Scenarios](#) in the Appendix.

RFP & Budget Review



Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Prior to the Guided Implementation

1. Collect RFPs from vendors based on the template provided.

During the Guided Implementation

Info-Tech Consulting Analyst will discuss with you:

- Review price benchmarking
- Review returned RFPs

Value & Outcome

At the conclusion of the Guided Implementation call, you will have:

- Narrow list of vendors
- Clear understanding of the capabilities of the solutions on the shortlist
- A demo script to use during presentations with the final list of vendors

Dell Compellent comes with a good pedigree in data movement and protection, and a strong support program

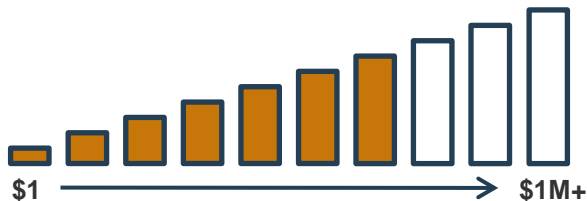


Champion

Product: Dell Compellent SC8000 Controller; Storage Center 6.4
Employees: ~110,000
Headquarters: Round Rock, TX
Website: dell.com
Founded: 1984
Presence: Privately Held



3 year TCO for this solution falls into pricing tier 7, between \$100,000 and \$250,000



Pricing provided by vendor

Overview

- Dell Compellent is a highly scalable, flexible storage solution.
- Compellent offers flash storage solutions for high-performance applications and workloads, as well as cost-effective dense solutions for higher-capacity needs.

Strengths

- Automatic tiering between SLC for write operations and less expensive MLC for read operations optimizes performance and manages costs by taking advantage of the specific strengths of each media.
- Perpetual licensing model enables customers to upgrade hardware without rebuying software licenses, facilitating economical growth.
- FluidFS scale-out file solution provides scalable NAS storage for customers that require both SAN and NAS.

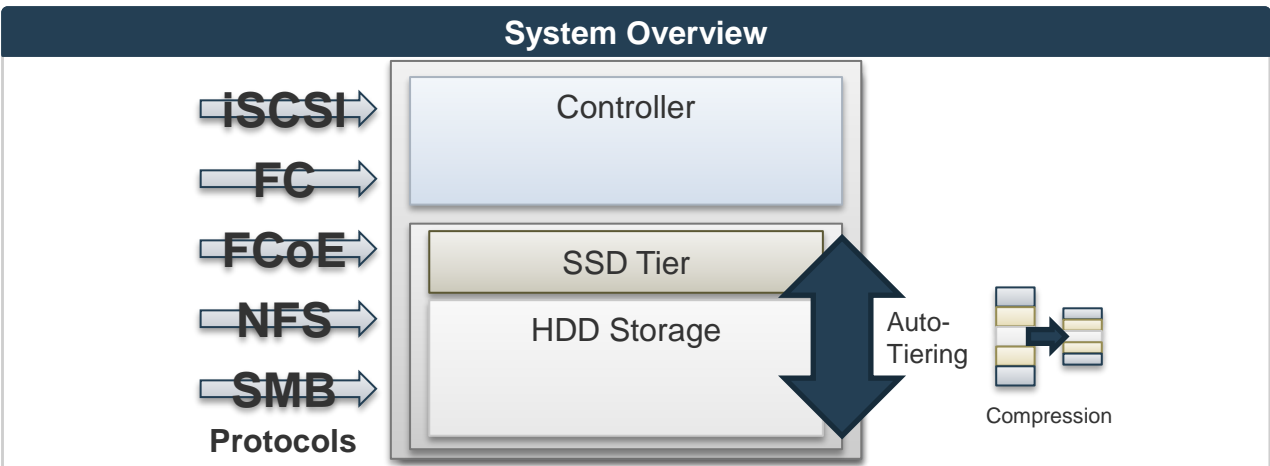
Challenges

- Compellent does not yet support data deduplication for block storage, though customers deploying FluidFS can take advantage of deduplication and compression features in their NAS storage.
- Wide striping enables administrators to lock an application or database to a particular drive; however, true per-VM, per-LUN, or per-volume quality of service controls are not currently available.

Dell makes a compelling case for organizations looking for a flexible, scalable storage solution



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| | | | | | | | | | |



Features

| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| | | | | | | | | | |

Info-Tech Recommends:

Compellent was an early innovator in auto-tiering technology, a tradition that continues with its approach to PCIe cards in the SC8000 array. Companies with demanding expectations for data management, data movement, and data protection should consider Compellent.

EMC's comprehensive VNX line has a solution that will meet the needs of most enterprises

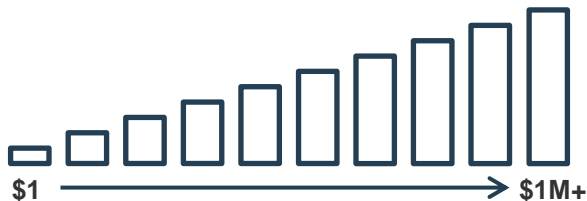


Champion

Product: EMC VNX5500, 5700, 7500
Employees: ~60,000
Headquarters: Hopkinton, MA
Website: emc.com
Founded: 1979
Presence: NYSE: EMC



The vendor declined to provide pricing, and publically available pricing could not be found



Overview

- EMC is the perennial market- and mind-share leader in the storage array space. The VNX series includes a number of appliances to meet the needs of the enterprise from the mid-range on up.

Strengths

- Fully Automated Storage Tiering for Virtual Pools (FAST VP) sub-LUN tiering technology automatically devises and implements a policy that enables a storage pool to efficiently use various levels of drives.
- Stand-out VMware integration, enabled by the no-charge Virtual Storage Integrator (VSI) plugin, which greatly simplifies configuration and management of virtual machine storage.
- Customers have spoken highly of their EMC solution's reliability and comprehensive feature set.

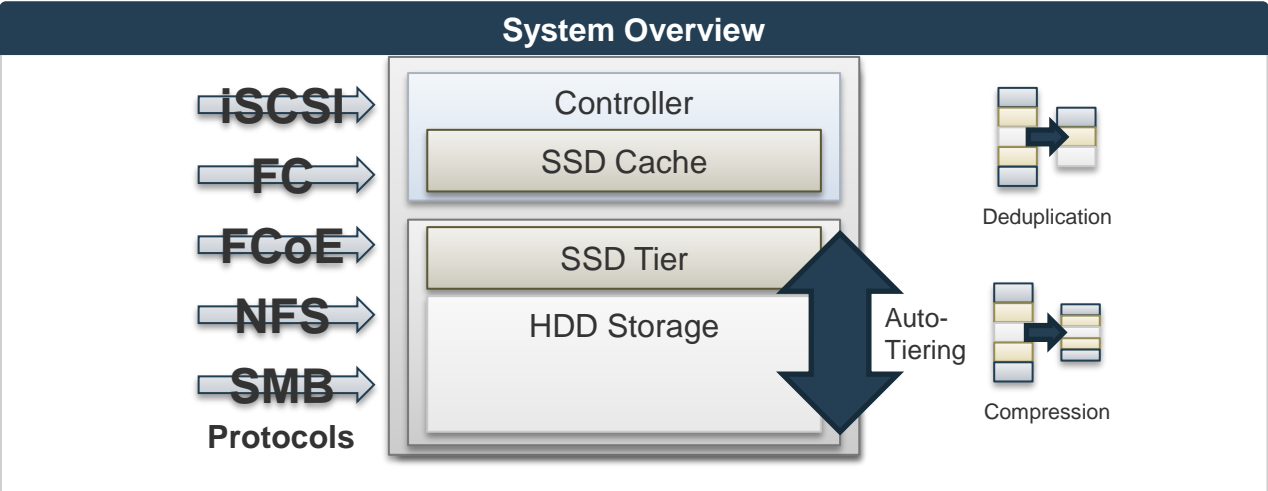
Challenges

- Some Info-Tech clients have reported that the cost of scaling up capacity and performance can be prohibitive.
- Because of EMC's position in the market, they are rarely the first to implement innovative new features; however, they are frequently fast followers and successfully introduce new storage technologies to a wider market.

An impressive breadth of features as well as outstanding vendor scores cement EMC's place as a Champion



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| ● | ● | ● | ○ | ● | ● | ● | ● | ● | ● |



| Features | | | | | | | | | |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Value Index

N/A

The vendor declined to provide pricing, and publically available pricing could not be found

Info-Tech Recommends:

EMC continues to demonstrate why it is the market leader in the storage array market. The VNX series now offers a range of solutions that should meet most organizations' needs, though managing the cost of scaling down the road will be key to getting maximum value from your investment.

Hitachi Data Systems delivers impressive value with its 100-series arrays

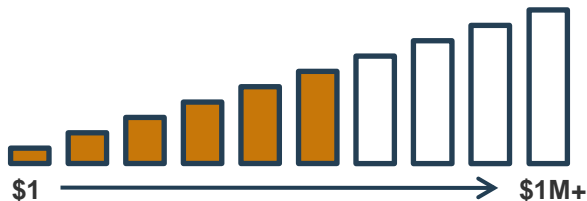


Champion

Product: Hitachi Unified Storage (HUS) VM and HUS 100-series
Employees: 6,100
Headquarters: Santa Clara, CA
Website: hds.com
Founded: 1980
Presence: NASDAQ: HTHIY



3 year TCO for this solution falls into pricing tier 6, between \$50,000 and \$100,000



Pricing provided by vendor

Overview

- The HUS 100 was released in 2012, replacing the HDS AMS line of mid-range storage products. The HUS VM, marketed at entry enterprise organizations, bridges the gap between the HUS 100 series and HDS's VSP offering.

Strengths

- The HUS series arrays are designed for reliability. The HUS VM comes with a 100% data availability guarantee.
- Hitachi Command Suite (HCS) is a common management platform for provisioning, configuring, protecting, and optimizing data storage from a central console. It provides a common set of tools that work across the HDS product line, simplifying management significantly.
- Hitachi has historically been a leader in storage virtualization technology.

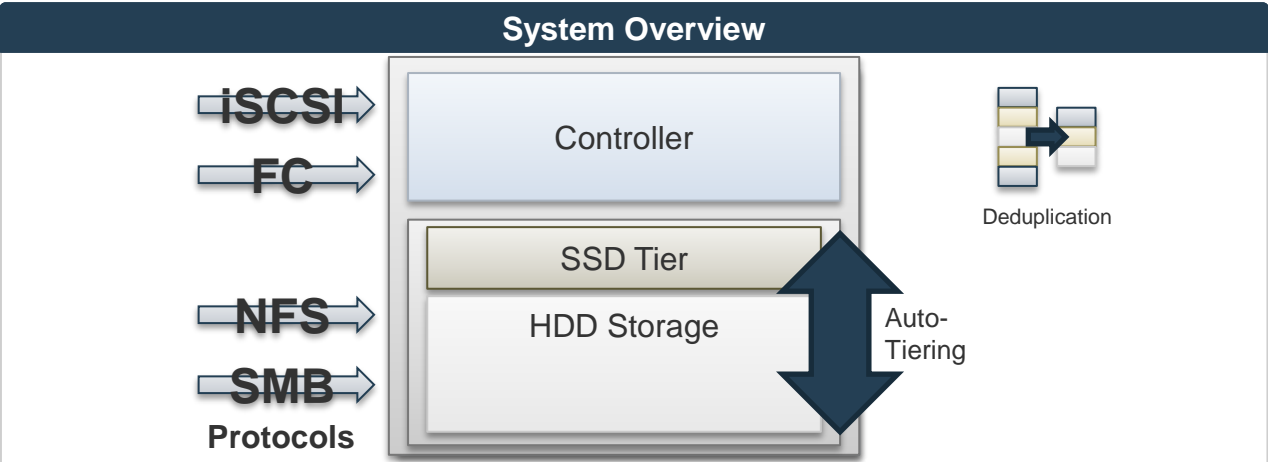
Challenges

- Hitachi continues to battle its reputation as an enterprise-focused vendor, though the 100-series of products scales to the mid-market quite capably.
- Many advanced features are available on the HUS VM model but not on the 100-series arrays. Customers considering the latter should carefully query the vendor to ensure that the features they require are available at their desired price point.
- Compression is not available at this time.

HDS offers feature-rich solutions at a surprisingly reasonable price point



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |



| Features | | | | | | | | | |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Note: A blue stoplight indicates a feature that is available on the HUS-VM array but not the 100-series.

Info-Tech Recommends:

In spite of its reputation as an enterprise-focused vendor, Hitachi Data Systems' 100-series arrays provide a robust feature set at a cost that is affordable for mid-market organizations. The high usability factor makes the HUS-line an even more attractive option, though organizations needing the full feature set will have to take a close look at the more expensive HUS-VM.

The StoreServ 7000 expands and enhances HP's already impressive 3PAR line

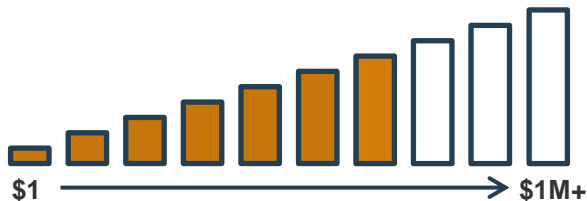


Champion

Product: 3PAR StoreServ 7000 Storage
Employees: 300,000+
Headquarters: Palo Alto, CA
Website: hp.com
Founded: 1939
Presence: NYSE: HPQ



3 year TCO for this solution falls into pricing tier 7, between \$100,000 and \$250,000



Pricing provided by vendor

Overview

- HP's 3PAR has historically been a strong enterprise-focused product. As the newest addition to the 3PAR family, the StoreServ 7000 benefits from this lineage, delivering tier-one availability and performance at an accessible price point.

Strengths

- Storeserv delivers highly consistent performance upfront and at high levels of utilization.
- Autonomic platform reduces management time significantly.
- HP's multi-platform architecture spans high-end, mid-range, and flash storage applications, enabling organizations to consolidate around HP products.
- Peer motion storage federation dynamically and non-disruptively distributes data and workloads across peer arrays, enabling rapid migration of data and workloads.

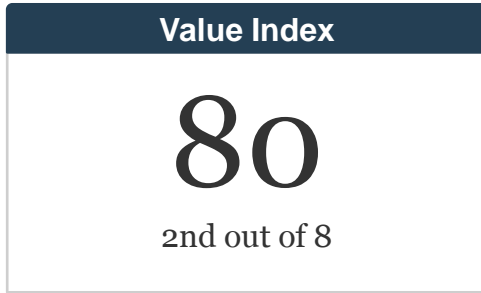
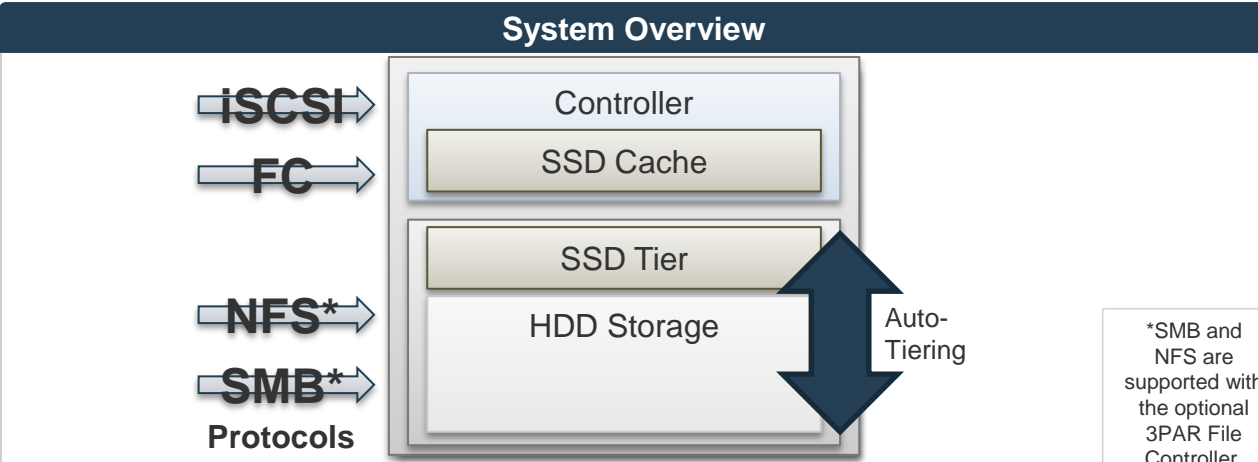
Challenges

- Data compression is not currently available on StoreServ 7000-series arrays.
- Info-Tech clients have expressed some dissatisfaction with HP's support capabilities.

Integration across product families makes the StoreServ a natural choice for shops with existing HP investments



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| | | | | | | | | | |



Features

| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| | | | | | | | | | |

Info-Tech Recommends:

HP's new StoreServ 7000 is a welcome addition to its product line, bridging the gap between StoreVirtual and 3PAR. The 7000 is a solid, all-around solution that delivers a comprehensive feature set at an accessible price point, though organizations looking for features like compression may be disappointed.

The Storwize line benefits from IBM's recent focus on storage and data management

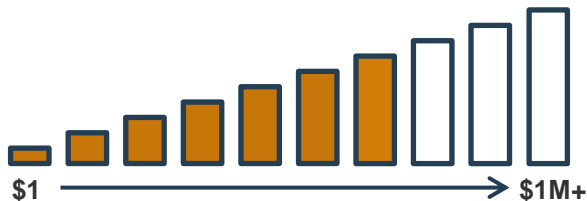


Market Pillar

Product: IBM Storwize V7000
Employees: ~435,000
Headquarters: Armonk, NY
Website: ibm.com
Founded: 1911
Presence: NYSE: IBM



3 year TCO for this solution falls into pricing tier 7, between \$100,000 and \$250,000



Pricing provided by vendor

Overview

- IBM's Storwize solution unites SAN Volume Controller (SVC) virtualization with elements of its enterprise-focused XIV management interface in one package for mid-range to entry-enterprise organizations.

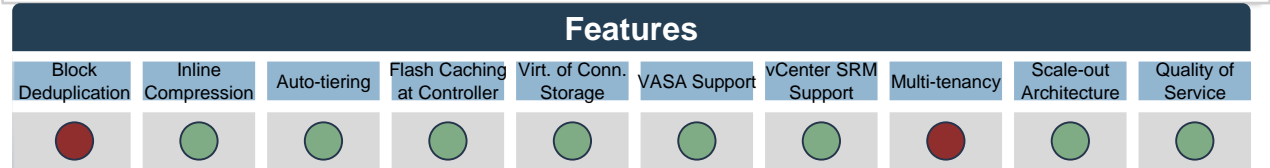
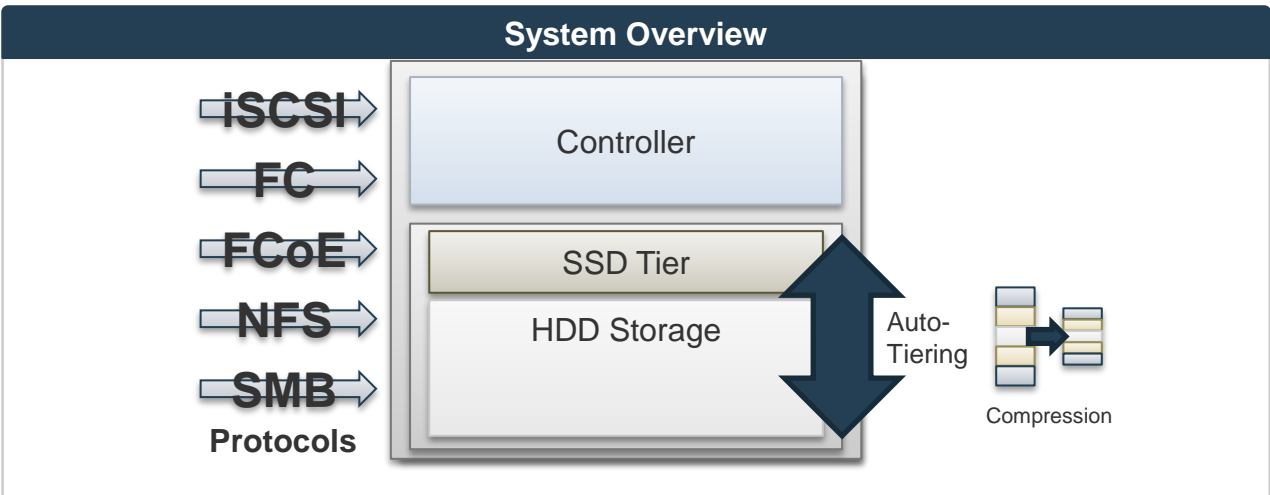
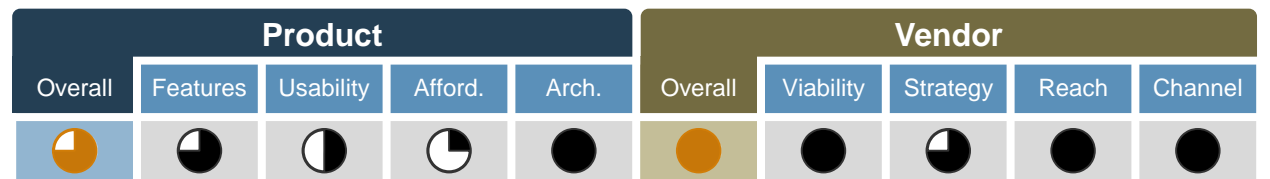
Strengths

- SANSlide feature optimizes site-to-site replication by enabling data transfer over IP networks. By using multiple virtual connections and transmitting data in parallel, SANSlide minimizes latency while allowing organizations to use less costly existing infrastructure.
- Storwize enables virtualization of existing array assets as extensions of the V7000, reducing overall costs.
- IBM's unique real-time compression feature effectively reduces data without affecting performance.

Challenges

- Deduplication is not currently available; IBM indicates that various studies have found that compression offers similar or better benefits than deduplication for many workloads.
- Some Info-Tech clients have expressed confusion around the relationship between Storwize and XIV due to some overlapping features. Typically, XIV is marketed at larger enterprises while Storwize is a fit for mid-range to entry-enterprise organizations.

IBM continues to innovate with its Storwize line, and expands the product family to attract more mid-range organizations



Info-Tech Recommends:

IBM's impressive SANSlide technology makes Storwize an attractive choice for mid-sized organizations who want to optimize their co-located storage. The new V5000 makes Storwize more accessible to smaller organizations, while the XIV line is a fit for larger enterprises.

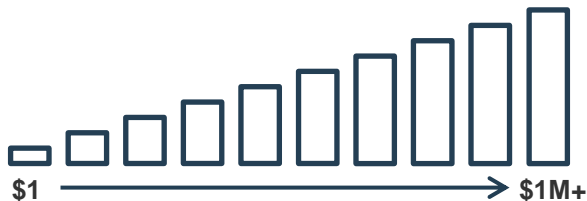
A perennial leader in the storage market, NetApp has enhanced ONTAP to meet the needs of growing organizations

Market Pillar

Product: FAS 3200 and 6200 series
Employees: 13,060
Headquarters: Sunnyvale, CA
Website: netapp.com
Founded: 1992
Presence: NASDAQ: NTAP



The vendor declined to provide pricing, and publically available pricing could not be found



Overview

- A consistently strong player in the storage array market, NetApp continues to enhance its value proposition with its clustered ONTAP technology and strong support for VMware environments.

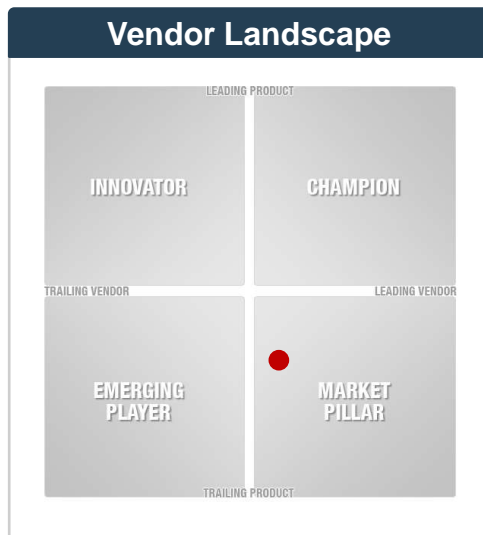
Strengths

- Virtual Storage Tier (VST) evaluates workload priorities in realtime to efficiently manage cost and performance between high-capacity SATA disks and high-performance Flash-based technology.
- Strong technology partner network includes FusionIO, enabling integration of server-side technology into management and storage tiering software.
- FlexCache technology provides scale-out caching of NFS and SMB files for increased real bandwidth.

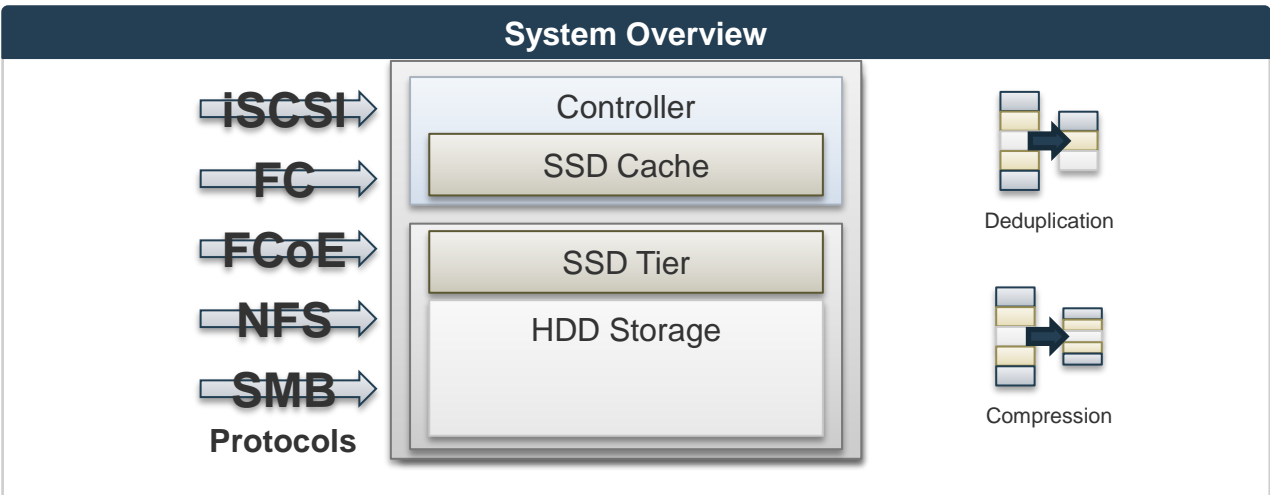
Challenges

- Some NetApp customers have noted that transitioning to ONTAP 8.2's clustered mode can be challenging, and involves a steep learning curve. However, there are tools built into the OS to facilitate the process.
- Some Info-Tech customers have expressed dissatisfaction with increases to maintenance and support costs following initial contract terms.

The addition of clustered mode makes NetApp's solution a viable option for organizations looking for a scalable solution



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| | | | | | | | | | |



Features

| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| | | | | | | | | | |

Info-Tech Recommends:

NetApp's FAS series of arrays offers scalable capacity and performance as well as strong data reduction and disk utilization capabilities. The innovative use of flash as cache helps the solution maintain performance.

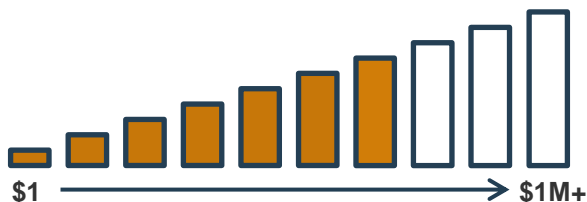
The NST Series array, Nexsan's entrant into unified storage, is a robust solution for demanding workloads

Emerging Player

Product: Nexsan NST Series
Employees: ~970
Headquarters: Oakdale, MN
Website: nexsan.com
Founded: 1996
Presence: NYSE: IMN



3 year TCO for this solution falls into pricing tier 7, between \$100,000 and \$250,000



Pricing provided by vendor

Overview

- Imation's Nexsan NST storage appliances impress for their reliability, density, and cost effectiveness.
- The ability to independently scale capacity and performance makes the NST a flexible storage option.

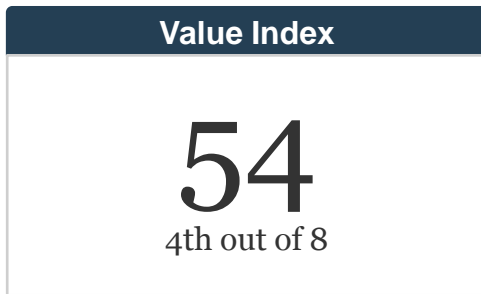
Strengths

- Linear, non-disruptive capacity scaling from 9TB up to 5PB. FASTier SSD cache scales up to 9TB with the flexibility to assign cache to specific pools of storage.
- FASTier acceleration technology uses NVRAM as a write cache and SSD as a read cache alongside spinning disk to drive up performance without breaking the bank.
- Includes integrated data management and data protection features.

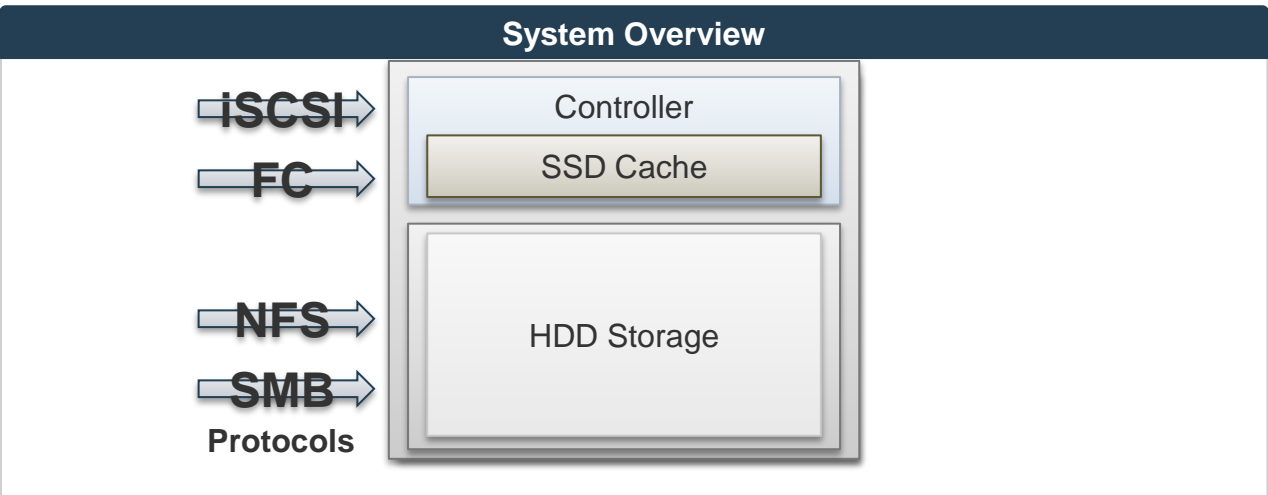
Challenges

- Though the NST series offers a more comprehensive feature set than Nexsan's E-Series, Nexsan's primary focus on hardware means that its solution lacks some advanced data management capabilities that some customers may expect.
- Nexsan enjoys strong customer approval ratings, though its reputation as an SME-focused vendor may make it difficult to penetrate into bigger markets. The Imation acquisition should enhance Nexsan's position in this regard.

Nexsan's NST delivers maximum value-per-unit with a highly efficient array solution



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
| | | | | | | | | | |



Features

| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| | | | | | | | | | |

Info-Tech Recommends:

Nexsan has invested in the reliability of its solution with anti-vibration and cooling technologies. These qualities, as well as its strong performance scores, make its NST arrays a good match for big data initiatives as well as highly virtualized environment. With snapshots and replication capabilities, the NST is also an option for dependable primary storage.

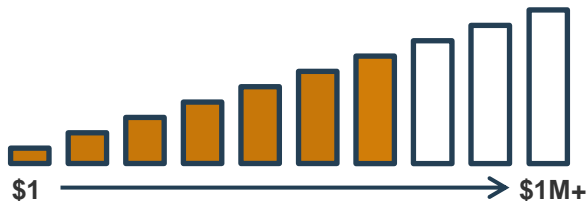
X-IO's philosophy means not charging customers for features they don't need or won't use

Emerging Player

Product: X-IO 200 series and Hyper ISE 7-Series
Employees: 200
Headquarters: Colorado Springs, CO
Website: x-io.com
Founded: 1998
Presence: Privately Held



3 year TCO for this solution falls into pricing tier 7, between \$100,000 and \$250,000



Pricing provided by vendor

Overview

- X-IO's unique approach is to provision storage that is deployed and managed from a distinct software layer, leaving the array uncluttered by unnecessary data management features.
- Recent focus has been on VMware applications.

Strengths

- Self-healing capabilities, along with anti-vibration and cooling capabilities, extend product lifespan. X-IO offers a five-year standard warranty on its products. The system is capable of delivering on performance even as drives approach capacity, extending the product lifecycle.
- Continuous Adaptive Data Placement (CADP) algorithm moves data between SSD and HDD in five-second intervals based on ROI calculations that establish which "hotspot data" will yield the best overall performance benefit to the system if promoted.

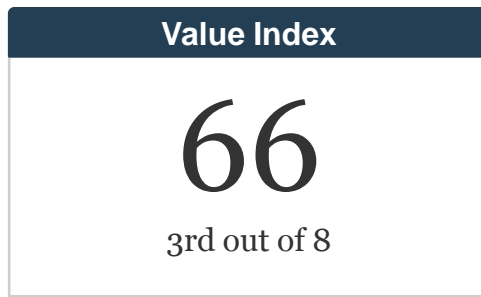
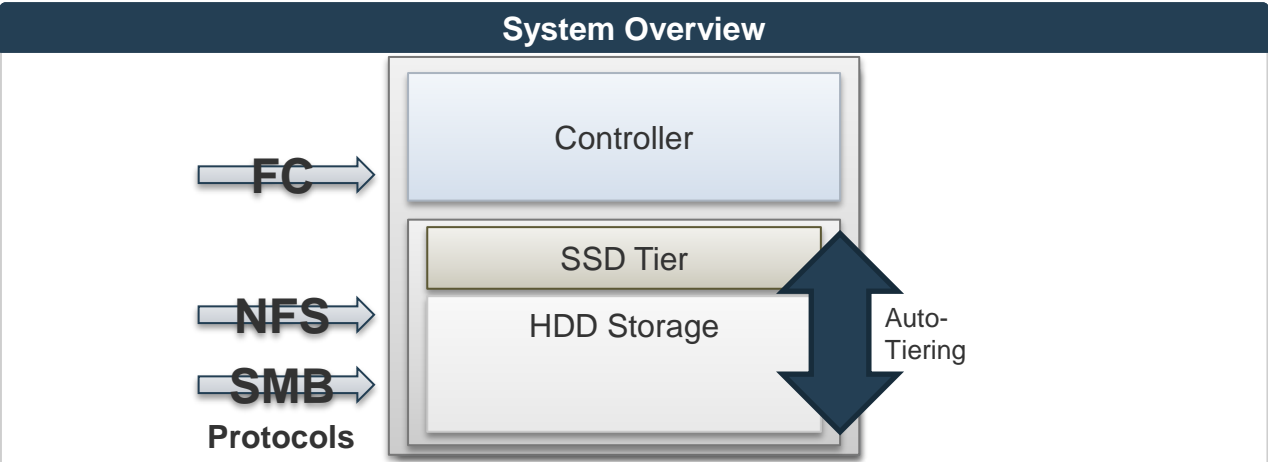
Challenges

- X-IO's focus is on attributes such as reliability, product lifecycle, self-healing, and high availability. As a result the solution lacks a number of data management features such as inline deduplication and compression, which some organizations have come to expect.

X-IO's focus on hardware has led to an extremely reliable solution that delivers performance at a reasonable cost



| Product | | | | | Vendor | | | | |
|---------|----------|-----------|---------|-------|---------|-----------|----------|-------|---------|
| Overall | Features | Usability | Afford. | Arch. | Overall | Viability | Strategy | Reach | Channel |
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| Features | | | | | | | | | |
|---------------------|--------------------|--------------|-----------------------------|------------------------|--------------|---------------------|---------------|------------------------|--------------------|
| Block Deduplication | Inline Compression | Auto-tiering | Flash Caching at Controller | Virt. of Conn. Storage | VASA Support | vCenter SRM Support | Multi-tenancy | Scale-out Architecture | Quality of Service |
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Info-Tech Recommends:

X-IO's 200-series and Hyper ISE 7-Series are strong fits for organizations with heavily virtualized environments, or who are less interested in advanced features than in reliable storage that provides a strong backbone for third-party data management software. The feature set of each series is identical, with the Hyper ISE offering real-time tiering to SSD memory and different capacity points.

Contract Review and Negotiation Tactics



Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Prior to the Guided Implementation

1. Bring final contracts received from vendors on shortlist.

During the Guided Implementation

Info-Tech Consulting Analyst will discuss with you:

- Review contracts with clients, ensure the contract is fair and inline with industry standards
- Discuss the best negotiation tactics to get the best value for your purchase

Value & Outcome

At the conclusion of the Guided Implementation call, you will have:

- Tactics on how to get a better price on your solution
- **Confidence** in the solution you are purchasing

Identify leading candidates with the *Mid-Range to Entry Enterprise Storage Arrays Vendor Shortlist Tool*

The Info-Tech [Mid-Range to Entry Enterprise Storage Arrays Vendor Shortlist & Detailed Feature Analysis Tool](#) is designed to generate a customized shortlist of vendors based on *your* key priorities.

This tool offers the ability to modify:

- Overall Vendor vs. Product Weightings
- Individual product criteria weightings:
 - ✓ Features
 - ✓ Usability
 - ✓ Affordability
 - ✓ Architecture
- Individual vendor criteria weightings:
 - ✓ Viability
 - ✓ Strategy
 - ✓ Reach
 - ✓ Channel



INFO-TECH
RESEARCH GROUP

Custom Vendor Landscape™ and Vendor Shortlist

Your customized Vendor Shortlist is sorted based on the priorities identified on the Data Entry tab. Scores are calculated using the Client Weightings and the assigned Info-Tech Vendor Landscape scores. Vendors are ranked based on the computed Average Score. The Average Score is the average of the weighted average Vendor Score and the weighted average Product Score. A custom Vendor Landscape™ has been generated as well, plotting the weighted average Vendor Score against the weighted average Product Score.

Custom Vendor Landscape™ for [Enterprise Name]



Appendix

1. Vendor Landscape Methodology: Overview
2. Vendor Landscape Methodology: Product Selection & Information Gathering
3. Vendor Landscape Methodology: Scoring
4. Vendor Landscape Methodology: Information Presentation
5. Vendor Landscape Methodology: Fact Check & Publication
6. Product Pricing Scenario

Vendor Landscape Methodology: Overview

Info-Tech's Vendor Landscapes are research materials that review a particular IT market space, evaluating the strengths and abilities of both the products available in that space, as well as the vendors of those products. These materials are created by a team of dedicated analysts operating under the direction of a senior subject matter expert over a period of six weeks.

Evaluations weigh selected vendors and their products (collectively "solutions") on the following eight criteria to determine overall standing:

- **Features:** The presence of advanced and market-differentiating capabilities.
- **Usability:** The intuitiveness, power, and integrated nature of administrative consoles and client software components.
- **Affordability:** The three-year total cost of ownership of the solution.
- **Architecture:** The degree of integration with the vendor's other tools, flexibility of deployment, and breadth of platform applicability.
- **Viability:** The stability of the company as measured by its history in the market, the size of its client base, and its financial performance.
- **Strategy:** The commitment to both the market-space, as well as to the various sized clients (small, mid-sized, and enterprise clients).
- **Reach:** The ability of the vendor to support its products on a global scale.
- **Channel:** The measure of the size of the vendor's channel partner program, as well as any channel strengthening strategies.

Evaluated solutions are plotted on a standard two by two matrix:

- **Champions:** Both the product and the vendor receive scores that are above the average score for the evaluated group.
- **Innovators:** The product receives a score that is above the average score for the evaluated group, but the vendor receives a score that is below the average score for the evaluated group.
- **Market Pillars:** The product receives a score that is below the average score for the evaluated group, but the vendor receives a score that is above the average score for the evaluated group.
- **Emerging Players:** Both the product and the vendor receive scores that are below the average score for the evaluated group.

Info-Tech's Vendor Landscapes are researched and produced according to a strictly adhered to process that includes the following steps:

- Vendor/product selection
- Information gathering
- Vendor/product scoring
- Information presentation
- Fact checking
- Publication

This document outlines how each of these steps is conducted.

Vendor Landscape Methodology: Vendor/Product Selection & Information Gathering

Info-Tech works closely with its client base to solicit guidance in terms of understanding the vendors with whom clients wish to work and the products that they wish evaluated; this demand pool forms the basis of the vendor selection process for Vendor Landscapes. Balancing this demand, Info-Tech also relies upon the deep subject matter expertise and market awareness of its Senior, Lead, and Principle Research Analysts to ensure that appropriate solutions are included in the evaluation. As an aspect of that expertise and awareness, Info-Tech's analysts may, at their discretion, determine the specific capabilities that are required of the products under evaluation, and include in the Vendor Landscape only those solutions that meet all specified requirements.

Information on vendors and products is gathered in a number of ways via a number of channels.

Initially, a request package is submitted to vendors to solicit information on a broad range of topics. The request package includes:

- A detailed survey.
- A pricing scenario (see Vendor Landscape Methodology: Price Evaluation and Pricing Scenario, below).
- A request for reference clients.
- A request for a briefing and, where applicable, guided product demonstration.

These request packages are distributed approximately twelve weeks prior to the initiation of the actual research project to allow vendors ample time to consolidate the required information and schedule appropriate resources.

During the course of the research project, briefings and demonstrations are scheduled (generally for one hour each session, though more time is scheduled as required) to allow the analyst team to discuss the information provided in the survey, validate vendor claims, and gain direct exposure to the evaluated products. Additionally, an end-user survey is circulated to Info-Tech's client base and vendor-supplied reference accounts are interviewed to solicit their feedback on their experiences with the evaluated solutions and with the vendors of those solutions.

These materials are supplemented by a thorough review of all product briefs, technical manuals, and publicly available marketing materials about the product, as well as about the vendor itself.

Refusal by a vendor to supply completed surveys or submit to participation in briefings and demonstrations does not eliminate a vendor from inclusion in the evaluation. Where analyst and client input has determined that a vendor belongs in a particular evaluation, it will be evaluated as best as possible based on publicly available materials only. As these materials are not as comprehensive as a survey, briefing, and demonstration, the possibility exists that the evaluation may not be as thorough or accurate. Since Info-Tech includes vendors regardless of vendor participation, it is always in the vendor's best interest to participate fully.

All information is recorded and catalogued, as required, to facilitate scoring and for future reference.

Vendor Landscape Methodology: Scoring

Once all information has been gathered and evaluated for all vendors and products, the analyst team moves to scoring. All scoring is performed at the same time so as to ensure as much consistency as possible. Each criterion is scored on a ten point scale, though the manner of scoring for criteria differs slightly:

- Features is scored via **Cumulative Scoring**
- Affordability is scored via **Scalar Scoring**
- All other criteria are scored via **Base5 Scoring**

In Cumulative Scoring, a single point is assigned to each evaluated feature that is regarded as being fully present, partial points to each feature that is partially present, and zero points to features that are deemed to be absent or unsatisfactory. The assigned points are summed and normalized to a value out of ten. For example, if a particular Vendor Landscape evaluates eight specific features in the Feature Criteria, the summed score out of eight for each evaluated product would be multiplied by 1.25 to yield a value out of ten.

In Scalar Scoring, a score of ten is assigned to the lowest cost solution, and a score of one is assigned to the highest cost solution. All other solutions are assigned a mathematically determined score based on their proximity to / distance from these two endpoints. For example, in an evaluation of three solutions, where the middle cost solution is closer to the low end of the pricing scale it will receive a higher score, and where it is closer to the high end of the pricing scale it will receive a lower score; depending on proximity to the high or low price it is entirely possible that it could receive either ten points (if it is very close to the lowest price) or one point (if it is very close to the highest price). Where pricing cannot be determined (vendor does not supply price and public sources do not exist), a score of 0 is automatically assigned.

In Base5 scoring a number of sub-criteria are specified for each criterion (for example, Longevity, Market Presence, and Financials are sub-criteria of the Viability criterion), and each one is scored on the following scale:

- 5 - The product/vendor is exemplary in this area (nothing could be done to improve the status).
- 4 - The product/vendor is good in this area (small changes could be made that would move things to the next level).
- 3 - The product/vendor is adequate in this area (small changes would make it good, more significant changes required to be exemplary).
- 2 - The product/vendor is poor in this area (this is a notable weakness and significant work is required).
- 1 - The product/vendor is terrible/fails in this area (this is a glaring oversight and a serious impediment to adoption).

The assigned points are summed and normalized to a value out of ten as explained in Cumulative Scoring above.

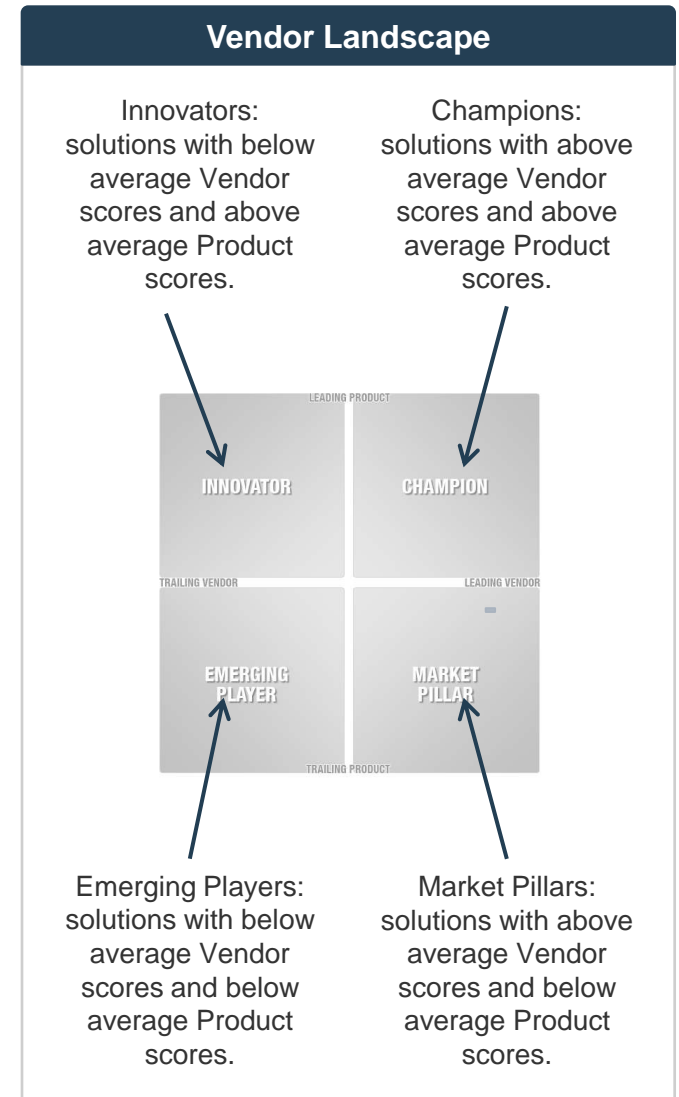
Scores out of ten, known as Raw scores, are transposed as-is into Info-Tech's Vendor Landscape Shortlist Tool, which automatically determines Vendor Landscape positioning (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, below), Criteria Score (see Vendor Landscape Methodology: Information Presentation - Criteria Score, below), and Value Index (see Vendor Landscape Methodology: Information Presentation - Value Index, below).

Vendor Landscape Methodology: Information Presentation – Vendor Landscape

Info-Tech's Vendor Landscape is a two-by-two matrix that plots solutions based on the combination of Product score and Vendor score. Placement is not determined by absolute score, but instead by relative score. Relative scores are used to ensure a consistent view of information and to minimize dispersion in nascent markets, while enhancing dispersion in commodity markets to allow for quick visual analysis by clients.

Relative scores are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion Raw score is multiplied by the pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process to eliminate any possibility of bias. Weighting factors are expressed as a percentage such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100% and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.
4. Overall Vendor scores are then normalized to a 20 point scale by calculating the arithmetic mean and standard deviation of the pool of Vendor scores. Vendors for whom their overall Vendor score is higher than the arithmetic mean will receive a normalized Vendor score of 11-20 (exact value determined by how much higher than the arithmetic mean their overall Vendor score is), while vendors for whom their overall Vendor score is lower than the arithmetic mean will receive a normalized Vendor score of between one and ten (exact value determined by how much lower than the arithmetic mean their overall Vendor score is).
5. Overall Product score is normalized to a 20 point scale according to the same process.
6. Normalized scores are plotted on the matrix, with Vendor score being used as the x-axis, and Product score being used as the y-axis.

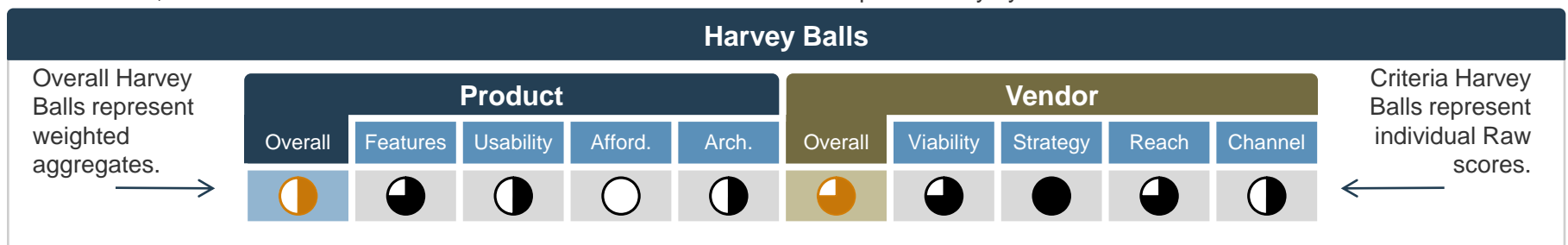


Vendor Landscape Methodology: Information Presentation – Criteria Scores (Harvey Balls)

Info-Tech's Criteria Scores are visual representations of the absolute score assigned to each individual criterion, as well as of the calculated overall Vendor and Product scores. The visual representation used is Harvey Balls.

Harvey Balls are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion Raw score is multiplied by a pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process, based on the expertise of the Senior or Lead Research Analyst, to eliminate any possibility of bias. Weighting factors are expressed as a percentage, such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100%, and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.
4. Both overall Vendor score / overall Product score, as well as individual criterion Raw scores are converted from a scale of one to ten to Harvey Ball scores on a scale of zero to four, where exceptional performance results in a score of four and poor performance results in a score of zero.
5. Harvey Ball scores are converted to Harvey Balls as follows:
 - A score of four becomes a full Harvey Ball.
 - A score of three becomes a three-quarter full Harvey Ball.
 - A score of two becomes a half full Harvey Ball.
 - A score of one becomes a one-quarter full Harvey Ball.
 - A score of zero becomes an empty Harvey Ball.
6. Harvey Balls are plotted by solution in a chart where rows represent individual solutions and columns represent overall Vendor / overall Product, as well as individual criteria. Solutions are ordered in the chart alphabetically by vendor name.



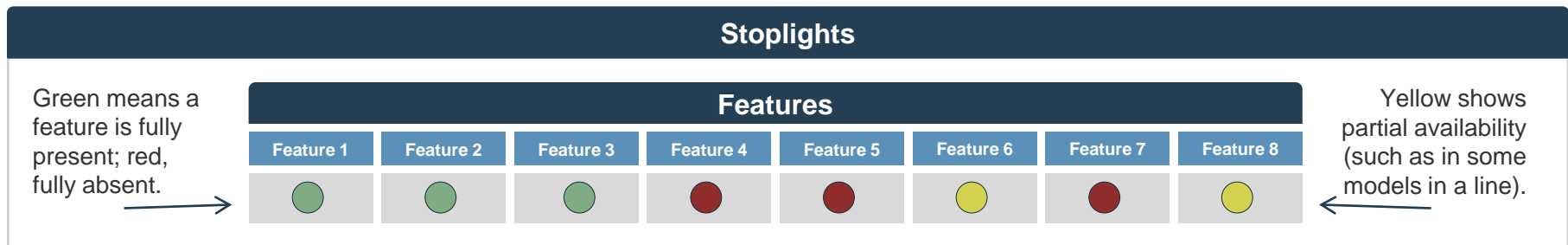
Vendor Landscape Methodology: Information Presentation – Feature Ranks (Stoplights)

Info-Tech's Feature Ranks are visual representations of the presence/availability of individual features that collectively comprise the Features' criterion. The visual representation used is stoplights.

Stoplights are determined as follows:

1. A single point is assigned to each evaluated feature that is regarded as being fully present, partial points to each feature that is partially present, and zero points to features that are deemed to be fully absent or unsatisfactory.
 - Fully present means all aspects and capabilities of the feature as described are in evidence.
 - Fully absent means all aspects and capabilities of the feature as described are missing or lacking.
 - Partially present means some, but not all, aspects and capabilities of the feature as described are in evidence, **OR** all aspects and capabilities of the feature as described are in evidence, but only for some models in a line.
2. Feature scores are converted to stoplights as follows:
 - Full points become a green light.
 - Partial points become a yellow light.
 - Zero points become a red light.
3. Stoplights are plotted by solution in a chart where rows represent individual solutions and columns represent individual features. Solutions are ordered in the chart alphabetically by vendor name.

For example, a set of applications is being reviewed and a feature of *"Integration with Mobile Devices"* that is defined as *"availability of dedicated mobile device applications for iOS, Android, and BlackBerry devices"* is specified. Solution A provides such apps for all listed platforms and scores "green," solution B provides apps for iOS and Android only and scores "yellow," while solution C provides mobile device functionality through browser extensions, has no dedicated apps, and so scores "red."



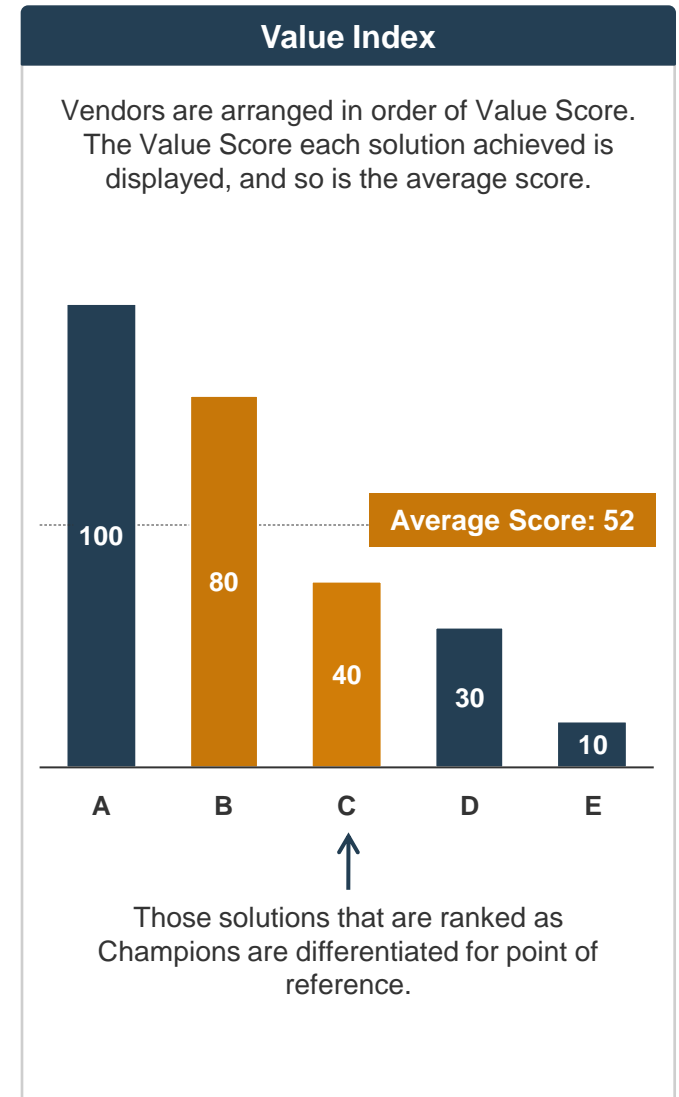
Vendor Landscape Methodology: Information Presentation – Value Index

Info-Tech's Value Index is an indexed ranking of solution value per dollar as determined by the Raw scores assigned to each criteria (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).

Value scores are calculated as follows:

1. The Affordability criterion is removed from the overall Product score and the remaining Product score criteria (Features, Usability, Architecture) are reweighted so as to retain the same weightings relative to one another, while still summing to 100%. For example, if all four Product criteria were assigned base weightings of 25%, for the determination of the Value score, Features, Usability, and Architecture would be reweighted to 33.3% each to retain the same relative weightings while still summing to 100%.
2. A sum-product of the weighted Vendor criteria scores and of the reweighted Product criteria scores is calculated to yield an overall Vendor score and a reweighted overall Product score.
3. The overall Vendor score and the reweighted overall Product score are then summed, and this sum is multiplied by the Affordability Raw score to yield an interim Value score for each solution.
4. All interim Value scores are then indexed to the highest performing solution by dividing each interim Value score by the highest interim Value score. This results in a Value score of 100 for the top solution and an indexed Value score relative to the 100 for each alternate solution.
5. Solutions are plotted according to Value score, with the highest score plotted first, and all remaining scores plotted in descending numerical order.

Where pricing is not provided by the vendor and public sources of information cannot be found, an Affordability Raw score of zero is assigned. Since multiplication by zero results in a product of zero, those solutions for which pricing cannot be determined receive a Value score of zero. Since Info-Tech assigns a score of zero where pricing is not available, it is always in the vendor's best interest to provide accurate and up to date pricing. In the event that insufficient pricing is available to accurately calculate a Value Index Info-Tech will omit it from the Vendor Landscape.



Vendor Landscape Methodology: Information Presentation – Price Evaluation: Small Enterprise

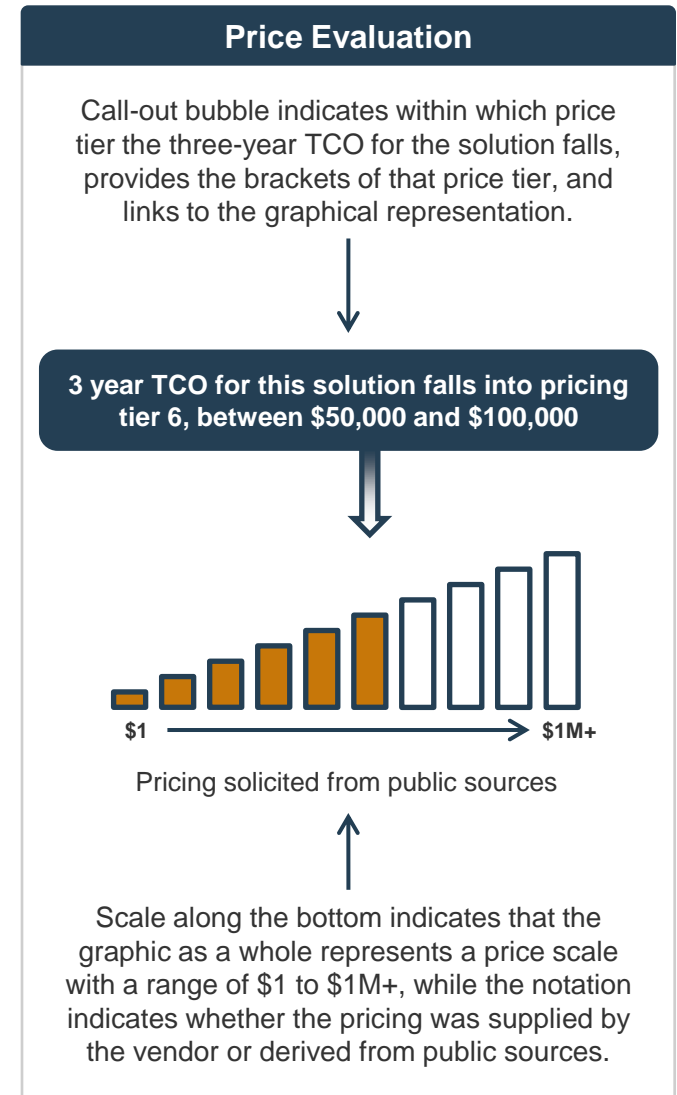
Info-Tech's Price Evaluation is a tiered representation of the three-year Total Cost of Ownership (TCO) of a proposed solution. Info-Tech uses this method of communicating pricing information to provide high-level budgetary guidance to its end-user clients while respecting the privacy of the vendors with whom it works. The solution TCO is calculated and then represented as belonging to one of ten pricing tiers.

Pricing tiers are as follows:

1. Between \$1 and \$2,500
2. Between \$2,500 and \$5,000
3. Between \$5,000 and \$10,000
4. Between \$10,000 and \$25,000
5. Between \$25,000 and \$50,000
6. Between \$50,000 and \$100,000
7. Between \$100,000 and \$250,000
8. Between \$250,000 and \$500,000
9. Between \$500,000 and \$1,000,000
10. Greater than \$1,000,000

Where pricing is not provided, Info-Tech makes use of publicly available sources of information to determine a price. As these sources are not official price lists, the possibility exists that they may be inaccurate or outdated, and so the source of the pricing information is provided. Since Info-Tech publishes pricing information regardless of vendor participation, it is always in the vendor's best interest to supply accurate and up to date information.

Info-Tech's Price Evaluations are based on pre-defined pricing scenarios (see Product Pricing Scenario, below) to ensure a comparison that is as close as possible between evaluated solutions. Pricing scenarios describe a sample business and solicit guidance as to the appropriate product/service mix required to deliver the specified functionality, the list price for those tools/services, as well as three full years of maintenance and support.



Vendor Landscape Methodology: Information Presentation – Scenarios

Info-Tech's Scenarios highlight specific use cases for the evaluated solution to provide as complete (when taken in conjunction with the individual written review, Vendor Landscape, Criteria Scores, Feature Ranks, and Value Index) a basis for comparison by end-user clients as possible.

Scenarios are designed to reflect tiered capability in a particular set of circumstances. Determination of the Scenarios in question is at the discretion of the analyst team assigned to the research project. Where possible, Scenarios are designed to be mutually exclusive and collectively exhaustive, or at the very least, hierarchical such that the tiers within the Scenario represent a progressively greater or broader capability.

Scenario ranking is determined as follows:

1. The analyst team determines an appropriate use case.
For example:
 - Clients that have multinational presence and require vendors to provide four hour onsite support.
2. The analyst team establishes the various tiers of capability.
For example:
 - Presence in Americas
 - Presence in EMEA
 - Presence in APAC
3. The analyst team reviews all evaluated solutions and determines which ones meet which tiers of capability.
For example:
 - Presence in Americas – Vendor A, Vendor C, Vendor E
 - Presence in EMEA – Vendor A, Vendor B, Vendor C
 - Presence in APAC – Vendor B, Vendor D, Vendor E
4. Solutions are plotted on a grid alphabetically by vendor by tier. Where one vendor is deemed to be stronger in a tier than other vendors in the same tier, they may be plotted non-alphabetically.
For example:
 - Vendor C is able to provide four hour onsite support to 12 countries in EMEA while Vendors A and B are only able to provide four hour onsite support to eight countries in EMEA; Vendor C would be plotted first, followed by Vendor A, then Vendor B.

Analysts may also elect to list only the most Exemplary Performers for a given use-case. One to three vendors will appear for each of these purchasing scenarios with a brief explanation as to why we selected them as top-of-class.

Vendor Landscape Methodology: Information Presentation – Vendor Awards

At the conclusion of all analyses, Info-Tech presents awards to exceptional solutions in three distinct categories. Award presentation is discretionary; not all awards are extended subsequent to each Vendor landscape and it is entirely possible, though unlikely, that no awards may be presented.

Awards categories are as follows:

- **Champion Awards** are presented to those solutions, and only those solutions, that land in the Champion zone of the Info-Tech Vendor Landscape (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, above). If no solutions land in the Champion zone, no Champion Awards are presented. Similarly, if multiple solutions land in the Champion zone, multiple Champion Awards are presented.
- **Trend Setter Awards** are presented to those solutions, and only those solutions, that are deemed to include the most original/inventive product/service, or the most original/inventive feature/capability of a product/service. If no solution is deemed to be markedly or sufficiently original/inventive, either as a product/service on the whole or by feature/capability specifically, no Trend Setter Award is presented. Only one Trend Setter Award is available for each Vendor Landscape.
- **Best Overall Value Awards** are presented to those solutions, and only those solutions, that are ranked highest on the Info-Tech Value Index (see Vendor Landscape Methodology: Information Presentation – Value Index, above). If insufficient pricing information is made available for the evaluated solutions, such that a Value Index cannot be calculated, no Best Overall Value Award will be presented. Only one Best Overall Value Award is available for each Vendor Landscape.

Vendor Awards



Info-Tech's **Champion Award** is presented to solutions in the Champion zone of the Vendor Landscape.



Info-Tech's **Trend Setter Award** is presented to the most original/inventive solution evaluated.



Info-Tech's **Best Overall Value Award** is presented to the solution with the highest Value Index score.

Vendor Landscape Methodology: Fact Check & Publication

Info-Tech takes the factual accuracy of its Vendor Landscapes, and indeed of all of its published content, very seriously. To ensure the utmost accuracy in its Vendor Landscapes, we invite all vendors of evaluated solutions (whether the vendor elected to provide a survey and/or participate in a briefing or not) to participate in a process of Fact Check.

Once the research project is complete and the materials are deemed to be in a publication ready state, excerpts of the material specific to each vendor's solution are provided to the vendor. Info-Tech only provides material specific to the individual vendor's solution for review encompassing the following:

- All written review materials of the vendor and the vendor's product that comprise the evaluated solution.
- Info-Tech's Criteria Scores / Harvey Balls detailing the individual and overall Vendor / Product scores assigned.
- Info-Tech's Feature Rank / Stop Lights detailing the individual feature scores of the evaluated product.
- Info-Tech's Raw Pricing for the vendor either as received from the vendor or as collected from publicly available sources.
- Info-Tech's Scenario ranking for all considered scenarios for the evaluated solution.

Info-Tech does not provide the following:

- Info-Tech's Vendor Landscape placement of the evaluated solution.
- Info-Tech's Value Score for the evaluated solution.
- End-user feedback gathered during the research project.
- Info-Tech's overall recommendation in regard to the evaluated solution.

Info-Tech provides a one-week window for each vendor to provide written feedback. Feedback must be corroborated (be provided with supporting evidence), and where it does, feedback that addresses factual errors or omissions is adopted fully, while feedback that addresses opinions is taken under consideration. The assigned analyst team makes all appropriate edits and supplies an edited copy of the materials to the vendor within one week for final review.

Should a vendor still have concerns or objections at that time, they are invited to a conversation, initially via email, but as required and deemed appropriate by Info-Tech, subsequently via telephone, to ensure common understanding of the concerns. Where concerns relate to ongoing factual errors or omissions they are corrected under the supervision of Info-Tech's Vendor Relations personnel. Where concerns relate to ongoing differences of opinion they are again taken under consideration with neither explicit nor implicit indication of adoption.

Publication of materials is scheduled to occur within the six weeks immediately following the completion of the research project, but does not occur until the Fact Check process has come to conclusion, and under no circumstances are "pre-publication" copies of any materials made available to any client.

Product Pricing Scenario

- Info-Tech Research Group is providing each vendor with a common pricing scenario to enable normalized scoring of Affordability, calculation of Value Index rankings, and identification of the appropriate solution pricing tier as displayed on each vendor scorecard.
- Vendors are asked to provide *list* costs for Server Virtualization software licensing to address the needs of a reference organization described in the pricing scenario. Please price out the **lowest possible** three-year total cost of ownership (TCO) including list prices for software and licensing fees to meet the requirements of the following scenario.
- Three-year total acquisition costs will be normalized to produce the Affordability raw scores and calculate Value Index ratings for each solution.

The expected solution capabilities are as follows:

- Info-Tech Research Group provided each vendor with a common pricing scenario to enable normalized scoring of Affordability, calculation of Value Index rankings, and identification of the appropriate solution pricing tier as displayed on each vendor scorecard.
- Vendors were asked to provide *list* costs for consolidated storage to address the needs of a reference organization described in the pricing scenario. Additional consulting, deployment, and training services were explicitly out of scope of the pricing request, as was the cost of *enhanced* support options, though vendors were encouraged to highlight any such items included with the base product acquisition. The annual software/hardware maintenance rate was also requested, allowing a three-year total acquisition cost to be calculated for each vendor's consolidated storage solution. This three-year total acquisition cost is the basis of the solution pricing tier indicated for each vendor. When possible, please provide a SKU for each hardware, software, support, and maintenance line item along with list cost.
- Finally, the vendors' three-year total acquisition costs were normalized to produce the Affordability raw scores and calculate Value Index ratings for each solution.

Key elements of the common pricing scenario provided to consolidated storage vendors included:

- The organization is interested in capabilities for both block and file level storage and support for either Fibre Channel, iSCSI, CIFS, or NFS). As a mid-sized organization, it requires a total usable capacity of **at least 35TB**, and a minimum capability to handle a **peak performance of 10,000 IOPS** (average IOPS will be lower, but was not specified).

Product Pricing Scenario, continued

The basic requirements for the array that the company has outlined are as follows:

- Hardware redundancy for availability (e.g. redundant controllers, ports, power supplies, etc.)
- Replication
- Snapshots
- Thin provisioning
- Support for VMware virtual server infrastructure
- Easy-to-use management interface

Price should include a three-year total cost of ownership (TCO) including software and licensing fees, telephone and on-site next business day support, maintenance, and warranty.