

NetApp SolidFire Storage Vendor RFI Template

# What Every Service Provider Needs to Ask Prospective Vendors

Why read this guide? Which questions must service providers ask prospective vendors when they've decided it's time to issue a Request For Information (RFI) and start considering a new storage platform?

Of course, probing about a prospective vendor's technical specifications and capabilities is customary and a critical necessity for an RFI, however few service providers actually probe vendors about something that's just as critical: the vendor's ability to help achieve targeted business outcomes.

This guide and RFI template helps service providers ask insightful questions to evaluate potential flash storage solid-state array (SSA) vendors. It will help you get answers to determine if the vendor is a good technical fit, as well as whether the vendor is the right one to take your cloud and hosting business forward.

We'll start by exploring four areas to consider in any new storage vendor evaluation:

How can the vendor help you monetize storage?

How can the vendor help streamline your operations?

How will the vendor reduce your technology and business risk?

How will the vendor help you win more customers and more service revenue from existing customers?

The appendix provides a detailed RFI template addressing both the business and technical questions for use in your vendor evaluations.

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# 1 How can the vendor help you monetize storage?

When your main business goal is to maximize the revenue from every square foot of data center space while keeping costs to a minimum, each vendor and every piece of hardware used to deliver your services has to be evaluated in terms of its contribution to that end goal.

So, one of the biggest considerations when evaluating any storage vendor is their ability to help you monetize your storage services. Things to consider in this area include the storage features and functionality they provide to help you create new profit centers or new revenue streams from new services that would be valued by your business customers.

system that scales out seamlessly and quickly allows service providers to remove the guesswork, risk, and headache from capacity-management tasks, better meeting expectations and contractual obligations for these management services.

An example is a storage product that can meet the growing need for predictable performance among customer applications, allowing you to offer new storage pricing schemes, like charging based on IOPS or tiers of IOPS, not just GB. In this case, customers with greater performance requirements can get what they need to run their applications seamlessly, while you draw additional revenue. If that storage product allows you to manage performance instantly, any upgrade to a higher performance tier will allow you to realize new revenue immediately. And, by being able

to guarantee performance to customers, you're eligible to tap into new markets that were previously off-limits for your multi-tenant platforms because of performance unpredictability, like mission-critical business applications, analytics, VDI, high-performance computing, e-commerce, and performance databases.

Monetizing storage doesn't solely mean finding ways to increase revenue; it also means lowering costs to maximize profitability. You'll need to assess your vendor's ability in this area as well. For example, if your only option for solving performance problems is to allocate more GB capacity to the customer to get the associated IOPS, then you are presented with a conundrum; either the customer pays for GBs that are not needed or you "give away" the capacity at lower, no, or negative margins. A storage product that can decouple performance from capacity, allowing you to manage and monetize the two separately, will obviously improve your costs by not mandating a capacity buy just because more performance is needed.

Another area of cost reduction involves consolidation. If your storage product allows you to consolidate all dedicated customers onto a single, shared platform with performance guarantees, for example, you no longer need to maintain and support multiple disparate dedicated deployments, further driving down costs and improving revenue density in the data center. As such, you'll need to ask your vendor how they can help you consolidate different platforms.



## 2 How can the vendor help you streamline operations?

Streamlined operations is one of the most critical aspects of a service provider's success, as your business customers are looking for you to be able to deliver the same or higher degree of service than can be achieved by them in-house.

Value-accretive services sold to business customers must be based on repeatable operations tasks that can be automated, orchestrated, and integrated whenever possible. Yet, each business brings its own unique or individual needs. Having the flexibility to make the standard services individualized, when needed, helps deliver value.

Achieving streamlined operations also results from consolidating storage silos belonging to separate shared and dedicated platforms. Yet as platforms become more consolidated, resource contention may become a problem. Applications and workloads start to fight over limited resources, like capacity or performance, impacting the quality of the services delivered

to your customers. It is important to understand how storage vendors can help prevent these performance and capacity contention issues before they occur. When they do occur, what features, like quality of service (QoS) or seamless scalability, are in place to help you react quickly to address them?

When evaluating storage vendors, assess their ability to help you deliver standard and repeatable services. What automation and orchestration capabilities do they have? Can they also help you meet individual application needs? Can they help you ease operational pains, like performance troubleshooting and capacity management? How do they do this? Is scaling performance and/or capacity easy and straightforward, or are migrations and downtime required?

There are two main areas of risk when purchasing storage (or any hardware for that matter) used to deliver your services: financial and technological.



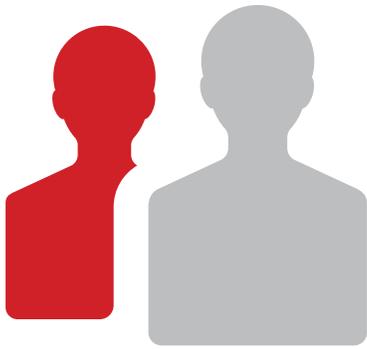
### 3 How will the vendor reduce your technology and business risk?

When it comes to mitigating financial risk, understand the following:

- 1 Do you have to commit upfront to sizing projections or technology decisions three to five years in the future, or overbuy upfront to keep capacity and feature options open down the road? Or can you get and use what is needed, when it is needed, which is imperative to establishing a profitable business for the long term?
- 2 If you plan capacity incorrectly and need to scale in the future, how much will that cost? (If a migration is required it will likely cost ~53% of the hardware purchase price, plus your customers will experience downtime). If you need to add features to existing services, are additional fees, like license fees, charged?
- 3 What happens when you have stranded storage capacity, or hardware deployed in a data center that goes underutilized? Will you have the ability to swap that out and use it in another data center that is growing and requires more capacity?

To reduce technological risk, consider:

- 1 If the vendor forces migrations from one version of their technology to a new version that requires re-development of automation, orchestration, and integration upon release.
- 2 What investment is required in expensive storage skills just to be able to do simple daily tasks such provisioning and performance changes/troubleshooting, and development work such as automation, orchestration, and integration.
- 3 Can the vendor guarantee compatibility of next generation solutions with the existing platform?
- 4 Can the vendor truly prepare you for the next generation data center? Do they show innovation and vision to look into the future and prepare you for the next wave of cloud computing and hosting? Do they offer innovative storage features, like QoS, automated self healing, multiple replication methods, and secure multi-tenancy?



## 4 How will the vendor help you win more customers and more service revenue from existing customers?

Rather than engaging in a relationship with a service provider just to sell more hardware, storage vendors should work with service providers to help them win more customers with their technology.

Understanding the wider market trends and opportunities for service providers, understanding how to successfully sell storage services to enterprise, small, and medium businesses (SMB), using that knowledge to help service providers shape their storage offerings and go-to-market (GTM) approach, and then working as a partner to help execute on those strategies is how a vendor delivers true value.

When considering storage vendors you should assess the vendor’s knowledge of the service provider business and the market in which you operate in general. Do they know what your end customers/prospects are looking for in storage services and are they aware of demand trends (i.e. new features, functionality,

services/support)? Do their storage products enable you to meet the existing or emerging demands from those customers? Will those products help you penetrate new markets/segments and seize new opportunities? Can the vendor help you assess your competitive landscape and develop GTM strategies, including how you should price, productize, and launch your storage services? Do they have the ability to offer market development funds and consultative resources to help you market your services after you have launched your storage services to drive awareness and generate demand? Will they drive enterprise and SMB leads to you?

Technology vendor partners committed to helping their service provider partners offer tools, guides, and even high-touch advisory direction on how best to take the technology to market. Best-in-class vendor marketing support contain some of these GTM tools and programs:

Marketing and Demand Generation Support	Presentation Templates	Customer References	Business Planning Workshops	Revenue and Profit Modeling Tools
Competitive Services Pricing	Productization Best Practices	SLA Guides	Joint PR Support	RFI Guides
Lead Referral	Collaborative Selling	Good / Better / Best Product Tiering	Market Development Funds	Implementation Guides/ Assistance
Market Launch Planning	Sales Team Training and Enablement	Technology Upgrade Provisioning	Target End Customer Personas	Tier 3 Technical Support

### Closing considerations

Service providers are not enterprises and should not be sold to as enterprises. You have a different supply chain and set of requirements. Storage vendors selling to service providers need to intimately understand your business, your customers, the market in which you operate, and your supply chain, being able to address the value they bring to each link in it. From storage vendor to end-customer — accretive value is the goal.

## Make it happen: The Ultimate Service Provider RFI Template

### Appendix – Request For Information (RFI) template

This template is provided as a sample tool to assist service providers as they issue a RFI for all-flash storage arrays. Service providers should customize this template by using the components that are applicable to their needs, adding and deleting components as necessary.

#### To be completed by the service provider:

##### 1. Service Provider Overview

1. Brief description of the service provider
  1. Service offered, target audience, and any information that will be relevant to the storage product (such as the number of customers, geographies, etc.)
  2. General description of current architecture/environment/hosting and cloud platforms

##### 2. Project Overview

1. Scope of project
2. Overall business objectives/drivers
  1. List of high-level business goals you are looking to achieve by implementing the new storage array
3. Functional requirements
4. Technical requirements
5. Future plans
6. Projected timetables

#### To be completed by the storage vendor:

##### 3. Questions and Response

Storage vendor – Please answer the questions below to describe how well your product/solution meets our storage requirements.

Question	Response
Your ability to help monetize storage	
<b>Q:</b> What IOPS guarantees and SLAs would I be able to extend to my customers with a storage service powered by your flash product?	
<b>Q:</b> Describe how you implement QoS to enable me to carry no risk in offering a performance guarantee to customers.	
<b>Q:</b> How can I monetize your QoS capabilities?	
<b>Q:</b> What features are add-on options? How are the add-on options priced? How are the charges tracked? What data do you supply to help me track cost?	
<b>Q:</b> Provide examples of how other customers have monetized your features.	
<b>Q:</b> Is your product purpose-built for service provider cloud and hosting platforms? How many service providers (SPs) in the market sell a service powered by your hardware? (pure SSA or hybrid?)	
<b>Q:</b> Provide examples of how other SPs have productized and monetized an offering powered by your hardware and software.	

Question	Response
Your ability to help streamline operations	
<p><b>Q:</b> Please detail the technical features of your hardware and software that enable the following:</p>	
<p>a. Allow us to offer a service with QoS and a robust SLA guarantee that does not put us at commercial risk</p>	
<p>b. Deliver application performance uniquely, treating each mission-critical application individually with specific IOPS requirements and SLAs that map to business usage realities</p>	
<p>c. Keep our revenue and cost in close alignment at small scale and Web scale</p>	
<p>d. Enable immediate scale without disruption to existing customers</p>	
<p>e. Minimize vendor-specific expertise for common functions, automation, and orchestration development efforts</p>	
<p>f. Re-deploy assets with agility, making it easy to move underutilized assets from one data center to another with higher demand</p>	
<p>g. Provide high availability, reliability, and efficiency</p>	
<p>h. Minimize data center operational costs, including cooling, power, and space</p>	
<p>i. Minimize underutilized assets, reflecting a just-in-time agile infrastructure methodology</p>	
<p>j. Measure and monetize storage usage by tracking and measuring capacity, performance, encryption, and replication to efficiently productize and bill for capacity and IOPS usage by end customers</p>	

Question	Response
Your ability to help reduce risk	
<p><b>Q:</b> What technology decisions are required upfront? For example, do I need a projection of capacity in three years? What if my projection is wrong?</p>	
<p><b>Q:</b> Please detail your product roadmap future in the SSA space and your vehicles for updating SP partners on these impending changes.</p>	
<p><b>Q:</b> What third-party validation exists regarding your technology vision and future product roadmap? (Industry analysts, Gartner Magic Quadrant, Media Reviews, Bloggers)</p>	
<p><b>Q:</b> Who are your current enterprise customers and SP partners?</p>	
<p><b>Q:</b> Will your engineering and product teams share their product roadmap with an SP partner prospect like me?</p>	
<p><b>Q:</b> What is your vision for the SSA space?</p>	
<p><b>Q:</b> Could we schedule a call or face-to-face meeting with one of your product or engineering execs to discuss the future product roadmap?</p>	
<p><b>Q:</b> What was your storage technology revenue mix for last year (i.e., SSA %, disk %, data management SW %, storage PS %, tape %, etc.)? How do you see that mix changing this year and into the next three years?</p>	
<p><b>Q:</b> Do you offer future-proofing of your technology releases – guaranteeing compatibility and eliminating obsolescence risk?</p>	
<p><b>Q:</b> Do you require “forklift upgrades” and data migration to get the latest technology platform?</p>	

Question	Response
Your ability to help me win more customers	
<p><b>Q:</b> Do you offer go-to-market (GTM) support? If yes, please describe the program.</p>	
<p><b>Q:</b> Please detail each of the following program elements:</p>	
<p>k. Awareness and demand generation support</p>	
<p>l. Sales tools</p>	
<p>m. Launch planning workshops and tools (productization/ pricing assistance, revenue and profit modeling, GTM planning support)</p>	
<p>n. Sales training</p>	
<p>o. Ops best practices training</p>	
<p>p. Collaborative selling programs with vendors sales team</p>	
<p>q. Available MDF resources and qualification process</p>	
<p><b>Q:</b> What typical gross margins are realized by your SP customers for their storage services?</p>	
<p><b>Q:</b> How many months does it typically take your SP customers to break even with capital expenses?</p>	

Question	Response
Your technical features and functionality - Capacity	
<p><b>Q:</b> What is the minimum and maximum number of physical SSDs per system you support and what capacity of SSDs do you use in the array? What type of SLC, MLC, eMLC is used (if other please specify)?</p>	
<p><b>Q:</b> What is the maximum size of a LUN, volume, share (or other) in raw TBs?</p>	
<p><b>Q:</b> What are the minimum and maximum number of LUNs, volumes, shares per system?</p>	
<p><b>Q:</b> What are the maximum number of snapshots per volume and per system?</p>	
<p><b>Q:</b> What are the minimum and maximum number of host ports and what type are they (e.g., FC, iSCSI, FCoE, 1 or 10GigE) per array, system, or cluster?</p>	
<p><b>Q:</b> Are there any restrictions or overhead in the host or external interconnects (e.g., are some (specify the number) used as an internal interconnect)? And are any ports disabled if others are used?</p>	
<p><b>Q:</b> What is the portion of sales per storage protocol/ interconnect?</p>	
<p><b>Q:</b> How many initiators (i.e., server images) can the storage array support?</p>	
<p><b>Q:</b> Can capacity be non-disruptively added or removed from RAID groups or pools?</p>	

Question	Response
Your technical features and functionality – Data Management	
<p><b>Q:</b> Which data services, features, and functions are provided by the array, and how are these data services licensed (e.g., snapshots, OS support, replication, tiering, thin provisioning, and all others)?</p>	
<p><b>Q:</b> Are the data services (as listed above and others) included in the base price of the storage array?</p>	
<p><b>Q:</b> Describe the replication features available in your product.</p>	
<p><b>Q:</b> Describe the snapshot capabilities, clearly outlining:</p> <ul style="list-style-type: none"> <li>• Product features and differentiators</li> <li>• Synchronous, asynchronous, and support of consistency groups</li> </ul>	
<p><b>Q:</b> What is the maximum number of snapshots and replicated copies within the storage array?</p>	
<p><b>Q:</b> What is the maximum number of snapshots and replicated copies per LUN or volume?</p>	
<p><b>Q:</b> What is the maximum number of LUNs or volumes in a consistent group snapshot?</p>	
<p><b>Q:</b> What mechanisms exist for rapid restore of data?</p>	
<p><b>Q:</b> What is the guaranteed availability (four 9s or five 9s)?</p>	
<p><b>Q:</b> Can replication groups (consistency groups, delta sets, journal files, etc.) span arrays?</p>	

Question	Response
Your technical features and functionality – Efficiencies	
<p><b>Q:</b> Is thin provisioning supported? If so, describe the features available.</p>	
<p><b>Q:</b> What impact and overhead does thin provisioning have on native storage array performance (i.e., does it affect auto-tiering, snapshot, or replication)?</p>	
<p><b>Q:</b> What type of data reduction (compression, deduplication, single instance store, etc.) support is offered to enhance storage efficiency?</p>	
<p><b>Q:</b> What impact and overhead does your data-reduction process have on native storage array performance (i.e., does it affect auto-tiering, snapshot, or replication)?</p>	
<p><b>Q:</b> Are these policies set by application, file name, user, or file owner? If using other methods, please explain.</p>	
<p><b>Q:</b> How does the data reduction work? Is it in-line or post-process (backend)?</p>	
<p><b>Q:</b> What is the average data-reduction rate that you can monitor from customer systems?</p>	
<p><b>Q:</b> Can users specify which applications, data, LUNs, or files can be blocked or “fenced off” from being data-reduced?</p>	

Question	Response
Your technical features and functionality - Interoperability	
<p><b>Q:</b> Which operating systems do your storage arrays support?</p>	
<p><b>Q:</b> Which hypervisors do your storage arrays support?</p>	
<p><b>Q:</b> Which protocols do you support (FC,iSCSI, NFS, CIFS, FCoE, REST/HTTP)?</p>	
<p><b>Q:</b> List your major ISV partners.</p>	
<p><b>Q:</b> Please list the third-party ISVs you have integrated with for backup/recovery and archiving.</p>	
<p><b>Q:</b> Describe your support for third-party anti-malware software.</p>	

Question	Response
Your technical features and functionality – Performance	
<p><b>Q:</b> What is the highest customer aggregate throughput achieved by a node (for a scale-up architecture) or a cluster/namespace (for a scale-out architecture)?</p>	
<p><b>Q:</b> What is the commonly observed aggregate response time among customers (e.g., microseconds or milliseconds)?</p>	
<p><b>Q:</b> What is the commonly observed aggregate throughput among customers (IOPS and GB/s)?</p>	
<p><b>Q:</b> What are the latest SPC results for your solid state storage arrays? (Please specify publishing date.)</p>	
<p><b>Q:</b> Are there any scaling performance penalties (linear vs. logarithmic performance growth)?</p>	
<p><b>Q:</b> Can you provide independent or proprietary performance benchmark data by workload (e.g., IOPS, MB/sec, response times)?</p>	
<p><b>Q:</b> Please list any other information with which an end user could assess the performance of your all-flash array.</p>	
<p><b>Q:</b> Which quality of service (QoS) features does your system support and at what level of granularity (e.g., host port level, volume level, pool level, tier level, SSD pool, etc.)?</p>	

Question	Response
Your technical features and functionality – Resiliency	
<p><b>Q:</b> Are there any single points of failure (SPoF) within the storage system or array (single, node, brick, or controller failure)?</p>	
<p><b>Q:</b> If your array uses a scale-out architecture, please explain how host multi-pathing failover works in practice between physical controllers or nodes.</p>	
<p><b>Q:</b> Does the system rely upon path failover software to maintain data accessibility in the presence of electronics failure? Is the system capable of keeping all host connections available in the presence of an electronics failure?</p>	
<p><b>Q:</b> For any scale-out or distributed architecture, what effect does the loss of a single node have on the availability of the wider system?</p>	
<p><b>Q:</b> Can the system hide electronics failures from the storage network and host?</p>	
<p><b>Q:</b> Describe the data protection schemes within the platform, such as RAID or erasure code, to ensure high availability.</p>	
<p><b>Q:</b> What is the user-recommended RAID configuration for maximum performance and disk rebuild time? If any other method is used, please explain.</p>	
<p><b>Q:</b> What is the controller (or node) failover time for host (front-end) and disk (back-end) connections?</p>	
<p><b>Q:</b> What is the maximum impact of controller or node failure on system throughput (%)?</p>	

Question	Response
Your technical features and functionality – Resiliency - <i>Continued</i>	
<p><b>Q:</b> What is the maximum impact of microcode update on system throughput (%)?</p>	
<p><b>Q:</b> What is the typical disk/RAID group rebuild time for your SSDs? Please specify the capacity you use.</p>	
<p><b>Q:</b> What is the time required to perform a successful non-disruptive microcode/firmware update ?</p>	
<p><b>Q:</b> Are all microcode updates non-disruptive? If not, in what situation are the microcode updates disruptive?</p>	
<p><b>Q:</b> Is the storage system capable of performing non-disruptive SSD firmware upgrades?</p>	
<p><b>Q:</b> What fault isolation techniques exist to ensure high availability?</p>	
<p><b>Q:</b> Describe the inbuilt protection techniques for preventing data corruption.</p>	
<p><b>Q:</b> Is it recommended or vendor best practice to allow customers to perform firmware or microcode updates? If yes, are there restrictions?</p>	
<p><b>Q:</b> Describe any other resiliency features not mentioned above that make your storage array more resilient or are specific features available only with your product (e.g., erasure codes, etc.).</p>	

Question	Response
Your technical features and functionality – Scalability	
<p><b>Q:</b> What is the page or sub-volume/LUN size of data onto which you allocate capacity at write time? Please state size (e.g., 128KB page, 1MB page, or 1GB page).</p>	
<p><b>Q:</b> Can space be automatically reclaimed from a volume or file system after it is no longer needed or in use?</p>	
<p><b>Q:</b> Which logical, physical partitioning, or multi-tenancy features does your array have? How many partitions does the system support?</p>	
<p><b>Q:</b> What is the maximum number of initiators per physical host connection?</p>	
<p><b>Q:</b> Does the system support dynamic and non-disruptive increases or decreases in capacity, bandwidth, and latency?</p>	
<p><b>Q:</b> Does the system support automatic rebalancing of storage pools, paths during increases or decreases in capacity, bandwidth, and latency?</p>	
<p><b>Q:</b> Is there any affinity between a LUN, RAID group, filesystem, and a controller? Can these be dynamically reconfigured or reassigned?</p>	

Question	Response
Your technical features and functionality – Security	
<p><b>Q:</b> Describe product capabilities for creating secure isolated pools of storage across the physical nodes.</p>	
<p><b>Q:</b> What types of encryption support does the system provide – natively and through third party integration?</p>	
<p><b>Q:</b> Describe the access control settings for data. Clearly outline the features and differentiators.</p>	
<p><b>Q:</b> Is management station access provided over a secure link (e.g., IPSEC) and are any other security methods used to manage access? If so, please explain.</p>	
<p><b>Q:</b> What security mechanisms exist for separation of duties through role-based administration (RBAC) (e.g., can users perform self-service provisioning)?</p>	
<p><b>Q:</b> What audit trail or logging features and functions are available? Is access to the audit and system logs secure? If yes, how is this implemented?</p>	
<p><b>Q:</b> Does the system support any form of controller or SSD encryption?</p>	
<p><b>Q:</b> How is encryption implemented via the controller, the SSD, or any other method/component?</p>	
<p><b>Q:</b> If you use any form of encryption, please list the key management features used.</p>	
<p><b>Q:</b> If key management is implemented, are multiple and geographically distributed keys and management stations supported?</p>	

Question	Response
Your technical features and functionality – Service and Support	
<p><b>Q:</b> Describe the maintenance service levels you offer.</p>	
<p><b>Q:</b> Describe your professional services offerings and client account management approach.</p>	
<p><b>Q:</b> Describe your customer support practices in detail, outlining various levels, types of support, and native language capability.</p>	
<p><b>Q:</b> What is the warranty period, terms, conditions (9X5, 24X7, four-hour response times, etc.), and cost as a percent of average sales prices by model?</p>	
<p><b>Q:</b> Please provide a copy of your training curriculum and all courses for this product.</p>	
<p><b>Q:</b> Please list available courses and those required to become a trained or certified professional or administrator to manage this product.</p>	
<p><b>Q:</b> Which self service (as in storage provisioning) and metering (end user resource usage) features do you have?</p>	
<p><b>Q:</b> What type of proactive monitoring, alerting, and other value-added services do you offer?</p>	

