**Unitrends**
DCIG Buyers' Guide

# Unitrends Outclasses the Competition in the 2016-17 DCIG Integrated Backup Appliance Buyers' Guide

Unitrends is pleased to introduce you to the new **2016-17 DCIG Integrated Backup Appliance Buyers' Guide**

With each release, this guide proves to be invaluable to enterprises as it contains results from an objective, detailed cross-vendor analysis, includes a standard way of looking at the products captured in a concise data sheet, and then identifies the leaders. Integrated backup appliances are based on a comprehensive hardware platform inclusive of storage, and contain all of the pre-integrated software required to provide full backup and recovery. DCIG identified which products do this while addressing today's stringent business requirements. By selecting an integrated backup and recovery appliance enterprises eliminate the time and effort previously spent deploying and managing multiple, disjoint products across vendors.

**More models from Unitrends received the top Recommended and Excellent honors than all other vendors combined**

Using an eight-step process, over 130 backup appliances were evaluated based on more than 100 features. Appliances were ranked using standard scoring techniques with the top ranking, 'Recommended', awarded to those able to address the most demanding environments. Based on this analysis, 6 models from Unitrends, more than all other vendors combined, were awarded this honor. Additionally, 5 more Unitrends models, also more than all other vendors combined, were ranked Excellent.

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*The Insider's Guide to Evaluating Integrated Backup Appliances*

DCIG

# 2016-17 INTEGRATED BACKUP APPLIANCE BUYER'S GUIDE


By Charley McMaster and Ben Maas

DCIG

# 2016-17 INTEGRATED BACKUP APPLIANCE BUYER'S GUIDE

*The Insider's Guide to Evaluating Integrated Backup Appliances*

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## Introduction

Data protection is an essential yet oftentimes laborious and time-consuming task that every organization must perform successfully or put the organization's very existence at risk. Ever-increasing data volumes, combined with ever-shrinking RPO/RTO windows, strain corporate data protection abilities and create a need for new solutions.

Integrated backup appliances address all of these challenges by providing a pre-integrated, self-contained purpose-built backup appliance solution. Once largely assembled and configured by either IT staff or value added resellers, integrated backup appliances have gone mainstream and are ready for use in almost any size enterprise.

**The backup appliance market is dynamic.** In the two years since DCIG published the *DCIG 2014-15 Integrated Backup Appliance Buyer's Guide:*

- New vendors have entered the market
- Existing vendors have introduced new products based on more powerful hardware; delivering more performance and capacity to keep up with ever growing enterprise data protection requirements
- Vendors have released new software features to provide more benefits to end users, blurring the boundaries between traditional product categories; even extending into other secondary storage use cases such as copy data management, test/dev, data analytics and file services

**The backup appliance market is growing.** This is part of an ongoing shift toward pre-integrated appliance-based solutions that can be rapidly deployed into the enterprise data center through largely non-disruptive plug-and-play installations. In fact, according to IDC, worldwide purpose-built backup appliance (PBBA) factory revenues grew 11.5% year over year, and capacity shipped increased 35.3% to 1 exabyte since 2Q15.[1]

**DCIG evaluates PBBA products based on three primary use cases:**

- **Deduplicating backup appliances** are sometimes referred to as disk backup target appliances. These appliances displace legacy backup targets and seamlessly fit into existing data protection schemes. Their optimized deduplication technologies reduce backup storage consumption by up to 20x while accelerating the backup process. These appliances typically work with a variety of backup applications, though most of these products only integrate with the provider's own data protection software to accelerate backups.
- **Hybrid cloud backup appliances** include pre-integrated data protection software and support at least one cloud-based storage provider. A hybrid cloud backup appliance's ability to replicate and retrieve backups to and from the cloud supports disaster recovery needs and provides essentially infinite storage capacity. In the hybrid cloud backup use case, solutions are evaluated based on their ability to protect data in conjunction with a cloud storage provider.
- **Integrated backup appliances** are backup appliances that include pre-integrated data protection software. Integrated backup appliances displace both legacy backup targets and legacy backup software. Every integrated backup appliance featured in this Buyer's

1. Worldwide Purpose-Built Backup Appliance (PBBA) Market ... - IDC." 2016. 29 Sep. 2016 <https://www.idc.com/getdoc.jsp?containerId=prUS41628016>

## Introduction (continued)

Guide can also function as a hybrid cloud backup appliance, but the Integrated backup appliance use case is the focus of this Buyer's Guide. In the integrated backup appliance use case, solutions are evaluated based on their ability to protect data behind the corporate firewall.

Organizations that have outgrown the capabilities of their legacy data protection solutions will discover a large number of vendors and products vying to become their next generation solution. Thoroughly researching the many available products has become too time consuming and costly to be feasible for many organizations. The *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide* solves this problem.

DCIG's analysts have already done the heavy lifting for enterprise technology buyers by:

- Identifying a common technology need with many competing solutions but with little comparative data available to technology purchasers
- Scanning the environment to identify available products in the marketplace
- Gathering normalized data about the features each product supports
- Providing an objective, third-party evaluation of those features from an end-user perspective
- Describing key product considerations and important changes in the marketplace
- Presenting DCIG's opinions and product feature data in a way that facilitates rapid feature-based comparisons

### The Value This DCIG Buyer's Guide Creates for Buyers

It is in this context that DCIG presents its *2016-17 Integrated Backup Appliance Buyer's Guide.* The level of detail in this Buyer's Guide, combined with DCIG's consistent ranking system, helps organizations in two key ways:

First, it provides a powerful yet concise method to evaluate each product so organizations can understand the overall strengths and weaknesses of each one. Using this information, evaluators can better align the specific needs of their environment with the features available on each appliance.

Second, this Buyer's Guide provides a concise one-page data sheet for each product. The data sheets drill down into the specifics of each product to provide information on virtualization, management, backup and recovery, replication, hardware and support features. These feature areas contribute the overall ranking for each product.

The *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide* is based on a pool of more than 130 products in DCIG's backup appliance body of research. DCIG analysts ranked integrated backup appliances based on an evaluation of more than 100 different features. The thirty-three (33) appliances from ten (10) vendors that met the inclusion criteria and achieved a ranking of Recommended, Excellent or Good are included in this Buyer's Guide.

Please note that this Buyer's Guide is NOT intended to be a substitute for internal testing. DCIG encourages any organization that is considering the purchase of an integrated backup solution to do its own in-house testing if at all possible as it is impossible for DCIG to predict how well the appliance will perform in every environment.

## Introduction (continued)

We hope this Buyer's Guide meets its intended purposes in your environments and serves as a helpful aid in supplementing and expediting your organization's normal decision making and product evaluation process.

As a supplement to the downloadable Buyer's Guide, end users registering to access this report via the DCIG Analysis Portal also gain access to the DCIG Interactive Buyer's Guide (IBG). The IBG enables organizations take the next step in the product selection process by generating custom reports, including comprehensive side-by-side feature comparisons of the products in which the organization is most interested. See www.dcig.com to learn more about the DCIG Analysis Portal.

Charley and Ben

## Executive Summary

Enterprises now demand higher levels of automation, integration, simplicity, and scalability from every component deployed into their IT infrastructures. The integrated backup appliances found in this Buyer's Guide are a clear reflection of those expectations. Intended for environments that want to protect applications and data and then keep it behind corporate fire walls, these backup appliances come fully equipped to do so from both hardware and software perspectives.

Once largely assembled and configured by either IT staff or value added resellers, integrated backup appliances have gone mainstream and are ready for use in almost any size enterprise, with the integrated backup appliances covered in this Buyer's Guide specifically well suited for large enterprises. By bundling together both hardware and software, large enterprises get the type of turnkey backup appliance solution that was just a few years ago primarily reserved for smaller organizations. In so doing, large enterprises can eliminate the need to spend days, weeks, or even months they previously had to spend configuring and deploying these solutions into their infrastructure.

The evidence of the demand for backup appliances at the large enterprise level is made plain by the providers who bring them to market. Once the sole domain of providers such as STORServer and Unitrends, "software only" companies such as Commvault and Veritas have responded to large enterprise expectations for turnkey solutions with both now offering their own backup appliances under their respective brand names.

As a result, even large enterprises may get any of the most feature-rich enterprise backup software solutions on the market, whether it is IBM's Spectrum Protect (STORServer), Commvault (Commvault and STORServer), Unitrends or Veritas NetBackup, delivered to them as a pre-integrated backup appliance. The enterprise backup software on these backup appliances then goes hand-in-glove with the enterprise caliber hardware on which they run.

In short, enterprise backup appliances deliver the out-of-box and implementation experience that large enterprise have long sought, coupled with the hardware and software features they demand and expect when protecting data in their environments.

Evidence of this may be seen in the number of integrated backup appliances (11) that DCIG ranks as *Recommended*. In this Buyer's Guide both STORServer and Unitrends offer multiple backup appliance models that achieved a *Recommended* ranking. The growing number of integrated backup appliances ranked as *Recommended* reflects the fact that these providers fully understand the type of hardware and software functionality that large enterprises expect these appliances to possess and deliver.

But behind the scenes new business demands are driving changes to backup appliances which enterprises should consider:

- ***First, enterprises expect successful recoveries.*** A few years ago, the concept of all backup jobs completing successfully was enough to keep everyone happy and giving high-fives to one another. No more. The focus has shifted to rapid and reliable recovery.

  Enterprises recognize that they have reliable backups residing on a backup appliance which may largely sit idle during off-backup hours. This gives the enterprise some freedom to do more with these backup appliances during these periods of time such as testing recoveries, recovering applications on the appliance itself, or even presenting these backup copies of data to other applications to use as sources for internal testing and

## Executive Summary (continued)

development. This is evidenced by the large number of backup appliances that support one or more vCenter Instant Recovery features and the emerging crop of backup appliances that can also host virtual machines and recover applications on the appliances.

- ***Second, enterprises want greater visibility into their data to justify business decisions.*** The amount of data residing in enterprise backup repositories is staggering. Yet the lack of value that enterprises derive from that stored data combined with the potential risk it presents to them by retaining it is equally staggering. Features that grant greater visibility into this stored data which then analyze it and help turn this dormant data into measurable value for the business are already starting to find their way onto these appliances. Expect these features to become more prevalent in the years to come.
- ***Third, enterprises want backup appliances to expand their value proposition.*** The core value proposition of integrated backup appliances is that they provide an easy to deploy yet robust backup and recovery solution. But the current generation of appliances are powerful enough to do much more, and new use cases are constantly emerging for these appliances. These uses may extend to all secondary storage uses including copy data management, archiving, test/dev, data analytics and even file services. These extended use cases may create substantial additional value for organizations that take full advantage of the related product capabilities.

  Emerging providers such as Cohesity—which is making its first appearance as an integrated backup appliance vendor—directly address these opportunities. Cohesity's founder is Mohit Aron, who previously co-founded Nutanix. Cohesity is using backup target as a beachhead in the enterprise, but aims to provide hyperconverged storage for all secondary storage use cases. Available as a scale-out backup appliance, it provides an example of how enterprises can more easily scale and maintain data protection infrastructures over time, while gaining the flexibility to use the system for more than just data protection.

This *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide* highlights the most robust and feature rich integrated backup appliances available on the market today. As such, large enterprises should consider any of the backup appliances covered in this Buyer's Guide as having many if not all of the features needed to protect both their physical and virtual environments as well as giving them early access to the new set of features that will define the next generation of integrated backup appliances.

This *2016-17 Integrated Backup Appliance Buyer's Guide* accomplishes the following objectives:

- Provides an objective, third-party evaluation of products that evaluates and ranks their features from an end user's viewpoint
- Includes recommendations on how to best use this Buyer's Guide and the products contained in it
- Evaluates the features of each product based upon criteria that matter most so end users can quickly know which appliance is most appropriate for them
- Provides a standardized data sheet for each product so end users can do quick comparisons of the features supported and not supported on each product
- Gives any organization the ability to request competitive bids from different providers

## How to Use this Buyer's Guide

This Buyer's Guide is intended to help users accelerate their product research and selection process—driving cost out of the research process while simultaneously increasing confidence in the results. The purpose of this Buyer's Guide is NOT to tell users exactly which product(s) to purchase.

Rather, it is to help guide them in coming up with a short list of competitive products that have comparable features that meet their specific needs.

Just because a product ranks well does not automatically mean that it is the right product for an organization. If anything, because of the scope of the products evaluated and analyzed, it may have features that are too robust for the needs of an individual department or organization. However, this Buyer's Guide does give organizations some sense of how each product compares to other products covered in this Guide, as well as offers additional insight into what product offerings are available on the market.

DCIG recommends that organizations use this Buyer's Guide in the following seven ways:

1. ***Eliminate the painstaking research normally associated with identifying a short list of products that meet their needs.*** DCIG analysts dug through product web sites, reports and product manuals to uncover more than 100 features supported by the thirty-three (33) products from ten (10) different storage providers in this Buyer's Guide. A glance at the resulting ranking sheet reveals how complete the features of each product are compared to the other products. A look at the corresponding data sheet reveals whether or not a product supports the features required to make it onto a particular organization's short list for further consideration.
2. ***Do apples-to-apples comparisons of products from different vendors.*** It behooves an organization to get competitive bids from multiple vendors. After all, *when they compete, you win!* But that tactic only works well when organizations know that they are receiving competitive bids on products that are roughly comparable. Using this Buyer's Guide, organizations can do a better job of accomplishing that objective.
3. ***Separate the apples from the oranges.*** Just as important as doing apples-to-apples comparisons is identifying when an orange is thrown into the mix. Sometimes it is very difficult for an organization to know if it is truly getting a good deal when bids come in from vendors that include different products. Now organizations can refer to the rankings of each product on this guide so they know when they are getting a good deal, a great deal or just a *"so-so"* one.
4. ***Gain perspective on how products from less well-known vendors compare against established and better-known brands.*** There's a built-in level of comfort when buying products from well-known vendors. There's also a built-in resistance to buying products from vendors that are perceived as unknown quantities. This Buyer's Guide helps to remove some of that apprehension. Using this Buyer's Guide, organizations can see how these products stack up.
5. ***Normalize complex terminology.*** Every industry has a proclivity to adopt acronyms and jargon that is specific to it. This Buyer's Guide sifts through the acronyms and jargon and then normalizes these terms, providing a foundation for meaningful comparisons. Definitions for these normalized terms are provided in the Glossary in this Guide.
6. ***Take advantage of standardized data sheets to quickly compare products side-by-side.*** The product data sheets available from the different vendors are rarely laid out in the same way or contain the same information. Some vendors even have data sheet formats that vary from product to product within their own portfolio. This Buyer's Guide tackles this problem by creating a standard, easy-to-read data sheet for every product. In this way, product data sheets for individual products can be printed out and laid down side by side so that the features on them can be quickly compared.
7. ***Help justify buying recommendations to business teams.*** An overall ranking of *Recommended, Excellent* or *Good* is included at the top of every product data sheet. This overall ranking summarizes in a single word how feature-rich a product is compared to the other products in the Buyer's Guide.

## Disclosures

Over the last few years the general trend in the US has been for both large and boutique analyst firms to receive some or all of their revenue from vendors. DCIG is no different in this respect as it also receives payment for the different services it performs for vendors. The services that DCIG provides

include blogging, customer validations, product reviews, executive white papers, special reports and white papers.

In the interest of transparency, a number of the vendors included in this DCIG Buyer's Guide are or have been DCIG clients. This is not to imply that their products were given preferential treatment in the Buyer's Guide. All it means is that DCIG had more knowledge of their products so that DCIG could *consider* their product for inclusion in this Buyer's Guide.

In that vein, there are a number of important facts to keep in mind when considering the information contained in this Buyer's Guide and its merit.

- No vendor paid DCIG any fee to research this topic or arrive at pre-determined conclusions.
- DCIG did not guarantee any vendor that its product would be included in this Buyer's Guide
- DCIG did not imply or guarantee that a specific product would receive a preferential ranking in this Buyer's Guide, before or after completion of research
- All research was based upon publicly available information, information provided by the vendor, and/or the expertise of those evaluating the information
- No negative inferences can be drawn against any vendor not included in the Buyer's Guide
- It is a misuse of the Buyer's Guide to make comparisons between any vendor not ranked in the Buyer's Guide versus any vendor ranked in the Buyer's Guide

Because of the number of features analyzed and weighed, there was no way for DCIG to accurately predict at the outset how individual products would end up ranking. DCIG wants to emphasize that no vendor was privy to how DCIG weighed individual features. In every case, the vendor only found out the rankings of its product(s) after the analysis was complete.

## Inclusion and Exclusion Criteria

The *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide* is based on DCIG's Backup Appliance Body of Research on more than 130 backup appliances. The following criteria were used when determining whether or not to include as a specific storage array in this Buyer's Guide:

- Be available as a physical appliance that includes backup and recovery software as a combined bundle under one SKU
- May ship as a virtual appliance
- Stores backup data on the appliance via on premise DAS, NAS or SAN-attached storage
- May connect to a public storage cloud
- Sufficient information provided to reach meaningful conclusions
- Be formally announced or generally available for purchase on July 1, 2016

*Ultimately, it is the professional judgment of the analysts working on each DCIG Buyer's Guide whether or not a particular model meets the inclusion criteria.*

## The Eight-Step Process Used to Rank Products

To rank each product included in this Buyer's Guide, DCIG went through an eight-step process to come to the most objective conclusion possible.

1. *DCIG established which features would be evaluated and which ones would not.* Prior to selecting the features which would be evaluated, DCIG quantified, then "normalized" the list of available features such that a common name for each feature was established. In cases where a feature could not be objectively defined or understood, it was excluded from consideration.
2. *The features were grouped into six (6) general categories.* The features to be evaluated were grouped into six general categories: Appliance Information, Virtualization, Replication Management, Hardware, Backup & Recovery, and Management.
3. *DCIG completed a survey for each vendor's product(s) and then sent the survey(s) to each vendor for verification.* Each vendor was invited to review their data and respond with any corrections or edits to the DCIG-completed survey(s). In every case, every vendor had the opportunity to review and respond to any DCIG-completed survey.
4. DCIG identified a list of products that met the DCIG definition for *"Integrated Backup Appliances"* based on the inclusion/exclusion criteria.
5. *DCIG weighted each feature to establish a scoring rubric.* The weighting of each feature was done by a team of DCIG research analysts. The weightings were

used to reflect if a feature was supported and potentially how useful and/or important the feature was to end users.

6. *Each product's features were scored based on information gathered in the surveys.* Features were marked as either *"supported"* or *"unsupported/undetermined"* and then scored accordingly. Rankings were finalized after any updates from vendors had been entered and the review period expired.
7. *Products were ranked using standard scoring techniques.* One of the goals of this Buyer's Guide is to establish clear lines of differentiation with conclusions that are arrived at objectively. To accomplish this goal, the mean or average score for all products was first determined and then the standard deviation. DCIG developed an overall ranking for each product based on where that product's overall score fit into standard deviation ranges.
8. *DCIG completed a data sheet for each vendor's product(s) based on the survey data, and then sent the data sheet(s) to each vendor for review.* In every case, each vendor had an opportunity to review and update the content included on its respective data sheet(s).

Due to the large number of product features that DCIG evaluated, only a subset of the collected data could be included on the data sheets. The full set of product feature data may be accessed in the DCIG Analysis Portal available through DCIG's website: www.dcig.com.

## DCIG Comments

### Virtual Machine Technologies Enable Rapid Recovery

As core business processes become digitized, the ability to keep services online and to rapidly recover from any service interruption becomes a critical need. Integrated backup appliances enable rapid recovery through support for multiple virtual machine (VM) technologies.

All the models in this Buyer's Guide have the ability to present storage to a hypervisor to allow a VM to be recovered without copying data back to production storage. Skipping the traditional restore process obviously speeds the process of bringing an application back online, even more so if the underlying cause of downtime was storage related.

Most products in this Buyer's Guide also support recovering and running one or more virtual machines directly on the appliance itself. Some integrated backup appliances can even run applications on a VM in a standby state. In this configuration, if the production application goes offline the application running in the standby VM can keep the application operational until the production server or VM comes back online.

Other virtualization-related features of the integrated backup software can take advantage of hypervisor API's to guarantee the consistency of the virtual machine image regardless of the OS or filesystem in use.

### Virtual and Physical Restore Capabilities

While most of the products in this Buyer's Guide support all four potential backup and recovery scenarios, this is one area that distinguishes these IBA's from one another. The four potential backup and recovery scenarios are:

- P2P: Physical to Physical
- P2V: Physical to Virtual
- V2P: Virtual to Physical
- V2V: Virtual to Virtual

The P2P and V2V scenarios are the most common scenarios for most organizations. In both cases no changes are need to the underlying drivers of the operating system (OS) or storage. In V2V backups a snapshot is taken of a VM's virtual hard drives and copied to the appliance. For P2P backup vendors often use agents to snapshot and copy the data. Some vendors now store the data in virtual drives on the backup appliance even for physical devices as an enabler for multiple recovery scenarios.

Bare metal recovery is an important feature for many organizations. A bare metal recovery is one in which a blank server is recovered to exact state of the server it is replacing. It avoids the time and inconsistency of first installing and configuring the OS before restoring the data to a server. In most cases bare metal recovery is inherent in V2V recoveries because the entire state of the VM is stored. The task can be a little more difficult when dealing with physical servers.

The tricky part of bare metal recoveries is that the hardware drivers must be reconfigured on the OS to work with a different form of hardware than on what the OS and application was originally installed. Once solved, though, this feature provides

organizations with several opportunities. V2V can also be helpful in migrating VMs from one hypervisor to another.

P2V provides a mechanism for an organization to transition physical servers to virtual machines or to the cloud. Physical servers are backed up to the appliance and can then be restored to either a local, private virtual machine or uploaded to a cloud provider. The use of an integrated backup appliance can thus provide a low-risk way for an organization to test the virtualization migration or cloud waters.

P2V is also useful for disaster recovery. An application may run on dedicated hardware for its production environment but may be able to utilize a virtual environment in a disaster recovery scenario.

V2P is the least used recovery scenario. One use case is to move an application that is not performing well, or that is interfering with the performance of other applications, as a virtual machine onto a dedicated physical server. This can also be useful when troubleshooting problems if a software vendor insists the problem is somehow associated with the virtualization stack.

### Going Beyond Backup and Recovery to Unlock More Value

Viewing integrated backup appliances strictly in the context of *"backup and recovery"* is a mindset that organizations must strive to overcome. While these appliances certainly fulfill this traditional role, new use cases are constantly emerging. These may extend to all secondary storage use cases, starting with data protection and extending to copy data management, test/dev, data analytics and even file services. These extended use cases may create substantial additional value for organizations that take full advantage of the related product capabilities.

Once standard data protection requirements are met, organizations may leverage the ability of some appliances to recover and host an application on the appliance in multiple ways. For example, organizations can with comparative levels of ease and simplicity--and without disrupting their production environment--test and verify that they can restore protected applications and data.

Restoring applications to a VM on the appliance also gives organizations new flexibility to test application and operating system fixes, patches, and upgrades before they apply them on the production server. After bringing an application up on the backup appliance, fixes, patches, or upgrades may be applied to verify that they work as expected. This technique also gives administrators some practice applying the patch as well as visibility into what occurs on the system when the fix or patch is applied. This may include seeing what alerts are generated and learning how much time the update takes to complete.

### Complying with Regulatory Requirements

The regulatory environment around data storage and security has become increasingly stringent and more complex. National laws and industry-specific regulations abound, especially with regard to personally identifiable information (PII).

For example, some laws and regulations restrict organizations for storing certain types of data in other countries. While these concerns are most relevant when integrating with a public cloud storage provider, replication of data to an organization's own data centers in other countries must meet pertinent regulatory requirements. Thus the ability to manage files and folders exclusions for replication will be an important consideration for some organizations.

Similarly, organizations may have a requirement to complete the replication from the appliance to the secondary site within a specified time frame. This requirement may require additional time and cost to establish connectivity that meets the requirement.

The fact that integrated backup appliances generally keep a full copy of data onsite that is needed to recover protected applications is one of their more desirable aspects. This copy of data accelerates the recovery process should an outage occur. It also provides opportunity for an organization to implement some level of control in terms of how it manages the data that is replicated off-site.

The key point is that it is incumbent on the organization to match its regulatory data management requirements to its data protection appliance's replication management capabilities. It is for these reasons that DCIG encourages organizations to thoroughly research their data storage and retention requirements when selecting an integrated backup appliance and planning its replication strategy.

### Best Practice Considerations: Understand the Solution's Impact on the WAN

Organizations of all sizes need to take network bandwidth and costs into account when considering an integrated backup appliance deployment. Depending on the legacy solution that is in place, implementing data protection with

integrated backup appliances may significantly decrease WAN bandwidth requirements and costs while enhancing application performance at branch offices.

All the vendors in this Buyer's Guide offer smaller capacity appliances and/or virtual appliances for branch offices and support WAN acceleration between their appliances. WAN acceleration uses deduplication and compression to dramatically reduce the amount of data that must traverse the WAN.

Organizations should identify their recovery objectives. These objectives are usually expressed in terms of time and are referred to as "RPO" (recovery point objective) and "RTO" (recovery time objective). RPO can be thought of as how much data the organization can afford to lose; and RTO as how long the organization can afford for a service to be offline. A shorter RPO requires more frequent backups or snapshots. A shorter RTO requires greater bandwidth to the recovery site.

### Performance and Pricing

Two factors that strongly influence buying decisions are performance and cost. Therefore, it may come as a surprise to see no performance benchmarks and no pricing information in this Buyer's Guide. There are two core reasons why performance and pricing information are not included in this Buyer's Guide.

First, performance results vary according to data center environments, the data being stored, and implementation decisions. Introducing any type of performance metric would only result in the analysis in this Buyer's Guide becoming more subjective, not less.

Second, this Buyer's Guide is intended to provide a point-in-time snapshot of this marketplace. If DCIG had tried to test and establish performance benchmarks for all of these products, the next generation of appliances could well be available before the testing was completed, making this Buyer's Guide obsolete before it ever saw the light of day.

As for pricing, many factors influence final price including capacity purchased, services, extended warranties, negotiations, etc. These factors differ for every vendor and for every organization.

DCIG recognizes that price and performance are relevant and often key considerations. However, it is almost impossible for a third party like DCIG to obtain objective and accurate measures of these factors on a large scale. Therefore, evaluating performance and price is a part of the buying process that is best left to end users.

## DCIG Observations

### General Observations

All products in the *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide* support the following features:

- Advanced at-rest and in-flight encryption
- Alert when specified performance thresholds are breached
- Application Consistent backups of Exchange, SQL, SharePoint and Oracle databases
- Concurrent backups and restores
- Trending reports to show if a client or VM is backing up more data over time
- Present storage to a hypervisor for VM recovery without copying data back to production
- Restore from a copy of data that has been replicated to a second location
- Metering and performance monitoring

### *Recommended* Ranking

Commvault A600

STORServer EBA 2802-TSM

STORServer EBA 2802-CV

STORServer A740-TSM

STORServer A740-CV

Unitrends Recovery 946S

Unitrends Recovery 944S

Unitrends Recovery 943S

Unitrends Recovery 936S

Unitrends Recovery 933S

Unitrends Recovery 824S

### Observations

Integrated backup appliances in the *Recommended* ranking offer the features to handle the most demanding of enterprise backup environments and provide a combination of hardware, management, and software capabilities.

*Recommended* appliances share the following characteristics:

- Support VADP, multiple hypervisors, and vCenter for instant recovery
- Schedule conversions of existing physical backup to virtual
- Support all types of restores (P2P, P2V, V2P, V2V)
- 82 percent of them can run—and create—virtual machines on the appliance
- 75 percent of them scale to more than 100 TB of storage capacity with some scaling to more than 1PB

Commvault A600 is one of three Commvault-branded appliances that Commvault announced when it entered the PBBA market in 2015. Prior to that, Commvault addressed the PBBA market exclusively through partnering with backup appliance vendors to pre-install its Simpana backup software on their appliances.

The Commvault A600 scales up from 24 TB to 384 TB raw (288 TB usable) capacity. Four nodes can combine to scale out to a 1,536 TB raw (1,152 TB usable) capacity backup system. The appliance offers the entire Simpana feature set for backing up both physical and virtual environments. It offers a full complement of virtualization capabilities, including the ability to recover and host applications on the appliance.

Four STORServer products earn a *Recommended* ranking in this year's Buyer's Guide. The STORServer A740 models provide 12 TB to 480 TB of raw storage capacity and up to four 10 GbE and 8/16 Gb FC ports. The STORServer EBA 2802 provides 40 TB to 1.6 PB of raw storage capacity and doubles the port counts of the STORServer A740. Unlike some other models, STORServer supports both disk and tape for onsite backup. STORServer appliances are the only products in this Buyer's Guide that support 40 Gb Ethernet connectivity.

These STORServer appliances can handle from 1,500 to 2,500 concurrent backup streams, many times more than other products. The appliances also support more backup software, metering and management console options than the other products in this Buyer's Guide.

STORSever EBA 2802-TSM & CV, STORSever A740-TSM and CV combine either the latest versions of IBM's Spectrum Protect (-TSM) or Commvault's Simpana backup software (-CV). Together Commvault and STORServer combine to deliver an even better backup appliance experience than what either of these providers could previously do on their own. In STORServer, Commvault gets a company that offers backup appliances built for the enterprise as its software runs on hardened IBM hardware that is tested and ready for deployment in these environments. In STORServer's case, it gets enterprise-class software that is built for the specific data management and protection requirements of today's enterprises.

Six Unitrends products earn a *Recommended* ranking, including the Unitrends Recovery 946S, 944S, 943S, 936S, 933S and 824S. The Recovery 946S and 944S are new models that extend the top-end capabilities of the Unitrends lineup. Each Unitrends appliance is a fixed capacity appliance. The Recovery 946S offers a fixed raw capacity of 182 TBs, 2.5x the capacity of the previous top-end model.

Unitrends products use a combination of SATA and SSD drives for their operating system, metadata lookup, and overall operational speed. Unitrends is able to protect a broad array of virtual, physical, and even cloud-based servers and data, including the ability to instantly recover VMs and physical workloads to the appliance.

Unitrends appliances offer a full range of virtualization features, with the needed hypervisor support for on-appliance instant recovery and application hosting. Backup and recovery management features include server prioritization, threshold alerts, and storage trending. Replication features include time of day scheduling and QoS adaptive throttling.

### *Excellent* Ranking

Commvault A410
Commvault A210
Unitrends Recovery 814S
Unitrends Recovery 714S
Unitrends Recovery 713S
Unitrends Recovery 604
Unitrends Recovery 603
Veritas NetBackup 5330
Veritas NetBackup 5240

Nine appliances from Commvault, Unitrends and Veritas rank as *Excellent*. The products that earn *Excellent* rankings share the following characteristics:

- Detect and place newly created VMs in a backup policy
- Include multi-tenancy where the appliance resources can be isolated from one another
- Include vCenter for instant recovery and use VMware vCenter Server for monitoring and management
- Policy-based configurations set on a per-container basis in VMware
- Support all types of restores (P2P, P2V, V2P, V2V)
- VM inclusion or exclusion based on search criteria

The Commvault A410 and A210 appliances are fixed capacity appliances with 24TB and 12TB in usable capacity, respectively. Each appliance can scale to four nodes, giving the A410 and A210 the ability to realize a 96TB and 48TB capacity in a single deduplication pool using its Parallel Deduplication feature.

Unitrends Recovery 814S, 714S, 713S, 604 and 603 also achieve an *Excellent* ranking. These appliances share the software features the *Recommended* Unitrends appliances, but with smaller capacity and performance resources. Each appliance is a fixed capacity appliance with capacities ranging from 3 to 12 TB of raw capacity and 4 to 16 concurrent backup streams.

The Veritas NetBackup 5240 starts at 12TB in raw capacity and scales to 300 TB while the larger 5330 offers raw capacities ranging from 384 TB to 744 TB. The Veritas NetBackup appliances feature more CPU cores and larger caches than most other backup appliances, allowing them to process more concurrent backup streams—up to 192 or 600 respectively.

Veritas integrates its widely adopted NetBackup backup software into its appliances. NetBackup offers deduplication flexibility by gives organizations the options to choose between post process and inline deduplication and even giving them the option to bypass entirely for data that does not deduplicate.

Veritas appliances integrate with wider range of management consoles including HP Openview and VMware vCenter. They also offer sophisticated replication options. Veritas is the only vendor that provides synchronous replication. It also offers more replication fan-in/fan-out options, including 1:N, 1:N:N and N:N.

### *Good* Ranking

Barracuda Networks Barracuda 1090

Barracuda Networks Barracuda 995

Cohesity C2500

Cohesity C2300

Infrascale Data Protection Appliance 9500

Quest DL4300 Backup and Recovery Appliance (High Capacity Edition)

Quest DL4300 Backup and Recovery Appliance (Standard Edition)

Quorum onQ-288-32

Quorum onQ-280-32

Quorum onQ-260-22

Rubrik r528

Rubrik r348

Rubrik r344

Thirteen integrated backup appliance models achieve a ranking of *Good*. Those ranked as *Good* generally share the following common features:

- All support instant recovery on the appliance using virtual machines
- All have V2V recovery

Barracuda Networks Barracuda 1090 and 995 are fixed capacity appliances with 128 TB and 84 TB in raw capacity, respectively. Barracuda also offers the Backup Vx, a virtual edition of its hardware appliances.

Features that help to set Barracuda appliances apart from most of the other products in the Good ranking group include multitenancy, appliance-to-appliance bandwidth throttling, multiple P2P, P2V, and V2V restores, VM storage trending and server prioritization where servers that have gone the longest since the last backup are prioritized for backup over more recently backed up servers.

Cohesity is a startup that introduced its first products, the C2300 and C2500 appliances, in October 2015. Cohesity's founder is Mohit Aron, who previously co-founded Nutanix. Cohesity markets its products as hyperconverged secondary storage for all secondary use cases including backup, test/dev and analytics.

The C2300 provides 12 TB raw disk capacity plus 800 TB of PCIe-based flash storage per node, with 4-nodes per 2U appliance. The C2500 offers twice the capacity of the C2300. Cohesity implements a scale-out architecture, and has been tested to 32 nodes providing 768 TB raw capacity.

Cohesity has implemented a rapid release schedule to fill the gaps in its feature set, releasing version 3 of its operating software in September 2016. In July 2016, Cohesity announced it had achieved FIPS 140-2 certification for encryption of sensitive data.

The Infrascale Data Protection Appliance 9500 offers a full complement of virtualization capabilities including a virtual appliance edition. It also offers a host of backup and recovery features including P2P, V2P and V2V restores, and file inclusion/exclusion. Infrascale supports more storage networking protocols and client operating systems than most other products in the *Good* ranking group. It also includes more bundled software licenses, including NAS and archive.

Quest (which was spun out in Q4 2016 after the Dell EMC merger) offers the DL4300 High Capacity and Standard Capacity models scaling to 168 TB and 96 TB in raw capacity, respectively. Quest appliances include the AppAssure backup software that, in order to simplify scaling capacity, ship with extra onboard capacity for which organizations may simply obtain a software license to access this extra existing capacity. The DL4300 models respectively include four (4) or two (2) licensed VMs that can be used for recovering and hosting applications on the appliance. The VMs offer Virtual Standby, holding a full copy of production level data that can be used for quick recoveries as well as data migration, development and testing. The Quest DL4300 includes a 5-year standard warranty.

Quorum onQ-288-32, onQ-280-32 and onQ-260-22 are fixed capacity scale-out appliances ranging from 22 to 32 TB raw capacities. Quorum supports high availability across a multi-node cluster. Quorum's product lineup includes a virtual appliance.

Quorum onQ appliances can replicate to another appliance with a full set of virtualization capabilities on the appliance for rapid recovery. onQ appliances support a range of replication options (1:1, 1:N and N:1) while also offering deduplication management, including a real-time deduplication ratio to monitor deduplication rates as data is being sent to another appliance.

Rubrik is another newcomer to the PBBA marketplace. Current products include the Rubrik r528, r348, and r344. Rubrik is scale-out, with a minimum of 3 nodes required. Rubrik scalability has been tested to 40 nodes, but can theoretically scales to an unlimited number of nodes. Rubrik appliances support a wide range of deduplication capabilities, and a full set of virtualization functions including instant recovery and on appliance VM creation. Rubrik provides global deduplication and high availability

Rubrik appliances include VADP, with the ability to install the VMware vSphere hypervisor and includes vCenter for instant recovery management. Rubrik products are currently geared for virtual backups only.

# INTEGRATED BACKUP APPLIANCE RANKINGS

## OVERALL RANKINGS

*Vendors Listed Alphabetically in Each Category*

| | |
|---|---|
| **RECOMMENDED** | CommVault A600 |
| | STORServer EBA 2802-TSM |
| | STORServer EBA 2802-CV |
| | STORServer A740-TSM |
| | STORServer A740-CV |
| | Unitrends Recovery 946S |
| | Unitrends Recovery 944S |
| | Unitrends Recovery 943S |
| | Unitrends Recovery 936S |
| | Unitrends Recovery 933S |
| | Unitrends Recovery 824S |
| **EXCELLENT** | Commvault A410 |
| | Commvault A210 |
| | Unitrends Recovery 814S |
| | Unitrends Recovery 714S |
| | Unitrends Recovery 713S |
| | Unitrends Recovery 604 |
| | Unitrends Recovery 603 |
| | Veritas NetBackup 5330 |
| | Veritas NetBackup 5240 |

*Continued on next page*

## OVERALL RANKINGS *CONT'D*

*Vendors Listed Alphabetically in Each Category*

| | |
|---|---|
| **GOOD** | Barracuda Networks Barracuda 1090 |
| | Barracuda Networks Barracuda 995 |
| | Cohesity C2500 |
| | Cohesity C2300 |
| | Infrascale Data Protection Appliance 9500 |
| | Quest DL4300 Backup and Recovery Appliance (Standard Edition) |
| | Quest DL4300 Backup and Recovery Appliance (High Capacity Edition) |
| | Quorum onQ-288-32 |
| | Quorum onQ-280-32 |
| | Quorum onQ-260-22 |
| | Rubrik r528 |
| | Rubrik r348 |
| | Rubrik r344 |

# INTEGRATED BACKUP APPLIANCE PRODUCTS

# Barracuda Networks Barracuda Backup 995

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 6 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 2 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ● |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 2 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 84 TB |
| Raw Storage *MAX* | 84 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 2 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2V |
| Concurrent Backup Streams *MAX* | 60 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ● |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 2 |
| Alerting Options *TOTAL #* | 3 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Barracuda Networks Barracuda Backup 1090

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 6 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 2 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ● |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 2 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 128 TB |
| Raw Storage *MAX* | 128 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 2 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2V |
| Concurrent Backup Streams *MAX* | 60 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ● |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 2 |
| Alerting Options *TOTAL #* | 3 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Cohesity C2300

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 7 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | ○ |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 5 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 2 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / ○ / ○ |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 12 TB |
| Raw Storage *MAX* | Unlimited * |
| Cache (DRAM and/or Flash) *MAX* | Unlimited * |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 3 |
| Physical Recovery Types *TOTAL #* | ○ |
| Bare Metal Recovery | ○ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | V2V |
| Concurrent Backup Streams *MAX* | Unlimited * |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ○ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | ○ |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 3 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ○ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

* Largest tested deployment 32 nodes with raw storage of 384 TB and cache of 2,048 GB, supporting 200 concurrent backup streams.

# Cohesity C2500

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 7 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | ○ |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 5 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ○ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 2 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / ○ / ○ |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 24 TB |
| Raw Storage *MAX* | Unlimited * |
| Cache (DRAM and/or Flash) *MAX* | Unlimited * |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 3 |
| Physical Recovery Types *TOTAL #* | ○ |
| Bare Metal Recovery | ○ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | V2V |
| Concurrent Backup Streams *MAX* | Unlimited * |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ○ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | ○ |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 3 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ○ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

* Largest tested deployment 32 nodes with raw storage of 768 TB and cache of 2,048 GB, supporting 200 concurrent backup streams.

# Commvault A210

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 5 |
| vCenter Instant Recovery Features *TOTAL #* | 5 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 7 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / 2 / ○ |
| Controller Configurations *TOTAL #* | 3 |
| Raw Storage *MIN* | 21 TB |
| Raw Storage *MAX* | 84 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 300 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 4 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 7 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Commvault A410

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 5 |
| vCenter Instant Recovery Features *TOTAL #* | 5 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 7 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / 2 / ○ |
| Controller Configurations *TOTAL #* | 3 |
| Raw Storage *MIN* | 42 TB |
| Raw Storage *MAX* | 168 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 300 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 4 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 7 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Commvault A600

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 5 |
| vCenter Instant Recovery Features *TOTAL #* | 5 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 7 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / 2 / ○ |
| Controller Configurations *TOTAL #* | 3 |
| Raw Storage *MIN* | 24 TB |
| Raw Storage *MAX* | 1,536 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 300 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 4 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 7 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Infrascale Data Protection Appliance 9500

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 5 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 2 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ● |
| Appliance to Appliance Bandwidth Throttling | ● |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 6 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 88 TB |
| Raw Storage *MAX* | 176 TB |
| Cache (DRAM and/or Flash) *MAX* | 96 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 3 |
| Physical Recovery Types *TOTAL #* | 2 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, V2P, V2V |
| Concurrent Backup Streams *MAX* | 20 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ● |
| Native Metering *TOTAL #* | 1 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 2 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ● |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ● |
| Multi-tenancy Isolation | ● |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Quest DL4300 Backup and Recovery Appliance (High Capacity)

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 7 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 5 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 2 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 1 |
| vCenter Instant Recovery Features *TOTAL #* | ○ |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 6 / 4 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / ○ / ○ |
| Controller Configurations *TOTAL #* | 3 |
| Raw Storage *MIN* | 96 TB |
| Raw Storage *MAX* | 168 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 1 / 1 |
| Dedupe Implementation Types *TOTAL #* | 3 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 60 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ○ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ○ |
| Multiple Node High Availability | ○ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ○ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ○ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Quest DL4300 Backup and Recovery Appliance (Standard Edition)

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 7 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 5 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 2 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 1 |
| vCenter Instant Recovery Features *TOTAL #* | ○ |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 6 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / ○ / ○ |
| Controller Configurations *TOTAL #* | 3 |
| Raw Storage *MIN* | 16 TB |
| Raw Storage *MAX* | 96 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 1 / 1 |
| Dedupe Implementation Types *TOTAL #* | 3 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 60 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ○ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ○ |
| Multiple Node High Availability | ○ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ○ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ○ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Quorum onQ-260-22

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 6 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | ○ |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ○ |
| Appliance to Appliance Bandwidth Throttling | ○ |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | 2 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 22 TB |
| Raw Storage *MAX* | 22 TB |
| Cache (DRAM and/or Flash) *MAX* | 192 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 3 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 4 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Quorum onQ-280-32

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 6 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | ○ |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ○ |
| Appliance to Appliance Bandwidth Throttling | ○ |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | 2 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 22 TB |
| Raw Storage *MAX* | 32 TB |
| Cache (DRAM and/or Flash) *MAX* | 384 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 3 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 4 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Quorum onQ-288-32

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 6 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | ○ |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ○ |
| Appliance to Appliance Bandwidth Throttling | ○ |
| Replication | Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 2 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | 2 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 32 TB |
| Raw Storage *MAX* | 32 TB |
| Cache (DRAM and/or Flash) *MAX* | 384 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 1 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 3 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 4 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Rubrik r344

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | ● |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✔ |
| VADP VMWare APIs *TOTAL #* | 3 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 1 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✔ |
| Recover and Host App on Appliance | ✔ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 3 |
| Fan-in/Fan-out Options | ✔ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✔ |
| Appliance to Appliance Bandwidth Throttling | ✔ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✔ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 12 / 8 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 48 TB |
| Raw Storage *MAX* | Unlimited * |
| Cache (DRAM and/or Flash) *MAX* | Unlimited * |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✔ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ● |
| Concurrent Backups/Restores | ✔ |
| Restore from Copy in 2nd Location | ✔ |
| Restore Types | V2V, P2P |
| Concurrent Backup Streams *MAX* | Unlimited * |
| Limit Number of Backup Streams | ✔ |
| Backup Scheduling | ✔ |
| File Inclusion/Exclusion | ● |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✔ |
| Multiple Node High Availability | ✔ |
| Network Authentication Protocols | ✔ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 2 |
| Alerting Options *TOTAL #* | 2 |
| Performance Monitoring | ✔ |
| VM Storage Trending | ✔ |
| Internal Storage Capacity Alerting | ✔ |
| Threshold Alerts | ✔ |
| Server Prioritization | ● |
| Multi-tenancy Isolation | ● |

✔ SUPPORTED ● UNDETERMINED / UNSUPPORTED

* Largest tested deployment 40 nodes with raw storage of 480 TB and cache of 2,560 GB, supporting 480 backup streams.

# Rubrik r348

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | ● |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✔ |
| VADP VMWare APIs *TOTAL #* | 3 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 1 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✔ |
| Recover and Host App on Appliance | ✔ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 3 |
| Fan-in/Fan-out Options | ✔ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ● |
| Appliance to Appliance Bandwidth Throttling | ✔ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✔ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 12 / 8 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 96 TB |
| Raw Storage *MAX* | Unlimited * |
| Cache (DRAM and/or Flash) *MAX* | Unlimited * |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✔ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ● |
| Concurrent Backups/Restores | ✔ |
| Restore from Copy in 2nd Location | ✔ |
| Restore Types | V2V, P2P |
| Concurrent Backup Streams *MAX* | Unlimited * |
| Limit Number of Backup Streams | ✔ |
| Backup Scheduling | ✔ |
| File Inclusion/Exclusion | ● |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✔ |
| Multiple Node High Availability | ✔ |
| Network Authentication Protocols | ✔ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 2 |
| Alerting Options *TOTAL #* | 2 |
| Performance Monitoring | ✔ |
| VM Storage Trending | ✔ |
| Internal Storage Capacity Alerting | ✔ |
| Threshold Alerts | ✔ |
| Server Prioritization | ● |
| Multi-tenancy Isolation | ● |

✔ SUPPORTED ● UNDETERMINED / UNSUPPORTED

* Largest tested deployment 40 nodes with raw storage of 960 TB and cache of 2,560 GB, supporting 480 backup streams.

# Rubrik r528

OVERALL RANK **GOOD**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | ● |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✔ |
| VADP VMWare APIs *TOTAL #* | 3 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 1 |
| vCenter Instant Recovery Features *TOTAL #* | 6 |
| VM Instant Recovery | ✔ |
| Recover and Host App on Appliance | ✔ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 3 |
| Fan-in/Fan-out Options | ✔ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✔ |
| Appliance to Appliance Bandwidth Throttling | ✔ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✔ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 6 / 4 / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 96 TB |
| Raw Storage *MAX* | Unlimited * |
| Cache (DRAM and/or Flash) *MAX* | Unlimited * |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✔ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ● |
| Concurrent Backups/Restores | ✔ |
| Restore from Copy in 2nd Location | ✔ |
| Restore Types | V2V, P2P |
| Concurrent Backup Streams *MAX* | Unlimited * |
| Limit Number of Backup Streams | ✔ |
| Backup Scheduling | ✔ |
| File Inclusion/Exclusion | ● |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✔ |
| Multiple Node High Availability | ✔ |
| Network Authentication Protocols | ✔ |
| Native Metering *TOTAL #* | 2 |
| Management Consoles *TOTAL #* | 2 |
| Alerting Options *TOTAL #* | 2 |
| Performance Monitoring | ✔ |
| VM Storage Trending | ✔ |
| Internal Storage Capacity Alerting | ✔ |
| Threshold Alerts | ✔ |
| Server Prioritization | ● |
| Multi-tenancy Isolation | ● |

✔ SUPPORTED ● UNDETERMINED / UNSUPPORTED

* Largest tested deployment 40 nodes with raw storage of 960 TB and cache of 2,560 GB, supporting 480 backup streams.

# STORServer A740-CV

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 11 |
| Backup Software *TOTAL #* | 3 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 4 / 2 |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 4 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 12 TB |
| Raw Storage *MAX* | 480 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 1,500 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 6 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# STORServer A740-TSM

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 11 |
| Backup Software *TOTAL #* | 4 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 4 / 2 |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 4 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 12 TB |
| Raw Storage *MAX* | 480 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 1,500 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 6 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# STORServer EBA 2802-CV

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 11 |
| Backup Software *TOTAL #* | 4 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 8 / 4 |
| 4/8/16Gb FC Interfaces *MAX* | 8 / 8 / 4 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 40 TB |
| Raw Storage *MAX* | 1,600 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 2,500 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 6 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# STORServer EBA 2802-TSM

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 11 |
| Backup Software *TOTAL #* | 4 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 2 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 1 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 8 / 4 |
| 4/8/16Gb FC Interfaces *MAX* | 8 / 8 / 4 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 40 TB |
| Raw Storage *MAX* | 1,600 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 2,500 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ✓ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 6 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 603

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 1 / ● / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 3 TB |
| Raw Storage *MAX* | 3 TB |
| Cache (DRAM and/or Flash) *MAX* | 8 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 4 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 604

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 1 / ● / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 4 TB |
| Raw Storage *MAX* | 4 TB |
| Cache (DRAM and/or Flash) *MAX* | 8 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 4 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 713S

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 2 / ● / ● |
| 4/8/16Gb FC Interfaces *MAX* | ● / ● / ● |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 6 TB |
| Raw Storage *MAX* | 6 TB |
| Cache (DRAM and/or Flash) *MAX* | 16 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 8 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 714S

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 8 TB |
| Raw Storage *MAX* | 8 TB |
| Cache (DRAM and/or Flash) *MAX* | 16 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 8 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 814S

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 12 TB |
| Raw Storage *MAX* | 12 TB |
| Cache (DRAM and/or Flash) *MAX* | 16 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 16 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 824S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 25 TB |
| Raw Storage *MAX* | 25 TB |
| Cache (DRAM and/or Flash) *MAX* | 64 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 933S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 37 TB |
| Raw Storage *MAX* | 37 TB |
| Cache (DRAM and/or Flash) *MAX* | 128 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 936S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 73 TB |
| Raw Storage *MAX* | 73 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 943S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 97 TB |
| Raw Storage *MAX* | 97 TB |
| Cache (DRAM and/or Flash) *MAX* | 480 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 944S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 122 TB |
| Raw Storage *MAX* | 122 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Unitrends Recovery 946S

OVERALL RANK **RECOMMENDED**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 10 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ✓ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | 4 |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ✓ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 6 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 8 / 2 / ● |
| 4/8/16Gb FC Interfaces *MAX* | 4 / 2 / 2 |
| Controller Configurations *TOTAL #* | 2 |
| Raw Storage *MIN* | 182 TB |
| Raw Storage *MAX* | 182 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 32 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ● |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 3 |
| Management Consoles *TOTAL #* | 1 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ✓ |

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

# Veritas NetBackup 5240

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 8 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 3 Years |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | ○ |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 4 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic, Synchronous |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 4 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | 10 / 10 / ○ |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 12 TB |
| Raw Storage *MAX* | 300 TB |
| Cache (DRAM and/or Flash) *MAX* | 256 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 192 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ○ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ○ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# Veritas NetBackup 5330

OVERALL RANK **EXCELLENT**

## APPLIANCE INFORMATION

| | |
|---|---|
| Appliance Configurations *TOTAL #* | 5 |
| Backup Software *TOTAL #* | 1 |
| Warranty | 1 Year |

## VIRTUALIZATION

| | |
|---|---|
| Virtual Appliance | ○ |
| VADP VMWare APIs *TOTAL #* | 4 |
| Hypervisors / Virtual OS(s) *TOTAL #* | ○ |
| vCenter Instant Recovery Features *TOTAL #* | 7 |
| VM Instant Recovery | ✓ |
| Recover and Host App on Appliance | ○ |

## REPLICATION MANAGEMENT

| | |
|---|---|
| Public Cloud Service Providers *TOTAL #* | 4 |
| Fan-in/Fan-out Options | ✓ |
| Encryption Type | At Rest/In Transit |
| FIPS Certified | ✓ |
| Appliance to Appliance Bandwidth Throttling | ✓ |
| Replication | Continuous, Periodic, Synchronous |
| Differing Retention Periods | ✓ |

## HARDWARE

| | |
|---|---|
| 1/10/40Gb Ethernet Interfaces *MAX* | 4 / 10 / ○ |
| 4/8/16Gb FC Interfaces *MAX* | ○ / 12 / ○ |
| Controller Configurations *TOTAL #* | 1 |
| Raw Storage *MIN* | 384 TB |
| Raw Storage *MAX* | 744 TB |
| Cache (DRAM and/or Flash) *MAX* | 1,104 GB |

## BACKUP & RECOVERY

| | |
|---|---|
| Deduplication Included | ✓ |
| Dedupe Options / Methods *TOTAL #* | 2 / 2 |
| Dedupe Implementation Types *TOTAL #* | 4 |
| Physical Recovery Types *TOTAL #* | 3 |
| Bare Metal Recovery | ✓ |
| Concurrent Backups/Restores | ✓ |
| Restore from Copy in 2nd Location | ✓ |
| Restore Types | P2P, P2V, V2P, V2V |
| Concurrent Backup Streams *MAX* | 600 |
| Limit Number of Backup Streams | ✓ |
| Backup Scheduling | ✓ |
| File Inclusion/Exclusion | ✓ |

## MANAGEMENT

| | |
|---|---|
| Port Configuration | ✓ |
| Multiple Node High Availability | ○ |
| Network Authentication Protocols | ✓ |
| Native Metering *TOTAL #* | 5 |
| Management Consoles *TOTAL #* | 3 |
| Alerting Options *TOTAL #* | 5 |
| Performance Monitoring | ✓ |
| VM Storage Trending | ✓ |
| Internal Storage Capacity Alerting | ✓ |
| Threshold Alerts | ✓ |
| Server Prioritization | ✓ |
| Multi-tenancy Isolation | ○ |

✓ SUPPORTED ○ UNDETERMINED / UNSUPPORTED

# APPENDICES

# Definitions, Explanations and Terminology

This section contains brief definitions and/or explanations of the terms used on the data sheets found in the *DCIG 2016-17 Integrated Backup Appliance Buyer's Guide.*

## APPLIANCE INFORMATION

### Appliance Configurations *TOTAL #*

Backup appliances are available in a variety of configurations: a physical appliance, a virtual appliance, and a backup target. They may also be shipped in pairs for private/public cloud-paired configurations. For a detailed list of exactly which configurations are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Backup Software *TOTAL #*

Indicates the number of backup software programs that are included with the appliance at no extra charge. For a detailed list of which software products are included, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Warranty

This indicates the duration of the standard warranty that is offered with the appliance.

## VIRTUALIZATION

### Virtual Appliance

Indicates if the appliance is available as a virtual edition.

### VADP VMWare APIs *TOTAL #*

VMware developed the vStorage Application processing interface for Data Protection *(VADP)* to help it better manage and expedite the protection of virtual machines. Some of VADP's features include full and incremental Changed Block Tracking *(CBT),* and logical volume management *(LVM).* Indicates the total number of application programming interfaces *(APIs).* For a detailed list of exactly which methods are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Hypervisors/Virtual OS(es) *TOTAL #*

Indicates the total number of hypervisors and/or virtual operating systems supported. If a hybrid cloud backup appliance can run in a virtual environment, it may support multiple hypervisors such as Microsoft HyperV, VMware ESX/ESXi and Citrix XenServer. For a detailed list of exactly which hypervisors are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### vCenter Instant Recovery Features *TOTAL #*

If supported, indicates the number of vCenter instant recovery features supported by the appliance. For a detailed list of exactly of which features are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### VM Instant Recovery

Indicates if the appliance has the ability to instantly recover a virtual machine after failure. This is usually achieved by allowing the hypervisor on a production host to mount the backup image of the VM directly from the appliance.

### Recover and Host App on Appliance

Indicates if a VM can be created on the backup appliance and used to recover and host an application on the appliance itself. This is useful in initiating a recovery of a VM on the appliance and later moving the VM to a production host, or for development and testing.

## REPLICATION MANAGEMENT

### Public Cloud Service Providers *TOTAL #*

Lists the number of public cloud storage providers to which the appliance supports connectivity. For a detailed list of exactly of which providers are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Fan-in/Fan-out Options

Indicates if the backup appliance supports data replication fan-in/fan-out configurations. Options include 1:1, 1:N, N:1, and N:N. For a detailed list of exactly which replication methods are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Encryption Type

List whether data is encrypted when at-rest on the appliance and/or when replicating from one appliance to another like appliance.

### FIPS Certified

Indicates if the appliance is Federal Information Processing Standard *(FIPS)* certified.

## Appendix A—Definitions, Explanations and Terminology (continued)

### Appliance to Appliance Bandwidth Throttling

Indicates if the backup appliance can enforce a limit the amount of bandwidth being used for replication traffic between it and another backup appliance.

### Replication

Indicates the replication options the appliance supports. *Continuous* means data is replicated as it arrives. *Periodic* means snapshots are taken and changes or deltas between snapshots are sent to the replication target. *Synchronous* means that data is written concurrently to two or more appliances.

### Differing Retention Periods

Indicates if the data retention periods can be set differently for replicated vs. original data.

## HARDWARE

### 1/10/40Gb Ethernet Interfaces *MAX*

If supported, indicates the maximum number of 1Gb, 10Gb and 40Gb Ethernet storage networking ports available on the appliance.

### 4/8/16Gb FC Interfaces *MAX*

If supported, indicates the maximum number of 4Gb, 8Gb and 16Gb Fibre Channel storage networking ports available on the appliance.

### Controller Configurations *TOTAL #*

Indicates the total number of configurations supported by the appliance controller. Options include *active-active, active-passive, dual active, single controller* and *scale-out.* For a detailed list of exactly which controller configurations are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Raw Storage *MIN*

Lists the minimum amount of raw storage capacity the model natively supports.

### Raw Storage *MAX*

Lists the maximum amount of raw storage capacity the model natively supports in a fully scaled-up and/or scaled-out configuration.

### Cache (DRAM and/or Flash) *MAX*

Lists the maximum amount of cache capacity (DRAM and/or flash memory) the model natively supports in a fully scaled-up and/or scaled-out configuration.

## BACKUP & RECOVERY

### Deduplication Included

Indicates if the deduplication license is included in the base cost of the appliance.

### Dedupe Options / Methods *TOTAL #*

Indicates the number of deduplication options and methods supported by the model. Options are block and/or file. Methods are post process and/or inline. For a detailed list of deduplication options supported by the model, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Dedupe Implementation Types *TOTAL #*

Indicates the total number of deduplication implementation types *(source, target, client, media server, or a combination of these)* that are supported by the model. For a detailed list of exactly which deduplication implementation types are supported by the appliance, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Physical Recovery Types *TOTAL #*

Counts the number of options the appliance provides for doing a recovery of a physical machine. Options include *recovery to similar hardware, dissimilar hardware* and *virtual machines.* For a detailed list of exactly which recovery types are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Bare Metal Recovery

Indicates if the appliance supports the complete recovery of a server without having to first reinstall the operating system or previously loaded software.

### Concurrent Backups/Restores

Indicates whether the model is able to perform backups while concurrently performing restores.

### Restore from Copy in 2nd Location

Indicates if the appliance supports restoration of data from a copy of data that has been replicated to a second location. (If appliance A replicates to appliance B, can appliance B restore the original backup data.)

### Restore Types

Lists what types of restores are possible. Options are V2V *(Virtual to Virtual),* V2P *(Virtual to Physical),* P2V *(Physical to Virtual),* and P2P *(Physical to Physical).*

### Concurrent Backup Streams *MAX*

Indicates the maximum number of data streams that can be backed up by the appliance simultaneously without performance degradation.

### Limit Number of Backup Streams
Restricts the number of backup streams an appliance can accept at one time to improve performance of the jobs already running.

### Backup Scheduling
Indicates if the model allows backup administrators to schedule when backups occur.

### File Inclusion/Exclusion
Indicates if backup administrators able to select specific files or folders for backup while excluding others.

## MANAGEMENT

### Port Configuration
Indicates if the appliance's network ports be configured for certain tasks. (For example, one or more ports may be allocated to different subnets for management, replication or ingest.)

### Multiple Node High Availability
Indicates if an appliance that can scale out to multiple nodes preserves high availability when scaled out..

### Network Authentication Protocols
Indicates if LDAP and/or Microsoft Active Directory network authentication protocols are supported for authenticating users and/or administrators accessing the backup appliance and the data stored on it. For a detailed list of exactly which network authentication protocols are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Native Metering *TOTAL #*
Indicates the total number of metering capabilities are natively included with this model. Options include real-time statistics, historical usage and trending, storage charge-back to users, business units or specific projects. If this is not natively included with the device, the appliance may work in tandem with a third party metering software. For a detailed list of exactly which metering capabilities are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Management Consoles *TOTAL #*
Lists the total number of management consoles the model supports. Users monitor the appliance through a management console, which captures alerts and error messages from the appliance. For a detailed list of exactly what types of management consoles are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Alerting Options *TOTAL #*
Indicates the total number of methods by which the model provides alerts regarding its condition. For a detailed list of exactly which alerting options are supported, please access the DCIG Analysis Portal at http://portal.dcig.com.

### Performance Monitoring
Indicates if the model supports a performance monitoring application.

### VM Storage Trending
Indicates if a model offers trending to show if a client or VM is backing up significantly more data over time.

### Internal Storage Capacity Alerting
Indicates if the product sends out alerts when internal storage utilization is approaching capacity limits.

### Threshold Alerts
Indicates whether the model automatically alerts users when specified performance thresholds are exceeded.

### Server Prioritization
Indicates whether the model is able to prioritize server backups based on the length of time since a server's last backup.

### Multi-tenancy Isolation
Indicates whether the appliance resources can be isolated from one another and managed separately by different administrators and/or groups *(tenants),* keeping each tenant's data isolated and invisible from others for security purposes.

## Appendix B—Vendor Contact Information

# Vendor Contact Information

**Barracuda Networks Inc.**
3175 Winchester Blvd
Campbell, CA 95008
www.barracuda.com
+1.888.268.4772

**Cohesity**
451 El Camino Real #235
Santa Clara, CA 95050
www.cohesity.com
+1.855.926.4374
+1.855.9COHESITY

**Commvault**
1 Commvault Way
Tinton Falls, NJ 07724
www.commvault.com
+1.732.728.5310
+1.888.746.3849

**Infrascale SLC**
308 East 4500 South, Suite 100
Salt Lake City, UT 84107-4057
www.infrascale.com
+1.888.264.5116

**Quest (Dell)**
1 Dell Way
Round Rock, TX 78682
www.dell.com
+1.800.247.2097

**Quorum**
2890 Zanker Road, Suite 102
San Jose, CA 95134
www.quorum.net
+1.408.708.4500
+1.877.99.Quorum

**Rubrik**
299 South California Avenue, Suite 250
Palo Alto, CA 94306
www.rubrik.com
+1-844-4RUBRIK

**STORServer, Inc.**
485-B Elkton Drive
Colorado Springs, CO 80907
www.storserver.com
+1.719.266.8777
+1.800.550.5121

**Unitrends**
200 Wheeler Road
North Tower, 2nd Floor
Burlington MA 01803
www.unitrends.com
+1.866.359.5411

**Veritas**
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Mountain View, CA 94043
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# Appendix C—DCIG Contact Information

## DCIG Contact Information

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