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# 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating  
Virtual Server Backup Software

By Robert Eastman, Miles Prescott and Jerome M Wendt



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# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

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# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### Introduction

This Virtual Server Backup Software Buyer's Guide is collaboration between Jerome Wendt of the Data Center Infrastructure Group Inc. (DCIG) and Bob Eastman and Miles Prescott of SMB Research. Our intent in producing this Buyer's Guide is to provide a resource for vendors, end-users, and others that establish the landscape for virtual server backup software technology, and the important features and functions that the vendors of this technology are offering.

This is a Buyer's Guide, intended as a complement to the evaluation and buying process. You will not find elaborate models or esoteric frameworks in here that border on the academic. Our purpose is to provide a comprehensive handbook that provides a guidepost to evaluating the Virtual Server Backup Software vendors.

In teaming up, SMB Research has found an ideal partner in DCIG in that we agreed from the start that the process of writing the Buyer Guides had to have a clear and irresistible value proposition, and an exceptional degree of integrity.

One of the goals of the Buyer's Guide is to accelerate the evaluation process for the end-user. Jerome's experience with First Data and then Storage Magazine, and Mile's and Bob's experience for many years with AMR Research (now Gartner), have convinced us that there is tremendous value to a Buyer's Guide that can identify, and position the landscape so that vendors, end-users, and others can approach an evaluation with much less upfront research, discovery, and analysis, as well as more insight, and confidence.

Our experience putting together this Virtual Server Backup Software Buyer's Guide further validated for us the belief that the discovery process itself can be arduous and resource-intensive. In a segment changing as rapidly as Virtual Server Backup Software, just identifying the vendors can be challenging; then short-listing and making contact with the vendors can be a further challenge.

#### **Our Methodology**

We identified some 30 vendors who provide Virtual Server Backup Software solutions. You will find all of these vendors identified in this Buyer's Guide.

After making contact with all the vendors, we sent out a questionnaire with 130 questions. We ultimately received back 24 responses to our questionnaire. The Questionnaire includes questions in the areas of Technology, Management, Backup, Restore, Deduplication, Media, and Support.

We further spoke to end-users to get a sense of how they weigh their needs in these various areas. Miles and Bob then went to work looking at how the vendors responded to all of the questions, and evaluated their responses applying the requirements indicated by our conversations with end-users. We looked at every response from every vendor to every question

After we compiled all of the scores, we then assessed what constituted a "Best-in-Class" solution, a "Recommended" solution, an "Excellent" solution, a "Good" solution, and which solutions provided more "Basic" functionality. We arrived at

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## Introduction continued

these tiers using the mean and standard deviation of the scores. You will see more detail on this in the Guide.

**Each vendor in this Buyer's Guide has something to offer in the right scenario and application. "Best-in-Class," "Recommended," "Excellent," "Good," and "Basic" are a measure of how much functionality and capability each solution has relative to the overall landscape—not whether the solution is the right and appropriate fit for any particular end-user's needs.**

This Buyer's Guide will not therefore tell you which solutions to not consider; rather, it will take the place of the heavy lifting that you would otherwise have had to do to understand the vendor landscape, and understand the features and functions to focus on.

This Virtual Server Backup Software Buyer's Guide:

- Lists each individual Virtual Server Backup Software vendor / solution
- Lists different Virtual Server Backup Software features, whether or not they are supported
- Weighs these features according to what end users consider most important
- Scores and ranks the features on each product based upon the criteria that matters most to users
- Provides an objective, third-party evaluation of virtual server backup offerings from an end-user's viewpoint
- Provides data sheets for 24 virtual server backup software products to enable quick comparisons of the features that are supported or not supported by each backup software
- Further aligns the virtual server backup software solutions by functionality to help you determine which vendors fit best with specific functionality needs
- Provides capsule and contact information for each vendor to accelerate your ability to contact the vendors.
- Provides recommendations on how to best use this Virtual Server Backup Buyer's Guide

This Virtual Server Backup Software Buyer's Guide provides an "at-a-glance" comparison of the vendor landscape, and as such, should complement the deeper evaluation and due diligence that you will want to do.

We look forward to your feedback, and look forward to offering any additional insight or assistance that we can.

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The Insider's Guide to Evaluating Virtual Server Backup Software

## Executive Summary

As interest in virtualization has grown, outpaced only by the burgeoning increase in data volumes, companies large and small are looking for relief.

DCIG in particular, as well as SMB Research, have been watching the trends for some time, and have been hearing from end-users that some guidance is needed on the virtual server backup software landscape.

We provide, therefore, this initial Buyer's Guide on the vendors in the virtual server backup software landscape.

This research is the result of a multi-month effort talking to nearly 30 different vendors and solutions on some 130 different questions in seven different categories.

The goal of this Buyer's Guide is to:

- "Paint the landscape" of the virtual server backup software segment
- Provide a ranking of the vendors across the seven different capability categories
- Provide some tools and insights that will help end-users and vendors through evaluations.

This Buyer's Guide cannot tell you, the end-user, the "right" vendor to select for your requirements. DCIG and/or SMB Research would be glad to talk and work with you regarding that topic; but this Buyer's Guide alone cannot do this for you.

This Virtual Server Backup Software Buyer's Guide will help you focus your attention more quickly in the right areas, help you ask the right questions, accelerate your evaluation, strategy, decision-making, and provide you a reference and audit trail for your evaluation.

Please feel free to let us know how we did and how we can assist you further.

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## The Insider's Guide to Evaluating Virtual Server Backup Software

### How to Use this Virtual Server Backup Software Buyer's Guide

DCIG and SMB Research can offer some suggestions for how to best use this Buyer's Guide.

This Guide should help you to initiate an evaluation of backup software, and to create a long-list of vendors to consider. This Guide is not well-suited, or intended, to short-list vendors or to select a vendor.

**“Best-in-Class,” “Recommended,” “Excellent,” “Good,” and “Basic” are a measure of how much functionality and capability each solution has relative to the overall landscape—not whether the solution is the right and appropriate fit for any particular's end-user's needs.**

This Virtual Server Backup Software Buyer's Guide will therefore not tell you which solutions to not consider; rather, this Buyer's Guide will take the place of a lot of the heavy lifting that you would otherwise need to do to understand the vendor landscape, and understand the features and functions to focus on.

This Buyer's Guide ranks the products from more complete functionality to lesser amounts of functionality. This does not therefore tell you which functionality, which features, and what amount of functionality, is the best fit; in other words, the right “price per pound” for what you require, which technology makes the best use of your legacy technology investments, or which technology future-proofs your environment in the best possible way.

You should use this Buyer's Guide therefore as a handbook to the virtual server backup software landscape, who the players are, what the offered features and functions are, who offers what, what features and functions are available to focus on, and what operating systems and virtual operating systems the vendors support. This Buyer's Guide will also help you to make quicker contact with the vendors that you want to talk to.

DCIG recommends that you use this Virtual Server Backup Software Buyer's Guide in the following five ways:

- **Accelerate your ability to assess the landscape.** This will enable you to move from the landscape of all vendors to some shorter “long-list” of the backup software vendors that seem at a high level to be a fit.

- **Use the Virtual Server Backup Software Buyer's Guide as a complement and “audit trail” as you move deeper in your evaluation.** DCIG and SMB Research have gone through a rigorous process of scoring the vendors against some 130 questions across seven different categories, and then ranking the vendors as “Best-in-Class,” “Recommended,” “Excellent,” “Good” and “Basic”. You have an immediate, available comparative reference to the features and functions that the vendors are documenting.
- **Your audit trail for your evaluation can now include standardized data sheets for the backup software providers.** Because the data sheets available from vendors obviously all look different and contain different information, it is difficult to make side-by-side comparisons to decide on the right mix of features and functions for a particular set of requirements. This Buyer's Guide tackles this problem by creating a standard, easy to read reference data sheet for every Virtual Server Backup Software solution. In this way, product data sheets for individual products can be printed out, laid down side by side and then the features on them quickly compared.
- **This Buyer's Guide normalizes complex storage terminology.** Every computing industry has a proclivity to adopt acronyms and jargon that is specific to it but the data storage industry seems to go out of its way to not only use unfamiliar terms but to refer to the same technology in different ways. This complicates any evaluation of a technology. This Buyer's Guide explains and normalizes the jargon specific to these technologies, enhancing the quality and productivity of the discussions around the technology.
- **Provides a concise summary of each vendor's strengths and weaknesses around the major categories of this report.**

### Disclosures

The general trend in the U.S. over the last few years has been, for better or for worse, for both large and boutique analyst firms to receive some or all of their revenue from storage providers.

DCIG is no different in this respect in that DCIG receives payment for the different services it performs for storage

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providers. The services that DCIG provides include blogging, case studies, product reviews, executive white papers and full-length white papers. For more information on DCIG, visit [www.dciginc.com](http://www.dciginc.com).

In the interest of being fully transparent, a number of the storage providers included in this Virtual Server Backup Software Buyer's Guide are or have been DCIG clients. **No vendors, however, whether clients or not, have been afforded preferential treatment in this Buyer's Guide.** The client relationship means that we have more complete and better knowledge of a specific vendor's products and solutions, and that DCIG would consider their virtual server backup software 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 Virtual Server Backup Software Buyer's Guide and its merit.

- No storage provider paid DCIG or SMB Research any fee(s) to develop this Buyer's Guide.
- Neither DCIG nor SMB Research provided any guarantee to a virtual server backup software vendor that their solutions would be included in this Buyer's Guide.
- Neither DCIG nor SMB Research provided any guarantee or assurance to any vendor about how their solution might be scored in this Buyer's Guide.
- All research was based upon information provided directly by the vendor, research and analysis by DCIG and SMB Research, and other publicly available information.
- SMB Research is an independent technology research and advisory, working in partnership with DCIG, with no financial or contractual relationship to any of the vendors covered in this Buyer's Guide. For more information on SMB Research, visit [www.smbresearch.net](http://www.smbresearch.net).

### The 8-Step Process Used to Score and Rank Virtual Server Backup Software

To score and rank each Virtual Server Backup Software solution, DCIG went through an eight-step process to come to the most objective conclusion possible.

1. DCIG and SMB identified most or all of the features available in the virtual server backup solutions.

2. DCIG AND SMB assessed which features could and should be part of a questionnaire that vendors would respond to. One distinction between a Request for Proposal (RFP) and the Virtual Server Backup Software questionnaire is that we wanted only to ask which features from a master list each vendor supported.
3. A questionnaire was sent to each vendor, asking about their support for backup software features and functions.
4. Each feature category was assigned a weighting based on our conversations with end-users.
5. Upon receipt of the vendor's responses, we looked at each and every question from each vendor, and scored their responses on a scale of 1 (not supported) to 5 (full support).
6. Scores for each category were then normalized, and summed up in a "Total Score".
7. The features were broken down into seven categories: Technology, Management, Backup, Restore, Deduplication, Media, and Support. Scores are provided on each data sheet for the five categories which were weighed most heavily (Technology, Management, Backup, Restore, and Support).  
  
The "Total Score" on each data sheet is the sum of the scores for all seven categories and therefore is not the sum of just the five categories shown on the data sheet.
8. The Virtual Server Backup Software vendors were ranked using standard scoring techniques, using the statistical mean and standard deviation to determine each score's rank relative to the overall scores.

We then developed tiers that made sense from the range of scores, the mean, and the standard deviation:

- **Best-in-Class:** Highest score for each category
- **Recommended:** 1.25 standard deviations or greater above the mean.
- **Excellent:** .50 – 1.24 standard deviations above the mean.
- **Good:** .49 standard deviations above the mean to .25 standard deviations below the mean.
- **Basic:** .26 standard deviations or more below the mean.

All solutions were within 2 standard deviations of the mean.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### DCIG Observations and Recommendations Regarding Each Backup Software Ranking

#### "Recommended" Ranking

##### Observations

This Buyers guide measured the rankings by breadth and depth of capability. There are few vendors that have broad and deep enough functionality to be deemed as **"Recommended,"** as defined in this Buyer's Guide as vendors with scores 1.25 or more standard deviations above the mean. Clearly, vendors who focus on the mid-to-large enterprise are more likely to have developed broad capability than vendors focusing on the small-to-medium enterprise, or on another particular vertical.

- DCIG classifies the Recommend vendors with the top score as **"Best in Class."**
- **CommVault** received this honor both for overall functionality across all categories as well as with Management.
- The vendors, by and large, with perhaps an exception or two, rank fairly consistently across the board (see the Vendor Performance chart following the Data sheets): Vendors that rank as Excellent are generally good-to-excellent across the board. Vendors that are more basic in their capability are basic-to-good across the categories. (DCIG and SMB Research specifically tried to filter out any scoring bias in this regard.)
- Another way of saying this: vendors ranking as **"Recommended"** tend to be Excellent-to-Recommended in several categories, including Backup, Recovery, Management, Technology and Support.
- Five different vendors achieved a ranking of **"Recommended"** in one or more of the seven categories: **CommVault, CA Technologies, EMC Avamar, Acronis, Veeam.**
- What made CommVault stand out in the Management category was that a majority of the vendors that ranked as Excellent did not offer features such as the ability to skip deleted data, offer concurrent backup multiplexed to a single tape drive, and create a Resume Producing Event (RPE).

- A few vendors ranking as **"Excellent"** in Management did not have the option to include or exclude VMs that had been powered off.
- In the Backup category, what differentiated the Best in Class from vendors ranked as Excellent was their ability to provide antivirus protection to scan files while backing them up.
- In the Restore category there were a number of areas that differentiated Best in Class with a number of the Excellent-ranked vendors: the ability to restore files directly to guest VMs in a single step; the ability to restore VMs to a physical machine (V2P); the ability to restore from a physical machine to a VM (P2V); the ability to create a separate partition to restore to for testing; and the ability to do Mass Restore Capability.

##### Recommendation

Enterprises that need broad capability, and a vendor with deep technological expertise, will likely want to include vendors ranked as **"Recommended"** on their long-lists and short-lists.

Because the DCIG Virtual Server Backup Software Buyer's Guide looked at some 130 different capabilities, vendors ranking as "Recommended" can demonstrate a broad range of capabilities that make them strong candidates for the enterprise looking for a broad range of capabilities from a single vendor.

#### "Excellent" Ranking

##### Observations

Vendors ranked as **"Excellent"** scored from .51 to 1.24 standard deviations above the mean score of the vendors in this segment. Sixteen different (2/3) vendors rank as **"Excellent"** in at least one category. To achieve these scores, vendors generally demonstrated the ability to:

- Perform differential backups;
- Offer continuous access to files during differential backups;
- Offers its users Forums
- Rank **"Excellent"** or **"Recommended"** in Technology. Half of the **"Excellent"** vendors scored **"Excellent"** for technology while none of the **"Good"** vendors scored

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an **“Excellent”** on Technology. This indicates the importance of a vendor providing strong technology to enable strong functionality.

- Two-thirds of **“Excellent”** ranked vendors overall scored an **“Excellent”** in Management (versus 20% of vendors ranked as **“Good”** overall). This suggests the importance of Management to the overall score.
- Vendors that rank **“Excellent”** overall score **“Excellent”** or better in 60% of the seven categories; Vendors that ranked **“Good”** overall score **“Excellent”** or better in less than 20% of the categories.
- While this seems to be a wide gap, DCIG found that across the board there was some functionality that **“Excellent”** overall vendors did not offer which Good vendors did and vice versa. There was little consistency across the board in individual functionality once you get beyond **“Basic.”**
- In the Support area, while most (not all) of the vendors rank **“Excellent”** also rank **“Excellent”** in Support, note that the 2 vendors who rank **“Recommended”** in Support rank **“Good”** overall.
- Is this possibly a case of vendors who have less in the way of capability trying harder in the category of service and support?

### Recommendation

Decide if you need a vendor that has strong capability in multiple categories or is stronger in one or a couple of categories.

Decide how important support is for you relative to the other categories.

Use the scores by category for each vendor to create your own scorecard, aligning vendor capability categories with your requirements, and assigning your own customized weights to score the vendors in a way that is meaningful for you. **“Good”** may be good enough for one category and more than make up for an **“Excellent”** or **“Recommended”** in another category. When it comes to price, you may very well find that any rank, including **“Good”** or **“Basic”** across multiple categories, is just right when you look at the “price per pound” of the solution and its fit for your specific requirements.

## “Good” Ranking

### Observations

Vendors ranked as **“Good”** scored from .51 standard deviations above to .51 standard deviations below the mean score of the vendors. Twenty different vendors (83%) rank as **“Good”** in at least one category.

Backup Software products ranked as **“Good”** in each category of this Buyer's Guide generally shared the following characteristics:

- Integration to VMware vStorage API
- Integration with VMware Consolidated Backup (VCB)
- Integration to VMware vCenter Converter
- Integration to VMware vCenter Server
- Replication of data to another virtual machine (and backup that VM rather than the original VM)
- Restore files to make disk backups before writing to tape
- Ability to create a separate partition to restore to for testing
- Restores individual files directly to a guest VM in one single step
- Mass assign in a single step the same data stores to all VMs
- Automation of command line scripting needed for VMware backup
- Provide alerts when servers are backing up more data than previously
- Offers trending to show tape throughput numbers
- Alert that tape libraries are approaching capacity
- Prioritization of server that has gone longest single last backup
- Restore files to make disk backups before writing to tape
- Use of VCB to create crash consistent copies
- Trending to show tape throughput numbers
- Monitor and Alert if tape libraries are approaching capacity

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- Concurrent backups can be multiplexed to a single tape drive
- Ability to limit the number of concurrent backups

### Recommendation

Virtual Server Backup Software ranked as **“Good”** have a rich depth of functionality. It is best to look at not just the overall score but how the **“Good”** vendor scored in other categories. For example, of the nine vendors with overall **“Good”** scores: one (1) scored **“Basic”** for Management; two (2) scored **“Basic”** for Restore; and three (3) **“Basic”** for Support. Starting from the Overall Rank, and then looking at the categories of the greatest importance to you may reveal some interesting fits—or misfits—for your long/short list.

### “Basic” Ranking

#### Observations

Vendors ranked as **“Basic”** scored from .26 standard deviations or more below the mean in each category. Just over half of the vendors (13) score as **“Basic”** in at least one category.

Only one vendor scored **“Basic”** overall and consistently across all categories.

There are a number of vendors that offer what we would consider **“Basic”** functionality across areas of Backup, Restore, Management, Technology, and Support:

- File based backups
- Snapshot backups
- Ability to schedule backups
- Integration to Microsoft's Volume Shadow Copy Service (VSS)
- Continuous access to files during snapshot backups
- Continuous access to files during full backups
- Backups of physical machines
- Send or redirect notifications to the user who requested the backup

- Can automatically discover and backup all file system databases on a given machine
- Notify the user every time a backup fails or succeeds
- Provide a progress bar to show how each individual backup is progressing and percentage to completion.
- Report generation to know what failed

### Recommendation

Virtual Server Backup Software offerings ranked as **“Basic”** have capabilities that are more focused or not as deep as the virtual server backup software landscape as a whole.

While the vendor with a **“Basic”** ranking in one or more categories of backup is documenting lighter capabilities in that area, this says nothing about the appropriateness of that vendor's capabilities for any given end-user's requirements.

It is important that an end-user evaluates and understands the fit of that vendor's capabilities for your specific requirements, as well as to understand the vendor's evolving capabilities, go-forward strategy, and how the “price per pound” of that and other solutions fits your requirements and strategy.

DCIG and SMB Research did not stratify this research by end-user target market; several of the **“Basic”** vendors, and other vendors, are focusing on the small-to-medium segment, which has a different set of requirements than the mid-to-large, and large-enterprise markets.

As mentioned earlier, some of these offerings have some key strengths such as Deduplication as well as Encryption and Compression.

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## Vendor Support for Servers and Virtual Platforms

Server/Operating System Vendor	Virtual Platform/Server or Guest OS	Backup Vendors supporting
Citrix® XenServer®	Virtual Platform	Acronis, Arkeia, Asigra, Atempo, BakBone, CA ARCserve, Cofio, CommVault, EMC Avamar, FalconStor, HP Data Protector, IBM Tivoli® Storage Manager, PHD Virtual, R1Soft, ROBOBAK
IBM PowerVM	Virtual Platform	IBM Tivoli® Storage Manager
Kernel Based Virtual Machine (KVM)	Virtual Platform	R1Soft
Microsoft® Hyper-V™	Virtual Platform	Acronis, Arkeia, Asigra, Atempo, BackupChain, BakBone, CA ARCserve, Cofio, CommVault, EMC Avamar, FalconStor, HP Data Protector, IBM Tivoli® Storage Manager, Microsoft DPM, NetApp Syncsort Integrated Backup, R1Soft, Revinetix, ROBOBAK, Symantec Backup Exec
Oracle VM	Virtual Platform	Acronis, FalconStor
Parallels Server	Virtual Platform	Acronis, Asigra
Parallels Virtuozzo/OpenVZ	Virtual Platform	Asigra, R1Soft
VMware ESX	Virtual Platform	Acronis, Asigra, Atempo, BakBone, CA ARCserve, Cofio, CommVault, HP Data Protector, i365, NetApp Syncsort Integrated Backup, PHD Virtual, Quest vRanger, Symantec Backup Exec, Veeam
VMware ESXi	Virtual Platform	Acronis*, Asigra, CA ARCserve, HP Data Protector, NetApp Syncsort Integrated Backup, Quest vRanger, R1Soft, ROBOBAK, Veeam
VMware Server	Virtual Application	Asigra, BackupChain, BridgeHead, FalconStor, HP Data Protector, IBM Tivoli® Storage Manager, R1Soft, Revinetix
VMware vSphere	Virtual Platform	Arkeia, Asigra, Atempo, CA ARCserve, Cofio, CommVault, EMC Avamar, HP Data Protector, i365, NetApp Syncsort Integrated Backup, Quest vRanger, ROBOBAK, Symantec Backup Exec, Veeam
Apple Mac OS X	Operating System	Arkeia*, Asigra, Atempo, CA ARCserve, EMC Avamar, IBM Tivoli® Storage Manager, Revinetix, ROBOBAK, Symantec Backup Exec, Veeam
CentOS	Operating System	Arkeia, EMC Avamar, NetApp Syncsort Integrated Backup
Debian	Operating System	Arkeia, R1Soft
Fedora	Operating System	Arkeia, R1Soft, ROBOBAK
FreeBSD	Operating System	Arkeia, Atempo, EMC Avamar, , Quest vRanger*, Revinetix, Veeam
NetBSD	Operating System	Arkeia, Revinetix

\* This solution may support only specific versions of this server or operating system, and you are therefore urged to check version-specific compatibility.

*continued on next page*

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## Vendor Support for Servers and Virtual Platforms

Server/Operating System Vendor	Virtual Platform/Server or Guest OS	Backup Vendors supporting
OpenBSD	Operating System	Arkeia, Revinetix
Guardian	Operating System	BakBone
HP UX	Operating System	Arkeia, Atempo, CA ARCserve, CommVault, EMC Avamar, FalconStor, HP Data Protector, i365, IBM Tivoli® Storage Manager
HP TRU64	Operating System	Arkeia, Atempo, CommVault
IBM AIX	Operating System	Arkeia*, Atempo, CA ARCserve, CommVault*, EMC Avamar*, FalconStor, HP Data Protector, i365, IBM Tivoli® Storage Manager, Revinetix
IBM AS/400	Operating System	CA ARCserve
IBM I	Operating System	i365
Mainframe Linux	Operating System	CA ARCserve
IBM OS/390	Operating System	IBM Tivoli® Storage Manager
Linux	Operating System	Atempo, BridgeHead, Cofio*, IBM Tivoli® Storage Manager, Quest vRanger, R1Soft, Revinetix, ROBOBAK, Symantec Backup Exec, Veeam
Linux (Novell's Open ES)	Operating System	Arkeia, BakBone, CA ARCserve
Mandriva	Operating System	Arkeia, R1Soft
Novell Netware	Operating System	CA ARCserve, CommVault, EMC Avamar, HP Data Protector i365, IBM Tivoli® Storage Manager, Revinetix, Symantec Backup Exec, Veeam*
Novell SUSE Linux Enterprise	Operating System	Arkeia*, Asigra, CA ARCserve, CommVault, EMC Avamar*, FalconStor, i365, Quest vRanger*, R1Soft, Veeam*
OpenVMS	Operating System	CA ARCserve, BridgeHead, HP Data Protector,
Red Hat	Operating System	Asigra, CA ARCserve, R1Soft, ROBOBAK
Red Hat Enterprise Linux	Operating System	Arkeia, Atempo, CommVault, EMC Avamar, FalconStor*, i365, IBM Tivoli® Storage Manager*, NetApp Syncsort Integrated Backup, Quest vRanger, Veeam*
SCO Unix	Operating System	EMC Avamar*, Revinetix,
Solaris	Operating System	Arkeia, Atempo, BakBone, CA ARCserve, FalconStor, HP Data Protector, i365, IBM Tivoli® Storage Manager,, NetApp Syncsort Integrated Backup, Revinetix
Solaris 10	Operating System	CommVault, EMC Avamar, NetApp Syncsort Integrated Backup
Solaris 10 SPARC	Operating System	Arkeia*, CommVault, NetApp Syncsort Integrated Backup

\* This solution may support only specific versions of this server or operating system, and you are therefore urged to check version-specific compatibility.

*continued on next page*

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Vendor Support for Servers and Virtual Platforms

Server/Operating System Vendor	Virtual Platform/Server or Guest OS	Backup Vendors supporting
Solaris 9	Operating System	CommVault, EMC Avamar, NetApp Syncsort Integrated Backup
Solaris8	Operating System	CommVault, EMC Avamar
Solaris x86	Operating System	Arkeia
Ubuntu	Operating System	Arkeia, R1Soft
Unix	Operating System	Arkeia, BridgeHead, Quest vRanger, ROBOBAK, Veeam
Windows	Operating System	Atempo, BakBone, BridgeHead, FalconStor, i365, IBM Tivoli® Storage Manager, Quest vRanger
Windows 7	Operating System	Arkeia, Asigra, BackupChain, Cofio, CommVault, EMC Avamar, FalconStor, Microsoft DPM, R1Soft, ROBOBAK, Symantec Backup Exec
Windows 2000	Operating System	Arkeia, Asigra, CA ARCserve, EMC Avamar, Quest vRanger
Windows Server 2000	Operating System	Acronis, FalconStor, NetApp Syncsort Integrated Backup, Quest vRanger, Revinetix, ROBOBAK, Symantec Backup Exec, Veeam
Windows Server 2003 R2	Operating System	Acronis, Arkeia, BackupChain, CA ARCserve, Cofio, CommVault, EMC Avamar, FalconStor
Microsoft DPM, NetApp Syncsort Integrated Backup, Quest vRanger, R1Soft, Revinetix ROBOBAK, Symantec Backup Exec, Veeam	Operating System	Arkeia, BakBone, CA ARCserve
Windows Server 2008 R2	Operating System	Acronis, Arkeia, BackupChain, CA ARCserve, Cofio, CommVault, EMC Avamar, FalconStor, Microsoft DPM, NetApp Syncsort Integrated Backup, R1Soft, Revinetix, ROBOBAK, Symantec Backup Exec,
Windows Vista	Operating System	Arkeia, BackupChain, Cofio, FalconStor, Microsoft DPM, R1Soft, ROBOBAK, Symantec Backup Exec,
Windows XP	Operating System	Arkeia, Asigra, BackupChain, CA ARCserve, Cofio, CommVault, EMC Avamar, FalconStor, Microsoft DPM, Quest vRanger, R1Soft, ROBOBAK, Symantec Backup Exec, Veeam,

\* This solution may support only specific versions of this server or operating system, and you are therefore urged to check version-specific compatibility.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Scores and Rankings Summary—Total

	Backup Software Vendor	TOTAL SCORE	
1	CommVault Simpana 9	94	Best in Class
2	CA ARCserve® r15	93	Recommended
3	Arkeia Software Network Backup v9	89	Excellent
4	IBM Tivoli Storage Manager 6	88	Excellent
5	EMC Avamar	87	Excellent
6	HP Data Protector 6.1	86	Excellent
7	Symantec Backup Exec 2010	86	Excellent
8	Quest Software vRanger PRO 4.5	84	Excellent
9	BakBone NetVault: Backup v8.5.2	82	Good
10	Asigra Cloud Backup	81	Good
11	Veeam Backup and Replication V5	81	Good
12	Atempo Time Navigator	80	Good
13	FalconStor Continuous Data Protector	78	Good
14	BridgeHead Software HT Backup	77	Good
15	Cofio AIMstor 2.2 Unified Backup	77	Good
16	NetApp SyncSort Integrated Backup	76	Good
17	Acronis Backup & Recovery 10	73	Good
18	Microsoft Data Protection Manager 2010	72	Basic
19	PHD Virtual Backup for VMware	61	Basic
20	i365 EVault Data Protection Software	57	Basic
21	FastNeuron BackupChain 2.2	53	Basic
22	R1Soft CDP 3.0	53	Basic
23	Revinetix RevOS®	53	Basic
24	ROBOBAK	52	Basic

Total Number of Virtual Server Backup Software Vendors 24

		Rankings	
Highest Score	94.00	Recommended	92.4 – 94.0
Lowest Score	52.00	Excellent	82.3 – 92.3
Average (Mean)	75.50	Good	72.1 – 82.2
Standard Deviation	13.50	Entry Level	0.0 – 72.0

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Scores and Rankings Summary—Management

Backup Software Vendor		MANAGEMENT SCORE	
1	CommVault Simpana 9	34	Best in Class
2	HP Data Protector 6.1	32	Excellent
3	Arkeia Software Network Backup v9	31	Excellent
4	CA ARCserve® r15	31	Excellent
5	IBM Tivoli Storage Manager 6	31	Excellent
6	BakBone NetVault: Backup v8.5.2	30	Excellent
7	Symantec Backup Exec 2010	29	Excellent
8	Asigra Cloud Backup	28	Excellent
9	BridgeHead Software HT Backup	27	Good
10	EMC Avamar	27	Good
11	Microsoft Data Protection Manager 2010	27	Good
12	Veeam Backup and Replication V5	27	Good
13	Atempo Time Navigator	26	Good
14	Quest Software vRanger PRO 4.5	26	Good
15	NetApp SyncSort Integrated Backup	25	Good
16	FalconStor Continuous Data Protector	23	Good
17	Cofio AIMstor 2.2 Unified Backup	22	Basic
18	Acronis Backup & Recovery 10	21	Basic
19	ROBOBAK	20	Basic
20	PHD Virtual Backup for VMware	18	Basic
21	R1Soft CDP 3.0	18	Basic
22	FastNeuron BackupChain 2.2	16	Basic
23	i365 EVault Data Protection Software	16	Basic
24	Revinetix RevOS®	15	Basic

Total Number of Virtual Server Backup Software Vendors 24

		Rankings	
Highest Score	34.00	Recommended	32.0 – 34.0
Lowest Score	15.00	Excellent	27.8 – 31.9
Average (Mean)	25.00	Good	23.6 – 27.7
Standard Deviation	5.60	Entry Level	0.0 – 23.5

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Scores and Rankings Summary—Backup

Backup Software Vendor		BACKUP SCORE	
1	CA ARCserve® r15	20	Best in Class
2	Arkeia Software Network Backup v9	19	Excellent
3	Cofio AIMstor 2.2 Unified Backup	19	Excellent
4	IBM Tivoli Storage Manager 6	19	Excellent
5	Commvault Simpana 9	18	Excellent
6	FalconStor Continuous Data Protector	18	Excellent
7	Quest Software vRanger PRO 4.5	18	Excellent
8	Symantec Backup Exec 2010	18	Excellent
9	BridgeHead Software HT Backup	17	Good
10	EMC Avamar	17	Good
11	HP Data Protector 6.1	17	Good
12	Veeam Backup and Replication V5	17	Good
13	Acronis Backup and Recovery 10	16	Good
14	Asigra Cloud Backup	16	Good
15	Atempo Time Navigator	16	Good
16	BakBone NetVault: Backup v8.5.2	16	Good
17	NetApp Syncsort Integrated Backup	15	Good
18	FastNeuron BackupChain 2.2	14	Basic
19	Microsoft Data Protection Manager 2010	14	Basic
20	R1Soft CDP 3.0	12	Basic
21	i365 eVault Data Protection Software	11	Basic
22	Revinetix RevOS®	11	Basic
23	PHD Virtual Backup for VMware	10	Basic
24	ROBOBAK	10	Basic

Total Number of Virtual Server Backup Software Vendors **24**

		Rankings	
Highest Score	<b>20.00</b>	Recommended	<b>19.5 – 20.0</b>
Lowest Score	<b>10.00</b>	Excellent	<b>17.3 – 19.4</b>
Average (Mean)	<b>15.80</b>	Good	<b>15.1 – 17.2</b>
Standard Deviation	<b>3.00</b>	Entry Level	<b>0.0 – 15.0</b>

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Scores and Rankings Summary—Restore

Backup Software Vendor		RESTORE SCORE	
1	CA ARCserve® r15	10	Best in Class
2	Asigra Cloud Backup	9	Excellent
3	Commvault Simpana 9	9	Excellent
4	EMC Avamar	9	Excellent
5	FalconStor Continuous Data Protector	9	Excellent
6	NetApp SyncSort Integrated Backup	9	Excellent
7	Quest Software vRanger PRO 4.5	9	Excellent
8	Arkeia Software Network Backup v9	8	Good
9	Atempo Time Navigator	8	Good
10	BakBone NetVault: Backup v8.5.2	8	Good
11	BridgeHead Software HT Backup	8	Good
12	Cofio AIMstor 2.2 Unified Backup	8	Good
13	HP Data Protector 6.1	8	Good
14	IBM Tivoli Storage Manager 6	8	Good
15	Veeam Backup and Replication V5	8	Good
16	Symantec Backup Exec 2010	7	Good
17	Acronis Backup and Recovery 10	6	Basic
18	Microsoft Data Protection Manager 2010	6	Basic
19	PHD Virtual Backup for VMware	6	Basic
20	ROBOBAK	6	Basic
21	i365 eVault Data Protection Software	5	Basic
22	R1Soft CDP 3.0	4	Basic
23	Revinetix RevOS®	4	Basic
24	FastNeuron BackupChain 2.2	3	Basic

Total Number of Virtual Server Backup Software Vendors **24**

Rankings			
Highest Score	<b>10.00</b>	Recommended	<b>9.7 – 10.0</b>
Lowest Score	<b>3.00</b>	Excellent	<b>8.3 – 9.6</b>
Average (Mean)	<b>7.30</b>	Good	<b>6.9 – 8.2</b>
Standard Deviation	<b>1.90</b>	Entry Level	<b>0.0 – 6.8</b>

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Scores and Rankings Summary—Technology

Backup Software Vendor		TECHNOLOGY SCORE	
1	EMC Avamar	22	Best in Class
2	Arkeia Software Network Backup v9	21	Excellent
3	CommVault Simpana 9	21	Excellent
4	CA ARCserve® r15	20	Excellent
5	Quest Software vRanger PRO 4.5	20	Excellent
6	Symantec Backup Exec 2010	20	Excellent
7	Asigra Cloud Backup	19	Good
8	Atempo Time Navigator	19	Good
9	BridgeHead Software HT Backup	19	Good
10	FalconStor Continuous Data Protector	19	Good
11	Acronis Backup & Recovery 10	18	Good
12	Cofio AIMstor 2.2 Unified Backup	18	Good
13	HP Data Protector 6.1	18	Good
14	IBM Tivoli Storage Manager 6	18	Good
15	BakBone NetVault: Backup v8.5.2	17	Good
16	NetApp SyncSort Integrated Backup	17	Good
17	PHD Virtual Backup for VMware	17	Good
18	Veeam Backup and Replication V5	17	Good
19	i365 EVault Data Protection Software	15	Basic
20	Microsoft Data Protection Manager 2010	15	Basic
21	R1Soft CDP 3.0	14	Basic
22	Revinetix RevOS®	14	Basic
23	FastNeuron BackupChain 2.2	13	Basic
24	ROBOBAK	7	Basic

Total Number of Virtual Server Backup Software Vendors **24**

Rankings			
Highest Score	<b>22.00</b>	Recommended	<b>21.5 – 22.0</b>
Lowest Score	<b>7.00</b>	Excellent	<b>19.1 – 21.4</b>
Average (Mean)	<b>17.40</b>	Good	<b>16.7 – 19.0</b>
Standard Deviation	<b>3.20</b>	Entry Level	<b>0.0 – 16.6</b>

# Acronis Backup & Recovery 10



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>73*</b>	<b>18</b>	<b>21</b>	<b>16</b>	<b>6</b>	<b>9</b>
GOOD	GOOD	BASIC	GOOD	BASIC	BEST IN CLASS

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals	✓	
Application-level		✓
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	Environment specific	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level		✓
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site		✓
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently		✓
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX Microsoft Hyper-V Parallels Citrix XenServer	
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting		✓
Deduplication	✓	

CONTINUED



# Acronis Backup & Recovery 10



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>73*</b>	<b>18</b>	<b>21</b>	<b>16</b>	<b>6</b>	<b>9</b>
<b>GOOD</b>	<b>GOOD</b>	<b>BASIC</b>	<b>GOOD</b>	<b>BASIC</b>	<b>BEST IN CLASS</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity		✓
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups		✓
Allow concurrent backups		✓
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Arkeia Software Network Backup v9



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>89*</b>	<b>21</b>	<b>31</b>	<b>19</b>	<b>8</b>	<b>7</b>
<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>GOOD</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level		✓
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware vSphere Microsoft Hyper-V Citrix XenServer
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication		✓

CONTINUED



# Arkeia Software Network Backup v9



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>89*</b>	<b>21</b>	<b>31</b>	<b>19</b>	<b>8</b>	<b>7</b>
EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	GOOD

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software		✓
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form		✓
Knowledgebase	✓	
User forums	✓	

# Asigra Cloud Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>81*</b>	<b>19</b>	<b>28</b>	<b>16</b>	<b>9</b>	<b>5</b>
GOOD	GOOD	EXCELLENT	GOOD	EXCELLENT	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals		✓
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware ESX/vSphere Citrix XenServer Microsoft Hyper-V
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# Asigra Cloud Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>81*</b>	<b>19</b>	<b>28</b>	<b>16</b>	<b>9</b>	<b>5</b>
GOOD	GOOD	EXCELLENT	GOOD	EXCELLENT	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Atempo Time Navigator



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>80*</b>	<b>19</b>	<b>26</b>	<b>16</b>	<b>8</b>	<b>7</b>
GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials		✓
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX VMware vSphere Citrix XenServer Microsoft Hyper-V	
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# Atempo Time Navigator



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>80*</b>	<b>19</b>	<b>26</b>	<b>16</b>	<b>8</b>	<b>7</b>
GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM		✓
Option of creating a separate archive for each VM		✓
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums		✓



# BakBone NetVault: Backup v8.5.2<sup>†</sup>



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>82*</b>	<b>17</b>	<b>30</b>	<b>16</b>	<b>8</b>	<b>8</b>
GOOD	GOOD	EXCELLENT	GOOD	GOOD	EXCELLENT

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Not provided	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently		✓
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX Citrix XenServer Microsoft Hyper-V	
Other operating systems supported	Windows Solaris Linux (Novell's Open ES) Guardian	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities		
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting		✓
Deduplication		✓

CONTINUED

<sup>†</sup> Acquired by Quest Software in November 2010.



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# BakBone NetVault: Backup v8.5.2<sup>†</sup>



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>82*</b>	<b>17</b>	<b>30</b>	<b>16</b>	<b>8</b>	<b>8</b>
<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups		✓
Allow concurrent backups		✓
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered		✓
Self-installable software		✓
On-Site	✓	
Phone	✓	
Email		✓
Online interactive chat		✓
Online form		✓
Knowledgebase	✓	
User forums	✓	



# BridgeHead Software HT Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>77*</b>	<b>19</b>	<b>27</b>	<b>17</b>	<b>8</b>	<b>5</b>
GOOD	GOOD	GOOD	GOOD	GOOD	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials		✓
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Number of backup targets	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware (VADP & VCB)	
Other operating systems supported	Windows Clients & Server UNIX Linux VMS	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		N/A
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication		✓

CONTINUED



# BridgeHead Software HT Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>77*</b>	<b>19</b>	<b>27</b>	<b>17</b>	<b>8</b>	<b>5</b>
<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>BASIC</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine		✓
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums		✓



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>93*</b>	<b>20</b>	<b>31</b>	<b>20</b>	<b>10</b>	<b>8</b>
<b>RECOMMENDED</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>BEST IN CLASS</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	Citrix XenServer Microsoft Hyper-V VMware ESX VMware ESXi VMware vSphere	
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident		✓
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>93*</b>	<b>20</b>	<b>31</b>	<b>20</b>	<b>10</b>	<b>8</b>
<b>RECOMMENDED</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>BEST IN CLASS</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Cofio AIMstor 2.2 Unified Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>77*</b>	<b>18</b>	<b>22</b>	<b>19</b>	<b>8</b>	<b>7</b>
<b>GOOD</b>	<b>GOOD</b>	<b>BASIC</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>GOOD</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/vSphere Citrix XenServer Microsoft Hyper-V	
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident		✓
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# Cofio AIMstor 2.2 Unified Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>77*</b>	<b>18</b>	<b>22</b>	<b>19</b>	<b>8</b>	<b>7</b>
<b>GOOD</b>	<b>GOOD</b>	<b>BASIC</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>GOOD</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine		✓
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums		✓

# CommVault Simpana 9



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>94*</b>	<b>21</b>	<b>34</b>	<b>18</b>	<b>9</b>	<b>8</b>
<b>BEST IN CLASS</b>	<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/vSphere Microsoft Hyper-V Citrix XenServer	
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		N/A
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# CommVault Simpana 9



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>94*</b>	<b>21</b>	<b>34</b>	<b>18</b>	<b>9</b>	<b>8</b>
<b>BEST IN CLASS</b>	<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>87*</b>	<b>22</b>	<b>27</b>	<b>17</b>	<b>9</b>	<b>8</b>
<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials		✓
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	256	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware vSphere - Clients Microsoft Hyper-V - Clients Citrix XenServer - Client VMware vSphere - Images
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED

## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>87*</b>	<b>22</b>	<b>27</b>	<b>17</b>	<b>9</b>	<b>8</b>
<b>EXCELLENT</b>	<b>BEST IN CLASS</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside		✓
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# FalconStor Continuous Data Protector



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>78*</b>	<b>19</b>	<b>23</b>	<b>18</b>	<b>9</b>	<b>6</b>
<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>BASIC</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware Microsoft Hyper-V Citrix XenServer Oracle VM	
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration		✓
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication		✓

CONTINUED



# FalconStor Continuous Data Protector



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>78*</b>	<b>19</b>	<b>23</b>	<b>18</b>	<b>9</b>	<b>6</b>
<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>BASIC</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums		✓

# FastNeuron BackupChain 2.2



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>13</b>	<b>16</b>	<b>14</b>	<b>3</b>	<b>4</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED	TECHNOLOGY	SUPPORTED	UNSUPPORTED
Image-based	✓		Virtual server operating system platforms supported	Microsoft Hyper-V VMware Workstation VMware Server VMware Player Microsoft Virtual PC Microsoft Virtual Server	
File-based	✓		Other operating systems supported	Hyper-V Server 2008 Multiple Windows	
Snapshot	✓		Natively available as a bundled backup appliance from the software vendor		✓
Mirrors	✓		Certified on VMware's vStorage API for Data Protection (VADP)		✓
Differentials	✓		Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Continuous Incrementals	✓		Use VMware's Change Block Tracking (CBT)		✓
Application-level	✓		VMware's vCenter integration		✓
Incrementals for only changed disk blocks		✓	VMware vCenter Converter integration		✓
Takes images at pre-set intervals	✓		Other VMware-provided backup utilities		✓
Backup multiple VMs on same physical host	✓		Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓	Continuous access to files during file-based backups	✓	
Number of possible concurrent backups	Unlimited		Continuous access to files during image-based backups		✓
			Continuous access to files during full backups	✓	
			Continuous access to files during snapshot backups	✓	
			Continuous access to files during mirror backups	✓	
			Continuous access to files during incremental backups	✓	
			Continuous access to files during differential backups	✓	
			Virtual server snapshot technologies supported	✓	
			Backs up at hypervisor level without client on each guest OS	✓	
			Metadata query of MS VSS writers resident	✓	
			Automated command line scripting		✓
			Deduplication		✓

CONTINUED



# FastNeuron BackupChain 2.2



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>13</b>	<b>16</b>	<b>14</b>	<b>3</b>	<b>4</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity		✓
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups		✓
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse		✓
Data verification of the backup		✓

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form		✓
Knowledgebase	✓	
User forums		✓



# HP Data Protector 6.1



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>86*</b>	<b>18</b>	<b>32</b>	<b>17</b>	<b>8</b>	<b>7</b>
EXCELLENT	GOOD	EXCELLENT	GOOD	GOOD	GOOD

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based		✓
Snapshot	✓	
Mirrors	✓	
Differentials		✓
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host		✓
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	5	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		Citrix XenServer VMware ESX VMware ESXi HP Integrity VMs Microsoft Hyper-V MS Virtual Server Solaris VMware vSphere
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# HP Data Protector 6.1



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>86*</b>	<b>18</b>	<b>32</b>	<b>17</b>	<b>8</b>	<b>7</b>
<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form		✓
Knowledgebase	✓	
User forums		✓

# i365 EVault Data Protection Software



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>57*</b>	<b>15</b>	<b>16</b>	<b>11</b>	<b>5</b>	<b>6</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based		✓
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials		✓
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals		✓
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	1	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level		✓
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently		✓
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name		✓
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/vSphere	
Other operating systems supported	Various Windows, RedHat Linux, Linux Suse	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups		✓
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported		✓
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident		✓
Automated command line scripting		✓
Deduplication	✓	

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# i365 EVault Data Protection Software



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>57*</b>	<b>15</b>	<b>16</b>	<b>11</b>	<b>5</b>	<b>6</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside		✓
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity		✓
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups		✓
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	✓
Knowledgebase	✓	
User forums		✓



# IBM Tivoli Storage Manager 6



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>88*</b>	<b>18</b>	<b>31</b>	<b>19</b>	<b>8</b>	<b>8</b>
<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware Microsoft Hyper-V Citrix XenServer POWER-based
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# IBM Tivoli Storage Manager 6



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>88*</b>	<b>18</b>	<b>31</b>	<b>19</b>	<b>8</b>	<b>8</b>
EXCELLENT	GOOD	EXCELLENT	EXCELLENT	GOOD	EXCELLENT

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user		✓
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Microsoft Data Protection Manager 2010



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>72*</b>	<b>15</b>	<b>27</b>	<b>14</b>	<b>6</b>	<b>7</b>
BASIC	BASIC	GOOD	BASIC	BASIC	GOOD

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials		✓
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	32	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)		✓
Physical to Virtual (P2V)		✓
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name		✓
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		Microsoft Hyper-V
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting		✓
Deduplication		✓

CONTINUED



# Microsoft Data Protection Manager 2010



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>72*</b>	<b>15</b>	<b>27</b>	<b>14</b>	<b>6</b>	<b>7</b>
<b>BASIC</b>	<b>BASIC</b>	<b>GOOD</b>	<b>BASIC</b>	<b>BASIC</b>	<b>GOOD</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback		✓
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# NetApp SyncSort Integrated Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>76*</b>	<b>17</b>	<b>25</b>	<b>15</b>	<b>9</b>	<b>7</b>
GOOD	GOOD	GOOD	GOOD	EXCELLENT	GOOD

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials		✓
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	Not provided	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/vSphere Microsoft Hyper-V	
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS		✓
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# NetApp SyncSort Integrated Backup



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>76*</b>	<b>17</b>	<b>25</b>	<b>15</b>	<b>9</b>	<b>7</b>
<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>GOOD</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine		✓
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup		✓
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# PHD Virtual Backup for VMware



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>61*</b>	<b>17</b>	<b>18</b>	<b>10</b>	<b>6</b>	<b>8</b>
BASIC	GOOD	BASIC	BASIC	BASIC	EXCELLENT

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals		✓
Application-level		✓
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	4	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)		✓
Physical to Virtual (P2V)		✓
Object-level		✓
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX VMware vSphere (ESX) Citrix XenServer VMware vSphere (ESXi)	
Other operating systems supported	Any VMware	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident		✓
Automated command line scripting		✓
Deduplication	✓	

CONTINUED



# PHD Virtual Backup for VMware



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>61*</b>	<b>17</b>	<b>18</b>	<b>10</b>	<b>6</b>	<b>8</b>
<b>GOOD</b>	<b>BASIC</b>	<b>BASIC</b>	<b>BASIC</b>	<b>BASIC</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine		✓
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups		✓
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM		✓
Option of creating a separate archive for each VM		✓
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Quest Software vRanger PRO 4.5



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>84*</b>	<b>20</b>	<b>26</b>	<b>18</b>	<b>9</b>	<b>8</b>
<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based		✓
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs	✓	

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/vSphere VMware ESXi/vSphere	
Other operating systems supported	All VMware guest OS Windows Linux UNIX	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups		✓
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication		✓

CONTINUED



# Quest Software vRanger PRO 4.5



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>84*</b>	<b>20</b>	<b>26</b>	<b>18</b>	<b>9</b>	<b>8</b>
<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups		✓
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM		✓
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	



# R1Soft CDP 3.0



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>14</b>	<b>18</b>	<b>12</b>	<b>4</b>	<b>3</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials		✓
Continuous Incrementals	✓	
Application-level		✓
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)		✓
Physical to Virtual (P2V)		✓
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently		✓
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location		✓
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/ESXi Microsoft Hyper-V Citrix XenServer Xen Source Virtuozzo / OpenVZ KVM	
Other operating systems supported	Various Windows, RedHat	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration		✓
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting		✓
Deduplication		✓

CONTINUED



# R1Soft CDP 3.0



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>14</b>	<b>18</b>	<b>12</b>	<b>4</b>	<b>3</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity		✓
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups		✓
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive		✓
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup		✓
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered		✓
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums		✓

# Revinetix RevOS



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>14</b>	<b>15</b>	<b>11</b>	<b>4</b>	<b>6</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals		✓
Application-level	✓	
Incrementals for only changed disk blocks		✓
Takes images at pre-set intervals		✓
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	4	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)		✓
Physical to Virtual (P2V)		✓
Object-level		✓
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots		✓
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware Microsoft Hyper-V
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS		✓
Metadata query of MS VSS writers resident	✓	
Automated command line scripting		✓
Deduplication	✓	

CONTINUED



# Revinetix RevOS



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>53*</b>	<b>14</b>	<b>15</b>	<b>11</b>	<b>4</b>	<b>6</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside		✓
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs		✓
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state		✓
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups		✓
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups		✓
Ability to limit the number of concurrent backups		✓
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup		✓
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)	✓	
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums	✓	

## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>52*</b>	<b>7</b>	<b>20</b>	<b>10</b>	<b>6</b>	<b>5</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based		✓
File-based	✓	
Snapshot	✓	
Mirrors		✓
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals		✓
Backup multiple VMs on same physical host		✓
Replicates data to another VM, and backs up the replicated, rather than the original VM		✓
Number of possible concurrent backups	200 – 400	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step		✓
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape		✓
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing		✓
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name		✓
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX/VSphere Citrix XenServer Microsoft Hyper-V	
Other operating systems supported	Various Windows	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)		✓
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)		✓
VMware's vCenter integration		✓
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities		✓
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups		✓
Continuous access to files during image-based backups		✓
Continuous access to files during full backups		✓
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups		✓
Continuous access to files during differential backups		✓
Virtual server snapshot technologies supported		✓
Backs up at hypervisor level without client on each guest OS		✓
Metadata query of MS VSS writers resident		✓
Automated command line scripting		✓
Deduplication	✓	

CONTINUED

## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>52*</b>	<b>7</b>	<b>20</b>	<b>10</b>	<b>6</b>	<b>5</b>
BASIC	BASIC	BASIC	BASIC	BASIC	BASIC

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off		✓
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers		✓
Trending of disk system throughput		✓
Monitor and alert tape libraries approaching capacity		✓
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work		✓

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM		✓
Option of creating a separate archive for each VM		✓
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures		✓
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site		✓
Phone	✓	
Email	✓	
Online interactive chat	✓	
Online form	✓	
Knowledgebase	✓	
User forums		✓

# Symantec Backup Exec 2010



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>86*</b>	<b>20</b>	<b>29</b>	<b>18</b>	<b>7</b>	<b>8</b>
EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	EXCELLENT

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Unlimited	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)		✓
Physical to Virtual (P2V)		✓
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies		✓
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass	✓	
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name		✓
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported		VMware ESX/VSphere Microsoft Hyper-V
Other operating systems supported	Most*	
Natively available as a bundled backup appliance from the software vendor	✓	
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)		✓
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration		✓
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups	✓	
Continuous access to files during mirror backups	✓	
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# Symantec Backup Exec 2010



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>86*</b>	<b>20</b>	<b>29</b>	<b>18</b>	<b>7</b>	<b>8</b>
<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>EXCELLENT</b>	<b>GOOD</b>	<b>EXCELLENT</b>

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual	✓	
Provides visibility to where active snapshots reside	✓	
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data		✓
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual	✓	
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive		✓
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations		✓
Progress bar or other continual visual feedback	✓	
Server prioritization by time since last backup		✓
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse	✓	
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase	✓	
User forums	✓	

# Veeam Backup and Replication V5



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>81*</b>	<b>17</b>	<b>27</b>	<b>17</b>	<b>8</b>	<b>9</b>
GOOD	GOOD	GOOD	GOOD	GOOD	BEST IN CLASS

\* Total includes other scores not shown

BACKUP	SUPPORTED	UNSUPPORTED
Image-based	✓	
File-based	✓	
Snapshot	✓	
Mirrors	✓	
Differentials	✓	
Continuous Incrementals	✓	
Application-level	✓	
Incrementals for only changed disk blocks	✓	
Takes images at pre-set intervals	✓	
Backup multiple VMs on same physical host	✓	
Replicates data to another VM, and backs up the replicated, rather than the original VM	✓	
Number of possible concurrent backups	Not provided	

RESTORE	SUPPORTED	UNSUPPORTED
Virtual to Physical (V2P)	✓	
Physical to Virtual (P2V)	✓	
Object-level	✓	
Restores individual files directly to a guest VM in a single step	✓	
Restores single files from snapshots	✓	
Replicates backup data to disk at a remote site	✓	
Use VCB to create crash consistent copies	✓	
Run backup and restore concurrently	✓	
Restores files to make disk backups before writing to tape	✓	
Mass restore capability to restore multiple VMs in a single pass		✓
Create a separate partition to restore to for testing	✓	
Restores a full disk backup without alternate location	✓	
Can restore a VM image as a different name	✓	
Mass assign in single restore step the same data stores/switches to all VMs		✓

TECHNOLOGY	SUPPORTED	UNSUPPORTED
Virtual server operating system platforms supported	VMware ESX and ESXi VMware VSphere 4 Microsoft Hyper-V	
Other operating systems supported	Various Windows, Linux	
Natively available as a bundled backup appliance from the software vendor		✓
Certified on VMware's vStorage API for Data Protection (VADP)	✓	
Integrates with VMware's VCB (VMware Consolidated Backup)	✓	
Use VMware's Change Block Tracking (CBT)	✓	
VMware's vCenter integration	✓	
VMware vCenter Converter integration	✓	
Other VMware-provided backup utilities	✓	
Microsoft's Volume Shadow Copy Service (VSS) integration	✓	
Continuous access to files during file-based backups	✓	
Continuous access to files during image-based backups	✓	
Continuous access to files during full backups	✓	
Continuous access to files during snapshot backups		✓
Continuous access to files during mirror backups		✓
Continuous access to files during incremental backups	✓	
Continuous access to files during differential backups	✓	
Virtual server snapshot technologies supported	✓	
Backs up at hypervisor level without client on each guest OS	✓	
Metadata query of MS VSS writers resident	✓	
Automated command line scripting	✓	
Deduplication	✓	

CONTINUED



# Veeam Backup and Replication V5



## DCIG Scores and Rankings

TOTAL	Technology	Management	Back-up	Restore	Support
<b>81*</b>	<b>17</b>	<b>27</b>	<b>17</b>	<b>8</b>	<b>9</b>
GOOD	GOOD	GOOD	GOOD	GOOD	BEST IN CLASS

\* Total includes other scores not shown

MANAGEMENT	SUPPORTED	UNSUPPORTED
Detects and Alerts on servers backing up significantly more data than usual		✓
Provides visibility to where active snapshots reside		✓
Send or redirect notifications to the user	✓	
Option of including or excluding backup of VMs powered off	✓	
Can this backup software be instructed to skip deleted data	✓	
Automatically discover new guest VMs	✓	
Auto discover and backup files or DBs by machine	✓	
Notification of backup pass or fail	✓	
Identify VMs & auto-apply policies and report their backup state	✓	
Trending to show tape throughput numbers	✓	
Trending of disk system throughput	✓	
Monitor and alert tape libraries approaching capacity	✓	
Monitor and alert if disks approaching capacity	✓	
Trending to show VM backing up more data than usual		✓
Detect and alert on concurrent backups	✓	
Allow concurrent backups	✓	
Allow the user to prohibit concurrent backups	✓	
Ability to limit the number of concurrent backups	✓	
Concurrent backups can be multiplexed to a single tape drive	✓	
Concurrent backups can be multiplexed to a single disk drive	✓	
Auto Share resources and dynamically allocate work	✓	

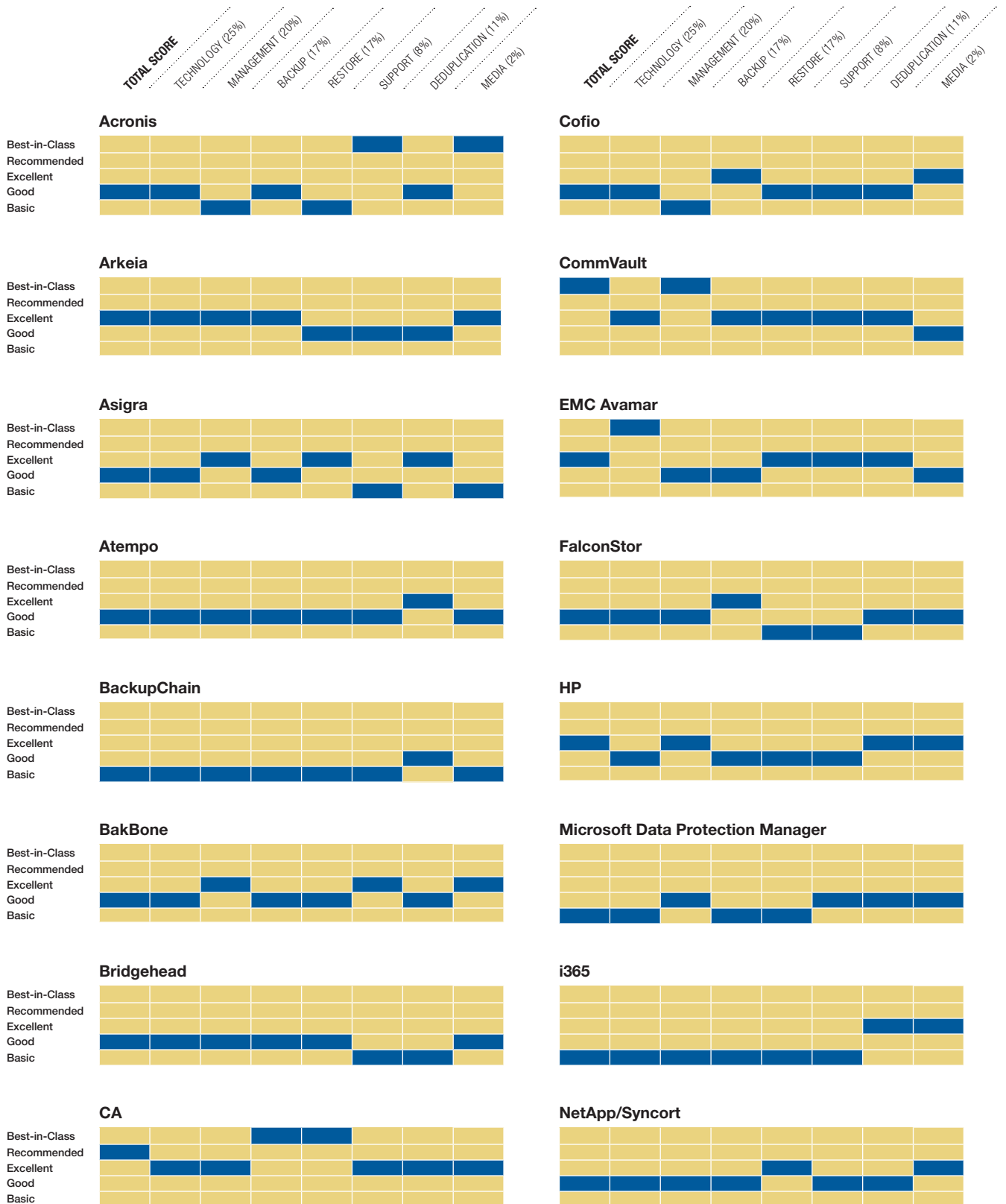
MANAGEMENT (CONT'D)	SUPPORTED	UNSUPPORTED
Allow the user to schedule backups	✓	
Option to create a single archive for each VM	✓	
Option of creating a separate archive for each VM	✓	
Virtual appliance for single point of backup for remote locations	✓	
Progress bar or other continual visual feedback		✓
Server prioritization by time since last backup	✓	
Host level use agentless backup	✓	
Auto report on fails	✓	
Auto report on escalation procedures	✓	
Missed backups cause Resume Producing Event (RPE)		✓
Organize backups to avoid resource overuse		✓
Data verification of the backup	✓	

SUPPORT	SUPPORTED	UNSUPPORTED
Remote diagnostic capability offered	✓	
Self-installable software	✓	
On-Site	✓	
Phone	✓	
Email	✓	
Online interactive chat		✓
Online form	✓	
Knowledgebase		✓
User forums	✓	

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

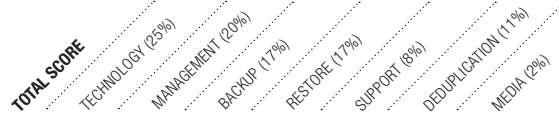
## Product Rankings Dashboard



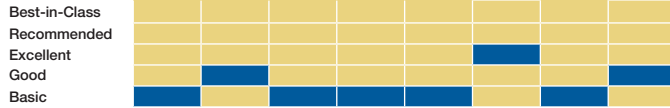
# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Product Rankings Dashboard continued



### PHD Virtual Backup



### Quest vRanger PRO



### R1Soft



### Revinetix RevOS



### ROBOBAK



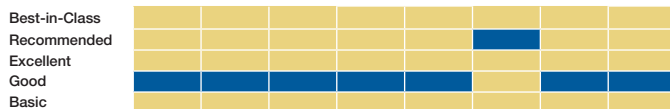
### Symantec Backup Exec



### Tivoli Storage Manager



### Veeam



# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### Appendix A—Special Notes on Support and Deduplication

#### Support: A Special Note

We are including some additional comments regarding Support given the importance of it to the backup software end-user, and the challenge of capturing the essence of a vendor's support policies in a Buyer's Guide such as this.

In preparing this Buyer's Guide, we have solicited information from the vendors regarding their support policies, and our rankings are based on the vendors' representations of their support programs. We have not demoed the support delivery in any way, nor solicited end-user feedback on the quality of the support.

Support is a very critical area for users but perhaps one of the more confusing. Vendors sometimes offer a dizzying array of support options, but which really is most important to the user?

Some of the key things we were looking for in a Best in Class support vendor were the following:

- **Several support options including 24x7, 9x5, but also extended hours like up to 12 hours in a day.** The user needs the choice of a base level of support, and at least one premier level of service.
- **Several response time options.** Within each support level, there should be escalated levels of response for different issue criticalities. We saw at least several response times of 2, 4 or 8 hours, but some were next business day, which is probably not acceptable in this environment. A particular word of caution: What does "response" mean? Does this mean response back with recommended resolutions and/or actions to take to address—or is this an acknowledgment of receipt of the end-user's issue?
- **Several options for contact/accessing the vendor.** The better support programs provide for multiple methods of contacting the vendor, including phone, email, online interactive chat, and/or online form.
- **Robust forum.** The better support programs include an end-user forum. Vendors should offer a good networking forum to provide their end-users with a well managed forum for exchanging best practices and helping one another resolve issues. This can be invaluable in saving users time solving their issues. The best forums have significant participation among end-users.

- **Knowledgebase.** These can be a searchable database of known issues and resolutions, or they can be more expensive and include a lot of noise, and approaching the look and feel of legalese, it is easy to feel that the vendor is trying to discourage use of its support services.

In the case where two or more vendors are collaborating on a solution, Support is a special case. In our experience, a collaborative solution creates some special challenges for the two vendors to provide a seamless Support experience for the end-user. Our expectation would be, therefore, that this would be explicitly spelled out for the end-user in anticipation of this obvious issue. Where it is not explicitly explained, end-users are urged to ask some very pointed questions about who is delivering support for the solution, and such things as escalation procedures and commitments—and to get this in writing.

Our recommendation, therefore, is to test the vendor closely on their Support capabilities. While many vendors in this study do excel in support and about 30% of them had Support as either the top ranked category or tied for their top-ranked category, some 46% of vendors had support as the lowest ranked category or tied for their lowest-ranked category.

While Support in our overall assessment was not as important as categories like Backup, Restore and Technology, Support is extremely important to end-users—particularly for backup software.

#### Deduplication: A Special Note

In the early stages of this Buyer's Guide, we had a discussion about how to address deduplication. As data volumes have grown, deduplication has been receiving an increasing amount of interest as a way to control the growth of data and to relieve some of the burden placed on processors and/or on a company's network.

Deduplication is so important—and a large enough technical topic on its own—that this could be a stand-alone topic in a Buyer's Guide. For this reason, we will discuss deduplication only briefly here in a Special Note.

Some of the end-users we talked to for the DCIG Virtual Server Backup Software Buyer's Guide did not prioritize deduplication as one of their more critical requirements. While deduplication is of critical interest to many, for other

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Appendix A—Special Notes on Support and Deduplication

end-users just trying to get a handle on basic things like encryption, backup to tape, speed of backup and recovery, full VM restores, and agentless VMs, deduplication is of secondary interest and importance for them.

In this study, more than 70% of the vendors offer deduplication natively. One vendor reports a plan to introduce deduplication in 2011. BakBone offers deduplication through a relationship with EMC's Data Domain product. Of the vendors offering deduplication natively, only one reported not providing source-side deduplication.

In comparing vendors that do not offer deduplication, was there any pattern? Not really. Some vendors who rank as "Basic" offer deduplication, and we think you will find one or more vendors who rank as "Good" or "Excellent" in one and/or another who do not provide deduplication as a native offering. If you are an end-user for whom deduplication is a critical requirement, do not assume that your vendor offers it natively.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### Appendix B—Definitions, Explanations and Terminology

#### Definitions, Explanations and Terminology

This section contains brief definitions and/or explanations of some of the terms used and assumptions made when developing the data sheets found in this Virtual Server Backup Software Buyer's Guide.

##### Agent

The client program or software that is installed on each protected client in order to assemble the backup and then send it to the backup site. This agent can often perform full, incremental or differential file-level backups to the media repository.

##### Agent-based

Backup utilizing agents installed on each client; this has been the most common method for backing up virtual servers.

##### Agent-less

An increasingly common method of backup in which agents are not installed on each client; rather the backup software communicates with each client via established communication protocols. The advantage is that you do not have the overhead of an agent running on each client. But the processing that was taking place on the client would now be taking place over your network or WAN.

##### Appliance

An appliance allows the user to automatically discover and backup all file systems or databases on a given machine. Some software offerings do this within their system while other packages need an appliance to do this.

##### Changed Block Tracking (CBT)

A VMware VMkernel feature that keeps track of what blocks have changed since a certain point in time, thus making it much easier for backup and replication applications to act only on the changed blocks. The result is that much faster incremental backups can be achieved. Note: Changed Block Tracking (CBT), not Change Block Tracking.

##### Capacity-based pricing models

This relates to the ability of backup software to monitor and alert if disk devices are approaching capacity. So it is a cost containment feature

##### Concurrent

Concurrent or overlapping virtual machine backups can place a burden on the VMware host server's CPU,

memory, disk, and network components and often make it difficult or impossible to complete backups

##### Consolidate

Consolidate in the backup world is often referred to under VMware Consolidated Backup. Consolidated Backup offers an easy way to offload the backup workload to the backup proxy server. The ESX Server components of Consolidated Backup are preinstalled on each ESX Server host, so no separate installation is necessary on the server side. Consolidated Backup software installation is required only on the proxy server

##### Crash-consistent backups

(As opposed to application consistent) An image-level backup that cannot be restored without running integrity tests, or log files being replayed to restore at least partial data to the last consistent state. Essentially, an image that is restored to a state consistent with its having crashed, and then restored with the assistance of logs. Some vendor solutions work with VMware's VCB to perform crash-consistent restores image-level backups. An image-level backup that cannot be restored without running integrity tests, or log files being replayed to restore at least partial data to the last consistent state. Essentially, an image that is restored to a state consistent with its having crashed, and then restored with the assistance of logs. Some vendor solutions work with VMware's VCB to perform crash-consistent restores image-level backups. Crash-consistent snapshots are not application consistent, and therefore introduce two problems: (1) they may not lead to reliable data recovery and, (2) even if they do, recoveries take longer than they do when application-consistent snapshots can be used.

##### Deduplication

Data deduplication is a specialized data compression technique for eliminating coarse-grained redundant data, typically to improve storage utilization. There are various kinds of deduplication. Source-based deduplication means that you are first deduplicating data, and then backing up the deduplicated data. This is less taxing on the networking as less data is sent to the backup media. With target-based deduplication, data is first backed up

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### Appendix B—Definitions, Explanations and Terminology

by sending all of the data over the network, and then deduplicating it at the backup site. Vendors that offer their own deduplication technology would not need to use VMware's Change Block Technology (CBT). A few vendors in this study claimed that they have patented technology that is more efficient than VMware CBT. One claims to have its own Change Block Tracking technology so it does not need vCenter Converter. In contrast, IBM TSM uses VCB to restore full image file and then needs a Converter Tool. Quest Software defines Deduplication as the ability to remove empty blocks including both unallocated and zero blocks.

#### Differential Backups

Differential backup contains all files that have changed since the last full backup. The advantage of a differential backup is that it shortens restore time compared to a full backup or an incremental backup. However, if you perform the differential backup too many times, the size of the differential backup might grow to be larger than the baseline full backup.

#### File-based Backup

File-based backup is the more common backup software approach. Software needs to be told which data files have to be backed up. Some file backup software will help in doing the file selection, by backing up the most typical kinds of user files or locations, or by offering to automatically detect which files have changed since the last backup. Backing up selected files instead of an entire disk means the resulting backup can be much smaller. To reduce storage costs and time to transmit backup data, online backup services use file backup rather than image backup.

#### Guest operating system

The operating system loaded into the virtual environment, and which as a result interacts with the virtualization layer much the same as if the guest OS were interacting with the host hardware. See *Host operating system*.

#### Host operating system

The primary and/or original operating system installed. The virtualization application or platform runs on top of the host operating system. If you are using a bare metal hypervisor, then you do not really have a "host operating system." See *Guest operating system*.

#### Host-based

Host-based is not as common as Agent-based when looking at the actual Hyper-V server. In this case, this

would be a Windows server. It's not like VMware as you do not have a host to connect to. With Hyper-V, it is a Windows host and it works like any Windows host. However, if you need to connect and back up those virtual machines outside of the VM environment, then an interface to the infrastructure (VSS) is required to get good backups of the VMs.

#### Hypervisor

Also called a virtual machine monitor (VMM). This is one of many virtualization techniques which allow multiple operating systems, termed guests, to run concurrently on a host computer, one level higher than a supervisor (i.e. hyper). Hypervisors are installed on server hardware that is only tasked with running guest operating systems.

#### Image-based backup

A disk image backup is basically a backup of the whole hard drive. The backup software uses low-level disk I/O to just copy all the bits on the hard disk to another disk, without any particular regard for concepts such as files. With a backup image, there is the possibility of forgetting to backup a particular file. Users can buy image backup software that can run in the background using Windows—but then there's always a small chance that the backed up image will have one or more partially updated files in it. Image-level backups cannot see inside the operating system and are backing up the whole virtual disk.

#### Incremental backup

Incremental backup means the user performs full initial backup and then each backup after is incremental. An incremental backup preserves data by creating multiple copies that are based on the differences in the data: a successive copy of the data contains only that portion which has changed since the preceding copy has been created. Some top vendors claim that they are the only vendor that provides infinite incremental backup. However DCIG has found other vendors offer this.

#### Mirror backup

Mirror backup is identical to a full backup, with some exceptions. A mirror backup is a straight copy of the selected folders and files at a given instant in time. Mirror backup is considered the fastest backup method because it copies files and folders to the destination without any compression. While the other backup types collect all the files and folders being backed up each time into a single compressed "container file," a mirror backup keeps all the individual files separate in the destination.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

## The Insider's Guide to Evaluating Virtual Server Backup Software

### Appendix B—Definitions, Explanations and Terminology

#### Object-level

A system and method for object-level snapshot creation in an object-based storage system. The host device includes a first object management table (OMT) and a file system. The object-based storage system is connected to the host device and includes a controller and object-based storage devices (OSD). The controller includes a snapshot module—a second OMT. The snapshot module receives and processes OSD and other commands from the file system or a service processor, creates an original object and a mirror object in an OSD and initiates a snapshot operation in an OSD.

#### Policy Management

Some vendors mention how powered Off machines can continue policies and resynchronize when connected. They also talk about how policy-based backup allows multiple streams to use multiple disk repositories under a single policy.

#### Proxy

VMware Consolidated Backup (VCB) is considered a proxy. The proxy server moves the backup from agents on the virtual machines or from the virtualization server to a dedicated server. The proxy server is typically a Windows server connected to the same SAN volumes as VMware's ESX server.

#### Proxy-Less backups

Some vendors can do Proxy-Less but recommend using Media Agents as data mover for full feature set. Other vendors claim they do not need Agents or Proxy Servers, but they say they have a small virtual appliance running on the host to conduct backups of the virtual machines.

#### Single-Step Restore

Some vendors offer Single-Step Restore. Specifically, this means restoring individual files directly to the guest virtual machine in a single step. In contrast, two-step offerings by some vendors would mean (1) Select snapshots to mount, then (2) Copy/Restore/File/Object/Email.

#### Scripting

Scripting means having control of one or more software applications. "Scripts" are distinct from the core code of the application, as they are usually written in a different language and are often created or at least modified by the end user. Scripts are often interpreted from source

code or byte code, whereas application software is typically first compiled to a native machine code or to an intermediate code.

#### Snapshot

A snapshot is an instantaneous function of some storage systems that presents a copy of the file system as if it were frozen at a specific point in time, often by a copy-on-write mechanism. An effective way to back up live data is to temporarily quiesce (e.g., close all files), take a snapshot, and then resume live operations. At this point the snapshot can be backed up through normal methods. While a snapshot is very handy for viewing a file system as it was at a different point in time, it is hardly an effective backup mechanism by itself.

#### Trending

Ability of users to see visual dashboards or reports on backup operations for improving efficiency and effectiveness. Trending falls in the overall storage management category.

#### Verification

Ability to automatically notify the user if a backup or recovery procedure was successful or not.

#### Virtual

Applying 'virtual' to computers (i.e., virtualization) represents sharing of actual devices by many users and coordination of multiple processes.

#### Virtualization

Virtualization is the creation of a virtual (rather than actual) version of something, such as an operating system, a server, a storage device or network resources. Virtualization enables the centralization of administrative tasks while improving scalability and workloads.

#### Virtual Machine (VM)

A software program emulating an execution environment that simulates to the user a separate bare-iron physical computer, often sharing the computer resources with one or more other emulated execution environments.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Appendix C—Virtual Server Backup Software Vendors

### Virtual Server Backup Software Vendors

#### Acronis Inc.

300 TradeCenter Suite 6700  
Elm Street  
Woburn, MA 01801  
(781) 782.9000

#### WEBSITE

<http://www.acronis.com>

#### SUPPORT

<http://www.acronis.com/support/>

**YEAR FOUNDED** 2000  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** Not Available

Acronis recorded an overall rating of "Good" in the DCIG Virtual Server Backup Software Buyer's Guide. Acronis was at the top of the categories of Support and Media with "Recommended" ratings. In the categories of Technology, Backup, and Deduplication, Acronis documents capabilities that rank as "Good," while in the categories of Management and Restore, Acronis' solution capabilities rank as "Basic." Acronis had a strong showing in its support programs; here, Acronis scores very highly because of the range and depth of support services they offer, including a user forum that looks like it's built to serve, and several other access options: phone and email support; a knowledgebase, and online interactive chat. Of course, these options are only as good as the support documentation that describes them to the user and Acronis' support documentation is designed to make it easy to access the support services.

#### Arkeia Software

1808 Aston Avenue  
Carlsbad, CA 92008  
(760) 431.1399

#### EMAIL

<http://www.arkeia.com/en/company/contact-us/contact-hq>

#### WEBSITE

<http://www.arkeia.com>

#### SUPPORT

<http://www.arkeia.com/en/support>

**YEAR FOUNDED** 1996 (first product release 1999)  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** Not Available

Arkeia is in the top three overall vendors in the DCIG Virtual Server Backup Software Buyer's Guide, with an overall score of "Excellent." Arkeia achieves this with scores of "Excellent" in four of seven

categories (Technology, Management, Backup, and Media). In the other categories (Restore, Deduplication, and Support), Arkeia's solution scores "Good." On October 19, 2010, Arkeia announced its next release, Arkeia Network Backup V9.0, which will incorporate the deduplication technology of a 2009 acquisition, Kadena Systems.

#### Asigra Inc.

1120 Finch Avenue West, Suite 400  
Toronto, ON M3J 3H7  
(416) 736.8111

#### EMAIL

<http://www.asigra.com/contact-us>

#### WEBSITE

[www.asigra.com](http://www.asigra.com)

#### SUPPORT

<http://www.asigra.com/training-support/technical-support>

**YEAR FOUNDED** 1986  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** 110

Asigra's Cloud Backup and Recovery scores as a Top 10 solution in the DCIG Virtual Server Backup Software Buyer's Guide, achieving an overall "Good" rating. Asigra scores "Excellent" in Management, Restore and Deduplication. Asigra records scores of "Good" in Technology, and Backup, and scores of "Basic" in Support, and Media.

#### Atempo, Inc.

2465 E. Bayshore Road  
Palo Alto, CA 94303  
(650) 494.2600

#### EMAIL

<http://www.atempo.com/atempo/contact.asp>

#### WEBSITE

<http://www.atempo.com/products/timeNavigator/>

#### SUPPORT

<http://www.atempo.com/support/default.asp>

**YEAR FOUNDED** 1992  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** 280

Atempo achieves an overall ranking of "Good," as well as a ranking of "Good" in six of seven other categories (It received a "Recommended" in Deduplication). Atempo describes Time Navigator as ideally suited for complex, mission-critical scenarios.

# DCIG 2011 VIRTUAL SERVER BACKUP SOFTWARE BUYER'S GUIDE

The Insider's Guide to Evaluating Virtual Server Backup Software

## Appendix C—Virtual Server Backup Software Vendors

### BakBone Software, Inc.

9450 Town Center Drive Suite 100  
San Diego, CA 92121  
(858) 450.9009

#### WEBSITE

[http://www.bakbone.com/netvault\\_backup.php](http://www.bakbone.com/netvault_backup.php)

#### SUPPORT

[http://www.BakBone.com/support\\_area.php](http://www.BakBone.com/support_area.php)

<b>YEAR FOUNDED</b>	2000
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$20M-\$50M
<b>EMPLOYEES</b>	300

BakBone's NetVault is a Top 10 vendor in the DCIG Virtual Server Backup Software Buyers Guide, scoring particularly high in the categories of Management, and Support, and scoring Good or better in all categories. Quest Software and BakBone announced on November 9, 2010, an agreement for Quest Software to acquire BakBone.

### BridgeHead Software Limited

215 Barnett Wood Lane  
Ashted, Surrey KT212DF  
United Kingdom  
44 (0) 1372 221977

400 West Cummings Park  
Suite 6050  
Woburn, MA 01801  
781 939.0780

#### WEBSITE

<http://www.bridgeheadsoftware.com>

#### SUPPORT

[http://www.bhead.co.uk/html\\_pages/support\\_services.aspx?pid=](http://www.bhead.co.uk/html_pages/support_services.aspx?pid=)

<b>YEAR FOUNDED</b>	1994
<b>PUBLIC/PRIVATE</b>	Private
<b>REVENUE</b>	Not Available
<b>EMPLOYEES</b>	51-200

Bridgehead Software is a little different than the other vendors in the landscape in that they focus almost exclusively in the healthcare segment. With an almost singular vertical focus, and its support exclusively for the VMware platform, it is not surprising to see a more focused set of capabilities from this vendor. BridgeHead scored an overall "Good" ranking, as well as "Good" in four of six other categories. BridgeHead scored "Basic" in the Deduplication and Support areas.

### CA Technologies

One CA Plaza  
Islandia, NY 11749  
(800) 225.5224

#### WEBSITE

<http://arcserve.com/us/products/ca-arcserve-backup.aspx>

#### SUPPORT

<http://www.ca.com/us/support-offerings.aspx>

<b>YEAR FOUNDED</b>	1976
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$4.4B
<b>EMPLOYEES</b>	13,200

CA Technologies' ARCserve is one of the top rated vendors in our report, one of the two vendors with an overall score of "Recommend." ARCserve also ranked as "Recommended" in Backup and Restore, and ranked as "Excellent" in all other categories.

### Cofio Software Inc.

501 W. Broadway Suite A376  
Suite A376  
San Diego, CA 92101-3536  
(858) 581.6500

#### EMAIL

[sales@cofio.com](mailto:sales@cofio.com)

#### WEBSITE

<http://www.cofio.com>

#### SUPPORT

<http://www.cofio.com/Support/>

<b>YEAR FOUNDED</b>	2006
<b>PUBLIC/PRIVATE</b>	Private
<b>REVENUE</b>	Not Available
<b>EMPLOYEES</b>	15

Cofio scores an overall ranking of "Good" in the DCIG Virtual Server Backup Software Buyer's Guide. Notably, Cofio scores "Excellent" in Backup, and Media, and "Good" in 4 of 5 other categories. Cofio receives a "Basic" ranking in Management where its capabilities in trending and concurrent backup are more limited.

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### CommVault Systems, Inc.

2 Crescent Place P.O. Box 900  
Oceanport, NJ 07757  
(888) 746.3849

#### WEBSITE

<http://www.commvault.com>

#### SUPPORT

<http://services.commvault.com/>

<b>YEAR FOUNDED</b>	1996
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$271M
<b>EMPLOYEES</b>	1000

CommVault scores as the overall Best-in-Class Top Vendor in the DCIG Virtual Server Backup Software Buyer's Guide, achieving the highest overall score. It scored "Recommended" in another category, Management, and "Excellent" in five of the other six categories. This supports earlier DCIG findings as shown in CommVault Simpana 9 Ushers in New Era of Enterprise Data Management, Protection and Recovery.

### EMC Corporation

176 South Street  
Hopkinton, MA 01748  
(508) 435.1000

#### EMAIL

<http://www.emc.com/utilities/email-this-page-form.esp>

#### WEBSITE

<http://www.emc.com>

#### SUPPORT

<http://www.emc.com/support-training/index.htm>

<b>YEAR FOUNDED</b>	1979
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$14B
<b>EMPLOYEES</b>	36,200

EMC'S Avamar receives an "Excellent" ranking in the DCIG Virtual Server Backup Software Buyer's Guide. EMC's Avamar is a Top 10 vendor in the overall ranking of the virtual server backup software landscape, and scores "Excellent" or better ("Recommended" in Technology) in six of seven categories (Avamar is just a bit weaker in tape management). EMC brings a lot of technology know-how and investment (and an 80% ownership in VMware, and other strategic acquisitions) to its backup and storage solutions.

### FalconStor Software

2 Huntington Quadrangle Suite 2S01  
Melville, NY 11747  
(631) 777.5188

#### EMAIL

<http://www.falconstor.com/form.php?pn=GeneralInquiry&region=AMERCORPHEAD>

#### WEBSITE

<http://www.falconstor.com>

#### SUPPORT

<http://www.falconstor.com/en/pages/?pn=Support>

<b>YEAR FOUNDED</b>	2000
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$89M
<b>EMPLOYEES</b>	540

FalconStor's Continuous Data Protector scores "Good" overall in the DCIG Virtual Server Backup Software Buyer's Guide. Scoring "Excellent" in Backup and Restore, FalconStor scored "Good" in the Technology, Management, and Deduplication areas. FalconStor scores "Basic" in its Support program, having recently discontinued email access for support and choosing a less transparent approach of putting this access and most other program details behind a portal available to account holders only. New leadership at FalconStor in October 2010 following some management turmoil (more details on the DCIG website) could mean that changes are in the works for FalconStor solutions and offerings.

### FastNeuron Inc.

5544 Link Ave. Suite 101  
Baltimore, MD 21227  
(410) 242.5892

#### EMAIL

[info@fastneuron.com](mailto:info@fastneuron.com)

#### WEBSITE

<http://backupchain.com/>

#### SUPPORT

<http://backupchain.com/v2help/BackupChainV2Help.html>

<b>YEAR FOUNDED</b>	
<b>PUBLIC/PRIVATE</b>	Private
<b>REVENUE</b>	Est. < \$1M
<b>EMPLOYEES</b>	< 10 employees

FastNeuron's BackupChain scores consistently across nearly all categories as "Basic" (ranking "Good" in Deduplication) reflecting its relatively recent introduction and emerging level of capability. FastNeuron's BackupChain is ideally suited for the small-to-medium (SMB) enterprise. FastNeuron announced Release 2.2 of BackupChain in November 2010.

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### Hewlett-Packard Development Company, L.P.

3000 Hanover Street  
Palo Alto, CA 94304  
(650) 857.1501

#### EMAIL

<https://h41268.www4.hp.com/live/index.aspx?qid=11263>

#### WEBSITE

<http://h71028.www7.hp.com/enterprise/w1/en/software/information-management-data-protector.html>

#### SUPPORT

<http://welcome.hp.com/country/us/en/support.html>

<b>YEAR FOUNDED</b>	1939
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$115B
<b>EMPLOYEES</b>	304,000

HP's Data Protector software is a Top 10 vendor in the DCIG Virtual Server Backup Software Buyer's Guide, scoring "Excellent" overall. Data Protector is an "Excellent" solution in the categories of Management, Deduplication, and Media, and scores a "Good" rating in all other categories. HP Data Protector is targeted for the medium-to-large enterprise.

### i365 (A Seagate company)

3101 Jay Street Suite 101  
Santa Clara, CA 95054  
(877) 382.8581

#### EMAIL

<http://pages.i365.com/contact-us.html>

#### WEBSITE

<http://www.i365.com>

#### SUPPORT

<http://www.i365.com/support/index.html>

<b>YEAR FOUNDED</b>	2008
<b>PUBLIC/PRIVATE</b>	Private
<b>REVENUE</b>	Not Available
<b>EMPLOYEES</b>	Not Available

i365 (a Seagate company) receives an overall score of "Basic" in the DCIG Virtual Server Backup Software Buyer's Guide. i365 scores "Excellent" in deduplication and "Basic" in other categories. Focusing exclusively on the VMware ESX / vSphere platforms, and disk backups, i365 is an emerging vendor focusing on the SMB segment. As it is owned by Seagate, it probably has some deeper financial resources than many of the smaller vendors in this report.

### International Business Machines Corp. (IBM)

New Orchard Road  
Armonk, NY 10504-1722  
(914) 499.1900

#### WEBSITE

<http://www-01.ibm.com/software/tivoli/products/storage-mgr/>

#### SUPPORT

[http://www-947.ibm.com/support/entry/portal/Overview/Software/Tivoli/Tivoli\\_Storage\\_Manager](http://www-947.ibm.com/support/entry/portal/Overview/Software/Tivoli/Tivoli_Storage_Manager)

<b>YEAR FOUNDED</b>	1911
<b>PUBLIC/PRIVATE</b>	Public
<b>REVENUE</b>	\$96B
<b>EMPLOYEES</b>	399,000

IBM Tivoli Storage Manager (TSM) is a Top Five backup solution in the DCIG Virtual Server Backup Software Buyer's Guide, scoring "Excellent" overall. TSM scored "Excellent" in the categories of Backup, Management, Deduplication, and Support. In the other categories, Restore and Technology, IBM ranked a "Good" rating relative to the landscape as a whole.

### Microsoft

One Microsoft Way  
Redmond, WA 98052-7329  
(425) 882.8080

#### EMAIL

<http://support.microsoft.com/contactus/?ws=mscom#tab0>

#### WEBSITE

<http://www.microsoft.com/systemcenter/en/us/data-protection-manager.aspx>

#### SUPPORT

<http://www.microsoft.com/systemcenter/en/us/support-options.aspx>

<b>YEAR FOUNDED:</b>	1975
<b>PUBLIC/PRIVATE:</b>	Public
<b>REVENUE:</b>	\$65.8B
<b>EMPLOYEES:</b>	89,000

Microsoft's Data Protection Manager ranks "Basic" overall in the DCIG Virtual Server Backup Software Buyer's Guide. Because Microsoft focuses exclusively on the Microsoft platform, its ranking in this Buyer's Guide is commensurately lower than the rankings of vendors who are platform-agnostic. Microsoft scores "Good" in the categories of Management, Deduplication, and Support Programs, and "Basic" in the categories of Technology, Backup, and Restore.

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### NetApp, Inc.

495 East Java Drive  
Sunnyvale, CA 94089  
(408) 822.6000

**WEBSITE**  
<http://www.netapp.com/us/>

**SUPPORT**  
<http://www.netapp.com>

**YEAR FOUNDED** 1992  
**PUBLIC/PRIVATE** Public  
**REVENUE** \$3.9B  
**EMPLOYEES** 8,000

### Syncsort

50 Tice Boulevard  
Woodcliff Lake, New Jersey 07677  
(201) 930-9700

**WEBSITE**  
<http://www.syncsort.com>

**SUPPORT**  
<http://www.syncsort.com/ProductsServices/Customersupport.aspx>

**YEAR FOUNDED** 1968  
**PUBLIC/PRIVATE** Private  
**REVENUE** est. \$98M  
**EMPLOYEES** 278 employees

NetApp and Syncsort introduced a joint solution, aimed at the small-to-medium segment, at the end of August 2010. The offering, obviously still in the emerging stage, earns an overall ranking of "Good" in the DCIG Virtual Server Backup Software Buyer's Guide. The NetApp-Syncsort solution scored "Excellent" in the area of Restore, and "Good" in Technology, Management, Backup, Deduplication, and Support.

### PHD Virtual Technologies

2 Penn Center  
1500 JFK Boulevard Suite 222  
Philadelphia, PA 19102  
(267) 298.5320

**EMAIL**  
[sales@phdvirtual.com](mailto:sales@phdvirtual.com)

**WEBSITE**  
<http://www.phdvirtual.com>

**SUPPORT**  
<http://www.phdvirtual.com/support>

**YEAR:** Founded: 2005  
**PUBLIC/PRIVATE:** Private  
**REVENUE:** Not Available  
**EMPLOYEES:** est. < 50 employees

PHD Technologies has done some very innovative things with its technology, leading SCIG to describe PHD earlier as "The Best Approach to Virtual Machine Backups - Period". In the broad virtual server backup software landscape, PHD's capabilities are narrower and more focused than some of the other vendors, resulting in an overall score of "Basic" in this Buyer's Guide relative to the landscape at-large. PHD scores "Excellent" in the area of Support where PHD's wide range of support offerings, well laid-out support documentation, and access methods and response times, make it a Top 10 vendor in this area. PHD is reported to find particular traction in the SMB and academia segments.

### Quest Software

5 Polaris Way  
Aliso Viejo, CA 92656  
(949) 754.8000

**WEBSITE**  
<http://www.quest.com/vranger/>

**SUPPORT**  
<https://support.quest.com/Default.aspx>

**YEAR FOUNDED** 1987  
**PUBLIC/PRIVATE** Public  
**REVENUE** \$695M  
**EMPLOYEES** 3,150

Quest Software receives an "Excellent" overall score in DCIG's Virtual Server Backup Software Buyer's Guide. As a Top 10 vendor, Quest Software's VRange solution is particularly strong in the categories of Backup, Restore, Technology, and Support. Despite recent acquisitions that can hurt support from other companies, we found end users that said this has not negatively impacted the level of support they receive. This is good news for users as Quest Software announced on November 9th, 2010, its intention to acquire fellow Top 10 backup software vendor BakBone Software. This follows Quest's 2008 acquisition of Vizioncore.

### R1Soft

BBS Technologies  
802 Lovett Boulevard  
Houston, TX 77006-3906  
(713) 344.0047

**EMAIL**  
<http://www.r1soft.com/index.php?id=360>

**WEBSITE**  
[www.bbstek.com](http://www.bbstek.com)

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### WEBSITE

<http://www.r1soft.com/>

### SUPPORT

<http://support.r1soft.com/secure/Dashboard.jspa>

**YEAR FOUNDED** 2000  
**PUBLIC/PRIVATE** Private  
**REVENUE** \$21.7M  
**EMPLOYEES** 123 employees

R1Soft ranks with "Basic" capabilities overall in the DCIG Virtual Server backup Software Buyer's Guide in company with a number of vendors that offering Basic functionality.

### Revinetix, Inc.

308 East 4500 South, Suite 100  
Salt Lake City, UT 84107-4057  
(801) 263.5116

### EMAIL

[insidesales@revinetix.com](mailto:insidesales@revinetix.com)

### WEBSITE

<http://www.revinetix.com>

### SUPPORT

<http://www.revinetix.com/support/index.php>

**YEAR FOUNDED** 2003  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** est. < 25 employees

Revinetix scores as "Basic" in the DCIG Virtual Server Backup Software Buyer's Guide relative to the backup software landscape. We think this is a reflection of Revinetix's relative youth among the backup software vendors, as much as anything. Revinetix distinguishes itself by focusing on disk-based solutions for the education, government, and SMB business segments, particularly those companies with 5 to 500 employees.

### ROBOBAK

ROBODRS LLC  
5064 Roswell Road  
Suite 301D  
Atlanta, Georgia 30342  
(404) 762.6225

### EMAIL

<http://www.robobak.com/Information/request.aspx?type=moreinfo>

### WEBSITE

<http://www.robobak.com>

### SUPPORT

<http://www.robobak.com/Support/index.aspx>

**YEAR FOUNDED** 2005  
**PUBLIC/PRIVATE** Private  
**REVENUE** Not Available  
**EMPLOYEES** Not Available

ROBOBAK scores as "Basic" overall, with its highest scores in the categories of Management, Restore, and Deduplication. This reflects both, we believe, an early stage in the development of the solution as well as its stated focus on being a cost-effective solution for the Remote Office/Branch Office (ROBO) segment.

### Symantec Corporation

350 Ellis Street  
Mountain View, CA 94043  
Phone: 650 527.8000  
(800) 721.3934

### WEBSITE

[www.backupexec.com/be](http://www.backupexec.com/be)

### SUPPORT

<http://www.symantec.com/business/support/index?page=landing&key=15047>

**YEAR FOUNDED:** 1982  
**PUBLIC/PRIVATE:** Public  
**REVENUE:** \$5.9B  
**EMPLOYEES:** 17,500

Symantec's Backup Exec solution scores "Excellent" in the DCIG Virtual Server Backup Software Buyer's Guide. In addition to scoring "Recommended" in Deduplication, "Good" in Restore, and "Excellent" in all other categories, Symantec has, we believe, a top-notch support program. Symantec's user forum, Symantec Connect, is in our mind probably the gold standard for user forums, allowing the user, in one place, to access discussions, articles, blog entries, downloads, events, videos, and "ideas." Symantec also has a knowledgebase that should, together with the forum, prove very useful to end-users.

### Veeam Software

6479 Reflections Drive Suite 200  
Columbus, Ohio 43017  
(614) 339.8200

### EMAIL

<http://www.veeam.com/salesinc.html>

### WEBSITE

<http://www.veeam.com>

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### SUPPORT

<http://www.veeam.com/support.html>

<b>YEAR FOUNDED</b>	2006
<b>PUBLIC/PRIVATE</b>	Private
<b>REVENUE</b>	Not Available
<b>EMPLOYEES</b>	250

Veeam earns an overall ranking of "Good," a Top 10 overall ranking, and a Top 10 ranking in four out of seven categories in the DCIG Virtual Server Backup Software Buyer's Guide. Veeam earned a "Recommended" ranking in Support (the quality of Veeam's support offerings), and a consistent score of "Good" across all other categories. In Support, Veeam offers multiple levels of support, including a support forum that seems well laid out (something that we deem to have particular value for backup software), as well as possessing good support documentation. Veeam's support program strikes a reasonable balance between the support options available and the levels of support provided, while also providing documentation that enables a user to be able to quickly figure out how to access support.

.....  
These vendors/solutions were invited to participate, but declined to do so:

### **Actifio**

225 Wyman Street,  
Waltham, MA 02451  
<http://www.actifio.com>

### **Data Storage Group**

2400 Trade Centre Avenue  
Longmont, CO 80503  
<http://www.datastor.com>

### **InMage**

3255-1 Scott Blvd, #104  
Santa Clara, CA 95054  
<http://www.inmage.com>

### **STORserver**

485-B Elkton Drive  
Colorado Springs, CO 80907  
<http://www.storserver.com>

### **Unitrends**

7 Technology Circle, Suite 100  
Columbia, SC 29203  
<http://www.unitrends.com>

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## Appendix D—Author Contact Information

### **SMB Research**

P.O. Box 51285  
Boston, MA 02205  
(781) 904.0408

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[reastman@smbresearch.net](mailto:reastman@smbresearch.net)

**Miles Prescott**  
[mprescott@smbresearch.net](mailto:mprescott@smbresearch.net)

#### **WEBSITE**

[www.smbresearch.net](http://www.smbresearch.net)

#### **BLOG**

[www.smbresearch.net/blog](http://www.smbresearch.net/blog)

#### **TWITTER**

[smbresearch](https://twitter.com/smbresearch)

### **DCIG, LLC**

7511 Madison Street  
Omaha NE 68127  
(402) 884.9594

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**Jerome Wendt**  
[jerome.wendt@dciginc.com](mailto:jerome.wendt@dciginc.com)

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