

Glitch is the Next Milestone in Recoveries

No business – and I mean no business – regardless of its size ever wants to experience an outage for any reason or duration. However, to completely avoid outages means spending money and, in most cases, a *lot* of money. That is why, when someone shared with me earlier this week, that one of their clients has put in place a solution that keeps their period of downtime to what appears as a glitch to their end-users for nominal cost, it struck a chord with me.

The word outage does not sit well with anyone in any size organization. It conjures up images of catastrophes, chaos, costs, lost data, screaming clients, and uncertainty. Further, anyone who could have possibly been involved with causing the outage often takes the time to make sure they have their bases covered or their resumes updated. Regardless of the scenario, very little productive work gets done as everyone scrambles to first diagnose the root cause of the outage, fix it, and then takes steps to prevent it from ever happening again.

Here's the rub in this situation: only large enterprises with money to buy top-notch hardware and software backed by elite staff to put solutions in place that come anywhere near guaranteeing this type of availability. Even then, these solutions are usually reserved for a handful of mission critical and maybe business critical applications. The rest of their applications remain subject to outages of varying lengths and causes.

Organizations other than large enterprises daily face this fear. While their options for speed of recovery have certainly improved in recent years thanks to disk-based backup and virtualization, recovering any of their applications from a major outage such as hardware failure, ransomware attack, or

just plain old unexpected human error, it may still take hours or longer to complete the recovery. Perhaps worse, everyone knows about it and cursing out the IT staff for this unexpected and prolonged interruption in their work day.

Here's what caught my attention on the phone call I had this week. While this company in question retains its ideal of providing uninterrupted availability for its end-users as its end game, its immediate milestone is to reduce the impact of outages down to a glitch from the perspective of their end-users.

Granted, a temporary outage of any applications for even a few minutes is neither ideal nor will end-users or management greet any outage with cheers.

However, recovering an application in a few minutes

(say in 5-10 minutes,) will be more well-received than communicating that the recovery will take hours, days, or replying with an ambiguous "we are making a best faith effort to fix the problem."

This is where setting a milestone of having any application recovery appear as a glitch to the organization starts to make sense. Solutions that provide uninterrupted availability and instant recoveries often remain out of reach financially for



all but the wealthiest enterprises. However, solutions that provide recoveries that can make outages appear as only a glitch to end-users are now within reach of almost any size business.

No one likes outages of any type. However, if IT can in the near-term turn outages into glitches from a corporate visibility perspective, IT will have achieved a lot. The good news is that data protection solutions that span on-premises and the cloud are readily available now that when properly implemented can well turn many applications outages into a glitch.

Exercise Caution Before Making Any Assumptions about Cloud Data Protection Products

There are two assumptions that IT professionals need to exercise caution before making when evaluating cloud data protection products. One is to assume all products share some feature or features in common. The other is to assume that one product possesses some feature or characteristic that no other product on the market offers. As DCIG reviews its recent research into the cloud data protection products, one cannot make either one of these assumptions, even on features such as deduplication, encryption, and replication that one might expect to be universally adopted by these products in comparable ways.

The feature that best illustrates this point is deduplication.

One would almost surely think that after the emphasis put on deduplication over the past decade, every product would now support deduplication. That conclusion would be true. But how each product implements deduplication can vary greatly. For example:

1. Block-level deduplication is still not universally adopted by all products. A few products still only deduplicate at the file level.
2. In-line deduplication is also not universally available on all products. Further, post-process deduplication is becoming more readily available as organizations want to do more with their copies of data after they back it up.
3. Only about 2 in 5 products offer the flexibility to recognize data in backup streams and apply the most appropriate deduplication algorithm.

		Response percent
Post Process		40.57%
In-line		94.86%

Source: DCIG; 175 products

Deduplication is not the only feature that differs between these products. As organizations look to centralize data protection in their infrastructure and then keep a copy of data offsite with cloud providers, features such as encryption and replication have taken on greater importance in these products and more readily available than ever before. However, here again one cannot assume that all cloud data protection products support each of these features.

On the replication side, DCIG found that this feature to be universally supported across the products it evaluated. Further, these products all implement the option where organizations can schedule replication to occur at certain times (*every five minutes, on the hour, etc.*).

However, when organizations get beyond this baseline level of replication, differences again immediate appear. For instance, just over 75 percent of the products perform continuous data replication (*replicate data immediately after the write occurs at the primary site*) while less than 20 percent support synchronous replication.

Organizations all need to pay attention to the fan-in and fan-out options that these products provide. While all support 1:1 replication configurations, only 75 percent of the products support fan-in replication (N:1) and only 71 percent support fan-out replication (1:N). The number of products that support replication across multiple hops drops even further – down to less than 40 percent.

		Response percent
1:1		100%
1:N		71.02%
1:N:N		38.07%
N:1		75%
N:N		36.36%

Source: DCIG; 176 products

Encryption is another feature that has become widely used in recent years as organizations have sought to centralize backup storage in their data centers as well as store data with cloud providers. In support of these initiatives, over 95 percent of the products support AES-256 bit encryption for data at-rest while nearly 80 percent of them support this level of encryption for data in-flight.

Deduplication, encryption, and replication are features that organizations of almost any size almost universally expect to find on any cloud data protection product that they are considering for their environment. Further, as DCIG’s research into these products reveals, they nearly all support these features in some capacity. However, they certainly do not give

organizations the same number of options to deploy and leverage them and it is these differences in the breadth of feature functionality that each product offers that organizations need to be keenly aware of as they make their buying decisions.

The Dell DL4300 Puts the Type of Thrills into Backup and Recovery that Organizations Really Want

Organizations have long wanted to experience the thrills of non-disruptive backups and instant application recoveries. Yet the solutions delivered to date have largely been the exact opposite offering only unwanted backup pain with very few of the types of recovery thrills that organizations truly desire. The new Dell DL4300 Backup and Recovery Appliance successfully takes the pain out of daily backup and puts the right types of thrills into the backup and recovery experience.

Everyone enjoys a thrill now and then. However individuals should want to get their thrills at an amusement park, not when they backup or recover applications or manage the appliance that hosts their software. In cases like these, boring is the goal when it comes to performing backups and/or managing the appliance that hosts the software with the excitement and thrills appropriately reserved for fast, successful application recoveries. This is where the latest [Dell DL4300](#) Backup and Recovery Appliance introduces the right mix of boring and excitement into today's organizations.

Show Off

Being a show off is rarely if ever perceived as a “*good thing*.” However IT staff can now in good conscience show off a bit by demonstrating the DL4300’s value to the business as it quickly backs up and recovers applications without putting business operations at risk. The Dell DL4300 Backup and Recovery Appliance’s AppAssure software provides the following five (5) key features to give them this ability:

- ***Near-continuous backups.*** The Dell DL4300 may perform application backups as frequently as every five (5) minutes for both physical and virtual machines. During the short period of time it takes to complete a backup, it only consumes a minimal amount of system resources – no more than 2 percent. Since the backups occur so quickly, organizations have the flexibility to schedule as many as 288 backups in a 24 hour period which helps to minimize the possibility of data loss so organizations can achieve near-real time recovery point objectives (RPOs).
- ***Near-instantaneous recoveries.*** The Dell DL4300 complements its near-continuous backup functionality by also offering near-instantaneous application recoveries. Its [Live Recovery](#) feature works across both physical and virtual machines and is intended for use in situations where application data is corrupted or becomes unavailable. In those circumstances, Live Recovery can within minutes present data residing on non-system volumes to a physical or virtual machine. The application may then access that data and resume operations until the data is restored and/or available locally.
- ***Virtual Standby.*** The Dell DL4300’s [Virtual Standby](#) feature complements its Live Recovery feature by providing an even higher level of availability and recovery for those physical or virtual machines that

need this level of recovery. To take advantage of this feature, organizations identify production applications that need instant recovery. Once identified, these applications are associated with the up to four (4) virtual machines (VMs) that may be hosted by a Dell DL4300 appliance and which are kept in a “standby” state. While in this state, the Standby VM on the DL4300 is kept updated with changes on the production physical or virtual VM. Then should the production server ever go offline, the standby VM on the Dell DL4300 will promptly come online and take over application operations.

- ***Helps to insure application consistent recoveries.*** Simply being able to bring up a Standby VM on a moment’s notice for some production applications may be insufficient. Some applications such as Microsoft Exchange create check points to ensure it is brought up in an application consistent state. In cases such as these, the DL4300 integrates with applications such as Exchange by regularly performing [mount checks](#) for specific Exchange server recovery points. These mount checks help to guarantee the recoverability of Microsoft Exchange.
- ***Open Cloud [support](#).*** As more organizations keep their backup data on disk in their data center, many still need to retain copies of data offsite without either moving it to tape or needing to set up a secondary site to which to replicate the data. This makes integration with public cloud storage providers to archive retention backup copies an imperative. The Dell DL4300 meets this requirement by providing one of the broadest levels of public cloud storage integration available as it natively integrates with Amazon S3, Microsoft Azure, OpenStack and Rackspace Cloud Block storage.

The Thrill of Having Peace of Mind

The latest Dell DL4300 series goes a long way towards

introducing the type of excitement that organizations really want to experience when they use an integrated backup appliance. It also goes an equally long way toward providing the type of peace of mind that organizations want when implementing a backup appliance or managing it long term.

For instance, the Dell DL4300 gives organization the flexibility to start small and scale as needed in both its Standard and High Capacity models with their capacity on demand license features. The Dell DL4300 Standard comes equipped with 5TB of licensed capacity and a total of 13TB of usable capacity. Similarly, the Dell DL4300 High Capacity ships with 40TB of licensed capacity and 78TB of usable capacity.

Configured in this fashion, DL4300 series minimizes or even eliminates the need for organizations to install additional storage capacity at a later date should its existing, available licensed capacity ever run out of room. If the 5TB threshold is reached on the DL4300 Standard or the 40TB limit is reached on the DL4300 High Capacity, organizations only need to acquire an upgrade license to access and use the pre-installed and existing additional capacity. This takes away the unwanted worry about later upgrades as organizations may easily and non-disruptively add 5TB of additional capacity to the DL4300 Standard or 20TB of additional capacity to the DL4300 High Capacity.

Similarly the DL4300's Rapid Appliance Software Recovery (RASR) removes the shock of being unable to recover the appliance should it fail. RASR improves the reliability and recoverability of the appliance by taking regularly scheduled backups of the appliance. Then should the appliance itself ever experience data corruption or fail, organizations may first do a default restore to the original backup appliance configuration from an internal SD card and then restore from a recent backup to bring the appliance back up-to-date.

The Dell DL4300 Provides the Types of Thrills that Organizations Want

Organizations want the sizzle that today's latest technologies have to offer without the unexpected worries that can too often accompany them. The Dell DL4300 provides this experience. It makes its ongoing management largely a non-issue so organizations may experience the thrills of near-continuous backup and near-instantaneous recovery of data and applications across their physical, virtual and/or cloud infrastructures.

It also delivers the new type of functionality that organizations want to meet their needs now and into the future. Through its native integration with multiple public cloud storage providers and giving organizations the flexibility to use its virtual standby feature for enhanced testing to insure consistent and timely recovery of their data, organizations get the type of thrills that they want and should rightfully expect from a solution such as the Dell DL4300 Backup and Recovery appliance that offers industry-leading self-recovery features and enhanced appliance management.

The Four (4) Behind-the-Scenes Forces that Drive Many of Today's Technology Infrastructure Buying

Decisions

It is almost a given in today's world that for almost any organization to operate at peak efficiency and achieve optimal results that it has to acquire and use multiple forms of technology as part of its business processes. However what is not always so clear is the forces that are at work both insider and outside of the business that drive its technology acquisitions. While by no means a complete list, here are four (4) forces that DCIG often sees at work behind the scenes that influence and drive many of today's technology infrastructure buying decisions.

1. **Keep Everything (All Data).** Many organizations often start with the best of intentions when it comes to reigning in data growth by deleting their aging or unwanted data. Then reality sets as they consider the cost and time associated with managing this data in an optimal manner. At that point, they often find it easier, simpler, less risky and most cost effective to just keeping the data.

New technologies heavily contribute to them arriving at this decision. Data compression and data deduplication minimize or eliminate redundant data. Ever higher capacity hard disk drives (HDDs) facilitate storing more data in the same data center footprint. The combination of these technologies amplify the benefits of the other. Further, with IT staffing levels staying flat or even dropping in many organizations, no one has the time to manage the data or wants to risk deleting data that is later deemed needed.

2. **Virtualize Everything.** An initial motivation for many organizations to virtualize many applications in the data center was to eliminate both capital and operational expenditures. While those reasons persist, organizations now recognize that virtualizing everything

pays many other dividends as well. These include faster applications recoveries; better access to copies of production data; eliminating backup windows; and, new opportunities for testing and developing existing and new applications.

3. ***Instant Recovery.*** Almost all users within organizations expect continuous availability from all of their applications regardless of the tier of application within an organization. However instant recovery is a realistic expectation on the part of most end-users. By virtualizing applications, or using data protection solutions that offer continuous data protection for applications that reside on physical machines, or clustering software, applications that cannot be recovered in seconds or minutes should be in the process of becoming the exception rather than the rule.
4. ***Real Time Analytics and Performance.*** As is evidenced by the prior three points, organizations have more data than ever before at their fingertips and should be able to make better decisions in real time using that data. While this force is still in the early vestiges of becoming a reality, DCIG sees more evidence of this happening all of the time thanks in large part to the growing adoption of open source computing, the use of commodity or inexpensive hardware for mission critical processing and the growing availability of software that can leverage these resources and deliver on these new business requirements.

Technology infrastructure buying decisions are never easy and always have some risk associated with them but if organizations are to remain at peak efficiency and competitive, not having the right technologies is NOT an option. By understanding these seen and unseen forces that are often at work behind the scenes can help organizations better understand and prioritize which technologies they should buy as well as help to quantify the business benefits they should

to expect to see after acquiring them and putting them in place.

A Single Backup Solution for Today's Multiple Backup and Recovery Challenges; Interview with Dell Software's General Manager, Data Protection, Brett Roscoe Part VIII

One of the largest challenges facing enterprises today in respect to backup and recovery is successfully meeting all of the different backup and recovery requirements associated with each application. Physical backups, virtual backups, instant recoveries, application-specific backup requirements and much more make successfully executing upon a comprehensive backup and recovery strategy more difficult than ever before. In this eighth installment of my interview series with Brett Roscoe, General Manager, Data Protection for Dell Software, he shares how Dell has brought together its various data protection products into one backup and disaster recovery suite to make it easier to customers to address these challenges with a single solution.

***Jerome:** Can you discuss this emerging trend in the data protection industry for providers to bundle together different but complementary backup and software together in a single*

product suite. In fact Dell software recently announced the launch of the Dell Backup and Disaster Recovery Suite. Can you talk about this new suite and how it might benefit customers?

Brett: Absolutely. I'm really excited about the suite. It accomplishes quite a few things for our customers. Most importantly, it allows customers to use and leverage all of the Dell data protection IP with one simple licensing model. This is a great story just from a customer perspective, and that's before we even finish all of the exciting integration projects we currently have in development

With the Dell Backup & Disaster Recovery Suite, customers have the freedom to leverage the best tool set for whatever their application is or whatever portions of their environment they want or need to protect. You may have a team that's very focused on virtualization and vRanger is a great fit into that environment. You may have a critical application that you feel like you can have no more than five minutes of down time, in which case, AppAssure can come in and help you build a solution there. You may have traditional, file-based, cross platform protection needs, in which case, NetVault is an outstanding choice. With one license, you get the freedom to mix and match these technologies based on your specific needs. That to me is a great story.

As I look across the industry, I don't know of any vendor that has the broad portfolio capabilities that we do, much less the ability to give customers access to that entire portfolio through a single license.

Not only are we giving you all of the capabilities you need, but we've simplified the purchase by offering a single capacity based license that gives you that broad portfolio capability. You do not have to choose. You do not have to be locked into a certain product. In fact with our portfolio , you can even change your implementation over time without changing your license.

Maybe you start out with a primarily physical environment that has one set of requirements. Then you move to a more virtual or cloud-based environment over time. As your RPO/RT0 requirements shift, you can reconfigure the Dell product set that you're using in order to provide the best fit and value for you changing needs.

There is a lot of flexibility there, but I want to be clear that this is just the start. We have a robust integration road map. We are still doing all the cool things on the development side to make it easy as possible for customers to use all of the IP, but the Dell Backup & Disaster Recovery Suite allows customers to take advantage of all of our capabilities today.

I think the suite is a great value as it can allow a customer to grow up with us. A customer can start as a small business with one portion of a portfolio and grow larger while having access to a more comprehensive portfolio without any disruption or major forklift upgrades.

Jerome: *Sounds like some pretty exciting times for Dell. What's the general morale at Dell in terms of where you are at and where you are going with all this?*

Brett: I'll tell you, I feel very fortunate to be at Dell, and to be involved with our data protection business specifically. I feel like it is just one of the fun areas right now. Data protection has traditionally been seen as a form of insurance, but the landscape in data protection is changing, and customers are using our products in new ways and finding ways to reduce risk, and it is great to be a part of that change.

You are always going to *"have to have it"*, but new features and capabilities can often change the way customers use or leverage our products and free up resources for our customers to invest in other areas.

Also, customers feel like data protection is becoming a more critical part of the environment. They know they got to have

it. But they also see these new capabilities and these changing tool sets, and how they can now show the value of data protection to their customers and management teams, and free up resources to work on other projects. It is fun to see some of the testimonials we get from our customers, how they are using our products, and the cool things they are doing with it.

Personally, I am very bullish about data protection portion at Dell. I love my job and cannot imagine doing anything else right now. We are just having a lot of fun.

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In [Part II](#) of this interview series, Brett and I discussed the imperative to move ahead with next gen backup and recovery tools.

In [Part III](#) of this interview series, Brett and I discussed four (4) best practices that companies should be implementing now to align the new capabilities in next gen backup and recovery tools with internal business processes.

In [Part IV](#) of this interview series, Brett and I discussed the main technologies in which customers are currently expressing the most interest.

In [Part V](#) of this interview series, Brett and I examine whether or not one backup software product can “do it all” from a backup and recovery perspective.

In [Part VI](#) of this interview series, Brett and I discuss Dell’s growing role as a software provider.

In [Part VII](#) of this interview series, Brett provides an in-depth look at Dell’s new Backup and Disaster Recovery Suite.

In [Part IX](#) of this interview series, Brett shares his thoughts as to what he sees as the future of data protection over the next decade.

An In-Depth Look at the Dell Data Protection Portfolio; Interview with Dell Software's General Manager, Data Protection, Brett Roscoe, Part VII

Backup and recovery used to generate as much interest among IT as watching paint dry. But with almost all organizations expecting near-24x7 uptime from all of their applications all of the time and potentially anywhere, that perspective has changed. Agentless backups, disaster recovery and instant recovery features found on backup software have the attention of IT like never before. In this seventh installment of my interview series with Brett Roscoe, General Manager, Data Protection for Dell Software, we take an in-depth look at Dell's data protection portfolio and how it maps to these pressing backup and recovery concerns of IT managers today.

Jerome: You have talked about Dell's growing reputation as a software provider. Please talk about how its data protection products as part of Dell's overall software portfolio and what they formally bring to the market.

Brett: Absolutely. First thing people need to understand is that we are very focused on integration. We are very focused on delivering an experience whereby no matter what product brings you into the family of Dell data protection customers, you will benefit from the IP that we have across the entire

portfolio.

That's a key point. We do not want to keep these products as standalone technologies. We are working very hard to provide the capabilities in each of these products or the advantages and value propositions in each of these products across the portfolio. Having said that, let me quickly talk about where the portfolio came from, and what are all the different pieces of IP that we have developed or acquired, and how they fit together.

The first piece of IP was an [acquisition](#) called Ocarina. Ocarina was a leading deduplication and compression technology company. At the time we acquired them, their big focus was actually in the primary storage market around vertical markets like imaging and video. Their IP is really very high horsepower kind of stuff that works well against any number of data sets.

The fact that we focused this business on backup and recovery really speaks to the need and the real value that deduplication and compression bring to the backup and recovery market.

Ocarina is certainly an area that we are investing in and you are seeing that technology come to market in the form of the DR line of backup and deduplication appliances. You also see it in our NetVault product and will see it in other places in our portfolio as time goes by.

The next one is AppAssure. AppAssure was an [acquisition](#) designed to meet next generation backup and recovery capabilities. It is our application consistent technology that allows customers to have five minute RPOs and RTOs in minutes, leveraging features like virtual standby, live recovery, and change block tracking. It's the kind of technology that really provides that very high performance recovery capability for customers..

The next product is vRanger, which is our leading product for agentless backup of VMware ESX and Microsoft Hyper V. It is designed to meet the needs of the virtualization IT administrator who is very centered around the VMware or Hyper-V environments and management tools.

This individual can really leverage the vRanger product because we have an integrated and focused approach on that ecosystem. We provide agentless backup of VMware and HyperV, we provide plug-ins, and we can work within the VMware and Hyper-V toolset. Our look and feel is very much like the Hyper V and VMware products, so customers who are used to those hypervisor management tools get up and running very quickly with vRanger.

Then there's NetVault. NetVault is our product that, in terms of OS and application support, has the broadest portfolio support of any of our products. It comes from a more traditional backup and recovery product background, but it's one we are heavily investing in order to ensure it evolves to continue meeting the needs of the modern customer... Over time, you'll see NetVault as a great example of Dell leveraging capabilities from other parts of our portfolio to enhance existing offerings for customers.

NetVault has been around for a long time and was part of the Quest [acquisition](#). It continues to be a very popular product among customers who are looking to augment or maybe centralize their data protection environment from multiple Independent Software Vendors (ISVs), where maybe one piece of backup software is supporting one OS and another is supporting another OS. You can consolidate them on NetVault and meet all of your application and OS protection requirements with one tool.

Each of these products was acquired at a different time, but there is a lot of history in terms of how these products came about. Almost all of them came up through startups, from

people thinking about how to be disruptive and create unique capabilities. If you look at our portfolio, I believe we have the youngest, most IP-rich portfolio in the industry. Now we're focusing on integrating and provide as much value as we can to customers. But you can't integrate great technologies unless you have great technologies to begin with, so I'm very excited that we have these tools in our toolset in order to make that initiative successful.

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Virtual Standby, Instant Recovery and the Aha! Moment; Interview with Dell Software's General Manager, Data Protection, Brett Roscoe Part IV

There is a magic moment associated with the sales process of almost any technology where the individual looking to make an acquisition has an "Aha!" moment, indicating they grasp the value of the technology and how it can help them move their business forward. In this fourth installment of my interview series with Dell Software's General Manager, Data Protection, Brett Roscoe, we discuss how the virtual standby feature in the Dell DL integrated recovery appliances often leads to this "Aha!" moment.

***Jerome:** As an analyst I hear a lot about different new technologies in the backup and recovery space, whether it's virtual server backup, public storage cloud providers, cloud based recovery, and virtual appliances. Yet sometimes it is difficult to tell which new technologies just get a lot of press and which ones do customers really have a high level of interest in? What are you seeing in the field when you talk to people?*

***Brett:** That's a great question. Cloud is one of those that everybody talks about and, depending on who you are talking to, is something that everybody defines differently.. But there is certainly a high enough degree of interest in being competitive in terms of cost, capabilities and performance to where cloud makes sense in certain situations. I'm especially*

seeing a lot of smaller companies do a complete SaaS-based model, where they are using the cloud almost entirely for their IT infrastructure. There is a lot of interest there, and there are probably a lot of customers who are just trying to figure out how to make the cloud work.

Additionally, one of the new technologies that we really push in our product set is this idea of virtual standby. This is a real use case scenario versus just talking about technology or where you put your data. Let's talk about how the technology can benefit you from a use case perspective.

Virtual standby is this idea that I can have a virtual application that is a snapshot of, for example, your Exchange environment. Up to every 5 minutes or so, you can take a snapshot of your Exchange environment, and you can actually stand up any of those snapshots and run it in a VM and point your clients and customers to that application.. In this way, you can have that standby ready to run in the case of a primary Exchange database outage, or a scheduled maintenance, or some incident that would bring your primary site down.

That is not something that people typically think of backup being able to do, but it's something we are doing today for many companies We talk about how to do that both on site, leveraging your current infrastructure, your Dell data protection infrastructure, or in a cloud, where you can stand up a virtual machine in a cloud and have your Exchange instance that we just talked about running in the cloud and still servicing your customers while you are working on your primary data center. That is a really cool use case where new technology actually does provide a benefit to you the customer.

That's one area. We talk a lot about that because virtual standby can be more than a recovery tool, it can also be a solution where you can stand up the application and do data mining, data analytics, and all kinds of actions, against that

snapshot. It is basically a fully functioning version of your application.

That is one of the features I get really excited about and often talk about with customers. I see a lot of lights go on when we talk about this. Now, all of a sudden, they see this as not just backup and recovery, they see this is as something that provides some much of the functionality that many high availability tools today provide, and does so in a much more cost effective manner.”

Another area that seems to get a lot of traction with our customers is our appliance business. Our DR and DL appliances allow customers to quickly and easily set up and run data protection within their infrastructure. The DR is our target based appliance. You can basically use it as a centralized repository for all of your backup data, no matter which backup software you are using.

It does not have to be Dell’s software. It can be any backup software. It has a high performance deduplication and compression engine. Our high-end system runs up to 22 TB an hour and really provides a highly scalable way for customers to go address all their backup needs in terms of managing that back end infrastructure.

Our [DL appliance](#) is an integrated appliance and runs our [AppAssure](#) software right on the appliance. When I talked about that virtual standby capability, the DL appliance becomes more than a place where you back up and store your data. It is actually be a virtual standby server for your environment.

Let’s talk about the Exchange example we discussed earlier. We had Exchange running and we have all these Exchange snapshots. I can actually have the DL AppAssure appliance running that virtual Exchange environment. Should I have an outage on my primary Exchange, I can use that backup appliance as my Exchange server. Having a backup appliance provide this option

is feature functionality that customers once again do not expect.

Combining our appliance model with some of these leading virtualization recovery tools that we have within the portfolio are places where we see a lot of customers experience a kind of “Aha!” moment, where they now see how this benefits their environment.

***Jerome:** So when they have this “Aha!” moment, is it “Aha! I want to have another PowerPoint presentation?” Or is it, “Aha! I want to talk with you further about it?” Or is it, “Aha, let’s move forward with this and get a project going?” Can you define the Aha! moment?*

Brett: Usually once customers see the benefit – I would say the primary reason customers buy into the Dell portfolio, especially the [AppAssure](#) portfolio, is for that virtual standby, for that live recovery capability. When I have that conversation with them, once they understand that value, that ability to really shorten the time between failure and having the application running, they usually want to move forward in some capacity. They ask Dell to help them build an architecture, , or show them a reference architecture, or show them how they can build this in their environment.

For some customers that is as simple as buying a single [DL appliance](#). This is very cost effective. Like I said, 30 minutes to get set up and running in their environment. We see a lot of customers turn very quickly once they understand that value proposition. In fact, the ratios of customers that move from a demonstration of the product to actually buying the product is one of the highest in the company. It is an extremely successful use case, as the technology provides a value proposition that customers clearly understand.

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In [Part VII](#) of this interview series, Brett provides an in-depth explanation of Dell’s data protection portfolio.

In [Part VIII](#) of this interview series, Brett and I discuss the trend of vendors bundling different but complementary data protection products together in a single product suite.

Four Best Practices for Implementing Next Gen Backup and Recovery; Interview with Dell Software’s General Manager, Data Protection, Brett Roscoe, Part III

There are so many options available in today’s next generation of backup and recovery tools that sometimes it can be tough to

prioritize which features to implement. In this third installment of my interview series with Dell Software's General Manager, Data Protection, Brett Roscoe, we discuss four (4) best practices that organizations should prioritize as they implement next generation backup and recovery tools.

Jerome: There are now a number of technologies available to provide faster (RTOs, such as snapshots, for example. As these technologies have been introduced into new backup and recovery processes over the last decade, and even more so in the last few years, what do you consider the best practices that companies should be internally implementing to align these new backup and recovery capabilities with their internal business processes?

Brett: I am going to give you four. **Number one is to leverage high-performance, snapshot-based solutions.** I am a big believer that if you are protecting applications, you need to look at application-aware, application-consistent snapshot tools to do that. If you are looking at VMware or Hyper-V, then you need to use agentless tools that work in coordination with the tools that are native to those environments to provide the kind of hypervisor level protection you need and minimize your disruption in those environments.

At Dell, we're focused on giving customers the ability to use block-based snapshot technology that provides a high-performance way to capture data.. Using block-based technology, once I capture the first image, I am only looking for changes that happen at the block level.

An average change rate might be 10 percent a day. That means only 10 percent of the data that I backed up since yesterday is going to be captured for today. I keep everything consistent. I have full snapshots from which to create recovery points. But I only have to move the data or manage the amount of data that is actually changing. That is the first thing that really drives efficiency in the environment.

The second best practice is to make recovery the primary goal. Backup is not the goal. An unrestored backup never helped anybody. Instead, you want to look at how capable you are of meeting your service level objectives (SLAs), and whether you have the RPO/RT0 capabilities do so.

Today, we can move workloads to a point in time backup of an application, and allow any users to be up and running utilizing the last good snapshot of data. Or they can pick a point in time that they know they have good data, and recover a historical data point that may have been accidentally deleted or corrupted in some way.

This gives you the granular capability to choose between a full image level or a granular recovery point, or five minutes ago versus two days ago. This really eliminates the traditional need to do a full, bare metal, OS application recovery in order to just access a single piece of data.

Historically, with some traditional backup applications, you would take a full backup, then mount that full backup somewhere, and then pick through it to find the piece of data you want. But with a snapshot architecture, because our snapshots are application aware, you can go back to any point in time and stand up that snapshot as a virtual machine in any environment. This allows you to run your backup as a fully functional application in a virtual environment both on and off premises during any failure or scheduled downtime.

Recovery becomes the primary goal. You want to look at what the recovery time objective (RT0) is and what your recovery point objective (RPO) is. Dell allows you to have very fast RT0s (minutes) and very high RPOs (down to 5 minutes) to make sure you can be up and running with up to date copies of your primary data. Additionally, you can verify your backups by running our native verification tools or running your own recovery tests to test your ability to recover from a disaster. Many organizations often overlook this vital step.

The third best practice is utilizing deduplication and compression technologies. We have come a long way in deduplication and compression. These are no longer new technologies. There are very few vendors out there who do not offer some kind of deduplication and compression. They are very reliable and hardened technologies that, at this point, customers should be taking advantage of.

When I talked a little bit about the way we track blocks and only backup unique blocks, not only do we do that on the application, but then we go compare those blocks to any other blocks in the environment from any other application or any other server. We thereby reduce and eliminate almost any redundant data across the organization, making it really space efficient for the customer.

This will save you on your storage costs, your network costs, and your infrastructure costs. We get compression ratios up to 20x. As you can imagine, if I am not moving that data over the network, if I am not having to store that in some back end disk system, the savings becomes quite significant.

The last best practice I will talk about is the cloud. You want a solution that can then help you take advantage of the cloud. Whether that's a private cloud or a public cloud, you want to figure out a way to use that.

For our managed service provider (MSP) customers, they want a way to set up their customers to utilize their back end IT infrastructure and maybe have a local caching capability in their environment. If you are just an end user customer, then you want to figure out how to use a cloud in a hybrid kind of fashion.

In other words, how do I have some of my data on site, but the rest in the cloud? Maybe that's the bulk of my data, or maybe its data that I want to retain in another location without having to pay for a colocation. If I don't want to pay for a

secondary site, how do I utilize the cloud to either replicate or move data off site over time as a tertiary kind of storage place for me that's very cost effective? Once again, going back to that OPEX versus CAPEX equation.

Those are the four areas that customers should really look at in terms of the next generation backup solution, and the best practices around how to implement them.

In [Part I](#) of this interview series, Brett and I discussed the biggest backup and recovery challenges that organizations face today.

In [Part II](#) of this interview series, Brett and I discussed the imperative to move ahead with next gen backup and recovery tools.

In [Part IV](#) of this interview series, Brett and I will discuss the main technologies in which customers are currently expressing the most interest.

In [Part V](#) of this interview series, Brett and I examine whether or not one backup software product can "do it all" from a backup and recovery perspective.

In [Part VI](#) of this interview series, Brett and I discuss Dell's growing role as a software provider.

In [Part VII](#) of this interview series, Brett provides an in-depth explanation of Dell's data protection portfolio.

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Quest Software Lays Out Its Future Plans for vRanger and NetVault Backup; Interview with Quest Software Sr VP Walter Angerer Part V

In the last few years, Quest Software has acquired a number of companies in the data protection space – most notably Vizioncore, with its vRanger product, and BakBone Software, with its NetVault line of products. However, these acquisitions raise questions like: “Where is Quest Software going with these different products lines?”; “What will they look like?”; and, “What level of integration does Quest plan to deliver?” In the final part of my interview series with Quest’s Senior VP of Data Protection, Walter Angerer, he answers the questions that are on the minds of many.

Jerome: *Backup as we know it today – fulls, incrementals, differentials – may never go completely away, but that approach is arguably on the decline, and transforming into a CDP or snapshot-like environment. Do you also see that occurring, and, if so, what are the implications for backup providers and people who use backup software?*

Walter: The CDP or snapshot approach that keeps track of changed blocks will likely be the way backups are done going forward. At the very least, it will play a much more dominant role, especially given the amount of data being created in the form of ever larger data sets and powerful databases.

That’s going to force us to become even more efficient with our data protection solutions, and I believe this will give CDP a bit of second life. So, we definitely expect to see more

utilization of CDP technology as backup continues to evolve to account for rapid data growth.

In terms of snapshots and alternative backup approaches, it's going to be interesting to see how things play out. We've seen a lot of adoption of array-based snapshot technology in the last 2 – 3 years, but one of the drawbacks with this approach is that while it works well with physical and virtual servers, we're not sure how well it will integrate with cloud environments. As more organizations create heterogeneous environments and move to public, private and hybrid cloud configurations, it's not yet entirely clear how array-based snapshot methodologies will fit.

Jerome: *Let's turn our attention to [Quest Software](#) and how it is evolving. It has made a number of acquisitions over the last few years – [Vizioncore](#) a few years ago and [BakBone Software](#) about a year ago – giving it a robust portfolio of backup software. Can you tell us what is occurring with these lines?*

Walter: We have focused our data protection business on three core areas, namely application recovery, ease of use, and performance. We talked [earlier](#) about how the challenge of having one good copy of data has been largely resolved, so we're really focusing on the restore side of the equation.

Let's start with the idea of application recovery. One of the interesting things about Quest is that while legacy vendors have long been focused on building traditional backup software, ***Quest's portfolio has been built around core technologies designed to enable rapid recovery of critical applications.***

As such, the main focus for us in 2011 was to find ways to take advantage these core Quest backup technologies and start integrating them and bringing them more broadly into the data protection portfolio, in order to enhance the protection

capabilities of both [vRanger](#) and [NetVault Backup](#). We want to make application recoveries much simpler and easier for users to execute.

In addition to application recovery, ease of use has been another major area of focus for us. A big problem with data protection today is how complicated backup products have become. If you look at most truly heterogeneous, enterprise backup products, most of them are complex systems that are challenging to install, configure, and get up and running.

At Quest, we have focused on making our backup software much easier to setup and run. Quest vRanger has long been a much easier product to use than most competitive products, and that's something we continue to build on. In addition, we believe NetVault Backup is the only truly heterogeneous, enterprise-class backup solution that you can download directly from a vendor's website, install yourself and start operating.

But that's really just one component of what we consider ease of use. If a product is truly easy to use, it needs to be current in its application support. It has to provide up-to-date support for the latest versions of VMware vSphere, Oracle databases, and other applications in use by customers in production environments. If a product is not up to date with the applications that companies are protecting, then customers have to find other products to protect those environments, and that just makes backup all the more complicated.

So, we're really focused on making sure we stay up-to-date with all the levels of support customers need. Specifically, we want to make sure we are always first to market with new features that can fully support VMware and all of its new capabilities. To that end, Quest adapted an agile development process in 2011 for vRanger. That resulted in Quest shipping four releases of vRanger in 2011, and it's why we're still one of the only vendors to have achieved logo-ready status for

VMware vSphere 5.

Even with all the new competition that has entered the VMware backup space, vRanger is still the fastest and easiest way to protect a virtual environment. We have done a lot of work and spent a great deal of time enhancing performance of backups and recoveries in virtual environments, and that shows up in vRanger's performance. In addition, we have also integrated vRanger with our [NetVault SmartDisk](#) technology, so virtualized environments can realize the benefits of true enterprise-class deduplication.

Jerome: *Can you provide me some examples as to what you are doing in NAS and integration with NAS arrays?*

Walter: NetVault has traditionally been a leading product in the NAS space with its NDMP capabilities. NDMP is the best way to protect NAS environments, so what we have done is enable customers to conduct block-level incremental backups using NDMP. That becomes a huge performance differentiator when protecting NAS.

Jerome: *At what point should companies using both NetVault and vRanger consolidate into one product, or should they continue using both?*

Walter: That is a very good question. Most of the time, Quest's customers are happy using both, and both products have proven attractive at both ends of the SMB/enterprise spectrum. This might surprise people, but we see many SMB-centric customers – customers with requirements to protect both physical and virtual environments – gravitating towards NetVault Backup. Conversely, we have enterprise customers with extremely large environments who choose to use vRanger for their virtual protection needs.

Down the road, it could well be that as Quest keeps enhancing NetVault's virtual backup capabilities, customers consolidate

on one product. But again, it really varies based on the specific need of the customer.

Jerome: *So it sounds like Quest will keep both backup software products for the foreseeable future, but may create a “manager of managers” to manage both products from a single console?*

Walter: ***We definitely plan to keep both products around.** Companies can buy both products with full confidence that we will continue to develop, enhance and support them to the fullest extent. Neither product will be disappearing in any way, shape, or form. **There is, however, a plan to create a “manager of managers” console that will encompass not only vRanger and NetVault Backup, but all of Quest’s data protection technologies.** We should be making a formal announcement about this new technology very soon. It’s one we think is really going to shake up the market.*

In [Part I](#) of this interview series Walter and I discuss how backup is changing and examine the quantum leaps forward that have occurred in how backup and recovery are done.

In [Part II](#) of this interview series, Walter and I will explore how backup software needs to evolve to address new requirements to manage recovery as well as the new challenges that Big Data is placing on data protection and recovery.

In [Part III](#) of this interview series, we look at how backup software is evolving in

light of the new challenges that server virtualization creates, in order to become smarter, more agile and do a lot more than backup.

In [Part IV](#) of this interview series, we explore whether or not virtualization only backup software solutions can survive long term.

Two Cool Technologies at Spring SNW 2011 That May Get Hot Later This Year

Having come out of the data center and spent many years now as an analyst, it is difficult for me to get overly excited about any new storage technologies that I see at Storage Networking World (SNW.) While these technologies are most certainly “cool,” in the stoic world of storage the odds of them going “hot” are often slim. But at this [Spring 2011 SNW](#), the Nimbus Data Systems S-class and HP Data Protector Instant Recovery look to have above average chances of breaking through.

Cool Technology #1 –

[Nimbus Data Systems S-class Flash Storage System](#)

This was probably the coolest up-and-coming technology that I saw exhibited at SNW. However what made the [S-class](#) so interesting from my perspective had less do with the fact that it was entirely comprised of flash, that it was a scale-out NAS storage system or even that it was recently [proclaimed](#) the “Product of the Year” by Storage magazine and SearchStorage.com.

Rather the two features that caught my attention about the S-class were its **price point** and its ability to **guarantee write performance** (as I understood it) over a five year period.

In talking to its CEO and Founder, Thomas Z Isakovich, at SNW he essentially built the system and paid for it himself from the ground up with little or no outside funding over the last five years. The outcome of his efforts is the S-class's [HALO](#) Operating System that enables it to deliver a flash based memory system at a starting price of around \$25,000.

Nimbus does this by assembling the raw NAND chips itself which eliminates its reliance upon third party providers of drives such as Pliant or STEC. Further, it appears to have good momentum for a company having only come out of stealth mode 6 months ago as it has already shipped over 200 systems and has a notable [customer base](#).

Apparently the S-class's combination of a low price, high performance, density and efficient use of power is making customers in Asia and Europe big fans of this product. However in the same breath one can also see **why Nimbus has little or no presence in the US**.

There are **no customer case studies** on its website **that validate its use in their environments, in-depth technical information about its product is sparse** and it **does not apparently even have a US sales force**. However assuming it can deliver this collateral and beef up its presence in the field, I cannot see any reason why one will not be hearing a lot more about Nimbus in the coming year.

Hot Technology #2 – [HP Data Protector Instant Recovery](#)

HP Data Protector invokes the same reaction in me when I talked about the city of Omaha, NE, years ago. At that time I was being recruited to take a position at a company in Omaha and the recruiter noticed some hesitancy in me about my

willingness to move to Omaha so she asked me what my opinion was Omaha. I candidly replied, "I have no opinion about Omaha because I don't know that much about it."

My sentiments about HP Data Protector prior to my meeting with the HP team this past Wednesday closely mirrored how I felt about Omaha over a decade ago. HP Data Protector pops up from time to time in conversations and it always scores well in DCIG Buyer's Guides that cover backup software but I still never really had a strong opinion one way or the other on HP Data Protector itself.

That opinion changed for the better this week after learning more about its Instant Recovery snapshot feature in HP Data Protector 6.2. What made this feature interesting is not that it works with HP's Zero Downtime Backup feature and does snapshots with arrays across the HP StorageWorks portfolio (HP 3PAR, HP P4000, HP EVA, HP P9000/XP) as well as EMC CLARiiON and NetApp arrays. Rather what caught my attention was how similar Instant Recovery is to a database recovery technique known as journaling.

Normally when snapshots are taken, any changes to that data (adds, changes, deletions, updates) after the snapshot are taken may minimally be difficult to recreate and, in a worst case scenario, lost as the company can only restore the snapshot of the original data. This has been an issue in database environments for years so to work around that database protection tools have journaled all of the changes to the database. Now in the event that a database gets corrupted, the snapshot is first restored and then the changes that are in the journal are replayed to the appropriate point in time to minimize database data loss.

So what HP Data Protector has done is borrow that concept from the database environment and applies that to backup. Now when this feature is turned on, after snapshots are taken on any of the underlying HP storage systems or any of the other storage

systems that HP Data Protector supports, all changes to the application data are recorded by HP Data Protector's Instant Recovery feature so that application recoveries can not only occur much more quickly but much closer to the point in time when an outage occurs.

Sounds great, right? But there are two barriers to the acceptance of this feature specifically and HP Data Protector in general gaining momentum in the market. First, **this feature has been available in InMage Systems Scout for years** which is known inside the industry to work extremely well and is already used by managed service providers like [vBC Cloud](#) as part of their backup offering. So problem #1: **Instant Recovery has no such reputation or even any evidence on its website that I could find to back up its claims that it works as promised.**

Another problem that HP Data Protector suffers from is a perception problem. Even though it is widely used in HP accounts, its use in heterogeneous or non-HP environments is rarely seen as a viable option. Further, the fact that **Veeam was exhibiting in HP's booth at SNW only adds to Data Protector's credibility problems as being an appropriate solution for non-HP environments.**

So until HP overcomes this perception of being a product intended for use in only HP accounts, it is essentially conceding the heterogeneous backup market to companies like CommVault, EMC and Symantec. Further, [InMage](#) is almost in a better position to succeed than HP long term with this type of functionality since it (InMage) can be scooped up and incorporated into the product lines of any of these other products.

So there you have it, two "cool" technologies as the Spring SNW 2011 that have a real chance of becoming "hot" in 2011. However both need to overcome significant obstacles and customer objections to go from being "cool" to becoming "hot"

where it matters most – in the accounts of paying customers.

FalconStor Regroups, Refocuses under New CEO McNeil

To say that FalconStor has had some struggles over the past few weeks would probably be a bit of an understatement. Any time that a company's CEO abruptly [resigns](#) with "certain improper payments" cited as the reason for his departure, it can leave a company floundering and seeking direction. However having had an opportunity to chat with FalconStor's new CEO, Jim McNeil, at SNW over dinner this past week, he is already helping [FalconStor](#) move past the CEO's departure and regroup and refocus under his leadership.

I did speak to McNeil briefly about Huai's departure and while he could not and did not comment excessively on it, he did say that he was looking forward to all of the facts coming out about it. As many of the details cannot yet be disclosed, speculation is running rampant as to what did occur which is only adding fuel to the fire. However he expressed confidence that once FalconStor is in a position to share all of the details that it will not be nearly as bad as many are making the situation out to be.

We then turned our attention to the question, "Where does FalconStor go from here?" Despite only being on the job a couple of weeks, McNeil already had some pretty good answers. Prior to being named CEO, McNeil had joined FalconStor as its Chief Strategy Officer so in this respect he enters the CEO position with some clarity on where he wants to take

FalconStor.

To that end he wants FalconStor to be ***laser focused on data protection***. That has been FalconStor's sweet spot since its inception and it already offers a number of software products that support that initiative including Continuous Data Protector ([CDP](#)), File-interface Deduplication System ([FDS](#)) and Virtual Tape Library ([VTL](#)). Further, it has relationships with many storage providers to OEM these products.

Yet because FalconStor is a software company and uses the same virtualization engine underneath the covers to deliver all of these products, it has developed a reputation of being a "jack of all trades, master of none."

By this I mean if an end user does a side-by-side comparison of FalconStor with almost any competitive product in the market, FalconStor can fill in all of the checkboxes and say it can deliver that functionality in almost all areas. But because FalconStor can be adapted to do almost anything, sometimes it is difficult to point to one thing for which FalconStor has developed a reputation for being the "go-to" provider for a specific solution.

To that end, either he took my point to heart or other people have also made that comment to him as McNeil posted a [blog entry](#) on FalconStor's website yesterday. In it, he enumerated three ways in which how the current backup process is currently broken and how ***he plans to take FalconStor down a path of what he refers to as "service-oriented data protection" or SODP.***

In it, he borrows some of the terminology that it is already appearing in the industry regarding the concept of "vBlocks" as it applies to building virtual storage infrastructures and applies that to backup. This redefines the concept of backup from being more reactionary as it is today to one that makes backup part of the initial as well as the ongoing build out of

the virtual infrastructure at a service level.

He says, "We can begin to implement data backup, retention and archival rules on a service-by-service basis. Were you ever asked if your DR solution was commensurate with your SLA? Now you can not only answer the question but also deliver the goods. In summary, a little perspective can go a long way. By thinking about the solution in the same way that our customers think about their service-delivery challenges, we are one step closer to delivering an operational model that fits in with the bigger picture."

As part of "delivering an operational model that fits in with the bigger picture", I also asked McNeil about what he plans to do to make it easier to deploy FalconStor's software. One of the criticisms of FalconStor in the past has been that it can be difficult to configure and that it often requires professionals with high levels of skill to implement it.

McNeil responded by saying that FalconStor has already taken a couple of steps in that direction to address those concerns. First, it does offer its software in the form of an appliance so the software comes preconfigured. This eliminates or at least minimizes the need for a professional services engagement to configure the software and set it up in a user's environment.

However he went on to stress that FalconStor still plans to remain a software company and play in enterprise environments. So while it can and should take some steps to make the installation of its storage software on any hardware platform more of a turnkey experience, it is always going to have the flexibility for users to configure it for optimal use in their environment.

So to say that FalconStor is out of the woods and turned the corner with McNeil at the helm is probably premature. But it appears to me that he has a good grasp of the challenges that

FalconStor faces and what steps he needs to take to correct them. Hopefully he will be given the chance to execute on them and have the “interim” label taken out of his title.

Physical or Virtual – R1Soft has Hosting.com Covered

This has been a bit of a quiet week in terms of blog entries on the DCIG website but I did not want to leave everyone hanging on the Friday before going into the Memorial Day weekend. So for this week’s recap blog I opted to reflect on a conversation that I had with Hosting.com’s Backup Operations Manager a few weeks ago. In that conversation, he provided some interesting perspectives in terms of how [Hosting.com](#) is using [R1Soft](#) in its environment.

The individual I spoke to was Cliff Pankonien, Hosting.com’s Backup Operations Manager. Pankonien and his team are responsible for protecting all of Hosting.com’s client data and use R1Soft’s Continuous Data Protection ([CDP](#)) Enterprise Edition on both its Linux and Windows servers.

To do the backups, the R1Soft CDP software takes daily snapshots of each application server and then copies the data contained in that snapshot to an R1Soft CDP Server. Each R1Soft CDP Server in his environment is either a 2U [SuperMicro 6025](#) or [6026](#) with a 3WARE 9650 8-port disk drive bay. Each bay has two 80GB drives in a RAID 1 configuration for the CDP Server operating system and six 2 TB 5400K RPM drives in a RAID 10 configuration that are used for storing backup data which gives each CDP server 5.4 TBs of useable space.

One of the major reasons that Hosting.com chose R1Soft CDP

Enterprise Edition was that it needed to complete backups successfully regardless of the type of environment that Hosting.com needed to protect, physical or virtual.

Hosting.com nightly achieves a 99% or greater backup success rate on both its physical and virtual machines using R1Soft.

Even among those few servers that do have errors, rarely is Pankonien able to attribute any of these problems to R1Soft.

Rather he finds that errors are due to factors outside of R1Soft's control such as problems with Microsoft's Volume Shadow Copy (VSS) or Hosting.com clients accessing their application servers during backup periods and performing such tasks as rebooting them or changing administrative passwords.

These errors are typically detected by members of his team when they arrive to work in the morning. At that time, his team simply re-runs the backup job which fixes the problem.

Pankonien cites R1Soft's scalability as one of its most desirable features. Hosting.com went from an initial implementation of two Control Servers and less than 30 CDP Servers to seven Control Servers with over 100 CDP Servers across its three data centers.

He says, "As Hosting.com continues to grow, we build another Control Server and start putting CDP servers under its management. Once the Control Server is managing 15 CDP Servers (which is what R1Soft recommends), we simply build another Control Server and continue scaling out. We can continue in this manner regardless if we are protecting virtual or physical application servers."

A single CDP Server can typically protect about 70 to 125 application servers regardless if the application resides on a physical or virtual server. However ***Pankonien finds that the amount of internal storage that a single CDP server needs drops substantially when the application servers to be protected are virtualized.***

He found that he needed to change the configuration of the CDP Servers that are used to protect VMs. When he started doing VMware backups, he built these CDP Servers like the others that had 5.4 TBs of available storage capacity.

The problem was that the sizes of the VM backups were so small that a single CDP Server theoretically had enough storage capacity to backup 190 VMs. However there were so many VMs to backup that the CDP Server could not complete all of the backups in 24 hours.

Now he configures new CDP Servers intended for VM backups to have only two 2 TB disk drives in a RAID 1 configuration with 1.9 TBs of available storage capacity. This is sufficient capacity for a CDP Server to backup about 100 VMs while enabling Hosting.com to lower the storage costs associated with building each CDP Server.

So what I found most insightful about Hosting.com's implementation of R1Soft is how it is using a lesser known data protection solution in an enterprise environment that has thousands of both physical and virtual servers with great success. Pankonien finds that R1Soft CDP is scaling just fine and able to keep up with its backup demands in both his physical and virtual environments.

That's it for this week. I realize this was a relatively low key blog entry as I head into the Memorial Day weekend but hopefully you found it informative.

Be sure to stop by next week because even though not many blog entries posted this week on DCIG's website, I was busy at the keyboard getting up a bunch ready for next week.

Have a safe and happy Memorial Day Weekend!

Underserved Media and Entertainment Industries Find New Source for Enterprise Data Protection

As 2009 approaches, the traditional benchmarks for enterprise backup software such as the management of physical tape libraries, support for multiple operating systems and SAN backups are yesterday's news. Instead support for backup to disk, continuous data protection (CDP), protection for laptops and desktops and a common repository where protected data is stored, deduplicated and available for rapid access and search is how enterprise data protection software is now defined and measured. Yet even when one factors in these new benchmarks for enterprise data protection, how products such as [Atempo Time Navigator](#) play in this rapidly evolving space, and in which verticals they best play, are less than intuitive to the untrained eye.

Over the last couple of years Atempo [Time Navigator](#) has taken some notable steps to optimize its existing portfolio of products as well as capitalize on features originally built into it to benefit companies in the following ways:

- **Centralize laptop and desktop protection under Time Navigator's management console.** A little over two years ago Atempo [acquired](#) Storactive for its [Live Backup](#) software that provides desktop and laptop data protection though they still operated as two separate products for the majority of this time. Now Atempo has completed Live Backup's integration with Time

Navigator. Integration these two products allows for the data backed up by Live Backup to be indexed by Time Navigator so companies can centrally index, manage, search and restore desktop and laptop data along with enterprise server data protected under the umbrella of the Time Navigator management console.

- **Mitigate the need to procure purpose-built VTLs.** In the last few years disk has become a bigger component of more enterprise data protection schemes for two obvious reasons – backups and restores complete successfully and in less time. However companies often need to purchase virtual tape libraries (VTLs) that act as storage devices. Using Atempo Time Navigator, companies can avoid the need to purchase a purpose-built VTL by using the VTL feature found [natively](#) in Time Navigator that can then manage existing or new disk storage systems as a VTL
- **Better capabilities to archive and manage data across the entire organization.** Hierarchical storage management (HSM) is part of Time Navigator's foundation but as Atempo brought Live Backup under its fold, it extended Time Navigator's HSM capabilities out to desktops and laptops so they the same benefits of storage management and data retention are extended to them as to enterprise servers. To facilitate this, Atempo earlier this year [introduced](#) its [Digital Archive](#) feature that added policy based archiving, file deduplication and search capabilities to its HSM offering. Further, it created new alliances with [Permabit](#) and [Nexsan](#) so companies have appropriate storage options for the storage and growth of their archived data stores.

Yet these features alone do not really separate Atempo from the data protection crowd and, frankly, some of these were overdue on Atempo's part if it expected to remain competitive in the enterprise data protection space. The more interesting developments in terms of what Atempo is up to has to do with its increasing focus on support for the media and

entertainment industries.

The media and entertainment industries are traditionally heavy users of the Macintosh operating system and these companies have the same data protection and archiving needs as other enterprise organizations. The main difference is they can not readily turn to more well-known enterprise data protection vendors because they have a unique problem: they need for enterprise data protection and archiving software that supports the Mac. That is where Atempo enters the scene. Atempo Time Navigator 4.2 coupled with Atempo's recent Digital Archive (ADA) for Mac [announcement](#) now provides these companies access to the same functionality and features that other companies with Windows and UNIX servers have had access to for some time.

Growing and competing in the enterprise data protection space is a tough business as there are few, if any, green fields left in the enterprise data protection space. However what makes Atempo's recent move into the media and entertainment industry and its expanded support of Mac interesting in the short term is that Atempo is still identifying some doors of opportunity that their competitors are failing to fill. Longer term this merits watching because other companies such as [Omneon](#) are reporting increasing success in selling video storage systems into Fortune 500 companies. As these size companies take video and entertainment development and production in-house, they will need the appropriate products to protect that data. As that occurs, don't be surprised to find Atempo finding new doors and opportunities open in the process.

Low Cost Linux/Windows Continuous Data Protection Solution Emerges

Continuous data protection has long been a staple for [R1Soft](#) on the Linux platform. With 90,000 to 95,000 servers protected by R1Soft's continuous data protection ([CDP](#)) product for Linux, one can only wonder how their recent release of CDP for the Windows platform will prevail. It was my pleasure to speak with David Wartell, VP and Founder of R1Soft about this new offering, what it entails, and how it will affect future Windows backups.

Let me say straight out of the gate that being able to offer R1Soft's CDP solution to support a heterogeneous environment of Windows and various flavors of Linux will surely add to the impact R1Soft can have in the backup space. This is a clear differentiator when compared to other CDP solutions as many others primarily only support Windows.

R1Soft's new [CDP product for Windows](#) is what can be best described as a near-continuous high-performance block level backup that involves taking a point in time snapshot. In Windows it is done with Volume Shadow ([VSS](#)) copy, and then uses a near-continuous method to compute the deltas for changes in between backup windows.

When compared with the industry, R1Soft can be thought of running with the near continuous crowd of products like Symantic's [Backup Exec 10d](#) with the CDP option or [Microsoft's DPM](#). But there are significant differences between R1Soft and other [near-continuous solutions](#). Other near-continuous recovery solutions:

- Use an API in Windows called [volume shadow copies for shared folders](#) that work at the file system level and

- impose a hard limit of 256 recovery points
- Rely on a schedule when doing a full backup (like once a day) and protect a set of files, databases, or other important data on an hourly basis

Not so with R1Soft. Instead R1Soft's CDP near-continuous solution is a bit more complex in that it works at the block level instead of the file level. The secret sauce is its special device driver that tracks changes at the block device as they occur. When synchronizations are done, R1Soft's CDP solution recognizes the delta changes at the block level, reads those blocks and sends those blocks to be backed up to complete the block level synchronization.

Block level near-continuous scales efficiently and according to how fast changes are happening so the server's performance (number of I/Os) and capacity (how many files there are) is less important. Synchronization can occur as frequently as every 15 minutes for an entire server, requires no additional hardware, supports 32- and 64-bit Windows servers, offers thousands of recovery points and installs in about 15 minutes.

By implementation near-continuous CDP at the block level rather than the file level also enables R1Soft to support true [bare-metal restore](#) capabilities as part the solution. With R1Soft's bare-metal restores, users no longer need to first re-install the Windows operating system. Supplied with a bootable Linux Live CD ISO image and without the aid of pre-execution or remote installation services, users can simply insert a CD and then select a point-in-time virtual full backup to restore from. This differs from other vendors that are tied to a Windows pre-execution environment or Windows remote installation services and which require more skilled administrators to wade through the complicated restore process.

So far the biggest demand for R1Soft's CDP solution has been in the under-served Linux and MySQL market. R1Soft's Wartell

tells me that after a customer finds out about the Linux and MySQL solution they immediately want it on Windows servers too. Much of the adoption of R1Soft on the Linux and MySQL platforms has resulted because of an inability for other vendors to step up to the plate.

Just as those same vendors have relied upon Microsoft VSS for their backup solutions, they are waiting on MySQL to produce an API they can hook into. Having solved the MySQL on Linux problem, R1Soft is now turning to the [SQL Server](#) on Windows platform. Calling on another business unit ([Idera](#)) of their parent company [BBS Technologies](#) R1Soft will soon have a complete CDP solution for SQL Server.

The rapid adoption and supplying a CDP solution for heterogeneous environments makes R1Soft's CDP solution a nice fit for the hosting center market. These hosting centers, with literally service thousands of servers, is often done without backups being done so these hosting centers need a low-cost and cross-platform solution. It is for these types of reasons that ServePath, after about two years of research and testing of various backup technologies, has chosen to go forward with R1Soft's technology.

This underserved market is stretched thin in data protection simply because it can not afford the \$500 to \$1000 per server price tag for a backup solution. Since R1Soft's near-continuous comes is at \$150/server, it better fits into these budgets and will continue to be R1Soft's target market thru the first part of next year. At which point R1Soft tells me it will start to turn its attention to the non-hosting enterprise market.

It is quite notable that R1Soft's CDP solution supports both Windows and Linux platforms and makes it easier for administrators to cross-support environments with the same tool. Their technology and pricing strategy will no doubt continue to serve and gain momentum among this hosting center

niche with heterogeneous environments which it has traditionally served. However as it starts to enter mainstream enterprise corporations where product cost is not the only concern, it will start to face more stringent questions about interoperability and support that it may not yet be ready to answer.

Mendocino Software Reportedly Selling Off Its Assets; What Does This Mean for HP?

No doubt that CDP has become an important market segment, described as “the future of backup”. With the growth and success of companies like InMage Systems and the significant acquisitions of Kashya by EMC and XOSoft by Computer Associates, we should expect to see much more traction in 2008 on CDP.

Yet success in the CDP market isn't ubiquitous. The last few months I have heard reports that [Mendocino Software](#), a provider of Continuous Data Protection (CDP) software for the enterprise computing market and which HP resells as its [Continuous Information Capture Solution](#) (CICS), was in real trouble. Now the latest reports I am hearing is that Mendocino Software, like its predecessor Revivio before it, is being scrapped, selling off its intellectual property and assets and laying off its staff, having failed to close a new round of funding.

To confirm or deny this report, I tried placing a call to Mendocino Software's general office number (510-668-1600) today, Feb 8, 2008, at about 10:00 am PT but received no

answer regardless of which extension I tried. Also, when I tried to reach an operator, the phone system just kept rolling over to the same individual. So far Mendocino has not returned my phone calls to confirm or deny this report.

However, based on the information I already have, I would attribute this rumor to having merit. Eric Burgener, Mendocino Software's VP of Marketing, who I spoke with at SNW in Dallas last fall, recently left Mendocino Software and became a fellow [storage analyst](#) in the last few months. Also HP did not respond to any of my calls or requests for information while I was preparing a feature report that appeared on the [October 2007](#) Storage magazine cover.

The big questions that will likely arise out of this situation if it turns out to be true is, "What will companies do who are already using HP CICS?" and "What new CDP offerings will HP come forward with?" Clearly HP has a limited list of solid players from which to choose from but one would think HP needs to make a decision quickly as CDP is now appearing on the shopping list of more CIOs.

As I have more information, I will post it on the www.dci.com blog.

Microsoft Exchange High-availability and Data Recovery; Just Cluster It?

Email and messaging systems are the lifeblood of business, so when a company's Exchange server goes down, it can have devastating effects on business productivity. Even losing a

single email can have dire consequences. Protecting the Microsoft Exchange environment is a business necessity. Given the mission critical nature of Exchange, I have focused lately on writing about Microsoft Exchange high-availability **and** data recovery for consistent databases.

In consideration of the various challenges associated with protecting the Microsoft Exchange environment, I first wrote about [LLR](#) and then talked to [Utah State University](#) about some design decisions and operational specifics. The buying behavior is clear; customers want better email availability. Microsoft does a great job of delivering good tools and solutions for Microsoft Exchange availability, but it is an operating platform and not a full-fledged data protection solution. As an operating platform it sets the stage for applications designed to address business users and operational efficiencies.

Microsoft Exchange has many operational elements that require management, reporting and testing. The primary function of Exchange, since the introduction of Microsoft Exchange 2000, is an information storage system. During the initial design of Exchange, many companies consider the option to cluster systems. If you are thinking about clustering for highly available data, then you should also consider Continuous Data Protection (CDP) solutions such as InMage's Scout. CDP can provide high-availability using the same techniques employed by Microsoft's latest Service Pack for Microsoft Exchange Server 2007 (SP1).

[Standby Continuous Replication \(SCR\)](#) was introduced in SP1 and uses the same log shipping functionality in Microsoft Exchange Server 2007 Local Continuous Replication. SCR introduces new terms like sources and targets. On the surface it creates feelings of joy and sense that you can spend entire evenings and weekends with family and friends. Moreover, SCR is available on the Standard Edition of Microsoft Exchange 2007 SP1.

SCR is primarily designed for whole server recoveries. SCR wouldn't give you the option to recover individual stores within a storage group. What an administrator really needs is the ability to provide **disaster recovery and data recovery**, in a single application and administrative console. Moreover, SCR does not change configuration options for LLR. Since, LLR is still enabled; you can suffer up to six megabytes of losses in a storage group, and never know about it.

Daniel Muller of Utah State University said that "Clustering, LLR, LCR, etc wasn't even an option for us." He went on to say "Having a single system to administer, rather than a collection of different systems made sense to us." Daniel is talking about total data availability, not just failover and failback. Utah State University ultimately selected InMage's Scout CDP solution for Exchange offering a centralized management console to protect day-to-day data as well as disaster recovery failover to an entirely different site.

Scalability which is critical in high-availability is achievable with host-offloaded CDP solutions such as InMage's Scout. By offloading the CDP processing to an out-of-band appliance, a CDP solution can easily support databases reaching 100's gigabytes in size, with thousands of users. For example, if you wanted to manage a limit on your databases of about 100 gigabytes and mailbox sizes of 2 gigabytes, you could have up to 50 users per store. That's a bit extreme for the average user at the average company, perhaps 250 megabyte mailbox giving you up to 400 users per store. In either case, CDP software is proven in those environments.

Regardless of what options Microsoft delivers for high-availability, third party CDP software for Microsoft Exchange will maintain an edge in supporting a combined solution for data recovery and disaster recovery. Give [InMage's Scout CDP](#) solution a test run, it only takes a few minutes to setup in testing and a few days to get a product environment up and running!

New Category Creation Entry

Please do not publish this entry; it is used to test and aggregate categories as needed. – JK

Archiving, Backup and Recovery, Careers, Continuous Data Protection, Deduplication, Electronic Discovery, Fibre Channel, Fibre Channel over Ethernet, Industry Jargon, Security, Server Virtualization, Virtual Tape Libraries,