

NetBackup Whitepaper

NetBackup in Service Provider Environments

This document provides information on how Veritas NetBackup solutions can be used in a Service Provider environments to offer data protection and recovery services and meet associated SLAs.

For more information on NetBackup products and solutions, please visit www.veritas.com.

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Table of Contents

Document Control	1
Introduction.....	2
Service Provider Environments.....	4
Service Provider Market Conditions.....	7
Veritas Alignment to the Needs of Service Providers	8
Example NetBackup Public and Private Cloud Scenarios	10
Conclusion.....	19
For More Information.....	20

Document Control

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Introduction

Evolving Infrastructure

Infrastructure is changing rapidly. While traditional infrastructure is still around, the industry is clearly moving towards Infrastructure as a Service (IaaS). In the last few years alone, organizations have steadily been transitioning from standalone systems, to virtualization farms, to converged data centers, and finally hyper converged data centers.

The industry is clearly trending towards the Software Defined Data Centre (SDDC). Meanwhile, even the basic concept of the operating system seems to be changing as we see a move towards containers.

Rise of the Cloud

New companies tend to use public or virtual private cloud resources to meet their data center needs, older companies often opt for a private cloud solution while considering how to best take advantage of the cloud. Certainly, public cloud is not the answer for all; cloud works on the basis of a cookie cutter approach, sharing physical infrastructure to deliver just enough infrastructure to support an application. Essentially the 80/20 rule, where only 20% of applications really require custom infrastructure. If a company becomes large enough, it can potentially deliver infrastructure at a better price than cloud; however, automation – and particularly the automation of key processes – offers benefits that organizations cannot ignore.

Adoption of Hybrid Models

The end users in a company aren't really interested in where their infrastructure comes from – they just want something that meets their needs and is available at an affordable price. Often traditional IT organizations can't deliver one or either of those benefits when delivering infrastructure organically, leading to "Shadow IT". To bring this under control, it drives traditional IT organizations to act more like a Service Provider, which often leads to the adoption of hybrid models.

The key takeaways from this are:

- The Service Provider today is the IT department of tomorrow
- Service Providers will continue to provide more and more of the infrastructure, current levels are around 30% of infrastructure spend

Service Providers are Influencers

Service Providers are poised to become extremely influential in the near future, and are already starting to exert meaningful influence today. Vendors that can deliver solutions for Service Providers today will be ready to benefit from traditional IT organizations as they modernize and shift towards the model of acting as Service Providers to their own organizations, including being brokers of offerings delivered by external Service Providers.

So, what do Service Providers care about? Like all organizations, they are primarily interested in becoming and staying profitable. Their main source of revenue comes from taking budget from the traditional IT organization and having it spent on their services instead. This is not necessarily achieved by being the best service, but rather by being agile as well as supporting the perception that they are more cost effective.

Service Providers make margin on process-driven, automated services. Customer retention is key, as well as the exploitation of the opportunity to expand their services footprint within their existing client base. Many Service Providers utilize a low-cost headline rate, supported by additional solutions that push up the cost of the overall service they provide, and generating higher margin for the more valuable services.

To be effective, any Service Provider solution should help the Service Provider do the following:

Deliver Margin on Services	Maximize Customer Retention
<ul style="list-style-type: none"> ✓ Offer automation and drive lower TCO ✓ Utilize standardized processes ✓ Include low delivery FTE ✓ Leverage standardized solutions ✓ Include simple, predictable license & support costs ✓ Lower the cost of hardware (think SDDC) ✓ Support ease of implementation/upgrades 	<ul style="list-style-type: none"> ✓ Enable Service Providers to meet SLAs/SLOs ✓ Offer broad platform coverage ✓ Meet a high performance standard ✓ Minimize customer issues ✓ Include accurate reporting (drive billing) ✓ Include high operational predictability/reliability ✓ Be highly secure

This White Paper

This white paper looks at the requirements for data protection systems used in Service Provider environments in order to:

1. Document what is and is not possible with NetBackup
2. Examine capabilities within NetBackup that enable the Service Provider market

This paper also reviews some of the risks and challenges around granting too much autonomy to tenants in a multi-tenant environment.

Service Provider Environments

Commoditization of Services

Traditionally, a Service Provider has been thought of as a 3rd party company that provides services to other companies. However, as IT delivery continues to evolve, there is a move within companies to view any delivery as a service which drives traditional IT organizations to become more service-orientated. Essentially, the business is not interested in what technology is used to deliver a service, just what they get from the service, which is usually defined as a set of SLAs, or SLOs. The commoditization of services drives lower costs and a model focused on delivering “just enough”.

Services can consist of any of the following:

⇒ Hardware	⇒ Facilities	⇒ Telecommunications
⇒ Software	⇒ Networking Services	⇒ Support Services
⇒ Operational Services	⇒ Cloud Infrastructure	⇒ Infrastructure Monitoring

There are a number of ways to reduce cost, in line with the business expectation of commoditization.

Infrastructure Optimization (Multi-tenanting)

A common method utilized by Service Providers to reduce costs is to offer a service to multiple customers using the same infrastructure. This is also known as multi-tenanting, where each customer is known as a tenant. This drives a number of security requirements, even within a single company, to ensure that tenants are not aware of each other and cannot access each other's data.

Utilization of Reliable and Scalable Software Solutions

Scalability tends to drive reliability, and any Service Provider recognizes that reliability is essential to reduce issues with the client as well as to drive down operational costs, or the cost to deliver. Even though we are in an age of commoditization, the rate of data increase is still outstripping the ability to supply well trained personnel, so backup administrators are still an expensive component of the overall solution

Reduction in Costs Related to Facilities

Facilities costs can also be reduced maximizing the use of physical resources. For example, storage costs can be reduced by maximizing deduplication rates, which in turn reduces power and space requirements.

Adoption of Automation

Automation and self-service can reduce the need for backup administrators and can often take the place of lower level administrators. However, automated processes must be good processes. If a bad process is automated, it will actually be detrimental to the organization.

Leveraging Cost-effective Cloud Resources

As companies adopt more public cloud services, network-related costs and the cost of those cloud services become more and more important. The network obviously is the transport mechanism to move data to and from the public cloud, and reducing the amount of data that transverses that network is obviously important. Public cloud offerings commonly offer a low cost for ingest to the cloud, but high cost to export that same data. It is interesting to note that the initial rush to public cloud was driven by price but, as many have noted, without careful consideration of the cloud services being purchased, public cloud offerings can be very expensive.

Traditional Model – Service Request Multi-tenanting

Historically, multi-tenant environments have relied heavily on a service request-driven model. The tenant and host agree to specific SLAs at the time that the initial infrastructure is put in place and the Service Provider then takes responsibility for providing data protection in adherence to those levels.

Changes to the configuration, such as adding new clients to backup policies, introducing new backup policies or changing the run time or coverage of a backup policy are made by raising service requests and, in some cases, adding appropriate charges when the requests are implemented.

Restore requests are also addressed via a service request to a help desk. This offers the Service Provider some flexibility in processing requests as they can choose to resolve requests in any order they wish, as long as it is within the SLA/SLO.

This model has been used extensively in many organizations over many years and is still seen. However, especially in the new era of DevOps and the desire to introduce more velocity into deployment of applications, it was often found to be too slow in resolution of requests. Also, in more recent times, the introduction of new compliance requirements, additional concerns over data security, and a desire on the part of Service Providers to reduce headline operational costs to be seen to be competitive have all contributed to the desire to share some of the aspects of data protection with the tenants.

New Paradigm - Self-service Multi-tenanting

One major theme of the recent increase in requests around multi-tenanting relate to self-service, which enables the tenant to avoid the potential delays of working through a Service Provider's help desk by administering their own backups and restores.

The degree of 'self-service' required varies from case to case and encompasses a wide range of options. At the one extreme there is no self-service and the full service request model applies; at the other extreme there is complete self-service and the tenant effectively has their own data protection environment. Both of these extremes can be accommodated by NetBackup today with various intermediate combinations.

The problem with this push towards self-administered data protection (as the next few sections will illustrate) is that there are limits to how far responsibility can be delegated before conflicts of interest are encountered.

In summary, the tenant requires maximum security and control over their SLAs and the Service Provider wants to minimize the cost of administering the data protection solution, no matter at what level of service the Tenant chooses. In the most extreme case this can be addressed simply by the tenant having their own private backup domain; however, the costs associated with this mean that both Service Provider and tenants are looking for a compromise solution.

NetBackup Cloud Solutions

NetBackup continues to be a go-to package for on premise backup and recovery solutions. However, the last few years have brought cloud-based backup and recovery to the forefront. Service Providers have chosen to use the internet in several ways to help their businesses, namely by:

1. Investing in remote monitoring and management (RMM) solutions to centralize operational, troubleshooting, and management functions
2. Investing in datacenters, environments, and disk space to host backup data, business continuity, disaster recovery, or other services for their customers

The NetBackup cloud strategy is being developed to assist with both, and is intended for partners who are interested in offering managed backup services to their customers as well as an off-premise solution to our product set. The NetBackup cloud strategy will function to promote the ability to leverage both private and public cloud abilities positioned and shaped to the customers and partners who will use it.

Key Features

- Enables Service Providers to provide managed backup/recovery services with NetBackup while leveraging existing infrastructure services
- Allows Service Providers to protect customer on premise data directly to private storage or public clouds using NetBackup
- Offers advanced deduplication technology (MSDP) to reduce backup time and storage costs (https://www.veritas.com/support/en_US/article.DOC8508)
- Reduces time spent troubleshooting on-site tape issues – move tape out of the customer premise
- Offers flexibility – Service Providers may use whichever virtualization platform they prefer
- Supports the use of a variety of free or pre-existing VPN applications to secure data transport between client sites and the Service Provider's datacenter
- Introduces the self-service feature to define the interaction level of the tenant with the backup infrastructure

NetBackup Key Benefits

- Offers highly reliable backup and recovery services, a “can’t fail” category for services providers
- Supports direct-to-Service Provider-hosted cloud backups
- Enables simultaneous local and Service Provider-hosted cloud backup
- Includes protection status information that can be remotely monitored without having to visit tenant sites
- Reports on status and job completion, demonstrating compliance to agreed SLAs
- Utilizes flexible pay-as-you-go licensing and hardware options

Service Provider Market Conditions

Market Growth

The 2016 MSP 501 list amassed a combined \$6.49 billion in recurring revenue (based on 2015 results). Between 2014 and 2015, MSP 501 companies collectively increased the overall number of users they manage worldwide by nearly 16%. The number of devices managed increased by nearly 30%.

- 42% rely on a hybrid user/device model
- 24% charge on a per-user basis
- 23% use a per-device rate

95% of the companies offer cloud-based backup and disaster recovery services to their customers. (Source: MSP Mentor Survey 2016 <http://mbspmentor.net/msp-mentor/welcome-2016-msp-501>)

Rise of the Services Provider

As the market moves towards a services-based infrastructure model where the customer is more concerned about outcome rather than the technology that supports it, classic value-added resellers are finding it more and more difficult to sustain a business model based on the historical method of reselling hardware boxes and software licenses along with block-time service agreements. Managed Services offers these VARs a way to move towards a services-oriented method that offers predictable and recurring revenue streams as well as longer term relationships with their customers. The basic premise of Managed Services has been around for some time now. However, it is steadily becoming the most viable way for VARs to do business.

VARs that morph and change into Service Providers offer a variety of IT services to their customers. Some focus on specific solutions such as backup or security, while others offer a complete set of IT solutions for their customers – in essence becoming their customers' "IT shop." Some also offer hosting services to their customers, where copies of backup data or even production servers might be hosted by the Service Provider on their remote infrastructure.

In the drive towards ever more agile environments, technology to deliver applications to the market place, be it internal or external, tends to outstrip the ability of infrastructure to be able to deliver supporting services. Sometimes, DevOps teams do not understand the basic requirements of protecting corporate data and implement new applications, and then it is discovered that the data is at risk.

Backup and Recovery is King

As data is the lifeblood of any modern company, backup and recovery services (including business continuity services) are the most important services a Service Provider offers to his or her end user customers, and is a key topic that Service Providers will use to describe the value of their offering to new or potential clients. However, it is often difficult for this to be understood right across an enterprise where teams do not necessarily understand the nuances of data protection and can apply an unsuitable technique to a requirement or not even consider data protection in the overall solution definition, where it can become an afterthought.

Importance of Automation

Service Providers try to leverage their services across a common infrastructure, using common policies and procedures and they tend to operate their services and manage their end user customer environments remotely from a central location, or operations center. Service Providers try and avoid visiting customer sites whenever possible. Remote manageability and automation are key elements they look for when deciding what tools and technologies they select to build their services business, as this drives costs downwards whilst maintaining ability to deliver reliable functional services.

Veritas Alignment to the Needs of Service Providers

Products, Solutions, and Licensing Programs Designed for Service Providers

Veritas understands the requirements of Service Providers and is aggressively delivering features and functionality to the market through its flag ship NetBackup product line, as well with other products in its portfolio. NetBackup 7.7, 8.0 and the soon to arrive NetBackup 8.1 deliver incremental capabilities that directly affect the ability of Service Providers to deliver to market requirements. Adding features designed for Service Providers to NetBackup's industry leading scalability and reliability, NetBackup becomes a clear choice for this market space.

Veritas Licensing for Service Providers

Veritas offers key licensing programs specifically designed to enable Service Providers to purchase Veritas software or hardware products to provide outsourced and managed services to their customers. Through these programs, Veritas helps our Service Provider partners reduce upfront investment costs by providing a model that aligns with the way our Service Provider partners do business with their end-user customers.

Unlike the standard internal use or Strategic Service Provider use licenses that are sold to end-users and Service Providers on a perpetual basis, these licenses grant Service Providers the right to use our products to provide a service to its end-users on a limited term basis.

Some of the key features of these global programs are:

- Service Provider pays Veritas only for software or services actually used, with an initial discount based on a minimum commitment negotiated at contract signing
- NetBackup products are licensed as a monthly rental, so there are no license transfer issues or renewals to manage
- Eliminates the need to pre-purchase estimated future licenses.
- Service Provider maintains direct relationship with their customers
- Total usage increases through the addition of new customers or through growth with existing customers, which drives eligibility for greater capacity discounts.
- Access to the latest software versions available under maintenance/support
- No upfront license or support fees
- Payments (in arrears) based on usage reports

Veritas SP BaaS Licensing Program

The Service Provider Program for Backup as a Service (SP BaaS) pilot gives Service Providers the flexibility of offering Veritas NetBackup™ as part of their services, allowing them to better align product usage with preferred payment schedules.

Key features and benefits include:

- Usage is automatically transmitted monthly to a secure usage aggregation database, and is summed across all tenants
- Each license provides 1 month of commercial use rights and Essential maintenance/support

The SP BaaS Pilot Program utilizes automation that securely transports usage reports by the Master Server on a monthly basis, and the Service Provider is invoiced in arrears for usage for the previous reporting period. Usage is calculated by aggregating the total front-end GB footprint of all tenants associated with the Master License Key and rounding up to the nearest TB. Based on usage, the correct NetBackup SKU and quantity are selected and the negotiated discount applied.

Key benefits to Service Providers include:

- Automated submission of usage reports monthly (no more manual generation of NBDeployUtil, no more quarterly POs to cut)
- Aggregation billing (provides the deepest discount for all customers based on negotiated discount and ExSP tiered SKUS – the more they sell, the less they pay)
- Like today, one Master Key for ease of management
- Partner has access to usage detail by Master Server, providing detail for them to bill each customer
- VPDF for SP paid quarterly, based on NetBackup monthly billing under this program

Veritas ExSP Licensing Program

Under the Veritas Enterprise Service Provider (ExSP) program, Veritas products are provided to the Service Provider on a monthly subscription basis, with all payments quarterly in arrears. The report is run manually by the Service Provider, on a quarterly basis. ExSP can also be used for purchase of appliances.

Example NetBackup Public and Private Cloud Scenarios

Private Cloud Scenarios

The NetBackup offering doubles as a non-monetized BaaS model for private cloud scenarios. NetBackup 7.7.x and 8.0 enable fast and controllable data protection through the usage of OST based deduplication.

The different methods for utilizing private cloud services can also be utilized by enterprise customers with multiple physical sites, or their own connections to a public cloud, that need the ability to move the data back to their main datacenter. There is a Planning and Deployment Guide that a Service Provider or enterprise customer can walk through in order to configure their environment correctly. This is a downloadable document available on our website:

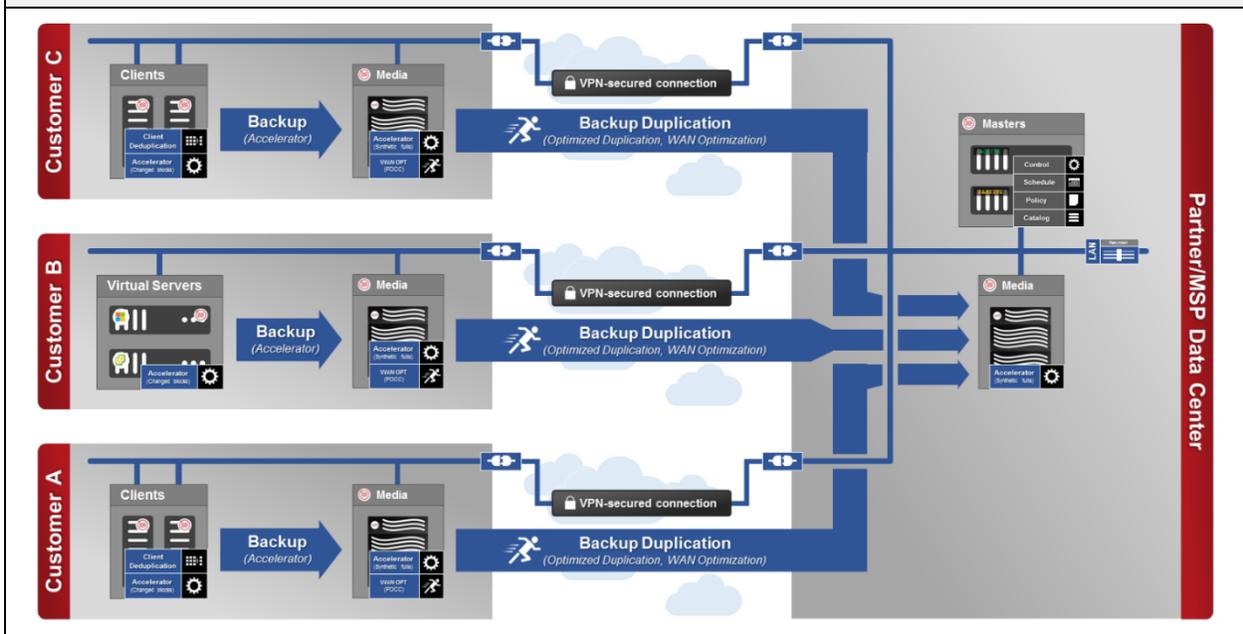
https://www.veritas.com/support/en_US/article.000108097

NetBackup 7.x concentrated on Amazon S3, or compatible, cloud providers. NetBackup 8.0 has extended its reach to include more cloud providers based on different technologies, and will continue to expand its capabilities.

For NetBackup private cloud services, there are 3 scenarios on how it can be deployed (requirements listed under each scenario).

Scenario 1: Multitenant
<p>This architecture is aimed squarely at Service Providers who exert total control over the customer's IT environment. It also can be used by enterprise customers for their remote sites. When leveraged by a Service Provider, this architecture can also significantly reduce the cost of the total solution – both for the Service Provider and the end-user customer – because this method requires less virtual/physical infrastructure as well as licensing.</p> <p>From NetBackup 7.7.x, backup administrators can store up to 64 TB (96 TB for RHEL) of deduplicated data per media server, meaning several – or many – end-user Customers can be protected to a single NetBackup media server. Much higher capacities are available for NetBackup appliance-based solutions.</p> <p>Tenant interaction can be provided by NetBackup Self Service solution which allows end users to manage the protection/recovery of their environments without the need for a direct access to the Master Server or advanced knowledge of the underlying technology.</p>
Requirements
<ul style="list-style-type: none"> • NetBackup Master Server at the Service Provider site • NetBackup Media Server at each customer/site • Remote agents for any systems to be backed up at each of the customers/sites • Data Protection Optimization option to support OST-based deduplication and optimized duplication

Example Diagram/Illustration



Advantages	Disadvantages
<ul style="list-style-type: none"> • Higher RTO and RPO targets for customers • Local copies of backups allow fast recovery options • Deduplication reduces storage costs in both customer premise and at the Service Provider data center • Deduplication reduces network infrastructure usage • Significantly reduces the number of deployed media servers at the Service Provider data center, reducing physical infrastructure and NetBackup license investment • Provides tenant isolation, when used with the NetBackup Self Service solution 	<ul style="list-style-type: none"> • Requires high level of control of the customer's Backup or IT environment, as domain trusts and other security considerations are needed to set up the NetBackup hierarchy over WAN

Scenario 2: Offsite Copy

This architecture gives the partner the opportunity to sell both local and remote cloud backup services to customers. This option has advantages and disadvantages that customers may or may not find acceptable. Notice it is a one to one ratio of Master Server. This allows a customer or admin at that local site to be able to manage entirely their solution for both protection strategy and infrastructure. Offsite copies will be made by leveraging Targeted AIR between tenant and host NetBackup domains therefore allowing for both secured and optimized data transfers.

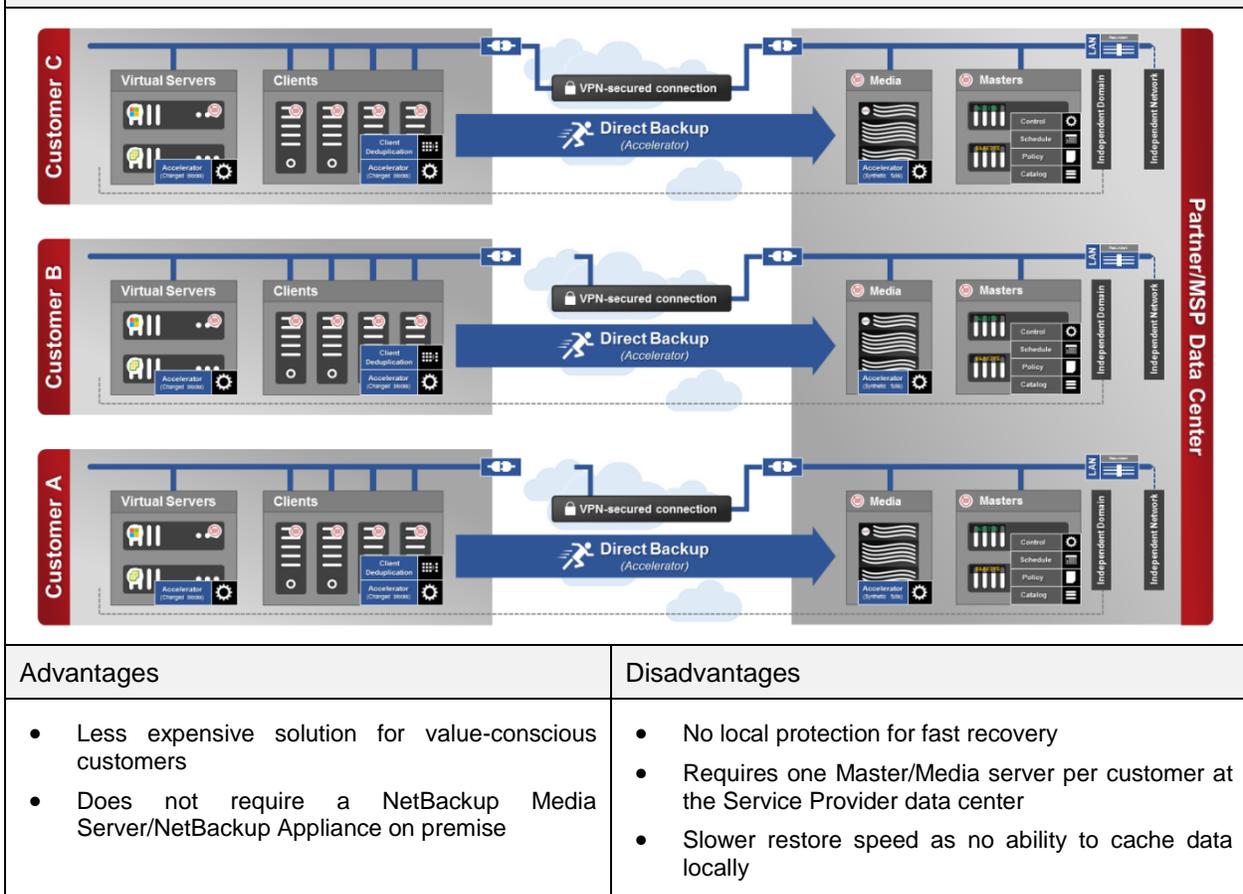
In that scenario the Service Provider will act as a repository for offsite copies and can also act as a secondary site for a disaster recovery operation.

At the Service Provider datacenter, since multiple Master Servers may be required, these would most like be virtualized.

<p>Requirements</p> <ul style="list-style-type: none"> • NetBackup Master Server at host site • NetBackup Master Server at each customer/site • Remote agents for any systems to be backed up at each of the customers/sites • Data Protection Optimization option to support OST-based deduplication and optimized duplication 	
<p>Example Diagram/Illustration</p>	
<p>Advantages</p> <ul style="list-style-type: none"> • Better RTO and RPO targets for customers • Deduplication reduces storage cost in both customer premise and at Service Provider data center 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Local protection requires a NetBackup Media Server/NetBackup Appliance on premise • More expensive solution from a software license perspective when using traditional licensing, rather than FETB (Front End Tera Byte) • Requires 1 (one) Master Server at customer premise, and 1 (one) Master Server per customer at the Service Provider data center, increasing administration complexity that can be reduced by utilization of OpsCenter

<p>Scenario 3: Direct Backup</p> <p>This architecture gives the partner the opportunity to sell direct-to-cloud backup services to customers. This option has advantages and disadvantages that end-user customers may or may not find acceptable.</p>
<p>Requirements</p> <ul style="list-style-type: none"> • NetBackup Master/Media Servers at Service Provider datacenter • Remote Agents for any systems to be backed up at each of the customers/sites

Example Diagram/Illustration



Public/Hybrid Cloud Scenarios

The NetBackup Cloud Storage Option is a public cloud offering designed to offer our current and new customers a method for getting data offsite. The recommendation will always be to have local backups, and then use the cloud storage as a secondary location for the data for the purpose of disaster recovery or getting the data offsite. It is capable of holding all data of servers to be used for disaster recovery, not just files/folders.

For the NetBackup Cloud Storage Option, there are a number of different scenarios on how it can be deployed.

Scenario 1: Direct Backup to the Cloud
This customer is a small shop, or a remote office, with only a relatively small amount of data. They want the same ability that large enterprises have for disaster recovery, but at a modest price that meets their environment.
Requirements
<ul style="list-style-type: none"> • The CloudStore Service Container is a web-based service container that runs on the media server that is configured for cloud storage; this container hosts different services such as the configuration service, the throttling service, and the metering data collector service • A Data Protection Optimization option license is required to take full advantage of the cloud connectors

Example Diagram/Illustration	
Advantages	Disadvantages
<ul style="list-style-type: none"> • Moves smaller businesses away from the hassles of tape solutions, especially for ROBO • Allows Service Providers to resell a BaaS solution without even owning any infrastructure • Can be used with accelerator and compression to reduce amount of data going to the cloud • Keeps a data copy on site • Supports many S3 compatible providers such as, but not limited to, Amazon S3, Rackspace, Google Cloud Platform, Microsoft Azure, and AT&T synaptic • NetBackup 8.0 delivers improved performance, with up to 80% utilization of available bandwidth 	<ul style="list-style-type: none"> • Local protection requires a NetBackup Media Server/NetBackup Appliance on premise

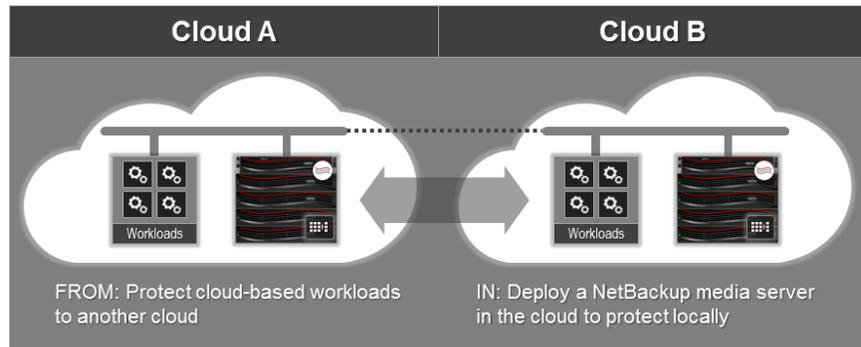
Scenario 2: Cloud Protection Flexibility
<p>This is similar to the Scenario 1, above. Customers have workloads that sit in the cloud. Often these workloads are implemented without the knowledge of centralized IT and a data protection capability has to be implemented after the fact. Install a virtualized Media/Master Server in the cloud that has the ability to replicate back to center, and vice-versa.</p> <p>This solution provides flexibility to enable customers to back data up to a local master/media server and then replicate to the cloud. It also enables the flow of backup data from the cloud back to the datacenter.</p>
Example Diagram/Illustration

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can back up a workload within the public cloud. • Retain data back in center so Service Provider still has complete ownership of the data just in case Service Provider goes out of business (has happened) • Deduped data moves • Generally backup and restore speeds, within the cloud, will be very quick, as the network is virtualized too. • Cloud Platform, Microsoft Azure, and AT&T synaptic • NetBackup 8.0 delivers improved performance, with up to 80% utilization of available bandwidth 	<ul style="list-style-type: none"> • Cost of egress of data is usually expensive. The cloud provider usually wants you to keep data within their cloud

Scenario 3: Cloud-to-cloud Protection

This is similar to scenario no.2. There are customers with workloads that solely sit in the cloud, or have a cloud first policy. Use either a virtualized Master/Media Server in each cloud, or use scenario 1, where each cloud used cloud connect.

Example Diagram/Illustration

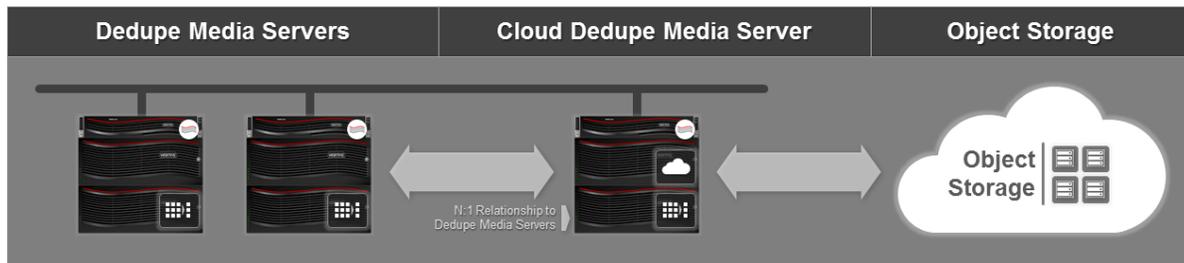


Advantages	Disadvantages
<ul style="list-style-type: none"> • Can back up a workload only within the public cloud. • Retain complete ownership of the data just in case Service Provider goes out of business (has happened) • Deduped data moves when using virtualized Master/Media servers 	<ul style="list-style-type: none"> • Cost of egress of data is usually expensive. The cloud provider usually wants you to keep data within their cloud. • Two cloud providers • Potential issue with network link speed between two providers

Scenario 4: Deduplication to the Cloud

Phase 1 of native NetBackup backup to cloud comes in NetBackup 8.1. It is a dedicated NetBackup Media Server appliance which is configured as a Cloud Dedupe Media Server. This will deliver up to 279TB/hr of logical data throughput, and stores data directly in the public cloud natively, so there is no rehydration of data or a need for a media server to reside in the public cloud. Targeted platforms are to be AWS, Azure, Google, Veritas Access, and HDS HCP.

Example Diagram/Illustration



Advantages

- No rehydration for D2D2C
- Only has to process unique data; dramatically higher effective throughput
- Better use of bandwidth between media server and gateway
- Restore directly from “gateway”; rather than having to pull through a media server
- Native NetBackup functionality; single administrative model
- D2C: client or media server dedupe supported in version 2

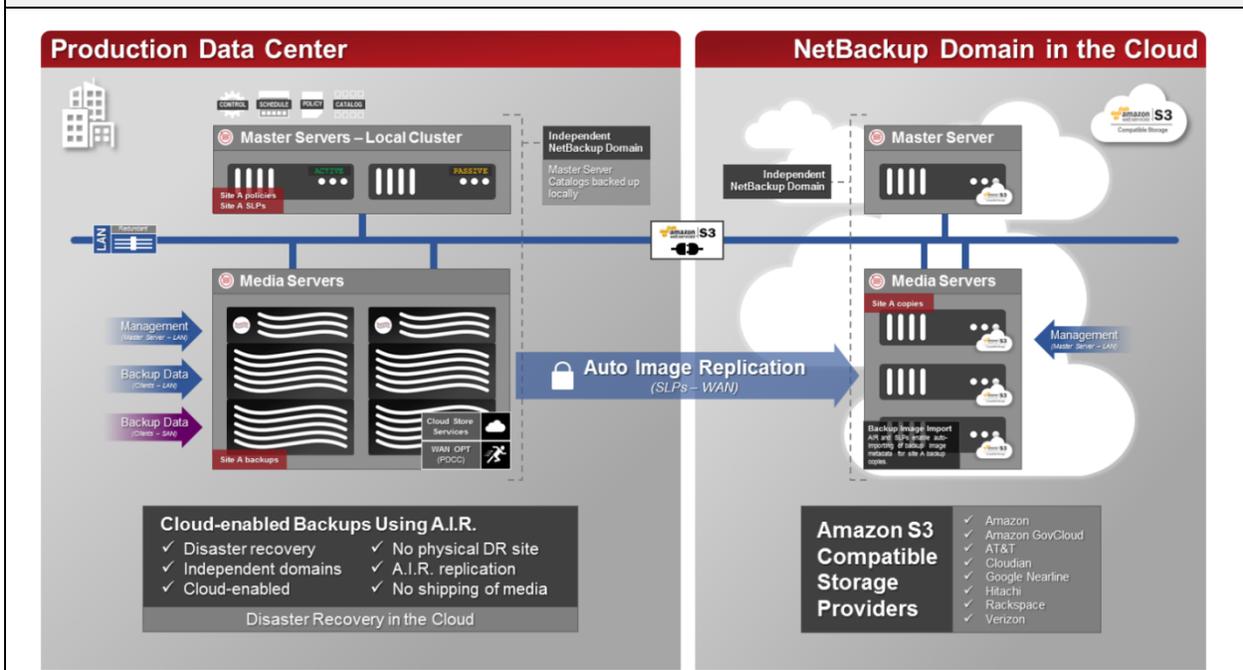
Disadvantages

- Supports only a single NetBackup domain
- No D2C or in-cloud virtual appliance in phase 1
- No third party encryption support, but can use NetBackup encryption

Scenario 5: Public Cloud as DR

In this case, we are seeing public cloud being used for disaster recovery. A NetBackup domain is set up in the cloud using Auto Image Replication (AIR) to copy data to the cloud.

Example Diagram/Illustration



Advantages	Disadvantages
<ul style="list-style-type: none"> • If there is a continued desire to use Tape for long term storage, then this is possible • It is possible to restore servers in the cloud, removing the need for separate disaster recovery infrastructure. • Allows for a centralized location to manage the backup environment regardless of the data's destination 	<ul style="list-style-type: none"> • Slow recovery in the event of disaster recovery when compared to DRaaS • Local protection requires a NetBackup Media Server/NetBackup Appliance on premise

Technologies Overview

The above scenarios are based on different NetBackup features related to infrastructure setup for multi-tenant and shared services management.

Specifically the WAN distance duplication/replication features are provided by NetBackup support for Deduplication on both Veritas and 3rd party storage leveraging either optimized duplication or AIR features following the scenario.

The service control sharing between host and tenant leverages the NetBackup Self Service features which also allow to monetize all the activities around data protection.

Finally, OpsCenter Analytics allows the host to have accurate metrics about services and storage usage (including public cloud metrics) and provide direct billing with the chargeback reports feature when the solution management is exclusive to host.

Unique Competitive Advantages and Differentiators

Key distinctions between NetBackup's cloud strategy over competitors:

- NetBackup provides ownership over creating a backup as a service offering for Service Providers. There are a number of other companies who offer the ability to provide a service, but

still own where the data ends up, and this cost is passed on to the Service Provider. With NetBackup private cloud services, the Service Provider can utilize NetBackup to own the location of where the data goes.

- NetBackup provides the flexibility to own where the data goes for companies like Service Providers or enterprise customers with remote sites, but also offers a public cloud solution to send the data to. This allows the ability to work in either public or private cloud offerings, or a hybrid of those, with complete management of all of those models in an easy to use interface.
- There are no pricing increases in order to provide backup as a service to customers. Utilizing Veritas Service Provider programs will maintain a steady, reoccurring revenue that can be passed on to customers.
- Compatibility with Amazon S3, Azure and OpenStack cloud standards provides a wide choice for public cloud storage provider.
- Cloud Storage provides a similar or better experience than using classic tape schemes, especially for smaller enterprises. However, this is not to say that tape does not still play a part, especially in long term retention.
- No other company can provide the level of granularity and disaster recovery functionality, and still offer the same features through cloud backups.
- Disaster recovery in the cloud is offered at a low cost, easy to use solution. Not many other companies even offer this service, and the ones that do can't provide the same SLAs or ease of use.
- Scalability, and thus reliability, of our solutions are industry leading. This is essential towards driving down costs for Service Providers and enterprise customers.

Conclusion

NetBackup Cloud Solutions

The NetBackup cloud strategy is intended for Service Providers and partners who are interested in offering managed backup services to their customers as well as an off-premise solution. The NetBackup cloud strategy promotes the ability to leverage both private and public cloud offerings and is designed to overcome key challenges faced by modern Service Providers.

Key Features

- Enables Service Providers to provide managed backup/recovery services with NetBackup while leveraging existing infrastructure services
- Allows Service Providers to protect customer on premise data directly to private storage or public clouds using NetBackup
- Offers advanced deduplication technology (MSDP) to reduce backup time and storage costs (https://www.veritas.com/support/en_US/article.DOC8508)
- Reduces time spent troubleshooting on-site tape issues – move tape out of the customer premise
- Offers flexibility – Service Providers may use whichever virtualization platform they prefer
- Supports the use of a variety of free or pre-existing VPN applications to secure data transport between client sites and the Service Provider's datacenter
- Introduces the self-service feature to define the interaction level of the tenant with the backup infrastructure

NetBackup Key Benefits

- Offers highly reliable backup and recovery services, a “can’t fail” category for services providers
- Supports direct-to-Service Provider-hosted cloud backups
- Enables simultaneous local and Service Provider-hosted cloud backup
- Includes protection status information that can be monitored remotely without having to visit tenant sites
- Reports on status and job completion, demonstrating compliance to agreed SLAs
- Utilizes flexible pay-as-you-go licensing and hardware options

For More Information

Resource	Link
Veritas Web Page	https://www.veritas.com
NetBackup Web Page	https://www.veritas.com/product/backup-and-recovery/netbackup-8
NetBackup Appliances Web Page	https://www.veritas.com/product/backup-and-recovery/netbackup-appliances
Veritas Support Portal	https://www.veritas.com/support/en_US.html
Veritas PartnerNet	https://partnet.veritas.com

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