

7 Essential Benefits of Hybrid Cloud Backup



INTELLIGENT
BUSINESS
CONTINUITY

5nines is a leading provider of backup, disaster recovery (BDR), and business continuity solutions targeted to the small to medium business (SMB) market. **5nines'** solutions are designed around the *hybrid cloud* platform, the most reliable and efficient way for end-users to back up their data securely and ensure that it is recoverable regardless of any disaster scenario.

Learn what a hybrid cloud is, how it applies to data backup, and the seven unique benefits of the hybrid cloud platform.

Understanding the Cloud Options

A hybrid cloud solution combines private (internal/on-premise) and public (external) cloud deployment models. With a typical private cloud solution, one would build, develop and manage their own cloud infrastructure. The most common deployments of private cloud solutions are in enterprise-level environments. Businesses that have the capital to fund a private cloud operation will usually purchase the necessary equipment, hire their own dedicated IT support teams, and build or lease their own data centers. This allows the company to have complete control over their cloud environment. The primary downside of a private cloud is that it is very expensive to implement and maintain. It also requires highly skilled engineers to manage the network.

In a public cloud scenario, one utilises web-based applications and services. Hardware or software is not owned or maintained by the customer, and resources are completely acquired from third party vendors. Google Apps, Salesforce, and Amazon Web services are all common examples of public clouds. With these deployments, users will work strictly through the Internet via web-based portals. Generally, application data is not stored locally. All relevant information is stored through the cloud provider.

While these solutions are cost-effective, the lack of control of data center resources, monthly fees, and increased support costs can hinder the viability that a public cloud will align with every business. The fact that business critical data is stored only off-site can also be disconcerting for businesses. One must also consider the possibility that the cloud provider could go out of business, experience a service outage, be acquired by another company, or suffer a security breach. Any of these scenarios could spell disaster for a business' data.

With a hybrid cloud model, aspects of both platforms are merged to form a single, unified platform. A business owns some form of local hardware, which is integrated with resources owned by a third party. Depending on what attributes of the business are being pushed to the cloud, there are many options for how a hybrid cloud platform can be constructed.

What is Hybrid Cloud Backup?

In the context of data backup, a combination of private and public backup solutions can be used to form an efficient and robust platform. As hybrid cloud vendors we use our expertise to engineer enterprise-grade backup solutions that can be affordable for businesses of any size.

On the private cloud side, you would have a local device that acts as a NAS (Network-Attached Storage) unit backing up data locally, while concurrently pushing data off-site to a secure, third party cloud. What sets these units apart from a typical NAS unit is that they also apply complex data deduplication, compression, file conversion, and other processes which are unique to us. These processes help reduce storage space on local devices and off-site servers, keep local bandwidth reduction at a minimum, and optimise the backup process to make data recovery as efficient and quick as possible, both locally and in the cloud.

The public cloud side is comprised of the data center infrastructure developed by the cloud provider. Mirrored backup images from local backup devices are stored and archived in proprietary data centers, so they can be accessed in the event that backup records are not available locally (i.e. a disaster scenario).

Having the cloud infrastructure developed by us is valuable to you because through economies of scale, we can provide space in the cloud at lower costs per GB than the average MSP could provide if they built their own cloud. This enables you to leverage cloud storage, without having to pay high monthly fees. Also, by utilising third party technology, you need not worry about maintenance of the cloud; that liability lies entirely with the us.

All in all, the hybrid cloud backup platform encapsulates the best of the private and public models to form a feature rich, highly efficient, and affordable system.

Business Continuity

A desired benefit of most hybrid cloud backup solutions is the ability to achieve business continuity. Business continuity is a proactive way of looking at disaster preparedness. By having the proper tools and procedures in place, businesses can be assured that they will remain functional during a disaster scenario, large or small.

Business continuity, in the context of data backup, means that in the event of a disaster, cyber-attack, human error, etc., you will never lose access to their critical data and applications. In the data backup industry, the lack of access to business critical data is referred to as downtime. Business continuity is critical to any business, because downtime can potentially bring operations to a halt while IT issues are being repaired. This can be extremely costly for any SMB to endure.

While proper business continuity planning is necessary throughout an organisation, one technology that enables continuous up-time is virtualisation of servers and workstations. A virtualised server or workstation is commonly referred to as a virtual machine or VM. This is essentially a copy of a workstation or server that runs on the hardware of a cloud server, as opposed to the hardware of the original production machine. The VM is booted off of a production machine's backup file that is housed in cloud servers. Once the VM is booted, every aspect of the virtual machine (i.e. operating system, applications, and files) will run exactly like the original machine did.

This is invaluable in disaster scenarios, because if the original production machine is taken out of commission, you can transition to the virtual machine immediately, while the original production machine is repaired or replaced. This is known as failing over. By allowing servers to failover to the cloud, you are able to combat downtime and continue to manage your data and applications until the local IT infrastructure is fully operational.

¹Disaster scenario: For the purposes of this report a "disaster scenario" is classified as any event that occurs at the local site and affects the functionality of the local production machine and backup device. This could range from a power outage, to a server room fire, to a tornado that destroys an entire office. In any disaster scenario access to original files and local backups will not be possible.

²Production machine: A production machine is the "live" workstation or server that is in place at an end-user's business. These are the machines that are being backed up.

The flexibility of the hybrid cloud platform is truly what enables IT Service Providers to deliver business continuity to their clients. Since backup files are stored both on the local device and in the cloud, it is possible to virtualise both on-site and off-site.

For example, if a failover virtualisation is necessary because of a server malfunction, it can be done quickly and easily on the local device. The business will function off of a VM of their malfunctioning machine. Once technical issues are resolved, and the server is back up and running, the business can transition back to their original infrastructure with a bare metal restore (BMR). The BMR will return all backed up data and applications to a new or repaired server so operations can continue as usual without losing any changes in data that occurred during the outage.

In the event that an actual disaster occurs on-site, where a production machine and the local backup device are taken out of commission (e.g. fire, power outage, tornado, earthquake, etc.), your business data is not lost. Virtualisations are still possible via the off-site cloud. Your business will run off of VMs just as they would if it was stored on the local device, while a new local device will be seeded with data to replace the destroyed device. After the device is replaced on-site, the VM can be transitioned to the replacement device. The business will continue to run off of the local VM until a BMR can be performed. Once the BMR is completed, your business will have returned to full operations without incurring downtime, even if the office was completely destroyed.

The flexibility to virtualise both on-site and off-site mitigates the threat of downtime. Your business can continue to function regardless of external or internal challenges your IT infrastructure may encounter.

Data Insurance

The hybrid cloud backup process generates a backup locally, and then a backup of the backup is replicated off-site (in some cases, data is replicated to two off-site locations). This provides a great deal of data security. With local hardware, all data is in-house, protected by pre-existing firewalls, security protocols, and the encryption inherent to the backup device. Furthermore, by sending encrypted data to dedicated data centers, users are ensured that there are redundant copies of the data secured off-site. This is invaluable in the event of a disaster. The combination of local and off-site backups affords far greater peace of mind than simply pushing data over the web to a backup service provider or strictly housing data locally on a NAS or in a data center.

³Bare Metal Restore (BMR): A bare metal restore is the complete restoration of a machine, from operating system to applications to individual files, onto new or original hardware.

Assessing Your Backup Solution

When assessing whether a particular solution is capable of providing business continuity, two key metrics need to be assessed. The first is RPO, or Recovery Point Objective. This figure represents how frequently backups can be taken, or how much data one is willing to lose if a production machine were to fail.

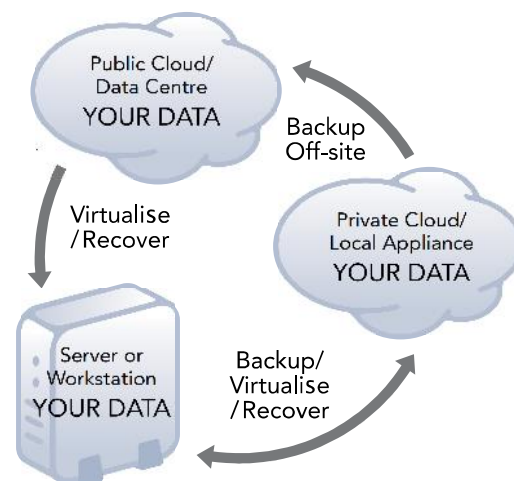
For example, if a business is utilising a backup solution with an RPO of 1 hour, then a backup can be taken once an hour. If a business were to utilise that solution to backup an important server, then it is stating that it is comfortable with sacrificing up to an hour of data change on that server in the event of an outage. Both business continuity and traditional backup solutions can provide good RPOs, with some business continuity solutions achieving RPOs of up to 5 minutes.

Where business continuity truly differentiates itself is with the Recovery Time Objective, or RTO. RTO represents how long it will take to get data back after a disaster. This is an essential figure to know because even though data is backed up and secured from loss, a business cannot function properly until the data is recovered.

Enterprise-class business continuity solutions should be able to provide RTOs of under 10 seconds. This is far superior to the weeks it can take to download large backup records from online services, or the hours that it takes to convert server images for virtualisation on a traditional BDR unit.

This figure is a representation of how data is secured in the hybrid cloud. As the diagram shows, at any given moment, copies of your data will be located in three unique locations. The original on the client's server or workstation, a backup on the local device, and a mirrored backup in a data center off-site. Also, since both clouds not only store data, but are also capable of virtualising and restoring the production machine, we have multiple comprehensive resources to assist you in data protection and restoration.

This level of security provides a great value proposition to you when framed in the context of insurance. Businesses insure every aspect of their infrastructure (buildings, equipment, employees) yet most of them don't insure the most important pieces of their entire business; their data. Business continuity is a perfect form of insurance for your data. By having redundant copies of data located in multiple locations, as a hybrid cloud owner you could rest assured that in the event of a disaster your data is protected and can be made available at any time.



Local Storage Flexibility

A benefit of hybrid cloud solutions is that the entire backup is not solely housed on-site. By leveraging the “infinite” storage space of the cloud, you can decide how long you want your local retention to be, and scale it according to your needs. Files can be restored with ease whether they are on-site or off-site, so you do not need to worry about losing on-demand access to your data.

This offers a great benefit to smaller businesses, because it provides some flexibility if the local backup device has limited storage. In the event that you start to run out of space on your device, you can either consolidate incremental backups and/or prune off local copies of older backups that have already been replicated and secured off-site. This reduces the necessity to purchase more local storage as a result of data growth. This is a huge pain-point for users, as many businesses do not have the resources to purchase, house, and maintain a backup infrastructure that is scalable to their data growth requirements.

If you outgrow the storage capacity of your local device, such that excessive maintenance is required to keep space free for new incrementals, then an upgrade may be necessary. Fortunately for you, we are aware of this inevitability and have made upgrade processes very simple, seamless and cost effective.

By utilising the hybrid cloud platform, you can have the peace of mind that your data is safe regardless of the size and growth of your data. You will only be required to provide the amount of space required to backup your files locally.

⁴Incrementals: during the backup process, multiple backups are taken on an incremental basis to keep up with data change. Smaller segments combine to form the full backup of the system. The combination of these incremental backups form what is known as the *backup chain*.

Cost Benefits of Hybrid Clouds

Private clouds are expensive:

- Hardware acquisition, ownership, development, and implementation costs lead to large financial investments.
- Expenses and manpower costs required to maintain the solution can add up fast.

Hybrid clouds keep costs down:

- Initial investments are low.
 - You don't need to own all of the essential pieces of the puzzle.
 - e.g. 5nines only requires the local unit to be purchased, while the rest of the infrastructure lies in the proprietary 5nines cloud.
- No costly maintenance is required.
 - Decreased power, cooling and physical maintenance costs.
- Low monthly service fees/licensing costs.
 - Cover the cost of leveraging the cloud, software agents, and services outlined in SLAs.

Business models in this industry are not universal. With some solutions, hardware is not directly purchased, but leased or provided with no upfront cost (HaaS model). While no initial investment is required, monthly service fees are generally higher and require long-term contracts.

Standards Compliance

For some industries, it is necessary to keep specific data backed up in order to comply with government regulated standards (i.e. HIPAA, PCI, SOX). We are aware of these stringent regulations and have built our cloud to meet the needs of these verticals. The hybrid cloud platform lends itself perfectly, because if a local backup device is decommissioned all files are already located off-site and can be accessed easily when necessary. This fulfills many verticals' requirements for contingency plans in emergency scenarios.

Archiving capabilities are mandatory to these industries as well. For example, medical entities governed by HIPAA regulations require a six year retention policy for certain personal and medical records. By having redundant copies of backup records, companies protect themselves in the event of an audit.

For example, 5nines archives backup images for one year after they have been deleted from the local device. So if a five year old backup was removed from a local unit, it would still be housed off-site a year later. If necessary, you can increase your off-site retention to extend compliance off-site.

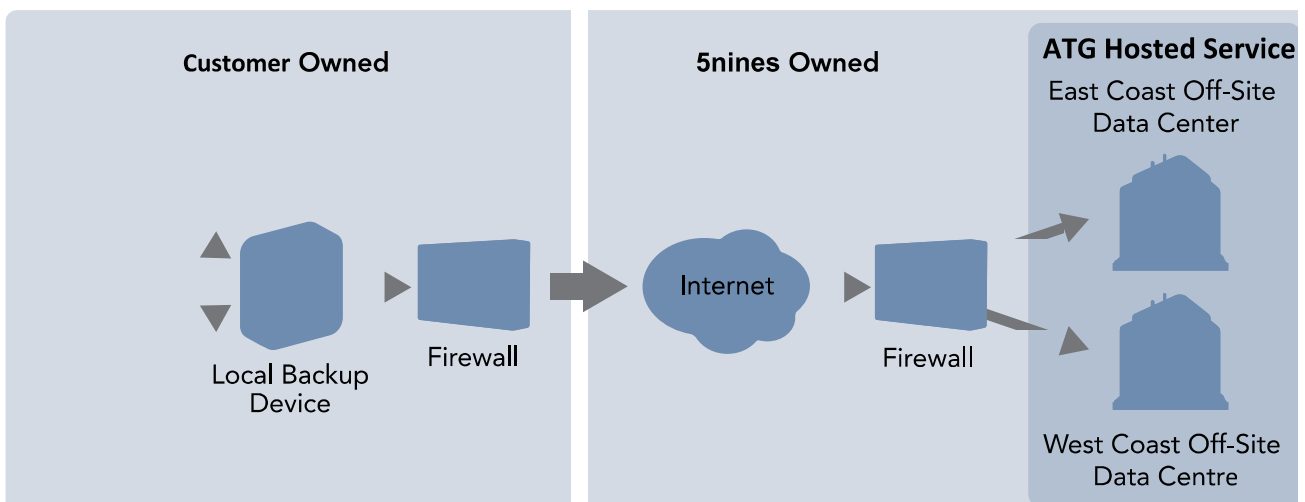
Infrastructure Control

It is important for you to know who is in control of your data environment. With hybrid cloud, your backup and disaster recovery infrastructure is in safe hands. It is still our responsibility to assist in managing backups, ensuring that backups are being pushed off-site, and assisting with data restoration. The vendor controlled cloud is merely a safety net, designed to assist in true disaster recovery efforts.

Given that we only need to regulate the local side of the backup infrastructure, the manpower necessary to support hybrid cloud solutions is far less than that of a private cloud. The responsibilities of maintaining data centers, covering bandwidth costs, developing software and hardware updates, etc. are ours. We are available to assist with implementation, troubleshooting, and support.

The hybrid cloud backup model enables IT providers to offer best-in-class solutions without having to burden their own businesses with the responsibility of maintaining a very complex platform. They manage the technology that matters most to their clients, and vendors handle the rest. Partnerships with vendors allow MSPs and VARs to continue to focus on their core business: providing the best service possible for their customers.

Below is an example of 5nines's hybrid cloud infrastructure. This structure limits the amount of hardware that you need to have in-house. You have access to all the benefits of cloud storage without the maintenance and costs of ownership.



The 5nines Difference

As a leading vendor of hybrid cloud backup solutions, 5nines provides best-in-class technology and support to its 4,000+ channel Partners. 5nines ensures that your data is backed up, protected, and recoverable at all times. 5nines truly differentiates itself from the rest of the market with its virtualisation technology. 5nines is the only vendor of business continuity solutions that provides instant on-site and off-site virtualisation of servers and workstations. This is achieved through 5nines's proprietary *inverse chain* technology.

By converting backup images directly to vmdk format, 5nines' appliances are able to boot up virtual machines in seconds, as opposed to minutes, hours, or days. This allows 5nines by ATG to provide the best recovery time objective (RTO) in the business, for both on-site and off-site virtualisations. 5nines by ATG's industry-leading RTO is what allows you to achieve intelligent business continuity. The ability to instantly virtualise VMs both on local backup devices and in 5nines's cloud, assures businesses that they will not sustain downtime from any disaster that affects their IT infrastructure.

With AES 256 encryption on local devices and transmissions to SSAE 16 data centers, 5nines assures that your data is protected by the highest level of encryption and security commercially available. 5nines completely owns its cloud infrastructure and has assembled a platform capable of offering exactly what you need in a hybrid cloud vendor.

