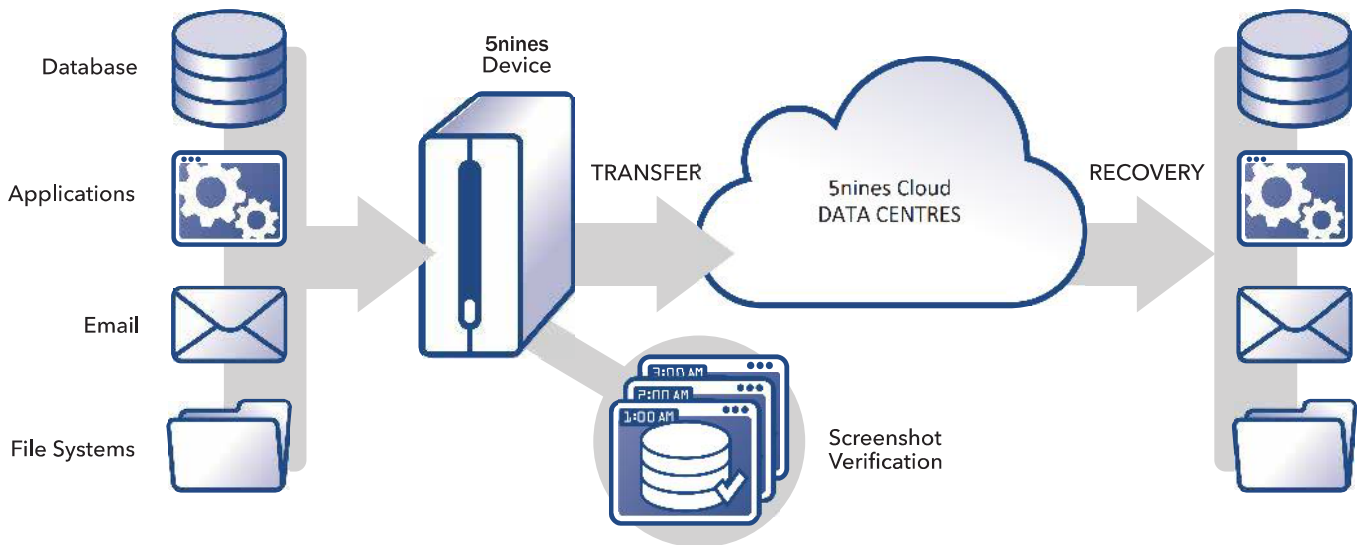


## 4 Criteria of Intelligent Business Continuity BEYOND BACKUP AND DISASTER RECOVERY

As we move further into the age of high availability and instant gratification we must adapt our business practices to this ever-changing demand. Similar to most markets, data protection requires a far different product than it did at the turn of the century. “Out of sight, out of mind” is not an acceptable strategy for off-site backup.



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**Your business continuity solution should protect against all factors of risk.**

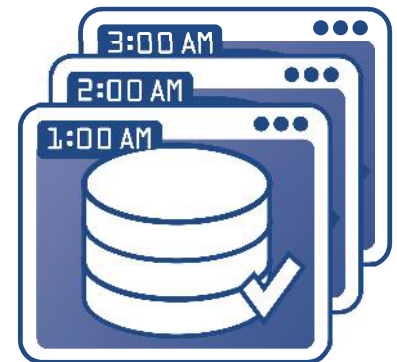
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Leading edge companies properly value their technical and business assets, and build a plan to keep them secure no matter what happens. Building a complete continuity plan requires innovative technologies with smart and easy to understand management tools. With more complex and comprehensive systems, however, you must be able to balance it with technician time to configure and support the system. Just because your television remote allows you to watch four programs at once doesn't mean it is practical for your user experience.

As we explore the different types of risk in IT infrastructure, we will also suggest ways intelligent business continuity can help mitigate that risk. Before we can fully explore the risks in data protection we must understand what risk is, and how it pertains to business practices used today. Risk, when used in the IT space, refers to the chances we take with data that is used in business practice. A monetary value was given to recreating lost data by the National Computer Security Association; 20 Megabytes of sales data lost cost £17,000 to recreate, £19,000 for accounting data and up to £98,000 for engineering data. The NCSA couldn't place a value on recreating medical data because it usually isn't possible, and with the current regulations a violation would cause audits and penalties that would throw most practices into bankruptcy. Assigning a monetary value to data makes it easier to understand why small measures to preserve it can hold a great deal of value. Risk for data loss is not limited to traditional disasters such as hardware failure or natural disasters. IT infrastructures are constantly being attacked by outside viruses and are at risk of the dreaded rogue employee. Technically your business continuity solution should protect against all factors of risk.

### Screenshot Verification: Automated Assurance

One of the main risks that businesses are suffering from today is being unaware if their backups are working properly. When virtualisation first came around as a way to keep businesses running continuously, users would assume the backups were being taken and that the virtual environments would spin up in the event of a disaster. Unfortunately, it just isn't that simple. When converting a physical machine to a virtual one there are several moving parts that have the tendency to fail without notification. Even once you have created the virtual machine you must then boot the machine, and that process has a tendency to fail just like a regular server/workstation. A famous case of failed backups without notification is the Pixar team working on "Toy Story 2". In this event a designer apparently used the Linux command `RM*` which is a remove all command. They started to lose large amounts of the film as a result and



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**5nines's intelligent business continuity uses automated assurance to make sure systems are always bootable.**

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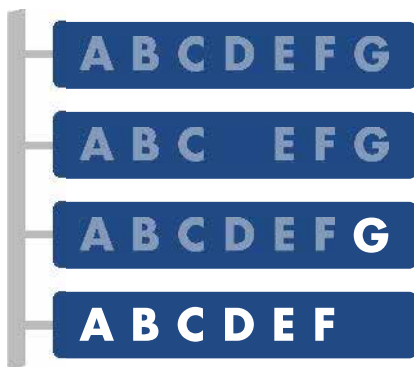
had to failover to the backup system they were using. Well, unknown to them the backups they were taking multiple times a day were not operational and they didn't have an image to restore to. Luckily the team was saved in this case by the technical director that had a copy on her personal computer at home. Many companies are not as lucky. The moral of the story is to have a system in place for verifying

that your backup images are in fact bootable. Depending on your system this process may take a large amount of time and be wasteful to your company.

5nines's intelligent business continuity uses automated assurance to make sure systems are always bootable. The Screenshot Verification feature on the 5nines Enterprise gives users the ability to save backups in a VMDK (Virtual Machine Disk Image) format, which then can be booted automatically on the next day. It also allows the user to pick the frequency for this process based on individual need; for example, critical machines might be tested every hour and simple file servers just once a day.

Once the machine is spun up the machine will take an image of the boot screen and run that image through 5nines's software that verifies or rejects the backup. Finally the image is prepared in an email alert which is sent to the user. This entire process takes as little as three minutes and could mean the difference between knowing that a problem has occurred with your backups or letting the risk of data loss grow unknown to you.

### Inverse Chain Technology: Continuous Protection



Files are only saved once, whether they are deleted or recovered

Once you have taken your first backup and the systems are protected, a new challenge emerges. How do you manage this growing list of snapshots to optimise both storage space and archived data? Sometimes the risk of data loss is not because the data was never protected, but rather that it was saved, and then deleted before you needed it. The user may not know they needed to restore a file till one week, month, or even a year after it had been backed up. If they are keeping a reasonable budget we know they can't afford to hold all data and changes forever, but we can make the ratio of saved data to unique data as close to perfect as possible. To achieve this we must look at how the data is stored on the backup appliance.

Another component of intelligent business continuity is continuous protection, which refers to the Inverse Chain Technology used on the 5nines Enterprise. The way our backup chain works may be one of the more complex, yet important, parts of our system as a whole. The goal was to find a way to hold snapshots together without having them be dependent on each other like traditional backups. The solution was to have a series of locked snapshots that would only hold unique data and have the "full backup" at the top of the chain thus giving us an inverse chain. The locked snapshots are referring to a string of data that is a mirror of the system at the time it was protected. The true innovation is that new snapshots are compared to every other snapshot instantly and won't save the redundant data twice. Thus your backup chain is comprised of unique data and all the data points can be virtualised, restored from, and deleted at any time. Finally, because we use ZFS the data is compared on the bit level and order is irrelevant; meaning files that are moved or database systems that run a maintenance program don't need a new backup because a file has moved location. These tools allow a user to get the full original backup. Users also have the granular ability to set custom backup schedules and can customise the way their backups are rolled from intra-dailies to dailies and beyond. Once rolled up they can then be safely sent off to the data centre.

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**These tools allow a user to get the full space of their device and store more snapshots on a smaller space than traditional backup.**

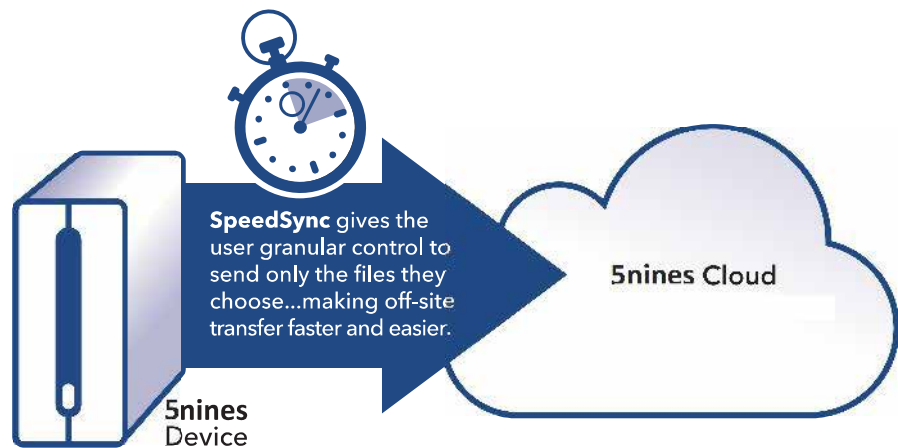
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## SpeedSync: Securely Stored

There are quite a few different data centers out there and finding the right one for you or your clients can be a daunting task. Much like sending your child to college you have to make sure the environment the snapshots go to is safe and properly maintained. At 5nines we have southern data centres that are the pinnacle of security and technology. The advantages of our off-site data centre network starts at the customer's site. One of the biggest risks involved with cloud storage is bandwidth. You may have an excellent data centre but if the connection between that site and your business is not enough to effectively get data off-site, your solution will not work. For the most part control of bandwidth speed can be limited or out of your control. What you do have control of is how to package the data before sending it to the data centre. If you wanted to copy your entire 500-gigabyte production server to the data center everyday then you would need some of the fastest internet connections around.

With 5nines's SpeedSync™ technology you can actually pick what data points you want transmitted at what time and which agent gets off first. This granular control of bandwidth is truly an industry first and enables companies

with slower transmit speeds to fully protect off-site. A process like this minimizes the risk of having your data transfer behind or incomplete. Our inverse chain also allows you to change how you store or transmit data at any time with no need to reload your full backup. The data centers themselves hold both HIPAA compliance and SOX certifications. With over 12 petabytes of protected data we are experts in cloud storage and use our scale to get extremely competitive pricing for storage.



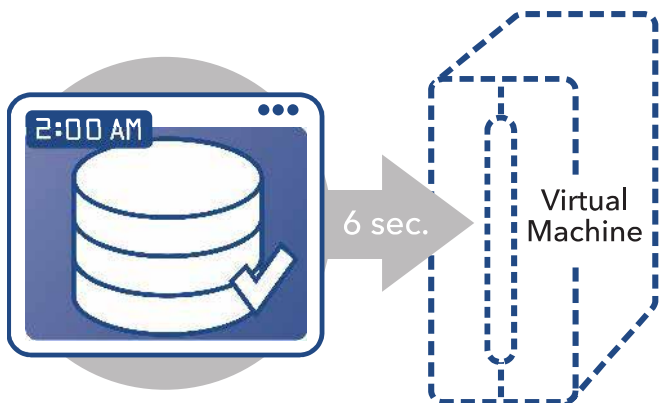
## On and Off-site Virtualisation: Instantly Recover

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**According to a Gartner Group study close to 25% of PCs will fail this year alone. So how do you avoid the downtime associated with hardware or software failure?**

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So you have now taken the risk out of protecting and monitoring your data, but unfortunately you can't take the risk out of disasters happening. All hard drives will fail after a certain number of hours. According to a Gartner Group study close to 25% of PCs will fail this year alone. All hard drives will fail after a certain number of hours. So how do you avoid the downtime associated with hardware or software failure? You adopt an intelligent business continuity plan that has instant virtualisation of failed systems.



Our high availability 5nines Enterprise units are able to convert a backup into a running system in as little as six seconds. That's almost immeasurable downtime for a business, and because the system is connected to the network, the user experience will be no different than the production machine. Sure, this will work for local failures but what happens when a natural disaster or fire hits an entire business? Our system was built on an intelligent platform that allows for instant virtualisation in the centres centres with complete system replication. Not only will 5nines host your entire IT infrastructure, we also have network experts available at no extra cost to set users up with custom VPNs and public IPs.

## Conclusion

The risks of protecting data have become more complex as the technology and market for services has changed. Traditional backup and disaster recovery solutions may have been sufficient in the past but now an intelligent business continuity plan is required to take the risks out of data protection. 5nines is an award-winning provider of intelligent business continuity solutions for small and medium-sized businesses, and includes a knowledgeable and technical support staff that is available during extended hours and around the clock for emergency support situations.

To learn more about 5nines and our intelligent business continuity solutions, call **01527 570 535** or visit [www.5-nines.co.uk](http://www.5-nines.co.uk)