Enabling Fast
Ransomware
Recovery

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The Challenge

In today's connected world, ransomware attacks have become an everyday occurrence. There is a real chance that your organisation's data will get locked at some point. When this happens you want to be able to recover that data, and quickly.

Simultaneously, business services offered to end users, rely more and more on data, increasing the business impact of any data-outage. In order to be better prepared and to empower businesses to quickly regain operations in case of such an attack, IT must not only implement detection and prevention mechanisms but also have a reliable and proven remedy to quickly recover the data.

Ransomware-Specific Challenges Compound Existing Ones

While human errors still happen, they are usually discovered relatively quickly and therefore can be recovered from a recent backup. This translates to a small amount of data being copied from the backup target to the production environment.

However, ransomware changes that. As it stays dormant by design to encrypt as much data as it can. Without changing too much at once, it can remain undetected for a long time. This ransomware-specific behaviour results in large amounts of data movement during recovery, longer recovery times and shifts the focus from backup speed to recovery speed.

At the same time larger dataset sizes and big data solutions have also raised the size of data being backed up (or recovered), further aggravating the operational challenge.

Performance

For years, we have been focusing on accelerating backup speeds/times, to minimise the impact on production environments, during the backup window and accepting longer recovery times as a fact-of-life. However, as the criticality of data for running customer-facing business services increases, long recovery times are no longer accepted.

 With backup capacity often surpassing production capacities due to many generations being saved (as a result of regulatory requirements, ransomware protection and other motivations), organisations aim to use low-cost high-capacity media such as NL-SAS to keep costs under control. However, traditional backup targets have not been designed to optimise this media for high read throughput, resulting in an ill-equipped solution for today's fast recovery needs.

What Limits Recovery Speeds?

In order to augment backup speed, synthetic full backups and deduplicated storage of backups are adopted. The recovery process requires assembling data from multiple generations of backups, all residing in different physical locations (unless explicitly designed to avoid this).

The result of this is a pseudo-random read pattern during recovery, resulting in random IO sent to the drives, which negatively impacts recovery time.

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Cost

Many customers, frustrated with slow recovery speeds and lack of innovation from traditional backup-target vendors, have been looking to move to All-Flash solutions to solve the random IO problem, thus dramatically increasing the cost of the backup target.

With some (and sometimes most) data undergoing deduplication at the source, it is no longer possible to meaningfully reduce its capacity in the target, making Flash capacity even more expensive.

Innovation is required to prevent organisations from overspending on backups, enabling them to shift budgets back to innovation in their own IT.

Resiliency

As data is the most important asset of any organisation, the need to recover this data in a timely fashion in case of a data breach has become of the utmost importance.

Slow recovery times due to hardware/software failure are simply unacceptable. The IT infrastructure must be brought to the level of five nines (99,999% availability) required from all critical components.

For years backup vendors have been putting their customers at risk, either by lacking in support for HA in backup targets, or by making it hard for customers to achieve reliability. By offering this as an add-on license (this was often dropped during price negotiations).

Elasticity

In a world where organisations compete for new customers by accelerating the rate at which they offer new services, business agility means competitive advantage. Backup has become a bottleneck, often requiring shipping of additional components higher capacity or faster backups to support a new business service and its data. The reliance on 1970's procurement models for agile infrastructure results in lack of flexibility and longer deployment times. Modern automated deployments models need to be implemented across all tiers, backup included, without waiting for shipments, and to leverage CapEx or OpEx as the business units require.

The Solution

InfiniGuard by Infinidat is the only solution in the market today to accelerate recovery time (from ransomware or traditional data corruption) without any trade-offs.

Performance

InfiniGuard uses InfiniBox as its backend, instead of traditional JBOD arrays used in other backup targets, adding an innovative software layer that arranges the data layout in a recovery-optimised manner without sacrificing backup speeds. All backup threads are acknowledged from battery-protected DRAM and then optimised in a sophisticated layout on disk to achieve maximum recovery speed.

Additionally, each InfiniGuard system is shipped from day one with 240 disk spindles that together with the use of our patented InfiniRaid technology allows for a massive read throughput as each recovery operation is served from all 240 spindles in parallel. This cannot be achieved by other backup targets, which use traditional RAID6 groups.

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Cost

The use of InfiniBox as the underlying technology for InfiniGuard,permits organisations to maintain the use of low-cost high density NL-SAS media with all its cost benefits. It also facilitates fast recoveries without the need to invest in expensive Flash-based solutions, while simultaneously enabling customers to scale to 2PB usable in a single rack. This dramatic consolidation ratio removes the administrative overhead of managing multiple backup appliances, and constantly having to decide where to place each backup.

InfiniGuard variable block size deduplication technology enables very high reduction ratios (up to 3X compared to fixed block size) that further drives down the cost of keeping multiple copies of data for the long term.

Resiliency

InfiniGuard was designed to be resilient to five nines and beyond:

It's backend is InfiniBox that is designed for seven nines (99.99999% availability) and has an N+2 architecture across all data path components allowing high reliability even when an entire controller has failed.

Its front-end deduplication and compression engines come with a spare passive controller (3 controllers in total working in an Active-Active-Standby configuration) to enable failover without waiting for hardware to be shipped, enabling quick recovery from failures and protecting the organisation's data protection SLA.

Elasticity

InfiniGuard comes fully configured from day one with its maximum capacity, allowing customers to scale virtually without waiting for any HW/SW shipment. Instead, you can start using the capacity when you need it to gain business agility, and get an invoice in the following month for the newly provisioned capacity.

This means your system has the maximum reliability and performance from day one and you get elasticity in your critical backup infrastructure without committing to buying the entire capacity - and all with flexible CapEx and OpEx options!

Summary

To enable modern organisations to meet the growing data protection challenges, the backup infrastructure should be designed for elasticity, increased recovery speed as well as backup speed and without compromising resiliency.

Infinidat's InfiniGuard is the only backup appliance in the market today that was designed bottom-up to deliver on all these modern IT requirements.

For more information visit the InfiniGuard page on our website.