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FalconStor StorSafe™ vs. Dell/EMC Data Domain® Comparison

INTRODUCTION TO STORSAFE

FalconStor is working with leading enterprises and MSPs around the globe that run StorSafe software on standard servers to create a backup-to-disk target that reduces backup data by up to 95%, then stores it on any SAN disk array. For offsite protection, StorSafe can make tapes or transmit copies of backups to an MSP, a remote site, or any cloud for safety.

TWO APPROACHES TO BACKUP-TO-DISK TARGETS

To solve the performance problem on-premises, backup to disk is the universal answer. StorSafe and Data Domain both provide a backup to disk target that is compatible with all the popular enterprise-class backup and restore applications, but the two products take vastly different approaches. StorSafe takes a modern, 100% software defined approach, so it uses standard compute servers and works with any vendor's storage, while Data Domain delivers backup appliances and storage vendor lock-in pricing.

COMPARISON OF STORSAFE TO FIXED BACKUP-TO-DISK APPLIANCES

	Backup-to-Disk Appliances	StorSafe Software Defined
Up to 9 Industry-standard Servers for 160TB/hour	N	Y
Add additional storage from your SAN as Needed	N	Y
Get Unlimited Capacity via exports to Object Storage	N	Y
Avoid hardware vendor lock-in and Forklift Upgrades	N	Y
Active - Active High Availability Architecture	N	Y
Make physical tapes for offsite protection	N	Y
Use cloud object storage for offsite protection	Y	Y
Use asynchronous replication for offsite protection	Y	Y

100% Software Defined approach has many advantages over Backup-to-Disk appliances

There are two different architectures for backup to disk targets. The StorSafe approach is 100% software based so the customer gets to decide the hardware that they will use, can add additional hardware as needs grow, and avoid being locked into a single storage vendor.

With an appliance you buy a certain fixed amount of CPU and RAM. Usually, you can add disk trays to increase the capacity up to a point but with each tray the

performance of the system struggles to keep up. Stepping up to a larger backup-to-disk appliance is usually a disruptive, painful, and expensive endeavor.

In contrast, with StorSafe you can add up to nine industry-standard servers to achieve and industry-leading throughput of 160 TB per hour. When StorSafe as more capacity is needed it's as simple as providing it to the StorSafe servers from your SAN.

Because the StorSafe Software runs on a large variety of enterprise hardware you can continue to use the vendors that you prefer and avoid hardware vendor Lock-In. The StorSafe servers use an active-active high availability architecture to ensure that the backup-to-disk target will always performance function as required.

For offsite protection of backup data StorSafe can create physical tapes, export backups to cloud object storage, or replicate from an on-premises StorSafe to a twin StorSafe running in a cloud for continuous offsite protection of backup data.

PLAN FOR PERFORMANCE AND CAPACITY NEEDS

EMC Data Domain has the limitation that any given appliance has a fixed amount of CPU performance. Once you pick your initial capacity range, an appliance is locked-in, and that CPU performance cannot be increased.

As a result, when the appliance is first purchased, performance may meet the customer's needs, but as disk shelves are added over time to handle growing amounts of data, that same appliance CPU must service all of them, and more I/O requests, resulting in performance that quickly becomes unacceptable. This problem is quite common, as data in the enterprise typically grows at 39% per year, on average.

Data Domain's answer is to sell the customer a brand-new, larger appliance. This is expensive and disruptive, as the new appliance must be purchased, racked in the datacenter, set up, and managed. This is what is commonly called the EMC forklift upgrade, and it is not welcomed by the EMC customers.

One answer to the Data Domain performance problem which can help a bit is to sell the customer the more expensive "Data Domain with Boost" appliance. While "Data Domain with Boost" can help to shore up sagging performance, it does so by pushing deduplication back onto the backup servers or application servers, slowing them down. And DD Boost does not change the fact that the customer will hit a maximum capacity wall for their DD appliance, will have to buy new Data Domain Appliances, and experience forklift upgrades.

When performance becomes a point of comparison, it is important to note that up to 4 industry standard compute servers can be dedicated to StorSafe ingest,

each delivering 40TB/hour, for a total throughput of up to 160TB per hour, far exceeding what EMC can deliver with the “Data Domain with Boost” appliances. And, up to 5 additional servers can be clustered to provide a high-availability deduplication engine that keep up, without borrowing performance from other servers in the organization.

For product specification see vendor Web sites at StorSafe Product Brief and Data Domain Spec Sheet.

Learn more about StorSafe, StorSight, and FalconStor Software at http://www.falconstor.com