

FALCONSTOR

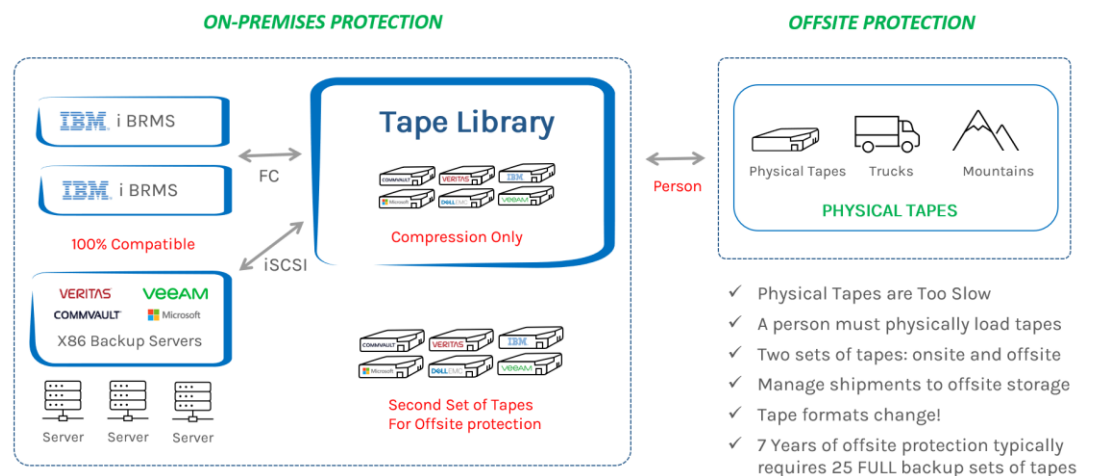
Executive Summary

# Modernize IBM® i Backups with StorSafe® VTL

## IBM® i POWER SYSTEMS ENVIRONMENTS TODAY

IBM Power Systems running the IBM i operating system has evolved from the AS/400, which was introduced in 1988. Today IBM i powers over 500,000 enterprises worldwide running mission-critical business applications based on the DB2 database such as ERP, CRM, HR, banking, insurance, healthcare, and applications used by state and national governments, and is growing.

IBM® i applications hosted on IBM Power Systems are the most business-critical, so it is vital that every aspect of their operation, including backups, meet exacting service level agreements to fulfill business objectives, corporate compliance requirements, and regulatory mandates. With exploding data growth, backing up a Power System running IBM i to a tape library can frequently take as long as 12 hours.



Tapes are too slow, unreliable, and offsite storage of backups surfaces additional issues. That's why IBM i customers are world-wide have modernized their backup operations to use a virtual tape library, where backups are deduplicated to keep their size small, then stored on on-premises disk for speed and reliability. For offsite protection, encrypted backups are transmitted offsite using tapes, writing to remote disks, or leveraging a remote cloud.

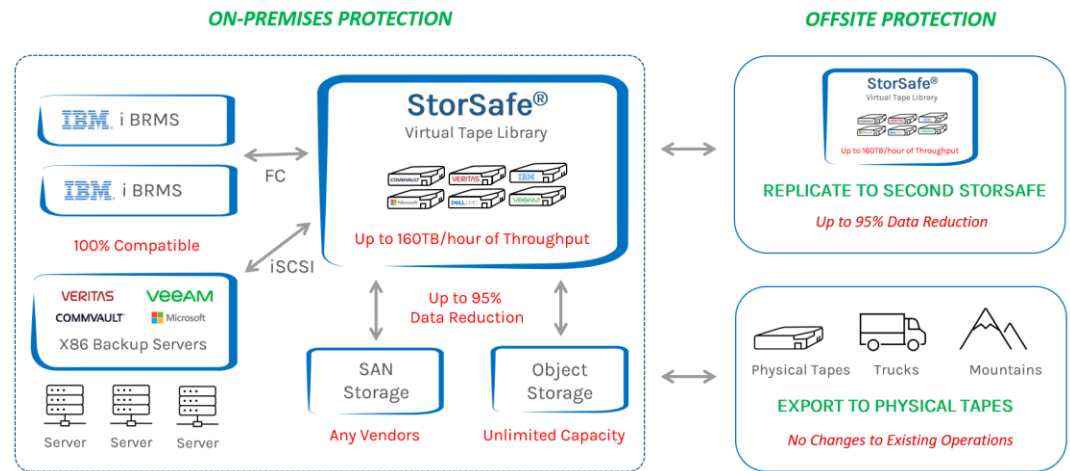
## INTRODUCING FALCONSTOR® STORSAFE® VIRTUAL TAPE LIBRARY (VTL)

StorSafe® is a great solution to modernize IBM i backup environments, allow businesses to meet their backup windows, and provide secure offsite protection of backups. The StorSafe VTL is 100% compatible with your existing backup software including BRMS, because it emulates all IBM i supported tape drives and libraries in a modern, disk-based solution. StorSafe is a 100% software solution that you run on any industry-standard x86 servers or VMs to create a backup-to-disk target that is accessed over Fibre Channel or iSCSI. VTLs powered by StorSafe scale down and up better than anything else on the market using x86 servers and

storage you provide to it as a LUN from any vendor's disk array or object storage system.

## ON-PREMISES AND OFF-SITE DATA PROTECTION FOR IBM i

StorSafe replaces the physical tape library with a backup-to-disk target that looks like a tape library, so it is 100% compatible with existing backup software and operations. As backups arrive, they are deduplicated inline to reduce their size by up to 95% while achieving industry-leading performance of up to 160 TB per hour of throughput.



When it comes to protecting backup data offsite there are choices: go old school with physical tapes and trucks or run a second instance of StorSafe offsite and efficiently replicate to it continuously so backup data is always protected while retaining its full data reduction of up to 95%.

## BENEFITS OF USING STORSAFE VTL FOR IBM i ENVIRONMENTS

The FalconStor StorSafe VTL offers a clean and simple way to modernize backup environments that currently rely on tape, offering the following benefits to IBM i environments:

- Non-disruptive – Appears as a physical tape library to IBM i
- Native emulation of all IBM i tape drives and libraries, including IBM 3580, 3590, 3592, TS1120 tape drives; LTO-1 to LTO-7 tape formats, and IBM 3583, 3584, and 3590 libraries
- Supports all IBM i backup tools and methods (BRMS, LXI MMS, SAVLIB, Robot Save, media policies and IPL) without any process change
- Supports mixed open system, IBM i, and mainframe system environments
- Offers the flexibility to create as many tape targets and libraries as needed
- Higher performance (backups and restores) with connectivity across 16Gb/sec FC links

- Integrated deduplication reduces the size and cost of storing backups
- Scale power of the VTL from a single VM to using up to 9 industry-standard servers

### COMPARISON OF BACKUP-TO-DISK ARCHITECTURES

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.

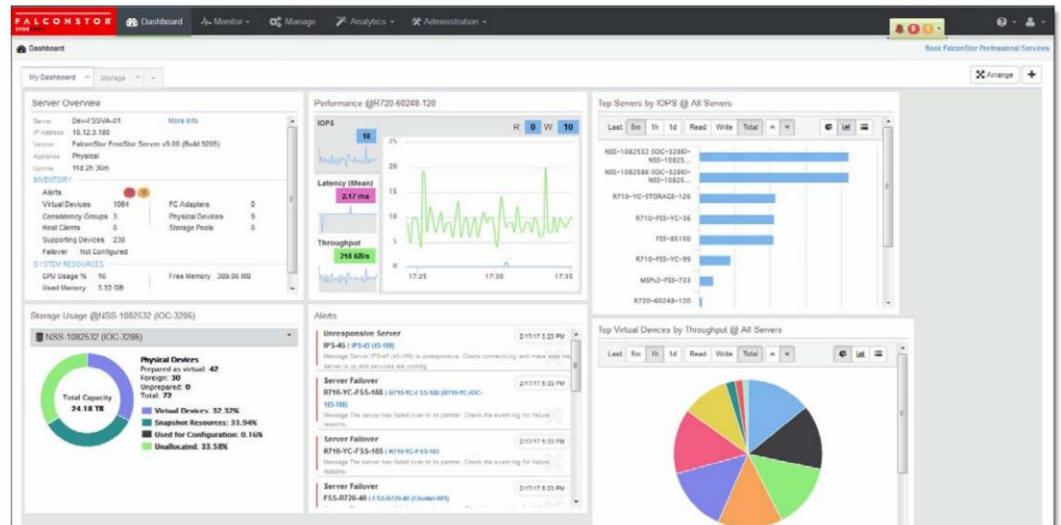
	Backup-to-Disk Appliances	StorSafe Software Defined
Up to 9 Industry-standard Servers for 160TB/hour	N	Y
Add additional storage from your SAN as Needed	N	Y
Get Unlimited Capacity via exports to Object Storage	N	Y
Avoid hardware vendor lock-in and Forklift Upgrades	N	Y
Active - Active High Availability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

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 an industry-leading throughput of 160 TB per hour.

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 highly deduplicated backup data.

## STORSIGHT USER EXPERIENCE & LICENSE MANAGEMENT

Through the StorSight management capability, customers get clear visibility about the status and health of backup operations worldwide. Predictive analytics give IT administrators enough time to avert problems that might otherwise occur in the future.

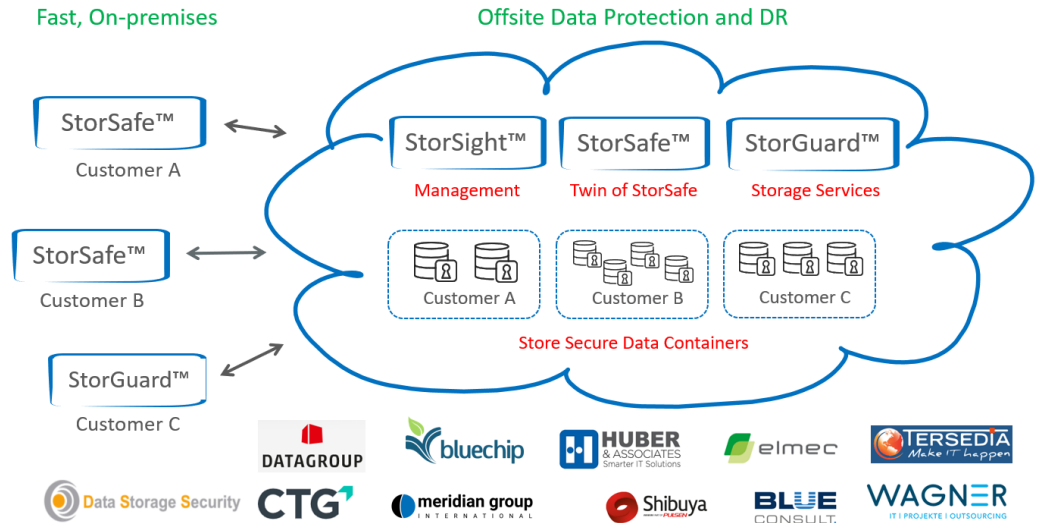


Licensing has been simplified so all a customer needs to do that is to calculate the total capacity that they need FalconStor to manage, which determines the monthly subscription price. Licenses are no longer tied to individual servers. Any number of instances of StorSight, StorSafe, and StorGuard can be run at any number of locations, using a portion of the total capacity that is licensed.

Flexible licensing, based on one total capacity number, makes it easier for customers to use FalconStor software in new ways within their organization to meet various needs as they arise within the business. Like any subscription software, all future software updates are included as is worldwide support.

## MSPS AND ENTERPRISES OFFER DATA PROTECTION AS A SERVICE

A strong and growing number of enterprises and MSPs offer Backup as a Service (BaaS) based on FalconStor software, in combination with servers and storage purchased from any vendor.



BaaS helps enterprises and MSPs looking to modernize backup and archival operations for their customers, allowing them to protect mission-critical data within the backup window, ensure backups are securely and efficiently stored on-premises for fast restores, and transmit a copy of backup data offsite for safety without the hassles of tapes.

## ESSENTIAL NEW CAPABILITIES FOR FALCONSTOR VTL CUSTOMERS

StorSafe and StorSight add essential new capabilities for FalconStor VTL customers. As the latest release of our VTL product, StorSafe continues to deliver 100% compatibility with existing backup software, industry-leading throughput of up to 160 TB per hour, up to 95 percent reduction of backup data over time in the single instance repository. StorSight delivers secure Multi-Tenancy, Role-Based Administration, bill back for users of the system, a real-time dashboard, and the new license manager.

VTL StorSafe

Y	Y	100% Compatible with existing backup software
Y	Y	40TB/hour per node x 4 nodes for 160TB/hour of throughput
Y	Y	95% Data reduction of backups
Y	Y	Scale-out as needs Grow
Y	Y	Avoid vendor lock-in and appliance forklift upgrades
Y	Y	Export physical tapes for offsite protection
Y	Y	Performance, compatibility, and security patches
N	Y	<b>StorSight</b> management across all sites and clouds through firewalls
N	Y	<b>Total Capacity License</b> - run any number of StorSafe and StorGuard
N	Y	<b>StorSight</b> Multitenancy, RBAC, Billback, Dashboard, License Manager
N	Y	<b>Secure Data Containers</b> for unlimited capacity & offsite protection

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