Hedvig

Backup Tool Kit

Reduce your storage backup cost by 60%.
Get started today!

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CHECKLIST

5 Things You Can Do to Minimize Datacenter Downtime

What is your disaster recovery strategy? Or better yet, do you have a disaster avoidance strategy? According to a Ponemon Institute study, businesses suffer an average of 2.2 days of IT downtime in a year. That equates to a cost of nearly $400,000. Datacenter outages can cause severe losses during downtime, but this doesn't have to be the case. When an outage occurs, enterprises shouldn't feel like they're scrambling to bring their business back online. Hedvig offers several recommendations for your consideration.

1) Establish Reliable Power Sources

- Prepare for power to fail for any number of reasons. Select reliable power sources that manage interruptions and overloaded circuits.
- Combine UPS and alternative power sources like generators to ensure continuous power delivery.

2) Conduct an Internal Assessment of Applications

- Conduct a business impact analysis and determine which applications are most critical for your business operations.
- Prioritize business critical applications as Tier 0, and tier other services based on next level priority.
- Automate how these services are recovered.

3) Map Out Application Dependencies

- Create a roadmap for the dependencies between applications, including both apps and their data.
- Optimize for two criteria:
  - **Recovery Time Objectives (RTO) — the maximum tolerable length of time that a business service or process can be down after a failure or disaster occurs**
  - **Recovery Point Objectives (RPO) — the maximum tolerable length of time that data can be lost or unavailable**

4) Ensure Critical Data is Replicated

- Make certain that all data replication activities are up to date. Diligently replicating data can help avoid instances in which downtime occurs and the replicated data is unusable because it's not in sync.
- Coordinate replication efforts at the infrastructure, database, and application layer to make sure you're not over or under replicating.

5) Consider Software-Defined Storage

- Look for modern software-defined storage (SDS) platforms that have replication built in. This reduces the capital and operational challenges associated with disaster recovery.
- Use software-defined storage to reduce RPO to zero by eliminating data loss and to reduce RTO to hours or minutes.

Chance favors those who are prepared. Consider software-defined storage solutions like Hedvig that are built as true distributed systems and minimize or even eliminate downtime. Watch our on-demand webinar to learn more.

ABOUT HEDVIG

Hedvig reduces enterprise storage costs by 60% while accelerating their migration to cloud. The Hedvig Distributed Storage Platform combines block, file, and object storage for bare metal, hypervisor, and container environments. Hedvig is the only software-defined solution built on a distributed system that gets better and faster as it scales.

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SOLUTION BRIEF

Software-defined Storage for Backup and Recovery

Reduce costs, simplify scaling, and ensure availability

Data is the lifeblood of modern business – protecting it is a number one priority for today's enterprise. The Hedvig Distributed Storage Platform integrates with your data protection software to deliver elastic backup and recovery storage that lowers costs, simplifies scaling, and ensures your data is always available where you need it – onsite, offsite, and in the cloud.

Reduce backup costs

Embrace the economics of commodity server hardware and the simplicity of software-defined storage to lower the cost of storing and managing backup data. Reduce backup storage costs by 60% or more.

Protect more data, faster

Scale performance and capacity independently to deliver high-speed ingest rates that shorten backup windows while simplifying capacity expansion by adding additional nodes as needed. Inline global deduplication and compression eliminate redundancy 10-30x and enable more data to be stored on a smaller footprint.

Store across sites and clouds

Store data securely on and offsite with built-in multi-site replication for disaster recovery. Create one to six copies of data across any number of active data centers and public clouds – all managed as a single logical backup storage cluster.

A modern approach to backup storage

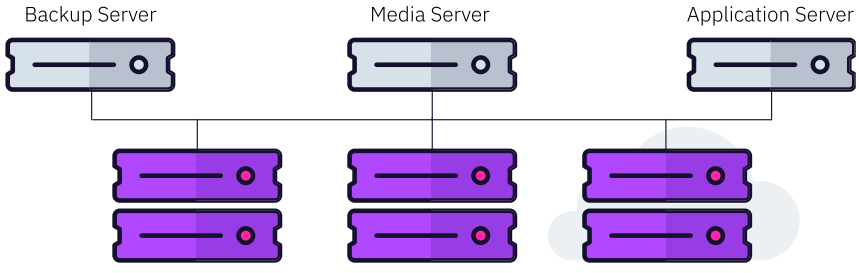
The Hedvig Distributed Storage Platform is the industry's most complete software-defined solution built to deliver elastic, resilient, storage that is ideal for data protection and recovery operations. Utilizing commodity server infrastructure and cloud instances to form a dynamically scalable, hybrid, backup storage system, Hedvig enables a scale-as-you-grow platform that helps you meet ever-shrinking backup windows and lower the cost of storing growing volumes of data.

Hedvig's comprehensive suite of enterprise storage capabilities like inline global deduplication, compression, snapshots, clones, and replication help you meet any protection, disaster recovery, and availability requirement with a single solution. You can selectively assign policies to match your recovery point objectives (RPO) and recovery time objectives (RTO), eliminating the cost and complexity of managing multiple disparate storage solutions.

With Hedvig, a single logical storage cluster can span two or more data centers and clouds giving you the flexibility to locate data copies where you need them to meet the availability and data locality requirements of your business.

Backup Applications

Veritas NetBackup & Backup Exec ◊ Commvault Simpana ◊ EMC NetWorker
Veeam Backup & Replication ◊ IBM TSM ◊ HP Data Protector ◊ Arcserve UDP



Hedvig Distributed Storage Platform

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Advanced Storage Features

- iSCSI, NFS, and object (S3, Swift) storage protocols
- Unlimited Virtual Disk size
- Inline global deduplication
- Client-side deduplication
- Compression
- Zero-impact snapshots and clones
- Tunable replication
- Cross rack, site, and cloud disaster recovery policies
- Thin provisioning
- Cluster self-healing
- Auto-balancing and tiering
- I/O sequentialization

“The product is easy to use and it can grow with us. We just replace or add servers as we extend capacity and update the system in the future. Hedvig’s approach is more predictable.”

— Christoffer Niemi, IT Architect, LKAB

LEARN MORE

How it Works

Hedvig software installs on x86 or ARM-based off-the-shelf servers or cloud instances to form a dynamically scalable storage resource pool. Support for block, file, and object storage interfaces to give you maximum flexibility for integrating a Hedvig cluster with your backup software. Simply configure backup servers and media servers to connect to a Hedvig Virtual Disk as backup-to-disk target and run your regularly scheduled backups.

Advantages of backup with Hedvig

- **Customize storage to fit your service levels** — Set features on a per volume basis to best fit your protection and disaster recovery requirements.
- **Deliver predictable, high-speed ingest rates** — Ensure data is protected within backup windows.
- **Improve RPO and RTO service levels agreements** — Protect data more frequently and speed recovery to eliminate downtime and data loss.
- **Protect data across sites and clouds** — Automatically replicate data to offsite data centers and clouds for disaster avoidance and high availability.
- **Create point-in-time snapshots and clones** — Support off-host, application-consistent backups. Rollback volumes for quick recovery.
- **Scale seamlessly with an elastic cluster** — Scale capacity on-the-fly with your choice of standard commodity servers.
- **Eliminate forklift upgrades** — Refresh hardware non-disruptively by adding new nodes and removing old nodes from the cluster.

Software Specifications

Storage Protocols	Block	iSCSI
	File	NFS
	Object	AmazonS3, OpenStack, Swift
Block	Starting at 1.8TB/hr	Variable based on storage node hardware configuration and quantity
Max. Capacity Per Cluster	Unlimited	Add nodes/drives to increase capacity and throughput
Deduplication	10-30x average data reduction	
	Inline global deduplication with client-side deduplication option.	
Replication	Number of copies	1-6
	Synchronous and asynchronous with agnostic, rack-aware, and datacenter-aware policies	
Snapshots	Maximum number of snapshots	Unlimited
Clones	Maximum number of clones	Unlimited

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CASE STUDY

Hedvig

Leading Mining Company Adopts Hedvig and Cisco for Software-Defined Storage that Simplifies and Future-Proofs Backup Operations

Hedvig

Company Profile

LKAB is the world's technologically leading supplier of iron ore pellets to the global steel industry.

The company mines the world's two largest underground iron ore mines.

LKAB maintains profitability by being innovative and adapting iron ore mining to large-scale underground mining in a costeffective manner.

Summary

LKAB uses Hedvig software-defined storage to transform how they store, expand, and manage their backup-to-disk environment.

Hedvig provides LKAB with a more scalable and predictable storage solution atop Cisco UCS servers that helps lower the cost of their data backup operations.

Data is the lifeblood of modern business – protecting it is a number one priority for today's enterprise. The Hedvig Distributed Storage Platform integrates with your data protection software to deliver elastic backup and recovery storage that lowers costs, simplifies scaling, and ensures your data is always available where you need it – onsite, offsite, and in the cloud.

Hedvig's comprehensive suite of enterprise storage capabilities like inline global deduplication, compression, snapshots, clones, and replication help you meet any protection, disaster recovery, and availability requirement with a single solution. You can selectively assign policies to match your recovery point objectives (RPO) and recovery time objectives (RTO), eliminating the cost and complexity of managing multiple disparate storage solutions.

Challenges

"LKAB has quite high-demands for technology throughout the entire production process." At every point – from exploration and mining, to the refining of raw materials and delivery – LKAB takes advantage of IT innovations to maintain a competitive edge in the market.

Data storage is an area of great importance the company – and a source of significant cost. LKAB carefully selects the storage platforms in which it invests. The organization is presently on its fourth generation of enterprise storage. Each solution has brought new advances and helped LKAB better meet business objectives. Each however has also had some common limitations.

The company found it a big challenge when disk space ran out in traditional systems. It took a long time to order, receive, and install additional storage. “In all of these solutions you end up with the same basic problem. You have to oversize according to what you think you will use in a couple of years and this makes the initial investment unnecessarily expensive,” says Pohjanen. “You have to throw away all you have and do a forklift upgrade every time you meet the limitations and end-of-life of the current solution that you have implemented.” For LKAB this meant that every few years moving large amounts of data to a new storage solution and retiring the older solution – software and hardware.

LKAB generates data across a wide-range of applications including mining apps, transportation data, and general corporate data. LKAB is already experiencing a data deluge from its early Internet of Things (IoT) investments. For example, over 200 geophones in the field collect seismic data – each a couple of hundred GB a year – that helps the company explore and analyze the structure of the earth for new mining deposits. This data and data from throughout LKAB’s operations generated by over 500 servers in the environment is stored and maintained permanently. “We have to keep it forever because the historic data is very valuable in our industry; analyzing it determines where, when, and how we mine,” says Christoffer Niemi, IT architect at LKAB.Because of the value of its data and the long-term retention requirement, LKAB protects the information by backing it up on a frequent basis. Faced with the same challenges in the backup environment as in their primary storage environment, LKAB began looking for a new way to do backup storage. “We wanted to scale in a manner that we can calculate. We didn’t want to reach end-of-life or get to a point where we couldn’t upgrade any more on a device, forcing us to change the whole thing and rebuild the infrastructure again,” explains Niemi. “We did some market research and were convinced softwaredefined storage was the way to go.”

> “LKAB has a mindset that you have to do everything as efficiently as possible. This guides the company’s IT investments and architectures.”
>
> — Robert Pohjanen, Independent Storage Consultant, IITN

> LKAB has not only improved current operations, but is better equipped to manage future growth."
>
> — Johan Tungström, CEO, Layer-8 IT-Services

Solution

LKAB was introduced to Hedvig by Johan Tungström, CEO of Layer 8 ITServices, a storage, networking, virtualization and security specialist. The Hedvig Distributed Storage Platform is a highly-scalable software-defined storage solution that takes advantage of LKAB's Cisco UCS hardware to deliver elastic block, file, and object storage that keeps pace with changing business requirements. Hedvig harnesses the power of distributed systems, the simplicity of cloud, and a complete set of enterprise capabilities, helping LKAB tailor a modern, high-performance, storage system. "We saw that LKAB was ready to adopt a software approach to storage and identified that Hedvig could deliver a more flexible and costeffective infrastructure," says Tungström. "We worked closely with Hedvig to test and implement the solution, and LKAB has not only improved current operations, but is better equipped to manage future growth."

LKAB now backs up data to the Hedvig Distributed Storage Platform with Veritas NetBackup. A cluster of Cisco UCS servers hosting solid state flash drives and spinning hard drives run the Hedvig software and form a dynamically scalable backup storage system. The Hedvig software presents an NFS-based network share as a large deduplicated backupto- disk target to all of the NetBackup media servers and clients in the environment. The storage cluster spans servers in two data centers separated by a few kilometers. LKAB has configured the Hedvig software to replicate data between racks in a single data center as well as to a secondary site for disaster recovery protection. The company expects to host more than 500TB of backup data on the platform, and has additional data and application use cases on the roadmap.

“We looked at other software-defined solutions, and found either that they encountered serious issues working in our environment, or that the vendors weren’t really committed to the product,” comments Niemi. “What we like with Hedvig, is that they are focused on this solution. The product is easy to use and it can grow with us. Since we are using Cisco servers, we just replace or add servers as we extend capacity and update the system in the future. Hedvig’s approach is more predictable and leverages our investment in Cisco, which means a more predictable cost.”

LKAB compared the cost of traditional storage with the software-defined approach and found the software approach to be a lower-cost solution. “It was less expensive and we are not having to throw away the investment in a couple of years to buy a new one,” says Niemi. The company also did calculations on backup to the public cloud and determined the cloud to be a more costly solution. “When you start to get large — when you start to use lots of data — the public cloud isn’t that cheap anymore,” adds Niemi. “You lose a lot of things when you don’t control your data. We like to own the data ourselves.”

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Benefits

With the Hedvig Distributed Storage Platform, LKAB gains significant business benefits including the following advantages:

A software-focused approach that makes the storage investment an appreciating asset

A storage solution that leverages and extends investments in company-standard Cisco USC servers

The ability to scale storage as data grows without forklift upgrades or long deliver delays

Built-replication for multi-datacenter and cloud disaster protection and recoverability

Lower and more predictable costs for data storage hardware, software, and support

The simplicity of provisioning efficient, enterprise-class storage with a few mouse clicks

LEARN MORE

ABOUT HEDVIG

Built by software engineers of the world's largest distributed systems, Hedvig delivers modern storage for enterprise compute environments running at any scale. Customers using the Hedvig platform transform their storage from a box where data resides to a fundamental business enabler.

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