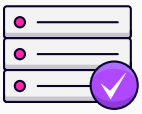
Hedvig

Hedvig Distributed Storage Platform

Always-On Data Fabric for Private, Hybrid, and Multi-Cloud

The Hedvig Distributed Storage Platform is a modern storage solution for any enterprise compute environment running at any scale. It's truly software defined, transforming commodity hardware into the most advanced storage solution available today.



Simple

Instantaneous provisioning and automated management

Collapse monolithic, disparate storage solutions into a single, modern platform. Streamline and automate provisioning. Bring the simplicity of public clouds to your datacenter.

Scalable

Scales to petabytes of data

Start with as few as three nodes and scale to thousands. Add capacity as needed. Embrace the economics of commodity x86 infrastructure, flash and HDDs to lower your storage costs.

Secure

End-to-End built-in Encryption

Encrypt360 provides software-based encryption and secures data inflight, in-use, and at rest. Encrypt360 integrates with external key management frameworks (such as Amazon's KMS) to simplify enterprise integration.

A single, programmable platform for primary and secondary storage

Traditional data storage systems no longer keep pace with the rapidly changing demands of modern applications and clouds and are difficult to manage as data grows exponentially. Hedvig delivers the flexibility to quickly and easily tailor storage for any workload from private and hybrid clouds including VMware, Docker, and OpenStack to big data and IoT, to disaster recovery, backup and archiving. Designed with distributed systems DNA, the Hedvig platform gets better and smarter as it scales, transforming a cluster of x86 or ARM servers into a highly flexible, cost-effective storage system.

The Hedvig Distributed Storage Platform enables:

- **A scale-out, software architecture** — Achieve the elasticity needed to grow data services in lock step with changing business requirements.
- **Flash-optimized data services** — FlashFabric™ leverages flash storage for dynamic tiering and optimized performance across private and public clouds.
- **Native, multi-site replication** — Natively replicate data across data centers and clouds to ensure locality and availability.
- **Full automation and orchestration** — Automate provisioning and management via orchestration frameworks and APIs for a composable infrastructure.
- **Application-specific data policies** — Match application needs with individual storage policies including deduplication, compression, replication, and encryption to meet unique data requirements.

> "GE Digital is witnessing a pressing demand for the Predictive Analytics (Predix) platform both in private and multi cloud environments. Hedvig's Universal Data Plane, with its multi-site, software defined architecture and native multi-cloud capability made it an obvious choice to power components of Predix storage infrastructure. With a demand for Predix in virtualized deployments today and containerized deployments tomorrow, Hedvig was a natural choice for GE Digital to future proof its deployment model."
>
> **— Jared Wright, Director of Infrastructure GE Digital**

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The Hedvig Architecture

Hedvig Storage Service

- Scales storage performance and capacity with industry standard x86 and ARM servers
- Delivers enterprise storage features that provide resiliency, disaster recovery, and high availability of data

Hedvig Storage Proxy

- Presents block, file, and object storage access at the application host and accelerates read performance with flash-optimized caching
- Delivers storage and networkefficiency with client-side deduplication
- Secures data in-use, in-flightand at-rest with Encrypt360™ AES encryption

Hedvig APIs

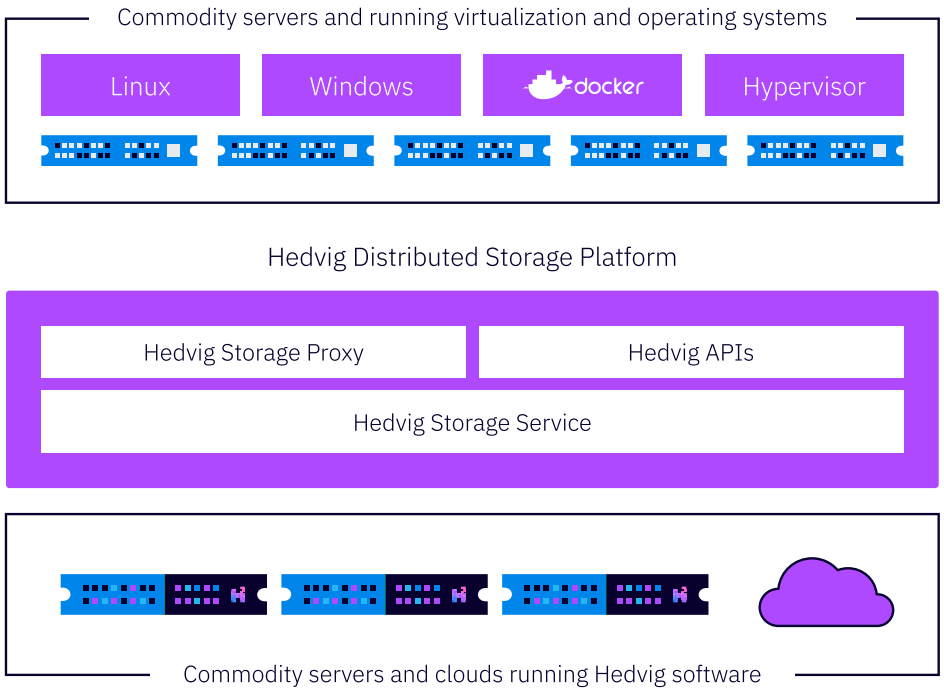
- Provide RESTful and RPC-based application programming interfaces (APIs) for developers
- Enable access to all Hedvigstorage features to automate provisioning and management with self-service portals, applications, and clouds

An elastic storage cluster with predictable performance, reliability and cost

Organizations are maturing data centers beyond virtualized infrastructure into true production clouds offering service catalogs and self-service provisioning. Traditional storage is a serious impediment to achieving a truly automated cloud.

The Hedvig Distributed Storage Platform provides a modern solution with all of the capabilities required to support even your most demanding workloads. Hedvig powers in-software provisioning of file, block, and object storage with the flexibility to span private and public clouds, creating an elastic, hybrid cluster that can scale to thousands of nodes.

Hedvig software virtualizes and aggregates flash and spinning disk in a server cluster or cloud, presenting it as a single, elastic storage system. Organizations can provision any number of Virtual Disks fully-customize each to fit the needs of your application in just a few seconds via a graphical user interface (GUI), CLI, or REST API. Processes that normally take hours, days, or weeks now take just a few clicks and can even be performed from mobile devices



Hyperscale and Hyperconverged

The Hedvig Distributed Storage Platform supports flexible deployment of the Storage Proxy and Storage Service enabling configuration of a hyperscale system, a hyperconverged system – or both in a single storage cluster.

- **Hyperscale:** Scale compute and storage independently
- **Hyperconverged:** Scale compute and storage together

“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 and leverages our investment in Cisco, which means a more predictable cost.”

— Christoffer Niemi
IT Architect, LKAB

“We like Hedvig because it was the only product that provided the enterprise and multi-site availability features we needed. The Hedvig Distributed Storage Platform now underpins our entire software-defined datacenter initiative and we have it deployed in development across four data centers in Europe to help with rapid prototyping in our digital platform.”

— Emmanuel Salzard Director of IV2 Digital Platform BNP Paribas CIB

Use Cases

The Hedvig Distributed Storage Platform delivers an always-on data fabric for VMs, Containers, and Backups storage more efficiently for traditional applications and at lower costs, while accelerating your journey to modern applications.

Private Cloud / Storage Modernization

Build the efficiency of web scale in your own datacenter, regardless of size or location. With Hedvig you can automatically and dynamically provision storage assets using just software on standard x86 servers. Hedvig is workload and hypervisor agnostic, providing a unified, multi-protocol software platform to collapse SAN, NAS, and object infrastructure. Hedvig is the only SDS provider that can manage object, block and file storage. Database replication, governance and GDPR management are part of the functionality that is natively built into Hedvig.

Hybrid Cloud

Leverage the Hedvig hybrid cloud model to increase data availability as opposed to traditional storage models. The flexibility of hybrid cloud helps reduce footprint and hardware costs and maintenance. Software testing and software development, compliance and test/dev environments are excellent examples for the hybrid cloud model. Use of hybrid cloud as a DR site where apps are automatically protected across your data center and cloud reduces costs and complexity of traditional DR models.

Multi Cloud

Hedvig is the world’s first multi-cloud storage platform that enables you to store, manage, and protect data across a multi-cloud landscape. Hedvig provides cross cloud fault tolerance across multiple cloud providers and also cross region resilience for any public cloud. Hedvig eliminates cloud vendor lock-in by providing a single interface to interact with multiple cloud providers.

Consolidate and Modernize Backups

Enterprises can achieve complete consolidation of their backups from the edge to the cloud on a single software-defined platform, eliminating storage silos. Our unique enterprise storage capabilities, including snapshots, clones, deduplication and compression enables you to manage all of your primary and secondary workloads on one platform.

Stateful Containers & Microservices

Manage stateful microservices, containers and operation infrastructure as code through automation leveraging Hedvig’s complete integration with Docker, Kubernetes and Mesosphere. Hedvig’s ability to manage containers gives DevOps teams the ability to self-provision rapid, programmable storage to improve time to market without the restraints of hardware lock-in. Cloud native applications and cloud first initiatives work seamlessly with Hedvig’s container provisioning.

Hedvig Benefits

Business responsiveness

- Provision with the speed and simplicity of the cloud
- Deliver massive capacity, scale, and performance with no change to application infrastructure
- Eliminate the headaches of traditional storage operations and maintenance

Reduced Risk

- Lower risk of data-loss with distributed replication and zeroim pact DR
- Eliminate storage downtime and business interruption with cluster self-healing
- Safeguard sensitive data with in-flight and at-rest encryption
- Never be impacted by data migration demands again

Lower costs

- Achieve performance, resilience, security, and reliability with commodity servers and storage for predictable cost
- Store efficiently and reduce capacity requirements by 75% or more
- Lower TCO 60% or more

Hedvig storage services available per Virtual Disk

Block, file & object storage	iSCSI, NFS, S3, & Swift protocols
Data replication	Store one to six data copies to support high availability, data protection, and recovery
Client-side caching	Dedupe-enabled cache for fast local read performance
Encryption	In-flight and at-rest data encryption
Inline compression	Compress data before storing to disk
Inline global deduplication	Eliminate repetitive data to reduce storage requirements
Pin-to-flash	Designate use of all-flash resources for storing data
Hybrid disk storage	Use of a mix of flash (SSD) and hard disk (HDD)
Thin provisioning	Space-efficient dynamic storage capacity allocation
Zero-copy snapshots	Space-efficient metadata-based volume snapshots
Zero-copy clones	Space-efficient independent volume copies

Block, file & object storage

Auto balancing	Data load balancing across nodes to optimize resource use
Auto tiering/caching	Intelligent data placement of active data on flash media
I/O sequentialization	Random I/O aggregation for efficient data writes & reads
Self healing	Automatic repair of data from failed drives or nodes
Multi-site replication	Store copies across racks, data centers, or clouds
Wide striping	Intelligent data distribution across available cluster nodes

Environment specifications

Supported processors	x86 or ARM
Supported hypervisors	VMware vSphere, Microsoft Hyper-V, KVM, Xen
Supported containers	Docker
Supported public clouds	AWS, Azure, Google Cloud Platform
Multi-site replication	Store copies across racks, data centers, or clouds
Supported cloud frameworks and orchestration tools	OpenStack, Mesos, Kubernetes, Docker Swarm, VMware vCenter
Available plugins	Docker Volume plugin, Mirantis Fuel plugin, VMware vSphere Web Client plugin
Supported encryption key management services	Barbican, AWS Key Management Service. Extensible to any REST-based KMS.
OpenStack	Unlimited
Max. nodes per cluster	Unlimited
Max. Virtual Disks per host	Unlimited
Max. Virtual Disks per cluster	Unlimited
Management interface	Web-based graphical user interface (GUI), RSH/SSH command line interface (CLI), RESTful APIs

For a complete list of product specifications please see the Hedvig Distributed Storage Platform data sheet.

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 such as BNP Paribas CIB, LKAB, and Mazzetti use the Hedvig platform to transform their storage into a fundamental enabler of digital business strategies.

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