



Enterprise and Cloud Storage

Top Storage Trends for 2025

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Biography

Eric Herzog is the Chief Marketing Officer at Infinidat (<https://www.infinidat.com>). Prior to joining Infinidat, Herzog was Chief Marketing Office and Vice President of Global Storage Channels at IBM Storage Solutions.

His executive leadership experience also includes: CMO and Senior VP of Alliances for all-flash storage provider Violin Memory, and Senior Vice President of Product Management and Product Marketing for EMC's Enterprise & Mid-range Systems Division.

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Abstract

There is new excitement about enterprise storage. Based on extensive customer, channel partner, and technical alliance partner input on a global basis, several trends are emerging. Generative AI (GenAI) and next-generation data protection are driving new and interesting conversations about what enterprises will do with their storage infrastructure to accommodate these significant developments. In this article, the author identifies, defines and explains the top five storage trends facing the enterprise storage industry in 2025.

Introduction

As we head into the start of 2025, there is new excitement about enterprise storage. Generative AI (GenAI) and next-generation data protection are driving new and interesting conversations about what enterprises will do with their storage infrastructure in the new year to accommodate these significant developments. In addition, new, dynamic strategies to make your storage estate more efficient than ever — even as much as twice as efficient — are emerging, while different options for a more unifying approach to virtualized applications and virtual machine workloads are also taking off.



Enterprise and Cloud Storage



Based on extensive customer, channel partner, and technical alliance partner input on a global basis, the following top five storage trends of 2025 set the table for what is gearing up to be a big year for storage:

1. Generative AI: the rise of Retrieval-Augmented Generation (RAG).
2. Next-Generation Data Protection: the shift to cyber focus, recovery first.
3. Hybrid Multi-cloud Storage: the best of both worlds (on-premises and public cloud).
4. Automation and Optimization: the demand for more efficient enterprise storage continues.
5. Data Infrastructure Modernization: the next steps with a unified approach.

Let's take a closer look at each trend and the relevance of these storage trends for Infinidat.

Generative AI: the rise of Retrieval-Augmented Generation (RAG)

Enterprise storage infrastructure has taken on a new role as the foundation for retrieval-augmented generation (RAG). The adoption of RAG is on a trajectory to rapidly increase in 2025 as a storage infrastructure-led architecture that improves the accuracy and speed of AI.

RAG is a GenAI-centric framework for augmenting, refining and optimizing the output of AI models, including Large Language Models (LLMs) and Small Language



Models (SLMs). It enables enterprises to ensure that the answers from AI models remain relevant, up-to-date, and within the right context. With their powerful, generative AI capabilities, AI models power intelligent chatbots and other natural language processing applications, which are used to answer user questions by cross-referencing authoritative information sources.

Enterprise storage solution providers, such as Infinidat, are stepping forward to fill the gap, complementing the work that hyperscalers are doing to build out LLMs and SLMs on a larger scale to do the initial training of the AI models. RAG eliminates the need for continually re-training AI models, which are resource intensive. It also reduces the prevalence of “AI hallucinations,” a common problem with Gen AI. Enterprises that are deploying or planning to deploy Gen AI will soon not be able to be without RAG.

The combination of AI models and storage-guided RAG is a key component for defining the future of generative AI.

Relevance for Infinidat: On 13 November 2024, Infinidat announced its RAG workflow deployment architecture. Infinidat will play a critical role in RAG deployments, leveraging data on InfiniBox® enterprise storage solutions, which are perfectly suited for retrieval-based AI workloads.



Next-Generation Data Protection: The shift to cyber focus, recovery first

For 2025, next-generation data protection has emerged as the new line of defence against extremely harmful cyberattacks against enterprises, such as ransomware and malware. Next-generation data protection expands the purview of what is protected and how it is protected within an enterprise data infrastructure. It adds pre-emptive and predictive capabilities that help mitigate the effects of massive cyberattacks.



Enterprise and Cloud Storage

Next-generation data protection provides a cyber-focused, recovery-first methodology. “Recovery-first” means the endpoint must be first. This is why enterprises will be looking to deploy automated cyber protection in 2025 to integrate cyber storage resilience into security operation centres and security applications. At the first signal of a cyberattack, an immutable snapshot of your data is taken automatically to help reduce the threat window.

Next-generation data protection includes the traditional aspects of data protection, such as being able to handle backup repositories and being able to snapshot and replicate data. But the next generation of data protection includes cyber storage resilience and guaranteed ultra-rapid cyber recovery. Being proactive to optimize for restoration of data makes it simpler on the backend.

Next-gen data protection ensures business continuity, which is, according to the World Economic Forum, one of the biggest concerns¹ that organizational leaders have (67%) – more than any other cyber risk. Business continuity is the biggest risk of a cyberattack. As reported by the World Economic Forum, 91% of business leaders and cyber leaders say that they believe a far-reaching and catastrophic cyber event is “at least somewhat likely in the next two years¹.”

Relevance for Infinidat: *Infinidat offers one of the most comprehensive, integrated and proven portfolios of next-generation data protection solutions in the industry.*

Hybrid Multi-cloud Storage: the best of both worlds (on-premises and public cloud)

The marriage of private cloud storage and public cloud environments has created the groundswell demand for hybrid multi-cloud storage that is gearing up for 2025. This integrated approach that brings together on-premises/private cloud and the public cloud is set to unleash the highest levels of flexibility, cost efficiency, and use case-specific adoption that the enterprise market has ever known. The on-ramps between on-premises storage and multiple clouds, including AWS and Azure, have simplified the ability of an enterprise to leverage the best of both environments.

A hybrid multi-cloud approach to enterprise storage has become the go-to strategy for enterprises. It’s impractical to put all data into the public cloud, of course, but it’s an appealing option for certain use cases, such as backup, business continuity, disaster recovery, DevOps, and extra burst storage capacity. Meanwhile, keeping high-performance, business-critical and mission-critical workloads in the data centre (with a cloud-like experience – aka your “private cloud”) proves to be more economical, more efficient, more performant, and more controlled.

By combining both worlds of private and public cloud and having an end-to-end hybrid multi-cloud experience across on-premises and the off-premises public cloud (namely, Microsoft Azure and AWS), enterprise data infrastructures are made easier to manage, more consistent, more cost-effective, and more flexible. This applies to enterprise storage just as much as it does for various forms of enterprise computing.



The need for a hybrid multi-cloud storage solution that can deliver these benefits is an essential linchpin for unlocking the real advantages to use enterprise storage arrays on-premises and in the cloud for maximum value.

Relevance for Infinidat: *With Infinidat's announcement last year of InfuzeOS™ Cloud Edition in Amazon Web Services (AWS), Infinidat's hybrid multi-cloud storage solution is now available in Microsoft Azure and AWS environments. Both are powered by InfuzeOS, the software defined storage (SDS) that powers our InfiniBox, InfiniBox™ SSA II, and InfiniGuard® platforms.*



Automation and Optimization: the demand for more efficient enterprise storage continues

In 2025, the storage market will continue to experience an increase in automation and optimization, as enterprises continue to simplify the complexity of their storage infrastructure. They want storage to use less floorspace, less rack space and less overhead. They are requiring their storage arrays to be more energy-efficient for the purpose of sustainability and Green IT – and they want to achieve cost savings from their storage.

Storage efficiency is a multi-year journey for most enterprises. It calls for a strategy that utilizes higher-performance storage arrays with built-in automation that usher in a set-it-and-forget-it approach. It spotlights storage systems that are more power-efficient with higher capacity. It looks at the storage consumption model that the enterprises use, and it adopts more flexible consumption models.



Enterprise and Cloud Storage

Ultimately, storage optimization is a process of improving enterprise storage by lowering costs, enhancing performance and getting more out of what you have – in other words, less is more. Less floorspace, less rack space, less carbon emission, but more capacity, more performance, more availability and at a better total cost of ownership.

Relevance for Infinidat: *Infinidat is at the forefront of making enterprise storage more cost-efficient, energy-efficient and easier to manage.*

Data Infrastructure Modernization: the next steps with a unified approach

We foresee the continued increase in market traction in 2025 for a major shift from standard VM-based workloads to other forms of virtualization as well as Kubernetes/container deployments. Virtualized applications and virtual machine workloads are an essential piece of any viable strategy to modernize data centre infrastructures, but, with recent changes in that market, companies are looking for alternative solutions.

These solutions range from several alternatives to VM infrastructure such as OpenShift Virtualization Manager to Hyper-V to the use of Red Hat containers and other forms of containerization. Enterprise customers are interested in a scalable, supported and consistent solution for VM-based applications and workloads, designed for enterprise hybrid multi-cloud deployments. Enterprises are seeking support for virtualized and containerized application alternatives and access to an integrated set of trusted tools that maximize the advantages on a unified platform.

The landscape for virtual machine workloads and applications is changing. Enterprises are interested in strategic paths for VM infrastructure migrations. A unified approach will be the preferred approach in 2025. By bringing standard VM-based workloads to other virtualized alternatives or to Kubernetes and container deployments, it will help eliminate the workflow and development silos that typically exist between traditional and cloud-native application stacks.

In the new year, we expect to see the rising adoption of a more consistent foundation to deliver VM alternatives and Kubernetes applications, especially benefiting hybrid multi-cloud management models. A compelling reason for it is that storage allows for scalability, flexibility, and centralized management.

Relevance for Infinidat: *The InfiniBox solution has been successfully tested to work with Red Hat OpenShift Virtualization as well as with container deployments. This technical validation opens new possibilities for enterprise customers and channel partners to deploy, migrate, and manage new and existing virtual machine (VM) workloads and virtualized applications using Red Hat OpenShift Virtualization and container-based alternatives.*

Reference

- ¹ Global Cybersecurity Outlook 2023 Insight Report (January 2023). World Economic Forum. Available at: https://www3.weforum.org/docs/WEF_Global_Security_Outlook_Report_2023.pdf