



Enterprise and Cloud Storage

Delivering Environmental and Economic Advantages in Green IT

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Biography

Tim Dales is a Product Marketing Manager at Infinidat (<https://www.infinidat.com>). Tim has over 30 years' experience in the development, marketing and sales of IT infrastructures.

A former Senior Analyst at a storage analyst firm working with the Dell/EMC product team on APEX and creating launch collateral for Pure Storage.

He has also held positions as an executive for networking vendor Solarflare, product marketing and sales for a CDP startup, MTI, and Emulex.

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Abstract

Data centres worldwide continue to encounter substantial challenges involving power consumption, cooling requirements, and limitations in rack space. The surge in demand for AI-driven GPU servers has considerably intensified these concerns. Consequently, each watt allocated to storage infrastructure proportionally decreases the power available for GPUs. As the industry reaches a pivotal point where energy efficiency is of utmost importance, this article examines Infinidat's strategic response to these evolving circumstances.

Introduction

Worldwide, data centres are having huge issues with power, cooling, and rack space. AI's power-hungry GPU servers have dramatically intensified the problem. Now every Watt that's dedicated to your storage infrastructure is a Watt that's not available for GPUs. We are entering the critical phase where energy efficiency matters!

How do you get an energy efficient enterprise-class storage system?

It starts with a design philosophy. Infinidat has a comprehensive approach to developing sustainable solutions and has implemented a sustainable storage-by-



design philosophy into all our products. Our sustainable journey involves integrating environmental considerations into every stage of the product lifecycle, from design to end-of-life.

Design stage efficiency

Infinidat adopted the principles from the EU EcoDesign regulations for data storage products to guide our design. They include:

- **Reparability:** Our products are designed so that they enable disassembly for repair or reuse purposes.
- **Energy Efficiency:** Infinidat's products have a very high utilization rate, which means our solutions' active state has been designed to have the lowest possible power consumption without minimizing quality and security efficiency. In 2024, we shifted to titanium and platinum-level certified power supplies, which is the highest efficiency rating.
- **Reliability:** We also improved the maximum system operating temperature to 35 degrees Celsius, ensuring that our systems continue to be reliable in a wider range of operating environments and reduced the need for additional cooling infrastructure.

Infinidat actively monitors environmental and sustainability regulations across the globe to ensure our manufacturing is aligned with local and national requirements. Our advanced storage technology systems, such as our InfiniBox® and InfiniGuard® solutions, store larger quantities of data more efficiently, freeing up rack and floor space, while reducing energy consumption (kW), carbon footprint, and IT resources. Our enterprise customers benefit from using fewer storage arrays, while increasing their storage capacity, with the result of lowering the cost of power and cooling per TB of storage, freeing up needed floor space, and reducing IT Operating Expenditure (OpEx) and manpower needs.

Examples include replacing outdated storage arrays with more power-efficient units, reducing floor space per TB, along with reduced power and cooling demands, thereby reducing the carbon footprint of our products. We call this approach "E-Squared (E²)", which delivers both environmental and economic benefits. E² Factor – E for Environmental and E for Economic. What is good for the environment translates directly into what is good for the economic benefits of an enterprise. The two "E's" are in a symbiotic relationship with each other when applied to energy-efficient, sustainable storage for enterprise applications and workloads, and the ability to reduce operational expenses.

We strike a balance between the capacity needs and the performance needs of our customers with the need to minimize floor space, power/cooling costs, and carbon footprint. Uniquely, there is no compromise. Because of a sustainable IT approach that makes enterprise storage more efficient, you're able to save money – lower Capital Expenditure (CapEx) and OpEx, while making your data center more energy efficient and more environmentally friendly.



E² FACTOR

A prime example of how Infinidat delivers on the promise of the E2 Factor is our latest release of G4 solutions. The new solutions continue to evolve, enhance, and extend the industry acclaimed G4 platform that was delivered in May 2024. The new F24ST SSA offers a 45% reduction in power per petabyte (PB), which means less power usage, less use of coolant chemicals, and a reduction in greenhouse gas emissions – at the same time providing 28% more capacity in a 31% smaller footprint. Now that's efficiency at work.

Scott Sinclair, Practice Director at the Enterprise Strategy Group, commented, "Infinidat continues to make their enterprise storage solutions more power-efficient and space-saving. The InfiniBox G4 is a powerful yet greener enterprise storage solution in a more compact form factor, making it ideal for data centers and colocation facilities that require higher efficiency while reducing environmental impact. The latest enhancements to the InfiniBox G4 family extend the Green IT characteristics of a leading enterprise storage solution, without compromising performance, cyber resiliency, availability, or reliability."

Competitively speaking

That's all well and good when compared to prior generations or models within the Infinidat portfolio, but what about head-to-head against competitors in the field? The closest enterprise-class storage vendor we compare to is Dell/EMC's PowerMax.

Here's a chart of publicly available power and capacity information. When comparing the PowerMax 2500/8500 to our new F24ST, we are 2.8 to 6.9X more power efficient on a Watts/TBu basis. So, if you're using PowerMax and are worried about energy efficiency or greenhouse gas emissions, replacing it with a modern InfiniBox G4 will help relieve those issues!



Figure 1: Comparison between PowerMax 2500/8500 and F24ST

Model	Peak Watts (Max)	Max. Useable TB (Useable TBu)	Watts / TBu	Power Efficient Comparison
F24ST	4,590	3,353	1.37	6.90
PowerMax 2500	15,967	1,690	9.45	
F44SH	6,500	4,528	1.44	2.87
PowerMax 8500	16,470	4,000	4.12	
F24ST	4,590	3,353	1.37	3.01
PowerMax 8500	16,470	4,000	4.12	

(All data from public materials)

2.8 to 6.9X
MORE
POWER
EFFICIENT
(WATTS/TBU)

Source: Infinidat

I would be remiss and catch flak from our sales team if I didn't include Pure Storage in my analysis. Although Pure is not considered an "enterprise-class" product because it's only a dual controller architecture versus our triple-node active-active-active resiliency, with 100% availability, unrivalled real-world application and use case performance, and cyber guarantees, etc. They do have an XL model that we bump into once in a while when we are consolidating the storage data centre sprawl that Pure creates.

Taking the brand new F24ST SSA for a flash-to-flash comparison with Pure's XL, we can easily see the new power efficiency per TBu is about 40% better than the XL170, on a Watts/TBu basis.

Figure 2: F24ST SSA for a flash-to-flash comparison with Pure's XL

Model	Peak Watts (Max)	Max. Scale-Up Cap. TB (Useable TBu)	Watts / TBu
F24ST	4590	3353	1.37
XL170	4495	1970	2.28

Source: Infinidat

Granted, the XL doesn't have the non-disruptive scalability range that the F24ST offers. So, if I try to take this to a more apples-to-apples comparison on the TBu basis, the closest InfiniBox F24ST configuration is 2078TB, which gives us about equal Watts/TB.

Figure 3: TBu basis comparison

Model	Peak Watts (Max)	Max. TBu (Useable TBu)	Watts / TBu
F24ST	4590	2078	2.21
XL170	4495	1970	2.28

Source: Infinidat



What happens when you want to add more storage? With Infinidat, you can non-disruptively add close to another 1.3PB and the Watts/TB ratio goes "more positive" into the efficiency range. Whereby, with Pure, you have to add another chassis of siloed storage creating the data centre storage sprawl for which they are known.

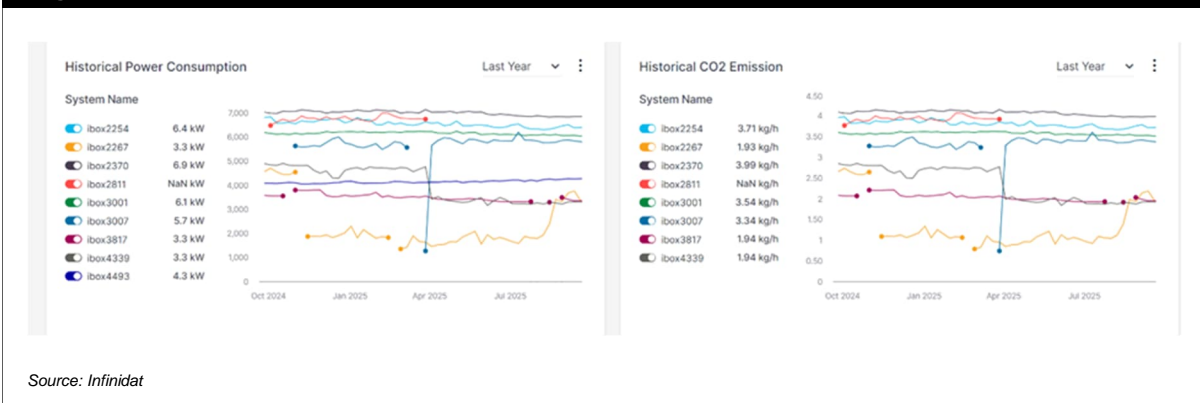
InfiniVerse® – AI-driven Platform

We realize the importance of data to help set strategic goals in all areas of business, including sustainability. This is why we created InfiniVerse, a cloud-based, AI-driven platform that provides advanced monitoring, predictive analytics, and support. It includes customizable dashboards for all InfiniBox systems, wherever they reside in the customer's estate, all through a single interface.

Customers can view environmental metrics, such as power consumption over time, system temperature, and storage utilization, and take ownership of their energy consumption to support their corporate "Green IT" initiatives. By knowing how much power their storage is consuming, often finding that it's 20% less than the maximum levels we show in our tech specs, customers can set their own reduction targets and take advantage of any further operational efficiency savings.

Last year, we added Power Consumption and CO2 widgets to the InfiniVerse Dashboard to assist customers with achieving their sustainability goals. We now capture historical Power Consumption (kW) and CO2 emissions (kg/hr) of their Infinidat estate. Customers can determine their power usage and carbon footprint and use this data for their own internal Green IT initiatives or SLAs.

Figure 4: InfiniVerse Dashboard



Source: Infinidat

Reduction of physical footprint

The InfiniBox G4 stores larger quantities of data more efficiently, freeing up rack and floor space, while reducing energy consumption (kW), carbon footprint, and IT personnel needs. Our enterprise customers benefit from using fewer storage arrays, while increasing their storage capacity, leading to a lower cost of power and cooling per TB of storage and few IT resources to manage their storage.



Enterprise and Cloud Storage

Infinidat's proven architecture has the performance and capacity to consolidate multiple storage arrays into fewer, more efficient InfiniBox systems. We have a history of consolidating other vendors' arrays into Infinidat power-efficient arrays. For example, a Fortune 200 Financial Services company replaced 288 floor tiles of a competitor's all-flash product with only 61 floor tiles of the InfiniBox™ SSA all-flash array running all the same workloads and applications. In another example, a Fortune 500 Food Distributor replaced 27 competitor arrays with 4 InfiniBoxes. Consolidation reduces the number of racks, floor tiles, and overall power and cooling costs. This results in a lower total cost of ownership (TCO) and reduced environmental impact of your IT infrastructure.

This ability to consolidate also extends to the InfiniBox hybrid platform as a powerful backup target device. In one of our Fortune 500 enterprise customers, Infinidat replaced 38 of a competitor's purpose-built backup appliances with 20 InfiniBox hybrid solutions. This customer experienced a 50% CapEx savings on their initial purchase, achieved all backup window and recovery SLAs, which the competitor had been unable to meet, and saved in the first year \$1.5 million in OpEx savings. Another example of how we reduce floor tiles, and the associated power/cooling and carbon footprint.

Committed to decarbonization

Infinidat has made a large, top-to-bottom commitment across all its operations to reduce/remove its carbon footprint and the associated greenhouse gases. To demonstrate this, our key initiatives include:

- **Integrating ESG reporting:** Environmental, Social, and Governance (ESG) principles are incorporated into every part of Infinidat's operations, from supply chain management to technology development.
- **Reducing Scope 3 emissions:** Infinidat has achieved a 41% reduction in total carbon footprint across its value chain, encompassing Scope 3 emissions.
- **Developing power-efficient products:** Infinidat continuously upgrades its product line to deliver higher performance with lower energy consumption, as evidenced by the InfiniBox G4 in May 2024, and the continued evolution with the release of new products in September 2025.

In conclusion

With the launch of the InfiniBox G4 F24ST SSA, Infinidat proves that sustainability and performance go hand in hand. By embracing the E² Factor – optimizing environmental and economic benefits – our solutions deliver more capacity with less power, cooling, and floor space. From design through operations, we're committed to reducing carbon footprints while lowering TCO and ensuring enterprises can achieve their Green IT goals without compromise.