

Earth Day 2023: Advance Your Environmental Mission—and Data Success



Earth Day 2023 comes as customers, investors, and citizens alike are holding organizations increasingly accountable for their role in the environmental crisis. There's rising demand for bold, creative, innovative solutions that yield a real impact toward creating a more sustainable future.

Simple changes, such as switching to LED bulbs, reducing printer usage, and minimizing the use of disposable plastics, can help make a difference. But there's also the need for bigger, bolder moves, such as developing sustainable purchasing policies and moving to technologies that can put a measurable dent in data center power consumption.

At Pure Storage, our mission is to deliver products that exceed our customers' expectations for performance, reliability, and simplicity, as well as for energy consumption and space efficiency. Our products and flexible consumption services enable you to achieve impressively lower energy consumption, while also lowering your cooling costs and greenhouse gas emissions. For us, building products the right way means doing right by our planet, which translates into a win for you, both inside and outside of your data center.

Learn more about [Pure's commitment to sustainability](#).

The Win-win in Modernizing Your Data Center

So what can modernizing your data center really do for the environment? We used the U.S. EPA calculator to calculate equivalents for the annual CO2 emissions reduction (52.7 kilotons CO2) for a single FlashArray™ compared to equivalent storage products:

A 52.7 kilotons reduction of CO2 emissions per FlashArray is comparable to:

- Charging 6,416,650 smartphones
- Consuming 122 barrels of oil

This is equivalent to the amount of greenhouse gas emissions avoided by:

- Replacing 1,999 incandescent lamps with LED bulbs

This is equivalent to the CO2 offset from:

- 62.4 acres of U.S. forests in one year

Building Green, All-flash Data Centers with Efficient Storage

From a product perspective, we're leading the way in [sustainability for storage and data management](#) with technologies that are pushing the boundaries of innovation and helping industry leaders advance their sustainability and emission goals.

- **FlashBlade//E™** is the first efficient, affordable alternative that blows inefficient and space-hungry disk out of the water, offering:
 - One-fifth the space and power
 - 60% lower operational cost of legacy
 - 85% less e-waste
 - 10x-20x the reliability
- **DirectFlash® technology** deliver unparalleled density and efficiency from flash driving significant energy reductions above what is possible with SSDs. In as few as three rack units, FlashArray can provide more than 1.3 PB* of effective capacity while delivering sub-1ms IO response times.
- **Built-for-flash software**, combined with DirectFlash technology, delivers more reliable products, longer service lifetimes, and three times the industry average SSD reliability—dramatically reducing e-waste.
- **Always-on data reduction** further enhances storage efficiency, reducing effective energy usage without compromising performance. Because there are none of the performance trade-offs typically associated with competitive storage data reduction capabilities, you can realize the full efficiency and lower emissions benefits from your storage.
- **A smaller footprint** enables you to consolidate your IT environments, reduce your overall storage footprint, lower power and cooling costs, and drive higher utilization and reuse.

Flexible, Sustainable Storage Consumption Models

And there's more to our sustainability story. Pure Storage [Evergreen™ storage architecture](#) extends sustainability further by allowing us to continually improve technology and seamlessly deliver new software and hardware components when you need to upgrade or expand your storage needs.

Evergreen reduces waste in two fundamental ways:

- **Reduction of wasted energy:** Through Evergreen non-disruptive upgrades, you can upgrade in place vs. the months-to-years-long process typically required to perform a migration, during which time both the old and new arrays are running and consuming energy.
- **Reduction of e-waste:** Continual upgrade of array components also eliminates the industry's traditional method of upgrading storage by replacing (and junking) existing whole systems. The longer lifespan of our DirectFlash modules—which are proprietary to Pure Storage—coupled with our Evergreen subscription of continuous upgrades, significantly reduces e-waste.

[Evergreen//One™](#) extends the Evergreen architecture and subscription to deliver storage based on capacity and performance service level agreements (SLAs), as opposed to a pre-configured product. Evergreen//One delivers three key environmental benefits:

Reducing the energy and waste of underutilized equipment

By flexing up and down only as capacity is needed, Evergreen//One reduces underutilization. Compared to traditional purchasing models where three to five years of capacity and performance is deployed in advance and sits underutilized (often for years), Evergreen//One provides the resources you need and the ability to expand as your consumption grows.

Based on upgrade and repurposing rates, approximately 14 tons of e-waste per year avoids being sent to landfills annually. This is accomplished by:

- Consolidating storage (onto fewer, larger DirectFlash media) into existing racks
- Swapping new controllers into the same physical chassis
- Partial re-use of returned controllers for internal lab infrastructure, testing, analysis, and long-term reliability studies

[Take a look at what we did in 2020](#)

Reuse and redeployment of equipment, further extending service lifetimes

We can right-size the equipment necessary to meet each particular SLA, in some cases repurposing previously used equipment, extending the effective service lifetimes of a physical piece of equipment and significantly reducing waste. The useful life of our products is typically two to three times that of competing storage.

As part of the goal to also reduce Scope 3 emissions, Pure is committing to further reducing our sold products' emissions by 66% per petabyte. Competitive storage products were simply not designed with the same focus on energy efficiency, modularity, and sustainability.

The first-ever, energy efficiency SLA

The energy efficiency SLA is a guaranteed and unique measurement of the maximum number of actual watts per terabyte (TiB) for enterprise block storage. If the monthly average of //block performance is higher than 3W/TiB, Pure Storage will determine the number of days where the daily average is greater than 3W/TiB and provide service credits for those days.

Taking Action on Earth Day and Every Day

Designing products that enable our customers to gain winning advantages inside and outside of their data centers is the result of meticulous design and unwavering dedication to innovation. The efficiencies we've highlighted here are part of Pure's overall initiatives across environmental, social, and governance (ESG) for our company.

Learn more about Pure's industry-leading products and services, and how they're contributing toward a [sustainable future for our planet](#). If you have any questions about our ESG programs or the report, contact ESG@purestorage.com.

***Assumes average customer data reduction rate of 5:1.**

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