

# Business Critical Data Protection for Cloud Service Provider

**For cloud infrastructure providers, availability and scale are essential for sustained business success.**

Customers count on immediate access, 24/7. Any issues with performance can have a negative impact on customer satisfaction and renewals. At the same time, optimizing margins requires careful attention to infrastructure scale and sprawl. Cloud service providers must carefully balance performance, capacity, and reliability by preventing outages due to SSD drive failures to ensure effective execution of their business model.

## Challenge

A leading cloud infrastructure provider operates a complex global infrastructure managing tens of thousands of MariaDB instances that handle tens of billions of queries per hour. This provider found managing server failures across its operations a significant business issue that directly impacted customer satisfaction. With every server outage, the company's team was scrambling to bring up another server to relocate the MariaDB instances from the original server.

The limited endurance of SSDs proved another challenge. The underlying flash media that powers SSDs has a finite number of write cycles before it can't be used anymore. These cycles occur whenever existing data needs to be overwritten in a flash cell. Read and write amplification (garbage collection) only make things worse.

Unfortunately, local server-based protection for SSDs was too expensive and dramatically reduced performance. To mitigate this concern and provide business continuity for its infrastructure-as-a-service clients, the company had to build in significant, costly redundancy. For example, for a client that needed 15 instances of MariaDB that could have been hosted on a single server with 2 16TB SSDs, the company was forced to use 3 servers with 2 15TB SSDs each to reduce the impact of failures. With its explosive growth, the resulting increase in footprint and expense was having substantial impact on business results.

## Solution

The company typically deploys in three node clusters, with six NVMe SSDs (3.84TB) per server in a RAID 10 configuration to reduce server failover events. After evaluating several traditional approaches, their storage architecture team discovered Pliops unique approach to performance acceleration. The Pliops Extreme Data Processor (XDP) is delivered as an easy-to-deploy PCIe card that radically simplifies the way data is processed

## Highlights

Pliops delivered better performance and efficiency at significant savings:

- 33% more instances using one-third the number of servers
- 23% increase in usable TB
- 45% reduction in CapEx

and SSD storage is managed. Pliops XDP offloads data-intensive workloads, reducing utilization to just a fraction of the server's resources.

Pliops breakthrough technology also expands capacity with inline transparent compression and increases SSD endurance by reducing write amplification. And with built-in drive fail protection, Pliops makes the existing infrastructure more effective and eliminates the need for overprovisioning to ensure redundancy.

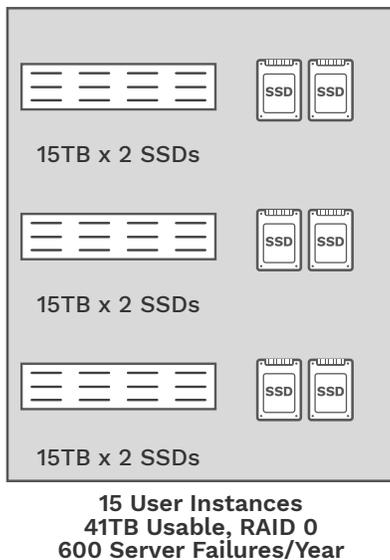
## Results

The company compared its baseline configuration of 15 MariaDB instances across 3 servers, each with 2 15TB SSDs to a single server with Pliops XDP and eight 7.6TB SSDs. They saw a dramatic improvement with Pliops, including the ability to run 20 MariaDB instances along with the expansion of usable capacity from 60TB to 74TB. Additionally, the risk of server failure potential was eliminated because Pliops XDP can write wider

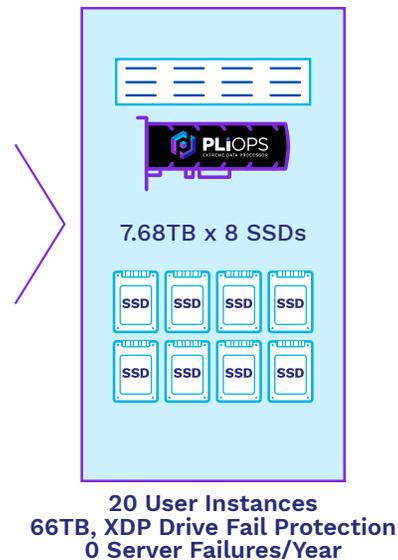
stripes than the host, which reduces SSD read and write amplification by writing more full NAND pages. All of this minimizes physical host (data) writes per day, which can significantly improve SSD endurance and overall server performance. In the event of a drive failure, there is no performance penalty during rebuilds.

Pliops XDP enables the cloud provider to more efficiently use its data infrastructure while still meeting client SLAs. The expanded capacity can absorb 30% more client instances with CapEx savings of 45%. This gives the company the ability to expand the services it offers to existing customers as well as the number of customers it serves without having to worry about dramatic infrastructure investments. The company plans to expand its Pliops qualification to the rack-level as part of an expanded rollout in Q3 and Q4 of 2021. With business booming, the performance, capacity, and data protection potential Pliops XDP delivers will have dramatic impact on the customer experience and the company's profitability.

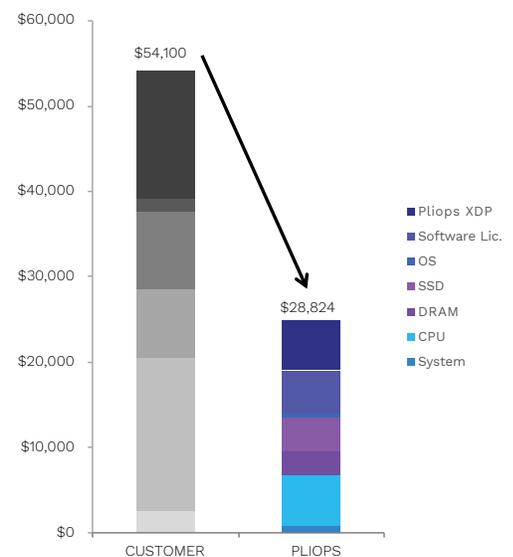
### Current Software Based Solution



### Pliops Accelerated Solution



### CapEx Benefit



Large SaaS provider TCO comparison with Pliops Extreme Data Processor

50% lower cost, 600 fewer server failures, 33% more users, 66% more usable capacity

## About Pliops

Pliops multiplies the effectiveness of organizations' infrastructure investments by exponentially increasing datacenter performance, reliability, capacity, and efficiency. Founded in 2017 and named as one of the 10 hottest semiconductor startups by CRN in 2020 and 2021. Pliops global investors include NVIDIA, Intel Capital, SoftBank, Western Digital, KDT, and Xilinx. **Learn more at [www.pliops.com](http://www.pliops.com).**