PLiOPS
EXTREME DATA PROCESSOR

High-Demand E-Tailer Multiplies Infrastructure Efficiency

For E-Commerce companies, increasing transaction throughput is mission critical.

System failures result in lost sales and slow performance, which can lead to cart abandonment. Optimizing the buyer experience places growing demands on databases and storage infrastructure. Faster performance, with increasing capacity are necessary to meet seasonal demand, while keeping overhead costs under control to maintain margins. The hosting company for a leading e-tailer needed to ensure that its infrastructure could continuously deliver outstanding efficiency, capacity, and reliability for superior cost performance.

Challenge

The host, using MySQL, was looking for a way to get more out of its existing infrastructure to meet rigorous SLAs for its high-volume client. The company utilizes servers with NVMe SSDs but was not seeing the increase in database performance that it had expected. To deliver higher throughput for its client without increasing costs, the company needed to get more from the investment in its existing infrastructure footprint. With a finite budget for improvements, the company was looking for a way to squeeze more out of its infrastructure without having to make application changes.

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 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.

Highlights

Pliops delivered better performance and efficiency at significant savings:

- Reduced CapEx by 54%, while still meeting vigorous SLAs

- Supported higher ROI by reducing server count by 67%

- Usable capacity increased 58%, with 55% fewer SSD

- Virtually eliminated server downtime and rebuild overhead from SSD failures without sacrificing performance or capacity

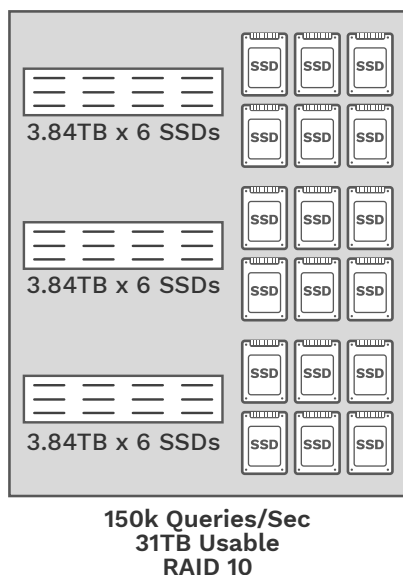- Greater infrastructure flexibility to better serve their customers

Results

Under the host's reference configuration, 150,000 queries/second with 31TB usable capacity was achieved using three servers. The company found that with Pliops installed, they reached 157,000 queries/second with just one server and eight SSDs with 49TB usable capacity as shown in **Figure 1**. All of this was accomplished at significantly lower latencies. With the Pliops XDP, data is protected with built-in advanced drive failure protection delivering sustained accelerated performance, even during a rebuild.

By reducing the necessary servers and drives and expanding the query/second performance, the company was able to reduce its CapEx by 54% as shown in **Figure 2**. These results offer the host greater infrastructure flexibility. With Pliops, they are simultaneously increasing scalability, reliability and cost efficiency. Based on these results, the hosting company is deploying Pliops XDP thoughout its infrastructure. The company can now hit its SLAs for half the cost, enabling better margins and improved service for the end customer.

With Pliops, **CapEx Was Reduced By 54%** While **Providing 58% More Usable Capacity**.
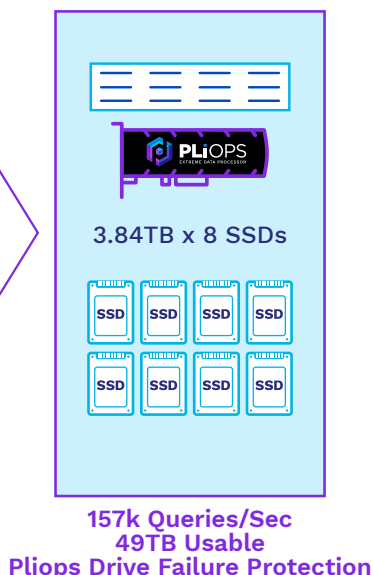
Current Software Based Solution

3.84TB x 6 SSDs

3.84TB x 6 SSDs

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**150k Queries/Sec
31TB Usable
RAID 10**

Pliops Accelerated Solution

PLiOPS
EXTREME DATA PROCESSOR

3.84TB x 8 SSDs

**157k Queries/Sec
49TB Usable
Pliops Drive Failure Protection**

Figure 1: Reduction in Infrastructure Footprint

CapEx Savings

$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0

**$29,269
Lower CapEx**

CUSTOMER   PLIOPS

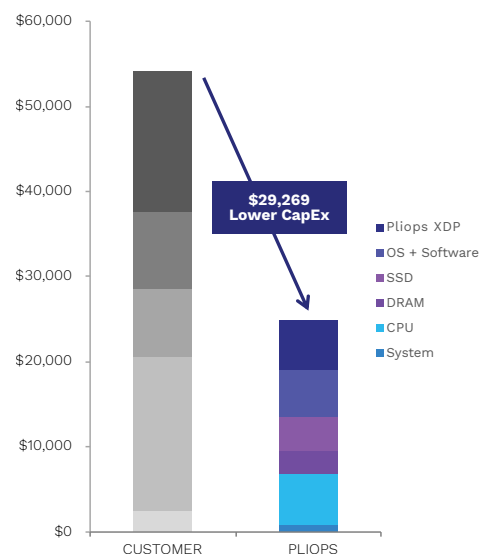- Pliops XDP
- OS + Software
- SSD
- DRAM
- CPU
- System

Figure 2: CapEx Savings with Pliops

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**.