𝒇 FUNGIBLE

Hyperscale eRetailer Uses Fungible Storage Cluster® to Reduce Costs & Improve Customer Performance

Success in the eRetail market depends on high performance and low cost (among other things). A hyperscale eRetailer working with Fungible wanted to upgrade their system. Their existing system used a direct-attached software-defined storage system without compression for maximum performance. Data protection presented another challenge and they used triple replication that protects against two failures, an effective but expensive approach. Finally, to protect against unforeseen spikes in demand they kept the system load low, only utilizing 75% of their system. All of these traditional approaches were very expensive, but they felt they had no alternative.

Fungible provided new technology that allowed the eRetailer to reassess their system design to better meet application and cost needs. Four key elements of technology enabled their new design: the Fungible DPU®, NVMe/TCP, erasure coding and compression. The Fungible DPU provided a more efficient way to deliver system performance by offloading server CPUs from infrastructure tasks such as the networking stack, compression, and erasure coding. This resulted in fewer storage servers providing storage services. In this case, server count went from 133 x86 storage servers to 39 FSC storage units a reduction of 70%. The power savings alone from this configuration change went from 175 kW to 29 kW an 83% reduction!

Fungible delivered more performance by employing NVMe/TCP which allows high performance SSDs with NVMe connectivity to be efficiently pooled. This approach replaces older single-threaded data streams, now replaced with multi-path lanes that move massive amounts of data efficiently and use existing Ethernet network infrastructure to get the most from SSD technology.

These more efficient new technologies allowed the system to get to **89-90% utilization** for even greater savings.

Benefits

FSC reduced servers needed by 70% by offloading CPUs with DPUs

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FSC reduced power by 83% providing a greener footprint

Utilization of storage resources improved from 75% to 89% utilization

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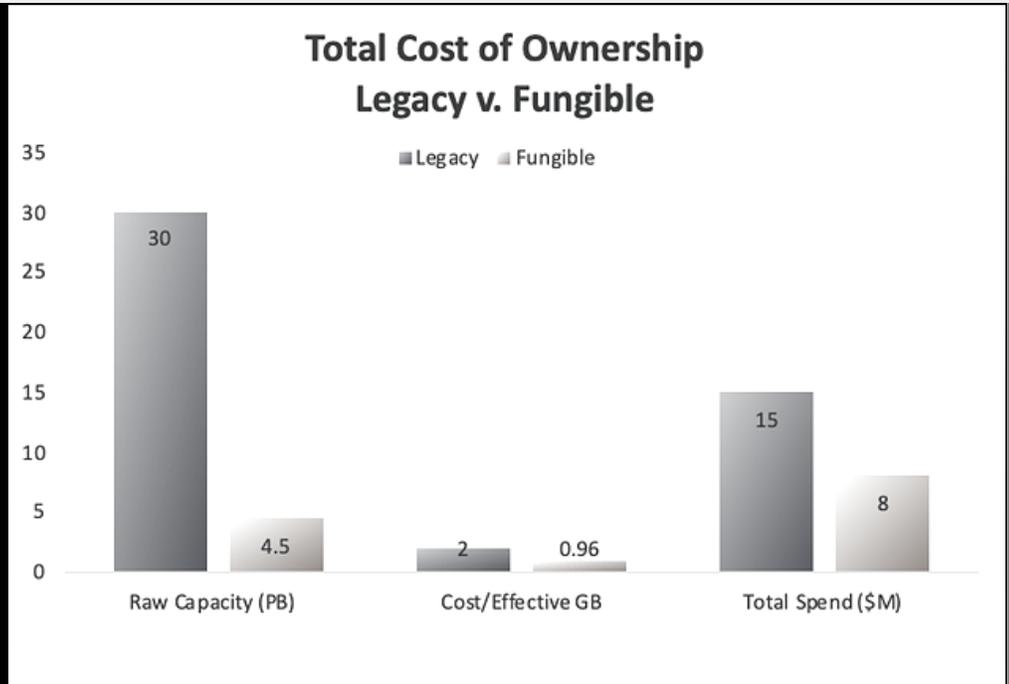**Erasure coding reduces storage overhead** for data protection from 300% to 163%

Increased flexibility with composable data infrastructure

29 kW
Fungible

173 kW
x86-Based
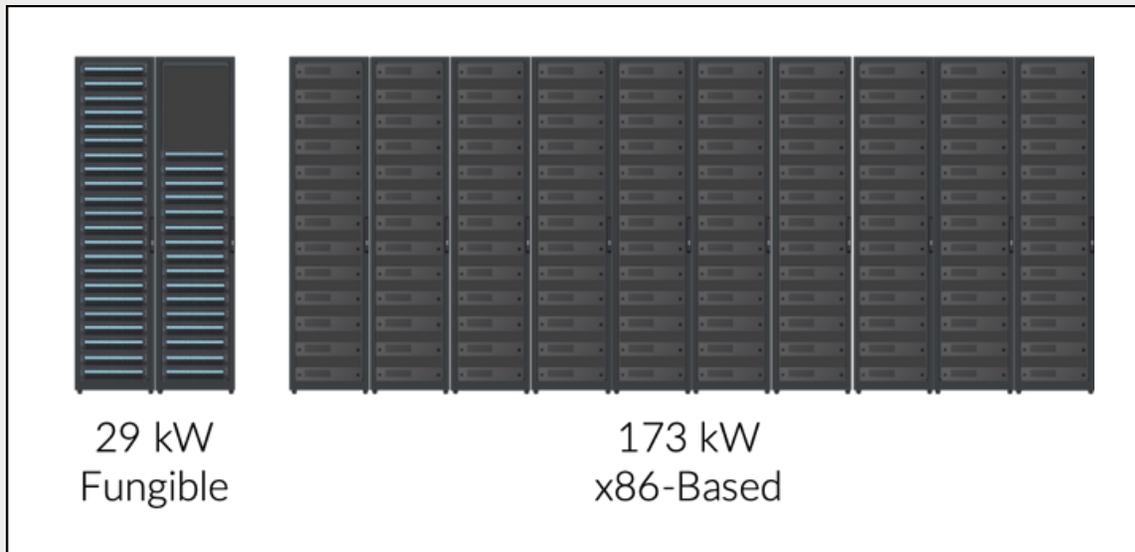
The legacy configuration protected data with a triple mirror, comprised of three copies of data. The data was safe but at considerable cost. **Fungible's effective alternative is erasure coding that can also protect from two failures with parity calculations but at a cost of 163% of capacity compared to 300% of capacity in a triple mirror.** Erasure coding has not been popular in high-performance systems due to the heavy compute load which would impact performance. With the Fungible DPU these algorithms are executed locally, not on a server CPU, providing efficient data protection and cost savings.

Another saving technology is compression which is accelerated by the DPU to keep performance high. Again, this workload is offloaded from the CPU to the DPU, and overall system efficiency improves, and data storage now needs less space saving money. These more efficient new technologies allowed the system to get to 89-90% utilization for even greater savings.

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The clearest measure of this impact was the reduction in the number of servers by 70%, and the resulting system was faster, smaller and more power efficient.

Total Cost of Ownership
Legacy v. Fungible

■ Legacy ■ Fungible

- Raw Capacity (PB): 30 (Legacy), 4.5 (Fungible)
- Cost/Effective GB: 2 (Legacy), 0.96 (Fungible)
- Total Spend ($M): 15 (Legacy), 8 (Fungible)

The result of the new technology from Fungible is profound. Less capital cost, less power, less space, better throughput and an easier to manage system means better profitability, more responsive recommendation engine, and happier customers (and IT staff). *The total spending on the system went from $15 million to $8 million, a 46% savings.*

Fungible's technical innovations have remade the eRetailer's data center, not only providing high-performance cost-effective storage, but providing a composable data infrastructure that makes the entire compute environment more efficient. The clearest measure of this impact was the reduction in the number of servers by 70%, and the resulting system was faster, smaller and more power efficient. An added benefit is the ability to recompose these elements as needs change in the future, providing a flexible architecture that is its own insurance policy instead of the fixed and fragile system Fungible replaced.

Find out more at Fungible.com.

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