MANGOBOOST | BOOST YOUR DATACENTER

SOLUTION BRIEF

Mango StorageBoost™ NVMe over TCP Target

Enhance Your Infrastructure with High-performance Disaggregated Storage System

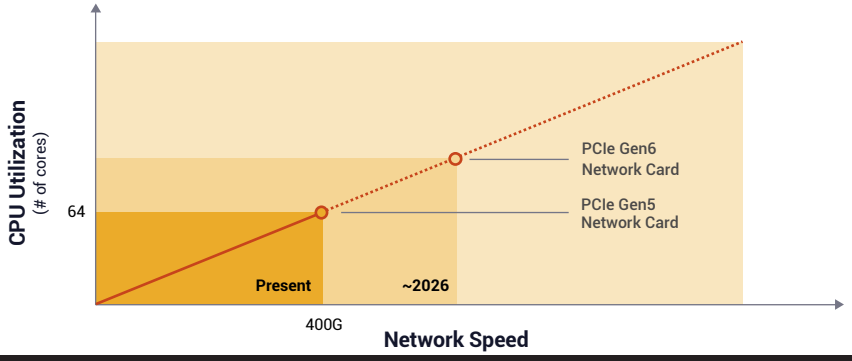
EXECUTIVE SUMMARY

Modern data centers are transitioning from a compute-centric to a data-centric paradigm. In this new framework, high-bandwidth and low-latency storage systems are crucial for minimizing the overhead associated with loading data from non-volatile memory. The increasing demand for artificial intelligence (AI) workloads further underscores the necessity for large-scale, networked storage systems that can efficiently share datasets and model checkpoints across multiple GPU nodes.

NVMe-over-Fabrics (NVMe-oF) technology has emerged as a pivotal enabler of seamless data access across networks, making it central to this paradigm shift. Ethernet-based NVMe-oF (NVMe/TCP) enhances deployment simplicity by removing the need for specialized hardware tailored to specific protocols, significantly reducing the overall total cost of ownership (TCO).

However, in storage servers, the NVMe/TCP protocol requires a substantial number of host CPU cores to manage the intricate TCP/IP and storage layers. As 400G networks become the standard, and ultra-high-speed networks exceeding 800G are on the horizon, existing NVMe/TCP solutions face challenges in achieving optimal network performance. Their capabilities are ultimately limited by the number of CPU cores, as the processing demands of NVMe/TCP scale with network speed. Even hardware-based solutions encounter difficulties, as no single solution has yet successfully offloaded both the TCP/IP and storage layers without compromising performance.

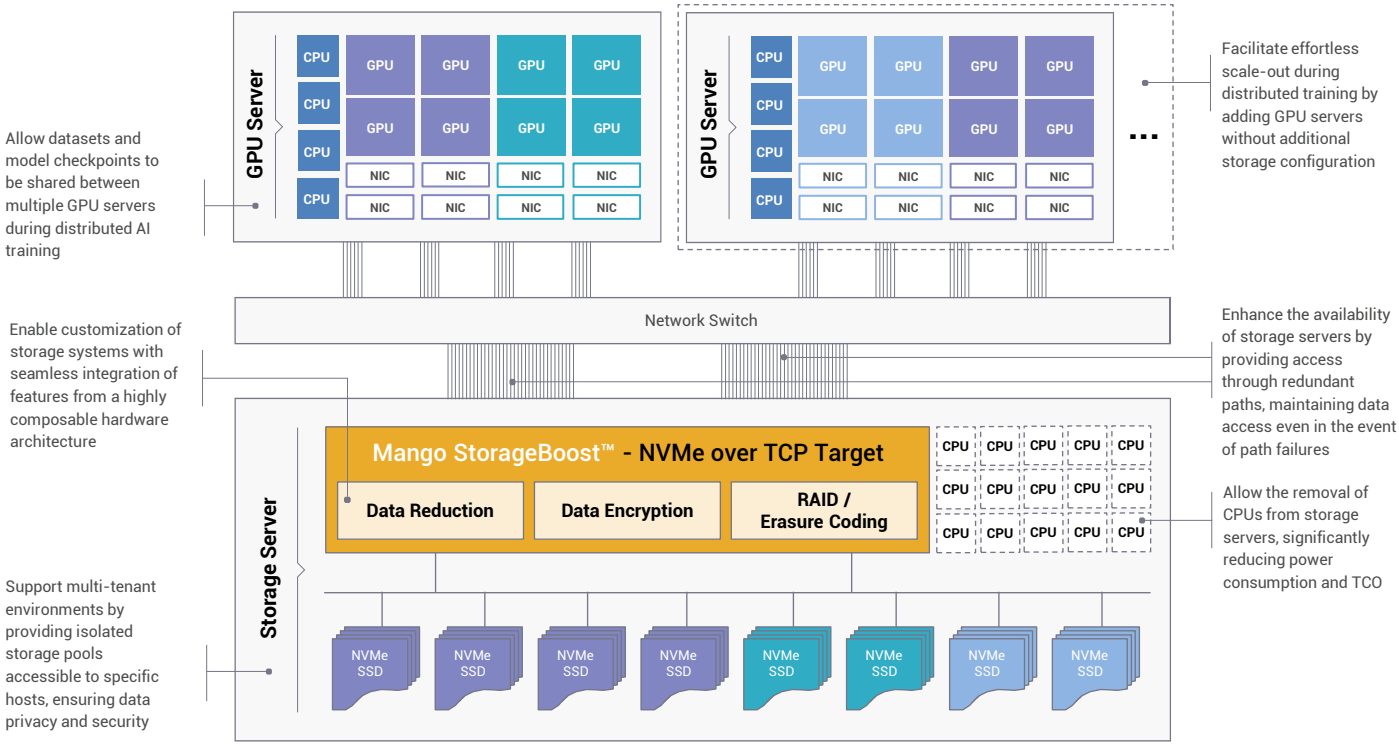
Mango StorageBoost™ – NVMe over TCP Target (NTT) is a hardware-based NVMe/TCP solution for storage servers that accelerates both the TCP/IP and storage layers. It enhances storage servers by providing a shared storage with full network performance over a standard Ethernet-based network infrastructure. By fully offloading CPU tasks, NTT effectively lowers power consumption and operational costs. Moreover, by preventing overprovisioning and facilitating efficient data sharing through disaggregation, NTT further minimizes unnecessary expenses. These advantages lead to a substantial reduction in total cost of ownership (TCO). Additionally, the highly modular hardware architecture accommodates a range of feature combinations tailored to meet specific requirements.



AI-READY STORAGE SOLUTION WITH DISAGGREGATED INFRASTRUCTURE

Advances in AI applications have increased the demand for high-performance data processing and seamless scalability. **Mango StorageBoost™ - NVMe over TCP Target (NTT)** is an AI-ready storage solution that meets these needs by delivering near-local data access speeds in remote environments, effectively supporting disaggregated infrastructure. NTT thereby empowers organizations to scale compute and storage resources independently, effectively preventing overprovisioning. Furthermore, by enabling efficient data sharing among GPU servers, NTT significantly lowers total cost of ownership (TCO), allowing organizations to maximize resource utilization while minimizing unnecessary expenses.

Use Case: A multi-host storage system with Mango StorageBoost™ – NVMe over TCP Target



LOW POWER FOOTPRINT

As network performance increases, NVMe-oF requires more CPU resource to fully leverage these higher speeds. This escalates power consumption during NVMe/TCP processing, creating a challenge in balancing performance and power efficiency. **Mango StorageBoost™ - NVMe over TCP Target (NTT)** addresses this challenge by eliminating CPU involvement for NVMe/TCP tasks, resulting in a low power footprint. This enables NTT to deliver both high performance and power efficiency, supporting a cost-effective and eco-friendly server infrastructure.

FLEXIBLE STORAGE SYSTEM

Storage servers are becoming more diverse to meet the specific needs of each application. For example, data reduction is crucial for managing large AI datasets, data encryption is vital for securing cloud environments, and RAID or erasure coding is needed to ensure data integrity for enterprise applications. **Mango StorageBoost™ - NVMe over TCP Target** enhances storage flexibility by offering various combinations of such features that can be offloaded and accelerated with NVMe/TCP through its modular architecture.

READY TO GET STARTED?

To learn more about accelerating your AI infrastructure,
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