

SOLUTION BRIEF

# DEPLOYING FUNGIBLE STORAGE CLUSTER WITH JUNIPER NETWORKS® QFX SERIES SWITCHES

Simplify management, increase agility, achieve higher efficiency, reduce cost, and accelerate data center infrastructure

Organizations globally want their data center networks, storage, and compute to meet increasingly dynamic workload applications' connectivity and service requirements. Traditional networking, storage, compute, and applications data center infrastructure has been static, siloed, and unable to respond to the applications' rapidly changing needs.

The Fungible Storage Cluster (FSC) solution and Juniper Networks® QFX Series Switches provide a validated hyperdisaggregated scale-out storage solution that delivers Direct Attached Storage (DAS) like performance and low latency, meeting the needs for modern applications. The FSC also enables IT leaders to enjoy on-demand provisioning of storage, higher media utilization, higher security, and varying durability levels. Organizations do not need to anticipate future workload requirements while counting on lean and streamlined provisioning to deliver diverse applications.

## KEY BENEFITS

**Unrivaled economics, performance, density, and power efficiency:** 10x the performance and 5x the ROI compared to existing solutions

**Best-in-class performance:** 105M aggregate IOPS and 420 GB/s throughput, provided by seven FS1600 storage target nodes

**Fastest in-line data services:** Data reduction, data compression, data durability, and data security at full line rate

**Elastic scale-out, hyperdisaggregated storage solution:** Shared and pooled capacity for business flexibility, high utilization, and efficiency

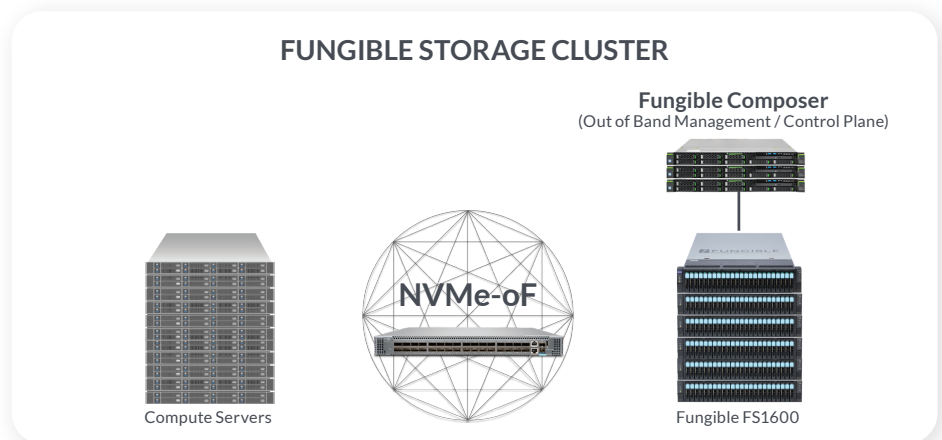
**Super-linear performance at cloud-scale:** Extends to thousands of storage target nodes with line-rate performance and predictable low-tail latency

**Industry-standard compliance:** Smooth deployment in existing data centers with standard Ethernet Fabric

**No-compromise security:** Immutable root of trust, line-rate end-to-end encryption, and fine-grained quality of service

## SOLUTION OVERVIEW

Together, Juniper Networks and Fungible deliver a best-in-class, scalable, disaggregated storage solution with features and performance that meet today's businesses need at an affordable price.



## SOLUTION COMPONENTS

The solution includes two components:

### FUNGIBLE STORAGE CLUSTER (FSC):

The FSC is the world's fastest All-Flash NVMe-oF disaggregated storage cluster. Designed to overcome every legacy limitation and address modern applications' most demanding requirements, the FSC delivers best-in-class performance characteristics for IOPS, latency, and throughput in the smallest footprint and lowest power envelope. The FSC comprises two or more Fungible FS1600 storage target nodes and three Fungible Composer™ nodes.

### FS1600

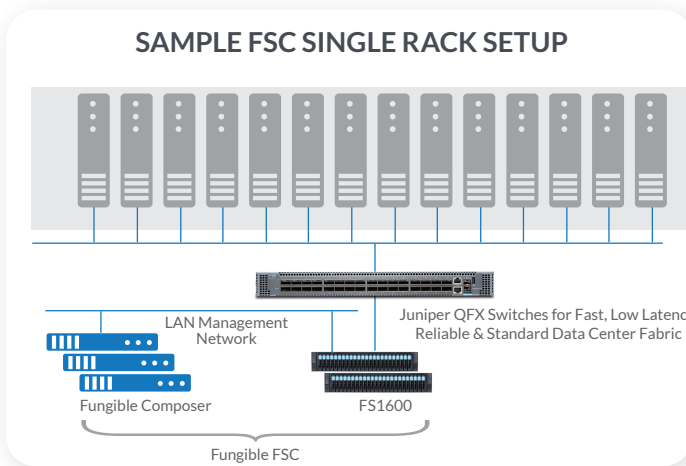
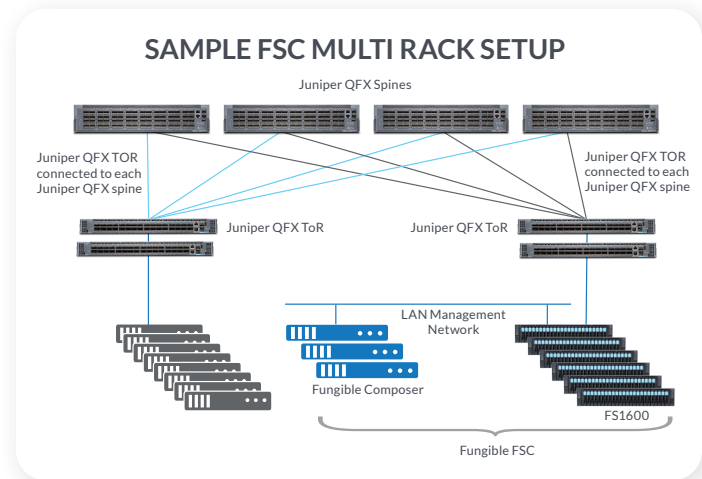
A vital component of the FSC, the Fungible FS1600, is a high-performance, secure, scale-out NVMe-oF storage node. The FS1600 is powered by two Fungible Data Processing Units™ (DPUs). A unique Fungible innovation, the DPU represents a new class of microprocessors designed from the ground up to deliver unrivaled performance and efficiency in running infrastructure services such as storage, networking, analytics, and security. This foundational technology makes the FS1600 the most flexible and robust storage platform capable of handling extreme workload variability and high-performance demands in organizations of all sizes. The FS1600 nodes implement a highly performant network-protected durable data plane that scales to petabytes of capacity and thousands of nodes.

### Fungible Composer™

The Fungible Composer is a centralized management solution developed to configure, manage, orchestrate, control, and deploy a cluster of disaggregated FS1600 storage nodes. The Fungible Composer enables a highly available control plane that supports five services: a storage service, a network management service, a telemetry service, a node management service responsible for log collection, and an API gateway that provides external access to the Fungible Composer's services.

## JUNIPER QFX 5120-32C AND 5210 DATA CENTER SWITCHES

The Juniper QFX Series switches secure and automate your data center networks. When combined with the Fungible Storage Cluster, the QFX Series delivers high-throughput, low-latency performance. The Fungible Storage Cluster's extreme throughput capability requires a similar performance level from the connected network infrastructure and 6.4Tbps bidirectional throughput across 32x 100GbE ports. Contained within a compact 1U form factor, the QFX5120-32C switch delivers on that performance requirement. For larger deployments, the 2U QFX5210-64C switch provides up to 12.8Tbps bi-directional performance. Combined with latency as low as 550 nanoseconds, the QFX switches are an excellent network engine for the Fungible Storage Cluster.



With the Fungible Storage Cluster, Fungible offers high-performance storage that, combined with Juniper QFX Series switches, eliminates the need for investment in complex InfiniBand-based solutions. In addition, you can offload the compute intensive work, such as compression, erasure coding, and encryption to the FSC with little or no performance hit, thus freeing up CPU resources on the server to process additional workloads. Tests have proven it to be the fastest disaggregated storage, achieving significantly higher IOPS performance than any other storage system.

## ABOUT FUNGIBLE

Silicon Valley-based Fungible is reimagining the performance, economics, reliability, security and agility of today's data centers.

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NODE TYPE	READ IOPS	WRITE IOPS
1 Node: RAW Volumes	15M	3M
6 Nodes: RAW Volumes	15M	18M
2 Nodes: RAW Durable Volumes	8.9M	1.5M
1 Node: Durable (EC 4+2) Volumes	3.2M	1.1M
6 Nodes: Durable (EC 4+2) Volumes	19.2M	6.6M

Whether deployed in academic research HPC environments, life sciences, or other performance-dependent use cases, the Fungible Storage Cluster offers class-leading performance with enterprise-friendly pricing.

## LEARN MORE

To learn more about accelerating your data center environments to respond to new demands placed on IT organizations or about other Fungible solutions, please contact your Fungible representative.

Juniper QFX Series Switches:

<https://www.juniper.net/us/en/products-services/switching/qfx-series/>

Fungible Storage Cluster:

<https://www.fungible.com/product/fungible-storage-cluster/>

For questions about Fungible, contact sales@fungible.com

For questions on Juniper Networks, contact <https://www.juniper.net/uk/en/contact-us/>