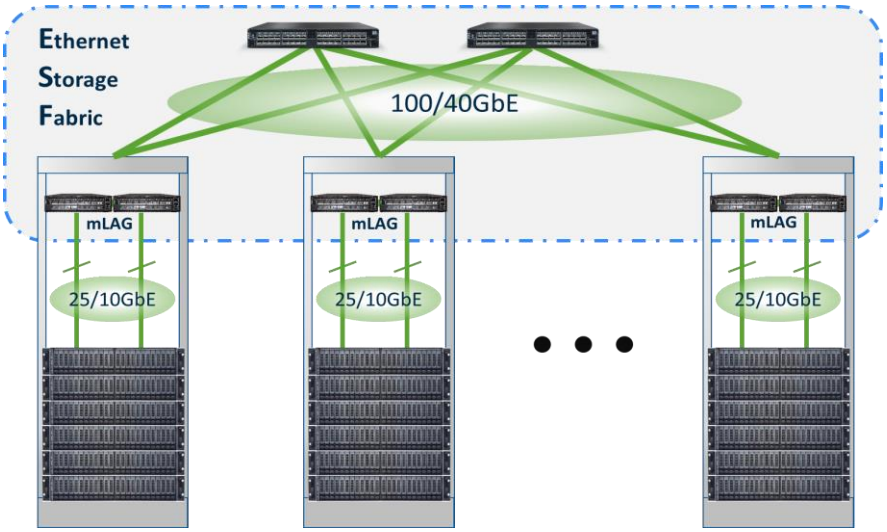
Ethernet Storage Fabric (ESF)

Deliver performance and efficiency for scale-out storage and hyperconverged infrastructures

What is an ESF?

An Ethernet Storage Fabric (ESF) leverages the speed, flexibility, and cost efficiencies of Ethernet to provide the foundation for the fastest and most efficient way of networking storage. An ESF is run on purpose-built switches which are optimized to deliver the highest levels of performance, lowest latencies and zero packet loss, with unique form factors and storage-aware features.



WHERE DO YOU NEED AN ESF?

- Faster servers accessing flash storage
- Rapid data center expansion
- Software-defined, scale-out storage
- Hyperconverged Infrastructure (HCI)
- Virtualized workloads
- On-prem. private/hybrid cloud

WHAT DISTINGUISHES AN ESF SWITCH?

- Optimized for storage traffic
- Lossless for predictable performance
- Sub µsec latency and high-throughput
- Intelligent buffers to handle microbursts
- Fair IO across all ports and packet sizes.

Why ESF?

ESF Has Everything a Traditional SAN Offers but …Faster, Smarter, & Much Simpler

Speed, flexibility, ease of deployment, and cost efficiencies of Ethernet

+

Best switching hardware and software packaged in ideal form factors

→

A better SAN without $$$

- 3x more performance than FC
- 3x lower price than FC
- Any storage/HCI architecture
- Speeds from 10 to 100Gb/s

FAST

- Highest bandwidth
- Lowest latency
- RoCE and storage offloads
- Native NVMe-oF acceleration

SMART

- Auto discovery & provisioning
- Security & isolation
- Monitoring & management
- Storage-aware QoS

SIMPLE

- Optimized form factors
- Rapid deployment
- Quick troubleshooting
- Flexible: Block, File, Object

ESF vs. Fibre Channel

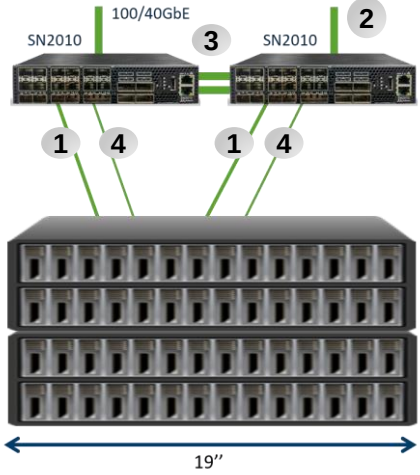
Feature	ESF	FC
Bandwidth	10/25/40/50/100Gb/s	8/16/32Gb/s
Supported Storage Type	Block, File, Object	Mostly Block
Lossless Network	Yes	Yes
Cost	Low $	Med/High $$-$$$
Cloud/HCI	Yes / Yes	No / No
SDS/Scale-out	Yes / Yes	Rare / No

ESF is the Only Option Supporting All Primary & Secondary Storage:

- **Block**
- **File / NAS**
- **Object**
- **Cloud**
- **Hyperconverged**
- **Big Data**

Mellanox Spectrum ESF Switches

The ESF Switch



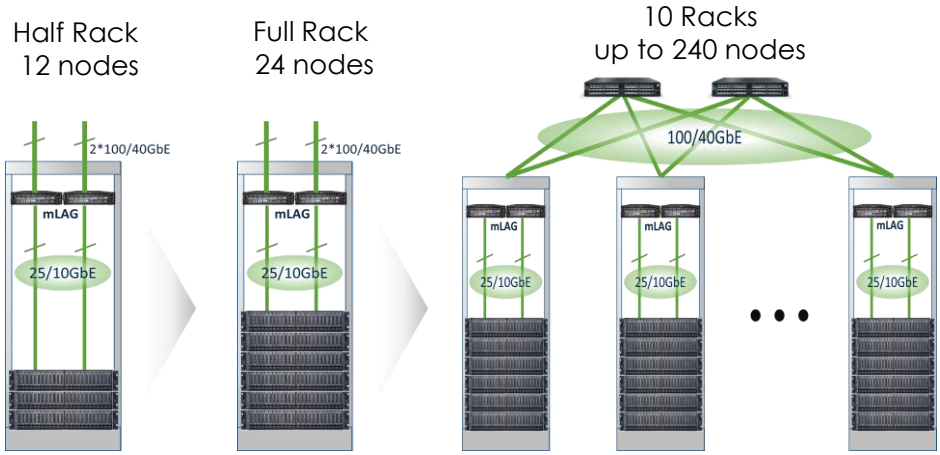
- ½ 19" width, 1U height
- 18x10/25GbE + 4x40/100GbE
- 57W typical (ATIS)

1. 25/10GbE link: QSFP to SFP+
2. 100/40GbE link: QSFP to QSFP
3. 100GbE link: QSFP to QSFP
4. 1GbE link: 1GbE Transceiver

Why Spectrum?

- 2 switches in 1U
- Ideal storage/HCI port counts
- Zero packet loss
- Low latency
- RoCE optimized (NVMe-oF, Spark, SMB Direct, etc.)
- NEO for network automation/visibility
- Native SDK for containers
- Cost optimized
- Network OS alternatives

Pay As You Grow



Scalable from a half rack to multiple racks

Automated Network

Provisioning & Orchestration

- Zero-touch provisioning
- VLAN auto-provisioning
- Migrate VMs without manual configuration
- VXLAN/DCI support for VM migration across multiple datacenters for DR

Monitoring

- Performance monitoring
- Health monitoring
- Detailed telemetry
- Alerts and notifications

Rack Optimized: Any Configuration, Any Workload

Model	Form Factor	10GbE optimized	25GbE optimized	40GbE optimized	50GbE optimized	100GbE optimized	1GbE optimized
SN2010	½ 19"	18p 10GbE + 4p 100GbE	18p 25GbE + 4p 100GbE				18p 1GbE + 4p 100GbE
SN2100	½ 19"	64p 10GbE	64p 25GbE	16p 40GbE	32p 50GbE	16p 100GbE	16p 1GbE
SN2100B	½ 19"	64p 10GbE		16p 40GbE			16p 1GbE
SN2700	19"	64p 10GbE	64p 25GbE	32p 40GbE	64p 50GbE	32p 100GbE	32p 1GbE
SN2700B	19"	64p 10GbE		32p 40GbE			32p 1GbE
SN2410	19"	48p 10GbE + 8p 100GbE	48p 25GbE + 8p 100GbE				48p 1GbE + 8p 100GbE
SN2410B	19"	48p 10GbE + 8p 100GbE					48p 1GbE + 8p 40GbE
4610-54T	19"						48p 1GbE + 4p 10GbE

Half-rack width allows for two units to be deployed side-by-side for high availability at the top of the rack.