



# Mellanox's Externally Connected Multi-Host Solution (eMH)

## ConnectX® Enables Data-Center Infrastructure Efficiency and TCO Reduction

### Mellanox Multi-Host® (MH) Technology Overview

Mellanox Multi-Host technology enables connecting a number of compute / storage hosts to a single ConnectX® network adapter. The deployment of multi-host platforms greatly enhances infrastructure efficiency and simplicity with CAPEX and OPEX cost savings, by reducing the required amount of switch ports and sharing a single NIC between multiple servers. Mellanox Multi-Host technology is ideal for high-performance, compute-intensive, data-center environments delivering cloud, web 2.0 and telecom services.

The flagship Open Compute Project's (OCP) Yosemite v2 multi-node computing chassis is a notable example of a multi-node platform using multi-host technology that provides flexibility and power efficiency for high-density, scale-out data-centers.

Figure 1 illustrates the transition from a traditional multi-node (multi-adapter) network design to a multi-host (single adapter) technology-powered system.

### Introducing Mellanox's Externally Connected Multi-Host (eMH) Solution

Traditionally, Mellanox multi-host network adapters have been deployed in systems that were pre-designed for this technology, and where the PCIe connections are all terminated internally within the chassis - either via its backplane, or by using internal cabling and PCIe extenders.

While there are several vendors in the market offering compatible server platforms, such as the OCP Yosemite platform, multi-host technology is supported by some, but not all, commodity off-the-shelf compute servers. To unlock the full potential of the multi-host technology, Mellanox introduces an externally connected multi-host solution that enables multi-host network adapters in most commodity server platforms and network designs.

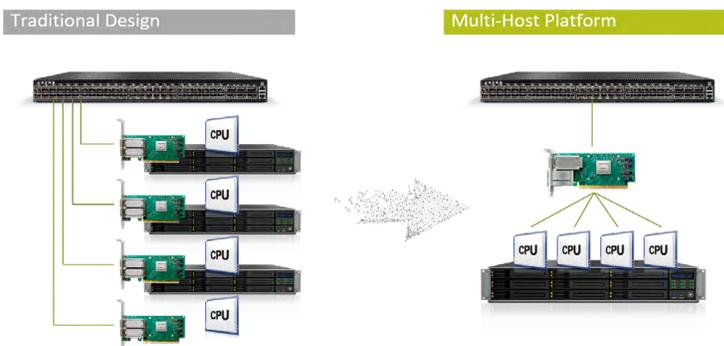


Figure 1: Transition of multi-node to multi-host system

### Key Benefits

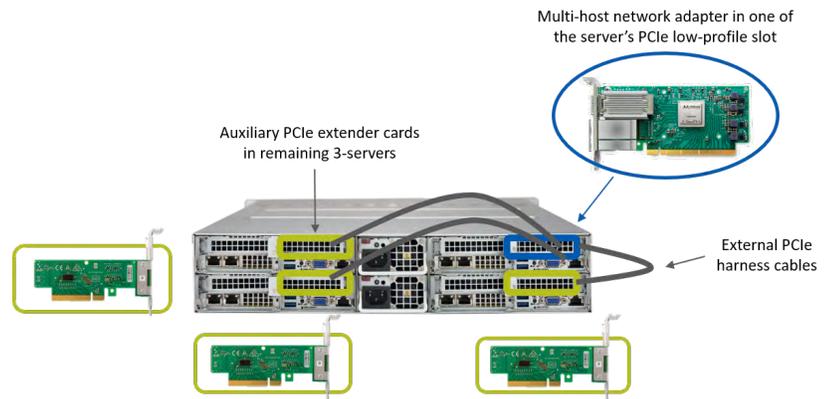
Mellanox's externally connected multi-host solution offers a superior price/performance ratio for both new and existing scale-out computing fabrics, while dramatically reducing total cost of ownership on the following:

- Simple network adapter serving up to 4 hosts.
- Single switch port connecting up to 4 hosts.
- Active cabling, as a single cable now serving up to four hosts.
- Rack space, power and cooling, attributed to the overall reduction in network connections in the data center.
- Fits commodity servers, enabling the deployment of multi-host technology without having to purchase and roll out specialized hardware.

## How it Works

As implied by its name, the externally connected multi-host solution leverages the same multi-host technology built into the ConnectX-5 network adapter ASIC. External PCIe cabling makes up the connectivity between each host and the network card. The solution is perfectly positioned for highly dense 4-node 2U chassis systems, enabling 25Gb/s connectivity per connected node, as illustrated in the figure below.

Mellanox offers a complete connectivity kit for up to four nodes including Mellanox ConnectX -5 network adapter card (NIC) with a single 100GbE, QSFP port; 3 x MiniSAS HD cables carrying x4 lanes of PCIe Gen3 with additional sideband signals for managing each host individually; and 3 x auxiliary PCIe extender cards.



**Figure 2:** Example of a 4-node 2U chassis system enables 25Gb/s connectivity per connected node of multi-node

## Conclusion

The continued investment in data-center technologies is driving enterprises and service providers to implement efficient infrastructure solutions while reducing costs. The externally-connected Mellanox Multi-Host solution combines the best of both worlds – deploying commodity server hardware of choice at a lower total cost of ownership with improved operational agility and simplicity.

**Table 1 - Ordering Information**

OPN	Description
MCX553Q-ECAS-AK70	ConnectX®-5 VPI adapter card kit with Multi-Host, EDR IB (100Gb/s) and 100GbE, Single-port QSFP28, PCIe3.0 x4 on board, with 3x auxiliary cards, with 3x 70 CM PCIe cables, Short brackets

## About Mellanox Technologies

Mellanox Technologies (NASDAQ: MLNX) is a leading supplier of end-to-end Ethernet and InfiniBand smart interconnect solutions and services for servers and storage. Mellanox interconnect solutions increase data center efficiency by providing the highest throughput and lowest latency, delivering data faster to applications, unlocking system performance and improving data security. Mellanox offers a choice of fast interconnect products: adapters, switches, software and silicon that accelerate application performance and maximize business results for a wide range of markets including cloud and hyperscale, high performance computing, artificial intelligence, enterprise data centers, cyber security, storage, financial services and more. More information is available at: [www.mellanox.com](http://www.mellanox.com).