HPE and Marvell Deliver Converged Networking —Help Me Choose

What Do You Need for Your Enterprise-class Data Center?

End-User Benefits

Full Offload Capability

- Lowers CPU utilization for I/O processing
- Provides industry-leading L2 networking, iSCSI, and FCoE connectivity
- Increases application performance
- Allows for more VMs per server

Advanced Virtualization Techniques

- HPE® Virtual Connect FlexFabric®
- Support for operating system virtualization implementations, including VMware® NetQueue, Microsoft® VMQ, and SR-IOV

Hewlett Packard Enterprise (HPE) and Marvell deliver high performance and flexible converged networking solutions for today's enterprise-class data center. Only HPE and Cavium can deliver FlexFabric, concurrent protocol, and network partitioning to simplify server-to-edge connectivity and I/O management.

Introduction

HPE and Marvell deliver customers the highest performing, most reliable, and most scalable I/O solution for the HPE ProLiant® server portfolio. For several years, HPE and Marvell have collaborated on Virtual Connect and Virtual Connect FlexFabric solutions to simplify HPE ProLiant BladeSystem connectivity to networks. Now, customers with HPE ProLiant DL, ML, Apollo, HPE Synergy®, and Blade servers can leverage Marvell FastLinQ 10/20/25GbE Converged Network Adapters to simplify server network connectivity for these server platforms. This solution sheet will guide you in selecting your HPE converged networking solution for HPE ProLiant and Synergy server environments.

What Do You Need To Support Your Data Center Requirements Today And Into The Future?

- Are you moving to a 10GbE or 25GbE environment?
- Do you run I/O-intensive applications?
- Are you concerned about I/O bandwidth and how to best meet your service-level agreements (SLAs)?
- Do you need a high availability solution to meet your reliability requirements?
- Do you run multiple protocols in your data center?
- Are you considering Remote Direct Memory Access (RDMA) for low latency network connectivity?
- Would you benefit from a single adapter to handle all protocols [Ethernet, RoCE or iWARP RDMA, iSCSI, and Fibre Channel over Ethernet (FCoE)] at the same time?
- Is it important to isolate traffic between virtual machines (VMs)?
- Is it important for you to conserve network switch ports?
- Do you need boot from SAN in your data center?
- Do you need scalability in your business?
- Do you need flexible ways to allocate bandwidth in your Ethernet environment?
- Do you need to partition your bandwidth in an OS and switch-agnostic manner?
- Do you need to provide assured quality of service (QoS)?
- Do you need switch independent failover and load balancing?

- Enables hardware consolidation
- Reduces I/O emulation overhead
- Dedicates bandwidth (QoS) for improved scalability
- High performance multi-tenant deployments with NVGRE and VXLAN offloads for large cloud deployments

Simplified Management

- Provides concurrent support for Ethernet, FCoE, and iSCSI protocols
- Minimizes deployment disruptions
- Agnostic to network switches
- Proven interoperability with OSes, switches, storage, and ISV and IHV fail-over solutions
- Reduces operating overhead—single SKU across OSs/protocols

Your answers to these questions determine the performance, reliability, and scalability needed for your business. If you have answered more than half of these questions with a yes, the HPE Ethernet 10/25Gb 2P FLR-SFP28 QL41401 CNA, HPE FlexFabric 57810S/57840S/630 Series, HPE 4820C/6820C Series for HPE Synergy, or HPE CN1300R/CN1200R-T Converged Network Adapters are the best choice to meet your data center requirements.

What Is The Solution And Its Benefits?

- The HPE CN1300R CNA and HPE Ethernet 10/25Gb 2P FLR-SFP28 QL41401 CNA provide industry-leading 10GbE and 25GbE converged connectivity for HPE ProLiant DL and Apollo servers supporting simultaneous LAN (TCP/IP) and SAN (FCoE and iSCSI) traffic as well as support for concurrent iWARP or RoCE RDMA for low latency.
- For non-RDMA environments, the HPE FlexFabric 57810S/57840S Adapters provide 10GbE converged connectivity for ProLiant DL/ML and Apollo servers.
- For HPE Synergy, the HPE 4820C provides 10/20/25GbE converged connectivity and the HPE 6820C provides 25/50GbE converged connectivity.
- NPAR provides four (4) physical functions per port with the HPE FlexFabric 57810S/57840S Converged Network Adapters, allowing for simplified bandwidth allocation and QoS management. For HPE Synergy, the HPE Synergy 4820C/6820C adapters provide eight (8) physical functions per port for bandwidth allocation and QoS management.
- Full hardware offload for FCoE and iSCSI protocol processing
- Enterprise-class Ethernet features and performance
- Fully compatible with existing Fibre Channel and iSCSI storage, providing investment protection for existing infrastructure
- Optimized for virtual environments with support for HPE Flex-10/ Flex-20, Single Root I/O Virtualization (SR-IOV) and NVGRE/VXLAN/GENEVE tunnel offloads.
- Adapter management integrated with HPE server and storage management software and utilities

Enterprise Requirements		Converged Network and FlexFabric Adapters	Software Initiator
PERFORMANCE	Support for I/O-Intense Applications	YES	NO
	Efficient CPU Utilization	YES	NO
	RDMA - iWARP, RoCE, RoCEv2	YES	NO
RELIABILITY	Data Integrity Assurance	YES	NO
	Comprehensive Fail-over Support	YES	NO
	Enterprise Reliability	YES	NO
	Investment Protection	YES	YES
SCALABILITY	Scalability within Virtual Operating Environments	YES	NO
	IOPS Scalability	YES	NO
	Concurrent I/O Support for Consolidation	YES	NO
	Broad OS Support	YES	NO
	Proven Interoperability	YES	NO
	Boot from SAN Across Configurations and OSes	YES	NO

In What Scenarios Is The Solution Needed?

- Data centers with HPE ProLiant, Apollo, or BladeSystem Servers
- Data centers with heterogeneous equipment deployments
- Data centers with virtualized servers
- Data centers ready for convergence
- IT administrators are looking for a trusted storage driver stack
- IT managers are seeking to standardize on a single adapter

HPE And Marvell Deliver 10/20/25/50Gbe Converged I/O Solution

HPE FlexFabric 630FLB and 630M 20Gb Adapters provide the industry's first 20Gbps converged connectivity for blade server platforms. These adapters install in HPE BladeSystem servers and provide 20GbE connectivity to HPE Virtual Connect FlexFabric-20/40 F8 Module. In ProLiant DL and Apollo servers, the HPE Ethernet 10/25Gb 2P FLR-SFP28 QL41401 CNA and CN1300R deliver 25GbE converged connectivity for even higher performance environments. IT administrators can rely on HPE and Marvell to deliver the most flexible and highest performance for server to network connectivity.

Connectivity Optimized For Virtual Server Environments

HPE BladeSystem server customers have leveraged HPE FlexFabric for flexible and simplified I/O management. This is especially true for those deploying virtual server environments. HPE and Marvell have now introduced NPAR, to enable customers utilizing HPE ProLiant server platforms to optimize their I/O connectivity in virtual server environments as well. The HPE FlexFabric FLR 57810S/57840S Adapters support NPAR, allowing IT administrators to carve up each physical port into four distinct physical functions for use by applications running on the server. QoS can be set in 100Mb increments to allow for I/O prioritization across applications.

Concurrent Protocol To Simplify Server Configurations

With most Converged Network Adapters, IT administrators are required to select between FCoE or iSCSI storage functions. This adds complexity to server configurations for customers deploying servers in data centers that have a combination of iSCSI, Fibre Channel, or FCoE storage. HPE and Marvell address this issue with a feature in the HPE Ethernet 10/25Gb 2P FLR-SFP28 QL41401 CNA, HPE FlexFabric FLR 57810S/57840S and CN1300R/CN1200R-T Converged Network Adapters called “single function mode,” which allows converged connectivity to iSCSI and/or Fibre Channel/FCoE storage with a single hardware configuration. One adapter and driver can support either or both protocols concurrently, eliminating the need for firmware updates to change the personality of the storage function in the Converged Network Adapter. This is just another proof point that HPE and Marvell deliver the most flexible and manageable converged networking solutions.

HPE Flexible Network Adapter ProLiant Server Support Requirements	Gen10 DL, Apollo	Gen10 BladeSystem	Gen9 BladeSystem	HPE Synergy Gen10
CN1200R-T	✔			
CN1300R	✔			
HPE Ethernet 10/25Gb 2-port FLR-SFP28 QL41401-A2G CNA	✔			
HPE FlexFabric 10Gb 2-port FLR-T 57810S Adapter	✔			
HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter	✔			
HPE 534M Adapter		✔	✔	
HPE 536FLB Adapter		✔	✔	
HPE FlexFabric 10Gb 4-port FLR-T 57840S Adapter	✔			
HPE 630FLB Adapter		✔	✔	
HPE 630M Adapter		✔	✔	
HPE Synergy 4820C Converged Network Adapter				✔
HPE Synergy 6820C Converged Network Adapter				✔

HPE Converged Network Adapter Feature Support

- Up to 3.6M IOPS FCoE
- Up to 2.9M IOPS iSCSI
- Hardware and stateless offload
- VMware NetQueue and Microsoft VMQ
- SR-IOV
- Network Partitioning (NPAR) - (Not avail on CN1200R-T/CN1300R)
- Universal RDMA - iWARP, RoCE, RoCEv2 (QL41401, CN1200R-T/CN1300R, 4820C, 6820C)
- Tunnel Offloads - NVGRE, VXLAN, GENEVE
- Jumbo Frame Support
- TCP segmentation/large send offload
- Preboot eXecution Environment (PXE boot)
- DPDK Small Packet Acceleration
- ACPIv2.0
- SMBus 2.0
- IEEE 1588 – precision time protocol (PTP) – ready
- IEEE 802.1Q – virtual LAN (VLAN) tagging
- IEE 802.3x – flow control
- IPv4 and IPv6
- Teaming support
- MSI/MSI-X support
- Forward Error Correction (FEC) – RS-FEC and FC-FEC at 25GbE

For more information:

- www.marvell.com/hpe

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To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.