

Overview of Cisco Virtual Interface Card (VIC) Configuration Guide

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Overview

A Cisco UCS network adapter can be installed to provide options for I/O consolidation and virtualization support. This guide contains configuration details on RDMA over Converged Ethernet version 2 (RoCEv2) and Single Root I/O Virtualization (SR-IOV).

RDMA Over Converged Ethernet (RoCE) Version 2

RDMA over Converged Ethernet version 2 (RoCEv2) is a network protocol that allows for Remote Direct Memory Access (RDMA) over Ethernet networks. It enables low-latency and high-bandwidth communication between servers or storage systems by leveraging the benefits of RDMA technology. RoCEv2 eliminates the need for traditional TCP/IP networking stack overhead, resulting in improved performance and reduced latency. It allows for efficient data transfers and enables applications to directly access remote memory, enhancing overall network efficiency and scalability. RoCEv2 is often used in data centers and high-performance computing environments to optimize network performance and accelerate data-intensive workloads.

RoCE v2 is supported on Windows, Linux, and ESXi platforms.

NDIS Poll Mode for Windows

Network Driver Interface Specification (NDIS) Poll Mode is an advanced traffic processing mechanism designed to optimize how the operating system manages network data. NDIS Poll Mode allows the operating system to control how network traffic is processed, providing improvements over older methods that relied on Deferred Procedure Calls (DPCs). By using the NDIS layer, the operating system manages network

processing directly, which enhances performance, stability, and efficiency, especially during periods of heavy network activity.

NFS Over RDMA for Linux

Network File System (NFS) over Remote Direct Memory Access (RDMA) optimizes network storage performance by allowing the NFS protocol to operate over high-speed, RDMA-capable fabrics. By bypassing traditional network stack processing, this feature significantly reduces Central Processing Unit (CPU) overhead, thereby enhancing overall system efficiency.

Single Root I/O Virtualization (SR-IOV)

Single Root I/O Virtualization (SR-IOV) allows multiple VMs running a variety of Linux guest operating systems to share a single PCIe network adapter within a host server. SR-IOV allows a VM to move data directly to and from the vNIC, bypassing the hypervisor for increased network throughput and lower server CPU overhead.