Overview of Cisco UCS M-Series

This part contains the following chapters:

About Cisco UCS M-Series

A traditional server has captive resources, for example, CPU, network adapters, and local storage, which cannot be shared across multiple servers. Cisco UCS M-Series modular server is a new class of Cisco UCS servers that enables sharing some of these resources within a chassis. Resources, such as hard disk drives, I/O, and adapters, which have traditionally been dedicated to servers, are now aggregated at a chassis level and shared across multiple servers within that chassis.

The Cisco UCS M-Series modular server decouples the networking and storage components of the server and provides them as flexible, configurable resources that can be distributed as needed to the servers within the chassis. In Cisco UCS M-Series, the CPU and memory are local to the server. The server has standard PCIe connectivity to the chassis resources. The components that are shared in the chassis are power, management, cooling, storage, and networking.

What is New

Cisco UCS M-Series Modular Servers introduces the following:

Modular Server Architecture

Some of the main features of the modular server architecture are as follows:

- Compute cartridges—Each slot in the new modular chassis can contain a compute cartridge. Each compute cartridge can contain one or more servers.

- Three-tuple reference for modular servers—In the new architecture, compute servers are contained within cartridges, which in turn are contained in a chassis. This makes all references to Cisco M-Series servers take a three-tuple form—*chassis-id*/*cartridge-id*/*server-id*.

- Centralized resources—Resources such as storage, I/O, and storage controller are centralized and hosted in the chassis.

- Shared adapter—The shared adapter is contained in the modular chassis. It is the aggregate point for accessing network and storage resources for servers.

Storage Profiles

Storage profiles are introduced to provide flexibility in configuring the usage of centralized storage resources.

Cisco System Link Technology

The Cisco UCS Virtual Interface Card (VIC) used in the Cisco UCS M-Series modular servers provides multiple PCIe buses that connect to multiple servers simultaneously. It utilizes the System Link Technology, which extends a PCIe bus to each of the servers and creates a virtual device on the PCIe host interface for use by the local CPU. The OS sees this virtual device as a local PCIe device, and I/O traffic is passed up the host PCIe lanes, and mapped to the appropriate shared resource-the local storage or the networking interface.

Virtual Storage Controller

The virtual storage controller provides access to virtual drives that are provided to the server through the shared storage controller and hard drives in the chassis. The virtual storage controller introduces a new PCIe device, known as a SCSI NIC (sNIC), which is presented to the OS. The OS views these items as locally-attached SCSI devices.

Guidelines and Limitations

- Because the connectivity between the Fabric Interconnect and the modular chassis is always in port channel mode, the chassis discovery policy is not applicable.

- Cisco UCS Manager Release 2.5 supports most of the features that are supported by Cisco UCS Manager Release 2.2. However, it does not support the following:

  - Cisco UCS B-Series Servers and Cisco C-Series Servers

  - Fiber Channel and Fiber Channel over Ethernet and associated configuration such as vHBA

  - Dynamic vNICs

  - usNICs

  - vMQ

All the features and configuration tasks that are supported by Cisco UCS Manager are detailed in *Cisco UCS Manager CLI Configuration Guide, Release 2.2*.