Overview of Cisco UCS M-Series Modular Servers

This part contains the following chapters:

About Cisco UCS M-Series Modular Servers

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 in Cisco UCS Manager Release 2.5(2):

TPM and TXT Configuration through UCS Manager

The Trusted Platform Module (TPM) is a component that can securely store artifacts, such as passwords, certificates, or encryption keys, which are used to authenticate the server. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Intel Trusted Execution Technology (TXT) provides greater protection for information that is used and stored on the server.

This release supports TPM and TXT configuration on Cisco UCSME-2814 compute cartridges through Cisco UCS Manager. TPM is enabled by default and TXT is disabled by default.

vNIC Placement on Host Ports

vNIC can be placed on one of the two host ports of the shared adapter. You can either explicitly specify the host port for placement, or allow Cisco UCS Manager to automatically assign vNICs to host ports. The host port placement of the vNIC determines the order of the vNIC on the adapter. The vNICs placed on the first host port will be enumerated first followed by the vNICs on the second host port. In this release, vNIC placement on host ports is applicable only to Cisco UCSME-1414 compute cartridges.

vNIC placement on host ports is detailed in *Cisco UCS Manager CLI Configuration Guide, Release 2.2*.

Support for up to 4 LUNs Per Server

The modular servers in Cisco UCSME-2814 compute cartridges include support for up to 4 LUNs per server, of which up to 2 LUNs are bootable. The modular servers in Cisco UCSME-1414 and UCSME-142 compute cartridges support up to 2 LUNs per server.

Cisco UCS M-Series Modular Servers introduces the following in Cisco UCS Manager Release 2.5(1):

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*.