- For ClearPath MCP Software Series systems, the IOA architecture as described in the implementation and compatibility guides
- Fibre Channel (FC) concepts and storage area network (SAN) SCSI concepts

This document does not present a support position on specific peripherals. For information about qualified peripheral devices, contact Unisys Support.

Overview of the I/O Architecture System I/O Type

The MCP I/O Architecture (IOA) defines the set of structures and protocols used between the MCP, the MCP I/O firmware, and the I/O subsystem. Because the IOA system I/O architecture differs in significant ways from I/O architectures in previous MCP systems, (for example, IOM and IOP systems) there are significant functional differences between the I/O functions of prior ClearPath MCP systems and IOA systems. You should understand these differences to make informed configuration plans.

For more information on the I/O architecture for your system, see the System Overview specific to your system.

Table 1–1 lists the ClearPath MCP Server systems and ClearPath MCP Software Series systems that are covered in this document.

Note: *For a complete list of current ClearPath MCP Server systems, refer to the appropriate ClearPath MCP Migration Guide.*

For a complete list of current ClearPath MCP Software Series systems, refer to the ClearPath MCP Software Series Compatibility Guide for the installed release.

Table 1–1. MCP Systems Relevant to this Guide

System Type	Systems	Environment
ClearPath MCP Server Systems	Libra 470 FS1770 VoiceSource Express 47	Unisys Single server
	Libra 43*xx*/63*xx*/83*xx*, Libra 64*xx*/84*xx*, Libra 45*xx*/65*xx*/85*xx*, Libra 46*xx*/66*xx*/86*xx* FS600, FS800	Unisys Multi-server

Table 1–1. MCP Systems Relevant to this Guide (cont.)

System Type	Systems	Environment
ClearPath MCP Software Series Systems	ClearPath MCP Developer Studio	Forward Enterprise Partition Platform (EPP), Bare Metal, or Hypervisor
	ClearPath MCP Bronze, ClearPath MCP Silver, ClearPath MCP Gold, ClearPath MCP Platinum, ClearPath MCP Titanium, ClearPath MCP Developer Studio Team Edition, ClearPath Financial Server, Unisys VoiceSource Gold	Bare Metal or Hypervisor
	Voice Source Software Edition	Bare Metal

IOA systems use MCP and firmware components to provide features not available on previous MCP systems. These features include

- Fully automatic generation and update of the peripheral configuration diagram (PCD)
- For systems with an MCP Console that provides an Emulated Disk Manager, the ability to create and use file-based emulated disk units
- For systems that support emulated disks, the ability to create and use emulated disk units
- The "plug and play" ability to dynamically add devices to the PCD of the MCP and to use them without an MCP halt/load

For more information about these features, refer to the implementation guide specific for your model of IOA system.

The IOA system supports qualified commodity I/O adapters rather than the proprietary I/O adapters used on native MCP systems. The IOA system also leverages third-party solutions, such as Emulex HBA Manager.

Terminology

The following list defines the terminology for I/O path elements for IOA systems:

- Channel

  An I/O connection point on the MCP system. There are different types of channels, including Serial, Virtual, and PCI. Examples of channels used for Storage Units include a PCI FC HBA port on an MCP system (sometimes called a host port), and a Virtual Channel used to access emulated disk units. Channels were called ports in previous MCP I/O architectures.

- Tap

  A connection point on an I/O device. An example of a tap is a Fibre Channel port on a storage system, which is sometimes called a storage port, target port, or director port,

depending on the type of storage system. Some storage systems can have multiple controllers, each of which can have multiple taps. Taps were called CTLs in previous MCP I/O architectures.

- Logical Unit Number (LUN)

  A logical unit of storage presented to the MCP system as a disk. This document generally uses the terms disk, pack, and LUN as synonyms referring to a logical unit of disk storage accessible from the MCP environment. When a different meaning is intended, you can discern it from the context, such as discussing tape LUNs or physical disks within a storage system.

- String

  The set of LUNs presented by a tap to a channel. In a redundant configuration, each string is presented by multiple taps to multiple channels.

  Note: *A tap might present a different string of LUNs to each channel, using techniques such as storage groups and LUN masking.*

- MCP physical disk unit

  An MCP physical disk unit appears to Windows as one or more external disk devices, and is formatted using the MCP file system. It is provided to the MCP environment to use as a PK unit.

  A physical disk unit is accessed by the MCP firmware using SCSI commands and passed through the Windows driver stack to the driver for the Fiber Channel HBA. The MCP handles path balancing and path failover. The MCP and IOP use only one path at a time for each disk unit, and the MCP logs any SCSI errors.

  Note: *A physical disk unit might be in a storage system which emulates disk units. For MCP use, Windows interprets the physical disk unit as one or more external disk devices and the MCP firmware accesses it using SCSI commands.*

  A physical disk unit can be created and accessed in one of three sector formats: VSS-1, VSS-2, or VSS-3.

- Emulated disk unit

  Note: *In prior releases, emulated disk units were also known as virtual disks and MCP logical disks.*

  An emulated disk unit is a unit abstracted by the IOP firmware using a Windows file which contains data formatted using the MCP file system. It is provided to the MCP environment for use as a PK unit.

  An emulated disk unit is accessed by MCP firmware using Windows file I/O. If a unit has multiple paths, a Windows or hypervisor Multipath I/O (MPIO) solution must be used because Windows I/O does not natively support multiple paths. Windows (or the hypervisor running Windows) handles path balancing and path failover. Unlike physical disks, which are accessed using SCSI protocol, Windows file I/O provides limited information when I/O errors occur for emulated disk units.

  You can create emulated disk units using the Emulated Disk Manager utility; this utility is found on the ClearPath MCP Software Series systems. Libra systems do not include the Emulated Disk Manager utility, but they include pre-installed emulated disk units (labeled *DISK*) which are configured as the MCP halt/load disk and contain system software primarily used for system setup.