

# Implementing Cisco HyperFlex (DCIHX) v1.2

## What you'll learn in this course

The **Implementing Cisco HyperFlex (DCIHX) v1.2** course shows you how to deploy and use the Cisco® HyperFlex™ data platform to support multicloud workloads. You will become familiar with HyperFlex components and learn how to install, design, manage, and troubleshoot Cisco HyperFlex to support highly scalable and resilient multicloud implementations. You will also gain hands-on experience focused on installation, management, maintenance, and native replication, and you will explore cluster technologies as well as Cisco Intersight.™

## Course duration

- Instructor-led training: 4 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 4 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 4 days of instruction with videos, practice, and challenges

## How you'll benefit

This class will help you use Cisco HyperFlex to

- Enable multicloud IT with an adaptive platform that powers any application anywhere with the simplicity of hyperconverged infrastructure
- Gain hands-on experience using Cisco HyperFlex

## Who should enroll

- Data center engineers
- Cisco integrators and partners

## How to enroll

- For instructor-led training, visit the [Cisco Learning Locator](#)
- For private group training, visit [Cisco Private Group Training](#)
- For e-learning, visit the [Cisco Learning Network Store](#)
- For digital library access, visit [Cisco Platinum Learning Library](#)
- For e-learning volume discounts, contact [ask\\_cpil@cisco.com](mailto:ask_cpil@cisco.com)

## Technology areas

- Data Center

## Course details

### Objectives

After taking this course, you should be able to:

- Describe hyperconvergence, Cisco HyperFlex, and the components of Cisco HyperFlex
- Explain the Cisco Unified Computing System™ (Cisco UCS®) and what makes it valuable to business
- Describe how Cisco HyperFlex Data Platform (HXDP) works
- Describe the physical components of Cisco HyperFlex
- Install and expand Regular vSphere Cisco HyperFlex
- Manage your Cisco HyperFlex VMware ESXi-based cluster
- Describe how to maintain Cisco HyperFlex
- Design a Cisco HyperFlex solution
- Protect the data on your Cisco HyperFlex cluster using replication and data at rest encryption
- Describe a stretched cluster and how is it different from a standard cluster
- Describe a HyperV-based cluster and how is it different from an ESXi-based cluster
- Design a multicloud datacenter with Cisco HyperFlex
- Describe an Edge cluster and how is it different from a standard cluster
- Perform basic troubleshooting tasks and explain Cisco Intersight
- Explain Cisco HyperFlex releases beyond 4.0(1a)

### Prerequisites

To fully benefit from this course, you should have the following knowledge:

- Cisco CCNA®-level knowledge about data center architecture and products technologies (network, compute, storage network)
- Familiarity with VMware vCenter and ESXi
- Familiarity with Microsoft Server 2016 and Hyper-V

Recommended Cisco learning offerings that may help you meet these prerequisites:

- Introducing Cisco Data Center Networking (DCICN) 6.x
- Introducing Cisco Data Center Technologies (DCICT) 6.x
- Implementing Cisco Data Center Unified Computing (DCUCI) 6.x

### Outline

- Introducing Hyperconvergence and Cisco HyperFlex
  - Traditional Data Center Design
  - What Is Hyperconvergence?
  - What Is Cisco HyperFlex?
  - Cisco HyperFlex Primer
  - Evolution of Cisco HyperFlex

- Describing Cisco UCS: The Foundation of Cisco HyperFlex
  - Cisco Server Deployment Models: Standalone Versus Managed
  - Cisco UCS Managed Model Benefits
  - Cisco UCS M5 Overview
  - Cisco UCS M5 Server Types
  - Cisco Virtual Interface Cards (VICs) and Their Benefits
  - Cisco UCS Fabric Interconnects
  - Cisco UCS Manager
- Describing Cisco HyperFlex Software Components
  - Virtual Machine Hypervisor
  - Log-Structured File System
  - Cisco HyperFlex Snapshots Versus VMware Snapshots
  - Cisco HyperFlex Versus Regular Virtualized Server
  - Cisco HyperFlex Data Distribution
  - Writing and Reading Process
  - Data Optimization Overview
  - Cisco HyperFlex vs. Other Hyper-Converged Infrastructure (HCI) Solutions
- Describing Cisco HyperFlex Hardware Components
  - Introducing Cisco HyperFlex Servers
  - Storage Technologies in Cisco HyperFlex
  - Storage Components of Cisco HyperFlex Converged Nodes
  - Non-Storage Components of Cisco HyperFlex Converged Nodes
  - Cisco UCS Fabric Interconnects
  - Compute-Only Nodes
- Installing and Expanding Standard ESXi Cisco HyperFlex
  - Installation Summary
  - Software Prerequisites
  - Hardware Prerequisites
  - Cisco HyperFlex Networking
  - Required Deployment Information
  - Installing Physical Components
  - Configure Upstream Switches
  - Prepare Fabric Interconnects
  - Deploy the Installer Virtual Machine (VM)
  - HyperFlex Installation
  - Post-Installation Script
  - Cluster Expansion
  - Additional Installation Options

- Managing Cisco HyperFlex in vSphere Environment
  - Management Interfaces Overview
  - Cisco HyperFlex Plugin for vCenter
  - Cisco HyperFlex Connect
  - Storage Command Line Interface
  - Representational State Transfer (REST) API Overview
  - ReadyClones
  - Cisco HyperFlex Snapshots
- Maintaining Cisco HyperFlex
  - Cisco HyperFlex Upgrade Overview
  - Cisco HyperFlex Online Upgrade
  - Cisco HyperFlex Offline Upgrade
  - HX Maintenance Mode
  - ESXi Upgrade
  - Moving Cisco HyperFlex Storage Cluster to Another vCenter
- Designing Cisco HyperFlex
  - Cluster Resiliency: VM-Level
  - Cluster Resiliency: HXDP-Level
  - Cisco HyperFlex Cluster Scalability
  - Cluster Capacity
  - Multiple Clusters on One Cisco UCS Domain
  - Cisco HyperFlex and External Storage
  - Licensing Tiers
  - Smart Licensing
  - Cisco HyperFlex Positioning
  - Graphical Processing Units and Cisco HyperFlex
- Protecting Your Data
  - Disaster Recovery Overview
  - Third-Party Data Restore Solutions
  - Cisco HyperFlex Native Replication Solution
  - Configuring Native Replication
  - Protecting Your VMs with Native Replication
  - Restoring Your VMs with Native Replication
  - Data at Rest Encryption
  - D@RE: Remote Key Management
- Introducing Stretched Cluster
  - Stretched Cluster Overview
  - Prerequisites
  - Data Distribution
  - Datastores and VM Affinity

- Installation Process
- Maintenance and Monitoring
- Introducing HyperV-Based Standard Cluster
  - HyperV-Based Standard Cluster Overview
  - Prerequisites and Recommendations
  - Preinstallation Tasks
  - Installation Process
  - Post-Installation Process
  - Maintenance and Monitoring
- Designing Multicloud Data Center with Cisco HyperFlex
  - Cisco UCS Director Overview
  - Cisco CloudCenter Overview
  - Cisco Workload Optimization Manager (CWOM) Overview
  - Cisco HyperFlex with Kubernetes and *Cisco* Container Platform
  - Cisco Intersight Overview
  - HyperFlex: Releases Beyond 3.5(1a)
- Introducing EDGE Cluster
  - Cisco HyperFlex EDGE Cluster Overview
  - Prerequisites and Recommendations
  - Installation Process
  - Management and Monitoring
  - Upgrades and Maintenance
- Troubleshooting Cisco HyperFlex
  - Troubleshooting Guidelines
  - Generating Tech Support Bundles
  - Common Troubleshooting Issues

### Lab outline

- Investigate Software Components of HyperFlex
- Investigate Cisco UCS Part of HyperFlex
- Install Cisco HyperFlex
- Manage Cisco HyperFlex
- Protect Your HyperFlex VMs
- Investigate Stretched Cluster
- Install and Manage Stretched Cluster
- Investigate Hyper-V Cluster
- Investigate Cisco Intersight
- Investigate HyperFlex Edge



---


Americas Headquarters  
Cisco Systems, Inc.  
San Jose, CA

Asia Pacific Headquarters  
Cisco Systems (USA) Pte. Ltd.  
Singapore

Europe Headquarters  
Cisco Systems International BV Amsterdam,  
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).

---

 Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Course content is dynamic and subject to change without notice.

© 2019 Cisco and/or its affiliates. All rights reserved.

DCIHX\_1-2

C22-741793-03 12/19