



# Installation Overview

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The HA solution for Cisco Prime Optical is available in local redundancy and geographical redundancy configurations for Linux. For information about the different HA configurations available for Prime Optical, including hardware configuration and network diagrams, see the following sections:

- [Local Redundancy Configuration, page 1-1](#)
- [Single-Node Cluster Geographical Redundancy Configuration, page 1-3](#)
- [Prime Optical Integration with Cisco Prime Central, page 1-6](#)
- [What's New in Prime Optical High Availability Guide 10.5, page 1-7](#)
- [Workflow for Installation and Upgrade, page 1-7](#)



**Note**

The servers in the following figures contain mirrored internal root disks. The servers must be the same make, model, and storage capacity. The 100BASE-T heartbeat cables between the primary and secondary servers in the dual-node configuration are cross-over (reversing) Ethernet cables. We recommend that you use a fault-tolerant, switched/routed network for communication with the HA servers.

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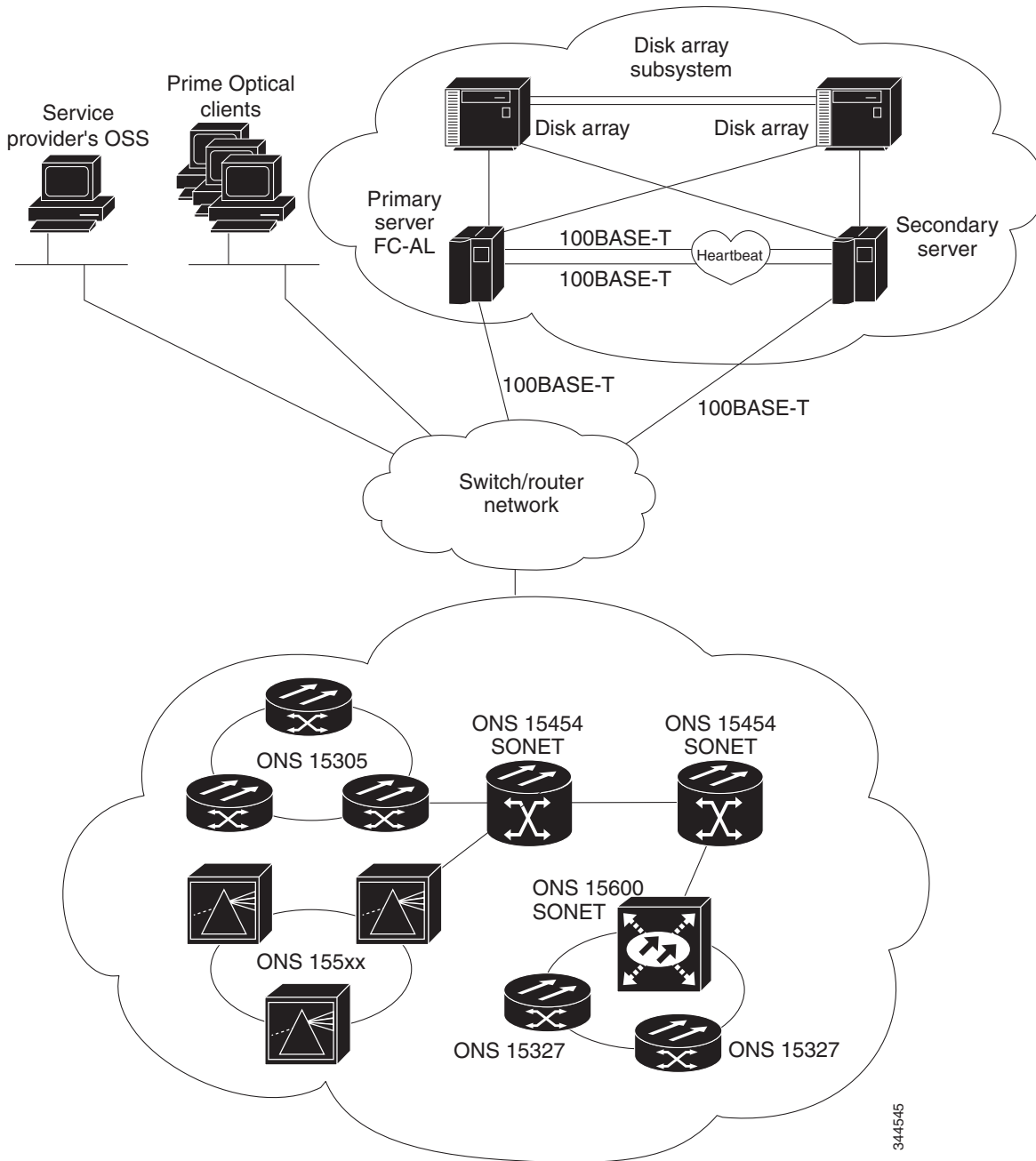
## Local Redundancy Configuration

The local redundancy configuration provides an automatic failover solution to specific software and single hardware failures without the need to reconfigure IP addresses on your switched/routed network.

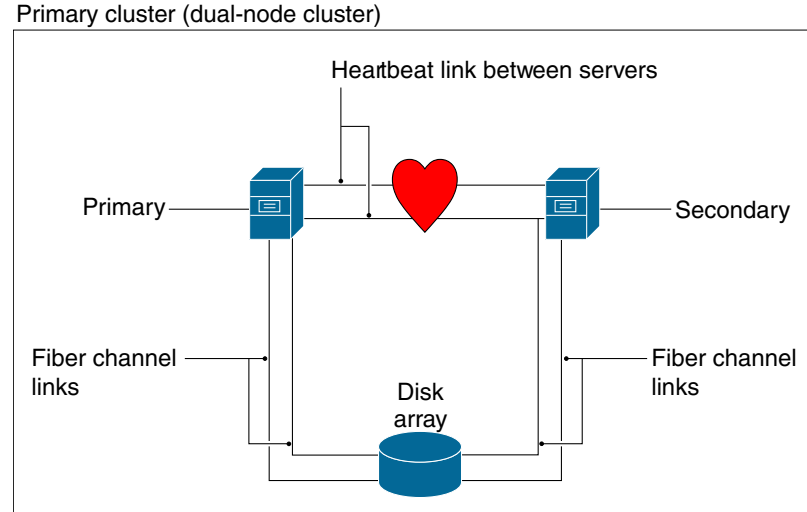
The following figures illustrate a local redundancy HA configuration on Prime Optical for Linux environments.

- [Figure 1-1](#) is a network diagram of Prime Optical in a local redundancy HA configuration.
- [Figure 1-2](#) illustrates the hardware configuration of Prime Optical in a local redundancy HA configuration.

**Figure 1-1 Prime Optical in a Local Redundancy HA Configuration**



In a local redundancy configuration (Figure 1-1), there is a single cluster consisting of a primary and a secondary server.

**Figure 1-2 Local Redundancy**

In a local redundancy configuration, the primary and secondary servers share a common disk array (that is, the servers are both connected to a single disk array). This single disk array is where the Prime Optical application, Oracle application, and Prime Optical database are installed.

The heartbeat link connects the primary and secondary servers to monitor the health of both servers. The heartbeat link is achieved between the primary and secondary servers using two cross-over Ethernet cables. During normal operation, the Prime Optical and Oracle applications run on the primary server (normally the active server). If a fault occurs on the primary server, the Prime Optical and Oracle applications run on the secondary server; at this stage, the secondary server becomes the active server.

The primary server can be switched back to be the active server after the fault on the primary server is fixed.

## Single-Node Cluster Geographical Redundancy Configuration

The geographical redundancy configuration allows you to locate two Prime Optical instances at geographically remote sites. One server instance is active; the other server instance is standby. The HA agent switches to the standby Element Management System (EMS) instance if an unrecoverable failure occurs on the active EMS instance.

In a single-node cluster geographical redundancy configuration, there are two clusters with different names (one on each node), each containing a server.

Both of the nodes status must be as:

```
Primary server: HA1-105.cisco.com
```

```
Cluster Status for HA1_CLUSTER @ Wed Feb 11 17:40:18 2015
Member Status: Quorate
```

```
Member Name ID Status
-----
ha1-105.cisco.com 1 Online, Local, rgmanager
```

```
Service Name Owner (Last) State
-----
service:ctm_heartbeat ha1-105.cisco.com started
service:ctm_monitoring ha1-105.cisco.com started
```

```
service:ctm_service ha1-105.cisco.com started

Standby Server: HA2-105.cisco.com

Cluster Status for HA2_CLUSTER @ Wed Feb 11 17:42:26 2015
Member Status: Quorate

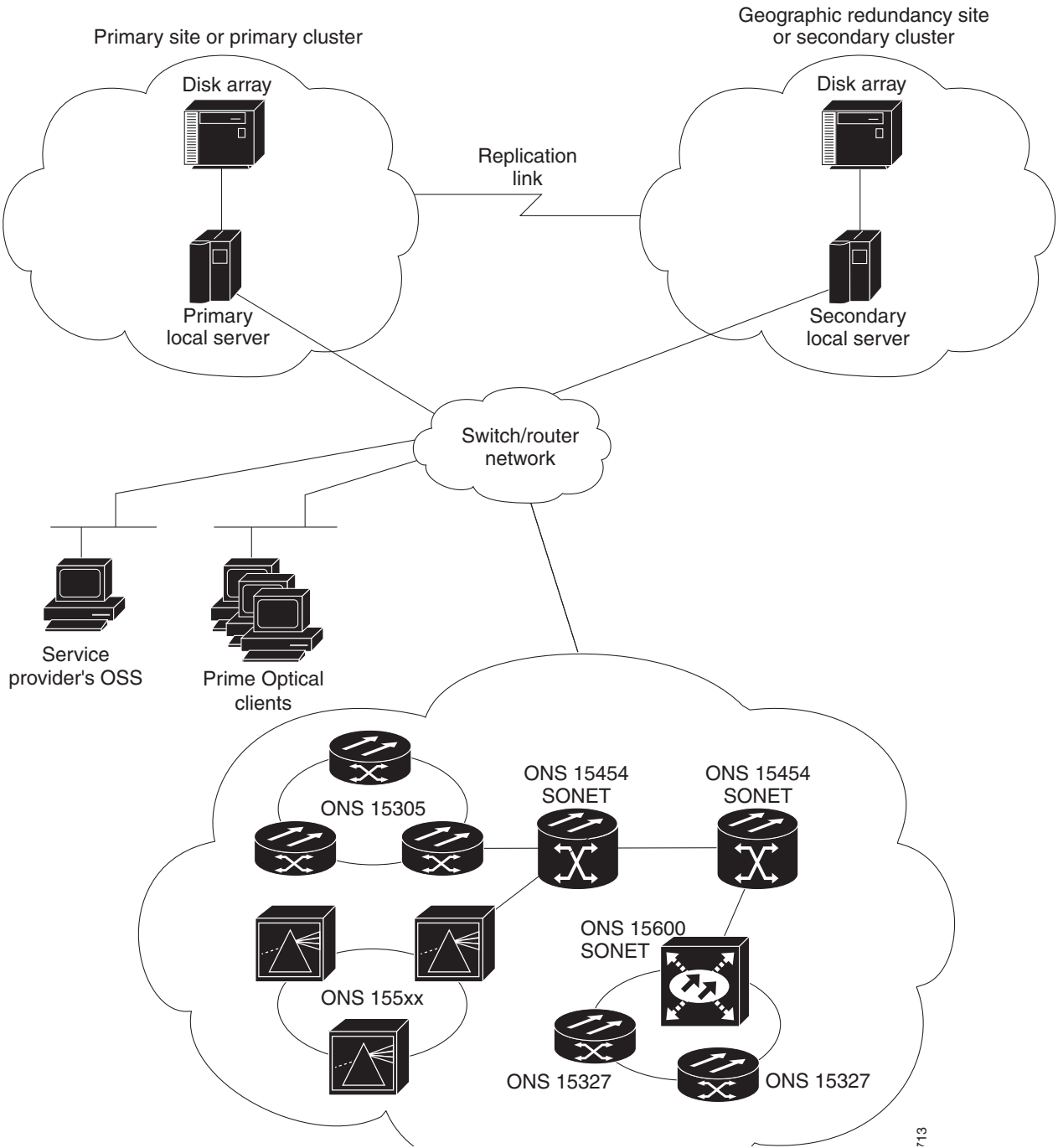
Member Name ID Status
-----
ha2-105.cisco.com 1 Online, Local, rgmanager

Service Name Owner (Last) State
-----
service:ctm_heartbeat ha2-105.cisco.com started
service:ctm_monitoring ha2-105.cisco.com started
service:ctm_service (ha2-105.cisco.com) disabled
```

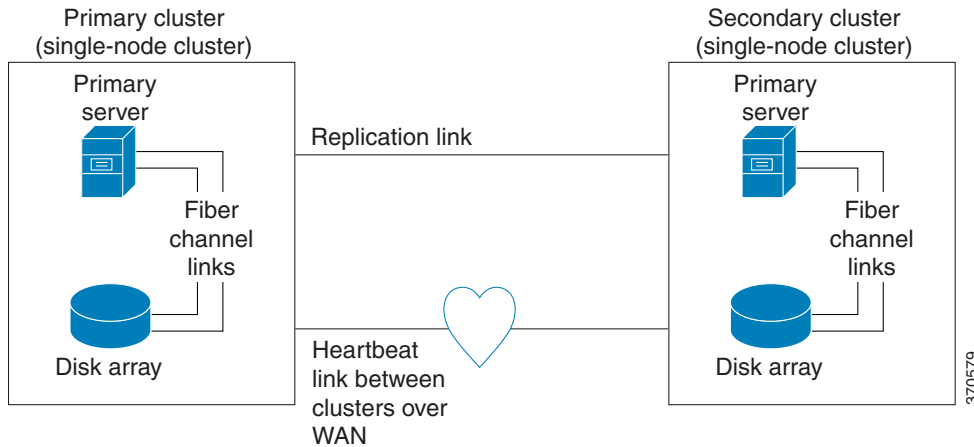
The following figures illustrate a geographical redundancy HA configuration on Prime Optical:

- [Figure 1-3](#) is a network diagram of Prime Optical in a geographical redundancy HA configuration for Linux.
- [Figure 1-4](#) illustrates the hardware configuration for Prime Optical in a single-node geographical redundancy HA configuration.

Figure 1-3 Prime Optical in a Geographical Redundancy HA Environment for Linux



**Figure 1-4 Geographical Redundancy (Single-Node Cluster)**



In a single-node cluster geographical redundancy configuration, the clusters do not share a disk array (that is, the servers are connected to different disk arrays and do not share data). The Prime Optical application, Oracle application, and Prime Optical database are installed on each cluster. The Prime Optical database contains identical data on both clusters due to the volume replication (Oracle Active Data Guard on Linux).

The heartbeat link connects the primary and secondary clusters to monitor the health of both clusters. The heartbeat link is realized between the primary and secondary clusters through the WAN. The protocol used for the heartbeat is TCP/IP. During normal operation, the Prime Optical and Oracle applications run on the primary cluster (normally the active cluster). If a fault occurs on the primary cluster, the Prime Optical and Oracle applications can run on the secondary cluster; at this stage, the secondary cluster becomes the active cluster.

The primary cluster can be switched back manually to be the active cluster after the fault on the primary cluster is fixed.

The Replication link manages the Oracle Data Guard (ODG) communication between the active database (read/write) and standby database (read only).

## Prime Optical Integration with Cisco Prime Central

After Prime Optical has been installed in standalone mode, you still have the option to integrate it with Prime Central. When Prime Optical is installed as part of the Prime Central suite, you can launch Prime Optical from the Prime Central portal. For more information about the Prime Central portal, see <http://www.cisco.com/c/en/us/support/cloud-systems-management/prime-central/tsd-products-support-series-home.html>.



### Note

If you are installing Prime Optical with Prime Central, DNS must be enabled on the machine where Prime Optical is being installed. If the machine cannot resolve hostnames into IP addresses through DNS, Prime Optical registration will fail.

To integrate Prime Optical with Prime Central after Prime Optical has been installed in standalone mode, as the root user, run the `./DMIntegrator.sh` script. Follow the procedure described in "Configuring Domain Managers as Suite Components" in the *Cisco Prime Central 1.1 Quick Start Guide*.

# What's New in Prime Optical High Availability Guide 10.5

**Table 1-1** *Whats's New in Prime Optical High Availability Guide 10.5*

Feature Update	Description	For More information, See...
Support for RHEL-6.5 and 6.6	Prime Optical 10.5 supports RHEL 6.5 and 6.6 version.	<a href="#">Hardware Requirements, page 2-1</a>
Support for the latest CPO-10.5 version	Ability to support HA Geographical redundancy and local redundancy with latest CPO-10.5 server.	<ul style="list-style-type: none"> <li>• <a href="#">Installing the Cisco Prime Optical High Availability Solution in a Single-Node Geographical Redundancy Configuration on a Linux Server, page 3-1</a></li> <li>• <a href="#">Installing the Cisco Prime Optical High Availability Solution in a Local Redundancy Configuration on a Linux Server, page 4-1</a></li> </ul>
HA package version	HA package version is updated to HA-1.5-3.x86_64.rpm	<a href="#">Installing the HA Package, page 4-11</a>

## Workflow for Installation and Upgrade

The following process describes the typical HA solution for Prime Optical installation workflow.



### Note

See [Cisco Prime Optical Supported Devices](#) for the NE software versions that are supported. Verify NE support before updating the software image on an NE.

1. Select which hardware configuration you will be installing. See [Local Redundancy Configuration, page 1-1](#), [Single-Node Cluster Geographical Redundancy Configuration, page 1-3](#).
2. Check your system requirements before you install Prime Optical or upgrade select data from an earlier release. See [Chapter 2, "Installation Requirements."](#)
3. To ensure a successful installation or upgrade, print out the checklists provided for your Linux installation scenario. These checklists are provided in [Chapter 3, "Installing the Cisco Prime Optical High Availability Solution in a Single-Node Geographical Redundancy Configuration on a Linux Server."](#) The checklists are for your reference throughout the installation process. You might find it helpful to check off each task as you complete it. For upgrading selected data from a previous CTM or Prime Optical release, follow the steps described in [Chapter 5, "Upgrading Cisco Prime Optical in an High Availability Environment Using the Data Migrator Wizard."](#)



### Note

Before performing a fresh installation, remove all previous Cisco Transport Manager or Prime Optical installations.

