Preface

This preface explains the objectives, intended audience, and organization of the *Cisco Gigabit-Ethernet Optimized VoD Solution Design and Implementation Guide*. The section also defines the conventions used to convey instructions and information, available related documentation, and the process for obtaining Cisco documentation and technical assistance.

This preface presents the following major topics:

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Document Version and Solution Release

This is the first version of this document, which covers Release 1.1 of the Cisco Gigabit-Ethernet Optimized VoD Solution.

Document History

Document Version	Date	Notes
1	10/30/2003	This document was first released. Release 1.0 documentation was released on 07/30/2003. The current document (Release 1.1), though substantially similar to the previous version, discusses support for nCube video servers and the Cisco uMG9820 QAM Gateway.

Document Objectives and Scope

This guide describes the architecture, the components, and the processes necessary for the design and implementation of the Cisco Gigabit-Ethernet Optimized VoD Solution.

This guide presents the fundamental design and configuration information that is required to establish the various services provided by the Cisco Gigabit-Ethernet Optimized VoD Solution. MSO (multiple system operator) and service provider networks may have additional requirements that are beyond the scope of this document.

Note This document is primarily for Cisco products. To establish and maintain the third-party products and applications that may be a part of the Cisco Gigabit-Ethernet Optimized VoD Solution, refer to the documentation provided by the vendors of those products.

Audience

The target audience for this document is assumed to have basic knowledge of and experience with the installation and acceptance of the products covered by this solution. See Chapter 1, "Solution Overview."

In addition, it is assumed that the user understands the procedures required to upgrade and troubleshoot optical transport systems and Ethernet switches, with emphasis on Cisco Catalyst 4500 series switches).

Note This document addresses Cisco components only. It does not discuss how to implement third-party optical components, VoD servers, or QAM devices, or how to enable service between QAM devices and HFC distribution.

Document Organization

The major sections of this document are as follows:

Section	Title	Major Topics
Chapter 1	Solution Overview	Introduces applications, example scenarios, and components.
Chapter 2	Designing the Solution	Provides detailed requirements of various scenarios.
Chapter 3	Implementing and Configuring the Solution	Describes the configuration and implementation of the solution and provides example implementations.
Chapter 4	Providing Redundancy and Reliability	Describes failure scenarios and their remedies.
Chapter 5	Monitoring and Troubleshooting	Provides remedies to possible types of failure and loss of quality of service.

Related Documentation

Solution Documentation

This document, and *Release Notes for Cisco Gigabit-Ethernet Optimized VoD Solution, Release 1.1*, are available under Cisco Gigabit-Ethernet Optimized VoD Solution, Release 1.1, at the following URL:

http://www.cisco.com/univercd/cc/td/doc/solution/vodsols/geopt1_1/index.htm

Switch Documentation

Documentation resources for the Cisco Catalyst 4500 series switches are available at the following URLs:

http://www.cisco.com/en/US/products/hw/switches/ps4324/index.html

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/index.htm

For the Cisco IOS software used in this release, refer to the following:

- Switch Documentation, Cisco IOS Software Release 12.1(19)EW

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_19/index.htm

- Cisco IOS Software Release 12.1(19)EW for Sup II-Plus, III, IV

  http://www.cisco.com/en/US/products/hw/modules/ps2797/prod_bulletin09186a008019741d.html

- Release Notes for the Catalyst 4500 Series Switch, Cisco IOS Release 12.1(19)EW

  www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/relnotes/ol_2170.htm

Optical Component Documentation

Cisco ONS 15216 DWDM Filters

- *Cisco ONS 15216 FlexLayer User Guide*

  www.cisco.com/univercd/cc/td/doc/product/ong/15216/flxlyr10/index.htm

Cisco DWDM GBICs

- *Cisco DWDM Gigabit Interface Converter Installation Guide*

  www.cisco.com/univercd/cc/td/doc/product/gbic_sfp/gbic_doc/78_15574.htm

- *Cisco Dense Wavelength Division Multiplexing GBICs Compatibility Matrix*

  www.cisco.com/univercd/cc/td/doc/product/gbic_sfp/gbic_doc/ol_4604.htm

QAM Gateway Documentation

- Cisco uMG9820 QAM Gateway

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/index.htm

Note Other references are provided as appropriate throughout this document.

Document Conventions

Command descriptions use the following conventions:

boldface font	Commands and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{ x	y	z }	Alternate keywords are grouped in braces and separated by vertical bars.
[x	y	z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use the following conventions:

`screen` font	Terminal sessions and information the system displays are in `screen` font.
`boldface screen` font	Information you must enter is in **`boldface screen`** font.[1]
italic screen font	Arguments for which you supply values are in *italic screen* font.

→	This pointer highlights an important line of text in an example.
^	The symbol ^ represents the key labeled Control. For example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets in contexts where italic font is not available.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

1. As this document makes use of annotated configurations, the rigorous use of boldface type to indicate what the user must enter is relaxed.

Notes use the following conventions:

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Timesavers use the following conventions:

Timesaver This symbol means *the described action saves time*. You can save time by performing the action described in the paragraph.

Cautions use the following conventions:

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Tips use the following conventions:

Tip This symbol means the following information *will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

http://www.cisco.com/tac

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

http://tools.cisco.com/RPF/register/register.do

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

http://www.cisco.com/tac/caseopen

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is "down" or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Go to this URL to visit the company store:

  http://www.cisco.com/go/marketplace/

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

  http://cisco.com/univercd/cc/td/doc/pcat/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

  http://www.cisco.com/en/US/learning/index.html