Cisco Videoscape Distribution Suite Origin Server

Product Overview

Media origination is a mission-critical function for the delivery of advanced revenue-generating media services to consumers. With the Cisco Videoscape™ Distribution Suite Origin Server (VDS-OS), Cisco rethinks media origination by incorporating the critical media encapsulation functionality necessary to streamline deployment of HTTP Adaptive Bit Rate delivery. Cisco® VDS-OS is a cloud-based software platform that supports HTTP media origination and on-demand encapsulation (ODE) as a service. Cisco VDS-OS provides a unified media ingest, preparation, optimization, and delivery framework for live, video-on-demand (VoD), and time-shifted TV (TSTV) use cases. Cisco VDS-OS supports multiformat HTTP adaptive streaming media origination for Microsoft HTTP Smooth Streaming (HSS), Apple HTTP Live Streaming (HLS), and Adobe® HTTP Dynamic Streaming (HDS) formats. The Cisco VDS-OS management and services framework provides rapid service creation and deployment on the operator's computing infrastructure in a simple, flexible, and scalable manner.

Features and Benefits

Service Delivery

Cisco VDS-OS helps operators deliver services faster by providing core media origination capabilities, based on multiformat HTTP adaptive streaming and HTTP progressive download, all in a single commonly managed platform.

- **Video on demand:** Cisco VDS-OS is a VoD origin server for Apple, Microsoft, and Adobe HTTP streaming. It can replace or augment existing Microsoft IIS and Apache Origin Servers. Cisco VDS-OS reduces the amount of storage required when the operator needs to offer multiple HTTP adaptive streaming formats by performing on-demand encapsulation of common adaptive format content into Apple HLS, Microsoft HSS, and Adobe HDS formats.
- **Live linear:** Cisco VDS-OS makes it easier to turn up live linear services by supporting multichannel origin services that can receive synchronized redundant feeds and support multiple publish points for individual live channels, allowing operators to create tailored service offerings.
- **Time-shifted TV:** Cisco VDS-OS supports a configurable digital video recorder (DVR) window, which can be contained in RAM or on external storage, depending on the operator's preference. Program "restart" services can use the DVR window to allow subscribers to view content anywhere within the window. Additionally, to support external recorders, Cisco VDS-OS can serve as a scalable, high-performance, on-demand encapsulation platform. In this case, it sources content from the recording system or archive, as needed to meet media requests for fully encapsulated HLS, HSS, or HDS content, and it applies appropriate digital rights management (DRM) encryption as the operator requires.

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.

Resiliency and Load Balancing

Cisco VDS-OS provides a highly resilient operational environment. The Cisco VDS-OS Service Router employs proven Cisco service-routing technology for optimized, load-balanced server selection. HTTP media requests received by Cisco VDS-OS from the content delivery network are directed by the service router to an appropriate server within the cluster, based on the system load, origin service mappings, server health, and requestor's IP subnet. Server failures, storage access failures, network access failures, and live source failures can be withstood, because the service router directs requests to another fully functional Cisco VDS-OS server. Cisco VDS-OS can also support alternative request-routing methods, depending on customer need.

HTTP Adaptive Streaming Optimization with Media Encapsulation on Demand

Cisco VDS-OS can perform media encapsulation on demand in a "just in time" fashion. When on-demand encapsulation (ODE, also known as JITP) is enabled, Cisco VDS-OS sources content stored in indexed MPEG2 adaptive transport stream (ATS) format, such as can be provided by the Cisco AnyRes VOD transcoder or Cisco VDS-TV Recorder. When there is a request for a media fragment of a particular adaptive streaming format (such as Microsoft HSS, Adobe HDS, or Apple HLS), the Cisco VDS-OS will provide it by encapsulating the ATS source content in real time. This includes providing DRM encryption. As a result, the Cisco VDS-OS allows the operator to achieve significant cost savings on library storage by storing only the single ATS format, rather than all the end-device formats it is required to deliver.

Unified Provisioning and Management

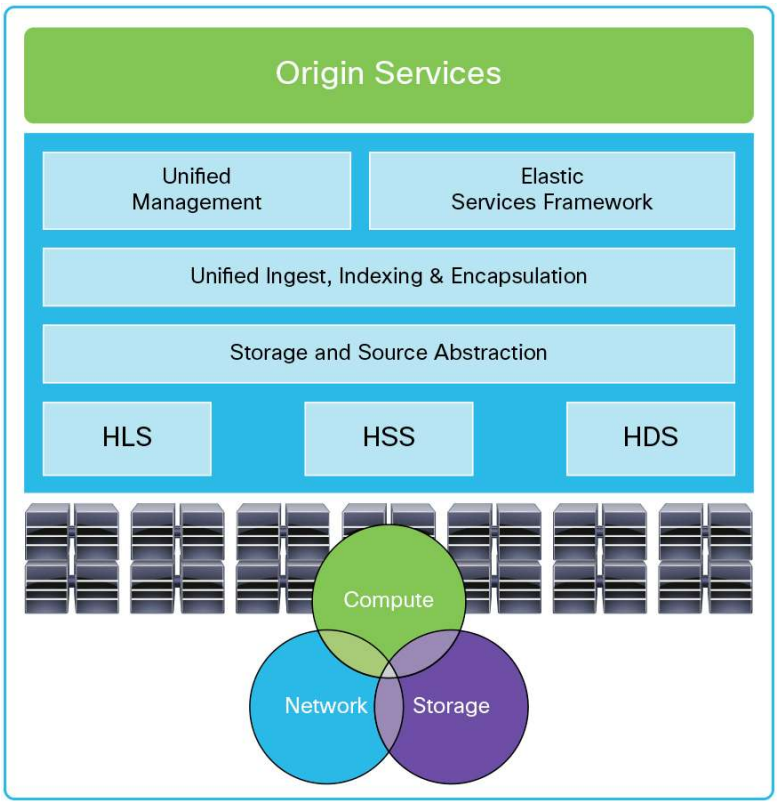
Cisco VDS-OS provides the tools for a video operator to provision, manage, and monitor HTTP media origination services that power critical revenue-generating consumer services. The Cisco VDS Origin System Manager (VOSM) provides an easy-to-use browser-based user interface, web services APIs for back-office integration, and secure user and group role-based access (HTTPS, RADIUS, and TACACS+ are supported). Cisco VOSM facilitates flexible and scalable device management, making it simple to add and remove servers within the Cisco VDS-OS cluster, and it also provides centralized device configuration and software upgrade capabilities.

Cisco VDS-OS introduces media origin services as a powerful, simplifying operational construct. The administrator provisions and manages origin services through the browser-based user interface, or through Cisco VDS-OS APIs, to provide critical media-origination functions. Media origination operational parameters, such as content sources, storage locations, publishing URLs, HTTP adaptive streaming formats, encapsulation and packaging settings, service rules, and quality of service (QoS) settings, are administered within the origin service. Origin services are overlaid on Cisco VDS-OS servers within the VDS-OS cluster, allowing easy and rapid scaling. As service needs change, origin services can simply be applied or unapplied to servers within the Cisco VDS-OS cluster, as required.

Additionally, Cisco VOSM monitors devices and services, providing a graphical alarm console and corresponding Simple Network Management Protocol (SNMP) traps to northbound Network Management System (NMS) systems. Cisco VOSM also provides reports covering critical service-specific and content-specific statistics, using raw data it receives from individual Cisco VDS-OS servers within the cluster.

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.

Figure 1. Cisco VDS Origin Server Functional Diagram



Platform Support and Compatibility

Cisco VDS-OS is optimized for use on components of the Cisco Unified Computing System™ (Cisco UCS®), such as on the B200 Blade Server or C-Series Rack Server. This provides customers with a single system that encompasses:

- Network: unified fabric
- Computing: industry-standard x86
- Storage access options
- Virtualization optimized
- Unified management model
- Dynamic resource provisioning
- Efficient scale
- Lower cost with fewer servers, switches, adapters, and cables
- Lower power consumption
- Fewer points of management

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.

Product Specifications

Cisco VDS Origin Server product specifications are summarized in Table 1.

Table 1. Cisco VDS-OS Product Specifications

Description	Specification
Content types and formats	• Apple HLS • Microsoft HSS • Adobe HDS • Common Adaptive Format (MPEG2-TS basis, MPEG DASH indexed), supported for on-demand encapsulation • HTTP Progressive Download (any codec)
Protocols	Content acquisition: • HTTP • NFS Content delivery: • HTTP PDL • Apple HLS, Microsoft HSS, Adobe HDS Management, authentication, authorization, and accounting (AAA): • HTTPS • SSL • RADIUS • TACACS+ • SNMPv1, SNMPv2, SNMPv3
Content protection	• Microsoft Playready DRM • Adobe Access • Verimatrix VCAS • AES 128 Encryption (Apple HLS)
Components	Cisco VDS Origin Server software components involved in a minimal setup: • VDS Origin Server Manager • Service Router • VDS-OS Servers
MIBs	• SNMP v1, v2, v3 supported • Supports ENTITY-MIB, CISCO-ENTITY-ASSET-MIB, CISCO-CONFIG-MAN-MIB, EVENT-MIB, HOSTRESOURCES-MIB, CISCO-SMI & v2-SMI, SNMP-FRAMEWORK-MIB, MIB-II, sr-tc, v2-TC, SR-COMM, v2-ADM, v2-MIB, v2-ARCH, v2-tm, Coex, v3-ACM, V3-MPD, V3-proxy, CISCO-SERVICE-ENGINE-MIB
Network management	With Cisco VDS-OS Manager, which supports: • Secure GUI over HTTPS • Configuration of Cisco VDS-OS servers • Provisioning of origin services • Provisioning of live programs • Traffic statistics and system health monitoring • AAA and role-based management • Active-standby redundancy • Device group for easy management of hundreds of servers • Centralized system upgrade manager for easy upgrading of servers • Web services API • XML flexible rules template for origin service policies and rules
Service routing	Cisco Service Router supports service routing, incorporating the following factors: • Load-based routing • Origin-service-aware routing • Application failure • Live source failure • CPU, memory, and disk overload

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.

Description	Specification
Application Programming Interfaces	Web services APIs for origin service provisioning and management
Security and access management	• Access control lists (ACLs) for service engine interfaces • Standard and extended IP access lists for inbound and outbound traffic
Platform support	• High-performance Cisco UCS servers and blades: ◦ Cisco UCS C220 M3 High-Density Rack Server ◦ Cisco UCS B200 Series M3 Blade Server • VMWare vSphere (Cisco or third-party hardware)

Ordering Information

Table 2 lists the Cisco VDS-OS product part numbers required to place an order, including application and feature licenses and origin capacity licenses and upgrades.

Cisco VDS-OS is certified on high-performance Cisco UCS M3 series servers and blades (see Table 1). Please review your requirements with your account team, who will also be able to provide you with specific benchmarked M3 server configurations.

To place an order, visit the Cisco Ordering Home Page, and refer to Table 2.

Table 2. Ordering Information

Type	Part Number	Part Name	Product Description
Applications	VDSOS-BASE-K9	VDS-OS Content Origination Base License	HTTP Live, VOD RTU; includes 10 channels of live origination
	VDSOS-SR-K9	Service Router	Request resolution and server selection + 50 transactions per second (TPS)
	VDSOS-MGR-K9	VDS Origin System Manager	Centralized element and service management
Features	VDSOS-ODE	On Demand Encapsulation	On-demand encapsulation of ATS to major ABR final formats
Capacity Licenses and Upgrades	L-VDSOS-PELV=	Live Ingest and Origination Capacity	Live ingest and origination, 10 channels, any format
	L-MOS-ODE-BASE=	On Demand Encapsulation Upgrade	On-demand encapsulation RTU upgrade
	L-MOS-ODE-BW1=	On Demand Encapsulation Capacity (Centralized)	On Demand Encapsulation Tier 1 capacity, 1-25Gbps
	L-MOS-ODE-BW2=	On Demand Encapsulation Capacity (Centralized)	On Demand Encapsulation Tier 2 capacity, 26-50Gbps
	L-VDSSR500	Service Router TPS Upgrade	500 TPS server router upgrade

Service and Support

Cisco offers a wide range of service programs to help accelerate customer success. These innovative service programs are delivered through a unique combination of people, processes, tools, and partners, contributing to high levels of customer satisfaction. Cisco Services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, refer to Cisco Technical Support Services or Cisco Advanced Services.

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.

For More Information

For more information about the Cisco Videoscape Distribution Suite, visit http://wwwin.cisco.com/spvideo/distribution_suite.shtml.

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.

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: 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)

Printed in USA C78-715707-01 10/13

© 2013 Cisco and/or its affiliates. All rights reserved. This document is Cisco Public Information.