

# CiscoWorks Hosting Solution Engine (HSE)

As companies increasingly turn to e-business to deliver information and services to their customers, the need to fully manage this unique and rigorous environment is constantly rising. CiscoWorks Hosting Solutions Engine enables companies to efficiently manage their e-business providing a higher ROI by automating complex and time consuming tasks. CiscoWorks Hosting Solution Engine (HSE) is a turnkey network management appliance that proactively manages the availability of data center network infrastructure and Layer 4–7 network services.

## Overview

HSE is a turnkey network management appliance that monitors, activates, and configures a variety of e-business services in Cisco powered data centers. It provides up-to-date fault and performance information about network infrastructure and Layer 4–7 network services. The hardware running HSE is the Cisco 1140, which is a one rack unit (1RU) that enables convenient deployment on the same rack as the rest of other Cisco e-business networking devices.

HSE automatically discovers the entire data center infrastructure and instantly begins collecting statistics and management information, providing a current snapshot of the managed environment. HSE provides up-to-date information for operational staff to easily pinpoint the source of a problem. HSE itself is a manageable Cisco device with a full Cisco Discovery Protocol implementation and supports Cisco MIB II.

HSE offers the following key features:

- Granular user access model to partition network resources for Layer 4–7 services as well as for switch ports, and authorized user group access to individual application services
- Robust Layer 4–7 service configuration and service activation of content switches, including virtual servers, real servers, and content owners and rules
- Monitoring and reporting of SSL Proxy services on Cisco Catalyst 6000 Series with SSL Service Modules and Cisco Content Services Switch
- HTML-based, secure graphic user interface with easy customer view/report personalization and historical data reporting
- Upper layer NMS/OSS integration with SYSLOG, trap, email notifications and historical data XML export



## Target Customers

HSE is ideal for enterprises and service providers with e-business data center facilities. These customers range from data center infrastructure providers, application service providers, large enterprises, to e-business data centers and small-to-medium enterprises.

## Application Features

HSE has a very flexible user security model and hence can be used either as a dedicated resource or shared by many customers. A customer domain includes a specified subset of devices, interfaces, and Layer 4–7 services in the managed data center. For example, one Cisco Content Services Switch and a pair of Web servers can be grouped under a customer domain for a particular customer. User roles define granular access of various features offered by HSE. For instance, a server manager user role would have access to Layer 4–7 monitoring, service activation, and service configuration functionality. Individual user accounts are then created with the specific user roles applied to the selected customer domains. For instance, a specific customer's server manager account will be limited to this customer's customer domain with the granted server manager user role.

Users are authenticated by several common authentication modules such as Terminal Access Controller Access Control System Plus (TACACS+) and Remote Dial-In User Service (RADIUS). HSE uses 128-bit full encryption Secure Socket Layer (SSL) connections between the client Web browser and the Web. Authorized users can monitor, activate, and configure Layer 4-7 services remotely, even through firewalls. In addition to the Web-based GUI, Cisco IOS<sup>®</sup> Software-like command-line interfaces (CLIs) provide direct console, Telnet, or secure shell (SSH) access to HSE.

HSE provides up-to-date fault and performance monitoring of all Cisco Routers, Switches, and Content Switches in Cisco powered data centers. Detailed system- and interface-level information provides users with quick problem identification, governed by user security. For example, the "Device Status" page lists all the data center network infrastructure devices available to a particular user, including detailed system-level information (such as device operational status, uptime, IP address, and CPU and memory usage) and detailed interface-level information (such as interface operational status, utilization, drops, and errors). The "Service Status" page lists all the Layer 4–7 services available to a user, with detailed network service information (such as service status, virtual servers, content rules, content services, hits per second, and total connections).

Layer 2–7 faults that occur within the customer domain are highlighted in the "Exception" page. Filtering and sorting by priority is available to view and act upon selected faults. Administrators can set up fault and performance thresholds for the monitored attributes with specified actions and fault priorities. When thresholds are exceeded because of a network failure or service degradation, a syslog, trap, or e-mail notification based on a customer domain is generated. For a customer domain, e-mail notifications can be set up by priority. This capability enables HSE to effectively monitor network degradation and unavailability.

HSE supports robust Layer 4–7 configuration of content switches. It supports redundant configuration of owners, content rules, services, virtual servers, real servers and their bindings on Cisco Content Services Switch and Catalyst<sup>®</sup> Content Switching Modules, as well as configuration of virtual servers, real servers, server farms, and their bindings for Cisco LocalDirector and IOS SLB load-balancing devices.



HSE supports monitoring and reporting of SSL Proxy services on, Cisco Catalyst 6000 Series switch with SSL Module, and, Cisco Content Services Switch. It provides a detailed view of the SSL Proxy server list (such as Virtual IP address, index number, port, RSA key, RSA certificate, DSA key, DSA certificate) and SSL statistics (such as connections attempted, connections completed, full handshakes, data failures, number of cipher alerts). This capability enables HSE to provide reports on the SSL Module.

Personalized views and reports can be easily created and customized for each user, governed by user security. For example, a few specific Layer 4–7 services and a few specific interfaces can be singled out from a customer’s domain to create a detailed view or report with attributes. Specific attributes of interest (tables and columns) from all the categories of monitored data (routers, switches, and content switches) can be grouped into a personalized view or report. These personalized views/reports provide users with quick and easy access to critical information relevant to daily operations and can be shared with different users to simplify customer network management

HSE provides activation of Layer 4-7 e-business services, such as taking Web servers in and out of service. Layer 4–7 e-business services with availability status are mapped to Web servers in a tree hierarchy for easy navigation. For a given (shared) physical Web server, HSE also provides the mapping of all the virtual servers and content rules using the server. Before taking the (shared) physical Web server down, all the services can be disabled easily from one place, instead of visiting all the affected virtual servers, content rules and so forth. Quick actions are provided for routine daily operational tasks.

HSE offers many predefined historical data reports for service hits, connections, CPU utilization, and so forth. Just as with personalized views, customized historical data reports can be built by selecting desired attributes based on customer domain. Reports can be run against a set of devices by selecting a report and specifying a time period. Reports can be e-mailed periodically.

Reports are available in both tabular and graphic formats. HSE can provide up to a few weeks of historical data. Administrators can specify both aggregation and truncation frequencies for the monitored data. Historical data and views can be exported in CSV/XML formats.

## Features and Benefits

Table 1 summarizes the features and benefits of HSE.

Table 1 Features and Benefits

Feature	Benefit
Flexible user security model with granular, tiered user access to content switches	Removes the unnecessary overhead between network administrators and server managers to increase productivity of all operational staff
Configuration and Activation of Layer 4–7 e-business services	Provides productivity gains for server managers by offering daily management features such as taking Web servers in and out of service, and changing weight
Up-to-date, at-a-glance fault and performance monitoring of data center infrastructure	Saves time and resources in daily operations by leveraging proven Cisco internal IT Web-based operational GUI to monitor Cisco infrastructure
Proactive Layer 4–7 e-business service monitoring	Saves time in troubleshooting e-business availability and the application traffic distribution among Web servers



Table 1 Features and Benefits (Continued)

Feature	Benefit
Web-based, lightweight, secure GUI with easy customer view personalization and reporting	Generates incremental revenue for managed service providers with turnkey customer service management
Fault and performance threshold event notifications via syslog, trap, or e-mail	Provides upper layer network management systems and operations support systems integration for analysis

### Technical Specifications

Table 2 outlines the technical specifications of HSE.

Table 2 Technical Specifications

Drives	Hard Drive	One 40GB IDE hard drive
	CD-ROM drive	IDE (is this one CD-ROM drive, or the CD-ROM is used in the IDE slot?)
	Diskette Drive	One 3.5 in. 1.44 MB diskette drive
Ports	Serial	One 9-pin connector
	RJ-45	Two RJ-45 connectors for connection to two 10/100 Ethernet controllers
Power	AC power supply wattage	230W
	AC power supply voltage	100 to 120V at 50 Hz; 200 to 240V at 60 Hz
	System battery	CR2032 3V lithium coin cell
Physical	Height	1.7 in (4.3 cm)
	Width	16.7 in. (42.5 cm)
	Depth	22 in. (55 cm)
	Weight	23 lb (10kg) maximum



Table 2 Technical Specifications (Continued)

Environmental	Operating temperature	50 to 95 F (10 to 35 C)
	Storage temperature	-40 to 149 F (-40 to 65 C)
	Operating relative humidity	8 to 80% (non-condensing) with a humidity gradation of 10% per hour
	Storage relative humidity	5 to 95% (non-condensing)
	Operating maximum vibration	.025 G (half-sine wave) at a sweep of 3 to 200 Hz for 15 minutes
	Storage maximum vibration	0.5 G at 3 to 200 Hz for 15 minutes
	Operating maximum shock	Six consecutively executed shock pulses in the positive and negative x, y and z axes (one pulse on each side of the system) of 41 G for 2 ms
	Operating altitude	-15 to 3,048 m (-5 to 10,000 ft)
	Storage altitude	-16 to 10,600 m (-50 to 35,000 ft)

### Supported Cisco Devices

Table 3 HSE supports the following Cisco devices.

Device	Software Version
Cisco 12000, 7000, 3600, 2600, and 1700 Series Routers	Cisco IOS® Software Release 12.0(19a), 12.0(3C)W5.8, 12.1(7a)E1, 12.1(5)T12, 12.2(1d),12.2(3d)
Cisco Catalyst 5000 and 4000 Series Switches	Catalyst Operating System 5.5(10a), 5.5(15)
Cisco Catalyst 6000 IOS SLB with native IOS	Cisco IOS Software Release 12.1(7) E, 12.1(11b)E3
Cisco Catalyst 2900 XL and 3500 XL Series Switches, Cisco Catalyst 2950 and 3550 Series Switches	Cisco IOS Software Release 12.0(19a), 12.0(3C)W-5.8, 12.1(8a)E, 12.1(7a)E1, 12.1(2)T, 12.1(5)T12, 12.2(1d),12.2(3d)
Cisco Catalyst 6000 Series Switches	Catalyst Operating System 6.1(1e), 6.2(2a), 6.3(3a)
Cisco Catalyst 6000 Content Switching Module	CSM 1.2 with IOS 12.1(7E), 12.1(8a)E CSM 2.1 and 2.1.2 with IOS 12.1(8a)EX CSM 2.2 with IOS12.1 (11b)E4, CSM 2.x/3.1 with Hybrid CatOS
Cisco Catalyst 6000 SSL Module	Cat6k Native IOS 12.1.13(E) and later SUP2/MSFC2 required SSL module SW First release 1.1(1)
Cisco CSS 11500 Series Content Services Switch	Web Network Services (Web NS) software version 5.00 build ap0500037s (PSIRT), WebNS 5.10 build sg0510102, Web NS 5.20
Cisco CSS 11000 Series Content Services Switch	Web Network Services (Web NS) software version 5.00 build ap0500037s (PSIRT), WebNS 5.10 build sg0510102, Web NS 5.20

Table 3 HSE supports the following Cisco devices. (Continued)

Device	Software Version
Cisco CSS 11500 SSL Module	Web Network Services (Web NS) software version 5.20
Cisco LocalDirector 400 Series	Version 3.2.3, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 4.1.2, 4.2.1
Cisco Secure Content Accelerator 11000, Secure Content Accelerator 11000 V2 Series	Version CSS-SCA 3.2.0.16

### Supported Web Browsers

HSE is accessible through the following Netscape and Internet Explorer browsers running on systems with low CPU and memory requirements:

- Netscape 6.2
- Microsoft Internet Explorer 6.0, or 5.5 with Service Pack 2

### Ordering Information

To place an order, contact your Cisco sales representative.



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