Cisco Video Assurance Management Solution 2.0

Solution Overview

Cisco® Video Assurance Management Solution (VAMS) 2.0 delivers to service providers real-time, centralized monitoring of their headend/hubs and their core, distribution, and aggregation networks for broadcast video transport. Cisco VAMS provides the framework for a modular, end-to-end assurance management architecture for video services.

While Cisco VAMS 1.5 focused solely on monitoring the IP transport for video services, VAMS 2.0 expands the scope of video assurance by also monitoring the headend and video hub offices. This is accomplished through integration with the ROSA™ management software's northbound interface and Cisco Info Center. The ROSA Network Management System (NMS) provides effective tools for fault management, configuration management, and performance management especially designed to manage complete IP television (IPTV), broadcast, and cable networks. Cisco Video Assurance Management Solution 2.0 comprises the following Cisco products and solutions:

- Cisco Info Center (IBM Tivoli Netcool): This suite of products provides the manager of managers functionality for the VAMS 2.0 solution. Traps from ROSA, Cisco Active Network Abstraction (ANA), Cisco Multicast Manager, and video probes are collected and correlated with affected broadcast services. In addition, the service dashboard provides a simple overview of the traps and their association to the services and helps enable the user to focus on specific service-related events. Using specific extensions to Cisco Info Center, the user may cross-launch Cisco Multicast Manager from multicast-related traps received to support problem isolation and multicast troubleshooting.

- Cisco Multicast Manager 2.5.4: This tool provides a rich set of multicast monitoring and troubleshooting functions that allow Cisco VAMS 2.0 to be notified of any changes in multicast or threshold events on elements in the multicast trees that may affect video performance. In addition Cisco Multicast Manager also collects traps from video probes regarding video quality. Cisco Info Center collects the outputs from Cisco Multicast Manager providing views of both device and multicast faults.

- The ROSA Network Management System 3.0: ROSA NMS offers a comprehensive management solution capable of monitoring and controlling nearly all aspects of service management, network management, and element management of broadcast networks. It can immediately pinpoint critical issues with powerful alarm logging, alarm filtering, repetitive alarm suppression, and intelligent root-cause alarm correlation functions

- Cisco Active Network Abstraction 3.6.3: This system operates between the network and the operations support system (OSS) layers acting as a mediation and abstraction between OSS applications and the network devices. Its abstracted network model removes the complexity of upgrading each and every OSS application when there is an upgrade of any element within the network. It also provides a gateway to the network for OSS applications supporting correlation and aggregation of events in the network and provides this correlated information northbound.

- Video probes: VAMS 2.0 has support for external video probes. Cisco Multicast Manager supports IneoQuest probes natively, while Cisco Info Center supports probes from Mixed Signals and Bridge Technologies. Tektronix probes are supported through a custom virtual network element (VNE) in ANA.

Cisco VAMS 2.0 makes use of northbound APIs that support integration with OSS applications. Cisco Info Center (IBM Tivoli Netcool software) provides the consolidated view of the services and their association to faults in the video transport network.

Cisco VAMS 2.0 provides a video service assurance solution with a wide breadth of coverage across not only the transport network for broadcast video services but also headends and hubs.

Features and Benefits

Cisco VAMS 2.0 provides the following features and benefits:

- Service visualization
  - A service dashboard view of the services supported (specifically program IDs), providing associated multicast addresses that support the programs and correlated multicast-related traps collected from both headend/hubs and the IP transport network.
- Transport network visualization
  - Network map and device views
  - Multicast visualization
- Advanced monitoring and troubleshooting
  - Service alerts, ETR 290 first-priority alarms, and video quality measurements from the headend and hub offices
  - Context-sensitive cross-launch of multicast troubleshooting tool
  - Network faults
  - Multicast faults
  - Performance degradation
  - Video probe information collection

Table 1 further describes the features and benefits of Cisco VAMS 2.0.

**Table 1.**   Features and Benefits

Feature	Benefit
Visualization	
Core and distribution topology map	Allows operators to view their core and distribution networks in a single map
Service-level dashboard	A single view of the services supported (specifically program IDs), providing associated multicast addresses that support the programs and correlated multicast related traps collected
Event view	A single view of all events received provided with information about the source, the time of last receipt, and the number of occurrences
Context-sensitive cross-launch	The user may select specific multicast-related traps and cross-launch Cisco Multicast Manager to facilitate problem isolation and troubleshooting.
Chassis views for elements on map	Allows operators to find more details on devices and status in both a tabular and graphical manner
Multicast view	Allows operators to see how the multicast trees overlay the physical topology
Visualize video probes on map	Allows pinpointing of problem areas by using information from video probes and their location on the topology map and the multicast trees
Monitoring	
Service monitoring	Uses network device instrumentation to detect service-affecting packet drops and uses video probes to detect service degradation
Device fault monitoring	Aggregates device and service faults into a consolidated fault view
OSS integration API	Northbound API to support integration with third-party OSS products, for example, IBM Tivoli Netcool

Extended Device Support	
Digital Content Manager	Traps related to service alerts, ETR 290 first-priority alarms, video transport, and video quality measurements.
Cisco CRS-1 Carrier Routing System	Traps based on:
Cisco 7600 Series Routers	• Non-Reverse Forwarding Path (non-RFP) drops, for example, video packets arriving on the "wrong" interface
Cisco Catalyst® 4948 Switches	• Ingress/egress cyclical redundancy check (CRC) packet drop rates exceeding the rate threshold (only on Protocol Independent Multicast [PIM]–enabled interfaces)
	• Configurable drop/error rate thresholds
Video Probes	
Tektronix MTM400	Supported through custom VNE in ANA
IneoQuest	Traps supported in Cisco Multicast Manager
Bridge Technologies	Traps supported in Cisco Info Center
Mixed Signals	Traps supported in Cisco Info Center

Solution Architecture

The components of Cisco VAMS 2.0 provide the following functions (Figure 1):

- Cisco Info Center (ObjectServer and Webtop 7.2, TBSM 4.1, and Impact 4.0) provides a service-level dashboard and a common database for collection of faults from multiple sources including ANA and Multicast Manager, correlation of multicast-related faults to program IDs, and context-sensitive cross-launch of Multicast Manager.

- Cisco Multicast Manager 2.5.4 provides IP multicast visualization and troubleshooting and reports multicast faults to ANA and Cisco Info Center.

- ROSA NMS provides coverage of the video delivery systems in the headends and video hub offices.

- ANA 3.6.3 covers the backbone, regional, and aggregation network, providing device, performance, and network monitoring.

Figure 1. Third-Party Video Probes Installed at Demarcation Points Cisco VAMS 2.0 Solution Architecture
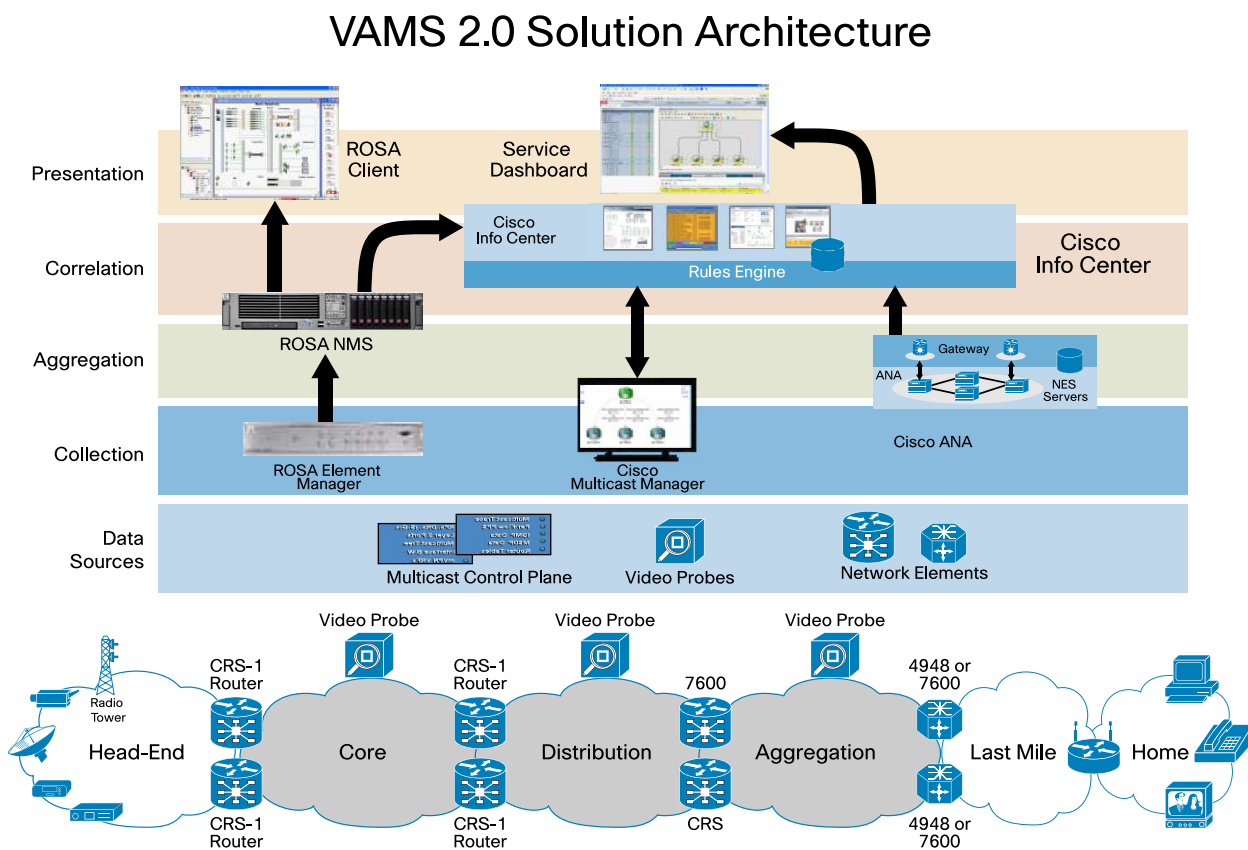
Solution Specifications

To order Cisco VAMS 2.0, any of the following products/solutions must be purchased as prerequisites:

- Cisco Multicast Manager 2.5.4 with the Video Operations Solution (VOS) extensions
- Cisco Info Center – Object Server 7.2, Webtop 2.1, TBSM 4.1, and Impact 4.0
- ROSA NMS 3.0
- Cisco ANA 3.6.3 with VNEs and right-to-use (RTU) licenses for relevant devices (4948s, 7600s, and CRS-1s)

Cisco VAMS 2.0 may then be deployed as extensions to the above.

Note: VAMS has been structured in a modular architecture. Customers may choose to deploy specific modules of VAMS depending on their existing NMS/OSS environment. Customers may also choose to take a phased approach to rolling out VAMS, selecting Cisco Multicast Manager 2.5.4, for example, as an initial starting point for deployment and then building out from there.

Customers are recommended to work with their account teams and with Cisco Advanced Services to identify the appropriate strategy.

Table 2 lists hardware specifications for Cisco VAMS 2.0.

Table 2. Hardware Specifications

Cisco ANA Gateway	
Disk space	Recommended: Two 73-GB hard disk drives
Hardware	- Sun V490 1 DVD drive 2 10/100M Ethernet ports - Solaris 10 compatible
Processor	4 at least 1.35-GHz UltraSPARC IV processors
Memory	16 GB 8 GB of Solaris SWAP per CPU
Software	- Solaris 10 - Customer-supplied Oracle 9i
Cisco ANA Unit	
Disk space	Recommended: Two 73-GB hard disk drives
Hardware	- Sun V490 1 DVD drive 2 10/100M Ethernet ports - Solaris 10 compatible
Memory	16 GB
Processor	4 at least 1.35-GHz UltraSPARC IV processors
Software	Solaris 10
Cisco ANA Client	
Disk space	2 GB of free disk space
Hardware	- Pentium IV, 2.66-GHz processor or better 1 DVD drive - Minimum screen resolution of 1024 by 768 pixels - Truecolor (32 bit) setting
Memory	1 GB 512 MB of free nonvirtual memory
Software	Windows 2000 or Windows XP
Cisco Multicast Manager Server	
Disk space	2 GB or more free space for Cisco Multicast Manager application and data
Hardware	**Linux** - Dual AMD Opteron Processor 250 2.4-GHz 64 Bit for Large Enterprise (more than 500 devices) - Dual 2.8-GHz Intel Pentium IV or dual 2.8-GHz Intel Xeon processor for Large Enterprise (more than 500 devices) 2.8-GHz Intel Pentium IV or 2.8-GHz Intel Xeon processor **Solaris** - Sun Fire v440 Up to four 1.593-GHz UltraSPARC IIIi processors for Large Enterprise (more than 500 devices) - Sun Fire v240 One 1.34-GHz or two 1.5 GHz UltraSPARC processors
Memory	2 GB 4 GB for Large Enterprise (more than 500 devices)
Software	**Linux** - Redhat Enterprise Linux ES/AS 3 - Redhat Enterprise Linux ES/AS 4 **Solaris** - Solaris 8 - Solaris 9 - Solaris 10 Note: Solaris x86 is not supported

Browser	• Firefox 1.5 or greater • Internet Explorer 6 • Netscape 7.0 • Mozilla 1.7 • Safari 2.0

Ordering Information

Table 3 lists ordering information for Cisco VAMS 2.0.

Table 3. Ordering Information

Product Description	Part Number
VAMS 2 ANA Extensions	
Cisco VAMS 2, Extensions to ANA 3.6 (Top level part number)	VAMS2-ANA3.6-SW
VAMS 2 ANA Options	
VAMS 2, Extension to 4948 (G2) VNE – ANA 3.6	VAMS2-ANA36VNE4948
VAMS 2, Extension to 7600 (G3) VNE – ANA 3.6	VAMS2-ANA36VNE7600
VAMS 2, Extension to CRS-1 (G5) VNE – ANA 3.6	VAMS2-ANA36VNEG5
VAMS 2, Extension to CRS-1 (G6) VNE – ANA 3.6	VAMS2-ANA36VNEG6
VAMS 2, Cisco Multicast Mgr VNE – ANA 3.6	VAMS2-ANA36VNECMM
VAMS 2, IneoQuest Video Probe VNE – ANA 3.6	VAMS2-ANA36VNEIQ
VAMS 2, Mixed Signals Video Probe VNE – ANA 3.6	VAMS2-ANA36VNEMS
VAMS 2, Tektronics Video Probe VNE – ANA 3.6	VAMS2-ANA36VNETK
VAMS 2, IneoQuest Video Probe RTU – RTU for one IQ probe	VAMS2-ANA36IQRTU
VAMS 2, Mixed Signals Video Probe RTU for one MS probe	VAMS2-ANA36MSRTU
VAMS 2, Tektronics Video Probe RTU for one TK probe	VAMS2-ANA36TKRTU
VAMS 2, IneoQuest Video Probe RTU for one IQ probe	VAMS2-ANA36RTUIQ
VAMS 2, Mixed Signals Video Probe RTU for one MS probe	VAMS2-ANA36RTUMS
VAMS 2, Tektronics Video Probe RTU for one TK probe	VAMS2-ANA36RTUTK
VAMS 2 Cisco Info Center Extensions	
VAMS 2, Extensions to Cisco Info Center (Top level part number)	VAMS2-CIC-SW
VAMS 2 Cisco Info Center Options	
VAMS 2, Extensions to Cisco Info Center 7.2 ObjectSvr/Webtop	VAMS2-CICMOM72-K9
VAMS 2, Extensions to Cisco Info Center 7.2 ObjectSvr/Webtop – Failover	VAMS2-CICMOM72F-K9
VAMS 2, Extensions to Cisco Info Center 7.2 ObjectSvr/Webtop – Non Prod	VAMS2-CICMOM72N-K9
VAMS 2, Extensions to Cisco Info Center TBSM 4.1	VAMS2CICTBSM41-K9
VAMS 2, Extensions to Cisco Info Center TBSM 4.1 – Failover	VAMS2CICTBSM41F-K9
VAMS 2, Extensions to Cisco Info Center TBSM 4.1 – Non Prod	VAMS2CICTBSM41N-K9
VAMS 2, Extensions to Cisco Info Center Impact 4.0	VAMS2CICIMPT40-K9
VAMS 2, Extensions to Cisco Info Center Impact 4.0 – Non Prod	VAMS2CICIMPT40N-K9

Service and Support

Using Cisco Lifecycle Services, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

For more information about Cisco Video Assurance Management Solution, visit http://www.cisco.com/go/vams or contact your local Cisco account representative.

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