

Cisco Solutions for Enterprise Medianet: Optimizing Networks for Video, Voice, and Data

Overview

Organizations are increasingly adopting new rich-media business and collaboration technologies. Video loads networks—and it radically changes the demands on the network. Medianet is a network optimized for rich media that provides intelligent services in order to scale, optimize, and enhance the performance of video, voice, and data. Cisco® capabilities for medianet enable businesses to achieve the full value of business and collaboration applications by providing optimal user experiences while reducing complexity and costs.

What Problems Does It Help Solve?

With the increasing adoption of video and rich-media applications, media-optimized networks address challenges associated with the transmission of video and rich media over the network, including ensuring predictability, performance, quality, security, and mobility.

Traditional IP networks are not well-equipped to deal with interactive and real-time requirements, making delivery and quality of media unpredictable and increasing complexity for network operators and managers.

Technologies such as medianet help address these challenges by accelerating deployment of applications, minimizing complexity and ongoing operating costs, and helping to scale the infrastructure for the best user quality of experience (QoE).

Cisco Networking Capabilities for Medianet

The Cisco architecture for medianet is an end-to-end IP architecture that enables pervasive and quality rich-media experiences. Medianet combines a smarter network—smarter endpoints with medianet technology embedded into network elements and endpoints. A medianet has the following characteristics:

- Media-aware: Can detect and optimize different media and application types (telepresence, video surveillance, desktop collaboration, and streaming media) to deliver the best experience
- Endpoint-aware: Automatically detects and configures media endpoints
- Network-aware: Can detect and respond to changes in device, connection, and service availability

What Are the Benefits of a Medianet?

A medianet has built-in intelligence to address the unique challenges of video and rich media by providing:

- Enhanced video performance and end-user QoE over the network
- Simplified installation and management of video endpoints
- Faster troubleshooting for voice, data, and video applications
- Ability to assess effect of video, voice, and data in your network

Cisco Services for a Medianet

The Cisco Medianet Readiness Assessment (MRA) Service can help you better prepare for the evolution into supporting a rich-media environment. The Cisco MRA analyzes the existing infrastructure against business solutions you want to implement. It provides a documented recommendation for the delta between “now” and “required”. These professional services can be extended beyond prepare, plan, and design to full implementation, operation, and optimization—enabling a successful and stepwise migration to a medianet.

Why Cisco?

Cisco can deliver an end-to-end medianet solution with a smarter network and smarter endpoints that make the solution cost-effective and very easy to deploy. The autoconfiguration capability provides a ready-to-use solution, ease of deployment, and consistent preconfigured solutions for video endpoints.

Measuring QoE at the network elements provides the most extensive visibility because all the flows between video source and sink must go through the network infrastructure. This approach eliminates the need for expensive probes that would lead to increased costs for data collection and operating expenses.

This innovative end-to-end monitoring and troubleshooting approach bridges between the application and the network in order to combine the benefits for Cisco networks with the benefits of video endpoints and applications, delivering an optimal user experience while reducing complexity and costs.

What Are the Current Technologies in Medianet?

Table 1 lists the current technologies in medianet.

Figure 1. Current Technologies in Medianet

Technology Component	What Is It?	What Are the Benefits?
Auto cConfiguration	Ability of Cisco switches to recognize media endpoints and apply appropriate policy settings for the endpoint traffic	<ul style="list-style-type: none"> • Reduces time and cost involved in endpoint deployment • Provides granular mapping between endpoint types and network settings such as quality of service (QoS), security, and location
Media Services Interface (MSI)	An interface that provides Cisco rich-media endpoints and applications with a series of application programming interfaces (APIs) to enable them to take advantage of the medianet services in the network infrastructure	<ul style="list-style-type: none"> • Gives media applications greater visibility into network service levels, allowing the application to adapt to better network conditions • Enables network visibility of the applications that are running over it and can adapt the services provided based on the specific application needs
Media Monitoring (1) Performance Monitor (2) Mediatrace (3) IP Service-Level Agreement (IP SLA) Video Operations	<p>A suite of technologies that:</p> <p>(1) Provides per-flow, per-hop visibility into flow metrics such as packet loss and network jitter for audio and video streams, and packet loss events and round-trip times (RTTs) for data streams</p> <p>(2) Traces hop-by-hop handling of rich-media flows across a network</p> <p>(3) Generates synthetic media streams through Cisco routers and switches</p>	<ul style="list-style-type: none"> • Enhances visibility into the network to simplify, generate baselines, and accelerate troubleshooting of video, voice, and data applications • Validates network capacity and configuration before deploying new applications or before events • Provides ability to assess the impact of video, voice, and data in your network to enhance capacity planning
Media Awareness (1) Flow Metadata (2) Media Services Proxy (MSP) (3) NBAR2	<p>A suite of technologies that:</p> <p>(1) Allows an application to explicitly signal any arbitrary attributes to the network from node to node. This allows appropriate policies to be applied at each hop, end to end</p> <p>(2) Uses lightweight deep packet inspection techniques to snoop standard based signaling protocols. MSP produces flow metadata attributes that can be shared among network nodes</p>	<ul style="list-style-type: none"> • Provides the ability to differentiate business-critical applications and to determine the importance of a session based on its business value so that the network can consistently provide service assurance and optimal user experience • Provides the ability to extract actionable application information from the network; for example: “John from finance is having quality problems with his Jabber® desktop video” as opposed to just a raw

Technology Component	What Is It?	What Are the Benefits?
	(3) Enables protocol detection for a network which is the process by which the system determines that a particular network flow is from a specific application.	data set of IP addresses and port numbers



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