



# Lippis Report

Research Note

**Lippis Report 171:**  
**Cisco Expands Medianet Architecture to  
Enterprise Scale**

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**What you will Learn from this paper:** How video communications is speeding up business processes by extracting delay from decision-making and in the process reducing corporate operational cost in ways not previously attainable. How to easily scale and deploy video with a Cisco Medianet to reduce complexity and costs.

## Modern Video Communications

Even during the most difficult recession in decades, videoconferencing endpoint unit shipments increased according to Frost and Sullivan. In fact, unit and revenue growth rates are projected to be on a tear with an 18.3% and 16.5%, respectively, compound annual growth rate between 2009 to 2015. Why so bullish? Consider Camp Dresser McKee (CDM), a global water treatment design and built firm who, during the downturn, invested in high-quality video conferencing, not only to save on travel cost and executive wear and tear but to transform its business processes. CDM has been able to consolidate offices in regional centers for design engineers while close to customer projects outpost are linked back to centralized design centers via high-definition video conferencing. The value gained is far greater than travel cost savings as the capital spend on video conferencing has reduced corporate operational spend and increased efficiency while at the same time making them more competitive.

Take CDM and multiple it by the tens of thousands, and that's why video is not only here to stay, but thrive. What causes IT business leaders is not whether they should deploy real-time video communications, but how to deploy it pervasively so that any employee on any video enabled endpoint can video conference/communicate with any other employees and/or customers, partners, suppliers, etc. So the questions are can video be deployed pervasively at scale while maintaining a high-quality experience? Are corporate networks equipped to handle the load? How are endpoints with different codex normalized so that anyone can communicate with anyone else independent upon endpoint device, be it a web conferencing, Telepresence room, desktop video, smartphone, tablet, etc? Even if IT could deploy such as system, how would it be managed, configured, monitored and troubleshot when problems arise.

**Medianet 2.2: Reduced Costs and Informed Decisions with Improved Network Visibility**



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While many video conferencing vendors are developing approaches to this problem, Cisco has been working on it since September 2008 when it first introduced Medianet. With the Tandberg acquisition plus investments in unified communications, collaboration, business video and Borderless Networks, Cisco is now able to expand Medianet to put its customers on a journey to deliver on a corporate wide any-to-any video communication service; designed to be borderless over time.

## What is Medianet?

To address pervasive enterprise video communications, Cisco has developed "Medianet Architecture" to optimize the experience of consuming rich and real time media content as it flows throughout a corporate network. Medianet architecture is a borderless network service within Cisco's Borderless Network Architecture. Medianet obtains much of its service by embedding Medianet technology within Cisco's network infrastructure of switching and routing products and now video enabled endpoints.

The key attributes of Medianet Architecture are that it provides end-to-end IP video services to video enabled endpoints such as Telepresence rooms, unified communications and collaboration, desktop video streaming, digital signage, enterprise TV, video surveillance, etc., with the network providing a set



of Medianet services to assure a high-quality experience depending upon the endpoint's video display resources. These Medianet network services include traffic differentiation and QoS to assure good and consistent user experience. In addition, the network with embedded Medianet technology provides interoperability services to support multiple video formats and endpoints. Autoconfiguration is another Medianet network service to discover video endpoints then setup configuration with best practices and autoregistration to track entity. Lastly, a video management service that provides session visibility, network load impact and policy definition rounds out the set of network services enabled by Medianet.

### **Cisco's Medianet Architecture**

With Medianet technology embedded within the network, the network becomes smarter about video traffic, applications and services. Also with Medianet technology embedded into endpoints, video endpoints become smarter to connect to and communicate with the network so that visibility and policies extend from the endpoint across the network. While the above discussion has focused within a corporation, in fact Cisco's Medianet Architecture is being extended outside of the enterprise boundary through cloud services to enable Service Provider-to-Business, Business-to-Business and Business-to-Consumer connections with the hopes of creating a truly borderless video service.

Just in case you missed it, yes, Cisco is delivering video enabled client software to endpoints, with the first ones being IP video surveillance cameras, digital media players, followed by WebEx with Tandberg Telepresence not far behind. Eventually, popular mobile endpoints such as iPad, iPhone, Android devices, etc., will be supported through third parties.

### **Smarter Endpoints via Media Services Interface**

So what value does Cisco client software add to these endpoints? First the software is called Media Services Interface or MSI, and the idea is to place basic network intelligence into the endpoint to assist it in auto-configuration and improve user video experience. For example, MSI enables the endpoint device and its location to be identified for security purposes and delivers auto-configuration assist.

### **Smarter Networks**

To deliver high-quality video throughout the enterprise and beyond, Cisco's Medianet Smarter Network consists of three capabilities:

**Media Monitoring:** First, to provide a consistent end user experience, Cisco has developed Media Monitoring. There are three capabilities within the Media Monitor: IPSLA Video Operation (IPSLA VO), Performance Monitor and MediaTrace. Performance Monitor evaluates the network traffic which gives NetOps visibility of running video streams over the network to observe network impact/load. Another feature within Media Monitoring is Mediatrace, which provides a tool for NetOps to traverse the network hop-by-hop following the real-time flow of video traffic through the network to aid in troubleshooting and problem resolution. To assure the network can support a video session being requested, IPSLA VO transmits synthetic traffic, without probes, over the network to assure the network possesses the capacity to transmit video in high-quality. This is, in essence, the ability to launch a real-time pre-planning tool.

**Cisco Prime Collaboration Manager:** Second, simplified video deployment and management is enabled through Cisco Prime Collaboration Manager or CM 1.0, which is an integrated monitoring, analysis and troubleshooting tool. CM 1.0 provides end-to-end visibility and isolation of video issues for TelePresence sessions, endpoints and the network. In addition, CM 1.0 provides a complete inventory of

all video-related assets, including endpoints, network devices and service infrastructure, which helps control costs and aid in network planning.

CM 1.0 currently supports TelePresence, but Cisco plans to expand it to support Tandberg, WebEx, in future releases.

**Media eXperience Engine:** The Media eXperience Engine (MXE) appliance provides any-to-any media adaptation and analytics for endpoint video interoperability. Those with TelePresence are familiar with MXE, but it is an important enabler of video to a wide variety of devices and part of the strategy to enable video and collaboration on mobile devices. .

**Video Conferencing on ISR G2:** Also in the launch, but separate from Medianet, Cisco is adding video conferencing to the ISR G2 with its packet voice/data module (PVD3) DSP (Digital Signal Processor) to provide ad-hoc video conferencing at the branch level. This optimizes resources within the branch office for video conferencing and avoids video conferencing traffic over the network.

For example, when video conferencing is made available to branch offices, multiple video streams are forced to traverse the wide area network (WAN) on route to a centralized MCU (Multipoint Control Unit) for mixing being controlled by UC Manager. The result is that the WAN can easily be consumed with video traffic especially in the branch where WAN bandwidth is at a minimum with user experience suffering. With Medianet, ISR G2s are equipped with PVD3, which provides local mixing keeping video traffic local in the branch, assuming participants are local. Further, video is controlled by CUCM and CUCME. In addition PVD3 also provides ad-hoc and MeetMe conferencing, too, enabling spontaneous video conferencing sessions to occur.

### Medianet Example

To bring Medianet to life, consider a Cisco use case. Cisco Borderless Networks IT uses Media Monitoring to expand the use of video conferencing throughout the network. They especially benefit from the ability to monitor the conditions on the network without the use of probes, which helps them make better business decisions and make more efficient use of resources. Cisco is rolling out Media Monitoring to enhance its Cisco Virtual Office (Teleworker) service to hundreds of endpoints and the expectation of thousands of video endpoints by the end of 2011.

### Summary

Cisco has built an approach, a blueprint and yes, an architecture to organize and harness the power of corporate video communications. While there are multiple forms of video collaboration and many more will emerge, the key in any enterprise video architecture is to allow innovation to flourish and not to limit choice. In short, endpoint devices and their video applications should be embraced. Where value can be created is in assisting these endpoints to connect to others, both similar and different, and simply communicate consistently and at scale. This is what Cisco's Medianet architect seeks to deliver. It possesses the attributes to achieve these goals that puts a company on a journey to exploit video communications for all its business benefit.

## About Nick Lippis



Nicholas J. Lippis III is a world-renowned authority on advanced IP networks, communications and their benefits to business objectives. He is the publisher of the Lippis Report, a resource for network and IT business decision makers to which over 35,000 executive IT business leaders subscribe. Its Lippis Report podcasts have been downloaded over 160,000 times; i-Tunes reports that listeners also download the Wall Street Journal's Money Matters, Business Week's Climbing the Ladder, The Economist and The Harvard Business Review's IdeaCast. Mr. Lippis is currently working with clients to design their private and public virtualized data center cloud computing network architectures to reap maximum business value and outcome.

He has advised numerous Global 2000 firms on network architecture, design, implementation, vendor selection and budgeting, with clients including Barclays Bank, Eastman Kodak Company, Federal Deposit Insurance Corporation (FDIC), Hughes Aerospace, Liberty Mutual, Schering-Plough, Camp Dresser McKee, the state of Alaska, Microsoft, Kaiser Permanente, Sprint, Worldcom, Cigitel, Cisco Systems, Hewlett Packet, IBM, Avaya and many others. He works exclusively with CIOs and their direct reports. Mr. Lippis possesses a unique perspective of market forces and trends occurring within the computer networking industry derived from his experience with both supply and demand side clients.

Mr. Lippis received the prestigious Boston University College of Engineering Alumni award for advancing the profession. He has been named one of the top 40 most powerful and influential people in the networking industry by Network World. TechTarget an industry on-line publication has named him a network design guru while Network Computing Magazine has called him a star IT guru.

Mr. Lippis founded Strategic Networks Consulting, Inc., a well-respected and influential computer networking industry-consulting concern, which was purchased by Softbank/Ziff-Davis in 1996. He is a frequent keynote speaker at industry events and is widely quoted in the business and industry press. He serves on the Dean of Boston University's College of Engineering Board of Advisors as well as many start-up venture firm's advisory boards. He delivered the commencement speech to Boston University College of Engineering graduates in 2007. Mr. Lippis received his Bachelor of Science in Electrical Engineering and his Master of Science in Systems Engineering from Boston University. His Masters' thesis work included selected technical courses and advisors from Massachusetts Institute of Technology on optical communications and computing.