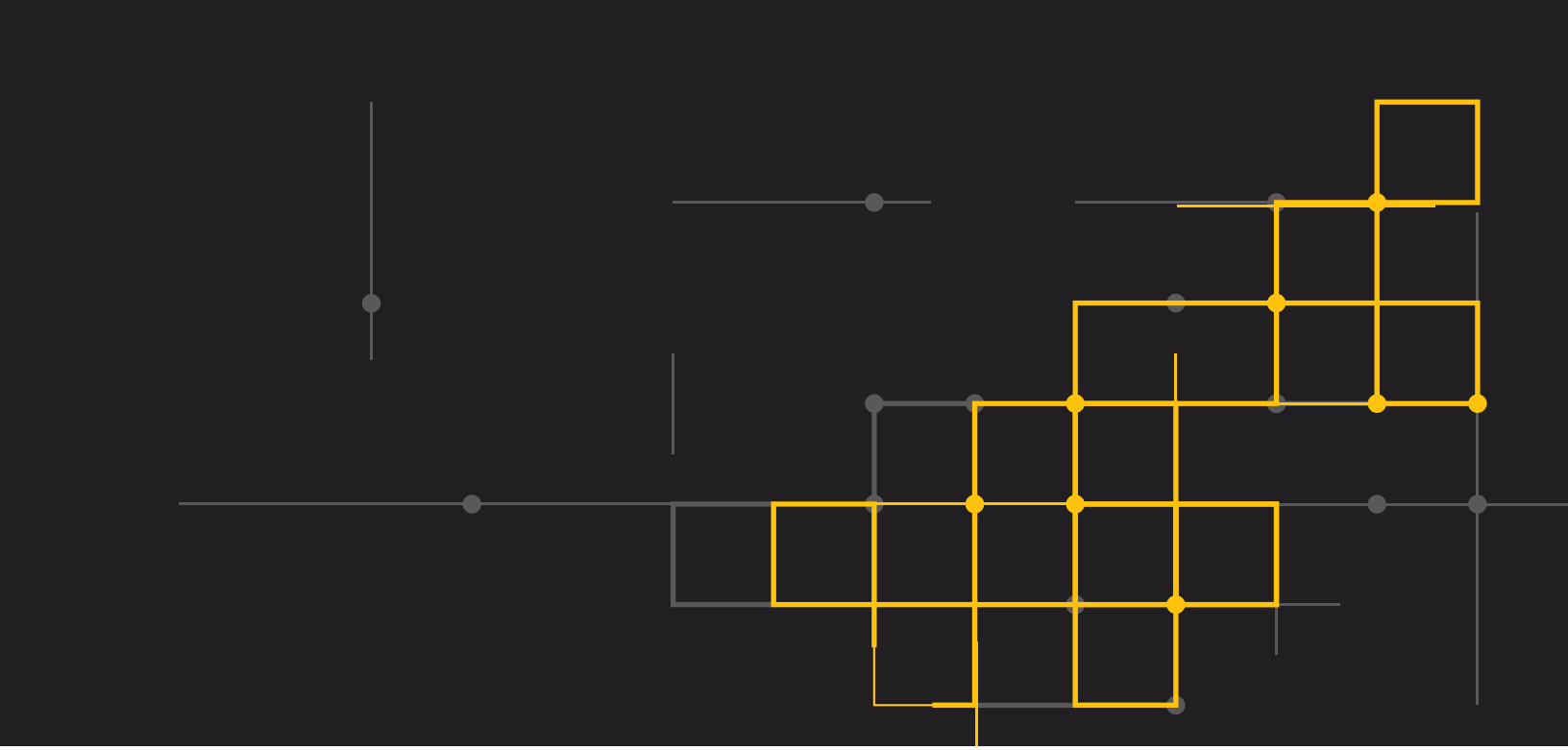


Keeping Up With Video: How Symantec is Changing WAN Optimization

Symantec

The Value of Video

Connecting to the right information at the right time can give you the insight you need to make better business decisions, innovate, and grow revenue. The compelling video medium is fast becoming the delivery mechanism of choice for all of this information. Video's combination of visual and auditory elements makes it a communications tool that can inform, inspire and educate – it can be used to disseminate information, entertain, and create an effective learning environment; it can enable employee enrichment, customer engagement, and partner productivity. Its versatility makes it an increasingly indispensable tool for your business, as it weaves together words and images, people and places, action and sound into an immersive experience like no other.

The Prevalence of Video

Video is everywhere. It's accessible from anywhere, using almost anything. Not only can you watch it at the movie theater or on your TV, but also on your computer, iPod and mobile phone (every smartphone that ships today comes with a video recorder). And it can be created by anyone. You don't need to be a big shot producer. Today, anyone can shoot and distribute their own videos – it's as simple as pointing and clicking. A quick look at the stats from YouTube tell it all – today, it hosts over 2 billion videos, 197 million hours of contents and those contents have been watched 39 trillion times for approximately 196 trillion minutes.[1]

Businesses everywhere are producing their own video content – 50% of the Fortune 100 companies have their own corporate YouTube Channels and many organizations have their own media centers, capable of creating professional quality videos. A recent survey by Gartner[2], found the main drivers for all this video content spanned training (60%+), executive communications (50%+), collaboration (50%) and corporate messaging and inspiration (50%). And the trend-lines for video are only going up, as businesses rely on it more and more, and the Web 2.0 applications and services we use to run our businesses increasingly leverage video to enhance their overall value.

The Impact of Video on the Network

All this video is overwhelming many networks. By some estimates video makes up close to 50% of all Internet traffic.[3] According to analysis by Morgan Stanley, mobile video accounts for 41% of traffic during peak hours.[4] This is why it's not unusual for a single iPhone user to consume as much bandwidth as 5000 regular phone users in a month. When a single video stream consumes between 500k to 1.2 Mbps (and that's not even HD, which can be up to 4 to 7 Mbps), it's easy to see how the voracious appetite we all have for multimedia programming is placing a huge burden on the network. The reality is most media servers, which house and distribute video in response to user requests, and the wide area networks (WANs) that carry all this traffic are increasingly congested. When a media server or network is overwhelmed, delivery of all applications can suffer. Seconds, even milliseconds of delay can disrupt and degrade video quality and render it and all your other applications inoperable.

Traditional Options for Supporting Video

Traditionally, there have not been many options available to help you overcome the issues posed by video. In general, there have been two choices: first, investing in more bandwidth, and second purchasing and deploying video-specific servers at various sites. The problem with both these options is that, while improving the experience and alleviating some of the burden of video, they can be costly and add unnecessary complexity to your overall infrastructure.

For many businesses, video consumes 30-60% of their WAN budget. This is because the standard network architecture tends to concentrate Internet traffic at a few sites and then backhaul it over the WAN for delivery to all the remote branch offices. The majority of this traffic ends up being primarily recreational video, such as YouTube, NetFlix, or any one of the hundreds of rich-media sources on the Internet, which means that a large percentage of the WAN budget is going to non-essential content.

Another problem is that demand for bandwidth from video is hard to predict, particularly when you consider the spikes and floods generated during a captivating news cycle, disaster, or even celebrity drama. (Remember the impact Michael Jackson's passing had on many networks?) It is often impractical and too costly to build out a network capable of meeting these peak demands, which ultimately leaves your network unprepared to deliver a reliably satisfactory video experience for your users.

[1] Tech Trader Daily, Barron's
[2] "User Survey Analysis: Video Content Management and Delivery: Streaming Goes Mainstream," Gartner Group
[3] Cisco/Wired magazine
[4] YouTube blog, Morgan Stanley Research – "Web 2.0 Presentation: The State of the Web," by Mary Meeker.

As a result, to enable video for business can be very expensive. If you are investigating video initiatives to improve training or communications for your enterprise, it's interesting to note that you will probably need to spend between $500k and $2 million in incremental operational costs (mostly bandwidth) per year, every year.[5] This level of investment is often not sustainable for a lot of organizations, and illustrates the conflict presented by video – it is increasingly important, yet inappropriate recreational video use is taking over your network making it hard for your enterprise to afford it.

Other approaches, such as adding media servers, using multicast technologies, or deploying legacy video-specific optimization products often increase the complexity and ongoing operational costs to the infrastructure, thereby diminishing their benefits. Many rely on adding hardware or focus on managing a separate content delivery network (CDN) to ensure the video performs satisfactorily.

For instance, adding and distributing media servers, such as Microsoft's media servers, at each office can relieve the burden on any one location and the WAN. However, it is often contrary to an organization's IT consolidation initiatives, which are in place to simplify and centralize IT resources to give the organization better control over their IT management and costs. Therefore, distributing video servers ends up actually adding complexity and creating new licensing and management costs the organization would usually rather avoid.

Multi-cast technologies are known for their complexity. Ensuring proper routing and queuing can be very difficult, often requiring herculean efforts from your network experts to get right. It simply isn't realistic for many organizations who need to quickly and efficiently scale their CDN to meet their varied, ever-changing needs. Even when companies look to deploy a WAN Optimization solution to improve the utility of their bandwidth, they become frustrated that they still need an additional dedicated video infrastructure. This is because legacy WAN optimization technologies have not turned their attention to video, focusing instead on accelerating the transfer of data used by most business applications and services.

As a result, many organizations are forced to use video-specific technologies, such as Cisco's application and content networking system (ACNS). Unfortunately, due to their focus, these types of solutions are unable to address the overall bandwidth optimization and management needs of most organizations. Organizations still end up creating an "additive" network delivery solution for digital media that needs to be managed alongside the general network infrastructure. Because they don't understand and, therefore, can't manage the traffic at large, it is virtually impossible for organizations to truly prioritize their services and applications in a comprehensive way that ensures they align with their business needs.

Requirements for Video

What is needed is a way for you to support a predictably satisfactory user experience and effectively manage the demands of video, along with all the other demands of your business-critical applications and services. You need a way to offload your media servers, reduce the traffic that actually traverses the WAN, and optimize its delivery to ensure a high quality user experience. The solution should enable you to:

- **Scale Live Video**: Reduce the impact of Internet video on your WAN to ensure all your users can effectively access live content, without impacting other traffic.
- **Optimize On-Demand Video**: Take advantage of on-demand caching and other optimization technologies to offload the media servers and reduce traffic over the WAN to maximize the user experience.
- **Manage Your WAN to Protect Against "Video Floods"**: Ensure you can not only optimize traffic to reduce the burden on the WAN, but also limit traffic when needed to protect against floods that can disrupt the performance of your WAN.
- **Support All Video File Types**: Utilize application specific technologies to ensure you can optimize and manage all the video in your environment. The three key application protocols any solution should support are: HTTP/SSL (including HTML5, YouTube and anything served from SharePoint), RTMP (Adobe Flash), and RTSP (Microsoft Windows Media Server).

This requires a comprehensive solution, one that can understand and address the overall application and service requirements of your organization to ensure all your traffic is handled appropriately to maximize your bandwidth investments. With a drive to consolidation, you should be able to leverage a single strategy to optimize all the other elements of your WAN, while solving your video issues – without distributed servers and software.

This is what Symantec offers.

5 Incremental bandwidth costs "How to Deliver Rich Media, Including Live Video, to Your Company Now," by Gartner

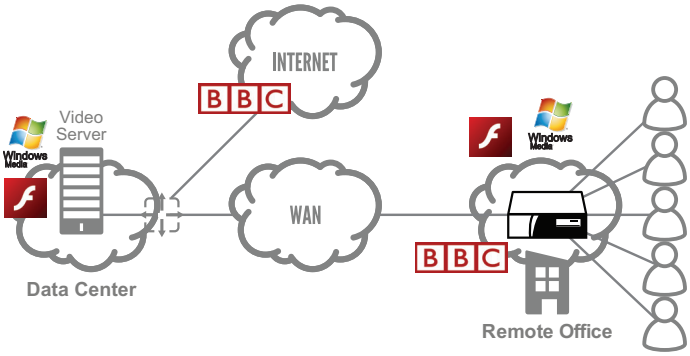
Symantec's Solution for Optimized Video Delivery

With Symantec's WAN optimization solution, you can ensure your infrastructure is prepared to effectively support the video needs of your users, as well as all the other services and applications they rely on to do business. This is because Symantec's solution is designed to not only provide optimal delivery of video and Web 2.0, media-rich services, but also files and email, giving you a single solution for your comprehensive WAN optimization needs. With Symantec, you can:

- **Scale Live Video**: Symantec ensures your users can access all the live programming they need. Symantec provides live stream splitting for Adobe Flash RTMP and Microsoft Windows Media RTSP. A single live stream is served from a central media server, traverses the WAN, and is split or "multiplied" at the branch office to all users. Our fully licensed, integrated technology works with the media servers at the core to maintain authentication and access rights, as well as the ability to track user statistics.

Live Video Stream Splitting

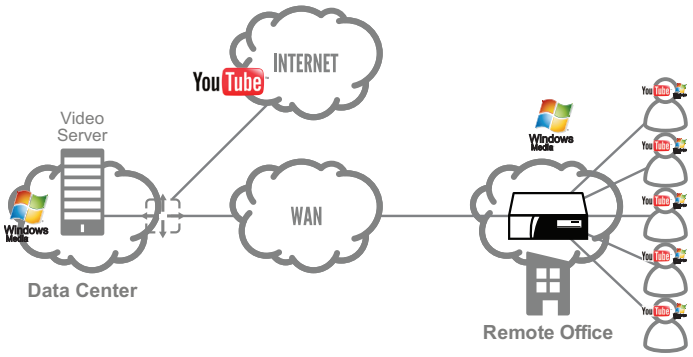
Scale video by 2 - 10,000x
Reduce impact of internet video



With Symantec, you can offload the media servers in the data center, drastically reduce the traffic over the WAN to a single video stream, and maintain complete reports of video use. It works for both internal and external video streams, enabling you to deliver a high quality user experience for all the programming your users require.

- **Optimize On-Demand Video Delivery**: Symantec enables you to cache video at the office locations of your users, so it's available when they need it, on-demand. The first user receives the video and then it is cached on the local server at that office location for access by subsequent users. Adaptive Refresh technologies keep the cached content up to date, so that users always have the latest video content at their fingertips.

Video On-Demand Caching



Symantec also helps you efficiently and easily rollout a content distribution network (CDN), without the complexity associated with multicast and in a way that integrates with your overall WAN management strategy. As a result, you can pre-populate content when it's convenient (overnight) to reduce peak WAN usage and proactively control the delivery of that content.

Symantec's on-demand caching helps you reduce the burden on your bandwidth and offload your media servers, so you can scale your WAN bandwidth and provide your users a high quality experience.

- **Manage Your WAN to Protect from "Video Floods"**: Symantec provides a comprehensive WAN management solution that ensures you can optimize your WAN to effectively support all your application and service requirements. First, we optimize both internal AND external/Internet video, to reduce the burden on the WAN. Next, we give you tools to differentiate between content sites and categorize all your web content, so you can apply a powerful policy to set quality of service (QoS) limits on the amount of WAN bandwidth for specific sites or entire categories. As a result, you can contain recreational video and prevent it from overwhelming or impacting other business-critical applications and protect your mission-critical applications against video floods.

- **Comprehensive Video Coverage**: Symantec offers a broad spectrum of application specific technologies to support the dozens of different video file types you have in your environment – such as QuickTime (.mov), Flash (.swf), Windows Media (.mp4/.wmv), HTML5, and many more. Symantec's specialized video technology can optimize all of these (HTTP/SSL, RTMP, RTSP) application protocols and content types to provide you a complete solution for optimizing and managing video.

Symantec ensures you have the comprehensive solution you need to support your corporate video initiatives and deliver all your services and applications, without having to add bandwidth or upgrade your network. In addition, as a comprehensive solution, Symantec accelerates cloud and web applications and provides integrated security to protect the delivery of your content.

Insight into Symantec's Unique Approach

Symantec combines traditional symmetric techniques (which require a device at both ends of the connection – e.g. in the data center and at the remote site/office) with asymmetric WAN optimization technologies (which only require a single device) to provide a comprehensive solution architected specifically for the way video is used. Symantec's unique approach ensures you have what you need to meet all your programming needs and deliver an exceptional experience for your users. Symantec's solution is truly differentiated for:

- **Live Video** – Video is already highly compressed (video encoding strives to maximize quality and minimize bandwidth), so traditional WAN optimization technologies that focus on compression to derive benefits provide very little performance improvement – only up to 10% gains. In contrast, Symantec's video optimization solution doesn't compress, instead it splits – or multiplies – the video, which allows it to take in a single live feed from the WAN and easily distribute it to multiple users. It works for all video, both internal and Internet–based, to ensure you can scale the delivery of live video, regardless of its source, to all your users.

Comparing Approaches for Live Video

SCENARIO	TRADITIONAL WAN OPTIMIZATION	SYMANTEC
Live Flash Video: 100 users, 1 Mbps stream, 4 Mbps link to branch	• 0-10% compression savings per user (use 5% average). • MAY serve video to 4 employees • No bandwidth left over for other apps • Low video quality – no access control for bandwidth, likely all sessions fail • 4-100 streams served by server, depends on how many got through (failure savings) • Failed video initiative	• Single live stream, multiplied 100 times • Serve high quality video to all 100 employees • 3 Mbps WAN bandwidth left for other apps; more if optimized • 1 live stream served by central video server; user info and stats processed for all 100 • Successful video initiative

- **On-Demand Video** – Symantec combines the best of all worlds. We use symmetric byte caching to optimize across protocols and then asymmetric caching to drive gains for repeated access.

  Traditional symmetric byte caching looks at the byte level – 1's and 0's – to substitute small tokens for repeated patterns of large data blocks. For example, say a user accesses a video file from SharePoint and then another user accesses the same file from a CIFS file share. (Note, please ignore the inefficiencies of having the same file in two different places for the purposes of this example). Symmetric byte caching will reduced the WAN bandwidth significantly for the "second pass" – because it's seeing the same file again, even if it's over a different protocol. That same "byte cache" capability can be used for repeated access of the file from any source.

  The problem is it won't reduce the draw on the servers. The server still has to serve the video, so the user still has to wait for the transaction to complete and the WAN still has to transmit a subset of the video. (Plus, the byte cache still has to have the patterns; unfortunately the core may have been diluted with other traffic, if it's a shared cache.

  Contrast that to Symantec's video on demand caching. Symantec holds the entire video file out at the branch office. That translates into instant access, because it's at the same site as the user. It dramatically reduces the use of the video server because it doesn't need to serve the content a second, third or hundredth time. There is no risk of byte cache dilution because it's a separate video cache, at the branch office, and requires no bandwidth over the WAN.

- **Internet and Cloud-sourced Video** – asymmetric technologies are required. When it comes to cloud or Internet delivered video, traditional WAN optimization breaks down because they require a device on each side of the transaction – near the source of the data and at the branch. But what happens when your branch office is directly accessing cloud and internet based video, or any application for that matter? You can't put a WAN optimization device at YouTube, BBC, CNN, or your cloud video provider. That's where the asymmetric architecture of Symantec delivers unique value. We cache "one-armed" – meaning we don't need a device near the source of the video, just near the consumers of the video – and then we can split the video from that single point to provide significant performance gains.

Customers Testify to the Impact of Symantec's Optimized Video Delivery Solution

Symantec ensures you can offload your media servers and achieve bandwidth gains, from 10x to 100x and even 1000x improvement, to scale the delivery of all your multimedia content. Many companies are already benefiting from Symantec's unique Live Video Stream Splitting, on-demand caching and WAN management solution. For example, Hitachi Consulting was able to stream live video to more than 1500 users, and a large Oil & Gas company was able to deliver training and compliance videos to their 15 refineries, all without any bandwidth upgrades. With Symantec, you are able to deliver the high quality user experience your users require from all your video and multi-media programming. You can ensure your users have ready access to all the information they need to collaborate, make informed decisions and drive the success of your business.

Part of an Integrated WAN Optimization Solution Video is growing faster than any type of traffic on the network. Of course, it isn't the only type of traffic you have on your WAN. Single purpose video delivery tools can't optimize the rest of your WAN traffic, while traditional WAN optimization devices can't manage video. Symantec has completely integrated video optimization into its WAN Optimization product. We optimize email, file shares, backup and disaster recovery, as well as allow you to scale live video delivery and on-demand recorded video to all your users.

Symantec's WAN Optimization for Today and Tomorrow

FOCUS AREAS	POSITIVE BUSINESS OUTCOMES/ROI	REQUIRED CAPABILITIES (DIFFERENTIATORS)
Internet Protection and WAN Offload	• Enable low cost Internet Connected Enterprise • Offload WAN of 100% recreation	• Web categorization, content filtering, authentication and policy • Malware protection and Global Intelligence Network/Global Intelligence Network cloud link
Cloud and web Acceleration	• Speed cloud-delivered apps 5-25% • Low TCO public cloud with single box • Accelerate Internet and web Applications	• Asymmetric Cloud optimization (Cloud caching) • External SSL decryption (along with Internal) • Web categorization and QoS policy
Video Optimization	• Scale video bandwidth: 10x, 100x, 1000x • Reduce recreational video by 30-80% • Protect critical apps from "flood" of video	• Live stream splitting (integrated) • Video on demand caching and ECDN (integrated) • Integrated web smarts: categorize, optimize and control
Foundation Acceleration	• Accelerate apps, files email, backup 3-300x • Reduce bandwidth 50-99%	• Protocol acceleration for CIFS, MAPI, TCP, etc. • Byte caching and adaptive compression • Quality of Service (QoS)

Symantec provides all the layers you need to effectively optimize your WAN

Whether it's internal video or Internet-based, Symantec drastically reduces the amount of bandwidth you need and enables you to successfully leverage video for training, education, communications, advertising and collaboration. We remove the network bottleneck from IT innovation for consolidation, video, cloud and Internet-based application architectures. With Symantec, you have everything you need to maximize the performance and utility of your WAN to deliver an optimal video experience for all your users.

About Symantec

Symantec Corporation World Headquarters

350 Ellis Street Mountain View, CA 94043 USA | +1 (650) 527 8000 | 1 (800) 721 3934 | www.symantec.com

Symantec Corporation (NASDAQ: SYMC), the world's leading cyber security company, helps businesses, governments and people secure their most important data wherever it lives. Organizations across the world look to Symantec for strategic, integrated solutions to defend against sophisticated attacks across endpoints, cloud and infrastructure. Likewise, a global community of more than 50 million people and families rely on Symantec's Norton suite of products for protection at home and across all of their devices. Symantec operates one of the world's largest civilian cyber intelligence networks, allowing it to see and protect against the most advanced threats. For additional information, please visit www.symantec.com or connect with us on Facebook, Twitter, and LinkedIn.

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