

# White Paper

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## The Future of WAN Optimization

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November, 2011

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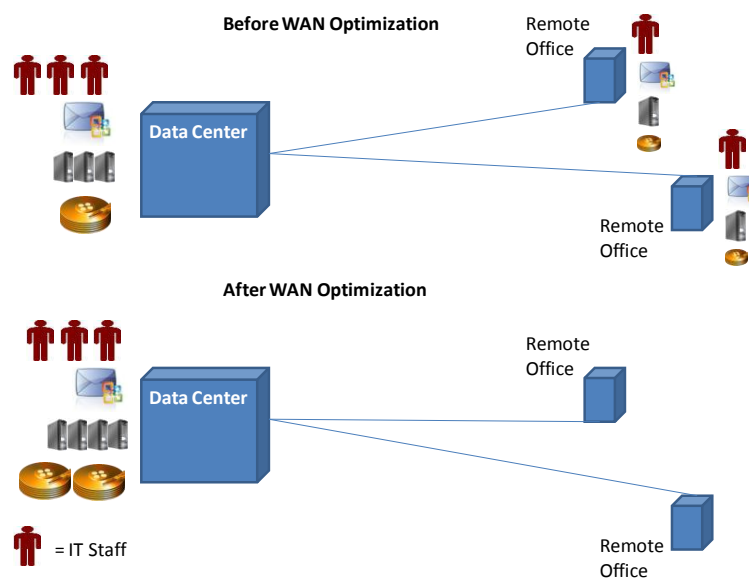
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## A Brief History of WAN Optimization

The online encyclopedia defines WAN optimization as, “a collection of techniques for increasing data-transfer efficiencies across wide-area networks or WANs.” Traditionally, WAN optimization technologies have been used to improve the responsiveness of communications networks connecting central data centers and remote offices, most commonly to accelerate TCP/IP traffic and consolidate applications and infrastructure. Consolidation, in particular, provides organizations with great economic benefits in the form of reductions in WAN bandwidth costs, infrastructure, and IT personnel, and improved hosting, management, and application control. It also enabled organizations to centralize the backup of applications and desktop computers. These benefits have been sufficient to drive significant penetration and awareness of WAN optimization between the data center and the branch, but the market is still far from saturated as the technology has typically been deployed to target trouble spots rather than optimizing networking at all corporate locations.

Figure 1. Consolidation Value of WAN Optimization



Source: Enterprise Strategy Group, 2011.

Business needs are changing, and dynamic global markets are demanding greater agility from IT to enable those changes. As new initiatives emerge to facilitate this transformation, WAN optimization solutions will take on an expanded role. The technology was initially designed to solve file transfer and chatty protocol issues, but it can also support many other critical areas of the business. The purpose of this paper is to increase awareness of the initiatives driving demand and the new criteria that should be used to evaluate the technologies.

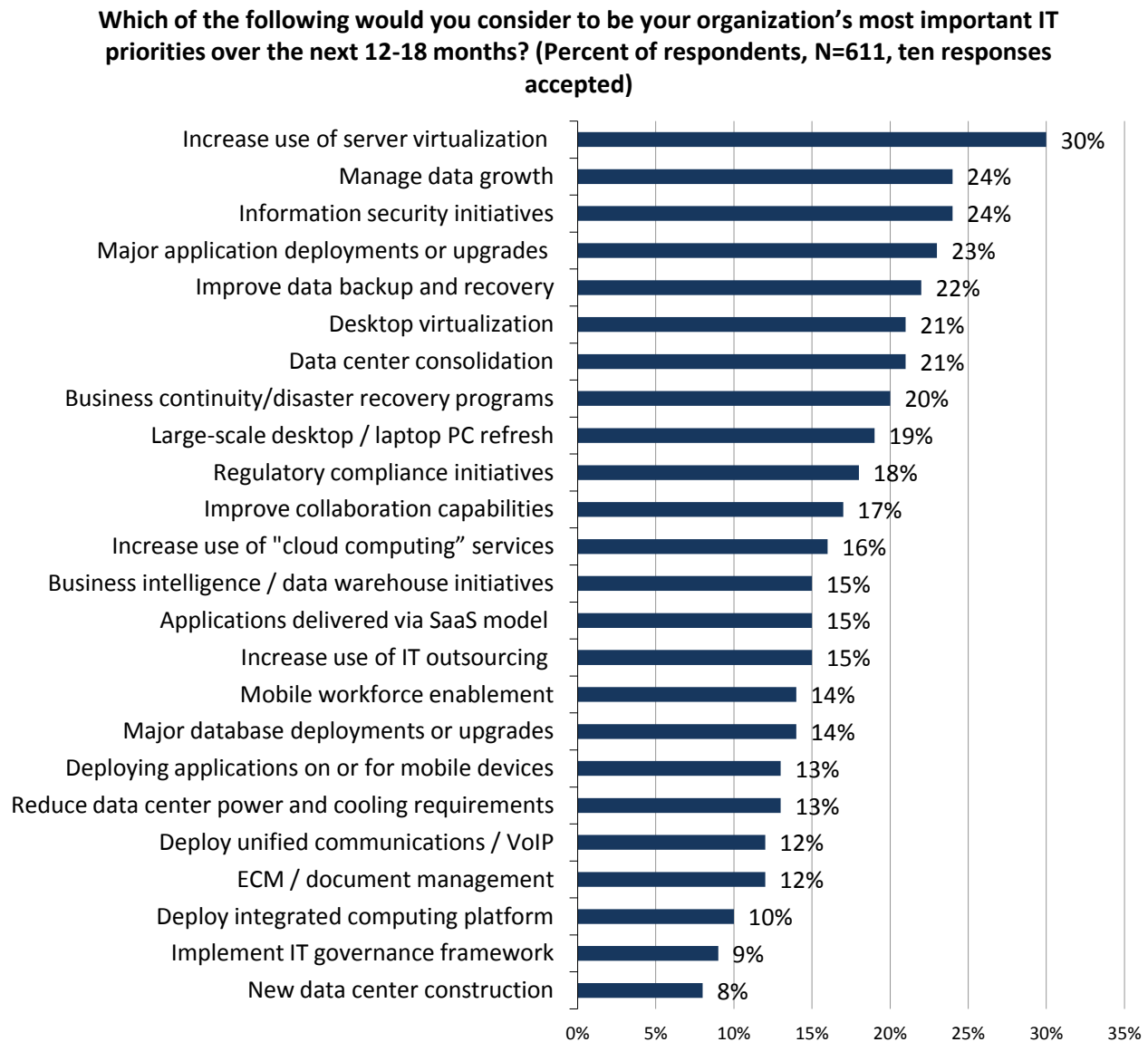
## Initiatives Driving WAN Optimization Adoption

The transition to the agile IT environment has sparked a number of initiatives that could benefit from WAN optimization solutions, but many organizations are unaware of the value it could deliver. These initiatives include:

- **Cloud computing.** According to ESG research, organizations are rapidly adopting cloud and Software-as-a-Service (SaaS) models.<sup>1</sup> These initiatives were the fastest climbers, each jumping ten spots from previous years. Figure 2 highlights the top IT priorities for 2011 and includes increased use of server virtualization, a precursor to private clouds, and managing data growth.

<sup>1</sup> Source: ESG Research Report, [2011 IT Spending Intentions Survey](#), January 2011.

Figure 2. Top IT Priorities

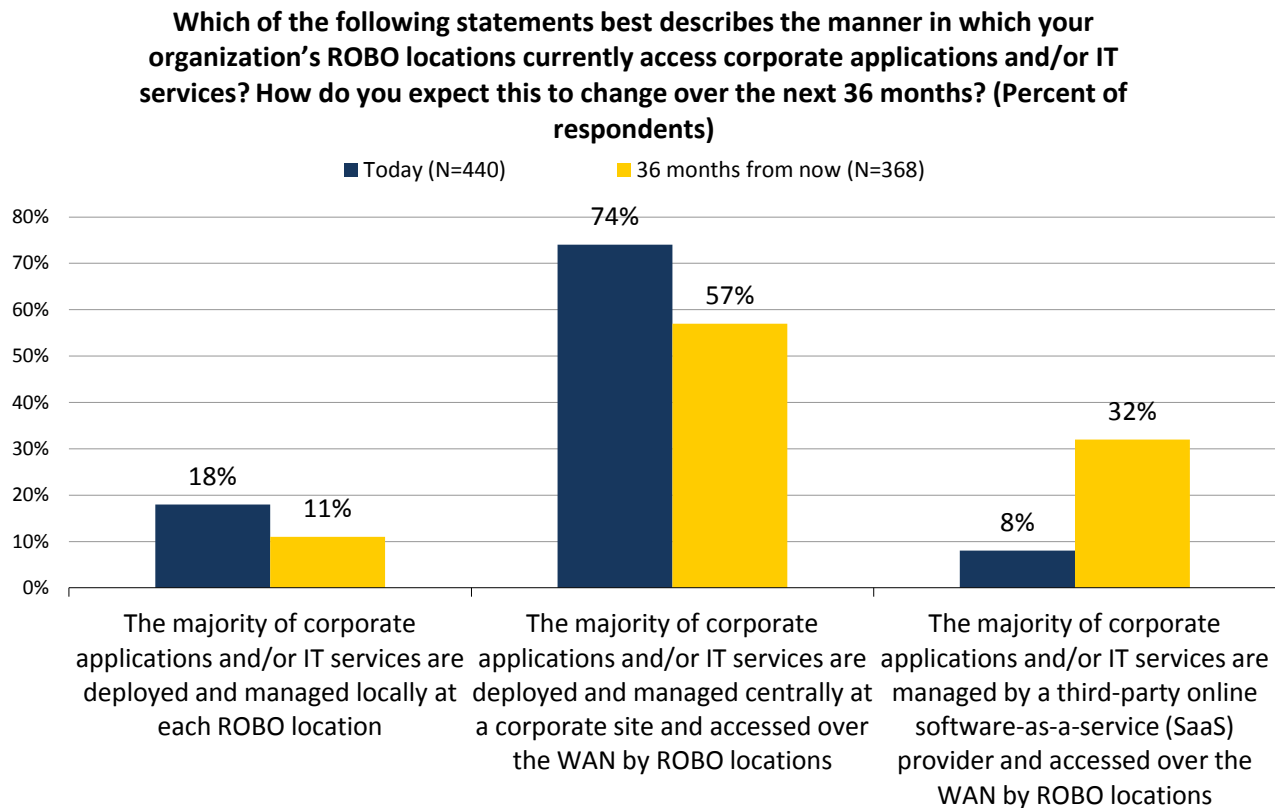


Source: Enterprise Strategy Group, 2011.

- Continued data center consolidation.** As mentioned, data center consolidation is still a top ten IT initiative as organizations strive to reduce operating costs. Consolidating data centers and the applications contained within enables businesses to reduce software license and maintenance fees and limit power and cooling requirements. Ensuring the right network performance and availability demands adequate connectivity between all remote sites and consolidated data centers, and also between data centers themselves.
- Use of SaaS applications for remote offices.** In addition to being one of the fastest growing IT initiatives this year, respondents to another ESG survey<sup>2</sup> indicated that an increasing number of organizations are planning to deploy applications for remote offices leveraging a SaaS model (see Figure 3). While this will transfer IT infrastructure dependencies from internal IT organizations to cloud providers, it can also move application connectivity from remote offices directly to the cloud. This type of architecture may bypass traditional WAN optimization equipment, limiting the ability to accelerate business-critical traffic.

<sup>2</sup> Source: ESG Research Report, [Remote Office/Branch Office Technology Trends](#), July 2011.

Figure 3. Remote Office Application Access Models

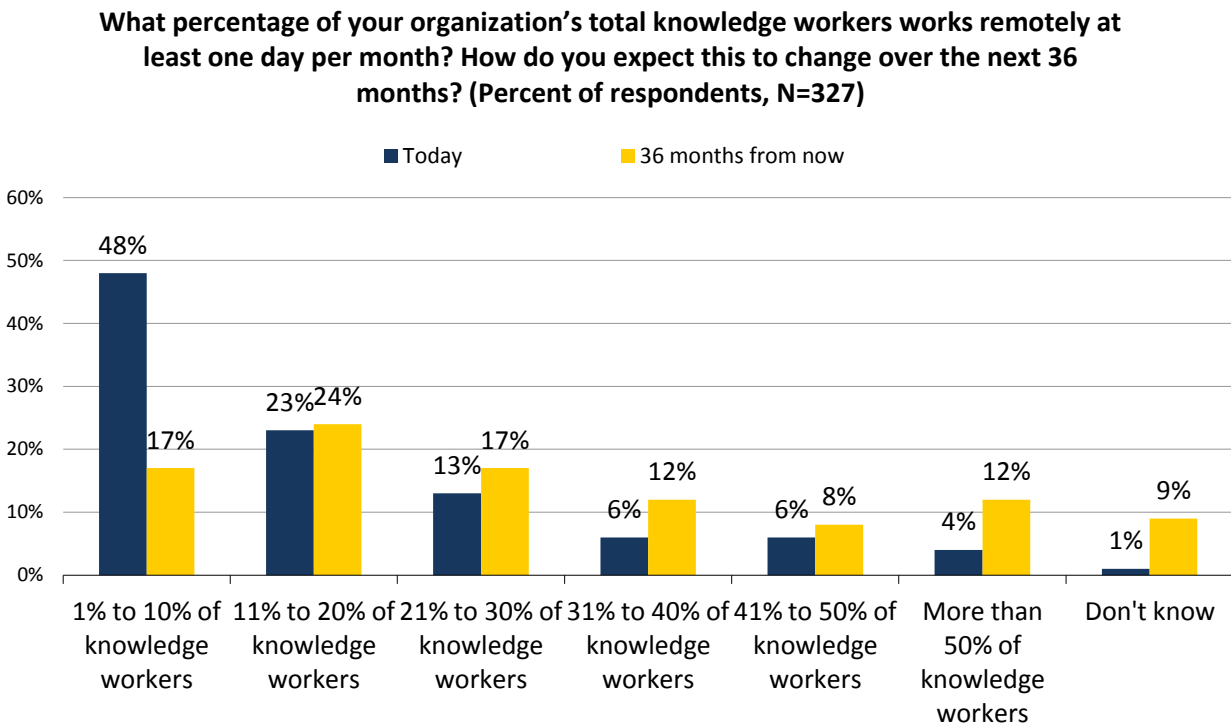


Source: Enterprise Strategy Group, 2011.

- Prolific use of video as a communication tool.** Video is becoming pervasive in the enterprise as organizations embrace it for internal communications, training, and HR programs—not for surfing YouTube all day. Organizations are leveraging video as a vehicle for communications, training, and education. The challenge is that video need to be distributed within and outside the enterprise. In fact, 30% of respondents to a recent ESG research<sup>3</sup> survey reported challenges in delivering latency-sensitive applications like VOIP and video.
- Widespread deployment of desktop virtualization.** Desktop virtualization adoption is being driven by the success of server virtualization and increased use of personal devices, smart phones, or tablet computers in the workplace, especially in verticals like health care. This technology eliminates the need to procure, manage, and secure physical laptops and desktops, but in doing so, it shifts that burden to data center-resident servers, storage, and networks—and makes the WAN more crucial for the delivery of virtualized desktops in remote locations. There is also the potential for service providers to deliver virtual desktops as a service over public networks.
- Transitioning to an increasingly mobile workforce.** The number of remote knowledge workers is increasing among many organizations; ESG research highlighting this trend is shown in Figure 4. Anecdotally, numerous examples of organizations requiring IT to enable workers to telecommute can be found in the press. One of the most publicized examples of this is the US federal government needing to ensure key employees could work from home in the event of bad weather impacting travel.

<sup>3</sup> Ibid.

Figure 4. Knowledge Workers Working Remotely



Source: Enterprise Strategy Group, 2011.

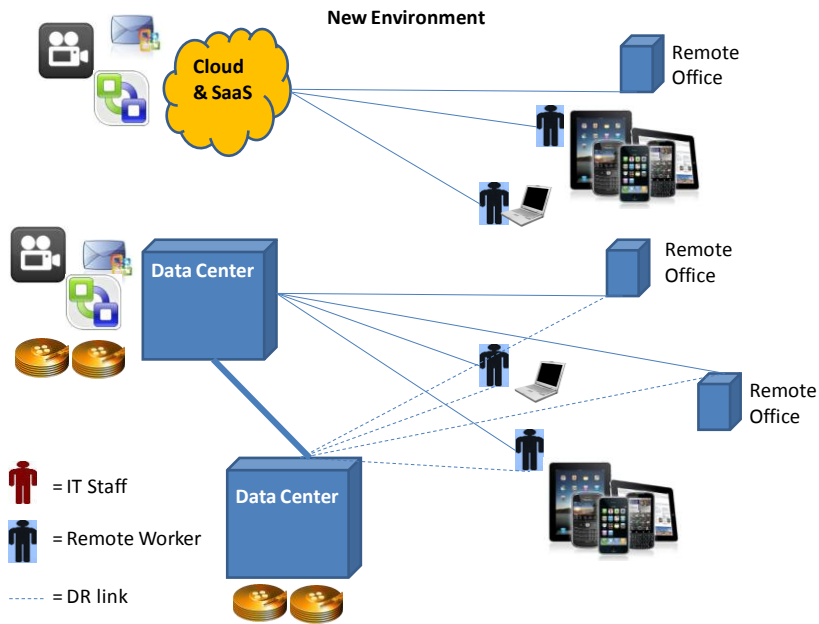
- Increasing consumerization of IT.** Large organizations are embracing consumer devices like tablets and smart phones, using Internet services like Skype and Dropbox, and building applications that emulate social networking sites like Facebook and Twitter. This is one of the biggest and most disruptive forces for enterprise IT since server virtualization. What started as “bring your own device” has evolved to “bring multiple devices to work” as smart phones, tablet computers, and even personal PCs and Macs proliferate in the work place. Enterprise IT organizations are finding that many employees prefer to conduct business activities over a smart phone or tablet and the businesses themselves are leveraging social media outlets like Facebook, YouTube, and other rich media content sites to increase awareness and brand as well as educate and sell solutions.

## New Criteria

In order to ensure the success of these new initiatives, IT organizations need to provide a good user experience. In all these cases, that experience will be directly related to performance. There is, however, a new set of criteria that must be evaluated to support these new initiatives—criteria that goes beyond TCP/IP acceleration between data centers and remote offices. Indeed, the future data center environment will look more like the one depicted in Figure 5, with remote users leveraging new applications, videos, VoIP, and virtual desktops hosted in data centers or cloud/SaaS environments from remote offices *and* on mobile PCs and devices.

The desired end state for the business is to create an environment that will drive more productivity, enable higher levels of collaboration (with partners and customers), and ultimately increase agility and responsiveness to the needs of the business. In order to enable that, IT needs to reconsider the criteria for evaluating WAN optimization technologies.

Figure 5. New WAN Optimization Environment



Source: Enterprise Strategy Group, 2011.

Moving forward, organizations need to consider a number of new criteria that will change WAN architectures and WAN optimization requirements:

Table 1. New Criteria

Problem	Criteria	Evaluate
Rapidly growing data stores	Scalability	Understand capacity limits and effective deduplication and compression ratios to enable effective backup and replication environments.
Access to one end of the wire as in SaaS or cloud applications	Asymmetric acceleration	Optimization capability with access to only one endpoint.
Direct access to Web or SaaS applications from remote offices or mobile devices	Security	Firewall capabilities? This is most important for asymmetric environments.
Trying to reduce the amount of hardware at a site or can't deploy any hardware	Virtual appliances	Can the technology be deployed as a virtual appliance? Does it have the same capabilities as the physical appliance? If not, is it an acceptable tradeoff?
Distribution of rich video media to constituents	Support for video	What specific protocols are supported? Does the vendor offer repositioning of video and multicast capabilities?
Mix of applications delivered over the network with uneven bandwidth distribution	Application awareness	Can the technology differentiate corporate applications and web content? Is there QoS capabilities to ensure back up apps and SharePoint have priority over YouTube?
Effective desktop virtualization roll outs	Desktop virtualization support	Does the technology support leading desktop virtualization protocols like ICA and PCoIP?
Running out of IP addresses	IPv6	Does the technology support IPv6? If so, to what extent? Full support? Tunneling?
Conducting business remotely or with smart phones and tablet PCs	PC, MAC, & mobile device	Learn how to support mobile devices, starting with PCs and MACs and then other devices. This is still new and may be a roadmap item for many.

Source: Enterprise Strategy Group, 2011.

## Next Steps

So how do organizations determine how next generation WAN optimization solutions can best help them achieve their objectives? Their IT organizations must:

- **Educate the entire organization on new WAN optimization capabilities.** In many instances, WAN optimization knowledge is limited to the network group. That needs to change. Organizations need to educate application owners, executives, marketing, and services teams about new capabilities and how they could be leveraged to improve services to employees, partners, and customers.
- **Determine alignment with ongoing or planned initiatives.** Most WAN optimization deployments have been reactive: employees complain about poor performance from remote locations and IT deploys technology to solve those point problems. Given all the rapid changes occurring in the IT landscape, it makes sense to take a more proactive and holistic approach to WAN optimization. Organizations need to review planned initiatives with an eye on optimization and determine opportunities prior to deploying. This should also help to accelerate adoption of new initiatives as it avoids performance problems.
- **Evaluate existing WAN optimization vendors for completeness against criteria.** This is an important step as not all vendors will support all capabilities, so organizations need to prioritize requirements and determine which vendors best fit their specific environment and initiatives. This should include not only current initiatives, but also near term goals. For example, if you are planning on deploying SaaS or cloud applications, asymmetric optimization and firewall capabilities may be very important.
- **Look for proven solutions.** There are a number of WAN optimization solutions available today, so organizations must also consider a vendor's history in this space, the percentage of its business that comes from WAN optimization, and its commitment to the continued development of this technology. Talking to customers is also a good way to learn about a product, so organizations should engage them and ask about other vendors they evaluated. As with any rapidly changing market, don't blindly vote with brand because a better fit may be overlooked. Lastly, engage in a proof of concept to validate vendor claims about their technology in your specific environment.

## The Bigger Truth

A competitive global market requires businesses to react in a timely manner. Supporting an increasingly distributed workforce and consolidated data center environments, the network is playing an increasingly important role. Add VoIP and video communications, and cloud and SaaS computing models, and the network becomes an absolutely critical component. But just having a network isn't enough: in order to be successful, network traffic needs to be optimized to provide enhanced performance, which in turn improves productivity, collaboration, and even revenue.

There are a number of WAN optimization vendors in the market, each with their own unique features and capabilities. Every organization should be able to find a best fit for their environment. Blue Coat is one such vendor that has continued to innovate and adapt its technology to enable organizations to accelerate key business initiatives with their WAN optimization solutions. Its current offerings are well aligned with many of the critical VoIP, video, and SaaS initiatives businesses are rolling out and, as such, should be on the short lists of vendors for evaluation.

Next generation WAN optimization solutions can help organizations with more than just TCP/IP connections to remote offices. In particular, ESG research indicates that a number of key enterprise initiatives involving video, SaaS/cloud applications, and desktop virtualization will, due to either latency sensitivity or security issues, have the potential to create significant challenges. Therefore organizations should make sure they fully understand how enhanced WAN optimization technologies can increase the odds of a successful deployment and accelerate the adoption rates of key business initiatives. To accomplish this, organizations need to treat WAN optimization as a strategic technology with enterprise wide capabilities and not as a tactical problem solver for remote office connectivity.



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