



Network Applications and the Impact on Corporate WANs

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Introduction

Enterprises expect more from their communications networks than ever before.

Today's Wide Area Networks, in fact, often function as the central engine that drives an organization's daily operations, as well as its success. Increasingly, IT planners need to design Wide Area Networks around the requirements of the applications that run over the network. For IT departments

already constrained by shrinking budgets and resources, the pressures are enormous.

This eBook examines the expanding requirements for Wide Area Networks (WANs), and why IT departments gravitate towards specific WAN solutions to meet the growing demands of applications. In addition, the paper outlines the measures organizations can take to maximize WAN performance across their network.

An Appetite for Apps

Corporate networks now enable every form of critical business communication—including voice, email, video, web and mission-critical applications. Consequently, network administrators need to be extremely savvy about how they balance user, departmental and applications requirements. Some examples of real-time applications considered essential to business operations and revenues are Voice over IP (VoIP); interactive business applications such as videoconferencing, financial trading, teleradiology, point-of-sale software, and online buying networks; company websites for customers (extranets) or employees (intranets); and for some companies: email.¹

Besides the need for real-time business applications, there are other challenges as well. Today's IT professionals realize that business applications are increasingly being pushed away from functioning within the enterprise network and into the

[Internet] cloud.² This is a reality in today's business world, despite the skeptics who consider cloud-computing a mere passing trend. As more young professionals enter the workforce, they create demand for the same interactive capabilities in the business environment that they used growing up—namely online collaboration experiences, social media networking, mixed-media websites and Software as a Service (SaaS)/cloud-computing applications. Combine these expectations with the knowledge that enterprise IT departments are moving many business software functions to SaaS and cloud-computing software, whenever possible, for cost reasons. Together all of these elements drive demand for virtualized applications that are easier and less expensive for IT departments to develop than having to build infrastructures that support applications on a desktop-by-desktop basis.

¹ IDC, User Survey Analysis, 2009

² Gartner, Magic Quadrant, 2009

The Popularity of Cloud-Computing Applications

When asked how organizations are currently using cloud offerings, 51% of respondents say that they are running applications using a Software as a Service (SaaS) model.

Here's how the same respondents rate their current use of cloud offerings:

Type	Currently using or implementing
Application platforms and development software (web servers, design tools)	34%
Collaboration tools (wikis, web conferencing)	50%
Enterprise application software (CRM, ERP, Supply chain, BI)	35%
Personal productivity software (word processing, Email, spreadsheet)	23%
Utilities/management software (anti-virus, spam filters, desktop management)	33%
Networks	27%
Servers	32%
Storage	31%

Source: CIO Research, IT Leaders, Cloud Computing Survey: October 21, 2008

Industry analysts at IDC predict that, worldwide, the SaaS applications market will grow to \$40.5 billion by 2014 at a compound annual growth rate of 25.3%. By 2014, IDC forecasts that as much as 34% of all new business software purchased will be consumed via SaaS applications.³

Compounding the use of cloud-computing business applications is the adoption of social media as a business communications strategy. A recent study of Fortune Global 100 companies revealed that 79% of the top 100-ranked companies use at least one of these social media platforms to engage with prospects and customers: Twitter, Facebook, YouTube or corporate blogs.⁴ In addition, business-to-business marketing spending is on the rise for social media, jumping from 6.5% to 11% over the past year.⁵

Regardless of why businesses are adopting so many web-based applications and tools, all enterprise IT departments share some common concerns. These applications must be networked across a wide geographic area, requiring even greater security, “always-on” availability and special priority routing to reach user groups quickly.

Furthermore, these concerns are not only true for big business. Organizations such as educational institutions, government agencies and healthcare system communities with large campus-style environments share similar networking requirements—perhaps even more so due to the volume of applications required by their users.

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³ IDC Study: Worldwide SaaS 2010-2014 Forecast: Software will never be the same. June 2010

⁴ Burson-Marsteller Evidence-Based Communications Group, Global Social Media Survey, Feb 2010

⁵ CMO Survey, Duke University, Fuqua School of Business and American Marketing Association, February 2010

IT Departments Face Multiple WAN Challenges

Universal Considerations

Further complicating the surge in new applications is the fact that more users want to connect to the corporate network using all kinds of devices—from smart phones to laptops to desktops. The advent of multiple networked end-user devices makes it more difficult for IT professionals to juggle connectivity access types, the end user's need for rapid access to the network, and the organization's need for complete security and privacy of confidential information. Also looming large in the minds of networking professionals are ongoing requirements for disaster recovery and business continuity, as well as right-sizing capacity and performance of the overall enterprise-wide network.

Cost-Cutting Measures

Finally, against the backdrop of all other necessities are constant mandates by senior management to do more with less in terms of IT resources—to save costs by combining network technology platforms, access lines, and applications—and by gradually upgrading from legacy networking services. Enterprise IT departments are consistently seeking ways to simplify network operations, administration and expenses across the board, particularly in a struggling economy.

Fortune Global 100 Companies' Use of Social Media

Type	Currently using or implementing
Have active Twitter accounts	65%
Have Facebook fan pages	54%
Have YouTube video channels	50%
Have corporate blogs	33%

Takeaway	Use
Use at least one of the main social platforms to communicate with customers	79%
Use all four of the main platforms (Twitter, YouTube, Facebook and blogs)	20%
Update and engage with customers on their Twitter account per week	82%
Average number of posts to Facebook page per week	3.6
Number of videos uploaded to a YouTube account every month	10

Source: Burson Marsteller Evidence-Based Communications Group, Global Social Media Survey, Feb 2010

Common Objectives of WAN Services

WAN planners are looking for a common set of fundamental objectives for their networks that typically include many of the following goals:

- Simplify communications by converging applications onto a single network
- Adopt Voice over IP across the enterprise
- Extend metro and local area networks as the business expands across the country or around the world
- Enable more web-based applications without sacrificing quality of essential communications
- Provide universal, 24/7 access for users, including traveling or remote users any way they want to access the network
- Migrate away from older infrastructure technologies such as Frame Relay and ATM to more technology and protocol-agnostic solutions
- Consolidate lines and equipment among fewer carriers using fewer, higher-speed connections that reach other locations using virtualization
- Increase network capacity and scalable, “right-sized” bandwidth
- Guarantee high performance for all users
- Better control all or parts of a network for special security reasons
- Protect route diversity and remote storage to assist with disaster recovery and continuity of operations plans
- Gain better visibility into how applications perform over the network
- Stretch existing IT resources and make the most of staff expertise
- Provide universal site-to-site connectivity and consistent, company-wide services

One of the common objectives of WAN services is to gain better visibility into how applications perform over the network.

In addition, how IT professionals set up priorities to optimize the performance of applications over the WAN is paramount to WAN functionality.

Optimizing the WAN for Application Performance

Network professionals can further WAN Optimization through Application Performance Management software that enables more informed decision making concerning network performance, applications analysis and VoIP readiness and performance. Application Performance Management tools help enterprises pinpoint when to make changes in bandwidth requirements and Class of Service settings to improve end-user experiences; decrease operational costs by making the most of investments in network, applications and VoIP infrastructure; and gain the insight needed to successfully introduce new business applications and improve productivity.

Furthermore, an organization's choice of Wide Area Network services draws on how well individual solutions meet all or some of the common objectives for the WAN. In most cases, enterprises have a mix of WAN services that include true network-based VPN services as well as point-to-point Private Line services. In this way, enterprises often make the most of user and application needs, as well as cost, performance and scalability.

Many enterprises rely on a number of infrastructure technologies, as they may be still in the process of migrating from older WAN designs over time. Companies that have parts of their networks operating at different network layer platforms may need to evaluate support for more than one type of protocol, locations with dissimilar connectivity and user access requirements, and a plethora of application requirements. As a result, there is no *“one-size-fits-all”* WAN solution.

When considering any WAN solution, designers should analyze applications, locations, users and their needs for access from networked devices, bandwidth costs, speeds, connectivity options, security, performance, scalability and flexibility. Network professionals must consider the most efficient ways to interconnect locations and users to share computer networking resources—and make the most of existing infrastructures, equipment and personnel.

Summary

As more companies seek to converge previously separate voice, data and Internet networks onto a single platform, network administrators must think beyond basic connectivity of physical sites—and better evaluate how to deliver escalating numbers of applications to user groups wherever they are located. What's more, with increasing volumes of traffic moving over the network, it's more important than ever for network professionals to gain better control over the security and performance of applications and distinct user domains.

XO Communications is a leading nationwide provider of advanced communications services and solutions for businesses, enterprises, government, carriers and service providers.

XO customers include more than half of the Fortune 500, in addition to leading cable companies, carriers, content providers and mobile network operators. Utilizing its unique combination of high-capacity nationwide and metro networks and fixed wireless capabilities, XO offers customers a broad range of managed voice, data and

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