The 2014 State of the WAN Report

Ashton, Metzler
& Associates

Leverage Technology & Talent
for Success

Executive Summary

The goal of this report is to identify the current state of the WAN. That includes identifying:

- The key focus of the WAN relative to supporting applications;

- The role that the WAN plays relative to enabling business managers to achieve their strategic goals;

- The shift and the growth in the use of WAN services; and

- The expected change in WAN budgets.

In November and December of 2013, a survey was administered to more than 200 IT professionals[1]. Throughout this report, the IT professionals who responded to the survey will be referred to as *The Survey Respondents*. The key findings of the survey include:

- The vast majority of respondents claim the most important factors impacting the WAN are improving application performance in general (42%) and providing better support to real-time applications in particular (32.4%).

- Prioritizing business-critical application traffic is as important to IT organizations as is increasing security. Supporting mobile workers (29.5%) and increasing availability (26.1%) are also very important.

- Roughly two-thirds (67.7%) of IT organizations currently either don't prioritize applications or they only prioritize applications in a static manner.

- 86.5% of respondents say their WAN negatively impacts business-critical applications either occasionally or frequently.

- The two primary concerns that IT organizations have with the use of MPLS are cost (43%) and uptime (23.7%) and that the two primary concerns that IT organizations have with the use of the Internet are security (26.6%) and uptime (28%).

The Focus on Applications

The Survey Respondents were asked to indicate three factors that would likely have the most impact on their WAN over the next 12 months. The factors that were mentioned most frequently are shown in Table 1.

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[1] 75.9% of the survey respondents were from North America. The remaining respondents were from the rest of the world. 87.9% of the respondents worked in companies with 100 or more employees.

Factor	Percentage of Respondents
Improve application performance	42.0%
Support real-time applications such as voice and/or video	32.4%
Support mobile workers	29.5%
Reduce cost	29.0%
Increase availability	26.1%
Provide access to public cloud computing services	21.7%
Prioritize business critical application traffic	20.3%
Increase security	20.3%

Table 1: Factors Driving the WAN

There are a number of observations that can be drawn from Table 1 including:

- If you look at the first two entries in Table 1 as being very similar, then by a very wide margin the most important factors impacting the WAN are improving application performance in general (42%) and providing better support to real-time applications in particular (32.4%).

- Prioritizing business-critical application traffic is as important to IT organizations as is increasing security.

- While improving application performance is by far the most important factor impacting the WAN, a number of factors (e.g., supporting mobile workers, increasing availability) are also very important.

- Even though there are a large number of WAN-related challenges that IT organizations need to respond to, they also need to respond to the requirement to reduce the cost of the WAN.

As mentioned, the responses of The Survey Respondents highlighted the importance of prioritizing business-critical application traffic. Given the importance of that task, The Survey Respondents were asked to indicate the approach that their company takes relative to prioritizing applications that transit their WAN[2]. Their responses are shown in Table 2.

Approach	Percentage of Respondents
Today we don't make any attempt to prioritize applications	24.2%
Today we prioritize traffic in a static manner; e.g., voice is always the highest	43.5%

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[2] Multiple responses were allowed.

priority and it always gets a set amount of bandwidth	
Today we prioritize traffic in a dynamic manner; e.g., if a video conference is set up, we dynamically reduce the amount of bandwidth available to other applications	22.7%
Over the next year, we are likely to implement application prioritization in a static manner	9.7%
Over the next year, we are likely to implement application prioritization in a dynamic manner	15.0%
Don't know/Other	4.8%

Table 2: Approach to Prioritizing Applications

One conclusion that can be drawn from Table 2 is that roughly two-thirds (67.7%) of IT organizations currently either don't prioritize applications or they only prioritize applications in a static manner. Another conclusion is that over the next year roughly a quarter (24.7%) of IT organizations will likely implement application prioritization and the majority of these organizations will do so in a dynamic manner.

In order to understand why it is so important to IT organizations to improve application performance, it helps to understand the impact of poor application performance. To get that understanding, The Survey Respondents were given a number of possible ramifications and were asked to indicate the two that best describe the ramification to their company if one or more of their business-critical applications aren't performing well. Their responses are shown in Table 3.

Ramification	Percentage of Respondents
The CIO gets pressure from their boss or from the related business unit manager	44.4%
It tarnishes the reputation of the IT organization	43.5%
The company loses revenue	38.2%
The company may not be able to make regulatory requirements	14.0%
The company loses customers	13.0%
The company receives negative publicity in the press	7.2%

Table 3: Impact of Degraded Performance

One way to put the data in Table 3 into a business-relevant context is to focus for a moment on the ongoing requirement for IT organizations to better align their activities with the goals of the company's business unit managers. While it can be difficult to fulfill that requirement, the ramifications listed in Table 3 (i.e., cause the company to lose

revenue and customers, be unable to make regulatory requirements) are clearly examples of how to not align the activities of the IT organization with the goals of the company's business unit managers.

Given the significant impact that occurs when the performance of one or more of a company's business-critical applications degrades, The Survey Respondents were asked to indicate how often on average their company's WAN, either due to an outage or lack of performance, causes one or more of their company's business-critical applications to not perform well for at least some of the users of those applications. Their responses are shown in Table 4.

Frequency	Percentage of Respondents
Never	10.6%
Once or twice a year	43.0%
Once or twice a quarter	29.5%
Once or twice a week	14.0%
Don't know/Not applicable	2.9%

Table 4: Number of Business Impacting WAN Incidents

The data in Table 4 depicts a very wide range in terms of how often a company's WAN causes one or more of their business-critical applications to not perform well. On one hand, Table 4 shows that for roughly one IT organization out of ten (10.6%), the WAN never negatively impacts business-critical applications. On the other hand, Table 4 also shows that for roughly one IT organization out of seven (14.0%), the WAN negatively impacts business-critical applications tens of times a year. For the bulk of the companies (86.5%), their WAN negatively impacts business-critical applications either occasionally or frequently. On average[3], there are 14 WAN-related incidents a year that negatively impact one or more of a company's business-critical applications.

The Strategic Nature of the WAN

Few, if any, organizations could perform even basic business functions without a WAN. The fact that a typical organization needs a WAN in order to function means that the WAN is critical to business continuity. However, so are utilities, such as electricity and water, but no organization believes that electricity or water helps them achieve their business goals. This raises the question: Are WANs regarded as providing organizations with a strategic advantage?

To answer this question, The Survey Respondents were asked to indicate how their company's senior business managers regard their company's WAN. Are they aware of it? Do they regard the WAN as being strategic to them achieving their business goals? Do

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[3] The answers of "Don't Know/Not Applicable" were ignored. Answers of one or two times a year were counted as 1.5 times a year; answers of one or two times a quarter were counted as 1.5 times a quarter; answers of one or two times a week were counted as 1.5 times a week.

they support the need for more funding for the WAN? Their responses are shown in Table 5.

Regard by Business Managers	Percentage of Respondents
For the most part, they are unaware of it	9.7%
They regard it as important, but the level of importance that they see doesn't usually translate into their support for additional funding	19.3%
At least sometimes they regard the WAN as being strategic to their business goals and so they sometimes support the need for additional funding	22.2%
They often regard the WAN as being strategic to their business goals and so they often support the need for additional funding	20.3%
They usually regard the WAN as being strategic to their business goals and so they usually support the need for additional funding	24.2%
Don't Know/Other	4.3%

Table 5: How the WAN is Regarded

There are a number of observations that can be drawn from Table 5 including:

- Less than one company out of ten (9.7%) are the company's business managers generally unaware of the WAN.

- The most common situation is that a company's business managers (24.2%) usually regard the WAN as being strategic to their business goals and so they usually support the need for additional funding.

- In two-thirds of companies, the business managers sometimes, often or usually regard the WAN as being strategic to their business goals and when they do they support the need for additional funding.

WAN Services and Traffic Volumes

The Survey Respondents were asked to indicate the percentage of the total volume of their company's WAN traffic that currently runs over MPLS, the Internet and other WAN services, such as ATM and/or Frame Relay. Their responses are shown in Table 6.

	MPLS	Internet	Other WAN Service
None	23.2%	4.3%	29.0%
1% to 20%	14.5%	30.0%	31.4%
21% to 40%	9.2%	21.7%	8.2%
41% to 60%	12.1%	14.0%	5.8%
61% to 80%	16.9%	9.2%	4.3%
81% to 100%	19.3%	17.9%	4.3%
Don't Know/Not Applicable	4.8%	2.9%	16.9%

Table 6: Current WAN Traffic by Service

Some of the conclusions that can be drawn from Table 6 include:

- The use of other WAN services is notably less than the use of either MPLS or the Internet.

- While it is somewhat common to find organizations that make no use either of MPLS or of other WAN services, it is rare to find an organization that makes no use of the Internet.

- More than 50 percent of IT organizations use the Internet to carry between 1% and 40% of their traffic.

The Survey Respondents were also asked how much of a change their company will make over the next year in terms of the volume of WAN traffic that runs on each WAN service. Their responses are shown in Table 7.

	MPLS	Internet	Other WAN Service
Down by more than 25%	4.3%	1.0%	6.8%
Down 1% to 25%	7.7%	5.3%	10.6%
No Change	35.3%	35.3%	41.5%
Up 1% to 25%	24.2%	33.8%	11.6%
Up 26% to 50%	5.3%	9.7%	2.9%
Up by 50% or more	6.8%	4.8%	0.5%
Don't Know/Not Applicable	16.4%	10.1%	26.1%

Table 7: Anticipated Change in WAN Traffic by Service

Some of the conclusions that can be drawn from Table 7 include:

- The most likely WAN service to experience a reduction in traffic is the catchall category: other WAN services.

- The use of the Internet will grow more than the use of MPLS, and the use of each of these services will grow significantly more than the use of other WAN services.

- More than 50 percent of IT organizations expect to have either no growth or modest growth (i.e., between 1% and 25%) in their WAN traffic.

Given that MPLS and the Internet are currently the most popular WAN services and that the use of these services will increase significantly more than the use of other WAN services, The Survey Respondents were asked to indicate the two primary concerns that they have with each of these services. Their responses are shown in Tables 8 and 9.

	Most Important Concern	Second Most Important Concern	Combination of Most and Second Most
Cost	43.0%	14.0%	57.0%
Uptime	23.7%	17.4%	41.1%
Latency	10.1%	21.3%	31.4%
Lead Time to Implement New Circuits	7.2%	20.3%	27.5%
Security	7.7%	10.6%	18.3%
Lead Time to Increase Capacity on Existing Circuits	3.9%	10.1%	14.0%
Packet Loss	2.9%	3.9%	6.8%
Jitter	1.4%	2.4%	3.8%

Table 8: Primary Concerns with MPLS

	Most Important Concern	Second Most Important Concern	Combination of Most and Second Most
Security	26.6%	21.3%	47.9%
Uptime	28.0%	18.8%	46.8%
Latency	16.4%	21.3%	37.7%
Cost	17.9%	15.0%	32.9%
Packet Loss	4.3%	12.1%	16.4%
Lead Time to Increase Capacity on Existing Circuits	1.4%	4.8%	6.2%
Lead Time to Implement New Circuits	2.4%	2.4%	4.8%
Jitter	1.4%	2.9%	4.3%

Table 9: Primary Concerns with the Internet

The data in Tables 8 and 9 indicate that the two primary concerns that IT organizations have with the use of MPLS are cost (43%) and uptime (23.7%) and that the two primary concerns that IT organizations have with the use of the Internet are security (26.6%) and uptime (28%).

The Survey Respondents were given a set of applications and were asked to indicate which two applications were driving the biggest increase in their MPLS traffic and in their Internet traffic. Their responses are shown in Tables 10 and 11.

Application	Biggest Driver	Second Biggest Driver	Combination of Biggest and Second Biggest
Don't Know/Not Applicable	17.9%	21.3%	39.2%
Enterprise Applications; e.g., CRM, SCM and ERP	21.7%	11.1%	32.8%
Voice	14.0%	15.5%	29.5%
Video	16.4%	10.1%	26.5%
Disaster Recovery/Business Continuity	9.2%	12.6%	21.8%
Public Cloud Applications and Services	9.2%	5.8%	15.0%
Support for Mobile Users	5.3%	9.2%	14.5%
Movement of Virtual Machines between Data Centers	2.9%	7.7%	10.6%
Virtual Desktops	3.4%	6.8%	10.2%

Table 10: Biggest Drivers of Increased MPLS Traffic

Application	Biggest Driver	Second Biggest Driver	Combination of Biggest and Second Biggest
Public Cloud Applications and Services	35.7%	20.8%	56.5%
Support for Mobile Users	22.7%	21.3%	44.0%
Enterprise Applications; e.g., CRM, SCM and	11.1%	14.0%	25.1%

ERP			
Video	10.6%	8.7%	19.3%
Disaster Recovery/Business Continuity	9.2%	7.7%	16.9%
Virtual Desktops	2.4%	8.7%	11.1%
Voice	4.3%	2.4%	6.7%
Don't Know/Not Applicable	3.9%	13.5%	6.7%
Movement of Virtual Machines between Data Centers	0.0%	2.9%	2.9%

Table 11: Biggest Drivers of Increased Internet Traffic

The data in Table 10 indicates that the primary class of applications driving an increase in MPLS traffic is enterprise applications (21.7%). This is followed closely by voice (14%) and video (16.4%).

The data in Table 11 indicates that the primary class of applications driving an increase in Internet traffic is public cloud applications and services (35.7%). This is followed by support for mobile users (22.7%). Enterprise applications are a distant third.

WAN Budgets

The Survey Respondents were asked to indicate how they expected their WAN budget would change over the next year. Their responses are shown in Table 12.

Amount of Change	Percentage of Respondents
Increased by more than 20%	4.3%
Increased by 11% to 20%	15.9%
Increased 1% to 10%	25.1%
Basically static	31.4%
Reduced 1% to 10%	7.7%
Reduced by more than 10%	6.8%
Don't know/Not applicable	8.7%

Table 12: Change in WAN Budgets

One conclusion that can be drawn from Table 12 is that of the choices given to The Survey Respondents, the most common scenario is that WAN budgets will remain basically static (31.4%). Another conclusion is that WAN budgets are more than three times as likely to increase (45.3%) as they are to decrease (14.5%).

Conclusions

From the perspective of the deployment of fundamentally new WAN services, the last decade has been very staid. However, as the survey results indicate, in the current environment, the role of the WAN is anything but staid. For example, while IT organizations are not focused on deploying any fundamentally new WAN technologies, they are focused on several WAN-related tasks, such as improving application performance, supporting mobile workers, providing access to public cloud computing services and, of course, reducing cost.

For the bulk of companies, their WAN negatively impacts the performance of business-critical applications either occasionally or frequently. When that happens it has a significant business impact, as it causes many companies to lose revenue, and it has a significant organizational impact, as it causes the CIO to get pressure from his/her boss or from the related business unit manager. One of the primary ways that IT organizations try to ensure acceptable performance for business-critical applications is by prioritizing traffic. Today, the majority of IT organizations implement some form of traffic prioritization, although most do it in a static manner. The use of traffic prioritization will increase over the next year and the majority of the new implementations will focus on dynamic traffic prioritization.

The vast majority of senior business managers recognize that, to at least some degree, their WAN is strategic to their business goals and as a result, on at least an occasional basis they support additional funding for the WAN. This recognition by senior business managers is in line with the fact that enterprise applications, such as CRM, are the leading drivers of increased MPLS traffic and one of the top drivers of the increase in Internet traffic.

By a wide margin, MPLS and the Internet are the two most common WAN services. While the use of both of these services is expected to increase over the next year, the use of the Internet will increase more than the use of MPLS services. The two primary concerns that IT organizations have with the use of MPLS are cost and uptime and the two primary concerns that IT organizations have with the use of the Internet are security and uptime.

A common mantra in the IT industry is "do more with less." In the case of the WAN, the most common scenario relative to WAN budgets is that they will remain basically static. The most common scenario relative to WAN traffic is that it will not change appreciably. Pulling these two scenarios indicates that an argument could be made that the correct mantra for the WAN is to "do about the same with about the same."