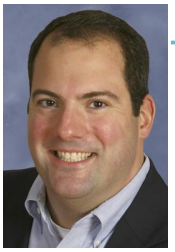
November 10, 2009

The Forrester Wave™: WAN Optimization, Q4 2009

by Chris Silva
for Infrastructure & Operations Professionals



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The Forrester Wave™: WAN Optimization, Q4 2009

Blue Coat And Riverbed Lead, With Expand And Cisco Close Behind

by Chris Silva
with Lauren E. Nelson and Simon Yates

EXECUTIVE SUMMARY

In Forrester's 65-criteria evaluation of wide-area network (WAN) optimization vendors, we found that Blue Coat Systems and Riverbed Technology lead the pack, in part due to the changes these vendors made over the past year through acquisition of complementary products. This year's analysis reflects emerging end user interest in WAN optimization use cases, such as the ability of the solutions to enhance virtualization performance, act as a platform for virtualization, and empower consolidation initiatives in branch offices. The diversity of vendors evaluated ranges from those with a strong focus on small, branch deployments, such as Expand Networks, to those with a strong focus on the data center, such as Silver Peak Systems, plus vendors that cover both ends of this spectrum, along with network equipment major vendors Cisco Systems, Juniper Networks, and F5 Networks. WAN optimization pure plays such as Blue Coat and Riverbed continue to provide strong technology offerings by developing their solutions further with the addition of application visibility, while vendors with a strong heritage in virtualization — such as Citrix Systems — are showing how their road maps include extending virtualization to their WAN optimization infrastructure while continuing to develop enhancements for virtualized client and application performance.

TABLE OF CONTENTS

NOTES & RESOURCES

Forrester conducted product demo evaluations in April 2009 and interviewed eight vendor and user companies: Blue Coat Systems, Cisco Systems, Citrix Systems, Expand Networks, F5 Networks, Juniper Networks, Riverbed Technology, and Silver Peak Systems.

Related Research Documents

"TechRadar™ For IT Infrastructure And Operations Professionals: Branch Office Technologies, Q2 2009"
May 26, 2009

"Emerging WAN Services: Look Before You Leap"
August 15, 2008

"Q&A: Is Mobile WAN Optimization Right For You?"
June 3, 2008

WAN OPTIMIZATION: CRITICAL FOR COST CONTROL, RELIABILITY, AND PERFORMANCE

Many companies today rely upon their WAN for the majority of their business-critical services. It connects applications and data to employees in branch offices, in home offices, or on the road, as well as partners and customers. Most companies understand that the WAN must be architected for high availability, but it inherently suffers from inadequate performance. Why? Latency and distance are closely linked, and when data and applications must travel across greater distances to users — not to mention a more diverse mix of networks — latency degrades performance. There are several business issues driving the adoption of WAN optimization:

- **Consolidating servers to cut costs.** In response to budgetary pressure, most organizations look to wring costs from their IT assets. This is old hat in the data center, of course, but in branch offices, which often account for about 20% of the infrastructure investment, a much higher percentage of cost may be associated with the operation of that gear.[1] Thus, consolidating servers out of the branch can reduce operating costs. However, this tactic only provides a benefit if data is delivered via a dependable, optimized WAN link to replicate performance of the same servers and data delivered across the local network.

- **Rolling out new collaborative applications.** Forrester continues to see clients push to use more collaborative communication tools like VoIP and IP-based video as a way to lower travel costs and support the distributed nature of teams today.[2] Inherently "live" in their performance, these applications require priority on network links, and, where possible, an ability to compress data for more efficient transport to combat WAN latency. Savings related to the increased use of these tools are quickly rendered moot if the performance of the network degrades user experience to a level that makes the tools unusable.

- **Delivering internal and external content.** Although internal collaborative applications like voice and video will see gains from network optimization in the short term, longer-term strategies from many of the same will lead to the creation of an internal content delivery network (CDN). This is an increasingly important capability, as companies replicate content such as video for training and development to large virtual desktop images across geographically diverse endpoints.

- **Improving business continuity and disaster recovery (BC/DR) processes.** Being able to failover seamlessly from one data center to another and to back up data in all remote locations is critical to evolving BC/DR plans — a top IT priority for IT in 2009.[3] However, this requires moving massive, multi-gigabit chunks of data across a WAN in real time.

In this economic environment, companies face tight IT budgets and are unable to increase their WAN capacity despite the growing workloads. Adding to this constraint is the fact that many organizations are starting to set up operations in overseas locations where talent and real estate are less expensive. Time to provision higher bandwidth links and the general availability of bandwidth are both issues with serious business implications. As one customer from a large Web services firm stated:

> "We don't get 100Mbit handoffs like they're free where we do business. Time to delivery is really the issue. We can't get the links upgraded in time to serve the business." (Anonymous client)

To ease network stress and to balance these heavy traffic loads, 35% of enterprises are either implementing or expanding their use of WAN optimization technology, according to Forrester research data.[4] WAN optimization enables companies to accommodate these initiatives by easing network stress and balancing traffic without the need to invest in more WAN capacity.

The Rise Of Application Delivery Solutions

WAN optimization appliances play a critical role in the ecosystem of application delivery technologies. Application delivery is the emerging category of devices that not only seek to take data off the wire through compression and deduplication but also use deep packet inspection to employ traffic intelligence at the application layer — commonly referred to as Layer 7 visibility — to more efficiently deliver data. This suite of technologies uses a series of techniques such as caching, protocol optimization, compression, traffic management/quality of service (QoS), and error correction in the optimization of WAN performance. None of these techniques alone can solve your WAN headache, but combining all five simultaneously means that you can apply the right optimization to the right application.

As a result, many of the vendors in this analysis have focused on improving their application intelligence either through acquisition or continued development of their technology. Vendors are branding solutions as "application delivery" controllers, networks, or solutions as a result of the expanded set of functionality that comprises their solution, a key component of which is the WAN optimization appliance.

WAN optimization improves application performance by:

- **Increasing effective throughput.** WAN optimization appliances use advanced caching and compression techniques to overcome the limitations of low bandwidth links. By leveraging storage capacity on either end of the link for data indexing and deduplications, only the absolute minimum of bits are transferred across the WAN — often providing a 10x to 100x increase in effective throughput.[5] WAN optimization can also provide QoS and traffic management techniques to guarantee bandwidth allocation for mission-critical applications and prevent rogue applications from consuming precious throughput.

- **Mitigating high latency.** The larger issue facing WAN performance is not bandwidth but latency — the delay in transmitting data across the link as applications compete for constrained network resources. A good WAN may only have 80 milliseconds (ms) of latency, but many international networks suffer from more than 200 ms of latency, and satellites can be an unbearable 600 ms. WAN optimization helps by applying the techniques of: 1) caching, which

eliminates unnecessary trips across the WAN by storing data locally; 2) protocol optimization and error corrections, which remove "chattiness" in inefficient protocols like Common Internet File System (CIFS), Messaging Application Programming Interface (MAPI), and Transmission Control Protocol (TCP); and 3) traffic management, which prioritizes high-value traffic and avoids queuing delays.

- **Providing visibility into the traffic mix.** In addition to leveraging Web-based versions of enterprise software — the so-called "Webified" versions of SAP and other applications that may carry a performance hit — many organizations have more applications in contention for bandwidth, many of them external. Providing visibility into the traffic mix allows IT to implement policies for the treatment of application traffic, capping bandwidth for potentially business-detrimental applications such as Web-based video (e.g., Vimeo, YouTube) while accelerating business-critical application traffic. This visibility is a new facet of some vendor offerings in the WAN optimization space that provides a long-term benefit beyond just controlling bandwidth consumption, but providing intelligence to automatically create selective application traffic policies.

WAN OPTIMIZATION EVALUATION OVERVIEW

To assess the state of the WAN optimization market and see how the vendors stack up against each other, Forrester evaluated the strengths and weaknesses of the top eight WAN optimization vendors.

Evaluation Criteria Focused On Overall Optimization Architecture, Strategy, And Presence

After examining past research, user need assessments, and vendor and expert interviews, we developed a comprehensive set of evaluation criteria. We evaluated vendors against 65 criteria, which we grouped into three high-level buckets:

- **Current offering.** To assess product strength, we evaluated each offering against eight groups of criteria: product portfolio; architecture; optimization techniques; application-specific optimizations; manageability and usability; scalability; reliability; and monitoring and reporting.

- **Strategy.** We considered how well each vendor's plans for product and portfolio enhancements position it to meet future demands from companies and, furthermore, the financial resources the company has to support its strategy, both product and corporate. We looked at the company resources dedicated to WAN optimization and at how the vendor prices its product to compete in this market.

- **Market presence.** To establish a product's market presence, we combined information about each vendor's installed base, revenues (overall and product), services, employee numbers, and partnerships.

Evaluated Vendors Offer A Full Suite Of Optimization Techniques

Forrester included eight vendors in the assessment: Blue Coat Systems, Cisco Systems, Citrix Systems, Expand Networks, F5 Networks, Juniper Networks, Riverbed Technology, and Silver Peak Systems. Each of these vendors has (see Figure 1):

- **Technology.** These are vendors with products designed for bandwidth reduction and application visibility to drive stronger performance on the WAN links between data centers, branch offices, and product sites.
- **Optimization for multiple traffic types.** They offer optimization of multiple, specific, traffic types including, but not limited to, Common Internet File System (CIFS), Independent Computing Architecture (ICA), Messaging Application Programming Interface (MAPI), Network File System (NFS), Radio Data System (RDS), and Transmission Control Protocol (TCP).
- **Client interest.** We have received at least three client inquiries on each vendor in a six-month period.

Figure 1 Evaluated Vendors: Product Information And Selection Criteria

Vendor	Product evaluated	Date evaluated
Blue Coat Systems	Proxy SG, PacketShaper	May 2009
Cisco Systems	Wide-Area Application Services (WAAS)	May 2009
Citrix Systems	Branch Repeater	May 2009
Expand Networks	Expand Accelerator/Virtual Accelerator	May 2009
F5 Networks	BIG-IP product family	May 2009
Juniper Networks	WX/WXC	May 2009
Riverbed Technology	Steelhead appliances, Cascade	May 2009
Silver Peak Systems	NX series	May 2009

Vendor selection criteria
Technology. Vendors with products designed for bandwidth reduction and application visibility to drive stronger performance on the WAN links between data centers, branch offices, and product sites
Optimization for multiple traffic types. Offer optimization of multiple, specific, traffic types including, but not limited to, CIFS, Independent Computing Architecture (ICA), MAPI, NFS, Radio Data System (RDS), and TCP
Client interest. We have received at least three client inquiries on each vendor in a six-month period.

Source: Forrester Research, Inc.

EVALUATED WAN OPTIMIZATION PLAYERS ARE ALL LEADERS OR STRONG PERFORMERS

The evaluation uncovered a market in which (see Figure 2):

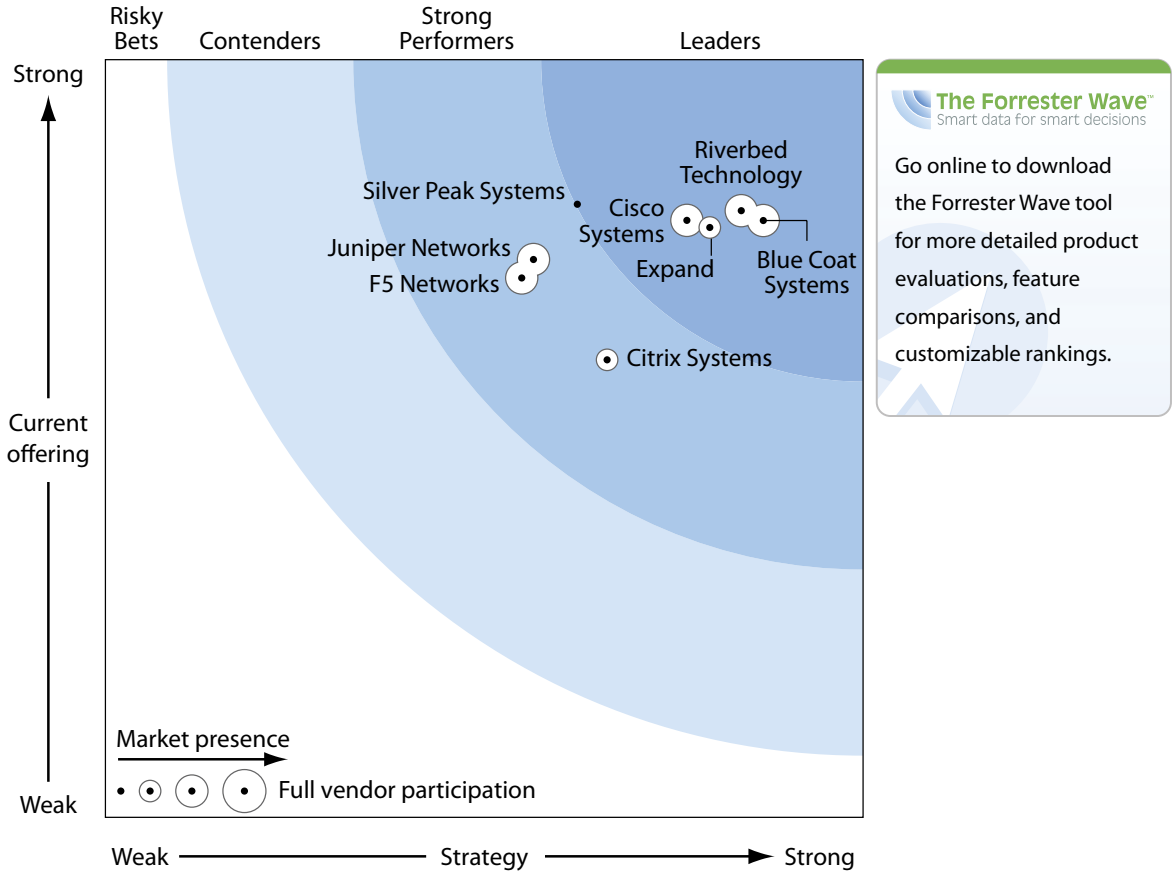
- **Blue Coat, Riverbed, and Expand lead the pack.** Two of the vendors in the Leaders pack have rounded out their solutions through the addition of intellectual property via acquisition: Blue Coat acquired Packeteer, makers of PacketShaper, and Riverbed acquired Mazu Networks. Riverbed and Expand have continued to develop products in the WAN optimization space, because the majority of the business for both firms is centered on this technology, while Blue Coat, also focused on security, has placed a majority of its marketing and development efforts behind WAN optimization over the past one to two years. Both firms have also focused on virtualization — either the delivery of traffic resulting from virtualization initiatives or the virtualization of systems on the appliance itself — to continue to add value to their solutions.

- **Cisco and Silver Peak offer competitive options.** Cisco and Silver Peak offer solutions for both the midmarket and the data center; however, it's in the data center that both shine in terms of the scale, redundancy, and data-intense traffic optimization they can provide. While the cost of solutions for the data center — and arguably the complexity thereof — is a world apart from smaller solutions designed for the branch, many key business processes that these types of environments host, from backup and replication to ensuring high availability of data stores, are critical components of large organizations.

- **Juniper, F5, and Citrix round out the evaluation.** Juniper and F5, players in the network space, each offer a compatible product that is designed for integration into a suite of tools for operating and managing an organization's network. The offerings from both Juniper and F5 are best deployed in concert with other technologies from these vendors and are ideal for implementations where an existing installed base of the respective vendor's product is in place. Citrix similarly offers a product in its Branch Repeater that is an integral part of a cadre of infrastructure and services from the vendor designed to work in concert with one another. With the recent announcement of a virtual offering of the Branch Repeater based on Xen hypervisor technology, Citrix provides a clear migration path for existing Xen-centric organizations to roll out WAN optimization without the need for a physical appliance, although physical models are currently offered.

This evaluation of the WAN optimization market is intended to be a starting point only. We encourage readers to view detailed product evaluations and adapt the criteria weightings to fit their individual needs through the Forrester Wave Excel-based vendor comparison tool. Specifically, various use cases will greatly affect the relative strengths or weaknesses of the vendor or vendors considered. This analysis is intended as a cross-scenario view of established vendors' appliance-based offerings and is not intended as an exclusive list of players in this space.

Figure 2 Forrester Wave™: WAN Optimization, Q4 2009



Source: Forrester Research, Inc.

Figure 2 Forrester Wave™: WAN Optimization, Q4 2009 (Cont.)

	Forrester's Weighting	Blue Coat Systems	Cisco Systems	Citrix Systems	Expand Networks	F5 Networks	Juniper Networks	Riverbed Technology	Silver Peak Systems
CURRENT OFFERING	50%	3.94	3.94	3.02	3.89	3.56	3.68	4.00	4.04
Product portfolio	5%	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Architecture	25%	4.40	4.60	4.15	4.60	2.15	4.05	4.60	3.55
Optimization techniques	20%	3.90	3.75	3.30	4.20	4.05	4.00	4.00	4.75
Application-specific optimizations	5%	3.10	4.50	1.90	2.60	3.30	3.90	4.80	2.90
Manageability and usability	10%	4.60	3.70	3.10	4.70	2.30	4.05	3.55	3.80
Scalability	15%	2.50	3.20	2.00	3.20	5.00	2.80	3.20	4.40
Reliability	10%	4.00	4.00	3.00	3.00	5.00	3.00	4.00	4.00
Monitoring and reporting	10%	4.20	3.10	0.70	2.70	3.20	3.00	3.20	3.70
STRATEGY	50%	4.35	3.84	3.31	3.99	2.15	2.83	4.20	3.12
Product strategy	50%	4.20	4.60	3.10	4.40	2.85	2.95	4.30	3.10
Corporate strategy	15%	5.00	1.50	1.50	4.75	1.50	2.00	5.00	4.50
Financial resources to support strategy	15%	5.00	4.00	4.00	3.00	0.00	4.00	5.00	3.00
Cost	20%	3.75	3.55	4.65	3.15	2.50	2.25	2.75	2.20
MARKET PRESENCE	0%	3.86	3.27	2.83	2.50	3.03	3.94	3.73	1.48
Installed base	15%	4.60	2.90	2.10	3.30	2.70	3.50	4.40	1.70
Revenue	30%	2.00	5.00	4.00	1.00	3.00	4.00	3.00	1.00
Revenue growth	30%	5.00	1.00	2.00	3.00	3.00	4.00	4.00	1.00
Services	10%	4.00	5.00	3.00	2.00	4.00	5.00	3.00	3.00
Employees	5%	3.30	4.70	2.30	2.00	2.50	4.30	3.30	1.30
Channel partners	10%	5.00	3.00	3.00	5.00	3.00	3.00	5.00	2.60

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

VENDOR PROFILES

Leaders

- **Blue Coat.** Blue Coat scored strongest among leaders in this analysis, a significant improvement from its 2007 ranking — with more than four appliances in its WAN optimization portfolio. The major change since the publication of our previous WAN optimization Wave was Blue Coat's acquisition of Packeteer, raising its capabilities in application visibility and intelligence at Layer 7. You'll find that Blue Coat is one of the most user-friendly offerings in this space,

with policy and configuration templates and wizards, device auto-discovery, automated device configuration, and an object-oriented or visual policy manager, along with a basic startup time of 66 seconds. Many of the advances in Blue Coat's management interface can be attributed to the development of its cross-product Blue Sky initiative, which is aimed at streamlining management and configuration interfaces and processes. Leveraging its PacketShaper product, Blue Coat allows for identification of applications, enhancing the visibility of traffic due to its ability to classify more than 600 applications along with the ability to add classifications for custom applications, defined by the administrator — making Blue Coat a clear leader in application visibility in the WAN optimization market. Like some of the other market leaders, Blue Coat receives top scores in storage architecture — with memory capacities ranging from 1 GB to 16 GB of RAM and disk capacities from 250 GB to 2.4 TB — and in optimization architecture — supporting three modes of transparency. However, Blue Coat falls short in session scalability, with a maximum number of concurrent users of 2,300. Blue Coat should also improve application-specific optimizations, by working directly with application vendors to test data backup and replication capabilities, and support additional optimization techniques controls and APIs for custom applications. Forrester anticipates the release of a virtual version of the Blue Coat appliance providing a greater number of deployment options.

- **Riverbed.** Riverbed and its 14 Steelhead WAN optimization appliances scored very close to the Blue Coat offering in the WAN optimization market this year. Similar to Blue Coat's acquisition of Packeteer, Riverbed enhanced its offering with application and network visibility enhancements through its acquisition of Mazu this year. Its current offering is among the strongest in the market, with superior mobile support on multiple Windows editions, a tunnel-less TCP proxy with selectable visibility for each port and networkwide, and sophisticated caching techniques such as deduplication of TCP traffic using data stores of previously seen traffic and peer information. Deduplication is cross-protocol and agnostic. However, Riverbed's strategy is what sets it apart from the rest of the vendors in this market, with 98% of all resources dedicated to WAN optimization. Riverbed customers can deploy any VMware VMDK-based image on Riverbed's products by way of the Riverbed Services Platform (RSP) — announced in 2009 — which then allows these virtualized applications to access traffic optimization via "taps" built into the RSP. Riverbed offers excellent throughput and the ability to scale 200 devices natively and can attain the Web Caching Control Protocol (WCCP) limit of 32 devices in a cluster. Considering the lack of client demand for additional clustering, it seems unlikely that Riverbed will prioritize increasing its clustering abilities. Riverbed should instead focus on improving its session scalability in order to continue to build the scale the vendor can offer in terms of concurrent connections. The vendor's support for mobile users may, in part, drive users' desire for larger concurrent session scale, especially with the recent announcement of a virtual version of its Steelhead Mobile Controller — used to terminate mobile optimization sessions — made possible via RSP.

- **Expand.** Expand, with nine physical appliances and an equal number of virtual versions of each, also joins the Leaders' pack in this Wave analysis, with the highest score in management and usability. Similar to Blue Coat, it offers configuration templates, interface and deployment wizards, autodiscovery, automated network learning, multiple template policies, and a total configuration time of 66 seconds, tying Blue Coat for appliance deployment time. Expand offers excellent support for virtualized environments and nontraditional deployment scenarios such as those dependent on satellite-based WAN links. The vendor has pursued multiple service provider partnerships in the satellite space. Expand has excellent optimization architecture — offering multiple levels of transparency with or without tunneling, including all-IP Layer 3 solutions and Layer 4 capabilities — storage architecture, client integration, and deployment architecture, earning it a top spot in current architecture offerings. Expand appliances can also define up to 1,000 individual applications and provides multiple performance reports, application reports, and summary.pdf reports. Improvements for other virtualization environments such as Microsoft Hyper-V are planned, continuing the vendor's focus on virtualization-centric deployments. To further improve its offering, Expand needs to increase its device scalability from the current clustering capacity of 32 accelerators via WCCP. It also needs to improve its monitoring integration and security and continue to develop its key technology partners. Forrester expects that, due to its size, Expand will continue to thrive in specific use cases and is not likely to take on the market presence of larger, more established rivals. Instead, the vendor will likely continue to gain business in areas where its technology is more apt to provide benefit, such as virtualization, satellite, and server-based computing environments.

- **Cisco.** Another leader in the WAN optimization market, Cisco offers eight products. The major change since our past analysis of the Cisco offering is the introduction of standalone WAN appliances from the blade-based product evaluated previously. The Cisco Wide-Area Application Services (WAAS) Central Manager (CM) supports up to 2,500 managed devices per node. Cisco provides a mobile client solution called WAAS Mobile, which supports Windows CE, 98, ME, 2000, XP, and Vista and is certified by Microsoft for interoperability. Cisco can support up to 1 Gbps throughput on a single WAAS device. Cisco currently offers the ability to virtualize Microsoft servers on its WAAS appliances — Windows on WAAS (WoW) — through the use of virtual blades. This virtualization will extend to WAAS modules in the future. Cisco has tested and validated the WAAS technology for interoperability with VMware View VDI platform. Additional support for better optimization of ICA, RDP, and other VDI-related protocols is currently planned. Even though Cisco scores low in focus, that should not be a significant deterrent for your WAN optimization selection given the amount of resources invested in WAN optimization in relation to its competitors — as shown in number of dedicated engineers and financial resources to support strategy. However, Cisco needs to work on improving its application visibility and application monitoring: Supporting only 150 traffic classifiers and not providing an observation mode are significant shortcomings in a market that is increasingly focused on application visibility.

- **Silver Peak.** Rounding out the Leaders' pack, the vendor has the strongest current offering, with top optimization techniques and monitoring and reporting. Silver Peak was an early adopter of onboard disk encryption (128 bit AES encryption). The vendor offers a robust appliance architecture designed on multi-CPU, multi-core, 64-bit AMD and Intel processor-based systems and based on Silver Peak's proprietary OS platform (64-bit Linux kernel). Silver Peak also has the second strongest all-around optimization techniques offerings, with protocol techniques such as CIFS acceleration, TCP acceleration, SSL, Brocade FCIP, UDP, MAPI, FTP, and NFS, as well as application classification (using stateful deep packet inspection), traffic shaping, policy enforcement, packet tagging/marking, capacity planning, path policies, optimization (by policy), QoS parameters, pass-through, drop traffic, and dynamic QoS. Although the vendor doesn't currently provide a mobile client option, the high availability configurations its gear is most often deployed into are not particularly centered on the optimization of the mobile user but rather on the processing of massive data payloads for backup, replication, and business continuity/disaster recovery scenarios. In addition, while scoring lower than many other vendors in deployment and average cost, it is worth noting that, due to the scale at which Silver Peak plays, a comparison of its products with lower-end, branch-centric offerings from other vendors is not entirely representative of a 1:1 product comparison.

Strong Performers

- **Juniper.** Juniper offers more than 10 appliances in its WX and WXC families of products. It offers a reasonable array of application-specific optimization techniques, with specific application layer optimization for Microsoft Exchange, Microsoft Windows file services, SSL encrypted applications, and Web-based applications (such as Microsoft SharePoint, EMC Documentum, Oracle, SAP, Siebel, and PeopleSoft), in addition to the default optimization for all IP-based traffic — both UDP and TCP. In addition to these optimization techniques, Juniper also offers FEC, content distribution, policy-based multipath routing, and simultaneous downloads. The vendor emerges as one of the strongest managed services options — working with seven service providers — a fact not surprising for a vendor with a strong carrier and service provider legacy. Although Juniper received the lowest score in the example scenario cost criteria, the vendor has updated pricing since the time of this analysis. It's also important to note that scenario and average pricing are based on MSRP and not street prices. Juniper offers a competitive price in large-scale deployments. Forrester would like to see this vendor join the ranks of some of its competitors in beefing up its baseline application identification, visibility, and intelligence, raising the number of identified applications from 52 (with extension possibilities up to 256) to more than 600 applications. Juniper also scores low on throughput, with only 45 Mbps on a single appliance, compared with the 1 Gbps and higher offered by other WAN optimization vendors. This lack of scale is likely to hurt the vendor in high availability data center type environments where it has commonly played for other elements in its product mix.

- **Citrix.** Citrix is another Strong Performer in the WAN optimization market, with outstanding optimization architecture, client integration, and mobile support for its nine available appliances. The vendor offers multiple models of its Branch Repeater product, which acts on traffic at OSI Layer 4 and above, that preserves all Layer 3 and Layer 4 network information to allow for routing and monitoring devices to act on traffic unobstructed — and this solution does not require tunneling or translation. Citrix also offers mobile support with the Citrix Repeater plug-in for use on Microsoft Windows 2000, XP, and Vista, which has been tested with Microsoft for interoperability. Citrix also offers the cheapest solution and one of the most affordable annual maintenance costs at 18% of the product list price. While the vendor is a leader in offering a virtual version of its product for Xen-based deployments, the larger management suite of features Citrix offers, such as application-specific architecture, monitoring and reporting, and reliability, push it lower in this ranking. Specifically, Citrix has no plans for integration into third-party management tools; reporting and identification of only up to 64 applications; and limited visibility, monitoring granularity, and appliance monitoring using SNMP tags, Syslog, and built-in graphic user interface (GUI) — giving it the lowest monitoring and reporting score among these vendors.

- **F5.** F5 offers 10 devices supporting WAN optimization and six modules adding the functionality to its infrastructure. F5 leads the pack in scalability and reliability — with no limit to the number of devices that can be clustered and no requirements for separate load balancers, as the optimization technology can be used as a feature on its BIG-IP products. F5 offers the ability to support 16 million concurrent connections and 12 Gbps of Level 7 throughput on some of its devices. F5 is also the only vendor with a top score in reliability — offering stateful failover, redundant power supplies, hot-swappable components, and redundant components such as drives, modular software, and a visual policy manager. However, F5 falls behind the pack in its current offering architecture, with low scores in appliance architecture, mobile support, and client integration. In all fairness, F5's strength allows it to play in large implementations where Application Delivery Controller solutions from the vendor employ its WAN optimization infrastructure as an integral component. As a result, F5 appliances are based on custom infrastructure architecture, including custom-designed ASIC components and proprietary operating systems and software on its infrastructure, instead of off-the-shelf hardware components with hardened Linux like other vendors in this space. This is critical for the scale and reliability that the vendor's products demand, but it doesn't lend it to playing a role in acting as a virtualization platform the way vendors such as Cisco and Riverbed can. While F5 does not offer a standalone client for the express purpose of acting as a standalone application for WAN optimization in the absence of a piece of hardware, the vendor does offer its Secure Access Manager (SAM) product that will offer integration of multiple optimization and security features in a single software client. Currently, the product is being repackaged for a launch later this year with a slightly different set of capabilities.

SUPPLEMENTAL MATERIAL

Online Resource

The online version of Figure 2 is an Excel-based vendor comparison tool that provides detailed product evaluations and customizable rankings.

Data Sources Used In This Forrester Wave

Forrester used a combination of three data sources to assess the strengths and weaknesses of each solution:

- **Vendor surveys.** Forrester surveyed vendors on their capabilities as they relate to the evaluation criteria. Once we analyzed the completed vendor surveys, we conducted vendor calls where necessary to gather details of vendor qualifications.

- **Product demos.** We asked vendors to conduct demonstrations of their product's functionality. We used findings from these product demos to validate details of each vendor's product capabilities.

- **Customer reference calls.** To validate product and vendor qualifications, Forrester also conducted reference calls with one of each vendor's current customers.

The Forrester Wave Methodology

We conduct primary research to develop a list of vendors that meet our criteria to be evaluated in this market. From that initial pool of vendors, we then narrow our final list. We choose these vendors based on: 1) product fit; 2) customer success; and 3) Forrester client demand. We eliminate vendors that have limited customer references and products that don't fit the scope of our evaluation.

After examining past research, user need assessments, and vendor and expert interviews, we develop the initial evaluation criteria. To evaluate the vendors and their products against our set of criteria, we gather details of product qualifications through a combination of lab evaluations, questionnaires, demos, and/or discussions with client references. We send evaluations to the vendors for their review, and we adjust the evaluations to provide the most accurate view of vendor offerings and strategies.

We set default weightings to reflect our analysis of the needs of large user companies — and/or other scenarios as outlined in the Forrester Wave document — and then score the vendors based on a clearly defined scale. These default weightings are intended only as a starting point, and we encourage readers to adapt the weightings to fit their individual needs through the Excel-based tool. The final scores generate the graphical depiction of the market based on current offering, strategy, and market presence. Forrester intends to update vendor evaluations regularly as product capabilities and vendor strategies evolve.

ENDNOTES

[1] The branch, which accounts for about 20% of the overall infrastructure in many businesses, can account for a large portion of capital and operating expense savings when consolidated. See the May 26, 2009, "TechRadar™ For IT Infrastructure And Operations Professionals: Branch Office Technologies, Q2 2009" report.

[2] While almost 60% of iWorkers report that most of their team members are in the same location, about 30% of team members work in other locations, and 12% work for another company altogether. What it means: Meeting technology must support cross-organizational meetings — for example, instant messaging and co-authoring must be possible across the firewall. See the September 9, 2009, "A Day In The Life Of A US Information Worker" report.

[3] Even in tough economic times, companies cannot delay efforts to prepare for disasters and other undesirable events that impact your ability to sustain IT operations. DR is no longer an expensive insurance policy for that catastrophic disaster that's never going to happen. Times have changed. Companies now recognize that it's not just catastrophic disasters they need to worry about but that even the most mundane threat can cause costly downtime. Downtime can impact not only revenue but employee productivity, customer satisfaction and retention, and corporate reputation. It's no surprise that according to 248 storage and disaster recovery decision-makers who responded to Forrester's Enterprise And SMB Hardware Survey, North America And Europe, Q3 2008, the cost of downtime and competition top the list of drivers for DR preparedness. See the March 20, 2009, "Inquiry Spotlight: Disaster Recovery, Q1 2009" report.

[4] This document gives highlights of an extensive data set collected across North American and European enterprises via our Enterprise And SMB Networks And Telecommunications Survey, North America And Europe, Q1 2009. Even given the current economic crisis, enterprises recognize the importance of network and telecommunications (N&T) products and services. What are the top investments and interest areas? Mobility, unified communications (UC), and managed services. A new addition to this survey includes questions about how economic conditions are affecting N&T spending, as well as where purchasing power lies within the IT organization for specific technologies such as UC, landline data, voice, and enterprise mobility. See the August 7, 2009, "The State Of Enterprise Networks And Telecommunications: 2009" report.

[5] Today, more and more protocols are being used that are in need of optimization: Microsoft SharePoint, Lotus Notes, and other collaboration assets like voice over IP (VoIP), and collaboration technologies such as IM, are increasingly critical elements of day-to-day tasks for more users. Whether it's a field service worker taking advantage of presence and IM tools to locate and confer with colleagues on a repair, or a traveling user logging in to an IP softphone to participate in a conference call from the road, network-dependent applications are critical business tools, not merely cutting-edge technologies. As a result, choosing a vendor for WAN optimization based on the current — and critical — application mix is a must. See the January 29, 2009, "Inquiry Spotlight: WAN Optimization, Q1 2009" report.

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