

Cisco and Akamai join forces to supercharge the branch office

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Cisco and Akamai have announced a joint offering based on the Cisco ISR-AX branch router with Akamai content-delivery services integrated into the product software, and the Akamai services available as a purchase option (a datacenter version is also available, but most use will be with branch devices). The joint offering integrates two different but complementary acceleration technologies - network optimization (WAN acceleration) and content placement and access optimization (CDN). It is packaged and delivered into a broadly used Cisco branch router platform.

The product addresses the growing importance of Wi-Fi access in public areas, and the speed and cost disparity between Internet access at home (e.g., with broadband cable service) and the bandwidth available in commercial branch locations such as retail stores (historically provided by MPLS services). The disparity is increasingly glaring in light of the adoption by many retailers of an 'omni channel' marketing strategy, and the growing number of other valuable corporate-branch and partner-ecology applications. When CDN services are used effectively, the in-store performance of a customer-facing website can be largely independent of the connectivity to a store, enabling a high-bandwidth, omni-channel experience long before adequate connectivity is available to all the branches of a distributed enterprise.

The partnership is adventurous for both companies. Akamai has experimented with various 'behind the firewall' extensions to its CDN system in the past, but never built on another vendor's product (Akamai had a similar partnership with Riverbed to provide optimized access to specific SaaS providers, but it didn't include integration with the CDN system). Partnering with Cisco seems like an excellent way of assuring that the required hardware is attractive to the target market and delivered by a vendor with worldwide logistics and support capabilities. It would be more typical of Cisco to provide the CDN service by itself (it certainly has the cloud-platform assets to do so). We see this as an intelligent partnering of complementary industry leaders (from both a technology and

market perspective), and hope they can sort out the predictable issues around 'who gets the credit (and money)' - which often makes this kind of partnership challenging.

The 451 Take

The Cisco Intelligent WAN with Akamai Connect is an important next step in the ongoing effort to make broadband wireless access widely available. The solution provides performance improvement that varies widely depending on the bandwidth economically available at the accelerated site and the specific use or content - there is ultimately no substitute for last-mile bandwidth. But in important specific uses such as immersive, multichannel retailing, the solution can provide intuitively unexpected performance improvements.

Context

The important elements of context that surround this offering are (1) the remarkable conversion to the use of smartphones and tablets; (2) the growing disparity between consumer bandwidth and commercial bandwidth; (3) the challenges of optimizing Internet performance; and (4) the increasing number of retailers that are incorporating a broadband Web or app experience as a key pillar in their marketing strategy, as well as the trend to adapt consumer-facing Web applications for branch point of sale.

Use of the Internet changed abruptly with the introduction and rapid uptake of the iPhone and iPad (and the other smartphones and tablets that quickly followed). The suitability of these devices for viewing high-resolution graphics and video drove the accelerated buildout of 3G and 4G cellular networks, and high-bandwidth, reasonably priced cable and fiber-based home broadband service.

In the US, average peak broadband bandwidth (the best metric for estimating the performance of the large file transfers that characterize these applications) has increased by roughly 30% YoY for many years, according to Akamai's State of the Internet reports, and exceeded 40Mbps by the end of 2013. As important, the percentage of US broadband connections that were in what Akamai calls the 'high category' exceeded 50% by the end of 2013. High-bandwidth home connectivity and the high-bandwidth applications it enables are clearly consumer-infrastructure reality in 2014.

Branch-access connectivity hasn't kept up with home connectivity for several reasons, including the cost of increasing the capacity of an MPLS connection (a very different cost improvement curve from consumer bandwidth), the legacy of backhauling Internet access to HQ, and the unavailability of consumer broadband options in many commercial locations. Ten years ago, home Internet DSL access was usually better than what was available at work; today, the disparity is even larger if you add a least-common-denominator requirement that applications be designed to the worst branch bandwidth so they work reasonably in all branches.

Mobile devices, broadband access and the shift of television viewing to these devices has prompted many consumer-facing businesses to rethink advertising and marketing strategies, and to increasingly leverage these new devices and usage modalities. Concurrently, many of those businesses are moving to omni-channel marketing strategies, where the consumer sees a coordinated set of experiences whether on the Web, using an app or in the store. In light of all of this, the growing disparity between home and retail bandwidth is increasingly a problem.

Finally, improving performance across the Internet is difficult, even with high last-mile bandwidth. There are many reasons for this, ranging from the nature of the protocols used (e.g., TCP/IP performance goes down with connection latency and packet loss) to the largely unmanageable BGP routing across the Internet, compounded by network operators' desire to optimize profitability (which leads to routing strangeness like 'hot potato' routing). There are no simple solutions available.

Technology

The Cisco Intelligent WAN with Akamai Connect is additional software for the Cisco ISR-AX Branch Router, coupled with services delivered from Akamai packaged as a one-time purchase option.

The product marries two quite different but complementary Internet acceleration technologies: WAN acceleration and content delivery. WAN acceleration optimizes the performance of a network connection by inserting devices into the connection that transform the content so redundant data isn't transmitted again, but instead reinserted from a copy stored at the receiving end. Content delivery improves Internet performance by caching commonly accessed content near the user, and serving it from that cache.

At first blush, these are very similar approaches. Both serve content when possible from a replica near the user, thereby eliminating the delay and cost of fetching it from the 'origin' server; instead serving it at high bandwidth essentially instantaneously from a locally cached copy. The overall performance improvement is determined by the 'hit ratio' of the cache - the percentage of content requests that can be satisfied locally.

A WAN acceleration cache benefits from the reuse of content, for example, when another user has fetched the content recently, but the improvement is limited by the number of concurrent users (the fewer users, the lower the chance that the content has been accessed recently), and by how the content is structured (the more personalized the content, the less likely the same content will have been accessed by another). WAN acceleration does the best it can, but is limited by the nature of the content and use.

The impact of CDN can be much higher because content can be pre-positioned in the cache (avoiding the need for another user to have fetched it recently), and because the content can be transformed or rewritten to have a higher hit ratio. Akamai already works with its CDN customers to maximize the performance of Akamai-served content, and automates the process when possible.

Marketing

The Cisco Intelligent WAN with Akamai Connect is jointly brought to market by Cisco and Akamai. Integration with Akamai Connect services is incorporated into the Cisco WAAS software. The product is positioned as an option for the Cisco Branch Router and WAAS appliances, and is sold and supported by Cisco, which is backed in both efforts by Akamai.

Competition

Cisco is a strong market leader in enterprise networking, including branch routers. It competes with WAN acceleration vendors that sell WAN technology separately from networking technology, including Riverbed, Silver Peak, Blue Coat and Citrix NetScaler. Akamai has a history of buying smaller competitors when they start to introduce significant sales friction.

Perhaps Akamai's most interesting competitor is CloudFlare, a DDoS protection service with caching services that is marketed bottom-up to smaller companies (with very good traction), while Akamai primarily markets top-down to larger enterprises. As virtualization penetrates branch-office architecture, there will be new solutions from systems vendors that integrate applications with communications technology, all running on commodity server platforms.

SWOT Analysis

Strengths

Weaknesses

Cisco is a global leader in communications equipment and has strong WAN acceleration technology; Akamai is the leader in Web-content delivery and optimized Internet connectivity.

Opportunities

The disparity between consumer residential broadband bandwidth and the bandwidth easily attainable in retail branch stores is unlikely to diminish any time soon, creating a strong opportunity for enabling immersive multichannel marketing, which this offering uniquely provides.

Although the offering is a unique and highly differentiated way of remedying branch-office connectivity limitations in support of omni-channel marketing, it may be hard to sell the approach through the networking team, since the essence of the offering (CDN) isn't really networking technology, and the primary benefit is business enablement rather than network optimization or cost reduction (providing adequate raw bandwidth in many cases is impossible or absurdly expensive).

Threats

The greatest threat may come from the integration of new CDN services (like CloudFlare), paired with emerging integrated branch offerings based on virtualization technology, and delivered primarily by systems vendors, rather than as network vendors.

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