

Aruba and Riverbed Partner to Accelerate and Optimize Mobile-First Connectivity to Cloud-First Applications

Today's workforce is more distributed, more mobile, and more demanding. Constant availability and high performance are expected regardless of the application. Many of these applications have expanded from a monolithic application in a single datacenter to multi-tiered applications that span multiple data centers and clouds. The result is an unprecedented combination of mobile users who demand consistent performance and a multi-location infrastructure that at times struggles to meet the expectations of the 21st century workforce.

Business Gets Done at the Branch

Branch offices become increasingly important as we see growth in business revenues streaming in from locations away from headquarters. On average, nearly half of all employees in mid-to-large sized enterprises work in remote locations. IT must ensure that these locations are always up and running with the applications and services they need to stay productive. However, providing consistent application performance to remote users at these sites creates various challenges:

- **Connectivity:** How do you ensure that

employees in branch locations have reliable wireless and wired access, and reliable connectivity to corporate and cloud services?

- **Visibility:** How do you provide visibility into end-user experience and application performance to efficiently troubleshoot or resolve issues even before they are noticed by the end user?
- **Performance:** How do you ensure consistent application performance over wireless and wired access networks, regardless of whether branches are connected via MPLS or the public Internet, and regardless of infrastructure location (private datacenter, hybrid datacenter, cloud)?

Aruba and Riverbed Power Mobile Connectivity

Aruba, a Hewlett Packard Enterprise company, is a leading provider of next-generation networking solutions for enterprises of all sizes worldwide. Riverbed is the leader in Application Performance Infrastructure, delivering the most complete platform for the hybrid enterprise to ensure applications perform as expected, data is always available when needed, and performance issues can be proactively detected and resolved before impacting business performance. Together, Aruba and Riverbed have partnered to deliver best-in-class mobility access and management combined with network optimization and visibility.

Aruba for Wired and Wireless Access and Network Management

Aruba provides a broad portfolio of products for branch office wireless connectivity:

- **Superb Wi-Fi performance** with wireless access points (APs) and controllers that also support centralized network engineering, stateful firewall, IP services and policy controls
- **Scalable and secure wired access** with switches optimized for wireless that feature HPE Smart Rate multi-gigabit Ethernet and better-together integration with Wi-Fi infrastructure
- **User-centric network management** designed with mobile devices and apps in mind that proactively monitors the health and performance of all connected devices

For smaller remote locations that need enterprise-grade Wi-Fi that's simple to deploy and manage, Aruba Instant APs offer robust, resilient and secure branch network services. For larger remote locations, the Aruba 7000 series controllers provide integrated wireless and switching services for enterprises that need to rapidly deploy and manage an all-in-one CPE solution for each branch or remote location.

Aruba solutions are optimized for cloud services and hybrid WAN connections, and designed to deliver the performance, reliability and security required to support the growing number of IoT devices now in the workplace.

Riverbed for Application Acceleration

Riverbed® SteelHead™ solutions deliver comprehensive visibility, optimization and control of all applications, (both on-premises and cloud), to deliver extraordinary performance no matter where users and applications are located.

Unreliable network connections, constantly changing locations, distance, and network latency often make it

difficult for applications to perform as expected. Riverbed SteelHead solutions address these problems through its industry-leading WAN acceleration and optimization technologies. A dual-ended solution, SteelHead sits on either side of the WAN and provide a unique combination of application, data, and network traffic streamlining:

- **Data de-duplication:** Eliminates redundant data from being transferred across the WAN, reducing the overall amount of network traffic and increasing the throughput on file downloads, remote backups, replication, disaster recovery, and many other application and data transactions.
- **Application streamlining:** Reduces the chattiness of applications based on a number of different protocols including CIFS, HTTP, HTTPS, MAPI, NFS, and SQL. These specific modules understand the chattiness of each protocol and work to keep the conversation on the LAN, where chattiness is not a factor; thereby significantly reducing latency before making transmissions over the WAN.
- **Traffic shaping:** Applies policies to prioritize traffic and control the data flow on an application basis to determine which data will be transmitted on the WAN.
- **TCP/IP optimization:** Leverages various techniques to make TCP a more efficient networking protocol. These techniques can include improving latency through window-size scaling, selective acknowledgements, Layer 3 congestion control algorithms, and IP protocol spoofing. This can also include forward error correction that reduces the need for retransmissions in error-prone and congested WAN links.

SteelHead solutions are delivered in a variety of form factors ranging from physical to virtual to cloud-hosted. A

traditional, enterprise-only deployment might involve a SteelHead in the datacenter paired with SteelHead CX in each branch office. Cloud and SaaS deployments involve on-premise SteelHead boxes paired with SteelHead hosted within the cloud provider (e.g., within Amazon Web Services) and/or SteelHead hosted in a point-of-presence in close proximity to a SaaS provider's datacenter (e.g., within the Akamai network in close proximity to a Salesforce.com datacenter).

SteelHead solutions deliver a number of benefits including:

- Support for the largest number of applications on premise, in the cloud or SaaS-based including Microsoft Office 365, Microsoft Dynamics 365 CRM, Salesforce.com, SAP, ServiceNow, Box, and many others
- Faster, more effective troubleshooting with end user experience visibility

- Ability to quickly discern network problems from SaaS provider problems with visibility into network versus service provider server delays
- Increased performance of up to 100X over hybrid networks for on-premises, cloud, and SaaS applications
- Reduced bandwidth utilization by up to 99%, deferring costly network bandwidth upgrades

Together, Aruba and Riverbed solutions help ensure fast, consistent connectivity for mobile users from the device to the branch office and either to the datacenter or to cloud services. Figure 1 illustrates how the combination of Aruba and Riverbed can deliver superior access and performance to mobile users at branch offices – regardless of the location of the application.

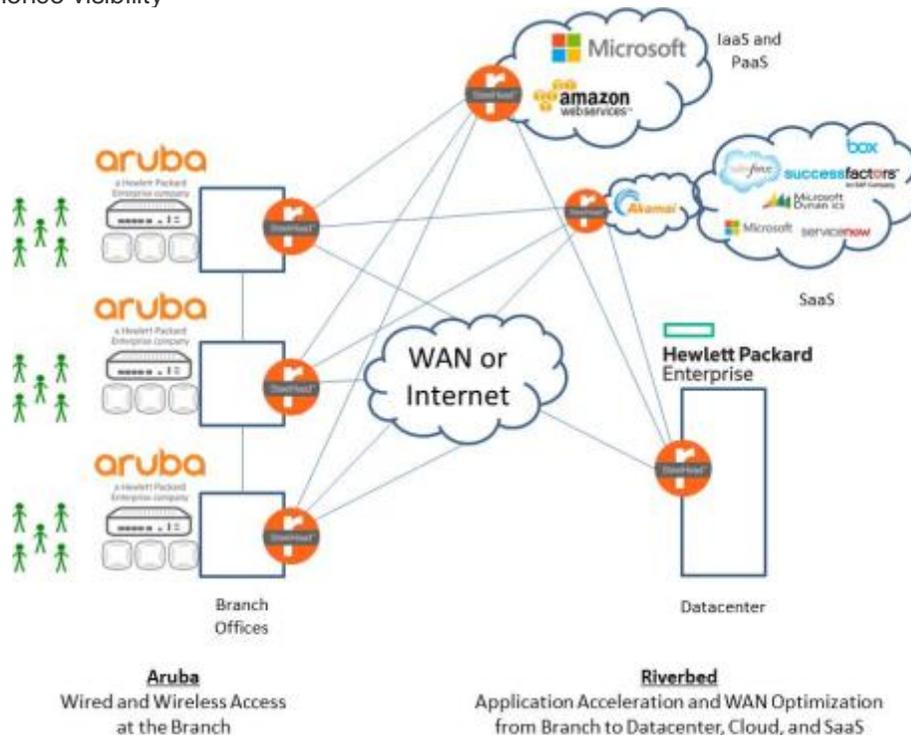


Figure 1: Aruba and Riverbed for branch office connectivity, visibility, and performance from mobile users to Datacenter, Cloud, and SaaS

Optimizing the Performance of Critical Business Applications

Businesses depend on a variety of applications and Microsoft Office 365 is at the top of the list for productivity, collaboration, and communication. For sophisticated applications like Office 365, performance challenges that adversely impact end user experience and productivity can crop up in multiple areas of the network – such as end user connectivity via a mobile device or branch office connectivity to a Microsoft datacenter over the WAN or public Internet. The combination of Aruba and Riverbed addresses these connectivity challenges and provides end-to-end optimization and visibility that ensures an optimal end user experience.

Aruba delivers QoS over the wire and the air directly to end users, while Riverbed improves the performance of the application over the WAN from branch office to the datacenter or cloud. The result is a 33X better application performance with up to 99% reduction of network bandwidth. Combined with world-class management tools like Aruba Airwave and Riverbed SteelCentral™, customers can not only improve application performance but also, just as importantly, provide granular, application-centric visibility and reports into end user experience.

Together, Aruba and Riverbed enhance the performance and reliability of networks where users access Office 365 and other mission-critical business applications and deliver the following benefits:

- Improve Skype for Business call quality and provide consistent user experience
- Simplify and accelerates Skype for Business deployment while resolving call quality issues faster through detailed metrics
- Deliver unparalleled visibility to customer's Skype for Business deployments with end-to-end, wireless LAN and endpoint device level call quality metrics

- Deliver as much as 33x better application performance
- Reduce bandwidth use as much as 99%, eliminating the need to add costly network bandwidth

In addition to Office 365, Aruba and Riverbed can also ensure connectivity and an optimized experience for other business critical applications – both on-premise or cloud services – including SAP, Salesforce, ServiceNow, Box, Microsoft Dynamics, as well as homegrown, custom applications.

Deployment Questions and Example Scenarios

Aruba and Riverbed architectures will vary based on a number of factors including branch office size, number and type of applications being used, network type and bandwidth, additional network loads (e.g., database backups), etc. Some key questions to consider and initial steps to take when architecting branch office connectivity for mission critical applications include:

- What applications are most critical to your business stakeholders today and in the future?
- Where are these applications hosted today? Datacenter or cloud? Could this location change?
- What connectivity is in place today? Wired, wireless, MPLS networks, Internet, other?
- What is the end user experience and application performance in branch offices today?

With initial answers to these questions, customers can work with Aruba and Riverbed to pilot an architecture for a small number of branch office in order to see the potential benefits for critical business applications such as Microsoft Office 365 and Skype for Business. Again, there are many factors to consider for a production deployment, but a pilot environment could include a combination of the products listed in this table:

Branch Office Size	Teleworker	< 10 employees	10-100 employees	100+ employees
Aruba products	Remote Access Point	Remote Access Points	Instant AP Solution	Controller based Solutions
Riverbed products	SteelHead Mobile	SteelHead CX		

Summary

Users want to work from anywhere at any time and expect high availability and peak performance, which creates new challenges for IT and application providers. It's become critical for IT to provide reliable and consistent connectivity, visibility, and performance to the increasing number of mobile users working from an ever-growing number of branch offices.

Aruba's leading wireless connectivity and management solutions combined with Riverbed's leading application acceleration solutions allow enterprise customers to optimize productivity for their mobile workers all the way from the mobile device itself to the application – regardless of where that application may be hosted.

About Aruba, a Hewlett Packard Enterprise company

Aruba, a Hewlett Packard Enterprise company, is a leading provider of next-generation networking solutions for enterprises of all sizes worldwide. The company delivers IT solutions that empower organizations to serve the latest generation of mobile-savvy users who rely on cloud-based business apps for every aspect of their work and personal lives.



About Riverbed

Riverbed, at more than \$1 billion in annual revenue, is the leader in application performance infrastructure, delivering the most complete platform for the hybrid enterprise to ensure applications perform as expected, data is always available when needed, and performance issues can be proactively detected and resolved before impacting business performance. Riverbed enables hybrid enterprises to transform application performance into a competitive advantage by maximizing employee productivity and leveraging IT to create new forms of operational agility. Riverbed's 26,000+ customers include 97% of the *Fortune* 100 and 98% of the *Forbes* Global 100. Learn more at Riverbed.com



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