aws | riverbed

Simple AWS Networking with Application Defined SD-WAN

Abstract

The Amazon Web Services (AWS) Cloud is a proven route to help organizations achieve rapid scalability, reduced time-to-market, and cost-effectiveness in their IT infrastructure. These benefits are delivered, in part, by automation, greater ease-of-use, and simplified management.

Many are challenged, however, with legacy network infrastructure and management solutions, as the complexity of managing dynamic workloads, as well as inconsistency in performance and security, can impair many of the benefits AWS provides. SD-WAN helps organizations overcome this challenge by providing automation and simplified management for cloud networking. This whitepaper looks at how Riverbed SD-WAN can help organizations improve performance, agility, and security in their cloud-centric network.

Introduction

The AWS Cloud

Whether you are new to AWS or a long-time user, the benefits you hope to derive often relieve constraints experienced on-premises. Among them is rapid scalability, reduced time-to-market, and cost-effectiveness. On top of these core benefits, organizations leveraging AWS can simplify IT administration and reduce much of the associated burden:

- Provision resources on-demand and pay only for what you use to leverage a more agile and cost-effective IT environment.
- Automate resource provisioning, and even backend application management, to further enhance your business agility and efficiency by minimizing overhead and the possibility of manual error.
- AWS's broad and deep set of native offerings provide essential services at your fingertips, such as compute, storage, and database, while also removing traditional barriers into adopting new and emerging technologies, like IoT or machine learning.

No longer do you have to spend weeks planning, purchasing, and implementing new compute resources. Bygone are the days of server maintenance and tedious administrative tasks. Now, IT is thrust into a role where they can focus on core business initiatives and stimulate innovation.

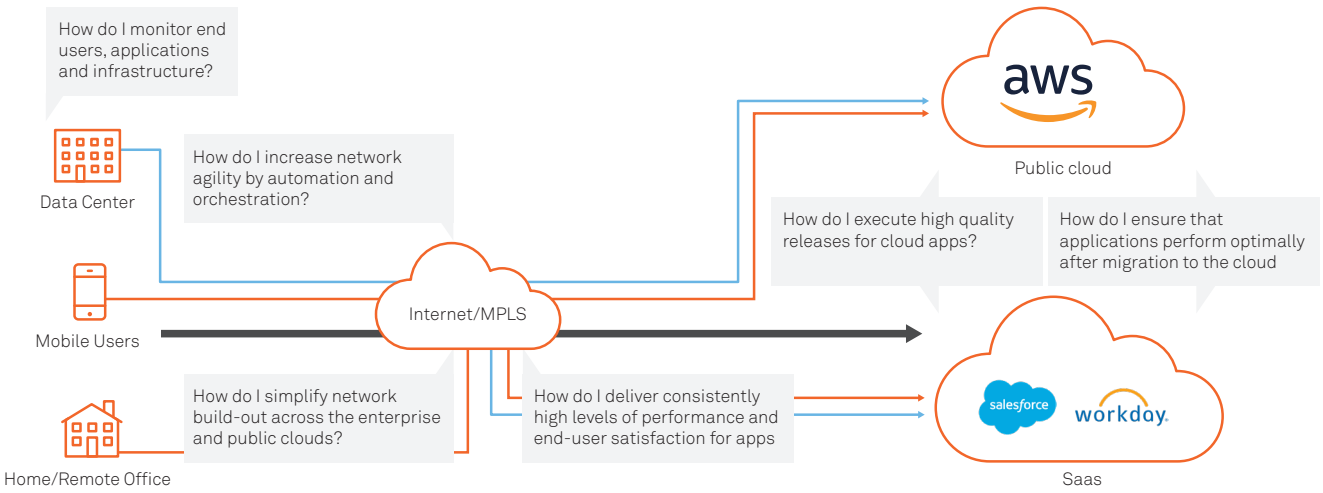


Figure 1 Challenges to a successful Cloud Deployment

The Challenge of Siloed Cloud Networking

Where many struggle when undergoing the transition to AWS is in their network. In legacy enterprise IT environments, everything was centralized, controlled, and self-contained. As such, static hardware-based networking was sufficient. But using these same solutions in a cloud-based environment comes with significant downside. Mundane configurations and long deployment cycles hinder agility and time-to-market. Weak security and inconsistent performance further challenge IT administrators and limit end-user success. After all this, you've effectively wiped out the benefits gained by migrating to AWS.

Instead, organizations need a solution that can match or even enhance the benefits that AWS can deliver. It needs to be quick enough to keep up with the pace of the cloud and flexible enough to accommodate disparate, moving parts. This solution must connect a combination of on-premises and cloud deployments, mobile and remote users, and public and private networks. Without this solution, you're left managing loosely connected silos.

In order to avoid a siloed network, organizations must take an approach towards network architecture and management that encompasses all segments of the networks – LAN, cloud and WAN. Workflows are designed with cloud-based resources in mind, enabling you to deliver the expected benefits – rapid scalability, reduced time-to-market, and cost-effectiveness – from your AWS deployments. Riverbed's solution extends the simplified management and automation of AWS to networking, providing intuitive workflows that can shift your focus away from network constraints and tedious, CLI-based configurations, and onto core business-driving initiatives. This solution is software-defined wide area networking (SD-WAN).

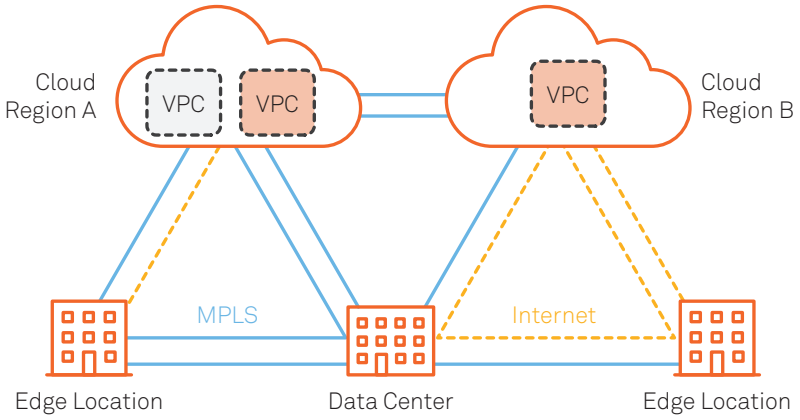
SD-WAN Solution for AWS

SD-WAN is a solution that aims to overcome the complexity and rigidity experienced when using legacy tools for managing modern networks. It works to connect the disparate, moving, and growing parts of your architecture in order to help extend AWS benefits to the networking architecture.

Riverbed SD-WAN provides an intelligent and intuitive approach to designing, deploying, and managing distributed networks for today's hybrid enterprise. It can be integrated with your AWS environment to deliver seamless control, managed centrally and with ease. By leveraging Riverbed SD-WAN, you can extend AWS's ease-of-use to your network to deliver agility, performance and security.

In the context of typical business imperatives, Riverbed SD-WAN helps IT professionals in three key areas:

- **High-performance.** Leveraging multiple network paths and faster WAN connections for certain prioritized applications helps you deliver higher (and more reliable) performance in your network. Application acceleration can be easily added as needed to enhance performance.
- **Business Agility.** Business agility depends on IT agility. Riverbed SD-WAN comes with minimal manual configuration steps, as well as increased automation and orchestration to help drive this initiative.
- **Enhanced security.** As you expand your network architecture, you increase your attack surface. Riverbed SD-WAN automates VPN connections to eliminate human-caused vulnerabilities and segments your network to isolate confidential traffic. End-to-end visibility, built in firewalls and integration with cloud access security brokers allows Riverbed SD-WAN to bolster your security, versus compromising it.



Seamless connectivity with single-click cloud deployment

Figure 2 Riverbed SD-WAN provides seamless, end-to-end network connectivity across the enterprise, to the cloud, and between clouds with automated network build-out and single-click orchestration.

High Performance

Organizations are becoming increasingly dependent on rich applications, like videos, collaboration tools, and cloud services. As a result, the delivery of these applications is becoming more complex. Adding to this challenge is the end-user's expectation for these applications to be faster than ever before, combined with the difficulty of managing a cloud-based network with legacy solutions.

Riverbed helps organizations like yours overcome these challenges, by enabling IT professionals to manage networks centrally via automated policy-based administration. Business-aligned policies give you simple, plain language instructions that correspond with real-world business initiatives, instead of the technical aspects of routing. Rather than arcane coding, you can leverage a graphical interface with easy to use drop-down menus. With these capabilities, you can more easily focus network management around:

Real-time visibility into apps, networks, link quality, and users

Enabling new services with centralized management

Ensuring application performance based on priority to the business

By seamlessly integrating these critical network services in central, cloud-centric workflows, Riverbed enables you to quickly and easily ensure optimal application performance. Riverbed provides visibility into application performance metrics, network segments, site locations and/or user experience from a single-pane-of-glass. Users can leverage visibility metrics to quantify business impact.

Riverbed SD-WAN uses application identification to prioritize (both encrypted and un-encrypted) business-relevant applications. With this capability, business relevant applications are placed on the highest performing network path based on a real-time analysis of the network link quality. Real-time analysis also allows Riverbed SD-WAN to appropriately steer applications if network quality changes, helping ensure that core-business applications are not affected by downtime.

Furthermore, the increase of remote or branch offices and mobile users make the negative impact of latency and bandwidth issues more relevant. The AWS Global Infrastructure helps organizations overcome performance challenges presented by sheer distance. Riverbed enhances this benefit by enabling performance through simple software-defined control across a unified network fabric, consisting of cloud networks, WANs, and branch LANs/WLANs. This capability helps network administrators deliver applications seamlessly and securely throughout their entire network.

> "The ability to enable a new connection so quickly, instead of the weeks or months it took in the past, is really important for the success of our SaaS offerings. Also, as a company, we will be able to grow quickly since we have the ability to add more and more connections without hardware limits or other technical frustrations. SteelConnect enables us to be far more agile, which is really good for our growing business."
>
> – Craig Bruce, Scientific Software Developer, OpenEye

Business Agility

AWS enables organizations to provision resources on-demand and pay only for what they use, helping enhance business agility. Native offerings, such as AWS Lamba and AWS CloudFormation, allow you to automate the process of setting up the infrastructure in the cloud. But what about the network that connects users to the cloud? For optimal performance, this network needs to be a secure mesh. But legacy approaches make establishing and managing this secure mesh tedious, time-consming, and prone to error, taking away all the agility that was expected from the cloud.

Riverbed SD-WAN helps you overcome this by extending automation to network management – automation that is optimized for a cloud-centric network. IT administrators can automate secure connectivity to and between cloud networks, eliminating the operational overhead of creating virtual private networks (VPNs). The automated VPNs extend to branch locations as well, with policies for network behavior extending between the cloud and branch through a transport-agnostic WAN. These capabilities enable you to expand quicker than ever before and provide consistent security and performance throughout your network architecture. One example of this is in the case of SimplePay.

Customer Testimonial: SimplePay

SIMPLEPAY
SOLUTIONS GROUP

Challenges

- Inability to scale the business efficiently, securely and cost effectively
- Business agility hampered by complex network management
- Deficient network security and reliability for supporting global growth

Solution

- Riverbed SteelConnect for Amazon Web Services (AWS)

Benefits

- Ability to design and deploy a reliable and secure SD-WAN solution across the globe at a low cost
- Time to provision new sites reduced from months to minutes, improving business agility
- Simplified cloud networking through a single pane of glass

> "We don't have to worry about security or reliability; we now have a fully encrypted backbone that we've deployed using Riverbed at on- and off-ramp points."
>
> – Rob Gillan, CTO, SimplePay

Enhanced Security

AWS implements and operates security measures that protect the underlying infrastructure of the AWS Cloud. But when leveraging AWS, you are responsible for securing the workloads that are deployed in the cloud. The AWS Shared Responsibility Model is important to take into consideration because, as you extend your network architecture, it becomes increasingly complex to keep track of and remediate any vulnerabilities. Furthermore, time spent addressing security breaches inherently hinders your agility and performance by introducing the possibility of downtime and maintenance cycles. Thus it is key to find a solution that provides sufficient and consistent security without disrupting your environment.

Riverbed SD-WAN helps with this challenge by extending automation to security, minimizing the overhead associated with maintaining your security posture. IT administrators can automate VPN connections, eliminating the possibility of human error and effectively sealing vulnerabilities that could be created through manual configurations.

Cloud access security brokers and built-in firewalls within Riverbed SD-WAN can be managed based on policy defined in the central management console. This provides an agile and comprehensive security solution for local internet breakouts, as it preempts the need for a backhaul into your on-premises data center, thus ensuring optimal traffic flow.

Additionally, with Riverbed you are empowered to easily segment network traffic and ensure that confidential traffic is separated from everything else. This is especially imperative as it becomes more common for employees to leverage personal devices for work. In this situation, you must place insecure traffic (such as that from a personal device) on a separate path than sensitive or confidential data traffic, in order to help prevent breaches with minimal overhead.

Conclusion

Legacy networking solutions fail to complement the benefits of Amazon Web Services because they negate ease-of-use and automation in your AWS environment with complexities and overhead in your network infrastructure. Riverbed SD-WAN helps you fundamentally change the way you deploy, optimize and manage networks by providing central, cloud-centric workflows that simplify network management and enable you to capitalize on the full range of benefits from AWS. These capabilities can be aligned with your business priorities and in particular, help you realize higher performance, better business agility, and more robust security. Furthermore, the automation and ease-of-use provided by Riverbed SD-WAN frees IT administrators of the complexities of network design and management and enables them to focus on core business-driving initiatives and innovation.

Get started today with a free trial of SteelConnect.

About AWS

For 10 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers more than 90 fully featured services for compute, storage, databases, analytics, mobile, Internet of Things (IoT) and enterprise applications from 42 Availability Zones (AZs) across 16 geographic regions in the U.S., Australia, Brazil, Canada, China, Germany, India, Ireland, Japan, Korea, Singapore, and the UK. AWS services are trusted by millions of active customers around the world monthly -- including the fastest growing startups, largest enterprises, and leading government agencies -- to power their infrastructure, make them more agile, and lower costs. To learn more about AWS, visit aws.amazon.com.

About Riverbed

Riverbed enables organizations to modernize their networks and applications with industry-leading SD-WAN, application acceleration, and visibility solutions. Riverbed's platform allows enterprises to transform application and cloud performance into a competitive advantage by maximizing employee productivity and leveraging IT to create new forms of operational agility. At more than $1 billion in annual revenue, Riverbed's 28,000+ customers include 97% of the Fortune 100 and 98% of the Forbes Global 100. Learn more at www.riverbed.com.