

# SDN Service Chain Automation with WAN Optimization

Businesses are adopting virtualization, cloud services, rich media applications and SaaS applications across the enterprise. This adoption has complicated network traffic and application delivery, thus straining traditional networks. As a result, businesses are transitioning to hybrid networking architectures to leverage the ubiquity, cost economics and speed of the Internet to complement highly reliable MPLS-based networks. Maintaining fast and predictable WAN performance across these hybrid networking architectures has become critical for many customers who must quickly meet business objectives without increasing operational cost and risk. In order to increase business agility and efficiency, enterprises must be able to programmatically deploy new network services easily, quickly and securely.

## NEC and Riverbed

Together, NEC and Riverbed have developed a network service-chaining solution that addresses the shortcomings of today's manual network deployment model. The NEC Software-Defined Network and Riverbed WAN optimization solution provides the foundation that meets the changing requirements of business by reducing time-to-deploy and risk through centralized management, orchestration and programmability. The results are lower network costs through WAN optimization and the ability to steer traffic away from costly links, providing multi-tenant network isolation and WAN security across the public internet.

NEC ProgrammableFlow SDN technology improves business agility by providing a centralized automation, administration and control platform that simplifies, streamlines and orchestrates complex deployments. The NEC SDN solution achieves Riverbed WAN optimization service-chaining by leveraging OpenFlow technology to dynamically steer traffic towards the Riverbed SteelHeads through prescribed flow-based policies.

## Benefits

The benefits in deploying NEC SDN and service-chaining with Riverbed WAN optimization include:

- Quickly deploy Riverbed WAN optimization services using NEC SDN service chaining
- Reduce risk through centralized management and orchestration of the network and services
- Lower operating costs with WAN optimization and traffic steering

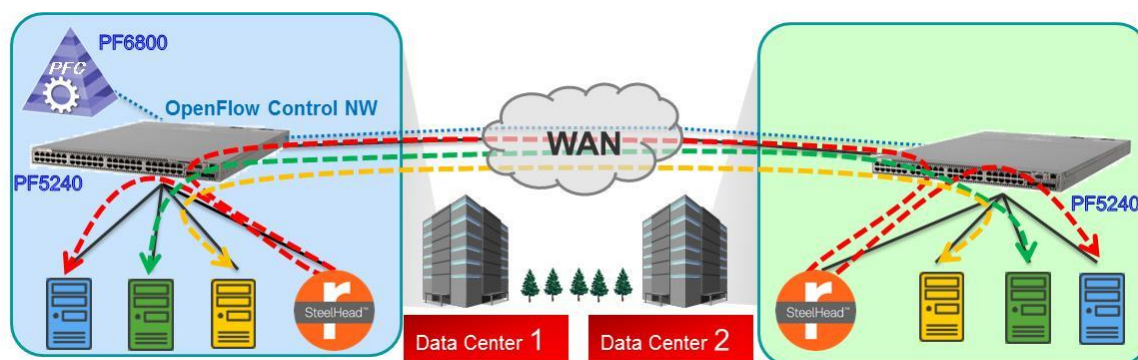


Figure 1: Diagram illustrating how NEC ProgrammableFlow can direct network traffic through Riverbed SteelHead appliances

## NEC ProgrammableFlow Overview

Initially launched in 2011, the ProgrammableFlow Networking Suite was the first commercially available SDN solution to leverage the OpenFlow protocol, enabling complete network virtualization, allowing customers to easily deploy, control, monitor, and manage multi-tenant network infrastructure. Now with version 6, customers can unify and control remote networks, all from a central location, to deliver simplified data center management, improved end-user access to applications, enhanced collaboration, and dramatically increase efficiency of IT resource utilization. Ideally suited for corporate and service provider data centers, the ProgrammableFlow Controller PF6800 controller provides a cost-effective, high-performance, highly scalable SDN platform.

## Riverbed SteelHead Overview

Riverbed SteelHead is the industry's #1 optimization solution for accelerated delivery of all applications across the hybrid enterprise. SteelHead also provides better visibility into application and network performance and the end user experience plus control through an application-aware approach to hybrid networking and path selection based on centralized, business intent-based policies for what you want to achieve – as a business.

A leader in the “Gartner Magic Quadrant for WAN Optimization Controllers” for eight years in a row, SteelHead pioneered WAN optimization in 2004. Today, Riverbed is leading the evolution from the traditional WAN model to providing optimization, visibility and control for the hybrid enterprise.

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### **About NEC Corporation of America**

Headquartered in Irving, Texas, NEC Corporation of America is a leading provider of innovative IT, network, communications and biometric solutions for customers across multiple vertical industries, including healthcare, public sector, education and hospitality. NEC Corporation of America delivers one of the industry's broadest portfolios of technology solutions and professional services, including communications, analytics, biometrics, managed services and technology solutions that unleash customers' productivity potential. NEC Corporation of America is a wholly-owned subsidiary of NEC Corporation, a global technology leader with a presence in 140 countries and \$29.5 billion in revenues. For more information, please visit [www.necam.com](http://www.necam.com).



### **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 [www.riverbed.com](http://www.riverbed.com)



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