

## ACCEDIAN

# PERFORMANCE ASSURANCE FOR JUNIPER NETWORKS VIRTUAL CPE SOLUTION

*Accedian Networks Complements Juniper's Virtual CPE Solution with Simple and Efficient Demarcation Devices That Provide Advanced Service-Level Assurance*

### Challenge

Delivering managed business services requires multiple complex CPE devices that add cost while slowing the pace of innovation. Centralizing and virtualizing CPE functions reduces cost and complexity while enabling validation of SLA compliance to the customer premises.

### Solution

Juniper's virtual CPE solution is a revenue-generating managed business solution that provides greater service agility at lower cost. It is complemented by Accedian Networks' performance assurance solutions, which simplify CPE devices while enhancing service flexibility and ensuring QoS is maintained.

### Benefits

- Improves economics through simpler operations and lower CapEx
- Assures service quality with end-to-end QoS and performance monitoring
- Enables rapid and seamless service rollout and management through centralized service control

*Delivering business services with strict SLAs is very challenging, due in large part to device proliferation, geographic distribution, and customer premises equipment limitations. Historically, delivering and assuring business services meant installing multiple expensive and complex CPE devices. Beyond the higher unit cost, this model also constrained the pace of innovation, as each new service meant new equipment that had to be qualified and deployed network wide.*

*Recent developments in computing and networking virtualization, showcased by ETSI Network Functions Virtualization (NFV), decouple network functions from the underlying physical network devices. Service providers are eager to leverage this technology to reduce costs and improve margins by simplifying business service creation and assurance.*

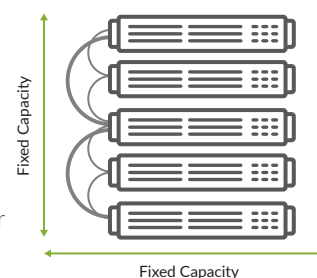
Juniper Networks makes it possible to virtualize IP CPEs and deliver advanced services from the edge network, turning the provider edge into the service edge. This approach simplifies network operations and allows dynamic service creation and policy-based management, real-time service introduction and modification, and accelerated service innovation.

Of course, providers need to assure and manage the services all the way to the customer premise, and this calls for CPE devices that are not only simple, flexible, and cost-efficient but also ensure excellent service quality and performance.

### Business Services Today

Today, service providers differentiate themselves in the managed services market based on 1) connectivity, 2) service offering, 3) service quality, and 4) price. Customer acquisition and retention are driven, directly or indirectly, by these four elements.

Traditionally, delivering and managing business services requires a catalog of specialized customer premises equipment (CPE), which is expensive to acquire, provision, manage, and troubleshoot. Equally challenging, when functions such as NAT are located in the CPE, it limits management visibility into the devices and applications, making service assurance difficult.



*Figure 1. Traditional hardware-centric CPE, consisting of a complex and service specific mix of routers, switches, security devices and other appliances.*

Now more than ever, service providers need highly service-oriented and agile network elements in order to create more meaningful differentiation and reap greater profitability. The ability to introduce innovative services without adding more hardware or complexity, modify services in real time, and orchestrate the customer experience improves the value of managed service offerings and allows third-party developers to create custom applications that service providers can leverage to create greater market differentiation.

## Solution Components

### Juniper Networks Business vCPE Solution

Juniper's vCPE solution includes the advanced capabilities of Juniper Networks® MX Series 5G Universal Routing Platforms, an open and programmable service-centric platform portfolio. As a provider edge solution, the MX Series has the customer context and service modules required to provide advanced contextual CPE functions such as DHCP, NAT, IP address management, routing, VPN, HTTP filtering, deep packet inspection, intrusion detection and prevention, and stateful firewall.

Third-party virtualized applications can also be integrated using Juniper Networks Contrail, enabling a customizable combination of virtual applications hosted on the MX Series and data centers that can be chained using any standards-based SDN controller. By moving many CPE functions into the cloud, service providers and network operators can simplify operations and improve customer experience. This model also improves operator economics by removing CPE-related service innovation barriers, increasing visibility and control to all attached devices and applications, and integrating with other network services.

### Accedian Networks' Customer Demarcation Solution for Juniper's Virtual CPE Solution

While Juniper provides a comprehensive virtual CPE solution, service providers also need a customer demarcation that is cost efficient, easy to manage, and flexible—all without compromising performance or manageability. Accedian Networks MetroNID and MetroNODE series provide these capabilities and more.

Not only are Accedian Networks' network interface devices (NIDs) more cost effective than traditional CPE routers, they also provide advanced functions that help operators deliver high-quality differentiated services—for instance, built-in Y.1564 service activation testing functions, intelligent traffic filtering that prevents unwanted traffic (such as multicast traffic) from traversing the WAN, and granular performance visibility all ensure SLAs are met and reported.

Thanks to embedded G.8032v2 support, Accedian Networks' devices enable Ethernet ring topologies without requiring any additional hardware. This provides path diversity for resilience, sub-50 ms protection, and lower costs due to the reduced number of ports/optics needed. Centralized device commissioning, in-service reprogramming (enabled by FPGA technology), and the ability to perform in-service throughput testing without customer disruption make these devices the ideal complement to Juniper's vCPE solution.

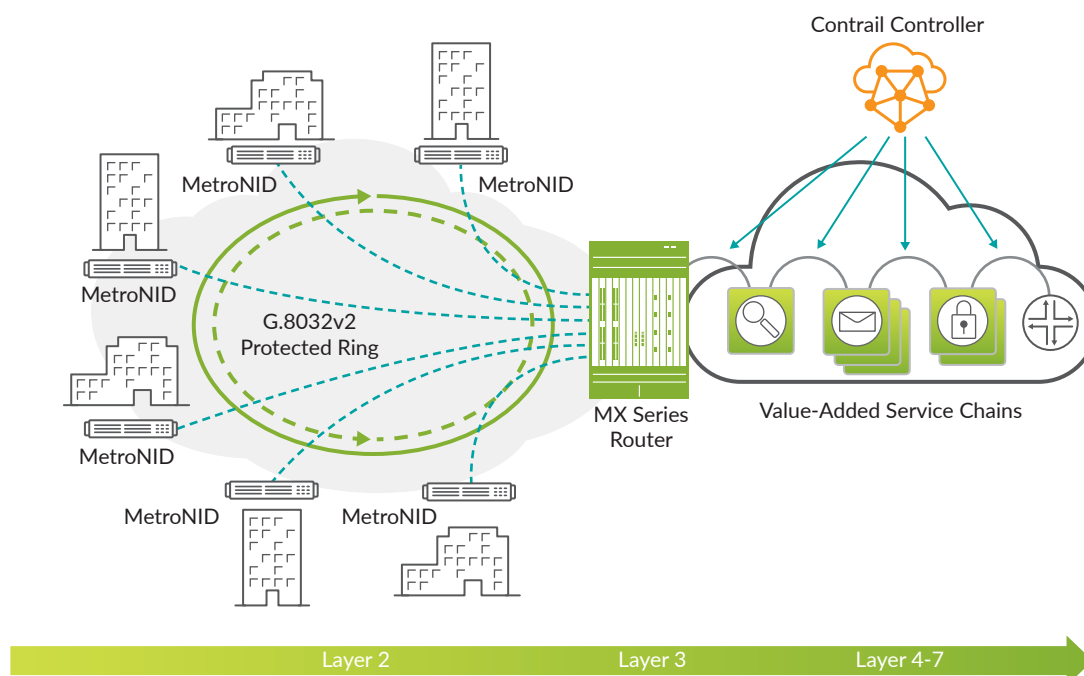


Figure 2: Juniper and Accedian Networks' joint solution

## Features and Benefits of Accedian and Juniper vCPE Solution

Solution Features	Benefits
Ethernet Ring Support (G8032v2)	Accedian devices can be implemented in an efficient and resilient topology design.
Performance Measurement and Reporting	Accedian increases visibility into SLA compliance by accurately and flexibly measuring and reporting service performance from L1 to L4.
Circuit Verification and Ongoing Testing (Y.1564 and in-service throughput testing)	Accedian devices perform automated multipoint Y.1564 tests to certify service turn-up, and in-service throughput testing allows service revalidation at any time without service impact.
Smooth Traffic Shaping	Advanced traffic shaping in the Accedian devices improves bandwidth usage, provides class-of-service traffic differentiation, and protects the carrier network from customer bursts.
Easy Deployment	Accedian's "plug-and-go" deployment model greatly simplifies installation and minimizes staff training and onsite time requirements.
Cost Savings	Accedian's devices offer major cost benefits over current CPE devices.
Traffic Classification and Filtering	Accedian's devices increase efficiency for the operator and the customer by classifying and filtering a wide variety of L1-L4 traffic and preventing the transport of unnecessary broadcast or multicast over WAN links. At the same time, traffic classification can be used to prioritize specific upstream traffic, ensuring quality of experience.

### Colt Communications

Colt Technology Services—an established provider of integrated computing and network services to major enterprises, midsize businesses, and wholesale customers—operates a 22-country, 43,000-km (26,719-mile) network that includes metropolitan area networks in 39 major European cities, with direct fiber connections into 19,000 buildings and 20 state-of-the-art data centers.

Colt delivers services *Smarter, Faster, and Further*—a mission that is embodied in every aspect of its business. When selecting a performance assurance solution for its network, Colt wanted one that was purpose-built, future-proofed, and robust.

Colt chose the award-winning Performance Assured Networking™ capabilities of the Accedian MetroNODE™ and the Accedian MetroNID® to implement the service turn-up and testing, traffic conditioning, and SLA monitoring in its network. Leveraging VLAN tagging, bandwidth policing, and shaping features among many other features, Colt is now effectively managing its network and ensuring that its services are being delivered within the SLA parameters.

"Accedian solutions offer flexible and highly functional capabilities that enable us to deliver the business services that our customers want with the quality they demand," said Bart Janssens, Senior Specialist Network Design at Colt. "Using CPE devices with advanced traffic classification capabilities and deep insight into our network performance has allowed us to deliver 'best-in-class' services for our customers while reducing our operating and capital investments."

Colt chose Juniper Networks MX960 5G Universal Routing Platform to build a High-IQ Network edge to deliver next-generation, scalable network services. "Juniper is one of our key partners enabling us to realize our vision," says Nicolas Fischbach, Director of Network and Platform Strategy and Architecture at Colt. "The MX Series router effectively supports our current IP routing and switching requirements as well as future carrier Ethernet demands. Juniper collaborated closely with us to develop our virtual CPE capabilities, which will take us to the next step of our high-performance, cost-effective, cloud-based CPE solution."

## Summary and Next Steps

As virtualization technologies revolutionize the managed business services market, service providers should consider the unique combination of Juniper vCPE and Accedian NID to provide the most robust and feature-rich solution, with no compromise to customer quality of experience or service-level agreements.

To learn more about Accedian Networks, please visit [www.Accedian.com](http://www.Accedian.com) or contact [sales@accedian.com](mailto:sales@accedian.com).

For more information about the vCPE solution, visit [www.juniper.net](http://www.juniper.net) or contact Juniper Networks at 888-JUNIPER (888-586-4737) or 408-745-2000.

## About Accedian Networks

Accedian Networks is the leader in Performance Assured Networking™ for mobile backhaul, business services, and cloud connectivity. Accedian's solutions provide service providers and network operators with visibility into their networks, empowering them to optimize, improve, and manage their performance and deliver the best possible experience to their customers. Accedian Networks has earned a reputation for innovation, responsive product development, and superior customer care. Founded in 2004, Accedian Networks is a privately held company headquartered in Montreal, Canada, with regional offices in the U.S., Europe, Latin America, and Asia.

## About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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