

# Brocade vRouter for Virtualization

## HIGHLIGHTS

- Provides advanced routing and security services for physical, virtual, and cloud networking environments
- Is optimized for multicore x86 processing power, common hypervisor platforms, and emerging cloud architectures
- Provides the industry's only cloud-ready and performance-optimized VMs, bundling firewall, VPN, advanced routing, and cloud bridging for secure multitenant cloud service delivery
- Simplifies network management with the Brocade Remote Access API

## Control Security, Connectivity, and Compliance for Virtual Environments

Brocade takes virtualization beyond just applications and operating systems by enabling IT organizations to virtualize traditionally hardware-bound network components. This application-centric approach to networking allows for complete migration of routing, firewall, VPN, and other functionality to next-generation virtual environments while ensuring that organizations can enforce the same security and compliance requirements as their physical networks.

Brocade embraced the shift to virtualization as a network delivery platform with its first network Virtual Machine (VM) in 2006. As the trend evolved, Brocade has been at the leading edge of delivering solutions for:

- **Data center virtualization:** Infrastructure consolidation requires security and traffic management with the same visibility and protection as physical networks.
- **Cloud computing:** Moving infrastructure, workloads, and applications to and from the cloud requires flexible, virtualization-optimized networking and security.
- **Open and elastic networking infrastructure:** Special-purpose, single-vendor devices are giving way to best-of-breed, multi-function, and integrated solutions enabled by virtualization platforms.

Brocade® vRouters tightly integrate enterprise-class routing, security, and traffic management technologies into VMs that are optimized for the highest possible throughput and security in VMware, Microsoft Hyper-V, Citrix Open Xen/Xen/XenServer, and Red Hat KVM hypervisor environments.

### Virtual Gateway—Routing, Firewall, VPN

In traditional enterprise data centers, it is common for routers, firewalls, and VPNs to be deployed at various places to ensure data security for sensitive applications, databases, and transaction systems. When consolidating business resources in virtual environments, organizations commonly condense those sensitive resources into a single server or pool of servers, removing the cable- and rule-based physical isolation policies that kept them secure and isolated. To

## KEY BENEFITS

- **Complete routing and security:** Includes stateful firewall, IPsec and SSL-based VPN, dynamic routing, Policy-Based Routing (PBR), and underlying services such as NAT and DHCP as IPv6-ready prepackaged VMs.
- **Platform independence:** Allows for a single virtualized routing and security solution to be installed on VMware, Microsoft Hyper-V, Citrix Open Xen/XenServer, and Red Hat KVM virtualization hypervisors.
- **Elasticity/scalability:** Removes the limitations of box-bound network devices by offering the ability to scale performance, add users, or add instances in only seconds or minutes.
- **Physical-to-virtual migration:** Enables simple, straightforward migration from physical networks to the virtual environment without network redesign or compromising existing security policies and compliance.
- **Open API:** Leverages the REST-based Brocade Remote Access API to easily integrate with any third-party management, orchestration, or provisioning system to enable complete remote control of all configuration and logging within the Brocade vRouter.

address issues related to both internal security (HR databases, financial systems) and external compliance (PCI, HIPAA) in a virtual environment, a virtual networking solution must be able to support the same security policies and architectures.

The Brocade vRouter is a single virtualization-optimized solution that includes stateful firewall, IPsec, and SSL-based OpenVPN. It can be employed as a virtual gateway on a per-server basis to provide hypervisor and application protection by establishing zone- or rule-based firewalling, detailed traffic inspection, and secure remote access.

## Complex N-Tier and Multitenant Security

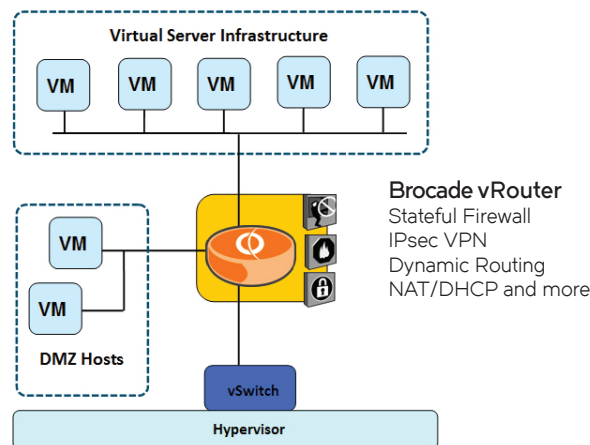
A network infrastructure designed for a virtual data center or the cloud should allow for a complete migration of physical security, traffic management, and compliance. Most networks are not single-tier flat architectures, and virtual and cloud environments should not be subject to that limitation. Brocade offers a robust Layer 3+ OS, providing organizations with a flexible solution that can route and secure traffic in flat networks or multi-tiered environments leveraging separate security policies.

An additional complexity is the need to isolate applications and workloads in a shared resource environment. A common concern in cloud computing and in virtual data centers is that an application or pool of applications sharing a single server environment might not have a common business unit owner or end-user customer owner. Such applications require complete isolation and protection from other users with access privileges to adjacent and common resources.

## Network Edge Consolidation

The proliferation of single-purpose devices has created a complex, expensive network edge in the distributed enterprise, branch office, and campus. The average branch has some combination of router, firewall, VPN, WAN optimization, and other components, many of which are single-purpose devices. Virtualization platforms create an opportunity to significantly reduce edge network device sprawl by employing network VMs instead of single-purpose devices.

The Brocade vRouter provides the foundation for any best-in-class consolidated edge networking solution by offering the industry's most complete Layer 3+ virtualization-optimized solution. A real-world example of this is custom



edge networking solutions. Brocade vRouters have enabled organizations around the world to simplify edge networking, including Tier 1 global telecoms building next-generation business-class CPE devices and Fortune 500 enterprises requiring flexible best-of-breed edge services for their businesses.

### Network Connectivity

At the network core is a complex routing engine with full support of IPv4 and IPv6 dynamic routing protocols (BGP Multipath, OSPF, RIP, PBR). Brocade includes support for 802.11 wireless, "Serial WAN Interfaces, and a wide variety of 10/100 Mbps through 10 Gbps Ethernet NICs.

### Firewall Protection

The Brocade vRouter firewall features IPv4/IPv6 stateful packet inspection to intercept and inspect network activity and protect critical data. Advanced firewall capabilities include stateful failover, zone- and time-based firewalling, and P2P filtering.

### Secure Connectivity

Organizations can establish secure site-to-site VPN tunnels with a standards-based IPsec VPN between two or more Brocade vRouters or any IPsec VPN device. Or they can provide secure network access to remote users via SSL-based OpenVPN functionality.

### Traffic Management

Brocade provides a wide variety of QoS queuing mechanisms that can be applied to inbound and outbound traffic for identifying and prioritizing applications and traffic flows.

### High Availability

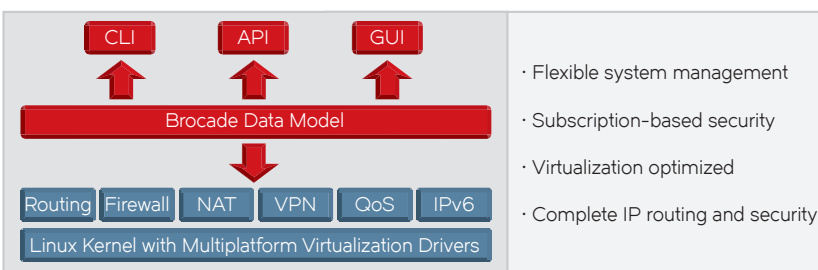
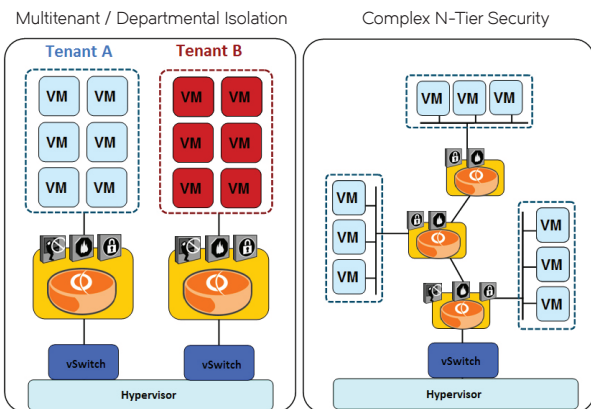
Mission-critical networks can deploy Brocade vRouters with the confidence that high availability and system redundancy can be achieved through industry-standard failover and configuration synchronization mechanisms.

### KEY FEATURES

- Performance-optimized VMs
- Complete Layer 3+ OS
- Stateful firewall
- IPsec and SSL-based OpenVPN
- VMware-, Open Xen/XenServer/Xen-, Microsoft Hyper-V-, Red Hat KVM-ready
- Brocade Remote Access API

### RELIABLE SUPPORT OPTIONS

- Brocade Essential Support
- Provides 24x7 access to Brocade Technical Support expertise, reducing time to resolution
- Provides unmatched expertise in data center networking to optimize network performance
- Simplifies management through online technical support tools



## IPv6 Compatibility

The Brocade vRouter is the only software-based routing and security solution with proven IPv6 functionality and interoperability, ensuring a future-proof investment in a solution that offers a simplified migration path from IPv4 to IPv6.

## Administration and Authentication

Organizations can manage the Brocade vRouter through a familiar network-centric Command Line Interface (CLI), a Web-based GUI, or external management systems using the Brocade Remote Access API. All network management sessions can be securely managed using SSHv2, RADIUS, or TACACS+.

## Brocade Global Services

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 20 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, network monitoring services, and education, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

## Maximizing Investments

To help optimize technology investments, Brocade and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Brocade sales partner or visit [www.brocade.com](http://www.brocade.com).

### Corporate Headquarters

San Jose, CA USA  
T: +1-408-333-8000  
[info@brocade.com](mailto:info@brocade.com)

### European Headquarters

Geneva, Switzerland  
T: +41-22-799-56-40  
[emea-info@brocade.com](mailto:emea-info@brocade.com)

### Asia Pacific Headquarters

Singapore  
T: +65-6538-4700  
[apac-info@brocade.com](mailto:apac-info@brocade.com)



© 2016 Brocade Communications Systems, Inc. All Rights Reserved. 01/16 GA-DS-1736-02

Brocade, Brocade Assurance, the B-wing symbol, ClearLink, DCX, Fabric OS, HyperEdge, ICX, MLX, MyBrocade, OpenScript, VCS, VDX, Vplane, and Vyatta are registered trademarks, and Fabric Vision is a trademark of Brocade Communications Systems, Inc., in the United States and/or in other countries. Other brands, products, or service names mentioned may be trademarks of others.

Notice: This document is for informational purposes only and does not set forth any warranty, expressed or implied, concerning any equipment, equipment features, or service offered or to be offered by Brocade. Brocade reserves the right to make changes to this document at any time, without notice, and assumes no responsibility for its use. This information document describes features that may not be currently available. Contact a Brocade sales office for information on feature and product availability. Export of technical data contained in this document may require an export license from the United States government.

**BROCADE** 