INCREASE NETWORK FLEXIBILITY

Competition in the communications market is more intense than ever. To be successful, communications service providers must cut infrastructure costs and streamline operations while increasing business agility. Traditional hardware-centric infrastructure can’t meet these demands and can quickly become a business liability.

Open technology leaders Red Hat and Brocade offer a virtual networking solution that combines the high performance of hardware with the enhanced flexibility of software to speed delivery of on-premise virtual networking services. By adding the Brocade Vyatta 5600 Virtual Router (vRouter) to your Red Hat® and Intel network functions virtualization (NFV) infrastructure, you can increase business agility and reduce capital and operational expenses to gain a competitive advantage.

HIGH-PERFORMANCE VIRTUAL ROUTING

Until recently, virtual and software-based networking solutions often failed to meet hardware-based performance standards. With the Red Hat and Brocade virtual networking solution, you gain the flexibility and cost advantages of software without sacrificing performance. The Red Hat and Brocade virtual networking solution can be deployed in two ways:

1. As the internal networking framework, the Brocade Vyatta 5600 vRouter enhances the performance and flexibility of your Red Hat and Intel NFV infrastructure.

2. As a virtual network function (VNF), the Vyatta vRouter can provide a variety of virtual networking services, including firewall, VPN services, and routing, within a service chain.

In either deployment, the solution is capable of up to 10Gb/s throughput per x86 physical core, far surpassing the performance of previous software solutions and allowing you to scale linearly with additional cores. And with a virtualized network infrastructure, you can dynamically respond to evolving needs without making changes to your physical network, reducing the time to deliver on-premise networking services from months to hours. The following components play key roles in delivering a high-performance virtual network infrastructure.

Red Hat and Intel NFV infrastructure

Red Hat’s open technologies and Intel’s multi-core processors and network adapters provide a high-performance, scalable, and cost-effective foundation for the solution. Red Hat Enterprise Linux® OpenStack® Platform, including the Kernel-based Virtual Machine (KVM) hypervisor, orchestrates the virtual network and automates VNF deployment.

Brocade Vyatta 5600 vRouter

Designed specifically for NFV operations, the Brocade Vyatta 5600 vRouter provides advanced routing in software without sacrificing the reliability and performance of hardware-based networking solutions. By optimizing the Intel Data Plane Development Kit (Intel DPDK), the virtual network operating system provides high-speed packet pipelines and high-end packet service functions.
Virtualized service provider core

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Virtual firewall</td>
<td>Brocade Vyatta 5600 vRouter</td>
</tr>
<tr>
<td>Virtual load balancer</td>
<td>Red Hat Enterprise Linux OpenStack Platform</td>
</tr>
<tr>
<td>Virtual private network (VPN)</td>
<td>Red Hat Enterprise Linux</td>
</tr>
<tr>
<td>Other virtual services</td>
<td>Intel processors and network adapters</td>
</tr>
</tbody>
</table>

Figure 1. Red Hat and Brocade allow you to virtualize customer premise equipment and remotely manage and deliver services to branch locations, eliminating the need for specialized hardware at the customer site and enabling faster service updates and changes.


INCREASE AGILITY WITH VIRTUAL CUSTOMER PREMISE EQUIPMENT

Hardware-centric customer premise equipment (CPE) can be difficult to update and complex to manage. The Red Hat and Brocade virtual network solution allows you to consolidate and virtualize CPE onto readily available, cost-effective x86 servers. With a virtual infrastructure, you can remotely manage and update current customer services and quickly fulfill orders for new services without setting up new service-specific hardware. The result is streamlined operations, lower infrastructure costs, and greater business agility.

COST-EFFECTIVELY OFFER NEW SERVICES

Recent benchmarks with Telefónica and SDNCentral have validated the high-performance capabilities of the Brocade Vyatta 5600 vRouter across a variety of x86 servers. The vRouter’s bandwidth can be split across a large number of virtual ports in various ways, allowing you to securely deliver services to many customers from a single router, regardless of the number of physical ports. This adds up to more revenue opportunities and lower per-customer costs.

CONCLUSION

Streamlined operations, cost-effective infrastructure, and enhanced flexibility are essential for communications companies that need to remain competitive in an evolving market. Red Hat and Brocade offer an agile, high-performance virtual networking solution that allows you to quickly respond to changing business needs while reducing capital and operational costs and maintaining the high service levels your customers expect. Contact your Red Hat sales representative to learn more about the advantages of virtualizing your network.

4 SDNCentral, “SDNCentral NFV Performance Test Validates 80-Gbps for Brocade Vyatta on Mid-Range x86 Server,” October 2014.

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