



Solution Brief

Nortel Virtual Control Service for applications in a VMware environment

Nortel Application Switch enhances application control in networked VMware ESX server infrastructures.

Virtual Data Center

Data center server virtualization is one of the major trends in IT today, with VMware and its VMware Infrastructure 3 (VI3) leading the way. Building upon the reliability of their ESX server, VMware has brought virtualization firmly into the IT mainstream.

Similarly, with a strong installed base, the Nortel Application Switch (NAS) has a leadership position in today's dynamic enterprise data center. The Application Switch delivers application availability, performance and security by balancing and accelerating traffic and by giving IT managers more control over their networks.

Now, with Nortel Application Switch 25.0, Nortel has joined forces with VMware for an enhanced server virtual environment that simplifies and integrates processes between server and network teams within an enterprise. It significantly enhances the management capabilities of the Nortel Application Switch solution in a virtual environment, reinforcing its best-in-class status.

As the VMware solution has become widely deployed, virtual machines (VMs) have inevitably become part of

the load balancing groups managed for customers by the Nortel Application Switch. With release 25.0, Nortel incorporates purpose-built Virtual Control Service (VCS) that improve efficiency and flexibility when managing a mix of physical and virtual machines across the network.

Benefits include:

- Increased resiliency in the virtual data center
- Better system administrator tools for monitoring and troubleshooting
- Leveraged investment in Nortel Application Switch and VMware solutions

- Optimized efficiency of VMotion live migration for maintenance, business continuity planning and disaster recovery
- Lower total cost of ownership (TCO)

The Nortel Application Switch — overview

Designed from the ground up for load balancing and application acceleration, the Nortel Application Switch provides enterprises with unprecedented high availability, performance and scalability over applications and the networks on which they run. Nortel Application Switches integrate routing and switching by forwarding traffic at Layer 2 speed



using Layer 4-7 information, while filtering and traffic management technology provides fine grain control over how your network is used — for better control, increased productivity and greater cost savings. IT managers can determine how much or how little bandwidth to reserve for mission-critical applications such as IP, voice over IP (VoIP), video streaming, wireless and more.

The Nortel Application Switch 25.0 has been optimized for the VMware Virtual Infrastructure Solution. The Nortel Application Switch is also designed especially for high-demand applications such as VoIP, Web services, wireless, streaming audio and video, SIP support, and support for WAP, MSTP, RSTP and more.

VMware Virtual Infrastructure Solution — overview

VMware Infrastructure 3 (VI3) offers the ability to create multiple virtual machines on the same server to better utilize server platforms. In addition to server consolidation, VMware offers a complete virtualized infrastructure solution for business continuity encompassing data protection, high availability and disaster recovery.

Administrative challenges in the virtualized data center

Server virtualization has been a great success, and its rapid adoption will no doubt continue. However, as the trend gains momentum, it does present a few challenges to IT management.

For example, in a virtual environment, the devices (servers, network elements, etc.) are abstracted behind software controllers, management GUIs and proprietary kernel modules. Short of

Nortel Virtual Control Service (VCS) improves server and network group integration, while providing enhanced management capabilities within a VMware virtual environment.

knowing the developers' code, in order to truly manage the devices, system administrators need greater efficiency and simplification between server and network designs.

In addition, there has been a certain disconnect between the ESX environment — where virtual machines are tracked — and load balancing devices designed to work with physical rather than virtual servers. The VMware solution has been so successful that as more virtual machines have been created, within the enterprise IT department there are more dialogues between server teams and network teams to ensure that new virtual machines are added to the server groups for dynamic load balancing. This essentially manual process impedes the full realization of the flexibility inherent in the VMware solution.

Better integration through Nortel Virtual Control Service

With Nortel Virtual Control Service, the Nortel Application Switch improves better communication between the different groups in a company. By working with VMware's Virtual Center (VC), Nortel VCS simplifies the integration of processes between the customer's server and network teams while enhancing the industry-leading management capabilities of Nortel Application Switches in a VMware virtual infrastructure environment (see Figure 1).

With this enhanced Nortel Application Switch/VMware solution, the VCS has access to the list of virtual machines that are tracked by the Virtual Center. VCS also has access to the Nortel Application Switch configurations for different application load balancing groups and servers configured for those groups. In order to add a VM to a group, the administrator would simply utilize the VCS for dynamic virtual server load balancing.

Nortel's VCS promotes intelligent load balancing by combining the Nortel Application Switch intelligence of knowing the applications or sessions above the VMs by doing graceful shutdown of any VM running in a server load balancing group. Using Nortel Application Switch intelligence, IT administrators have the ability to do maintenance or upgrades of VMs with minimal impact to business-critical applications.

With VCS' Threshold Automation capability, IT administrators can set the threshold to each server in a group for each Application Switch identified. When a threshold is met, VCS for the Application Switch can send an event, automatically add a new backup VM to a group, or send a message to the VMware Virtual Center so the administrator can receive the info quickly.

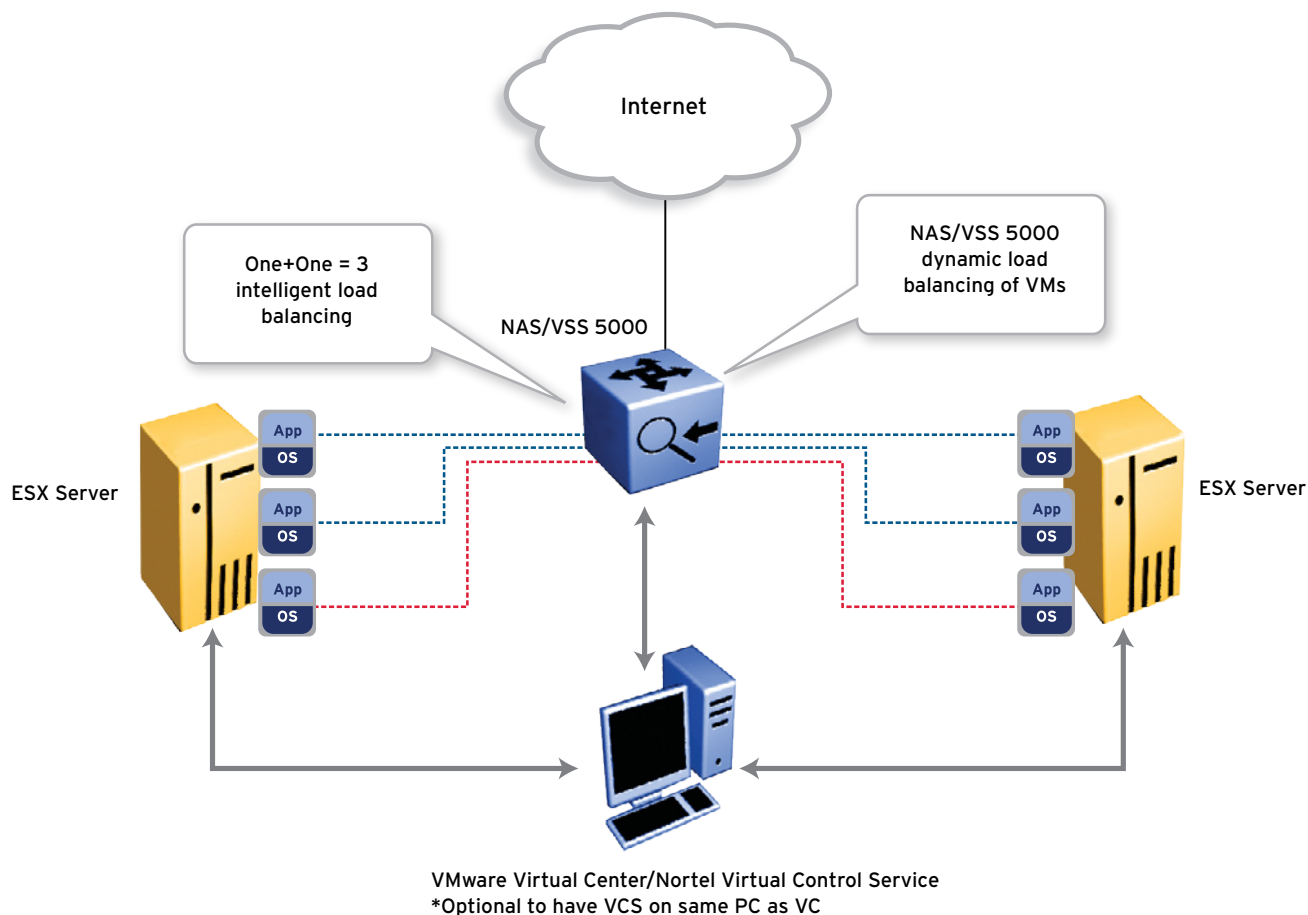


Figure 1. Nortel Virtual Control Service (VCS)

As an example of intelligent load balancing among virtual machines, when a session threshold hits, Nortel's VCS will dynamically enable new VMs. The Application Switch with VCS automatically load balances client requests among VMs.

Solution benefits

- Simplification and better integration of process between server and network groups within a company
- Enhanced management capabilities of the Nortel Application Switch in a virtual environment
- Increased resiliency in the virtual data center

Summary

When bringing together the industry-leading application and load balancing solution with the market leader in data center server virtualization, the absolute best solution for dynamic load balancing in a virtual environment across the network and in the data center is formed. While the Nortel VCS can unlock this efficiency and better management capability in a server virtualization environment through the Nortel Application Switch, the VCS will also be available with the Nortel Virtual Services Switch 5000 — the next-generation platform for services virtualization (e.g., Firewall, SLB, SSL

Acceleration, Intrusion Detection/Prevention System, Internet Traffic Management, VPN).

The Nortel Virtual Services Switch 5000 is a new generation of high-performance network virtualization platform designed for the next generation of application-aware networks. This overall solution will enhance customer user experience in server as well as network services virtual environments.

In the United States:

Nortel
35 Davis Drive
Research Triangle Park, NC 27709 USA

In Canada:

Nortel
195 The West Mall
Toronto, Ontario M9C 5K1 Canada

In Caribbean and Latin America:

Nortel
1500 Concorde Terrace
Sunrise, FL 33323 USA

In Europe:

Nortel
Maidenhead Office Park, Westacott Way
Maidenhead Berkshire SL6 3QH UK
Email: euroinfo@nortel.com

In Asia:

Nortel
United Square
101 Thomson Road
Singapore 307591
Phone: (65) 6287 2877

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