

# VIRTUAL ACCELERATOR



## SIX REASONS TO SAY “YES” TO EXPAND

### 1. Comprehensive

Whether the WAN is used to connect file servers, email or business applications, Expand delivers a comprehensive approach to application and protocol acceleration.

### 2. Proven, Measurable Impact

Expand solutions consistently deliver bandwidth increases of 100% and 400% (with peaks over 1,000%).

### 3. Application-centric

Traditional optimization solutions are about the network — the Expand solution is about what really matters: the applications.

### 4. Transparent Operations

Expand’s solution optimizes traffic transparently without tunneling, simplifying integration into your networking infrastructure while also preserving investments in other systems.

### 5. All IP

Many WAN Optimization solutions narrowly focus on only a portion of TCP-based traffic. Expand optimizes non-TCP traffic (UDP, etc.), as well as difficult interactive applications such as Citrix and Terminal Services.

### 6. Microsoft Compliance

The Expand solution is part of the Microsoft Domain so it can strictly maintain all user and document security and controls while optimizing performance

Today’s virtualized IT environments present the largest and most complex challenges to WAN optimization and application acceleration today. While delivering required optimization, appliance based solutions require additional hardware, management, and support. Expand’s industry leading WAN Acceleration technology is now delivered on a fully virtualized offering enabling you to join in with Datacenter and Branch Office virtual infrastructure plans.

Expand Networks’ WAN Acceleration technology, recognized as the industry’s best at accelerating and ensuring wide-area network traffic performance, demonstrates a true understanding of the future IT environment by integrating their appliance software into the virtualized architectures of the future. Expand has risen to meet these new initiatives with future-focused technology that both integrates with and enables these environments.

### Productivity and Performance

All Expand solutions are designed with productivity, cost reduction and simplicity in mind. For end users, productivity increases as application performance reliably improves.

By providing a simple and integrated solution, Expand enables IT to more efficiently manage the application infrastructure—reducing servers and other appliances while delivering a holistic network view.

### Transparent Operations

Many WAN Optimization solutions tunnel between appliances, obfuscating information needed by monitoring solutions (e.g., NetFlow) or security implementations such as firewalls and ACLs. Expand optimizes traffic transparently without tunneling.

The Expand solution works with HSRP/ VRRP and WCCP and maintains original protocol headers (IP, TCP, UDP, etc.), preserving investments in other systems relying on the accuracy of these headers.

### All IP traffic

Many WAN Optimization solutions are focused on a portion of TCP-based traffic. Expand’s IP optimization engine not only optimizes non-TCP (UDP, etc.) traffic, but will also optimize the difficult interactive applications based on TCP such as Citrix, Terminal Services or RDP and Telnet.

## THE EXPAND VIRTUAL ACCELERATOR DELIVERS:

- Instant and easy global deployment of WAN optimization
- Fits virtual infrastructure plans
- Shared hardware paradigm
- Runs on any server hardware
- Leverage existing hardware vendors and SLA’s
- Thin-Provision hardware resources by necessity
- Contributes to greener IT, low carbon footprint, high density computing
- Delivers full-featured Expand suite
- Interoperable with all Expand devices
- Optimizes all IP traffic types
- Centralized monitoring and management
- Integrates into VMware management and provisioning
- Supports VMware toolsets
- Leverages shared storage

## Virtual Accelerator in the Datacenter

By leveraging the existing virtual IT infrastructure in the Datacenter, WAN Optimization can be deployed as a “virtual appliance”

- Leverages existing deployed hardware & server platforms
- Uses existing shared storage - SAN and/or NAS
- Uses existing management & configuration tools
- Easy to deploy using standard virtualization tools
- Rapid ROI, lower TCO

Enable Complete High Availability at the Data Center with no additional licensing costs

Utilize VMtools to enable complete “warm cache” HA

- Built in support for high availability and maintenance (VMotion)
- Most comprehensive HA for WAN optimization in the market

## Virtual Accelerator in the Branch Office

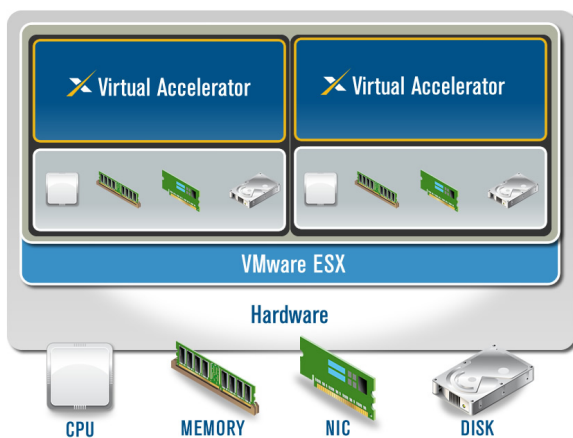
Repurpose the Branch Office Server

- After a branch office server consolidation project servers can be repurposed!
- Cost effective –Eliminate the appliance price
- Increase ROI - Leverage free platforms (VMware Server and ESXi) in the branch office
- Reduced TCO
- Green IT

Integration into “exotic” and challenging environments

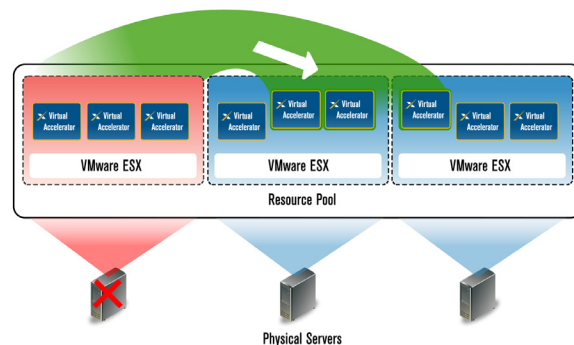
- “On the move” platforms – airplanes (FAA requirements), maritime vehicles...
- Remote location – Mines, oil rigs, unattended locations
- Hardened servers and appliances for military and civilian use

## Virtual Accelerator



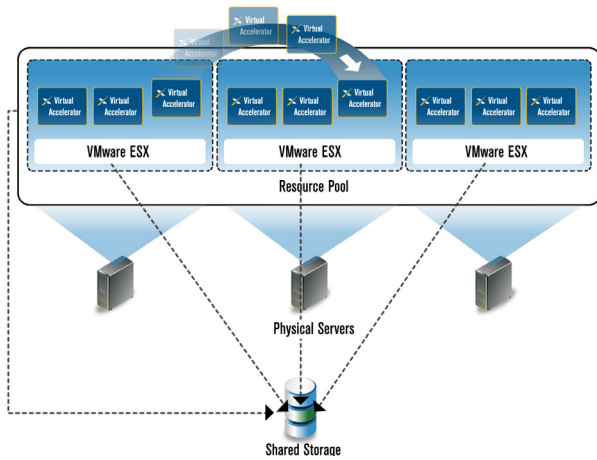
- Deploys on your hardware platform of choice
- Multiple Virtual Accelerators can live on one physical server
- Multiple virtuals with multiple physicals achieves unlimited scalability

## Virtual Accelerator & High Availability



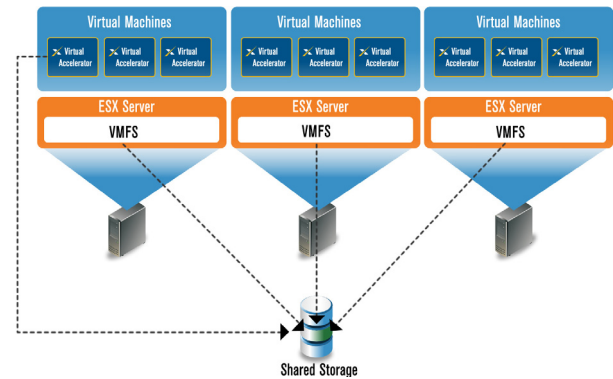
- Should the Physical server fail, DRS used to immediately “Spin-Up” New Virtual Accelerator on available hardware resource
- No additional cost for redundant Virtual Accelerator

## HA With Immediate Warm Cache



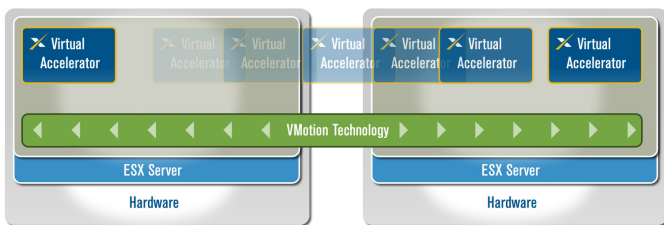
- HA failover keeps warm cache
- No additional cost for redundant Virtual Accelerator
- Move Virtual Accelerator from one server to another without losing the warm cache

## Unlimited Datacenter Scaling



- Unlimited Bandwidth support for the Datacenter
- Simply run multiple instances of the Virtual Accelerator on one or multiple Physical servers

## Ease of Management



- Easy & Immediate movement of the Virtual Accelerators from one Server to Another using VMotion
- Add additional Virtual Accelerators immediately using VMotion
- Cache remains warm leveraging shared storage & VMtools

PHYSICAL SERVER SPECIFICATION					WAN CAPACITY				
RAM	HD	MINIMAL RECOMMENDED CPU SPEED	CONNECTED ACCELERATORS	NO. OF IP CONNECTIONS	COMPRESSION <sup>1</sup>	OPTIMIZATION <sup>2</sup>	ACCELERATION <sup>3</sup>	WAFS <sup>4</sup>	MAX WAFS USERS
N x 4GB <sup>5</sup>	N x 500GB	N x 2.8Ghz	N x 350	N x 256,000	N x 45Mbps	N x 250Mbps	N x 100Mbps	Unlimited	N x 1000
4 GB	1TB	2.8Ghz	350	256,000	45Mbps	250Mbps	100Mbps	Unlimited	1000
4 GB	500GB	2.4Ghz	350	256,000	20Mbps	150Mbps	70Mbps	Unlimited	1000
2 GB	500GB	2Ghz	200	128,000	10Mbps	100Mbps	45Mbps	Unlimited	500
1 GB	160GB	1.5Ghz	100	64,000	6Mbps	45Mbps	15Mbps	Unlimited	200
1 GB	40GB	1Ghz	100	64,000	4Mbps	15Mbps	10Mbps	Unlimited	150
512 MB	160GB	1Ghz	50	32,000	4Mbps	15Mbps	10Mbps	-	NA

<sup>1</sup> Maximum Bandwidth For Monitoring, Layer 7 QoS And Compression.

<sup>2</sup> Maximum Bandwidth For Monitoring Layer 7 QoS And TCP Acceleration (SCPS).

<sup>3</sup> Expected Bandwidth For A Mixture Of Services Such As TCP Acceleration, Partial Compression, WAFS, Web Caching.

<sup>4</sup> Maximum Bandwidth For Monitoring Layer 7 QoS and WAFS, Limitation Is The Number Of Users And The Physical Connection.

<sup>5</sup> Unlimited option - N = number of VACC instances on the same physical server or blade

## Microsoft Compliance

The Expand solution is part of the Microsoft Domain, maintaining all user and document security and controls while optimizing performance. Expand is fully compliant with Microsoft's SMB-signing protocol and also provides printing, DHCP and WAN-out services.

## Holistic WAN Optimization

Through its comprehensive approach, Expand delivers a holistic platform of integrated services—WAN Optimization, Acceleration, Management & Visibility, and Security—addressing WAN performance issues while also aligning with your key business drivers.

## EXPAND NETWORKS — COMPREHENSIVE SOLUTIONS FOR WAN OPTIMIZATION

<b>QUALITY OF SERVICE (QOS):</b> Control of network bandwidth, filtering, shaping and marking	
<ul style="list-style-type: none"> <li>Automatic Layer-7 application discovery</li> <li>Both inbound and outbound traffic</li> <li>Packet fragmentation (assures VoIP/video latency budget)</li> <li>End-to-end application performance monitoring</li> <li>Transparent to existing QoS infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Priority treatment for critical applications</li> <li>Guarantee bandwidth for business sensitive applications</li> <li>Restrict rogue and greedy applications</li> <li>Seamless integration with compression and byte level caching</li> <li>Integration with MPLS network</li> </ul>
<b>ACCELERATION:</b> Powerful acceleration solutions for both protocols and applications	
<ul style="list-style-type: none"> <li>TCP acceleration (based on SCPS Standard)</li> <li>Citrix / ICA acceleration</li> <li>RDP acceleration</li> <li>VDI acceleration</li> </ul>	<ul style="list-style-type: none"> <li>HTTP acceleration</li> <li>FTP acceleration</li> <li>DNS acceleration</li> <li>Telnet/TN3270 acceleration</li> </ul>
<b>VISIBILITY &amp; MANAGEMENT:</b> Comprehensive monitoring and graphical reporting	
<ul style="list-style-type: none"> <li>Centralized management through ExpandView</li> <li>Automatic traffic discovery</li> <li>Historical and real-time reports for applications and links (throughput, performance, acceleration)</li> <li>Secure management with HTTPS, SSH, SNMP</li> </ul>	<ul style="list-style-type: none"> <li>Integrates with existing user authentication and administration systems (RADIUS and TACACS+)</li> <li>Full NetFlow compliance</li> <li>Out-of-band management</li> <li>HSRP/VRRP failover</li> </ul>
<b>WAFS:</b> Full-scale acceleration for WAFS and CIFS-based applications	
<ul style="list-style-type: none"> <li>CIFS optimization</li> <li>Faster file transfers</li> <li>SMB-signing (full Microsoft compliance)</li> </ul>	<ul style="list-style-type: none"> <li>Virtual-Server (DNS, DHCP, and print services)</li> <li>Addresses 'WAN-outs' in case of network outage</li> </ul>
<b>COMPRESSION &amp; CACHING:</b> Compression algorithms that are dynamic and self learning; caching in memory / hard drive	
<ul style="list-style-type: none"> <li>Byte-level caching</li> <li>Packet header reduction</li> <li>Dynamic bandwidth adjustment</li> </ul>	<ul style="list-style-type: none"> <li>Adaptive packet compression</li> <li>Network transparent RTM (Router Transparency Mode)</li> <li>Dynamic routing (OSPF, RIP, RIP v2)</li> </ul>
<b>SECURITY:</b> Robust security and data protection for enterprises	
<ul style="list-style-type: none"> <li>IPSec (AES-128, AES-192, AES-256 or 3DES algorithms)</li> </ul>	<ul style="list-style-type: none"> <li>Authentication, authorization, and accounting (AAA)</li> </ul>
<b>ENVIRONMENTS SUPPORTED:</b>	<b>HYPERVISOR FEATURES SUPPORTED:</b>
<ul style="list-style-type: none"> <li>VMware Server 2.x, ESX 3.x, ESXi, VMware Workstation</li> </ul>	<ul style="list-style-type: none"> <li>VMware Virtual Center, Vmotion, VMware consolidated backup and snapshots</li> </ul>
<b>STORAGE SUPPORTED:</b>	
<ul style="list-style-type: none"> <li>Direct Attached Storage (DAS), Network Attached Storage (NAS), Storage Area Networks (SAN), iSCSI</li> </ul>	

**HARDWARE SPECIFICATIONS:** Contact Expand Networks for assistance sizing the Virtual WAN Accelerator environments based on your specific network requirements on +1 888 892 1250.